JCU ICT Strategic Plan 2010-2012

Organisational Strategy

JCU is about people and places. As identified within the strategic intent the purpose of JCU is about Graduates and discoveries that make a difference.

The ICT Strategic Plan supports the University's Statement of Strategic Intent by providing leadership in the provision and brokering of ICT services to meet the needs of the University and the community.

This is achieved through mechanisms such as:

- The employment of staff who are proactive, understanding and adaptive to the changing needs of a combined education and research based environment

- The implementation of technology which is reliable, appropriate and cost effective.

- The adoption of new methods, new approaches and new technologies to help our students develop the skills, abilities and knowledge base that they need to succeed whilst supporting and enabling skilled professorial research initiatives.

- The development and utilization of collaborative relationships with business, industry, government and the wider community to provide and receive benefits of knowledge transfer and economies of scale

Additionally the ICT Strategic Plan holds a strong custodial position within the Physical and Virtual Infrastructure component of the University Plan. The ICT Strategic Plan must be reflective of the overarching goals and objectives of the University Plan to ensure the achievement of consistent and targeted outcomes.

The university community is the owner of the ICT Strategic Plan and we will continue to involve key user groups and stakeholders in the formulation of our plan by continuing a planning cycle that includes continuous feedback, measurement and improvement.

To enable such outcomes to occur change is needed and the impact of change requires the development of new capabilities and behaviours across the organization. Processes to facilitate this change shall be outlined within the strategic planning document.

Current Situation

During the 2009 period an external review occurred of the University Services Division.

Relevant to IT within the university environment was Terms of Reference Four - Information Management. This term of reference requested that the Division reflect on: how it contributes to the overall performance of the University in its leadership and management of data, information and knowledge assets; where this contribution achieves or exceeds performance targets; how this is evidenced and benchmarked; how it might improve performance; and its future aspirations in this area.

A extract of the submission for this TOR has been included within Attachment A to contextualise the historical and current position of IT services within the James Cook University environment.

As a result of the review process key strengths, challenges and opportunities were identified and subsequent affirmations and recommendations noted that have underpinned the development of this strategic plan. Such elements include:

<u>Strengths, challenges and opportunities identified through the self review portfolio</u>

Strengths

- Collaboration with internal and external stakeholders
- Range of skilled, dedicated and motivated staff
- Strong business knowledge
- Strategic vision
- Structured Management

Challenges

- Resourcing
- Succession Planning within Existing Resources
- Evolving Client Expectations
- Lack of ICT Governance Structure
- Trans National Education (TNE) Service Provision and support
- Continued growth and demand of off-campus access
- Revolutionary pace of technology advancements

Opportunities

- Realisation of Economies of Scale
- Application of Best Practice Framework Across the University
- Redesign of Client Interaction
- Communication
- Staffing

- Service Ethos
- Systems Issues/Change Management
- Lack of Documentation in Key Areas

Key report affirmations and recommendations pertinent to IT strategic planning

Information and communication Technology Governance and Strategy

The Panel affirmed the intention to establish a dedicated ICT Advisory Committee (IC TAC) to address ICT governance, policy and strategic management across the University.

The Panel recommends that the establishment of IC TAC be in accord with the key considerations identified by the Panel in this report and that further consideration also be given as to the best way of ensuring that the Committee takes a holistic, client-centred approach that encompasses information management.

The Panel recommended that, in consultation with various groups, IC TAC be separately resourced and report directly to the Vice Chancellor with effective cross-communication links to FIAC.

AARNET

The Panel affirmed the imperative for JCU to have high speed, redundant and diverse path connectivity from Cairns through to Brisbane so that it can achieve its plans for increased research and teaching capability and build its contribution to regional growth.

The adbove recommendations were further supported by DVC Stephen Weller thus providing a clear focus for future operational initiatives.

Through reflection and consideration of such elements the following IT Strategic Plan has been formulated.

ICT Vision

The vision of the ICT Strategic Plan in the achievement of the University's strategic intent is fundamentally based upon the following principles of ICT support:

Learning, Teaching and Research is the core business of our institution. The User Community - our students, graduates and staff - should be equipped with the skills, abilities and knowledge of ICT services required to support the core business.

Collaborative services will be developed which are in keeping with what the User Community of today and tomorrow expects and demands. Portal and online services will be designed to make information available to the User Community in immediate and convenient ways.

Students and staff should be able to work both on and off-campus having convenient and seamless anytime, anywhere access and technologies that enable and enhance their interactive experience.

Staff should be provided with appropriate enabling technologies and services to deliver innovative and quality teaching.

Research, is a key differentiator for JCU, and as such staff and post graduates must be supported by appropriate services and technologies that enhance and promote our institution as a centre of excellence within the wider research and academic community.

Strategic vision

Reflective of the above elements the strategic vision statement for ICT that encapsulates the above is:

To lead JCU to source and provide resource efficient, innovative and environmentally sustainable ICT technology solutions. Such solutions shall enable and support staff and students to achieve academic and professional outcomes that facilitate the achievement of the university plan whilst enhancing and promoting our institution as a centre of excellence within the wider research and academic community.

Our strategic vision shall be operationalised through the combination of the following elements:

- ICT Strategic Plan
- IT&R Operational Plan
- ICT Charter

Performance metrics shall be implemented and reported against on a regular basis to enable the ongoing monitoring and review of outcomes.

Constraints

The current University budgetary policies have recognized the need to maintain technology levels at current industry standards. However there has not been a corresponding recognition of the need for adequate project management and staffing levels to support and leverage the full potential of ICT systems and technologies. This hampers the ability of the institution to be leaders in the development of innovative IT to support our core business of Teaching and Research.

The strategic planning process employed has taken into account these budgetary constraints in the preparation of this ICT Strategic Plan and as such has delivered a plan we believe to be achievable within current resources.

The ICT Strategic Plan will be under the governance control of IC TAC when this is commissioned in 2010. The absence of this structure in the past has led to some dislocation between the business goals of the institution and the role of IT in helping to achieve those goals. It should be the role of any ICT governance body to achieve a balance between funding to run an organization and changing the organization to enable organizational growth and increase its competitive advantage.

The ICT Strategic Plan, by virtue of the pace of change in technology, can only realistically span a 3 year window. The Treasury Management Function has a 20 year horizon given it is based on serviceable debt. The Treasury Management Function will be used to create capital to provide the required infrastructure, project management and services to meet university goals.

There is a clear need to understand short, medium and long term ICT requirements at a holistic level across the university. The ICT Governance Committee will provide the mechanism for the IT Planning and provide advice to the Facilities Infrastructure Advisory Committee.

To enable this the ICT Governance Committee needs to have information feeds from the Teaching Committee, Learning Spaces Committee and the Research Committee for the provision of the services required to achieve their aspirational goals in the next 5-10 years.

Goals and Objectives

The JCU Strategic Intent supported by the University Plan paints a vision of the future for the University. The ICT Strategic Plan articulates six strategic priority objectives that underpin the University's goals in the achievement of the Academic Plan and the Physical and Virtual Infrastructre Plans. These are:

- The Student Experience
- Teaching and Learning
- Research
- Enabling an Information Management Framework
- Service Provisioning
- An Environmentally Sustainable Future

The purpose of this ICT strategy is to articulate how the use of ICT by the University will support the University plan under each of these key priority areas. In supporting these priorities, this strategy recognizes that ICT is a critical element of the University's success in terms of:

- Underpinning the delivery of academic teaching and research;
- Delivering effective business administration through technology-optimised internal and external processes;
- The effective provision of key business information;
- Delivery of an effective internal and external communication system.

It is the aim of the University to be recognized as a leader in the use of information and communication technologies in achieving these goals. In the context of a constantly changing technology environment, demands and limits on resources, a key priority will be to challenge traditional approaches and assumptions, and demand unambiguous payback on both the new investments and ongoing activities.

Priority Objectives

1.The Student Experience

The deployment of ICT in today's technology aware generation of learners will significantly influence their all round experience in terms of the IT environments they come into contact with, and indirectly through the ability of the institution to enable its staff to support their experience. The University will ensure that Information Technology provision and brokerage is conducted in a manner that will enhance the student experience by the focusing on these priority areas:

1.1 Student Involvement

University Level Plan	**Academic**
University Plan Objective	A5 - Offer a socially inclusive learning environment
Directorate Operational Strategy	A5.3. Plan and implement improvements to teaching and learning spaces to meet the needs of contemporary pedagogies.
Operational initiative	**Student Involvement**
Detail:	The University will involve students more directly in the planning, development and post implementation phases of future service creation and delivery as well as providing a means for the continual review of services to mitigate gaps in the full understanding of how students value the quality of our IT provisioning at the University

1.2 Support Services

University Level Plan	**Academic**
University Plan Objective	A5 - Offer a socially inclusive learning environment
Directorate Operational Strategy	A5.3. Plan and implement improvements to teaching and learning spaces to meet the needs of contemporary pedagogies.
Operational initiative	**Support Services**
Detail:	We will seek to implement a process of continual review and improvement in the delivery and quality of information and advice provided by support services to both staff and students.

1.3 Access

University Level Plan	Academic
University Plan Objective	A5 - Offer a socially inclusive learning environment
Directorate Operational Strategy	A5.3. Plan and implement improvements to teaching and learning spaces to meet the needs of contemporary pedagogies.
Operational initiative	Access
Detail:	We will continue to research and develop technologies to facilitate access IT services that will be delivered across a range of technology platforms, including increasingly the students' own devices. This will result in the break down technology barriers and provide a wider range of options through which students can access services both on and off campus. We will target an outcome where wireless provides campus wide access to appropriate systems and services.

1.4 Communication

University Level Plan	Academic
University Plan Objective	A5 - Offer a socially inclusive learning environment
Directorate Operational Strategy	A5.3 Plan and implement improvements to teaching and learning spaces to meet the needs of contemporary pedagogies.
Operational initiative	Communication
Detail:	We will research and develop a more coherent communication strategy to define how best we can communicate with our student population in innovative ways using a range of technology channels as appropriate to the particular types of communication. As part of this we will significantly enhance our Web and online presence as a key marketing, communication, and information tool.

1.5 Interaction with Student Administration Systems

University Level Plan	Academic
University Plan Objective	A5 - Offer a socially inclusive learning environment
Directorate Operational Strategy	A5.3 Plan and implement improvements to teaching and learning spaces to meet the needs of contemporary pedagogies.
Operational initiative	Interaction with Student Administration Systems
Detail:	The University will continue with its strategy of

	providing direct access to such systems primarily through its online presence. We will also develop a student portal to provide a single point of access for students to all learning, administrative and collaborative tools and services they need.

1.6 Server and Network Infrastructure

University Level Plan	**Academic**
University Plan Objective	A5 - Offer a socially inclusive learning environment
Directorate Operational Strategy	A5.3 Plan and implement improvements to teaching and learning spaces to meet the needs of contemporary pedagogies.
Operational initiative	**Server and Network Infrastructure**
Detail:	We will continue to invest in, and enhance, our server and network strategy so that the physical IT infrastructure in the University has the capacity, flexibility, resilience, and capability to reliably and securely deliver the range and scale of IT solutions that underpin the student experience.

1.7 Information technology infrastructure to support learning and teaching

University Level Plan	**Academic**
University Plan Objective	A5 - Offer a socially inclusive learning environment
Directorate Operational Strategy	A5.3. Plan and implement improvements to teaching and learning spaces to meet the needs of contemporary pedagogies.
Operational initiative	**Information technology infrastructure to support learning and teaching**
Detail:	Work towards the implementation of technical infrastructure that is: - aligned with institutional learning goals and the technologies are resourced - support staff are trained; and - the infrastructure is implemented, maintained, administered and supported efficiently and effectively.

2. Teaching & Learning

We aim to deliver teaching facilities and educational technologies to support the evolving academic program and the e-learning strategy through flexible methods of student

engagement and using media rich teaching and blended learning technologies.

2.1 Collaboration Support

University Level Plan	**Academic**
University Plan Objective	A5 - Offer a socially inclusive learning environment
Directorate Operational Strategy	A5.6. Collaborate with Faculties and Divisions on the development of innovative technologies to support the teaching and learning environment
Operational initiative	**Collaboration Support**
Detail:	IT&R will promote and support technologies ranging from email and calendar services to support for real-time collaboration, team-based document sharing and collaboration spaces, internet telephony (VoIP) and desktop and room-based video conferencing, as well as real-time chat to maximize collaborative arrangements between staff, students and stakeholders.

2.2 Expansion of Delivery Techniques

University Level Plan	**Academic**
University Plan Objective	A5 - Offer a socially inclusive learning environment
Directorate Operational Strategy	A5.6. Collaborate with Faculties and Divisions on the development of innovative technologies to support the teaching and learning environment
Operational initiative	**Expansion of Delivery Techniques**
Detail:	The University will implement services for student owned devices to push information to students where and when it is needed by the student. We will support access and downloads of a variety of content via a variety of mediums including podcasting and videocasting. The functionality and efficiency of the Digital Streaming Media service will be improved by automating the underlying technologies and workflows and ensuring seamless integration with the University's Learning Management System (LearnJCU).

2.3 Integration Teaching and Learning into a student and staff portal

University Level Plan	**Academic**
University Plan Objective	A5 - Offer a socially inclusive learning environment
Directorate Operational Strategy	A5.6. Collaborate with Faculties and Divisions on the

	development of innovative technologies to support the teaching and learning environment
Operational initiative	**Integration Teaching and Learning into a student and staff portal**
Detail:	The University will develop a student and staff portal to provide realtime collaboration and administrative functionality for all major services required by students and staff. This will incorporate functionality to support improved transition and retention for new students.

2.4 Online Lecture Capture

University Level Plan	**Academic**
University Plan Objective	A5 - Offer a socially inclusive learning environment
Directorate Operational Strategy	A5.6. Collaborate with Faculties and Divisions on the development of innovative technologies to support the teaching and learning environment
Operational initiative	**Online Lecture Capture**
Detail:	We will continue to extend the capability and functionality of the online lecture capture system to provide students with campus wide access to lecture materials from their device of choice

2.5 Student training for the effective use of technologies for learning

University Level Plan	**Academic**
University Plan Objective	A5 - Offer a socially inclusive learning environment
Directorate Operational Strategy	A5.6. Collaborate with Faculties and Divisions on the development of innovative technologies to support the teaching and learning environment
Operational initiative	**Student training for the effective use of technologies for learning**
Detail:	The provision of student training for the effective use of learning and teaching technologies is aligned with the technologies and teaching approaches in use at the institution; is adequately resourced; is coordinated with student support; is flexible; is focused on the needs of students; covers a range of current technologies and reflects good practice in the use of technology.

2.6 Student support for the use of technologies for learning

University Level Plan	**Academic**
University Plan Objective	A5 - Offer a socially inclusive learning environment
Directorate Operational Strategy	A5.6. Collaborate with Faculties and Divisions on the development of innovative technologies to support the teaching and learning environment
Operational initiative	**Student support for the use of technologies for learning**
Detail:	Students are aware of and have access to effective and well resourced support for the learning technologies in use at the institution. Student support is responsive to student needs; is coordinated with student training; and is constantly developing in response to changing technology.

2.7 Learning Management System (LearnJCU)

University Level Plan	**Academic**
University Plan Objective	A5 - Offer a socially inclusive learning environment
Directorate Operational Strategy	A5.6. Collaborate with Faculties and Divisions on the development of innovative technologies to support the teaching and learning environment
Operational initiative	**Learning Management System (LearnJCU)**
Detail:	We will support and continue to develop and improve the Learning Management System through reviewing and documenting the architecture, undertaking system audits, usage analyses and benchmarking against industry best practice. Recommendations will be made to application owners on system maintenance and stability; current capacity; architecture; tuning for optimisation; sizing and capacity planning; limitations and areas for future focus

2.8 Planning for, and quality improvement of the integration of technologies for learning and teaching

University Level Plan	**Academic**
University Plan Objective	A5 - Offer a socially inclusive learning environment
Directorate Operational Strategy	A5.6. Collaborate with Faculties and Divisions on the development of innovative technologies to support the teaching and learning environment
Operational initiative	**Planning for, and quality improvement of the integration of technologies for learning and teaching**
Detail:	We will support and encourage the appropriate use of technology in learning and teaching through strategic

	planning processes at all levels of the institution. The focus is continuous improvement through systematic and regular evaluation of implementation strategies and outcomes. Such evaluation will in turn inform future planning.

3.Research

James Cook University is a world recognized research institution. The new Code of Conduct for Responsible Research Practice from the ARC and NHRMC has particular implications as to how JCU will store and publish not just research publications but importantly the underlying data set. It is also critical that the Universities Researchers are able to collaborate with Researchers in other institutions around the globe and engage in eResearch practices at a level similar to those of our colleagues at other institutions.

At the forefront of development activities (to ensure we are not left behind), are initiatives to see our Internet bandwidth increase and enabling our identity systems to federate with other systems across the sector. However, there is also demand for establishing on-campus resources to support research endeavours that are requiring the development of our internal support and infrastructure capabilities.

3.1 Research Data Storage & Management; High Performance Computing & Visualisation

University Level Plan	**Virtual and Physical Infrastructure**
University Plan Objective	I3 - Provide robust virtual environments that foster teaching and research and builds a sense of community
Directorate Operational Strategy	I3.3. Collaborate with Business Owners to ensure reliability and integrity of data to improve information reporting and performance management quality.
	I3.4. Enable the discovery of, and access to, JCU research data by investigating partnerships with ANDS
Operational initiative	**Research Data Storage & Management; High Performance Computing & Visualisation**
Detail:	Key elements of the University's ICT research infrastructure are data storage and management; high performance computing; advanced visualization, eResearch Support, workflows and software access,; researcher's desktop environment (integrating services, tools and software); and advisory and user support services. Solutions to publication of research datasets, research data repositories, federated data stores, collaboration environments and publication databases are required. These elements align with the NCRIS Platforms for Collaboration Final Investment Plan,

	established by DIISR. An additional focus required is on Research Information Systems for research administration that will deliver improved insight into the University's research performance while supporting the university's researchers, their teams and associated administrative staff.

3.2 Collaboration (see also Section 2.1)

University Level Plan	**Virtual and Physical Infrastructure**
University Plan Objective	I3 - Provide robust virtual environments that foster teaching and research and builds a sense of community
Directorate Operational Strategy	I3.3. Collaborate with Business Owners to ensure reliability and integrity of data to improve information reporting and performance management quality.
	I3.4. Enable the discovery of, and access to, JCU research data by investigating partnerships with ANDS
Operational initiative	**Collaboration**
Detail:	While it would be ideal to have a consistent University wide collaboration environment, the demands of national / international collaboration mean that multiple solutions will need to maintained. JCU cannot drive external collaboration standards, but can work to ensure compatibility between its systems and those used elsewhere. Such compatibility shall enable JCU staff and collaborating entities to seamlessly occupy research based work spaces irrespective of central operating systems to maximize research based outcomes.

4. Enabling an Information Management Framework.

University information is a strategically important resource and all staff are responsible for the accuracy and currency of information in their domain. Timely, accurate and meaningful data presented in a correct manner is critical to reaching the Universities proposed objectives. The University must also address the curation of all its data.

4.1 Executive Information System

University Level Plan	**Virtual and Physical Infrastructure**
University Plan Objective	I3 - Provide robust virtual environments that foster teaching and research and builds a sense of community

University Level Plan	**Finance and Resource Planning**
University Plan Objective	FR4 - Integrate planning and performance frameworks within University business cycles.
Directorate Operational Strategy	I3.3. Collaborate with Business Owners to ensure reliability and integrity of data to improve information reporting and performance management quality.
	I3.6 Further develop the identity management and directory services for authentication, authorisation and access across core administrative systems.
	FR4.2. Investigate improvements to business intelligence. i.e. introduction of data warehouse systems .(subject to funding)
Operational initiative	**Executive Information System**
Detail:	The University will review its current data sources to document an enterprise wide model as the first step towards an Executive Information System. The primary goal of such a system would be to bring disparate sources into a 'single version of the truth'

4.2 Information Life-Cycle Management

University Level Plan	**Virtual and Physical Infrastructure**
University Plan Objective	I3 - Provide robust virtual environments that foster teaching and research and builds a sense of community
University Level Plan	**Finance and Resource Planning**
University Plan Objective	FR3 - Adopt a continuous improvement culture which seeks to enhance productivity and ensure value for money FR4 - Integrate planning and performance frameworks within University business cycles.
Directorate Operational Strategy	I3.3. Collaborate with Business Owners to ensure reliability and integrity of data to improve information reporting and performance management quality.
	FR3.2. Further implement/refine shared services model and build and refine policies and procedures
	FR4.2. Investigate improvements to business intelligence. i.e. introduction of data warehouse systems .(subject to funding)
Operational initiative	Information life cycle management
Detail:	We will complete the review of all data stored across

	the institution, an analysis will be undertaken to classify this data and this will define how the data is stored and managed for the lifecycle of that data. The benefits of this strategy will be an assurance that the University is complying with legislative and grant authority requirements as well maintaining intellectual property rights for the University over the longer term. This strategy will ensure that the University is optimizing the appropriate technologies for accessibility, storage and maintenance of data. The University will develop: • policy and procedures for Business Continuity and Disaster Recovery. • Policies and Procedures for storage, backup and archival data incorporating this in the University induction process

4.3 ICT Governance

University Level Plan	**Finance and Resource Planning**
University Plan Objective	FR1 - Manage resources in an ethical and financially responsible way to support the University Plan as the University embraces its next stage of development FR3 - Adopt a continuous improvement culture which seeks to enhance productivity and ensure value for money
Directorate Operational Strategy	FR1.1. Manage Divisional finances within the context of our financial plan, including use of reserves to support operational and strategic priorities. To achieve this, the Division may rationalise services accordingly.
	FR3.1. Implement improvements identified and agreed to in the USD review report
Operational initiative	**ICT Governance**
Detail:	We will establish an ICT Governance Committee to assess and provide oversight of all university ICT systems. The overarching purpose of this committee is to ensure: • The adoption of the University ICT Strategic Plan • Assess project feasibility on the basis of developed Project Briefs. • Prioritise projects / service implementations according to business need • Ensure project success by ensuring that adequate resources are allocated / funded for project management • Ensure system integration eg Portal suitability of

	prospective systems

4.4 Corporate Information Management Sub-Committee

University Level Plan	**Virtual and Physical Infrastructure**
University Plan Objective	I3 - Provide robust virtual environments that foster teaching and research and builds a sense of community
University Level Plan	**Finance and Resource Planning**
University Plan Objective	FR4 - Integrate planning and performance frameworks within University business cycles.
Operational initiative	Corporate Information Management Sub Committee
Detail:	We will establish a Corporate Information Management sub-committee under the ICT Governance Committee to: • Analyse, seek agreement, document and correct data anomalies held within corporate systems and between corporate systems • Define and agree on data definitions • Define data warehouse requirements • Define systems integration requirements • Precursor to data warehousing system/Business Intelligence

4.5 Institution policy and governance for technology supported learning and teaching

University Level Plan	**Virtual and Physical Infrastructure**
University Plan Objective	I3 - Provide robust virtual environments that foster teaching and research and builds a sense of community
University Level Plan	**Finance and Resource Planning**
University Plan Objective	FR1 - Manage resources in an ethical and financially responsible way to support the University Plan as the University embraces its next stage of development FR3 - Adopt a continuous improvement culture which seeks to enhance productivity and ensure value for money
Directorate Operational Strategy	FR1.1. Manage Divisional finances within the context of our financial plan, including use of reserves to support operational and strategic priorities. To achieve this, the Division may rationalise services accordingly.
	FR3.2. Further implement/refine shared services model and build and refine policies and procedures

	I3.7 - Continue to explore and selectively implement new models for IT Services including the investigation of hosted services and cloud computing solutions for email, calendaring and shared workspace.
	I5.1. Ensure that ICT equipment purchase agreements include environmental impact Strategies i.e. disposal.
Operational initiative	Institution policy and governance for technology supported learning and teaching
Detail:	We will establish, well understood governance mechanisms and policies that guide the selection, implementation, utilisation/deployment, and evaluation of technologies to support learning and teaching.

4.5 Corporate Knowledge Management

University Level Plan	**Virtual and Physical Infrastructure**
University Plan Objective	I3 - Provide robust virtual environments that foster teaching and research and builds a sense of community
University Level Plan	**Finance and Resource Planning**
University Plan Objective	FR4 - Integrate planning and performance frameworks within University business cycles.
Directorate Operational Strategy	I3.3. Collaborate with Business Owners to ensure reliability and integrity of data to improve information reporting and performance management quality.
	I3.6 Further develop the identity management and directory services for authentication, authorisation and access across core administrative systems.
	I3.7 - Continue to explore and selectively implement new models for IT Services including the investigation of hosted services and cloud computing solutions for email, calendaring and shared workspace.
	FR4.2. Investigate improvements to business intelligence. i.e. introduction of data warehouse systems (subject to funding)
Operational initiative	**Corporate Knowledge Management**
Detail:	We will investigate and selectively deploy Knowledge Management technologies to capture, store and provide access to corporate knowledge. This process provides a crucial link in operational efficiency and ongoing knowledge management processes. Through the application of effective knowledge management process the University is

	provided with the opportunity to holistically share valuable organizational insights that enable the ability to reduce redundant work, training time for new employees and retain intellectual capital during staff transition or where there is a requirement for adaptation in a changing environment.

5. Service Provisioning

We will identify users and other interest groups ICT issues and needs delivering a service to address them under agreed levels of service. We will develop a Service Portfolio that will undergo a regular audit to identifying risks, ROI, and reduce duplication.

The University will improve on the current services provided by the central IT Helpdesk to truly act as a single point of contact for all and ensure that, when required, this service integrates effectively with 2nd and 3rd level IT Support staff.

Provisioning will take place with these goals in mind

- Simplicity: The University will develop and implement solutions with an inherent simplicity without compromising data integrity and security
- Reliability: The University will use current and innovative technologies to ensure delivery of consistent, stable and valid services
- Centralisation: The University will reduce unnecessary duplication of ICT resources without compromising availability and accessibility

5.1 Standardisation:

University Level Plan	**Virtual and Physical Infrastructure**
University Plan Objective	I3 - Provide robust virtual environments that foster teaching and research and builds a sense of community
Directorate Operational Strategy	I 3 Provide robust virtual environments that foster teaching and research and builds a sense of community
Operational initiative	Standardisation
Detail:	We will adopt and utilise appropriate technologies and applications with an emphasis on standards and integration with those used in the academic, administration and research areas. This will create a unified ICT environment across the organisation that fosters collaboration both internally and with external partners.

5.2 Professional Behaviour

University Level Plan	**Virtual and Physical Infrastructure**
University Plan Objective	PC 3 - Future Readiness and Success – To create a culture with the capacity, capability and resilience to

	anticipate and respond to the future including changes in the workforce, and to advance and transfer knowledge
Directorate Operational Strategy	As above
Operational initiative	Professional behaviour
Detail:	IT staff will adopt professional and ethical behaviour, operating within the University Policies and Procedures.

5.3 Skills Development

University Level Plan	**Virtual and Physical Infrastructure**
University Plan Objective	PC 3 - Future Readiness and Success – To create a culture with the capacity, capability and resilience to anticipate and respond to the future including changes in the workforce, and to advance and transfer knowledge
Directorate Operational Strategy	As above
Operational initiative	Skills development
Detail:	We will ensure the resources are available to develop key competencies and attract and retain skilled staff to deliver quality service in a timely manner. As IT needs change we will ensure that a proactive skill assessment process is applied to enable the identification of changing skill area needs and implement processes that manage associated risks.

6. An Environmentally Sustainable Future

We aspire to be a leader in the measurable reduction of our environmental impact. The use of collaborative and communication technologies to minimize travel, energy efficiencies, data centre controls, recycling and prudent lifecycle management of ICT hardware are all areas that are vital in making a real contribution towards the reduction of JCU's Carbon footprint.

The university will use its existing infrastructure efficiently and include environmentally sustainable criteria in its procurement processes. These will include life-cycle management of hardware in line with forthcoming government emissions policies. Most importantly, we recognize the need to foster a staff culture that seeks to minimize environmental impacts and to provide technologies that assist in the reduction of our environmental input.

Areas of direct impact and priority will continue to lie in the reduction of travel and equipment lifecycle management.

We will continue to promote and enhance the use of online conferencing technologies, where these are appropriate, as a means to reduce travel, accommodation and dislocation.

The use of video conferencing will be assessed using available tools as to it's contribution to reducing our carbon footprint. In 2009 JCU used 8000 hours of video conferencing for teaching, research and administration. Using a very conservative estimate of 1 person travelling return Townsville/Cairns for each videoconference the calculated savings from the Tandberg Management Suite CO2 savings calculator was 550,000Kg of CO2.

Tenders include a requirement to address environmental impact for the lifecycle of the equipment. The Apple and Dell Preferred Supplier Agreements both include returns for reuse and/or recycling.

Additionally JCU shall continue to participate in an ICT Recycling Program through a recognized 5 star recycling company.

Risks and Measures

Specific risks identified that may inhibit the achievement of the IT Strategic Plan and associated mitigation strategies to minimize their impact are as follows:

Risk	Mitigation strategy
Lack of understanding	Development of a university wide communication and information dissemination strategy
Lack of engagement	Ensure that the ICT Governance Committee and Sub Committee membership is represented by key university drivers and IT stakeholders and that such members (as part of the Terms of Reference of the committee) demonstrate a commitment to furthering and supporting the achievement of the strategic plan at a university wide level
Lack of investment	Clear and transparent prioritization of system and service support arrangements such that core systems and supports remain uncompromised. Where funding becomes an issue low priority systems shall be made redundant or system users will be required to provide the necessary level of investment to keep the system operational. A Prioritisation Schedule shall be established and maintained by the ICT Governance Committee on an annual basis and reviewed during budget and periods of major IT

	infrastructure change.
Fragmentation i.e. feral IT Plans	Establishment and consolidation of the shared services IT model Establishment of the ICT Governance sub committee inclusive of the development and approval of university wide IT management policy and procedures

Communication

The ICT Governance Committee shall maintain the ultimate responsibility for the management of the IT Strategy communication plan. This shall incorporate once off, adhoc and ongoing communication initiatives to ensure a university wide awareness and understanding of IT strategy initiatives.

Strategy	Purpose	Frequency / Timing	Responsibility
Public Forums	University wide information session to provide an overview of the IT strategic plan, its impact on the wider university community, future trends and initiatives, feedback received, benchmarking outcomes, projects and system prioritisation	Annual	
School / Division Meetings	Tailored forum to discuss IT issues specific to the School / Division environment inclusive of discussion of upcoming IT events and wider need identification at an operational level	Annual	
Face to Face Help and Services	Provision of face to face help services for staff and students in the management of day to day IT issues	Ongoing	
Online Help and Services	Provision of online help services for staff and students in the management of day to day IT issues	Ongoing	

Parallel Recommendations

In addition to the identified strategic initiatives outlined within this document the following recommendations have been identified that whilst external to the ICT Strategic Plan would form a complimentary and holistic benefit to the achievement of the ICT plan itself.

Recommendation 1:

Establishment of a Project Office within the University Quality Assurance Office to achieve:

- Develop standards for university project management
- More specifically resourcing of IT Projects
- Provide project management and analysis resources
- Assist in project implementation
- View projects at the University level with a business impact focus
- Project evaluation and feasibility
- Does not approve ICT projects (to be done by ICT Governance Committee)
- Focus on business process change

Recommendation 2:

Procedural Changes

- Acknowledgement and integration of ICT into other University Planning, Operation Plans, Policies and Procedures; specific reference to Facilities and Capital Plan.
- Workforce Plans adjusted as a result of ICT and FIAC Capital Plan decisions as well as adjusted increases for undergraduate, postgraduate and administrative, teaching and research staff numbers.

ATTACHMENT A – TERMS OF REFERENCE EXTRACT

University Services provides a wide range of ICT systems, data, collections and services, both as a business owner and by providing infrastructure and service support to other business owners throughout the University. As such, relationships with the University community and collaborations of both an internal and external nature are critically important to both provision and support operations. A full listing of the ICT systems or knowledge assets either managed by or supported by IT&R see Appendix Aa.

The Division is in the midst of change for information management. In 2008, the University developed a new Strategic Intent with a University Plan, including strategies for virtual and physical infrastructure. This plan, along with the rollout of shared services means that we are implementing a more centralised ICT environment. However, continued structural change has slowed the further development and implementation of an effective information governance structure. While ICT investments are managed and planned, the lack of a formal governance structure means that the Division has not fully taken a leadership role in recommending and developing university-wide priorities to implement university wide services. Our project management is immature, our performance metrics are still being developed, and our communications are not as effective as they should be with the user community yet to have the opportunity to give input to key decisions about ICT project development, priorities and timelines. Under shared services, the University's information management culture is slowly moving to one of cooperation and collaboration. We are looking for ways of eliminating duplication across the Division and the University so that the University's total investment in ICT is better planned and more effective. Specifically, the Division needs to become the champion for the information needs of the entire University and not be perceived as being primarily concerned about the performance of one of its Directorates, Information Technology & Resources

Information & Technology Resources (ITR) is responsible for most components of the University Information Communications Technology (ICT) infrastructure including ICT policies and procedures; ICT Infrastructure, Software and Communications Overheads accounts; voice and data networks for wireless, local area network (LAN) and wide area network (WAN); central ICT services for roles and group management and Directory services for the provision of authentication; access and authorisation, email and calendar systems; enterprise backup; business continuity and disaster recovery; audio visual and video conferencing support; desktop and software licensing support for all staff and students for the general access and teaching computer facilities (GATCF); security and internet access and enterprisewide infrastructure support for teaching, research and corporate information systems including web services and content management.

Data integrity for each of these key systems is the responsibility of the business owner. The business owners ensure that timely and accurate data is recorded in these systems; and schedule maintenance and support to ensure that system updates for software bugs and security and upgrades for functionality are applied for the latest release as provided by the vendor. ITR act as Infrastructure Support Providers to provide the necessary operating system, security, software and hardware support and the expertise necessary to assist

evaluation of new technologies and to provide the integration for access, authentication and authorisation mechanisms. The Division is developing standardized processes accessing information from single source of truth to ensure accurate and reliable services irrespective of the access mechanism.

The IDM system is the primary integration agent for the University's corporate systems. IDM is populated with data from the Student and HR systems and feeds Directory services which control access to various downstream systems. Update intervals range from 10 minutes to overnight dependent on the granularity required. Data integration between other corporate systems ranges from real-time, to overnight, to monthly depending on the granularity required e.g. StudentsOnline portal access information from the Student Management System in real-time for student status details.

Data Centre including Servers, Storage, Printing and Backup Services

The Division has focussed considerable attention over the past few years to optimise service delivery and improve overall service levels by introducing resilient and redundant systems as budget permits. Included in this strategy has been the continued development and scheduled replacement of the University ICT infrastructure via the IT Infrastructure Overheads budget. This includes Storage Area Networks (SANs), standardisation of server and storage infrastructure, server and storage virtualisation, mirroring and clustering technologies, implementation of a content switch and load balancer, and the establishment of a second data centre. Furthermore, cross skilling of staff together with the provision of 24 x 7 on-call support for service restoration spanning both our infrastructure and major corporate applications, has significantly improved service delivery capabilities. This is being achieved within resources more aligned to business hours only support. A preventative maintenance schedule is published and is undertaken, if required, on a fortnightly basis to minimise business impact. Additional scheduled maintenance is checked with business owners and agreed and managed through formal notification procedures. A data backup schedule, based on system requirements, is in operation. This is supported by a Business Continuity and Disaster Recovery Plan.

System downtime is a Divisional OPT and this is reported on a quarterly basis.
Service availability (outside scheduled maintenance) for the last quarter is reported in the table below:

<u>Services Availability %</u>

Overall Host Availability 99.42%
HPC Services 100%
Corporate Services 99.89%
Email Services:
Staff 99.92%
Undergrad 99.12%
Postgrad 99.92%
WebAccess 99.12%
Teaching Services 99.96%

Staff Home 97.61%
Student Home 97.61%

Architecture and Environment
The University maintains two data centres (DA003 and DA002) in Townsville, along with a third facility for the PABX and a smaller data centre (B1 116.2) on the Cairns campus. These data centres house the University's server fleet, storage, backup capabilities and core data switch infrastructure. HPC data is migrated via the AARNet Sunshine Backbone link to the QCIF facility at the University of Queensland. The Townsville data centres have UPS, generator and redundant air control capacity while the Cairns data centre has UPS capacity.
The University's ICT platform is, by virtue of best of breed information systems selected by business owners, a heterogeneous environment consisting of Unix and Microsoft Windows servers and hosted services and appliances for selected services. The percentages of the University's server fleet configured with the various services are as follows:

Server Systems Server Fleet %
Unix (Solaris and Linux) 45%
Windows (2003 and 2008) 25%
Appliance (Email and Calendar) 20%
Hosted Services (SpendVision) 10%

The Unix server farm is a mix of Sun Sparc and Intel, the latter providing strong vendor competition and price point flexibility due to the increased use of VMWare to virtualise servers and services. The next scheduled infrastructure upgrade and replacement in 2009/2010 funded by the IT Infrastructure Overheads budget will see the use of virtualisation over discrete systems and the use of selected hosted services (e.g., Software as a Service or SaaS) with an anticipated decrease in footprint and environmental impact.

During 2008, the University progressed the building of a second data centre (DA003) which commenced operation in Q1 2009. The second data centre is fully integrated into the University's LAN with 10Gb/s, redundant, optical fibre connections but the AARNet WAN connection is only via DA002. Work is planned to duplicate the AARNet WAN connection into DA003 and with successive infrastructure upgrades the data centres will be improved to have sufficient ICT infrastructure capacity to minimise service disruption in the event of a service failure within either facility.

Resilience
The University has implemented server architecture in accordance with industry and vendor common practice for enterprise computing. In particular this is illustrated by the use of server and storage virtualisation to provide development, test, training, and production environments for enterprise systems. Combined with the use of load balancing this will provide an architectural approach that provides both upgrade and failover capacity.

Server virtualisation has been a strategic initiative at the University with the objective set at 75% of production operations and 100% of testing environments running on virtual infrastructure. The current status on this objective is approximately 50% of production operations and 85% of testing environments running on virtual infrastructure.

At present a total of 85 virtual servers exist across 21 physical server hosts. The total number of physical servers is 90.

Via the five year rolling IT Infrastructure Overheads budget, funding has been identified to develop and enhance the University's ICT resilience and redundancy.

Data Management

The University's database environment is predominantly Oracle although MySQL and Microsoft SQL Server (Cost Modelling, Celcat and MEX) platforms also exist to support applications that are dependant on these environments. Unstructured data is stored on a combination of network drives, personal network and local drives, content management systems (Website, Portal/LMS, and Media), a records management system and research platforms. Supporting the University data environments are two mass storage devices (one in each data centre) on a common Storage Area Network (SAN) fabric. The storage devices provide for approximately 30TBs of capacity with an incremental growth between Q4 2005 and Q4 2008 of approximately 28TBs. An enterprise level tape backup library provides for the University's backup and archive needs. An approved fire proof tape store is maintained on campus within a secured facility separated from the campus data centres.

The Business Continuity and Disaster Recovery Plan has additional information regarding resilience, storage and backup.

An Information Classification Policy will be developed in 2010 to ensure that data stored on desktops and central storage is appropriately classified, resourced, managed and stored and to control burgeoning data storage requirements.

Information Communication & Dissemination

Data and information are available in the Division and in the University and to external partners and collaborators through a multitude and variety of ways including:

- Digital faculty and divisional share drives, intranets, wikis, bulletins, blogs, email, calendar and videoconferencing.
- Print agendas, minutes, reports, etc.

Since the introduction of the shared services model in early 2009, the ITSM Helpdesk system has been expanded to meet the needs of the additional IT Services and Support staff and the Solidus Call Management system has been implemented to assist Helpdesk staff. Over the first two quarters of 2009, the totl number of service request incidents entered into the FrontRange ITSM Service Management System was 9,260 - 39% of service requests were taken via email, 18.5% via ITSM Self Service function, 4.5% via Web Form, 4% walk-ins from Infohelp desk. 74.5% of service requests to all areas of ITR were resolved within five days from date call logged. Additionally Faculties and Divisions are provided with quarterly performance statistics for InfoHelp, IT Support and ITR as the primary, secondary and tertiary support mechanisms for ICT services. Reports are currently available at IT Services & Support Web Page .

A new SMS service to send loan information directly to clients' mobile phones was introduced in 2008. Since the introduction of Library pre-overdue notices 1st semester 2009, the number of overdue notices sent to clients has decreased by 42% and the number of overdue items has decreased 40% for the period Jan – June 2009 as compared to the same period 2008.

ITR are working with both Marketing and Engagement and Media and Communications on a strategy to better satisfy the University communication and information dissemination requirements. Some of the issues include: duplication, costly in time and money to maintain and follow up; demand for mobile accessibility, and being able to manage new mobile Internet hardware and applications (e.g. iphone) and ever changing client expectations.

Appendix Aa from Terms of Reference

The following acronyms in this appendix refer to offices in the US Division:

- GCS – Governance and Corporate Services
- JCI– JCU International
- ITR – Information Technology and Resources
- HR – Human Resources
- LIS – Library and Information Services
- ME – Marketing and Engagement
- SAS – Student & Academic Services

The following acronyms in this appendix refer to organisational units *not* in the US Division:

- CPP – Corporate Planning and Performance Office
- CSO – Commercial Services Office
- FABS – Financial and Business Services
- FLBCA – Faculty of Law, Business and Creative Arts
- FMO – Facilities Management Office
- TLD – Teaching and Learning Development

The table below lists ICT services which the US Division performs some role.

Service	**Service Role**	**Service Owner**
Alesco HR System	Service owner, Infrastructure provider, Integration provider, Database administration, Reports writing provider	HR
Celcat	Infrastructure provider, Integration provider, Database administration	FMO
CIBIS Credit Calculator	Integration provider	INT
CopyPrint Student Printing	Service owner, Infrastructure provider, Integration provider	LIS
Cost Modeling	Infrastructure provider, Database administration	FABS
CSDB	Service owner, Infrastructure provider, Integration provider, Database administration, Web programming provider	SAS
DED Door Access Security	Service owner, Infrastructure provider, Integration provider	ITR
Desktop Management (General Access and Teaching Labs)	Service owner, Infrastructure provider, Integration provider	ITR
Desktop Management (Staff and Research computers)	Service owner, Infrastructure provider, Integration provider	ITR
eAcademic Web Portal	Service owner, Infrastructure provider, Integration provider	SAS

Service	Service Role	Service Owner
eResearch Centre	Infrastructure provider, Integration provider, Programming provider	FLBCA
eStudent Web Portal	Service owner, Infrastructure provider, Integration provider	SAS
EZ Proxy	Service owner, Infrastructure provider, Integration provider	LIS
FM Systems	Infrastructure provider, Integration provider, Database administration	FMO
High Performance Computing	Service owner, Infrastructure provider, Integration provider, Programming provider	ITR
Hip Web Portal	Service owner, Infrastructure provider, Integration provider, Programming provider	LIS
Hobsons AMS (Pandora)	Service owner, Integration provider	JCI
Hobsons Connect/Answer (EMT)	Service owner, Integration provider	JCI
Horizon LMS	Service owner, Infrastructure provider, Integration provider, Database administration, Programming provider	LIS
Identity Management System (Sun IDM)	Service owner, Infrastructure provider, Integration provider, Database administration, Programming provider	ITR
Internet connectivity	Service owner, Infrastructure provider, Integration provider, Database administration, Web programming provider	ITR
ITSM Generic Call Management	Service owner, Infrastructure provider, Integration provider	ITR
LAN connectivity	Service owner, Infrastructure provider, Integration provider	ITR
LearnJCU	Infrastructure provider, Integration provider, Database administration	TLD
Mex	Infrastructure provider, Database administration	FMO
MFD Staff Printing	Service owner, Infrastructure provider, Integration provider	CSO
Mirapoint email and calendar system	Service owner, Infrastructure provider, Integration provider, Database administration, Programming provider	ITR
Miscellaneous ColdFusion Web Applications	Infrastructure provider, Integration provider, Database administration, Web programming provider	various
NetAccess (Internet Quota Administration system JET)	Service owner, Infrastructure provider, Integration provider, Database administration, Web programming provider	ITR
Online Phonebooks and Contacts	Service owner, Infrastructure provider, Integration provider	ITR

Service	Service Role	Service Owner
Oracle CMS (Web Content Management)	Service owner, Infrastructure provider, Integration provider, web programming provider	ITR
RecFind Records Management	Service owner, Infrastructure provider, Database administration	GCS
Research Online @ JCU (eprints)	Service owner, Infrastructure provider, Integration provider, programming provider	LIS
Reserve Online	Service owner, Infrastructure provider, Integration provider	LIS
Safe Assignment	Infrastructure provider, Integration provider	TLD
SAN Storage Services	Service owner, Infrastructure provider	ITR
Spendvision	Integration provider	FABS
StaffOnline	Infrastructure provider, Integration provider, Database administration, Web programming provider	HR
StudentsOnline	Infrastructure provider, Integration provider, Database administration, Web programming provider	SAS
Technology One Financials (Finance One)	Infrastructure provider, Integration provider, Database Administration	FABS
Technology One Student Management (Student One)	Service owner, Infrastructure provider, Integration provider, Database administration	SAS
The Raisers Edge (Alumni Engagement)	Service owner, Infrastructure provider, Integration provider, Database administration	ME
User and Group Authentication	Service owner, Infrastructure provider, Integration provider, Programming provider	ITR
VM Generic Application Servers	Infrastructure provider	various
Web Access	Service owner, Infrastructure provider, Integration provider	ITR
Web Reporter Data Warehouse	Service owner, Infrastructure provider, Integration provider, Database administration, Web programming provider	CPP
Wireless connectivity	Service owner, Infrastructure provider, Integration provider	ITR
Workflow Leave and Claims	Service owner, Infrastructure provider, Integration provider, Database administration, Web programming provider	HR