CiCS

INFORMATION TECHNOLOGY STRATEGY
2008 – 2013

1. PURPOSE

This strategy replaces the previous IT strategy and is an integral part of the overall strategy being developed by Corporate Information and Computing Services (CICS). The purpose of the strategy is to ensure alignment with the University's Shared Vision, with the Information Strategy 2006-2009, and with the requirement to build on and improve service to CiCS' customers and stakeholders.

2. CONTEXT

2.1 Information Technology

Information technology, now more than ever, is crucial if the University is to deliver on its vision of becoming one of the top 5 research Universities in the UK. Research, teaching and learning, student recruitment and retention, and the business processes of the University are all increasingly dependent on IT in one form or another. Both students and staff come to the University with an expectation that the services we provide will respond to their needs, rather than meet the needs of 'The University'. We are now nearing universal ownership of desktop/laptop computers amongst the student population (currently at c90%), while ownership of sophisticated network devices such as PDAs and phones is also rising rapidly.

2.2 Changing Environment

The changing environment presents us with several opportunities and threats:

• Delivery of more services to our users on their own computers;
• Removal of the need to store ever-increasing amounts of student filestore as personal devices hold more and more data;
• Increasing expectations of us as service providers;
• Unpredictability of future requirements, particularly in the research computing area.

2.3 CiCS Mission

In order to clarify its role in supporting the University's mission and strategic objectives CICS has defined its mission as:

• to support the University in maintaining the highest levels of excellence as a research-led institution of international standing;
• to provide an infrastructure, systems and services which make available appropriate and accurate information to members of the University and external stakeholders;
• to provide information services that support research and teaching to the highest levels.

2.4 CiCS Aim

The aim of CICS is to ensure that the University has the appropriate levels of computing, telecommunications, network services and technical support to allow it to achieve its corporate aims and objectives. The primary responsibility of CiCS is to manage the computing resources and information facilities to promote an environment conducive to excellence in academic scholarship, research, teaching, learning and management.

It is within this context that the following Strategic Objectives and Implementation Plan have been devised for the development of the University's IT services in the next five years.

3. STRATEGIC OBJECTIVES

The strategic objectives listed below have been identified as being fundamental to achieving our mission during the period 2008-2013. They are in part aligned to overall University priorities, and in part reflect specific technological and staff development objectives which will need to be achieved in order to underpin service provision.

3.1 OBJECTIVES LINKED TO UNIVERSITY PRIORITIES:

- A mechanism which ensures that CiCS staff development and training anticipates changes in University requirements;
- A greater emphasis on the identification of external funding opportunities which will contribute towards the achievement of other objectives;
- Increased support for research, in particular in relation to the use of the High Performance Compute facility;
- Commitment to reducing the environmental impact of IT within the University;
- Focus on delivery of services to the new faculty structures.

3.2 TECHNOLOGICAL OBJECTIVES:

- An infrastructure which will meet the needs of the next five years and beyond;
- Applications and services which have a clear relationship with the business of the University;
- A reduction in the variety of technologies in use;
- A reduction in the number of core systems and applications providing similar functions;
- Delivery of services in a way that meets the needs of the user, rather than CiCS or the University;
- An effective system for ensuring that new and emerging technologies are evaluated;
- A robust system to ensure effective monitoring and review of technical infrastructure and services.

4. IMPLEMENTATION

In practice, the strategic objectives listed above can be reordered as:

•   aspirational objectives
•   short- and medium-term technical solutions involving the introduction/development of new technologies
•   re-adjustments of existing services to fit with users' new operational requirements

4.1 OVERVIEW

CiCS will continue to be committed to selecting software and hardware which conforms to open standards. By this we mean that we will prefer those solutions which enable us to connect together disparate systems and technologies in a non-proprietary way, and which enable us to replace components relatively easily. We will also consider open-source alternatives to commercial systems as part of any tendering processes.

We will press forward with the existing strategy of making services available over the web. Many services are available over the web, but many have different interfaces, different user device requirements, etc. We must seek to ensure that the user experience of our services is a great deal more seamless than it is currently. In practice this means that, at least for the casual user who does not require the full functionality of any particular system, the underlying complexity must be hidden within the portal (MUSE). As a consequence MUSE will become the central point of delivery for most services. We will extend the reach of current desktop applications such as those delivered on the managed desktop by integrating them within the portal. We will ensure that users of our systems can choose how, when and where they access services such as change module for students or goods requisitioning. Use of portal standards for such 'applets' will allow users to create their own set of commonly used functions which can be delivered to their pda/phone as well as the traditional portal on a desktop or laptop computer, and will allow us to respond more rapidly to technological change.

The last five years have seen an explosion in the number and variety of services we provide. In order to make best use of existing and new services, we will put greater effort into their integration, using where possible Service Oriented Architecture and web services techniques to minimise duplication and overlap.

Collaboration, between colleagues, students and external partners, is now a crucial part of the University's work, and our services will give increasing support for this way of working. We will take advantage of the opportunities afforded by the latest generation of web technologies (web 2.0) in order to enable and facilitate collaboration.

With increasing volumes of data, and increasing variety in storage locations and technologies, metadata storage and search facilities which enhance our understanding and use of this resource will become increasingly important.

4.2 SERVICES FOR STUDENTS

We will create an environment where students are able to access information and services from wherever they are and with whatever device they have available to them. Students will be more in control of their University experience, with information systems which allow them to interact with the University in a dynamic and seamless fashion.

4.3 SUPPORT FOR RESEARCH

We will increase support for research with the creation of a Research co-ordinator post (funds permitting) within CiCS who will pull together the various strands of support which we currently provide. Efforts will be concentrated on making the experience of using the High Performance Compute facility as painless as possible for users, so that they can concentrate on research rather than computing. We will continue to fund the upgrade and increase in power of the HPC, taking advantage of the increase in computing power, and using the opportunity to minimise our environmental footprint. We will consider how to create a Virtual Research Environment, building on the work done by JISC and others.

4.4 SUPPORT FOR FACULTY STAFF

The new faculty structure will create particular challenges for CiCS, both in information provision and in technology support. We will ensure that the reporting needs of less frequent users of our core systems, and those who must report on many different areas, are met within a single user interface. Work is already under way to ensure that reporting is at an appropriate level for faculty use. We will also seek to move appropriate functionality for systems to the portal, so that much of the work of the faculty can be done from a single point. Collaboration tools will become increasingly important, and CiCS' role here will be to ensure interoperability between systems, and to optimise their use.

4.5 SUPPORT FOR PROFESSIONAL SERVICES STAFF

As well as core operational systems such as SAP, CIS and so on, collaboration tools play an increasingly important role in the work of Professional services staff. We will press forward with integration of those tools already in place so that tasks and processes can be streamlined from end-to-end, and so that best use is made of the technology. While professional services staff will continue to use a variety of systems in the course of their work, we will, as for faculty staff, try to minimise the differences between systems, by providing common functionality through the portal.

4.6 INDICATIVE ACTIVITY

The following provides an outline of the principal technical activities which we would envisage undertaking during the implementation phase:

4.6.1 Infrastructure Developments

PHYSICAL ESTATE

We will build on the work already done in our data centres to ensure full resilience for mission-critical and high importance systems in the event of a disaster affecting one of the centres. We will monitor regional and national shared data centre initiatives with a view to the establishment of an off-site third data centre to be used for archive and/or HPC computing. In conjunction with Estates, we will pursue measures to reduce energy usage where practicable and affordable.

BACKUP STRATEGY

We will conduct a complete review of the way backup and archiving of computer data is managed, in order to serve better the current and future needs of the University, to reduce the burden on operational staff within CiCS, and to meet regulatory requirements.

STORAGE

We will continue to centralise storage provision both for corporate systems and for departmental and research needs. Increasing requirements for large scale data storage mean that we will have to participate in regional and national initiatives for shared data storage.

GENERAL PURPOSE FILESTORE AND PRINTING.

We will conduct a review to establish how we can build on the investment already made in centralised storage in order to provide a more streamlined and cost-effective service.

UNIX

•	Rationalise the server estate by consolidation of multiple services on to fewer computers.
•	Phase out older releases of Solaris as and when possible subject to application requirements.

DATABASE

•	Continue to use and upgrade Oracle as the database of preference for all corporate applications.
•	Accept the use of mySql, SQL Server for point solutions.

NETWORK

- Increase core resilience by building on work done with dual data centres.
- Collapse back aggregation centres into data centres where resilience features are already available.
- Current aggregation centres to be passive, supported by UPS for telephone functions and dual physically separate network feeds.
- Increase building resilience as and when feasible and affordable.
- Institute a program of replacement of edge switches.

TELEPHONY

- Build on the installation of the IP based switches to provide new and enhanced functionality such as converged voice/voicemail/email etc.

4.6.2 Service developments

SEARCH

- Use collaborative systems such as the newly purchased clearspace product to increase our ability to find expertise within the University community.
- Increase our ability to extract knowledge from data by making use of the facilities provided by existing technologies such as the Cognos reporting tools.

PORTAL

- Make more applications and information available.
- Upgrade Portal to take advantage of portlet standards.
- Increase integration of portal with applications, through use of channels.
- Make portal, or channels within portal visible and usable on other devices where appropriate.
- Move desktop applications currently on the managed service to the portal.
- Review current portal technology.

SAP

- Continue integration work and making data available for use by non-SAP users.
- Undertake necessary SAP upgrades.
- Evaluate new developments to determine whether SAP should be used.
- Work on improving user interface where practicable and cost-effective.

CIS

- Move away from Forms applications to Java.
- Convert forms 6 applications to forms 10.
- Support simple developments in PHP in order to decrease time to deployment.
- Conduct second review of CIS systems.

REPORTING/MANAGEMENT INFORMATION

- Make increasing use of the the Cognos toolset to deliver a greater degree of integration in reporting.
- At faculty level, enable reporting on all data through a single interface.

- Divert resources to this function in order to improve the level of support for management information although this may mean decreased resource elsewhere.

VLE

- Build more resilient service to reflect increasing in strategic importance.
- Increase capability and space.
- Consider replacement/review in 2010.

COLLABORATION

- Deploy recently purchased Clearspace product as widely as possible for all University communities.
- Deploy next generation mail and calendaring product.
- Complete and evaluate Document Management system pilots now under way.
- Conduct a review of mail services for students, in order to compare value for money of our in-house service with services provided by commercial suppliers.

RESEARCH COMPUTING

- Continue funding of HPC £75k pa.
- Replace every 4 years.
- Encourage centralisation of HPC installations across University.
- Increase support from CiCS, within available resources.

DESKTOPS

- Move to provision of applications over web - to all devices running modern web browser.
- Replace PCs in open-access areas with thin client devices.
- Encourage the use of thin client devices elsewhere.

5. SUMMARY

This strategy aims to increase our focus on providing innovative services to our customers, to build a reliable and resilient technical infrastructure which is both cost-effective and sustainable, and to keep environmental costs to a minimum.