

# Discussion Document

## ICT Strategy (2009-2011)

### Executive Summary

#### **Purpose**

To identify drivers and strategies and key initiatives for ICT at Monash that will support the university in reaching its goals, over a 3-5 year timeframe.

The creation and evolution of this document relies on three primary processes:

- Review of core Monash strategic plans
- Detailed discussions between senior IT staff and key university stakeholders
- Portfolio workshops to validate and refine sections of the plan

From this strategy, more detailed proposals will be generated for university initiatives that require additional funding and the strategy's high-level objectives will flow into more detailed operational planning.

#### **Background**

KPMG undertook an ICT review across Monash in 2007 which recommended that there was value in Monash more explicitly taking a 'whole of university' approach to ICT. Major outcomes of this study have been:

- The formation of the Office of the CIO, which includes an ICT Coordination role.
- Establishment of the VCG (ICT) as the governing forum for ICT across the university.
- The ICT Shared Services Program which aims to improve ICT services across Monash while reducing overall cost and risk.

A number of new factors have emerged in the broader environment

- Growing awareness of the need to improve data management, particularly for increasingly large and complex research datasets, collaborative research and sensitive administrative data.
- eResearch, eEducation and the Nexus centre as strategic initiatives to support innovation and development of university-wide practice.
- Green IT as part of a wider Monash initiative.
- The need for consistency of service and the ability to access services 'anytime, anywhere' for increasingly mobile student and staff cohorts.

## **ICT Vision**

***Goal: Advance the goals of Monash University, through the application of solutions that adopt forward-looking technology in a culture promoting innovation, best practice, quality and service excellence.***

This document outlines ICT support for achieving the university's strategic objectives in research, education and internationalisation as well as the key enablers of administrative systems, information management, ICT governance and the underpinning infrastructure.

## **Research**

Goal: Enable outstanding research to be undertaken at Monash through the provision of information services, advanced IT infrastructure and appropriate support services to researchers.

Research is becoming increasingly dependent on data, collaboration on data and the use of computational methods to supplement or replace more traditional experimental forms of research.<sup>1</sup>

Research data volumes are doubling annually<sup>2</sup> and more high volume data producing instruments such as the Synchrotron will become operational in the near future.

### **Key Strategies**

- Support innovation in eResearch
- Enhance research data management capacity and service uptake
- Enable collaboration across and beyond the university's boundaries
- Deliver high performance computing and visualisation
- Undertake academic support and outreach activities to facilitate e-research

### **Major initiatives**

- The Monash eResearch Centre to facilitate innovation, collaboration and facilitate access to Monash operated and shared advanced computing and visualisation services
- Research data storage and management
- Growing the network links within and between Monash's campuses to support traffic volumes that double every 12 to 18 months
- Enhancing research collaboration through
  - Increased functionality in the core business productivity toolset through the adoption of standards based products providing a high degree of flexibility, integration and interoperability in Monash diverse computing environment, (the Lotus Collaboration Suite)
  - Other readily available collaboration environments to suit specific needs, such as the SAKAI Virtual Research Environment

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<sup>1</sup> Strategic Roadmap for Australian Research Infrastructure, DIISR, August 2008

<sup>2</sup> "The Data Deluge: An e-Science Perspective" by Tony Hey and Anne Trefethen

- More convenient access to group video conferencing facilities and desktop conferencing (EVO)
- Engagement in the research and early deployment of leading edge high definition videoconferencing
- Developing “collaboratories” with leading edge and adapting existing services to meet the unique needs of particular research communities
- Enabling researchers to interact across institutional boundaries (Australian Access Federation and Identity Management Program)
- Ensuring that Monash continues to have high quality research administration systems that meet our internal and compliance needs

## **Education**

Goal: Provide IT systems and infrastructure to support high quality and flexible educational programs, and effective, accessible learning and teaching.

Monash sees an opportunity to improve student engagement for highly mobile and socially active students who have many competing demands for their time. Improved physical learning spaces combined with enhanced online learning environments will enable a more interactive, conversational and exploratory approach to education to a cohort spanning four continents, eight campuses and off-campus learning.

### **Key Strategies**

- Next generation learning spaces that can support switching between a classroom format and group work in a single campus or video-linked mode
- Enhancing the online learning environment and bridging between face-to-face and electronic delivery
- Supporting a range of channels for electronically supported student communication and collaboration
- Providing an increased range of easy to use same-time and different-time collaboration tools
- e-Portfolios to enhance student experiences
- Integrated delivery from a variety of information sources and delivery systems to students and academic staff (my.monash)

### **Major initiatives**

- Introducing a second, complementary online learning environment (Moodle) with social learning (Web 2.0) features and an extensible open architecture
- Ensuring the award winning my.monash portal continues to be at the forefront of student portals across the higher education sector
- Enabling the full functionality of the Lotus Collaboration Suite: support for real-time collaboration support, team-based document sharing and collaboration spaces, and desktop and room-based videoconferencing will facilitate collaborative interactions within Monash’s academic and professional staff
- Replacing the existing student email system with collaboration solutions that allow students to create informal groups on an “as needed” basis, create and share interactive workspaces, collaboratively create documents in addition to email and calendar functionality

- Enhancing Monash University Lectures Online (MULO) initially to support synchronised slides and video where available as well as delivery via Podcasting; and eventually the full learning experience including features such as personal annotation and integration with other online learning and collaboration tools
- Developing myLearning Spaces which take online learning into fieldwork and wet laboratories as well as classroom and mobile learning
- The eEducation Centre nurtures the use of technologies as enablers of innovative teaching and learning, and their broader adoption within the Monash community

## ***International***

Goal: Provide equity of access to ICT based services and resources across all campuses

‘Monash has made a strategic choice to achieve excellence in research and education through a cross-disciplinary, multi-campus, multi-nation approach’, (DVC International). ICT has a critical role in supporting the University’s international focus and delivering a ‘One-Monash’ experience. Connectivity between campuses and centres, coordinated service delivery and online systems each play a major part.

### **Key Strategies**

- Coordinated ICT planning with international campuses and centres
- Enhancement of systems to further meet the needs of international campuses, for instance the Lotus Collaboration Suite, Learning Management System and my.monash portal to enhance the “One-Monash” experience for students and staff
- Standards based services that allow local and remotely sourced systems to be effectively integrated to meet local and university-wide needs
- Ensuring network links are adequate for current and future needs
- eResearch and eEducation centre initiatives

### **Major initiatives**

- Monitoring the performance of international links and ICT based services, and upgrading MYREN and the Jahor Baru links in Malaysia
- Expanding IP telephony services and directories to reduce communication costs and the sense of distance
- Pilot deployment of a Learning Management System Moodle pilot in South Africa

## ***Administrative Systems***

Goal: Provide flexible, integrated systems that effectively support Monash’s strategic objectives and business needs.

With established and stable core administrative systems in place, Monash is focusing on improving and extending the scope of systems to improve business process efficiency and effectiveness, as well as providing increasing levels of self-service access.

## **Key Strategies**

- Improving the experience of using administrative systems and increasing the reach of self-service administration for the entire relationship lifecycle of staff and students
- Improving business process efficiency through process improvement and enhancements to the core systems
- Providing trusted sources of relevant, current management information to support business decision making
- Supporting client-centric business processes and communication

## **Major initiatives**

- Improving systems support for the staff recruitment and induction process
- Better systems support of the staff performance development cycle
- Better visibility and management of travel expenditure
- Improvement of the student recruitment process (eAdmissions)
- University-wide fundraising system to improve quality of donor management processes, by supporting donor-centred engagement (Raiser's Edge)
- Improved systems for faculty/central engagement to support increased levels of alumni engagement in local and global activities
- Progressive release of the Education BI (Business Intelligence) environment followed by Advancement, HR & Finance
- Developing a systems strategy and implementing tools to support the university's Customer Relationship Management (CRM) strategy
- Ensuring the capacity and functionality of core systems continues to meet Monash needs

## ***Information Management & Collaboration***

Goal: Manage information to better create and share knowledge

The growth in volume and complexity of information managed by the university coupled with an increasingly complex regulatory island and the trend toward multi-disciplinary research demands a more strategic approach by the university to information management.

## **Key Strategies**

- Ongoing development of the Information Management Strategy
- Easy to find, easy to use web delivered information for university stakeholders
- my.monash as a comprehensive and targeted information delivery mechanism
- Facilitating collaboration within and beyond the university
- Supporting improved management of electronic documents and records for statutory compliance and university operations
- Enhancing research by improving the electronic publication and curation of research outputs
- Improve the quality of stored business information and its flow between university systems

## **Major Initiatives**

- Development of a corporate intranet to consolidate the public web presence and simplify access to relevant information to internal client groups via my.monash
- Application of the Enterprise Information Classification Policy
- Extension of the eRecords Management System (TRIM), beginning with Student and Community Services Division
- Supporting the Library based DARE program and expanding the high capacity LARs data storage service
- Enhancing the Identity Management infrastructure to link into the Australian Access Federation for higher education and research institutions.
- Continued enhancement of the Lotus Notes Collaboration environment for staff
- Replacement of the student email system with a more integrated feature-rich communication and collaboration service
- Leveraging the new IP Telephone system to provide more a integrated communications environment
- Upgrading the university's capacity for videoconferencing for education, research and administration

## **Strategy & Governance**

Goal: Govern the strategic management of IT via well-structured frameworks and processes within a culture of engagement, innovation and quality.

The ICT Shared Services review identified the need to take a Monash-wide view of ICT and establish a more integrated governance and service delivery regime. The Vice Chancellor's Group (ICT) was formed in 2008 to oversee strategy, planning and prioritisation of investment in ICT across the university.

The Office of the CIO was also formed to lead the development of university IT strategy; facilitate ICT innovation and its transition into the mainstream and engage with stakeholders across the university to create a collaborative, integrated ICT environment.

### **Key Strategies**

- Support the VCG (ICT) in its work
- Establish a Monash-wide view of ICT for high-level planning, funding and governance
- Integrated ICT planning and governance across the university
- ICT principles, policies and practices that enable ICT to be delivered with improved quality, and reduced cost and risk
- Innovation, agility and responsiveness as well as robustness and cost-efficiency across all Monash ICT providers

### **Major Initiatives**

- Establish an ICT Coordination function across all university ICT providers to enhance the capacity for collaborative provision of efficient and effective services
- Lead the initial program of change to services, processes and infrastructure through the ICT Shared Services Implementation Program

- Establish a robust, integrated ICT governance regime that links all providers into decision making, coordination and monitoring processes for services and projects
- Work with faculties and divisions to link local ICT planning activity into a coherent overall framework and ensure effective communication mechanisms are in place
- Create a governance, operational and support environment that promotes transition of successful innovations through enterprise pilots to wider adoption

## ***Encouraging Innovation***

While robust, high availability systems are at the core of university learning, research and administration, sustained creativity and innovation is the heart of the Monash vision of “improving the human condition by advancing knowledge and fostering creativity”.

### **Key Strategies**

- An environment that encourages and supports appropriate local and university innovation
- Transition of successful innovations through enterprise pilots to wider adoption.

### **Major Initiatives**

- Support the work of Nexus and the wider eResearch and eEducation initiatives with timely, ‘fit for purpose’ infrastructure and support services
- Develop policies and practices that encourage appropriate local innovation
- Create a governance, operational and support environment that promotes transition of successful innovations through enterprise pilots to wider adoption

## ***Infrastructure & Support Services***

Goal: Provide the appropriate technical infrastructure to underpin ongoing and emerging strategic objectives and business goals of the university.

The university’s ICT infrastructure and support services underpin all aspects of the university’s education, research and administrative activity. Much of this infrastructure, from desktop computers through the university voice and data networks to data centres, is shared across multiple systems and communication streams requiring an integrated approach to strategy, planning and execution.

### **Key Strategies**

- Better integrate the university’s ICT service provision and support to progressively improve quality, cost, risk and consistency of service
- Improve our IT desktop and server room carbon footprint and contribute significantly to the Monash Sustainability program
- Ensure the university’s data and communication networks provide adequate capacity, quality and security, and are available where and when they are needed, to support internal needs, communication with external stakeholders and collaboration with partners
- Move toward more standard desktop, server and storage platforms and consolidated server and storage infrastructure to gain economies of scale where this does not impair the achievement of the university’s core goals

- Ensure that adequate quality and capacity is available in data centres, servers and storage to meet the varied needs
- Implementing a technical environment that supports the Enterprise Information Classification Policy
- Develop robust and efficient core processes which support innovation, agility and responsiveness

### **Major Initiatives**

- Develop a second major datacentre, possibly in conjunction with other universities to increase capacity, reduce the impact of datacentre related incidents and be in line with current Green IT practices.
- Undertake the ICT Shared Services initiatives to enhance the IT services to staff and students, as well as the underpinning processes and systems
- Develop appropriate architecture, deployment and support models for appropriate hosting for proof of concept (innovation), pilot and production systems in support of faculties, eResearch and eEducation initiatives
- Provide central virtualised server and storage infrastructure services to meet the needs of the IT Shared Services server consolidation initiative
- Increase the physical reach of Monash campus wireless networks and increasing access and functionality for staff, students and visitors from other universities
- Increase services for video, audio, voice and related rich media and mixed media content
- Implement Business Process Execution Language (BPEL) methods and services to support better systems and workflow integration as well as the complexity and risks of maintaining a myriad of point to point systems integrations
- Implement Single Sign On where appropriate to improve usability of systems and services
- Upgrade the use of firewalls, intrusion detection and prevention systems
- Implement Network Admission Control, which ensures networked devices are 'safe' before they are allowed access to the University's network resources
- Extend the Virtual Private Network to International campuses

### ***Green ICT***

Goal: To reduce the environmental impact of ICT infrastructure and operations across the University.

The challenges at Monash for meeting its environmental responsibilities bring into focus the need for ICT plans to address environmental issues proactively to reduce greenhouse gas emissions within the ICT function itself, but also to deploy ICT services that will avoid greenhouse gas emissions in the course of normal University operations.

## **Key Strategies**

- Align with the University's targets to reduce carbon emissions
- Establish appropriate governance structures and engage the Monash community
- Optimise the reduction in energy usage, energy savings and environmental responsibility
- Establish user acceptance, support and buy-in of criteria for environmentally sustainable ICT.

## **Major Initiatives**

- Develop sustainable Key Performance Indicators, measurement tools and techniques
- Implement energy saving measures within current and future data centres
- Further the implementation of server consolidation and virtualisation
- Implement environmentally responsible disposal and recycling programs for ICT/AV equipment
- Actively pursue the implementation of power savings measures in computer laboratories through the purchase of Gold Star rated equipment and pilot "model green laboratories"
- Introduce measures to reduce printing costs and paper usage
- Promote the use of video conferencing to reduce transport and travel costs
- Ensure that tenders for preferred suppliers for desktop and laptop PCs include enhanced green ICT criteria.