



Top concerns survey 2008

Candidate concerns

Resources

1. Funding and sustainable resourcing of IT

It is becoming increasingly difficult for IT/IS departments to obtain the appropriate level of funding to deliver the services required by their institution.

Moore's Law still appears to apply to many hardware technologies; new and replacement systems offer more capabilities at an equal or lower cost than we paid for previously purchased systems. However, the on-going support and upgrade costs of many essential items of software and our staff costs are all increasing. In some organisations the ongoing cost of maintaining the current portfolio of services is now seriously limiting the resources available for the service developments that institutions need to be competitive.

Some institutions are making "strategic" investment in IT/IS systems but are not always providing the ongoing resources required to secure the long-term future of such investments. A number of IT/IS departments are able to obtain funding for capital developments but report that they are unable to secure sufficient staff resource to take such developments forward in an effective fashion and to support the ongoing result of such developments (for example annual software maintenance costs).

There is an increase in the expectation level of many users of our IT/IS systems (often resulting from the perceived lower cost of hardware systems). IT/IS management need to proactively manage this level of expectation so that it matches the resources being made available to deliver services to the user community.

If the increasingly pervasive nature of IT throughout our institutions is to continue, then this requires that the investment in IT/IS departments be increased and that resources be provided to sustain the services they provide. It is recognised by many IT/IS departments that they need to do more to demonstrate the benefits investments in IT deliver.

IS/IT departments also need to ensure that the institution appreciates the true cost of IT/IS service provision and the benefits this can deliver to the organisation; this should enable the institution to engage in informed and mature decision making on which IT/IS services should be provided and their associated service levels.

Some IT/IS departments are trying to reduce software costs by using open source solutions and recognise that this may increase support staff costs and possibly compromise the reliability and availability of services.

2. “Environmentally friendly” computing / energy efficiency

There are two threads that are of concern here. One is the important issue of reducing the environmental impact of IT systems (carbon emissions, waste products and disposal) and the other is reducing the power consumption of our IT systems principally to reduce the electricity cost of running our systems and to provide the controlled environment that some server systems need.

How can IT/IS departments provide “*environmentally friendly*” computing platforms? How can we help reduce power consumption given that many staff and students have a laptop - each member of staff may have a couple of personal systems and maybe a printer, plus a plethora of charging devices? What should we do about the servers and systems that are running and consuming power when they are not doing any useful work (i.e. they are idle)? Can technologies such as virtualisation and blade based systems make a significant contribution to reducing power consumption? Could we replace total room cooling with more focused cooling systems (e.g. rack-based cooling)? Could the heat produced be used rather to heat our buildings or hot water? Can we introduce new technologies which reduce consumption (of toner and ink for example) whilst not compromising the quality of the services being provided? Do our purchasing contracts incorporate appropriate requirements to limit the amount of packaging provided with equipment and to ensure its reuse? How are we addressing our obligations under the Waste Electrical and Electronic Equipment (WEEE) directive?

We need to consider taking action to reduce the consumption of power by our IT/IS systems for both fiscal and environmental reasons. We need to take on board directives about energy consumption, sustainability and disposal of equipment. We need to formulate policies that demonstrate reductions in the cost of energy. Many systems now incorporate appropriate technologies to reduce energy but policies need to be put in place to ensure their widespread adoption. We need to consider exploring other ways in which IT/IS can improve the energy profile for our institutions.

How will any additional costs of “going green” be met by our institutions?

Governance and regulation

3. The impact of legislative compliance and government directives on IT policy development and IT/IS service delivery

Our institutions need to comply with a growing body of legislation and are being asked to consider compliance with government guidelines and published codes of good practice many of which have an IT dimension. The list includes:

- BSI 7799 / ISO 27001:2005
- BSI PD0000810 & 50
- The Data Protection Act
- Regulation of Investigatory Powers Act 2000
- Employment Law
- SEC17a
- The Freedom of Information Act (FOI)
- The Terrorism Act
- WEEE legislation
- Disability Discrimination Act (DDA)
- The Human Rights Act
- Points based immigration system.

New legislation impacts widely on the sector but there is rarely any provision for resources for institutions to meet the requirements of new legislation.

Many institutions employ specialist staff to manage data protection and FOI. Institutions are implementing changes to IT/IS systems, such as the desktop, to ensure that they comply with the requirements of the DDA. The impact of law is not always immediately apparent. For example it is not yet clear what impact the new points based immigration system will have on institutional student records systems. Draft legislation is being discussed on options to address peer to peer file

sharing which, although aimed primarily at ISPs, may result in a requirement for institutions to monitor network traffic more rigorously. Similarly the planned implementation of the Unicode extended character set through the MIAP programme (to meet the requirements of the Welsh Language Act and Human Rights Acts to have your name correctly spelt in correspondence) may require wholesale modifications to all systems where student data is held. These external influences often result in the requirement to make unplanned changes to systems and, in some cases, require employment of specialist staff.

We also face a growing number of audits (both internal and external).

Is the burden of new legislation preventing IS/IT departments from developing their services, as resources are diverted to meet the new legal compliance requirements? How does the growing body of good practice and legislation affect the development of our policies?

Although the levels of central funding have fallen in recent years, there is still considerable scope for Government influence (whether UK, Scottish or Welsh) to have an impact on IT/IS service departments. This can range from shared services, where the UK Government belief is that the traditional shared services model can be applied to all public services, through to procurement, whereas Welsh and Scottish institutions are being pressurised to sign up to local cross-sector purchasing consortia rather than call off existing national deals. Does Government *involvement* put the effective running of service departments at risk?

4. Governance of IT

"A characteristic theme of IT governance discussions is that the IT capability can no longer be a black box. The traditional handling of IT management by board-level executives is that, due to limited technical experience and IT complexity, key decisions are deferred to IT professionals. IT governance implies a system in which all stakeholders, including the board, internal customers and related areas such as finance, have the necessary input into the decision making process. This prevents a single stakeholder, typically IT, being blamed for poor decisions." – Wikipedia

How should universities achieve a workable decision-making structure around investment in developing enterprise-wide IT systems? Should IT/IS departments be providing leadership, and if so, what options for structures for IT governance can we agree with our colleagues for this purpose? How are policy decisions about IT made within the institution and under what authority are such policies enforced?

IT/IS governance encompasses giving the strategic direction, developing and owning the organisation's IT/IS Strategy, negotiating an investment plan for IT/IS, appropriate monitoring of and support for the IT/IS department, definition of governance standards and reviewing organisational structures and reporting lines to ensure that IT/IS has the correct level of direction and empowerment to be able to perform effectively. Proper governance ensures that IT/IS is accountable to the organisation for the services and levels of service it provides. IT/IS Governance is a key factor in providing accountability; it allows the organisation to assess its IT/IS department's performance and helps the IT/IS management team to deliver focussed service improvement programmes. .

5. The Bologna Process

The Bologna Declaration was signed in 1999 by the UK Government and 28 other nations. The aim of the 'Bologna Process' is to work towards developing a European HE Arena to foster employability and mobility within Europe, and to improve the competitiveness of European HE in the world. The Process includes a number of actions to be implemented in a range of policy areas, including quality assurance, credit transfer and accumulation, life-long learning, doctoral level qualifications and joint degrees.

What will the impact be on IT/IS service departments? Is the concern that there will be a great deal of change or that we don't know what the changes will be?

The role of IT/IS within the organisation

6. Organisational change and process improvement

In some universities and colleges, organisational structure and lines of accountability are undergoing major change. It is important that this is done in an ordered way and that IT/IS is fully integrated into these changes. There are important questions such as what kind of organisational structure and culture is now appropriate in the HE /FE context, how different is this from current structures (if at all) and how do we address and deliver any change required?

Change presents some new opportunities for IT/IS to better align with the institutional structure and to build sustainable relationships within the Senior Management Teams. Senior IT/IS managers need to ensure that proper consideration is given to IT/IS governance within any revised organisational structure. IT/IS systems and resources may need to be updated to reflect any changes in the organisational structure in the institution's business and academic support and management information systems.

There may be an opportunity within the organisation for significant operational improvements from streamlining and standardising processes. IT/IS departments often have the skills and capability to assist and even take a lead driving these changes through the organisation. Engagement is required with the organisation to understand the benefits available from improved and standardised processes, to agree how this may be achieved and to understand the IT/IS department's role in implementing these changes.

Strategy and planning

7. IT strategy and planning

The IT/IS strategy needs to be aligned to the institution's strategic objectives and its plans for achieving those objectives. The IT/IS strategy must be complementary to the other strategies that underpin and deliver the institution's strategic objectives (for example Academic, Human Resources, Estates and Enterprise).

Senior IT/IS staff should be included in the development of the institution's strategic objectives and plans. The importance of a well-articulated and practiced planning process is critical. This planning process should ensure that the vision of how IT/IS might help transform an institution is considered and, where accepted, embedded in the institution's strategic plan. The plan should be formally adopted and approved and inform the senior decision makers in the institution about the medium and long-term value of IT/IS (see "Governance").

IT/IS departments need to work to support their institution in the achievement of its strategic objectives by the appropriate and timely delivery of supporting technology, systems and services. Where IT/IS provision is highly devolved it may be more difficult to bring together a coherent institutional IT strategy and plan.

It is important to include some strategic consideration of "sourcing" within the IT/IS strategy. Should services be provided through in-house effort, might they be provided by a contracted external supplier or might they be provided in cooperation with like-minded organisations through a shared services model?

Strategic plans need to be flexible and responsive to the sometimes sudden changes in institutional strategy. IT/IS departments need to exhibit a degree of agility to enable them to respond to changing circumstances.

Planning is of central importance to the management of IT/IS departments; we will be asked to meet new institutional requirements and expectations whilst trying to reduce service costs. Strategic planning issues include¹:

- What is the planning process?

¹ Based on Educause Current IT Issues Survey Report 2006.[Educause Quarterly Number 2, 2006]

- Will the plan be developed in-house or with the support of external consultants?
- How will the plan be used? Will it be used to make informed decisions?
- How will the success of the plan be evaluated by the IT/IS department and the institution?
- How will you maintain focus on the strategic plan across the varying cultures within the institution?

Infrastructure

8. The development of an architected, enterprise-wide IT Infrastructure

Most institutions have a core infrastructure that extends across the whole of the enterprise. Managing the infrastructure needs a careful balance of cost, manageability, flexibility, scalability, security and performance. The IT infrastructure should be architected (designed) to be fit for purpose and to be robust, reliable and resilient. It must adequately support the present needs of the institution and be capable of development to support likely future institutional requirements. Resources must be provided to sustain the infrastructure and enable it to be developed when necessary.

It is increasingly difficult to explain the technicalities behind infrastructure upgrades due to the complexities and nature of technology. However it is also difficult to gain confidence in what is seen from those outside our IT/IS departments as a constant stream of expense with little visible gain. High maintenance costs and license renewal fees are problems we face, as are 3 and 4 year lifecycle replacement requirements for core infrastructure platforms.

Our IT infrastructures need to be planned and architected to enable the institution to take full advantage of the opportunities to deploy IT/IS based systems and services to support and enhance all we do. It must be recognised as a strategic institutional resource. Attention should be given to:

- Taking an institutional view of the IT infrastructure (related to Governance)
- Having replacement plans for servers, network components, cables, air conditioning, uninterruptible power supplies, physical security etc., which form the IT Infrastructure
- Designing the infrastructure to include redundancy so as to facilitate a disaster recovery strategy
- Monitoring the performance of the infrastructure.

9. Service availability and resilience

IT systems have now become so critical to the running of the university that service availability is of paramount importance. Downtime equates to loss of income with staff and students being unable to progress their work. Achieving robust, reliable and resilient applications and IT infrastructure is of crucial importance.

Modern systems can incorporate many high availability features such as redundant hardware components, clustering etc. and basic machine availability is now very high. The need to apply regular "critical patch sets" can compromise the gains in up-time of such systems, particularly as applying the patches often requires systems to be removed from service. IT/IS departments need to design and configure their systems so that "patching time" does not become a significant cause of service unavailability.

IT/IS departments should consider adopting appropriate technologies and architectures for their applications, IT infrastructure and operating processes to ensure that system availability meets their institution's requirements.

System resilience and availability must be considered at the outset of IT projects and project budgets should include the funding necessary to provide this.

10. Dealing with an ageing infrastructure

The lack of strategic planning and sourcing has created a legacy of mixed new and old infrastructure. Investment tends to be channelled towards new business solutions that will deliver specific business benefits; rarely will these investments enable the replacement of the old infrastructure with standardised, scalable and efficient platforms. The aim is to have a strategy that will enable

organisations to achieve an effective balance between infrastructure maintenance and operation, replacement of legacy environments, and bringing new systems on stream.

Managing service delivery

11. Business continuity, disaster recovery

More than 50% of the IT/IS services used in our member organisations are critical to the operation of their business and academic activities; without these services many of these activities cannot be carried out. Our user communities expect that their IT/IS services will be “always on”.

Is our business continuity / IT/IS disaster recovery planning keeping pace with the growth in IT/IS services that are becoming embedded into, and a critical part of, our institutional business and academic processes? IT/IS management must work with colleagues so that their institution is clear about their requirements of a business continuity plan.

We should consider designing our systems and infrastructure so that high availability / disaster recovery capabilities are built-in. The technologies are available to deliver this though the cost of deploying these for all our systems may be prohibitive. We should also consider retrospectively building a high availability / disaster recovery capability for existing “unprotected” systems. This may involve providing some additional capacity on-site (such as multiple server rooms, generator backed-up power) or developing a strategy which makes appropriate use of external services.

Working with our user communities we may need to consider “acceptable recovery time” for both services and indeed the information held within these services. (For example it may be acceptable to restore an email service within two hours, providing access to items of mail received and sent within the last 30 days, and for the rest of the email to be made available within a longer time scale.)

It is important that institutions put in place plans to address the whole spectrum of “business continuity”, remembering that the provision of disaster recovery for the IT/IS systems is but a part of what is required. (For example where would activities take place if the normal place of work were damaged or otherwise inaccessible?) More focus is needed to establish effective business continuity / disaster recovery facilities such that we can continue to deliver services in an acceptable fashion in the event of a major failure / incident.

Some members have established a specific role with responsibility for IT/IS disaster recovery planning.

The disaster recovery capabilities (and plan) should be properly and regularly tested, in particular these plans need to be tested whenever significant changes are made to the production environments. Some institutions report that their senior executives are not supportive of the proper “live” testing of disaster recovery capabilities. Senior IT/IS managers need to demonstrate the value of such testing even when it poses some risk to the continuity of production services. IT/IS departments need to ensure testing does take place to verify the disaster recovery capability does indeed work, but need to find appropriate ways which minimise the inconvenience to the day-to-day operation of their organisation.

Addressing some of the issues for IT/IS disaster recovery may assist in addressing concerns our user communities have about the loss of service for essential system maintenance activities.

The cost of providing disaster recovery capabilities, which supports the level of recovery agreed with the institution, is likely to be significant and may need to be specially identified in the fiscal planning for IT/IS.

12. Extended hours support, 24*7 support

IT/IS systems within HEIs are critical to the operation of the business. With the increase in distance learning, extension of the working day (often to accommodate students studying part-time or to make better use of premises) the IT/IS systems need to be available outside *normal working hours* and users need and expect support to be available outside Monday – Friday, 09:00-17:00. Our user

communities have an expectation that most of the services IT/IS departments deliver will be “always on”.

This poses many problems for the management of IT/IS departments:

- How do we schedule maintenance and updates which require elements of the service to be taken off-line?
- Can we build systems which incorporate redundant components and automated fail-over to address some of these issues?
- How can we provide support to ensure that the systems are available to the users and can we provide the users with "service desk" services beyond the normal working hours?
- How does extended hours support influence “*the student experience*”?
- Can we provide staff to support this level of service and how can they (and should they) be remunerated / compensated?
- How can we better manage the expectation of the user community of a 24*7 service when the resources provided and employment practices within our institutions don't really support it?
- What is the business model for providing such support - can we afford to do it? Can we afford not to do it? Is this something “shared services” might enable us to do?

13. IT/IS service quality

Many of the leading IT service providers base their service delivery on the Information Technology Infrastructure Library (ITIL) and achieving certification for the corresponding international and national standards (such as ISO 20000). ITIL and ISO 20000 provide a professional framework for the delivery of IT services and are increasingly being used as vehicles to improve service delivery to the high standards expected.

IT/IS departments within the HE sector need to consider how to develop their delivery services within the ITIL framework. There is a need to build a credible level of professionalism and consistent service levels. There need to be recognised qualifications and career pathways for all IT/IS-related staff within the organisation.

Developing staff and services to achieve these standards presents a substantial challenge: it takes time and effort to bring about such changes; in some cases, the existing "culture" may be unsupportive.

14. Mobile computing, anytime, anywhere computing, home working

As we look towards extending the reach of our IT services so that they may be used from anywhere (student residence, home, anywhere!), we need to think of new ways in which to support our staff and students who are not on our campuses, nor even on our continent. We also need to develop policies and perhaps services to support both students and employees (of our institution) that choose to use systems they own for their work rather than systems provided by the institution.

There are a number of issues related to this topic and these include:

- The use of equipment and software that is not the same as those normally supported by IT/IS (“non-standard”);
- Supporting equipment owned by the user rather than the institution;
- Support services on equipment that is not brought to the campus (or not often brought to the campus)
- The diversity of equipment being used (Smart Phones, PDAs);
- The location of this equipment (the workplace and the home);
- Supporting users whilst they are travelling;
- Service delivery issues with out-of-hours support and time zone differences;
- Security of information and compliance with access policies;
- Additional liabilities arising from users (particularly employees) using systems they own for institutional business;
- Access to University-licensed software and resources.

The challenges of occasionally working at home and home working (where the worker is based at

home for the majority of their working day) need to be addressed. There are also particular health and safety matters that need to be considered for home workers.

IT/IS departments need to develop policies to manage anytime, anywhere, using “anything” computing which address these issues. IT/IS departments need to support their institutions in developing their policies for occasional working at home, and home based workers.

15. Data centres

Some institutions are experiencing difficulty providing the environment (cooling, power, backup power, physical security, fire detection and suppression etc.) needed to host their IT equipment (servers, storage, networking equipment etc.). There can be issues about finding suitable locations and of course about the associated costs. Often, more than one data centre is required to meet the requirements for computer disaster recovery arrangements. Research computing systems can make significantly higher demands than our “normal” systems. Predicting the future requirements for data centres can be a significant issue and where possible data centres need to be flexible.

Some institutions are looking to out-source the location of some of their IT/IS equipment and some are considering setting up a shared data centre service.

A number of institutions have data centres that are no longer fit for purpose and some are finding it difficult to fund the refurbishment or replacement of the data centres to the standards needed to deliver their institution’s IT/IS services. It is often difficult to persuade the organisation to include the appropriate capital and recurrent funding to meet the costs for data centre development and maintenance.

Inadequate data centres represent a considerable risk to the provision of reliable IT/IS services.

16. Multi-Sourcing and Vendor Management

The traditional model for sourcing IT services in the sector is of in-house hosting and delivery by staff employed by the organisation. Servers are purchased, located on-site, replaced when they fail or performance degrades: software licences for operating systems and applications are purchased, along with upgrade and support agreements. With the improvement of network speeds and reliability and an increasing maturity in the IT hosting market, the current environment offers a variety of sourcing and IT delivery models. Building the capability to take advantage of the new landscape is a key issue; the skill sets need to change from detailed technical skills to encompass higher level architecture design, service level agreement specification, contract negotiation and review, and vendor and relationship management.

Alternative sourcing models may help reduce the pressure on IT/IS service departments to deliver a wide range of services that are available 24 hours a day, 7 days a week. It may also address issues in some institutions where there is insufficient resource available to maintain such a level of service to a high professional standard.

A number of alternative ways of providing services can be found in the community. Some institutions are using *external managed services*; some institutions have *outsourced* some service(s) (including the transfer of IT/IS staff to the outsourced partner). There are also many examples of *shared services* (where aspects of a service are provided by a consortium of different organisations with or without a non-HE partner); a common example of a shared service is the provision of regional networking.

How effective are these external services? Can external providers offer better services than in-house provision can provide? Do the suppliers understand our sector? What are the challenges in managing the provision of significant parts of your service by an external service provider? What are the challenges, risks and benefits from using “free” services (e.g. Gmail) for institutional services? What are the costs to the IT/IS service in managing the provision of a major service by an external organisation? Are there strategic benefits from using external service providers? Do institutions have or are they developing a “sourcing” policy / strategy?

The UK and national governments continue to be enthusiastic in encouraging the sector to make use of external service providers, through what they term a “shared services model” (though there

appears to be an out-of-sector partner leading), in a belief that this will provide better value for money. Is this a threat to or an opportunity for IT/IS departments in the HE sector?

Identity management

17. Identity/ access management

Identity and access management are of considerable importance to institutions. A key issue is to be able to know if an individual is a member of an institution, their relationships with the institution and their entitlement to resources and service, based on those relationships. Often the relationships an individual has with an institution are ill-defined and far from simple. There is often a lack of clarity within the institution about its relationships with individuals and sometimes an inability and or an unwillingness to clarify the relationship.

When institutions join an access management federation that enables its members to have access to services and resources provided by other federation members, there is increased reliance on the authority of an institution's identity management policies and systems. The service provider will trust these policies and systems when granting access to the service and expect that these truly conform to any contractual arrangement they have with the institution. The rules for membership of the federation will also put further requirements on the institution to ensure that its identity policies and systems conform to the standards required for membership of the federation. Inaccurate or lax policies and systems might expose the institution to risks, in other federation members withdrawing their trust in that institution's identity and access management policies and systems, or in the institution being excluded from the federation.

It is highly probable that many new services will rely on federated access management and it is therefore important that institutions install and develop their identity and access management infrastructure so that they can take full advantage of such developments. The international adoption of federated access management is expected to lead to some similar federations linking up and enabling users to work across the "joined-up" federation: this offers considerable potential benefits for our sector.

The lack of formal policies, multiple diverse distributed identity repositories, and reliance on legacy systems for automated account and service provision and managing people directories is causing issues and increasing risks to the institution.

There are some issues that IT/IS must address (such as the provision of a suitable identity and access management infrastructure) but this is also a significant institutional matter that IT/IS senior management must progress.

Security and information management policies

18. Information security / Network security

Institutions face a tenuous balance between the need to expand information access and the requirements to protect information assets from unauthorized and inappropriate use. Increased use of electronic information at higher education institutions has resulted in an expanding number of accounts, passwords, and other mechanisms to permit and limit access to these resources. Managing access to this expanding set of resources has itself created overheads and increases the likelihood that access to some of these resources may not be appropriate. Recent failures of information security systems by both public and private organisations has attracted considerable public interest and institutions are now much more aware of the potential damage to their reputation should their information security systems be found to be inadequate. Institutions are witnessing a growing number of ever more sophisticated methods of attack to gain access to such information; there is an increasing risk of unauthorised access.

In response to these demands, institutions must establish and maintain comprehensive security policies and procedures and enforce these with technologies that support the efficient authentication, authorisation, and auditing of information access. Institutions must also ensure that their user communities are aware of these policies and encourage them to comply.

19. Information management strategy / Data administration

The development of an information management strategy is of considerable importance to some institutions. There are a number of aspects to this topic including:

- Information classification
- Retention and archiving
- Backup and restoration policies
- Management of redundant formats
- FoI/DPA compliance
- Email archiving
- Scientific data repositories, data mining and informatics
- Records and document management
- Electronic lab notebooks
- Enterprise web content management
- Data curation
- Security considerations

There are some particular issues related to the curation of large sets of data generated by research projects (being considered in a major UK study). The information management policies need to address how this data is to be stored and managed over a long period of time.

Staffing

20. Taking a more strategic approach to staffing IT/IS departments

Within the IT/IS area in the HE/FE sectors, there is a need to build a credible level of professionalism, with recognised qualifications and career pathways for all IT/IS-related staff within an organisation. A more strategic approach is required to the staffing in IT/IS departments which should address appropriate staff development, performance management, retention, motivation, remuneration, and succession planning. It is particularly important that we develop the skills that future IT/IS leaders will need to have.

This requires a positive partnership to be developed between Human Resources and IT/IS departments.

21. IT staffing – development and training

How can we ensure that we have the appropriate level of skills to identify, deliver and maintain the new IT/IS solutions we are adopting? How can we develop the business and service delivery skills in our existing staff, many of whom come from a traditional computing centre background and culture? With the continuing need for technical education increasing and the costs of that training rising, how can IT/IS departments address the challenges? It becomes increasingly difficult to persuade our organisations that such training is necessary when systems become generally simpler to use as an end-user.

How can we take advantage of the knowledge and experience of IT/IS staff who are approaching retirement and enable knowledge transfer before they leave our organisations?

22. Role Evaluation

Following the “pay modernisation” in the sector, some IS/IT departments continue to encounter serious difficulties with the role evaluation of their staff members. In some cases IT/IS roles have been assigned to inappropriate levels because the assessors have a low appreciation for the technical skills required to perform the IT/IS role and IT/IS managers have not been sufficiently involved in the process. The role evaluation process (using either HERA or HAY) continues to be time consuming, opaque and not helpful in terms of our professional skills. There seems to be reluctance to use IT/IS specific role evaluation schemes used in other sectors in the UK.

There are concerns within the sector that this process is having an unsettling effect on staff, lowering staff morale and may lead to staff leaving the sector, so putting IT service provision at risk. This is particularly unhelpful when IT/IS departments are finding it difficult to recruit adequately skilled staff.

Business and academic support systems

23. Business systems to support the institution

Whether an HEI is using an ERP system or an integrated set of applications from potentially different manufacturers, projects related to these business support systems demand large and sustainable investment and commitment by institutional and IT/IS leadership, both throughout and after implementation. Some of the questions that need to be addressed when considering or implementing the core systems include the following²:

- What are the mission-critical factors driving your institution's position on business support systems? What service and process improvements are expected for successful implementation? Are there viable alternatives, such as enhancing existing systems?
- If a decision has been made to implement a new system, could you develop one in-house, or should you buy off-the-shelf? Given the complexity and maintenance challenges of integrated administrative systems, does building in-house remain a viable option, even for large IT/IS departments? If you are purchasing a commercial product, would you customize? If you are considering a software package of integrated systems, will the functionality of the package expand to accommodate integration of course management systems, portals, smart cards, and so forth?
- Is your institutional leadership committed to the decision and implementation? Will the decision survive changes in leadership and management? Will the implementation team include participation by stakeholders from both technical and functional areas? How will their expectations be managed? Do you have a solid implementation plan? Does it include a communication plan to keep all constituencies informed and committed?
- Have you resolved data-ownership issues? Have you considered converting and/or archiving years of legacy data? Will you need a data warehousing system too?
- Does the new system fit your institution's technical strategy at the back-end and network levels? Does the system align with preferred data-handling strategies, such as authentication, security, and privacy?
- Will your institution adapt its business processes to the best or effective practices configured in the solution you implement to minimise or avoid customisation? Are the new functional and system requirements realistic? Will your institutional leadership support needed business process changes?
- Is your institution ready for the upgrades and changes that have happened during your implementation? Do you have sustainable resources to improve the system and keep up the users' productivity in the new environment?

Organisations need to consider how to make use of facilities within these systems to address cross-functional issues such as information management reporting and KPI dashboards, CRM, workflow, self-service facilities and interfaces.

As organisations increase their focus on systematic approaches to excellence in performance, effective deployment of core business support systems will continue to be a strategic priority.

24. Interfacing between systems

Institutions have developed or, more commonly, have purchased a range of systems to meet their business needs. These systems will hold common data, particularly about the student body, and so there is a need to develop and maintain interfaces between them in order to operate efficiently and ensure that data is only entered once. A range of approaches has been adopted. Some institutions employ a batch approach, transferring data by generating files from one system which are then uploaded into others. Some make use of the functionality of their underlying database software, deploying triggers to update related databases. Others have invested in Service Orientated Architecture (SOA) to deliver instantaneous updates of systems utilised within a business process (for example, updating of a VLE when a student's module choices are changed in the student records system). Creation and maintenance of these interfaces represents a considerable cost and is present even where an institution has invested in an ERP system since no system meets all business needs for an institution.

² Based on Educause Current IT Issues Survey Report 2006.[Educause Quarterly Number 2, 2006]

Achieving service orientated architecture for student life cycle data would radically improve reporting, data quality, processes efficiency and enable greater agility in response to organisational changes such as restructures and module changes. Achieving the degree of process integration necessary to achieve SOA is very challenging.

The cost of developing and supporting these business critical interfaces is significant and they represent a considerable risk to the operation of the organisation that must be carefully managed.

E-Learning & Social Networks

25. E-learning

MLEs (Managed Learning Environments) and VLEs (Virtual Learning Environments) are now well established in UK universities to support e-learning. There remain issues such as the on-going cost of supporting these systems and their content (a problem for academic faculty as well as IT/IS), the appropriate way to use them to deliver the best learning outcomes for students, measuring their effectiveness and so on, but some new challenges have appeared:

- the use of Web2.0 technologies and systems to supplement the “official” VLE;
- the relationship between learning and teaching and social network services (“Should tutors interact with students on Facebook?”);
- the provision of collaborative working facilities to support some modes of learning;
- involving resource providers (such as the university library) more fully in e-learning;
- the development of electronic portfolios within and without the VLE and enabling the learner to make parts of these available to those outside the institution;
- using a variety of personal devices (not just computers) to interact with the e-learning environment;
- risks to the learning process posed by the informal use of external services as a replacement for, or to supplement, the “official” VLE³.

26. Enabling, the use of social network applications

What should IT/IS departments do to accommodate the “net generation” and beyond in the delivery of services so that they are of use and relevance to them? What is the future of the services provided today by IT/IS departments and what services will they be required to provide to support “digital natives”? Is to not get in their way (with our firewalls etc.) the best we can do or can we do more? Do those who take up these technologies and use them in teaching on their own initiative have any understanding of the risks they may bring? Security, audit and legal issues may be overlooked by pioneers, who typically do not focus on such issues. Are we reaching a point of discontinuity in the ethical and social behaviour of the generations which has been enabled by or resulted from the development of information and communications technologies? Should we employ “digital natives” to understand what (if any) our role is in the future?

³ Institutions need to be aware of what facilities beyond those that are formally part of its e-learning support are being used to support its students’ learning and teaching and adopt appropriate policies, informed by risk assessments, to ensure that the quality of its provision is not compromised. This is a serious issue and one which institutions find difficult to tackle – often because they are unaware of what is actually being used from day to day. IT/IS services need to ensure that that official provision they are responsible for providing continues to be relevant and meet the needs of the institution’s students and tutors. IT/IS may need to consider putting in place service contracts with external agencies to provide the facilities required: whilst this may not remove all the risks associated with the provision of such services, it should at least make them visible.

Research Support

27. Research support: High Performance Computing, Virtual Research Environments and collaborative working

IT/IS departments need to develop a strategy to support IT-based tools to enhance the effectiveness of researchers and to encourage the adoption of these tools within the research communities. Such tools might include high performance computing systems, grid computing, real-time and asynchronous collaboration facilities, integrated video conferencing facilities, groupware tools (such as shared application execution and virtual whiteboard tools, shared data repositories etc.). The tools need to promote and enable secure working in virtual communities which are not limited by institutional boundaries. Many of these tools exist within the research communities, IT/IS departments need to work with leading users of these facilities to make them more robust and accessible to all those who would find them beneficial. It is likely that many of the elements needed to support research will also enable other groups of staff and students to cooperate and collaborate more effectively.

Awareness of new technologies

28. Emerging technologies /keeping up with new “things”

Technology continues to change and develop at a rapid pace. How do we keep up with these changes and identify opportunities for utilising new technology in innovative ways to support key business objectives? What information resources should we be using to ‘short-cut’ the discovery process, and cut out the ‘non-starters’? How can we harness the power of our customer base (students and staff) to identify new opportunities?

How much time should we be spending with our senior colleagues to promote the benefits of new technology, and persuade them to invest? How do we balance the need to keep delivering core services with spending time considering emerging technologies and methodologies?