

# Annual Report 2009/10

Service Plan 2010/11

Information Systems Services  
John Murphy  
Director IS Services

Date: 21<sup>st</sup> November 2010

## Introduction

Information Systems Services (IS Services) are the central Information Technology service provider for College supporting 25,000 users across the main campus and 23 off campus locations. IS Services staff is housed in three buildings on the main campus; the Support Service is delivered from the ground floor of Aras an Phiarsaigh, the main data centre and the majority of IS Services staff is located in 200 Pearse St. IS Services also runs Audio Visual and Media Services which is located in the Arts building.

IS Services also has staff in the two main teaching hospitals at St James's and the AMNCH at Tallaght. The department has three main management streams; **Support Services** which has responsibility for desktop support, user training, support of teaching and learning facilities, student computing, photography and audio visual.

The **Computer Systems Group (CSG)** has responsibility for the main College servers, the College network and Infrastructure and delivers many services such as email and web to the College community. The group is also responsible for the development of the College network which now supports links to many off-campus locations and College's main Internet connectivity. The group manages the main data centre in College which houses over 150 servers which provide a number of services to the College community. The College network has over 150 communications rooms across 23 locations and there are 15,000 active network points and 700 wireless access points providing a wireless network service to over 7,000 users. There are currently over 25,000 registered users of College's IT services.

The **Management Information Systems Group (MIS)** has responsibility for database management and administration, application acquisition and administration and application development & maintenance.

IS Services also has a responsibility for ensuring Disaster Recovery and Business Continuity and has a role to play in IT and data security. IS Services work closely with the College IT Security Officer, the College Auditor and External Auditors to ensure compliance. Although IS Services are responsible for the central provision of IT, there are a number of Schools that have IT staff or internal IT departments. IS Services staff liaise closely with these areas and support staff in the faculties to ensure the overall smooth operation of the IT infrastructure.

At a strategic level, IS Services senior management contribute to the e-Strategy program and advise administrative and support areas, faculties and Schools on IT requirements and ensure that IS Services strategy is aligned with the College's goals and objectives. The department is involved in the following committees (a) The Library and Information Policy Committee (b) Library Committee (c) The Web Management Committee. The Director also contributes to an Executive Officer call-over group which meets fortnightly to discuss strategic issues and their implementation. IS Services has also developed many external links with other universities and strategic partners and senior managers are involved in many cross sector initiatives such as The Irish Universities Association Shared Services

Group, HEANET Audit Function, Google Customer Advisory Board, CISCO HE Strategy Group, Government IT Procurement Group, and the Director is a Board Member (Ordinary) of HEANET and EUNIS a consortium of European IT Directors.

At an operational level, the department deploys a Customer Relationship Management (CRM) tool which logs and tracks all interactions with end users and supplies valuable information on the performance of the department. The department uses Key Performance Indicators and formal Project Management techniques to manage its work program. A departmental organogram is included as **Appendix A**.

The department has an annual budget of €7 million of which approximately €2 million is non-pay and €5 million is pay.

### **Strategic Developments**

Developing the digital campus further with 24/7 access for staff and students was one of the core objectives for IS Services in 2010. With reducing budgets, significant reduction in staff numbers due to early retirements cost optimisation was a priority and targeted savings were achieved by greater use of new technologies such as virtualisation.

A new Director of IS Services was appointed in May 2010 to replace the previous incumbent who retired in Dec 2007.

The establishment of a Programme Office in IS Services has given greater transparency to the demands being placed on the service from all areas of College. Work was completed on the identification of all major IT projects requests and the prioritisation of these requests. These projects varied in complexity and cost and the full list of same are now published on the IS Services website and in the appendices. In early 2010, the College Board approved a new governance structure for the prioritising of all IT Projects in College and the Director of IS Services is a member of this group chaired by the Chief Operating Officer.

**Appendix B** shows a full list of projects completed by IS Services in 2009/10. The work program contains some developments for 2011 and support some of the main College strategic themes in Information Management, IT Architecture, Teaching and Learning technology, Student mobility, Research infrastructure and enhancing the College's web presence and these are included as **Appendix C**.

IS Services has started a major strategic initiative with the Director of Buildings Office to map out a future for Unified Communications in College. Unified Communications has the ability to bring multiple technologies onto one infrastructure greatly enhancing user experience, reducing costs and improving productivity. The first major building in College to benefit from this technology will be the Biosciences Building which is due to open in June 2011. Other strategic initiatives include the planning for a new Green Data Centre.

## IT Performance

IS Services management monitors IT performance and service availability. There was a continual improvement in performance over the previous year. IS Services measures the performance of the following critical services and their availability. These measures are for five day (Mon-Fri) periods and do not include maintenance or scheduled upgrade outages.

Service	Availability
Internet connectivity	100%
Staff email (provided by IS Services)	100%
Student email (provided by Google)	99.5%
Staff and Student storage facilities	100%
Student printing	97.5%
Off-campus network connectivity	100%
Virus and SPAM protection	99%
Admin Systems (further breakdown available)	99.3%

## Academic Year 2009/10 - Highlights

### Audio Visual and Media Services (AVMS)

- Audio Visual equipment specified and installed into the TCD\UCD Innovation Academy, Foster Place.
- Two Rooms in the Arts Building (3025 and 5040) were upgraded to include
  - new controllers
  - new lecterns and PCs
  - provision of additional network points to facilitate the networking of AV equipment
- New Projectors were fitted in the Emmet Theatre, Room 0.32 and Room 2.57 in School of Nursing D'Olier St.
- New projectors and control equipment was fitted in Arts Building Rooms 1013,1014, in AAP Room 0.13, in the new Huts Lab 1 and in the East End Rooms EE1, EE2 and EE4.
- Short Throw projectors and network connectivity was provided in the Arts Buildings Rooms 3069, 3070, 4012, 4045 and 4084. This was also provided in Foster Place Rooms 1.16 and 2.16.
- Obsolete control equipment was replaced in both the Burke Theatre and the MacNeill Theatre.
- An overflow system was installed between the Burke and Emmet Theatres to allow for additional capacity to be provided if the numbers who wish to attend an event in the Burke cannot be accommodated. Burke Theatre has new automated video recording equipment installed.
- AMX Room Management System for the Remote Monitoring and Management of AV Equipment was extended to the School of Nursing Theatre and Seminar Rooms in D'Olier St. This will significantly reduce costs and will also ensure greater reliability of equipment.

### Video and Audio Productions

College Orientation Video was completely rewritten, reshot and edited for DVD and web for new Academic Year 2010-2011.

A large number of audio recordings were made for College Podcast Projects.

A video was created of Former President of Ireland, Mary Robinson. "Chancellor Mary Robinson, talks about the TCD-UCD Masters in Development Practice". The link on You Tube is: <http://www.youtube.com/watch?v=qp9z0HkBjmc>

A video was produced of a research discussion and shown at a conference in Australia, for The School of Nursing & Midwifery

Sound tracks were created for a series of videos promoting the Long Room Hub. Sample:

<http://www.youtube.com/user/TCDLongRoomHub#p/u/1/d4na5jRGSdE>

A video was created for the Intellectual Disability Supplement to TILDA - "Celebrating Ageing in Persons with Intellectual Disability" in Ireland, for The School of Nursing & Midwifery

### **Photography Centre**

Studio portraits completed for staff across a number of Departments including Political Science, Classics, Philosophy and Economics.

Individual portraits of staff for publication and location portrait shoots

Group Photos for Senior Sophister/Pharmacy, and School Of Pharmacy, Computer Science and German

Location shoots for Accommodation Office, including a variety of student accommodation rooms, of the College Video Conferencing facilities and the new Long Room Hub for publications.

Studio photography of art items, manuscripts, and science items for various Departments including diagrams, maps and texts for the Long Room, Early Printed Books and Department of History

Photography completed of a significant programme of work for the Curator of College Art Collections.

## Training and Publications

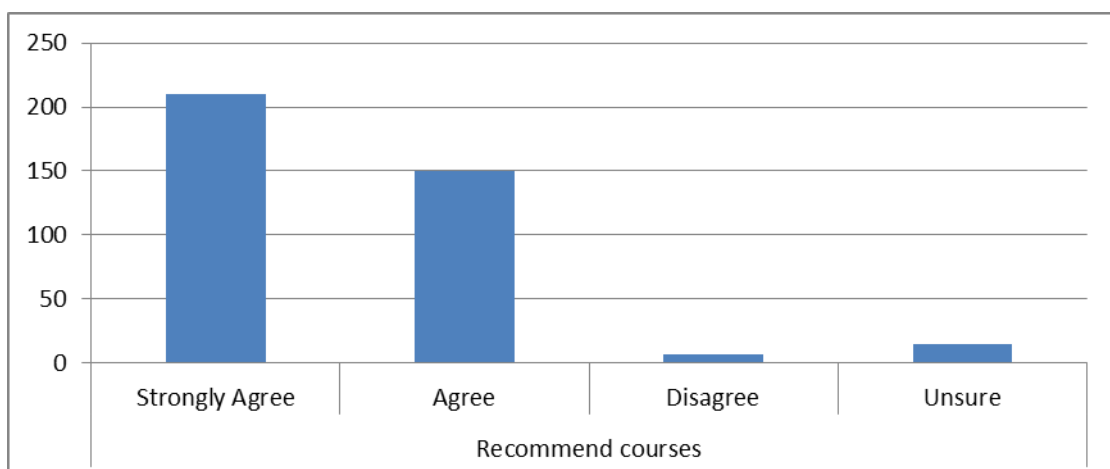
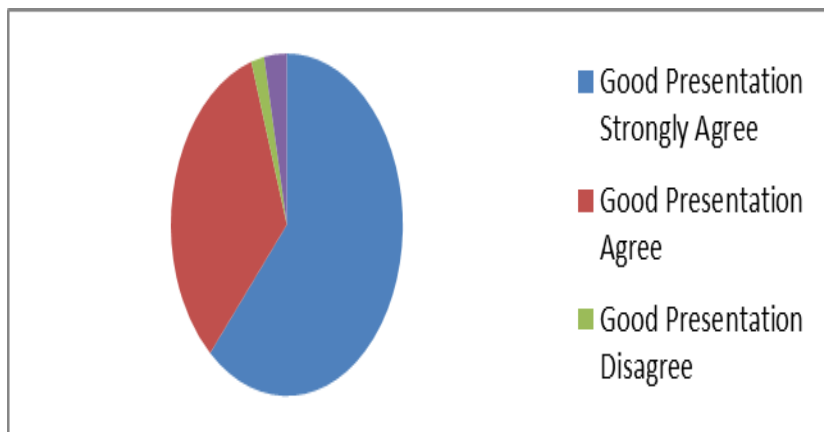
Delivery of the programme of IT training courses for College Staff and Postgraduate Students. Over the Academic Year 2009\2010 the following numbers were booked onto course we provided:

- 621 staff booked onto scheduled courses
- 622 postgraduates booked onto scheduled courses

Three most popular courses:

- SPSS for Beginners
- Planning Thesis Production using MS Word
- Maintaining College Websites using Dreamweaver

User Feedback for our programme of courses:



Training and Publications also delivered a range of supplementary IT training courses for College Departments and is also involved in

- Delivery of IT training for Trinity Access Programme (TAP)
- Delivery of IT training courses for Postgraduate Summer School

New Student Induction - Delivery of induction material for incoming students (September 2009) including in-class sessions, web pages, podcasts, posters and booklets

- Over 30 computer-based induction classes attended by over 500 students
- Over 10 introductory lectures attended by over 1000 students
- Over 2000 students met following Library tours
- 4000 'Guide to IT Services for Undergraduates' booklets distributed
- 3000 'Guide to IT Services for Postgraduates' booklets distributed
- 5000 'guide to the NAC' booklets distributed
- A range of Podcasts were created and made available for the students to download or to use from our PACR rooms.

IS Services communications to College including website alerts and news, Twitter updates, e-Newsletters and email correspondence and the on-going development and review of IS Services website content to ensure IT support documentation for new and upgraded services.



## Network Services

**Student Internet and College network connections** - IS Services connected more than 7,000 students to the College network during the 2009/10 academic year via the Network Admission Control (NAC) system. Trinity College is the largest NAC deployment in Ireland.

**Gigabit to the desktop** - The wired networks in the following areas were upgraded by a performance factor of ten from 100Mbps to 1,000Mbps (Gigabit) during the academic year;

**Q4 2009** - House 6, Enterprise Centre 7th Floor, Enterprise Centre 47th Floor, Physics

**Q1 2010** - 26 Westland Row, Aras An Phiarsigh, Foster Place basement and first floor, Arts Building Beckett 3

**Q2 2010** - House 5, 33 - 37, 192 Pearse Street, Chief Stewards House, Arts Building

Graduate Studies, Public Access Computer Rooms and Lecky Library areas

**Q3 2010** - Museum Building, School of Nursing

**EDUROAM Service** - IS Services successfully delivered the EDUROAM service to College between in Q1 2010. EDUROAM (**E**ducation **R**oaming) is the secure, world-wide wireless roaming access service developed for the international research and education community. EDUROAM permits roaming educational users to gain wireless Internet access with their laptops at other member sites by authenticating against a server hosted at their own institution. EDUROAM became the primary connectivity method for academic visitors to the recently opened Innovation Academy in Foster Place.

**College WiFi network upgrade** - The College WiFi network was successfully upgraded to a modern lightweight architecture between Q3 2009 and Q1 2010. This project involved upgrading the central architecture of the large WiFi network in preparation of upgrading approximately 700 WiFi access points during Q1 2010. This upgrade has improved the functionality, scalability and performance of the WiFi network and will support emerging higher speed WiFi networks. The College WiFi network now comprises of more than 700 WiFi access points serving over 7000 users across College sites

<http://isservices.tcd.ie/network/map.php> .

**Government Network connectivity** - During Q1 of 2010 a project was successfully undertaken to provide a physical link between the College network and the Government Network. The purpose of this link was to provide access to the Government Procurement website but will in the future permit access to Government voice and data gateways bringing significant cost savings to College.

**Expansion of the wired College network** - IS Services co-ordinated 94 jobs with contractors on behalf of College Departments (50) and Director of Buildings (44)

**Trinity Internet connection upgraded tenfold to 10 Gigabits/sec** -During the year College production and research traffic traversing the college Internet access point had regularly exceeded 850Mb/sec during peak periods, effectively consuming the bandwidth capability of the then 1 Gigabit/sec system.

In Q4 2009 a project was initiated to upgrade the College Internet connection speed tenfold - from 1 Gigabit/sec to 10 Gigabit/sec - and integrate support for the emerging 10 Gigabit/s optical light-paths "end-to-end" Lambda technology to support researchers. The objective of this project was to meet the current and future Internet connectivity needs of the College community, the demand for which has increased significantly in recent years due to the on-going expansion of the College wired and wireless data network and a requirement for high performance, high bandwidth Internet links to serve bespoke College research computing needs.

This new infrastructure is considered a significant evolution of the College Internet connection and has introduced a high performance, high bandwidth, fully resilient Internet access point architecture in line with action item 6.15 from the Trinity College Strategic plan 2009-2014 "*Build a cyber-infrastructure to support research*"; the benefits of the this new infrastructure are already being leveraged.

The TCD based GRID Ireland research group, which manages the infrastructure for the national computational Grid for Ireland has recently commissioned a high performance multi-gigabit Internet presence via this infrastructure.

Plans are also underway to commission a similar link for the Trinity Centre for High Performance Computing (TCHPC).

With this infrastructure in place IS Services will be in a position to further enhance, support and future-proof the Internet connectivity requirements of the College community and under-pin the College's core mission of Teaching and Research in the coming years.

**New Buildings network connectivity** - 7-9 South Leinster St. (Phoenix House) and the Trinity Long Room Hub buildings were integrated with College IT/IS systems at the end of the academic year. The telephony system in 7-9 South Leinster St. operates on the College network (IP telephony) which is one of the building blocks for College's move to a Unified Communications platform. This was delivered by a joint IS Services/Director of Buildings project which involved an EU public procurement exercise.

## **Computer Systems Enhancements**

### **Upgrade of College virus management service**

A project was completed in 2010 to upgrade the Colleges centralised virus management service McAfee e-Policy Orchestrator. The upgrade has provided extended functionality and a more robust infrastructure for this service. It is currently managing 4485 College desktops and servers for virus protection.

### **Centralised Data Storage Service**

IS Services has continued our expansion of our Storage Area Network (SAN) in 2009-2010 to allow for a large growth in our virtual server farm and a growing requirement for centralised data storage in College. We currently provide and manage this infrastructure to host our virtual environment and to host data centrally for a large amount of College projects both administrative, research and academic. There is currently 130 Terabytes of information managed by IS Services.

### **Server Management**

IS Services has extensively expanded its Server Virtual infrastructure in 2009-2010. The current infrastructure has a centralised server virtual farm with 12 physical servers hosting 175+ Virtual servers supporting the main College Systems. Current 65% of our physical servers have been converted to Virtual servers. This is well ahead of others in the sector and brings significant costs savings.

Our virtual environment has allowed for consolidation of our server hardware resources and provides us with the ability to scale to multi-virtual systems, to simplify management and to provide greater redundancy and scalability. A project is currently underway to upgrade our current environment to vSphere4 to enable us to adopt key new features. This is to provide greater functionality and provide a more stable platform to continue to expand the Virtual environment. This project will be completed in Q1 2011.

### **Password Integration on the College Web Server.**

The project to integrate the College web server for authentication was completed, providing access to all services on the College web service using the central College authentication service. This service allows users to access all computing services to which they have rights with a single username and password.

## Management Information Systems (MIS)

In addition to new development, MIS continued to support and maintain all existing systems, databases, utilities, interfaces, reports, lists, etc. As the inventory of new systems increases, so also does the maintenance and support burden. In particular, the move to a packaged approach has shifted the support burden from development teams to the database support team, which must maintain individual environments for each application; manage and support vendor software releases and upgrades; manage vendor performance at a technical level; provide secure remote access to vendors, and ensure that vendors adhere to our technical standards. During 2009/10 a number of projects were completed and more were initiated.

### Programme Management Office

The Programme Management Office (PMO), which is managed through MIS, provides programme and project management services, project quality assurance, and advisory services to clients in College.

The PMO, which oversees all significant development projects for IS Services, was consolidated further in 2009-2010, with the release of our Enterprise Project Management System, based on Microsoft Enterprise Project Manager and Microsoft SharePoint Server 2007. This system provides IS Services with centralised storage and management of project plans and staff resources (availability, assignments, tasks, progress, etc.); a specific workspace for each project to enable collaboration among the project team; a document repository for all project documents, and a specific SharePoint project site for project stakeholders.

All development projects and associated resources are now managed and coordinated using PMO processes and systems. A set of standard procedures is now in place, which enables IS Services to manage its significant portfolio of some 40 current projects and approximately 60 project requests effectively.

Further information on the PMO can be accessed on the IS Services website at

<http://isservices.tcd.ie/general/pmo.php>.

The next stage in the continuing development of the PMO is the creation of enhanced dashboard reports, which began in 2009-2010 and will continue in the coming year. Examples of dashboard items will include RAG reporting by project, number of current projects by phase, number of pipeline project requests by area, improved baseline reports, etc.

We also intend to introduce portfolio management during the coming year, which will enable IS Services to manage the range of projects in relation to the College's Strategic Themes. This will greatly help to identify the relevance of projects to the College's

strategy. The introduction of Portfolio Management will require an upgrade to our current software environment, which will be completed in 2011.

It is also intended that enhanced reporting will be available for the College's Executive Officer Group and Projects Management Group during the coming year, to include portfolio reporting, by the end of the year.

### **Continuing the move to third party packaged systems solutions**

As mentioned in last year's report, the move to the procurement of packaged systems and services continues and many of our key systems are now on a third party platform, either hosted externally or internally. In all cases, there is a shared support responsibility, with the vendor providing some elements of support and MIS providing others, such as database deployment and support, database and application security, user management, upgrades, installations, problem and bug fixing, etc. The key operational systems currently running on packaged applications now include:

- Accommodation, Banqueting and Catering Management System
- CODA Financials
- Core eRecruitment
- CORE HR
- Core Payroll
- Core Time and Attendance for the Library
- Core Time and Attendance for the School of Nursing and Midwifery
- Enterprise Project Management
- Library Management System
- Manuscripts Management Information System
- Sports System
- Student Counselling System
- Student Health System

Further systems requirements to be fulfilled through third party products include the Student Information System (GeneSIS), the Finance Information System, the Campus Card System, the Virtual Learning Environment, and the Mental Health Portal. MIS has also been involved in successful competitive dialogue processes for the Library Management System and the GeneSIS project.

In addition, several other current projects are being delivered using third party products, including Exchange 2007; Blogging with Wordpress; SharePoint for the Treasurer's Office and HR Document Management System; and the Enterprise SharePoint project, which is in planning and will start early in 2011.

### **Replacement email system**

During 2009-2010, a major project was undertaken to replace the current legacy email system with a modern system based on Microsoft Exchange. This project involved the migration of approximately 5,000 user accounts from an old UNIX-based system, which had reached end of life, to a single consolidated platform. This project provides the basis for the College to move to a new Unified Communications platform (College Strategic Plan 2009-14) and to offer new services such as access to email through the Internet, support for mobile devices, improved calendaring, collaboration, etc.

As every user in College was affected by the Exchange project, considerable effort, in human resources terms, was required to deliver it. This was complicated by the range and diversity of platforms, clients and systems currently in use. While the project led to some disruption for some users, the overall reaction of users is largely positive. The College's email service is now supported on a modern, secure, resilient and reliable infrastructure that will enable us to deliver further strategic advantage in the coming years.

### **Completed projects 2009-2010**

The main MIS projects completed in 2009-2010 include:

- Accommodation, Banqueting and Catering System
- CORE eRecruitment
- Enabling Project Management - Framework, System and Processes
- eReports upgrade
- Exchange 2007 and Calendar Migration - phases 1,2 and 3
- Library Management System
- Manuscripts Department Information Management System
- Nursing Time and Attendance System
- Student Counselling System
- TARA upgrade
- WiSER phase 2

Further details on each of these projects are available in Appendix XXX and on the PMO website at <http://isservices.tcd.ie/general/pmo.php>.

## Operations, support and systems' enhancements

Although MIS has moved successfully to a procurement model to meet its future systems' needs, it still retains a significant burden of support work, including system modifications and enhancements, particularly in relation to:

- Database management, administration and support for development, test, training and production databases, across several versions.
- Support and enhancement for legacy systems, such as the existing Student Information System, Fees System, Alumni System, ePayments, Examinations System, TCD Local Portal, Research Support System, Peoplefinder, Unit Costs, CAO, PAC, ExamR, HEA Systems, Proctors Transfer System, Student Registration and Student Records System, and PCSF re-write.
- Support, interfacing, and integration for older application software such as Raiser's Edge, ID Card Production System, CORE, Coda Financials, CMIS Timetabling System, etc.
- Development and go-live of the elements of the European Diploma Supplement System.

Although many legacy systems will eventually be replaced by newly acquired packaged applications in the coming years, it is expected that most legacy systems will need to be maintained, supported and, perhaps, upgraded and enhanced for the next three to four years. Naturally, due to the ages of many of these systems and to the obsolescence of the platforms on which they are hosted, this situation presents some risk to College. MIS continues to implement whatever mitigating actions are practicable to reduce risks where possible.

### Enterprise architecture - vision, principles and governance

The College's Strategic Plan 2009-2014 requires the development of an enterprise architecture, which will provide the framework for the communication, interpretation and implementation of College's objectives and will enable the evolution of a strongly aligned IT environment.

Enterprise architecture is the "bridge" between business problems and technology solutions. Components include the College Strategic Plan 2009-2014, College policies, data, processes, IT systems, and IT infrastructure, particularly where they are important to more than one Faculty, School, or Department or to the College in general.

Enterprise architecture is concerned with:

- Ensuring components fit together, are well organised with respect to one another, and can be linked together when needed
- Providing the framework for the communication, interpretation, and implementation of College's objectives
- Building a common understanding of future IT direction
- Identifying systems and information needed to support College business processes
- Reducing the cost and complexity of College IT systems
- Defining College technology infrastructure
- Enabling the evolution of a strongly aligned IT environment that produces real business value from College IT investment
- Enabling the development of an integrated technology platform.

The Vision for Enterprise architecture:

- Examines the major challenges presented by our current architecture
- Describes a vision for our future architecture
- Provides a roadmap for future direction
- Helps with prioritisation and scoping of future projects
- Aligns IT deliverables with business needs, and
- Helps with gap analysis.

Through the development and implementation of an enterprise architecture, the College will:

- Maximise the value to the College from IT investments
- Manage and reduce the complexity of College systems and processes, and
- More easily assess the business and technological implications of change.

### **Enterprise architecture - progress during 2009-2010**

Significant progress was achieved during 2009-2010 in the development and delivery of the architecture. The vision, principles and governance processes for the enterprise architecture were developed and approved and these form the baseline against which all ICT projects are now evaluated. A comprehensive analysis of the College's current enterprise application and technology portfolio has been completed to support the evolution of a strongly aligned IT environment and the development of the roadmap for the future technology direction of the College.



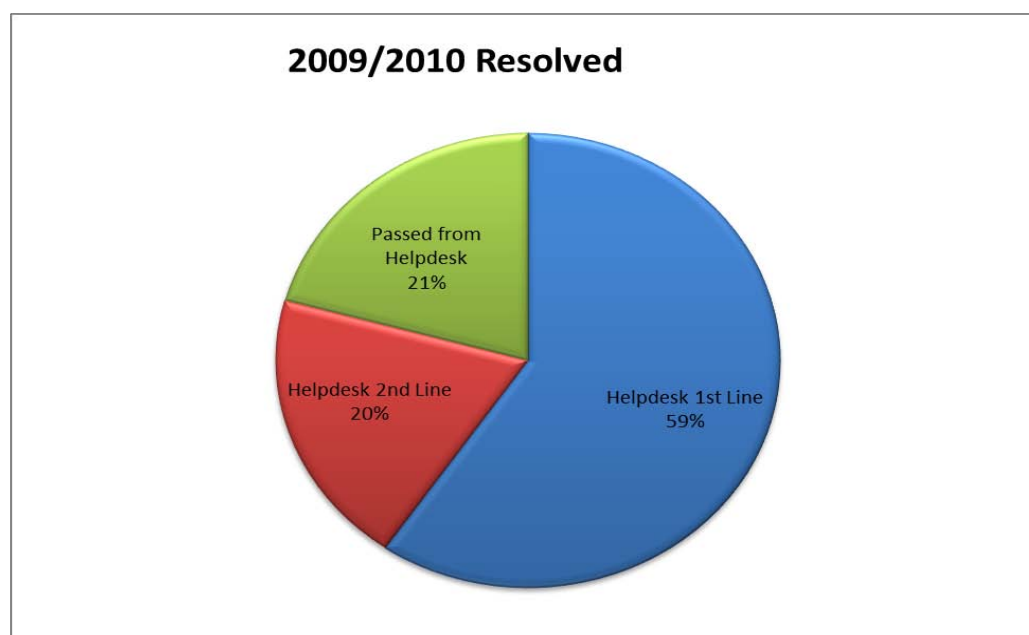
Finally, plans have been developed for the implementation of a College-wide Identity Management System, which will enable managed access to College resources such as business data, IT systems and assets. It will allow us to know who everyone is in the College, communicate more effectively across the organisation, promote better enterprise systems' integration, enable self-service capabilities in College IT systems and reduce deployment time.

## 2009/10 - The Academic Year in Numbers

IS Services operates a central helpdesk where all user calls are recorded. The user has traceability of their call via the web. In the past year IS Services received over 59,000 requests for assistance.

### Summary for Academic Year 2009-2010

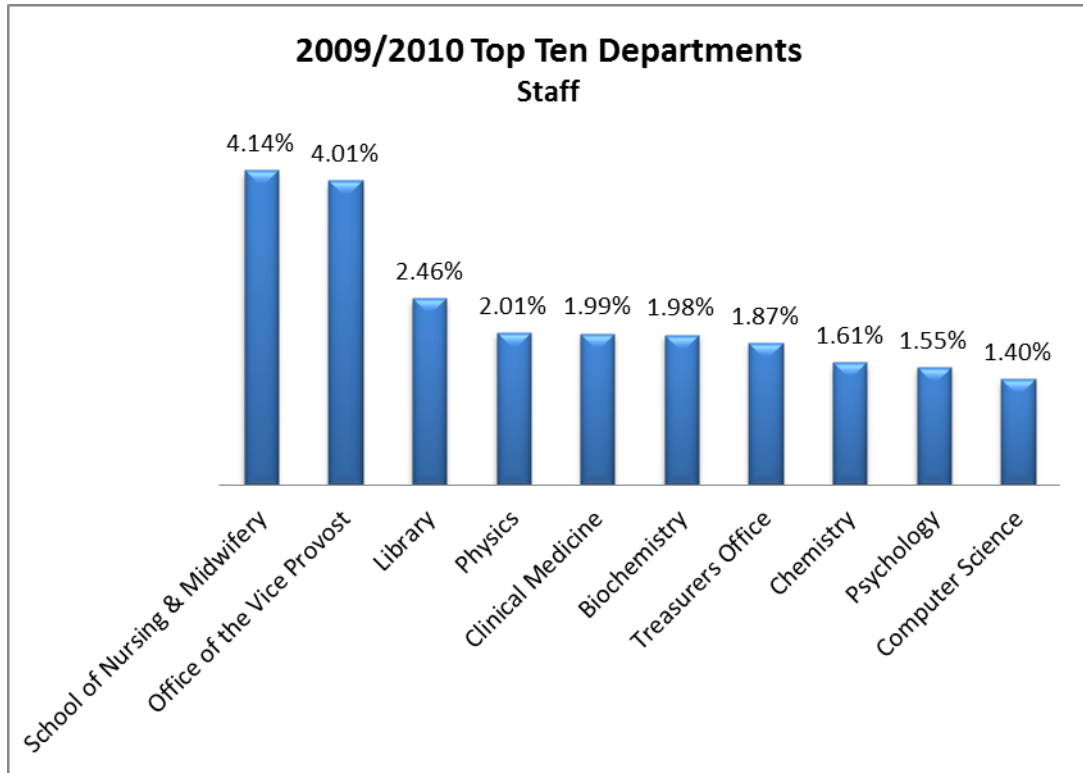
Phone Calls (896 2000)	31239
Emails (helpdesk@tcd.ie)	13947
Walk-In (Áras an Phiarsaigh)	13501
Web Submissions ( <a href="http://helpdesk.tcd.ie">http://helpdesk.tcd.ie</a> )	559
<b>Total</b>	<b>59246</b>



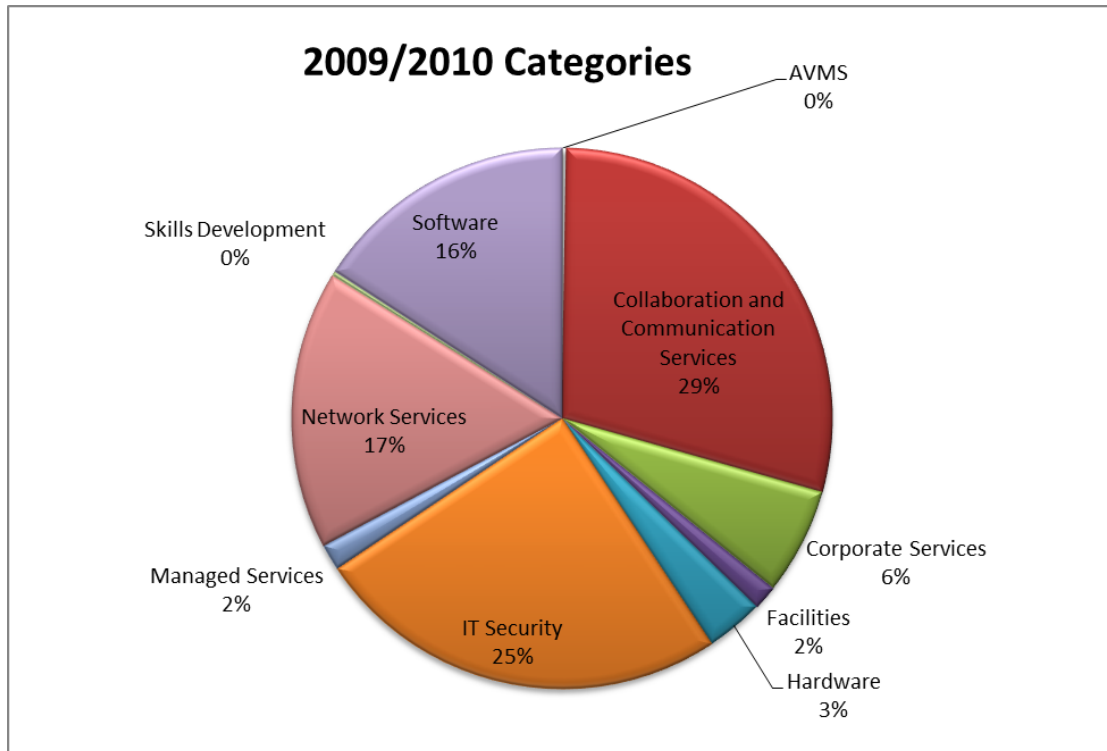
The % number of calls resolved at the first point of contact is 59% with a further 20% resolved within the support group. 21% of assistance requests required further investigation by other groups within IS Services.

**\*\* DRAFT \*\***

The top ten staff user departments that log support calls to the Helpdesk are listed below



The following are the main categories that requests for assistance fall into

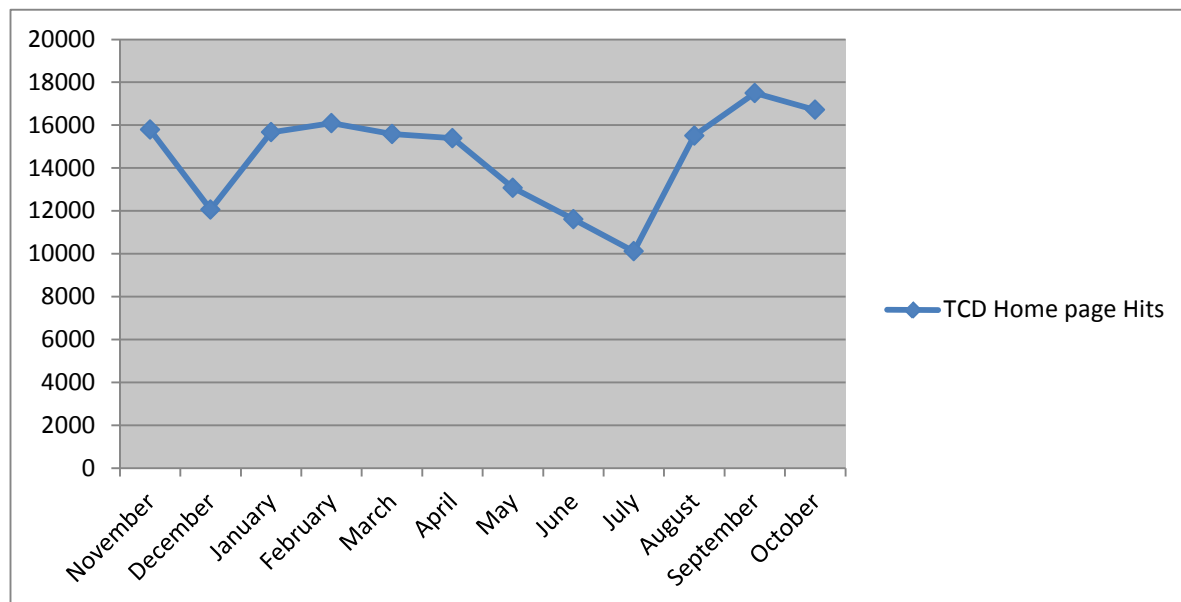


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**Query Categories - Explanation of query types.**

Network Services	All queries relating to network connectivity at College.
IT Security	All queries related to Security and includes queries on IT Accounts for example usernames and password problems
Collaboration and Communication Services	All queries on services which are available to all and for example includes Email, Calendar, Web, File-storage, Podcasts
Software	All queries on server and desktop software and includes desktop services such as EPOL and SMS & server software such as VM Ware
Facilities	All queries on facilities in Learning Spaces managed by ISS in College
Corporate Services	All queries on services that provide functionality to serve the administration requirements of College. Generally services provisioned by MIS.
AVMS	All queries on Audio Visual Services not in Learning Spaces, for example Photography and Video Production
Hardware	All queries regarding hardware
Skills Development	All queries regarding training and online information
Managed Services	All queries on specific services including hardware hosting that ISS provision for individual departments. These services are not generally available to all users across College.

The College website continues to be a source of knowledge for people requiring information about the College. Below is the number of hits for 2009/10 <http://www.tcd.ie>



### Summary of significant numbers

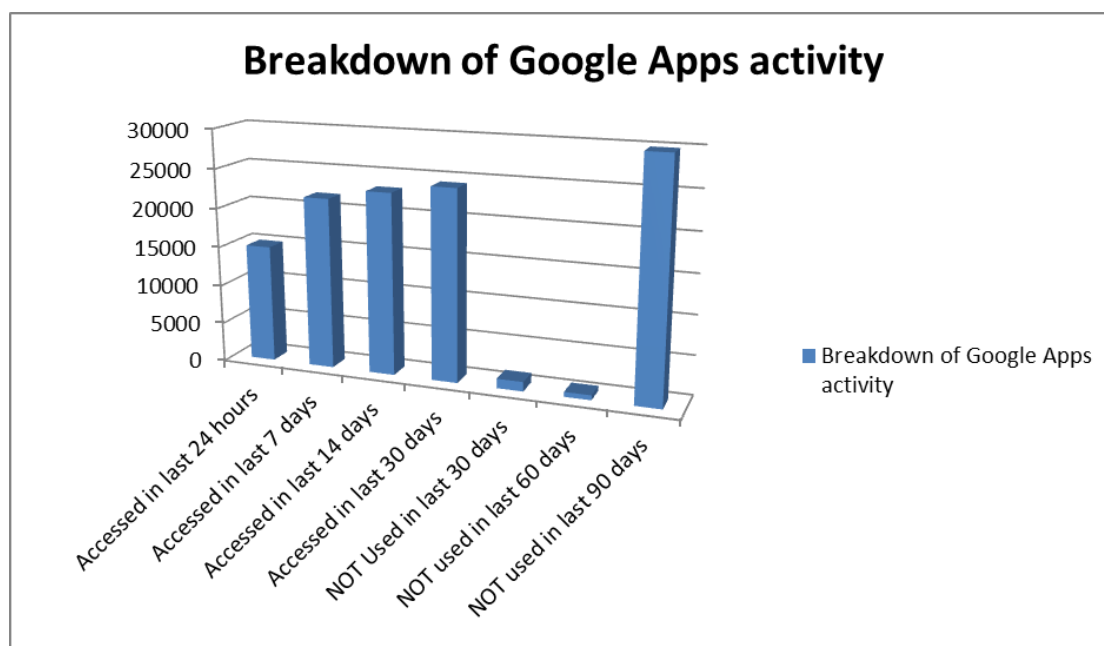
- 25,000 end users
- Support on campus and to 23 remote sites
- 175 Data Communications cabinets
- 15,000 live data network points
- 175 Virtual Servers running on 12 Physical Servers
- 700 wireless hot spots
- 59,200 requests for technical help in 2009/10
- 26 IT Projects completed
- 7,000 students using their own computers on the College network
- Students now using 8.5 Terabytes of Google storage
- 10 fold increase in Internet speed 1GB to 10GB via HEANET
- 1000 student computers managed by IS Services
- 41 million emails received to tcd.ie
- 539 million SPAM email blocked
- 248,631 Virus infected mails blocked
- 43,779 Phishing emails blocked

**\*\* DRAFT \*\***

## Enhancing the Student Experience

Overall Support Services provided the following for New Student Induction September\October for Academic Year 2009\2010 and support for network

- 1146 additional hours or 164 extra person days of Support (Training\NAC Clinics\Information Desk) were provided in addition to the full Helpdesk Service
- Helpdesk handled 12,111 calls for assistance during Induction
  - 44% received via Telephone Calls
  - 37% of callers visited the Walk-in Helpdesk = 83% of all student visits to the Walk-in Centre were for password issues
  - 17% received via Email
- 1326 Students have attended a NAC Clinic
  - 33% of users need assistance to connect (down 9% on 2008-2009)
- Total Number of Connections to the NAC by end of October 2009 is 4044
  - This number of connections was not reached until January in previous Academic Year
- Use of Student Email Service provided by Google as recorded on 17<sup>th</sup> November 2010.



- A number of student computing facilities were upgraded in 2009/10. Over 200 computers were replaced with new models.

## IT Security

The 2009/10 academic year marked a notable rise in IT Security threats globally and consequently to the College Data network. An increased number of Security incidents were recorded in 2009/10 these included most notably targeted phishing attacks against third level institutions. The scale of College operations, the rapid adoption of new technologies and the large number of new systems/applications implemented in College every year contribute to a challenging environment in which to implement security controls however Information Systems Services have made significant progress in the following key areas as discussed below.

**Phishing** - Third level institutions worldwide have been under attack this year from targeted phishing scams. Trinity College has been experiencing an ongoing low level of attacks punctuated by a number of notable larger scale more sustained attacks in March, June and October. A number of users compromised their credentials in the first attack however following numerous informational emails and alerts on the Information Systems Services website the numbers of users responding to subsequent attacks was greatly reduced

**Virus/Malware** - The comprehensive antivirus software in place on all desktop and server systems has continued to successfully minimise disruption caused by viruses and worms. As an additional service Information Systems Services use the data produced by the College anti-virus system to contact users experiencing repeated virus detections in order to provide assistance in identifying any underlying issues or vulnerabilities associated with their computers.

**Software Updates** - Monthly roll-outs of Microsoft Security patches continue to approximately 5000 workstations and servers in College. These rollouts are managed by the User Support Group and are successfully ensuring that College machines are compliant with the most up-to-date security levels. This provides further protection against virus infection and system compromise.

**Account and password management** - A number of initiatives have been progressed to help ensure the integrity of College user accounts and passwords. Information Systems Services have implemented a 180 day mandatory password change policy to ensure that users update their passwords in a timely manner. Additionally Information Systems Services has provided a remote password change/reset service Password Manager.

**Intrusion Detection** - The College Intrusion detection system which proactively detects threats to the College network was upgraded and fine-tuned to cover the College data network more comprehensively. This system has proven particularly successful in alerting Information Systems Services to security incidents in a timely manner.

User Awareness - Information Systems Services has continued to provide high quality information and advice to users on measures to secure their IT equipment via user notes and an informational website.



## **Service Plan 2011**

The service plan for 2011 will address some of the key issues that the College faces in delivering IT services in a cost efficient and effective manner. The following strategic initiatives (aligned with the College's Strategic Plan 2009-14) and the IS Services work programme (Appendix C) will help to ensure that investment in IT across College will be prioritised to meet the College's strategic objectives and maximise the yield on IT expenditure. Key to the successful delivery of IT projects and IT service delivery is IT governance. The issue of IT governance will be addressed in the Information Strategy when it is finalised in March 2011 and will be brought to the relevant committees/groups for ratification. It is important that the re-organisation of IS Services structures is prioritised and the integration of The Centre of High Performance Computing with IS Services goes ahead as planned as this will allow the development of a dedicated research computing unit.

**IS Services strategic initiatives and corresponding Strategic Plan objectives are listed below.**

### **Develop and publish an Information Strategy, and keep this strategy under review**

The Information Strategy will set out the long-term vision for the information management and sharing in College. The Information Strategy will incorporate the E-Strategy programme requirements as well as the other information needs across College. It will allow College to have a structured approach to Information Systems and ensure maximum yield on all Information Systems investment by avoiding duplication of facilities, resources, staffing and generating efficiencies and greater effectiveness in information provision. A key component of the information strategy is Enterprise Architecture.

### **Enterprise Architecture**

Enterprise Architecture will provide the framework for the communication, interpretation and implementation of College's objectives and will enable the evolution of a strongly aligned IT environment. The enterprise architecture will also address the areas of services architecture, information architecture, services platform helping e-Strategy progress and addressing the issue of legacy systems which has been identified on the College's High Level Risk Register

### **Establish a Virtual Learning Environment (VLE) and a Virtual Research Environment (VRE)**

The establishment by the College of a VLE and VRE further facilitates collaborative learning and knowledge creation. The VLE will be delivered in 2011 via a new cross functional group in College which involves members of the Centre for Learning Technology working with IS Services and the Web Office working under the direction of the Digital Communications Strategy Group.

Work will commence on the delivery of a VRE which will be delivered by a cross functional team of end users, stakeholders and staff from IS Services and The Centre for High Performance Computing.

### **Transform the campus experience with mobile web**

As students and staff become increasingly accustomed to incorporating their mobile communications devices information into their daily routines, the requirement to access College services with these devices will also increase. Access to mobile services will enhance productivity. A pilot project that was completed in 2010 will enable students to access some Information Systems using mobile devices such as smart phones and notebooks.

### **Build an integrated communications technology platform**

Build an integrated communications technology platform that will deliver improved efficiencies while simultaneously meeting the evolving needs of the College's academic, research, administration and support staff (Action 6.27 of College's Strategic Plan). This project is a key deliverable for the Biosciences building and a cross-functional team led by the Director of Buildings and IS Services has been setup under the guidance of the Chief Operating Officer.

### **Build a cyber-infrastructure to support research**

Build a cyber infrastructure of high speed networks and advanced computational resources and applications that will connect researchers and educators around the world in a digital environment to promote further discovery and education. Work was completed in 2010 to develop a 10GB dedicated research network and to upgrade the main College network to 10GB simultaneously. This is a ten-fold increase in bandwidth and will provide the infrastructure to add new buildings like the Biosciences Building and is the foundation for the development of Research Computing.

## Make TCD a Green Campus

Development of a new Green Data Centre for College will increase efficiencies and effectiveness reducing power consumption and carbon footprint. It will also tackle duplication of service provision across College and will mitigate the risk that the College currently has in this area. It is hoped that the new Data Centre will be completed in Sept 2011.

## Main MIS development projects for 2010-2011

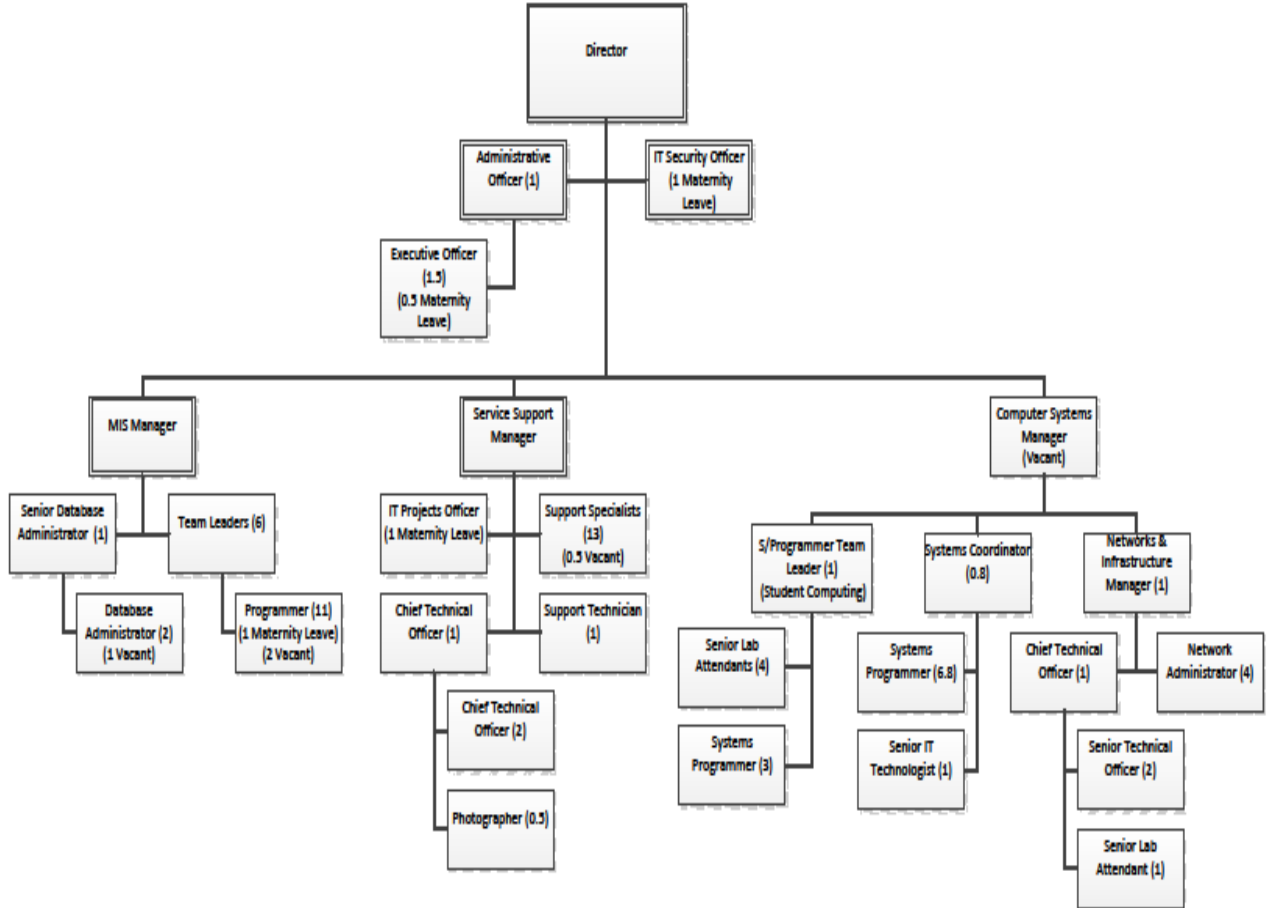
The main development projects in MIS for 2010-2011 include:

Enterprise architecture - governance, migration, policies, procedures, integration of projects and systems

Identity Management - new start

- GeneSIS Project - hosting, database management, integration, interfacing and support services
- Finance Information System - new start
- Enterprise SharePoint 2010 - new start and provision of environment for the following projects:
  - Enabling Project Management upgrade and enhancement
  - Document Management for HR records
  - Several other outstanding requests for Sharepoint services
- Campus Card System - procurement, selection and implementation
- Research Support System - continued development and enhancement
- Research Quality Metrics - continued development and enhancement
- Exchange Project - final phase, close out and retirement of legacy system and hardware
- Virtual Learning Environment - procurement, selection and implementation. Further work on this project may be influenced by decisions in relation to the GeneSIS Student Information System Project
- School of Medicine Examinations System. Further work on this project may be influenced by decisions in relation to the GeneSIS Student Information System Project
- Replacement Oracle Application Server Environment
- Support and Project Management for the Digital Communications Strategy, including further work on CampusM, Virtual Learning Environment and iTunesU.

# Appendix A



## **Appendix B - List of completed IS Services Projects 2009/10**

### **Internet Access Point Upgrade (Q4 2009)**

Completed the upgrade of the College's Internet access point to improve resilience and redundancy.

### **Library Management System (Q4 2009)**

Completed the project to replace the current Library Management System (LMS). The LMS provides support for the staff and student research and learning experience - providing access to the Library's resources, managing loans, maintaining records and providing essential management systems for ordering, acquisitions, cataloguing, Legal Deposit and a variety of other Library routines. The first significant upgrade to the system was also completed in 2010.

### **IP Telephony (Q4 2009)**

20 IP telephones were installed to replace 20 existing phones in Director of Buildings Office and IS Services. This trial exposes both Departments to the prevailing technology in this area allowing for assessment of organizational, business and technical implications prior to subsequent phases of similar projects.

### **Peamount Hospital for School of Medicine (Q4 2009)**

Completed work on an offsite computer lab for TCD nursing students studying in Peamount Hospital.

### **ABC - Accommodation, Banqueting & Catering (Q1 2010)**

Completed the final phases of the ABC project, which procured a new system to support Accommodation management, the management of banquets and other catering events and the management of conferences held in TCD.

### **Government VPN (Q1 2010)**

Completed a project to provide the College Procurement Office with access to the Government VPN. A HEAnet link between TCD and Government Networks has been provisioned. Government Networks have issued TCD with the appropriate IP addressing scheme for the Firewall Interface.

### **Wireless Network Architecture Upgrade (Q1 2010)**

Completed the transition of the College's large Wi-Fi network of over 600 wireless access points from legacy autonomous to a modern controller based lightweight architecture.

### **WiSER Phase 2 Feasibility Study (Q1 2010)**

A routine development phase of updating the system to reflect changes in College Structures. The project aims to provide accurate, standardised, gender disaggregated data to support initiatives of the Women in Science & Engineering Research (WiSER) and the Equality Office. The current project aims to widen the range of data available.

#### **Provost's Office CRM Application - Sage ACT (Q1 2010)**

Completed the project to provide infrastructure service delivery and support to underpin this customer relationship management application need. An external third party supports the application.

#### **Tara Upgrade (Q1 2010)**

Completed the project to implement and interface an upgrade to the DSpace Institutional Repository. The system improves workflow processes, stabilizes and future-proofs the system. The system was upgraded to DSpace 1.6 and migrated to a new virtual server infrastructure.

#### **Discipline of Occupational Therapy (Q1 2010)**

Completed the upgrade of AV equipment in the seminar rooms in the Trinity Centre for Occupational Therapy. One of the seminar rooms has a video conferencing link to the School of Nursing to facilitate remote access.

#### **GoogleDocs (Q2 2010)**

GoogleDocs was implemented to provide an additional suite of functionality in MyZone, (Google Email Services), for use by all Trinity College Students. GoogleDocs is a web-based service for documents, spreadsheets, and presentations that will allow students to upload their work for anytime, anywhere access and to share their work for collaboration with others.

#### **TCD/UCD Innovation Academy (Q2 2010)**

Completed work to support the refurbishment of the old banking hall in Foster Place to provide a workspace for TCD/UCD innovation alliance.

#### **Upgrade of the College Antivirus Management System (ePOL) (Q2 2010)**

The centralised antivirus management application (Epolicy Orchestrator) was upgraded to the latest version, as was Windows desktop and server antivirus software. This provides much improved detection, management and reporting of virus and malware threats in College.

#### **eReports Upgrade (Q2 2010)**

Completed a major upgrade to the existing eReports system.

#### **eRecruitment (Q2 2010)**

Implemented the eRecruitment module of the CoreHR application. The eRecruitment module facilitates online job applications and offers potential for reducing the high levels of manual activity involved in the recruitment of staff. It provides a central repository of recruitment data. This project was undertaken with the Staff Office.

#### **Lambda Service and 10Gb Upgrade (Q2 2010)**

Upgraded the current two production 1gigabit per second data network connections with HEAnet. This project consisted of the design, procurement and implementation of two new College data network ingress / egress points for the purpose of supporting a new form of high speed dedicated end-to-end 10gigabit optical point-to-point network links. The project reused the existing 1gigabit per second firewalls, to replace and upgrade the current VPN service. This new service provides VPN service infrastructural scalability and availability for College staff.

#### **HEA Federated Access Trial (Q2 2010)**

Federated Access is an enabling technology that will allow Trinity students and staff to avail of services provided by other companies and institutions using their TCD identity. In the broader context, HEAnet are facilitating the establishment of a Federation between all third level institutes in Ireland called EDUGATE ([www.edugate.ie](http://www.edugate.ie)). IS Services are participating in the EDUGATE pilot project, and intend to join the EDUGATE federation when it is established.

#### **EDUROAM 802.1X (Q2 2010)**

Completed the project to enable the EDUROAM service on TCD's extensive wireless network, both on campus and at remote sites. EDUROAM (education roaming) is the secure, worldwide roaming access service developed for the international research and education community. EDUROAM facilitates roaming educational users to gain Internet access with their laptops at other member sites by authenticating against a server hosted at their own institution. TCD is now a fully enabled EDUROAM participant offering both the Service Provider (SP) and Identity Provider (IdP) services.

#### **Manuscripts Department Information Management System (Q2 2010)**

Completed the project to source, implement and install an information management system to enable the Library's collection of unpublished research material in the Manuscripts Department to be made available online.

#### **Practice of Pharmacy - Servicing IT & AV Requirements (Q2 2010)**

IS Services worked with the School of Pharmacy to provision the IT and AV requirements for the new Practice of Pharmacy areas. The Practice of Pharmacy areas are made up of a teaching room with 42 workstations for large class teaching and a mock dispensary and observation area for small group teaching and in-service Pharmacist training. IS Services assisted in the provision of the College network to these areas, provisioning centrally managed Windows Operating System images for the workstations and a consultancy service for the specification of the specialist Audio Visual service requirements.

#### **Enabling Project Management (Q3 2010)**

Completed the project to define and implement a project management framework for use throughout ISS. Implemented Microsoft Project Enterprise Server within ISS to support the framework. Upgraded SharePoint 2003 to SharePoint 2007, which was required to support MS Project Enterprise Server implementation.

#### **Exchange 2007 and Calendar Migration (Q3 2010)**

This project replaced out-of-date and end-of-life software and hardware for mail and calendaring with Microsoft Exchange 2007, which includes private shared calendars, email, mobile services and

web access. Rollout began in early 2010 and was completed for staff in Q3 2010. The final phase of this project, which involves decommissioning redundant email accounts, decommissioning hardware and removing end-of-life components from the Data Centre, will be completed by Q1 2011.

#### **Nursing Time & Attendance System (Q3 2010)**

The School of Nursing and Midwifery have 1,200 student nurses attending both theory and clinical placements throughout the academic year. As a professional course, attendance must be planned, monitored, recorded and reported in accordance with the standards and requirements of An Bord Altranais (ABA). Due to the increased number of students a more accurate and less labour intensive system became essential. This project addressed the requirement to monitor attendance at theory modules.

#### **CampusM (Q3 2010)**

Implemented CampusM, a mobile application that enables students to receive University information directly to their mobile phone. One click gives students access to information about their university, up and coming events, campus maps directions, library records, contacts, latest news and important alerts.

#### **Titanium Implementation (Q3 2010)**

Titanium Schedule is Counselling Centre Management software, designed in the United States for University and College Counselling Centres. This project was completed in Q1 2010, with minor enhancements to take place by Q4 2010.



## Appendix C - IS Services Project list 2010-11

### IS Services Project List 2010-2011

The list below provides details of the main IS Services projects for 2010-2011, with an indication of the expected completion quarter.

#### Phoenix House IPT (Q3 2010)

Almost all College telephones are currently connected to the Ericsson telephone system in College via a dedicated telephone cabling system. This project provides a similar telephone service converged onto data network to up to 250 building occupants. A noticeable difference for the end user will be that the telephone is connected to the data outlet on the wall and the computer will be connected to the phone. The scope of this project includes the provision of a 'hard' phone of the desk as is the current standard practice. Additionally an optional soft phone will be available to users.

This modern telephony architecture called Internet Protocol Telephony (IPT) is the basis for integrating communications devices and information systems in the future, as per College Unified Communications (UC) Strategy. This project represents the first small phase of UC Strategy implementation. In addition to reducing costs in the medium to long term, IPT and UC support College strategy action items 6.13 transform the campus experience with mobile web, and 6.14 Build an Integrated Communications technology platform.

#### AVMS Summer 2010 (Q4 2010)

This project is concerned with the upgrade and improvement of audio-visual and media services, primarily for teaching facilities in College.

Phase 1: Podcasting, to expose the iMacs in on campus theatres and seminar rooms.

Phase 2: Burke-Emmet AV Upgrade, to replace touch panel and install video link between these theatres and video recording.

Phase 3: MacNeill AV Upgrade, replace touch panel and investigate video recording as in Burke.

Phase 4: D'Olier St AMX Extension, extend the AMX Room Management System to D'Olier St.

Phase 5: AV Seminar / Teaching Rooms, install AV equipment in 8 Senior Lecturer Pool Rooms.

Phase 6: Projector Replacement, replace end of life projectors in 5 computer labs and 7 theatres.

Phase 7: Audio Upgrades, purchase replacement microphones for Hamilton building.

Phase 8: TV-VC Lighting, purchase additional lighting for the TV-VC Studio.

### **Research Proposal & Award Management System (RPAMS) (Q4 2010)**

The scope of the project is to procure, implement and interface an 'end to end' Research Proposal and Award Management System. The system aims to support and track all documents relating to research proposals and awards until point of transfer to post-award management. It is a project for the Trinity Research & Innovation (TR&I) unit whose primary goal is to produce a more efficient and effective contract review and signature process for the College community. Some delays were encountered in this project and a revised completion date will be agreed in Q1 2011.

### **RSS 1.3 (Q4 2010)**

This project is to implement change requests for the Research Support System (RSS) in accordance with the Trinity College Strategic Plan. The first elements of this were to provide information for the new Annual Research Report consisting of graphs for peer-reviewed and published Books, Book Chapters, Journal Articles and Conference Proceedings for all Schools during 2006, 2007 and 2008. Additionally Journal and Publisher Standardisation codes was developed to enable quality assurance on the data. The project will continue with work to implement College's RQM criteria, as passed by the Board on 31st March, 2010.

### **RQM (Q4 2010)**

The RQM involves a three-component system for determination of research-derived allocation within the Resource Planning model:

- Component 1 - Derived from the percentage of staff meeting criteria for research outputs
- Component 2 - Derived from the existing weighted competitive research expenditure
- Component 3 - Derived from attainment of specific school selected research objectives

This RQM project only deals with Component 1. The RSS shall receive a list of core-funded academics and output a report indicating which of these meet the first four criteria of Component 1. Other key deliverables of the project are to provide a means to standardize journals, publishers and conference papers and to provide a mechanism for school administrators to approve (at school level) non-standard ones for inclusion when determining who meets the criteria of Component 1.

### **Training Course Podcasts Initiation (Q4 2010)**

The Training and Publications group are in the process of recording a series of podcasts covering selected topics from the classroom based training courses they provide. These podcasts will be made available, along with exercise files and course notes, on the IS Services website and so College staff and students will be able to self-train to an extent without needing to attend a classroom based course, or will be able to use the material to supplement the classroom based courses.

### **Mental Health Portal - My Mind Matters (Q1 2011)**

A collaboration between TCD, NUIG, UCC and DKIT. Student Services will include self-help information, counselling via email and an on-line discussion form. A security review of this project, which is necessary prior to its going live, has been scheduled and will take place in Q1 2011.

### **Blogging (Local Service) (Q1 2011)**

This service will allow members of the College community to have a hosted blog using the popular software, Wordpress, which has been installed and configured and a security review completed. The trial system has been delivered in IS Services for testing. The College's Policy on Social Networking and Social Media was published in Q1 2010. The last remaining action for the release of the service is the preparation of procedures and guidelines for issue to users. It is expected that this work will be completed in Q1 2011.

### **Disk File Encryption (Q1 2011)**

Trinity College is committed to protecting all College data held in electronic format and ensuring that confidentiality is not compromised due to inappropriate access or loss/theft of devices. The objective of this project is to select and implement appropriate products that can be used to encrypt data on users' laptops and other mobile used devices. With the introduction of Microsoft Windows 7, some additional technical requirements emerged, which meant that changes had to be made to the original design of the project. Consequently it has been delayed to Q1 2011.

### **Replacement Hardware DNS (Q2 2011)**

This is a key infrastructure project to support all College user computers. The service will replace the current IP address provisioning service so that users can use computing services on the College network. A new integrated system will be implemented to manage records of entities attached to the College Network and to provide a Domain Name System and DHCP (Dynamic Host Configuration Protocol) service for College users. The solution will provide an easy to use, resilient, highly available and scalable service.

### **Virtual Learning Environment (Q3 2011)**

To provide a replacement for the Web CT system that has been the official College VLE for the last few years. These are the broad areas of functionality that the new system is expected to provide:

- Provide access to teaching materials online
- Provide social networking (blogs, wikis, forums, shared documents, collaboration) related to teaching and learning activities
- Integration with College AD system for authentication
- Integration with College time tabling and student records systems for student, course and enrolment data
- Provide online assessments (suitable for inclusion as part of students' final grading)
- Provide a method for sending SMS text alerts and/or emails to groups of students
- Determine the correct level of access for individual users (students should have access to correct course material)
- To provide flexibility in use of VLE tools to design and develop online modules using innovative teaching methods
- Management reporting (statistics on usage rates etc.)

The final details of the procurement phase of this project are being agreed, with a final procurement strategy being set for agreement in Q4 2010.

### **BioSciences Institute - New Building (Q4 2011)**

Construction of the new BioSciences Institute is underway at the site of the old An Post car park between Cumberland and Sandwith St. IS Services have submitted a specification for the data and network infrastructure requirements for this building to include a new dedicated communications facility, horizontal cabling to facilitate both wired and wireless connectivity and high speed fiber optic cabling to connect the building to the main College network.

### **Campus Card (Q4 2011)**

The Campus Card Scheme aims to provide students, staff and visitors with a universal proof of identity and a means of authentication to access the facilities and services to which they are entitled. The project aims to facilitate better services, to reduce the necessity for multiple card issuances and to reduce the number of card types used on campus. The first components of the scheme will be a Physical Access Control System, Card Production System and a Card Management System. The provision of a suitable IT infrastructure, system integration and the commissioning of door control hardware also are part of the project. Campus card schemes typically provide for the addition of other services and the project will ensure that these opportunities are available for College to consider in further phases.

Requirements have been defined for the project, which will be fulfilled through a procurement process. An invitation for Expressions of Interest will be signed off by Q4 2010 and the procurement process will be initiated in Q1 2011.

### **Wired Network Upgrade to 1000Mbps (Q4 2011)**

There are over 150 data communications facilities distributed across all campus and remote sites. These facilities provide the horizontal cabling and active switching equipment required to connect local offices and departments to the main College network. The existing 100Mbps switching equipment in these facilities is being replaced on an on-going basis with 1000Mbps technology. End users in upgraded areas will have 'gigabit to the desktop' connectivity to the College network.

### **European Diploma Supplement (Q4 2011)**

The European Diploma Supplement has been initiated by UNESCO, the European Commission and the Council of Europe and ratified as part of the Bologna Declaration at the Convention for the Recognition of Qualifications Concerning Higher Education in the European Region (Lisbon 1997), (Section IX. Article IX.3). It is designed as a supplement to the degree certificate and to provide a description of the nature, level, context, content and status of the studies that were pursued by graduates. It aims to:

- Promote transparency in higher education
- Facilitate the academic and professional recognition of qualifications
- Explain the contents of the qualifications delivered by higher education institutions in an internationally understandable form
- Accommodate rapid changes in qualifications
- Aid mobility, access and lifelong learning
- Promote fair and informed judgments about qualifications

The continuation of the remaining elements of this project is contingent on developments in the GeneSIS Project.

#### **Enterprise Architecture (Q4 2014)**

The Architecture Project will deliver a comprehensive architecture to meet the broad needs of College and of the eStrategy project over the coming years, encompassing several areas including design, development and implementation of a comprehensive database and software architecture, based on modern technologies; an integration strategy for integration of newly acquired or developed systems into the new architecture; a migration strategy to migrate existing systems and functionality to the new architecture; a data migration strategy; identity management; tools and technologies.

The Enterprise Architecture Vision, which puts in place the governance structure for development of the enterprise architecture, was approved in Q4 2010. The vision describes the current architecture portfolio and maps out the roadmap for the continuing development of the architecture. All future projects will be required to comply with the enterprise architecture to maximize the value to the College from IT investment and to manage and reduce the complexity of College systems and processes so that the College can assess the business and technological implications of change.

The Identity Management System, which is a component project of Enterprise Architecture, is at the planning stage and will commence in Q1 2011.