IS Services Annual Report 1998-1999

Introduction

This report is being produced earlier in the year than has been the practice, to facilitate a more timely consideration of the issues by Board.

Some new features are being presented this year:

- Staff turnover and recruitment.
- Statistical information on student computing facilities and where possible comparisons with other Irish Universities.
- Future issues facing IS Services and their resource implications.

Following a major increase in staff turnover in the 1997/98 year, a much greater degree of stability was achieved in 1998/99. Policies were put in place to encourage staff retention and these have achieved some success. These include training programmes and the clarification of career paths within College.

Due to the economic revival in the country, recruitment has become very difficult and problems have arisen in obtaining skilled staff at appropriate salary levels. It is probable that this will continue into the future.

Features of 1998/99

One of the major items of work in the 98/99 year was the preparation for the changeover to the Year 2000. The analysis of the problem and the replacement of hardware, software and procedures affected the work of all sections of College.

January 1999 saw the appointment of the Year 2000 coordinator and the start of the publicity campaign throughout College. During the year, all staff and students were circulated with checklists and advised on methods of minimising the dangers of the Year 2000 problem.

All computer equipment and software within IS Services were checked and many systems were extensively tested to ensure that the normal business processes in College would not be interrupted by date related problems.

Many bought in software systems were replaced early in their life cycle and some 3,000 locally written programs were modified or rewritten to ensure that date problems would not arise at the start of, or during the year 2000.

Once again, there was an increase in all the facilities provided by IS Services: more public computers; more networking points; more support needed by users; and more requirements placed on the information services in College. Figures and charts in the Appendix show the continued increase in use of information technology in College. The number of computers in College continues to grow thus putting more demands on IS Services. (Chart 1)

Several security issues arose during the year, the most severe occurrence resulted in a person being arrested by the Gardai. The time spent in investigating and pursuing these security problems meant that several College projects were seriously delayed due to the diversion of staff resources. In a similar manner, financial resources had to be used in the installation of security equipment rather than the installation of extra student computer equipment. Due to the city centre location of College, it is likely that we will have further security problems in the future.

Organisation of IS Services

The internal structure in IS Services is outlined in the Appendix. (Chart 10) There have been no changes in management structure over the last three years, however several subgroups have changed their reporting roles in that period.

As two of the managers will be retiring in the next two years it is likely that some structural changes will take place. It is also possible that changing methods of service delivery will require changes in reporting structures.

Whilst staff turnover is still an issue, only 8 staff resigned from IS Services in 1998/99 compared with 16 in 1997/98.

The four major groups in IS Services are:

Computer Systems: responsible for the network, servers, Internet services, Public Access Computer Rooms, Computer Shop.

Information Systems: responsible for information services to all users, support of administration and Library systems.

User Support: all aspects of support for computer and network users in College, online and walk in Help Desk.

Training and Publications: IS Services web pages, handbook on computing in College, "Interface" newsletter, training courses and student handouts on computing.

User Support

As computing and networking becomes totally integrated into the operation of College it is very important to provide support for users who encounter problems. The User Support group in IS Services provides this help.

User Support functions have migrated from people having to visit the physical Help Desk, through telephone contact, to the use of online systems such as the web. In the last year the use of email to report problems has grown to such an extent that staff are now dedicated to answering email.

Similar progress is likely to be encountered with the web reporting of problems, it is now possible to ask users to enter more details of the problems they encounter in order to hasten an appropriate response.

Of course, making access to the Help Desk too easy creates other problems, such as people calling for help when the required information is already available online or in a manual.

As well as helping people who have problems, there are a range of documents and courses available that attempt to train users to avoid problems. One example of this is the IS Services Handbook that is distributed to all staff and students at the start of the academic year. Similarly, a range of User Notes are available in all the PACRs.

The newsletter "Interface" appears three times a year with timely articles and advice on developments in the service. This is distributed to staff.

All of the IS Services documents are available on the web as well as in printed format.

Induction courses were provided for all incoming students with approximately 80% of the undergraduates attending these short introductions. It is apparent that most students are now

arriving in College with some IT skills. The induction courses are still important as they show the students how the computer systems are organised in College.

Student Facilities

The most important facility that IS Services provides students are the Public Access Computer Rooms (PACRs). These comprise 14 rooms throughout College which are equipped with a range of modern computers and printers for student use. Whilst there have been some increases over the last few years, there are still insufficient computers available for the general student body. See chart 3 in the Appendix.

It is worth pointing out that in addition to PACR computers there are many more machines available in academic departments which are earmarked for students in those departments or attending courses run by those departments. Whilst the ratio of one computer per 26 undergraduate students, based on PACR facilities, appears poor, it is ameliorated by the approximately 1,000 dedicated computers in other departments, reducing the ratio to one computer per 7.5 students.

Other universities organise their computing facilities in different ways and it is therefore difficult to make direct comparisons between universities. However, it is worth noting that due to space restriction in College, the number of computers provided by IS Services in PACRs falls short of the facilities in most other universities.

Following major staffing upsets of the previous year in the Public Access Computer Room group, staffing remained stable throughout 1998/99 and the group made a major contribution to the early upgrade of the student computer rooms. Included in their tasks was a change in the operating system on the PACR PCs from Windows/95 to Windows/NT. This change allowed a much greater flexibility in service provision.

For several years the service provided on the Macintosh computers in the PACRs has not been optimal, however a satisfactory software solution was implemented to allow the full and reliable use of Macintosh computers in the PACRs.

With the allocation of funds by the Finance Committee, four new staff were recruited to supervise the student computer rooms with a view to enhancing the service in these rooms by providing on site attention to problems as they arise. These new staff members were recruited at the end of the academic year and the benefits will be seen in the coming years.

During 1998/99 the routine upgrade of approximately 30% of the public access computers proceeded as expected. There were changes in some of the computer rooms with extra machines being installed in Pearse Street and in the Arts Building. A number of "stand up" machines were installed with the idea that they would be used by a greater number of people for shorter periods. All of the servers for PACR machines were replaced and the online storage available to users was increased to 30Mb each.

An experimental number of "network computer" systems were installed in the Arts Building foyer to allow access to the Internet. It is possible that these devices could be deployed elsewhere in an attempt to ease the demands for the fully specified computers in the PACRs.

It is possible that new technologies will allow easier access, for students, to computer resources. IS Services monitors developments in technology in order to take advantage of new developments and methods of service delivery to students.

Staff Facilities

Once again there was an increase in the number of computers in College and the numbers of

staff depending on computer services also increased. The continued increases in computer use means that extra resources must be deployed in supporting these staff.

The number of staff using the walk-in Help Desk service is limited and a small increase was seen in the number of telephone calls. There are of the order of 150 calls per day by staff members.

The big increase in calls came via email, which doubled during the year. A web-based problem reporting system has been introduced which should take some of the pressure off the telephones.

College Networks and Facilities

For the last four years the core network in College used the ATM protocols running at 155Mb on fibre. The newer and faster Gigabit technology was introduced during summer 1999 with the intention of replacing ATM over the next few years. Gigabit networks are simpler to manage and configure and achieve data rates of 1,000 Mb at present.

The 34 megabit microwave link to the Trinity Centre in St. James's was connected in the summer of 1999. This means that College users in St. James's have much improved access speeds to College services and can be provided with similar facilities to staff on the main campus.

Many of the general-purpose servers were replaced or upgraded, though some of these were delayed because of the diversion of staff resources to handle security breaches on existing servers. The operating systems on the servers were upgraded to ensure that there would be no problems with Year 2000 and to enhance security.

In order to improve the resilience of the computer and network services a generator was installed in 200/201 Pearse Street to augment the uninterruptible power supplies thus ensuring that central services could be provided in the event of prolonged power interruptions.

Since 1995 the College has tendered for the purchase of personal computer equipment. This is a very time consuming process and has been repeated on an annual basis. In 1999, in cooperation with the Procurements Officer, a multi year tender was signed with three PC suppliers. This allows for a choice of manufacturer whilst it also limits the variety of suppliers that IS Services has to become familiar with in providing a support service. The introduction of a multi year arrangement will also result in a great saving of time in evaluation of the offerings from suppliers.

The Computer Shop continues to provide a service to users in College. Financially, it covers its staffing costs and produces a small surplus. As the central PC purchasing scheme will now remove PC sales from the shop, there may have to be some change in the basis of its operation in the future.

For the last two years the College has been negotiating with Microsoft on licensing issues on its Office products. These products were defined as part of the standard College desktop by the ISPDG. Just before the summer of 1999, a licensing arrangement was signed that permitted the Microsoft Office products to be installed on all College owned computers on the campus. This removed some risks that unlicensed copies of the software might be in use in College. The central licensing costs were borne from the IS Services software budget.

Research Facilities

The services provided by the IBM Supercomputer in Belfast were consolidated during the year with more staff and students using the facility.

Processes and procedures were put in place in College which divide the responsibility for the

system between the Centre for High Performance Computing and IS Services. Funding was made available to ensure the viability of the system in the short term. Extra staff will be employed to enhance the service for all College users.

These new HPC committees approved by the Board are:

- HPC Development Committee and
- HPC Co-ordination Committee

organised as follows:



Internet Developments

Whilst the internet is regarded as a major research tool, it is also becoming an integral part of teaching. It is vital that adequate service levels are provided to the internet for College users.

The growth in demand in internet usage is indicated by the change in the College's connection speed as shown in chart 4. It is fortunate that the liberalisation of worldwide telecommunications costs has allowed this growth in connection speed without excessive increases in expenditure.

During the year, HEAnet increased its international capacity a number of times and the College took part in a test of the Telecom Eireann Symphony ATM network to get best use of these increases. Subsequently, the ATM connection was installed as the method of connection to the internet.

One of the advantages of working with HEAnet is that it is in a position to optimise service provision to coincide with the peaks of an academic year. During 98/99 HEAnet contracted with its suppliers to improve connectivity in September 1999, December 1999 and March 2000. These increases in bandwidth should mean that growth matches demand throughout the year.

The large number of emails (chart 9) that traverse the College network proved to be a problem during the year. The problem was caused by staff being flooded with unwanted messages that were being broadcast to all staff. A new method of dissemination of information in College was installed using the web and in particular the Secretary's Noticeboard is now a major method of distributing information to staff. A series of special purpose mailing lists were created to allow information to be provided in a more selective manner.

Library and Administrative Developments

Preparations for the Year 2000 was a major task in many areas. Several systems required updates in order to be ready for the change in date. In some cases systems that were thought to be ready required upgrades due to problems being encountered elsewhere. All of these changes required extra testing to ensure that they interworked correctly with other systems.

In addition to preparation for Year 2000 several significant developments took place:

In the Senior Lecturer's area several systems were implemented: the automatic production of degree certificates, the provision of past examination papers on the web, the introduction and processing of anonymous marking and rollout of the GUI interface to the student administration system.

On the financial side, in the Director of Buildings and Treasurer's Areas, a new system to track and report on the College's fixed assets was implemented. A report writer was developed for the Fees System, this allows greater flexibility in the production of fee payment forms and the analysis of fees information. The government budget introduced a scheme of tax-credits which resulted in major changes in the payroll system. Unfortunately, the supplier of the system did not comply fully with the requirements of the budget and minor errors were introduced in PRSI deductions which had to be rectified later in the year.

There has been a long-standing project to implement a Management Information System in College that would tie together the major databases and provide a single point for the production of reports. As a start to this project, a review was made of the College's data structures and these were compared with the HEA's "Common Data Definition" specification. An early objective of this project is to provide easy access to basic information such as student lists and student timetables.

An extensive commentary on the proposed HEA "Common Data Definition" was made to the HEA during the year but no revisions to the document have been received.

The Library system continues to require minor changes and corrections which are provided by the supplier. The system is also growing and new licences need to be applied to fill the demand for the online system. One of the Library's projects is to digitise frequently used information and make it available to students on the web, where allowed by copyright. This has been implemented as a pilot for a number of lecturers using the TopClass package which is also used extensively in College for web based teaching.

Issues to be addressed in the Future

A review of the ISPDG, Information Systems Policy Development Group, report was initiated by the Information Policy Committee. This review will be augmented by two documents:

A strategic analysis of the information services for College. This will analyse the existing systems, identify the replacement and outline a rolling pattern of upgrades for the coming years.

An analysis of the availability of appropriate computer equipment for staff and students and its refreshment on an appropriate cycle.

In addition to maintaining services to meet increasing staff and student numbers, which in themselves will require extra staff, there are several developments on the horizon which will have resource implications for IS Services in the years to come.

Most of these issues will require extra funding, space and staff resources. These extra resources will not be confined to IS Services but will be needed in user areas as well. Thus the replacement of a major system will often mean the migration of work to user areas, with commensurate increases in productivity and quality of service to the users.

The increasing dependence on information technology services in College will mean that continued investment should be made to ensure that all members of the College community are able to perform to the best of their ability with the most modern and efficient tools.

Students will require much greater access to IT resources. This is likely to happen by the use of innovative technologies such as wireless communication or other new devices. Some examination should be made on the possibility of all students having ready access to personal information systems.

Some administrative computer systems need to be replaced in the coming years. As the policy to replace bespoke systems with generic systems which are externally maintained is implemented, some changes in College procedures may be required to maximise the advantages that these systems can provide. Whilst bespoke software can be tailored to precise procedural requirements, generic software may well require adjustments to procedures instead. There are several systems that need replacing in the near future due to their age and the high maintenance effort require in keeping them going. The Student Administration system is one of these and this will require a major capital and staffing investment by College.

The provision of personal computers for staff is outside the responsibility of IS Services, however the stock of PCs in College is of a very varied age. Some staff have modern systems whilst others have very old machines. This disparity in age, architecture and software levels makes it very difficult to maintain these systems. IS staff need to have expertise in a wide range of modern systems and having to support systems that are very old detracts from efficient service provision. In some cases, parts are no longer available for the older equipment in College. PACR computers are replaced on a 3-4 year cycle and it is recommended that staff machines should follow suit.

Due to College's city centre location, security on our networks and in our PACRs has become a major issue and will continue to be so in the future. Staff and financial resources may have to be diverted to ensure that our systems are only utilised by appropriate College users.

External issues such as new legislation, Year 2000 and the introduction of the Euro place great strains on resources in College. It is difficult to plan for these events and there are many cases where existing resources have to be diverted to satisfy these unplanned events. It is inevitable that users are unhappy that resources are taken away from their projects to handle such events. One particular example in the 98/99 years was the change in methodology on Year 2000 requested by the HEA at a very late stage in the process.

There has been much discussion on illegal and harmful use of the Internet both in College and internationally. Some attention needs to be paid to this as there may be some risks to the College in allowing ready publication of information on the College's Internet servers.

Conclusions

Whilst much progress was made in the provision of information services during the year, there are still improvements which can be made in the speed of service. These changes are made in conjunction with all users of College services and it is likely that changes will have to be made in College processes in order to move to a modern customer oriented service environment. This will probably mean that some of the ways in which tasks are processed in College will have to be adjusted to fit new systems as they are introduced.

The previous section on issues to be faced in the future outlines a large number of issues that need to be addressed in order to ensure that College users have access to an optimum information system in the coming years.

Appendix Statistical Information 1995 to Date

1. Estimated Number of Computers in College



2. Changes in funding and staff numbers

	Non-Pay	Pay	Total	Staff Count
1995/96	1,190,634	1,113,710	2,304,343	48
1996/97	1,635,410	1,286,457	2,921,867	52.5
1997/98	1,470,176	1,362,741	2,832,917	59
1998/99	1,513,255	1,574,475	3,087,730	63.5

It is worth noting that whilst funding has increased by 1/3rd in the four years above, service levels have increased by much greater factors as outlined in tables 1, 3, 4 and 5 in this Appendix.

3. Number of Public Access Computers and Laser Printers

	Number of Computers	Number of Printers
30th September 1995	223	18
30th September 1996	247	19
30th September 1997	367	56 (trials using small printers)
30th September 1998	379	29
30th September 1999	408	38

4. Internet Connection speed

Date	TCD Internet Speed	
October 1992	64	
October 1993	64	
October 1993	128	
October 1994	128	
October 1995	128	
October 1996	512	
October 1997	2048	
October 1998	2048	
October 1999	5120	

5. Documents Served from College Web

Year	Number of Pages	
1996/97	3,142,559	
1997/98	8,646,290	
1998/99	15,059,531	

6. Documents Retrieved by Proxy Servers

Year	Number of Pages
1998/99	197,857,969

7. Number of Helpdesk Incidents



8. Student and Staff Email Users



8. Student and Staff email users

9. Count of Emails To and Through TCD





10. IS Services Organisation Structure 30th September 1999



Note: Includes two contract staff funded from external resources