



UCISA Top Concerns 2008-2009

This note sets out the results of the survey of Top Concerns conducted by UCISA in January 2009. This is the fourth such survey conducted by UCISA. The paper presents the results of the survey, offers some analysis of the results and compares them with the last UCISA survey and the most recent EDUCAUSE Top-ten IT Issues survey.

The most serious concerns of UCISA members remain the provision of sufficient resources for IT, IT Strategy and planning and the “business systems” which are used to support the operation of their institution. Organisational change and process improvement is a new highly ranked concern.

Method

Members of the UCISA community were invited to submit matters of concern during an initial collection phase conducted in late autumn 2008. From more than 120 submissions, a candidate list of some 28 Top Concerns was developed along with a short description setting out the nature of each concern. The full text of the candidate concerns may be found on the UCISA website at www.ucisa.ac.uk/~media/Files/members/surveys/tc/2009/Top_concerns2008%20pdf.ashx. Members of UCISA were invited to rank these candidate concerns in each of four ways and to record their ranking using an online survey system provided under contract to UCISA by The Oxford Research Agency. Voting took place between January 9th and January 26th 2009. 79 institutions responded and 83 valid responses were received. (There are around 190 institutions that operate within the HE sector.) 74% of respondents were IT/IS Directors or equivalent and the others senior IS/IT managers.

Strategic Importance

Respondents were requested chose up to ten of the candidate concerns and rank these according to their importance for their institution's strategic success. The results showing the top twelve concerns are set out in the table below.

Rank	#	Concern
1	1	Funding and sustainable resourcing of IT
2	7	IT strategy and planning
3	6	Organisational change and process improvement
4	23	Business systems to support the institution
5	25	E-learning
6	9	Service availability and resilience
7	4	Governance of IT
8	13	IT/IS service quality
9	8	The development of an architected, enterprise-wide IT Infrastructure
10	14	Mobile computing, anytime, anywhere computing, home working
11	17	Identity/ access management
12	27	Research support: High Performance Computing, Virtual Research Environments and collaborative working

Emerging Issues

Respondents were requested to identify and rank up to ten of the candidate concerns which they believed had the potential to become more significant over the next twelve months.

Rank	#	Concern
1	1	Funding and sustainable resourcing of IT
2	6	Organisational change and process improvement
3	2	"Environmentally friendly" computing / energy efficiency
4	14	Mobile computing, anytime, anywhere computing, home working
5	17	Identity/ access management
6	7	IT strategy and planning
7	23	Business systems to support the institution
8	8	The development of an architected, enterprise-wide IT Infrastructure
9	9	Service availability and resilience
10	12	Extended hours support, 24*7 support
11	4	Governance of IT
12	27	Research support: High Performance Computing, Virtual Research Environments and collaborative working

Using most senior IT/IS management time

Respondents were requested to identify and rank up to ten concerns which were using the most time of their senior IT/IS managers.

Rank	#	Concern
1	7	IT strategy and planning
2	1	Funding and sustainable resourcing of IT

3	6	Organisational change and process improvement
4	4	Governance of IT
5	23	Business systems to support the institution
6	13	IT/IS service quality
7	9	Service availability and resilience
8	8	The development of an architected, enterprise-wide IT Infrastructure
9	25	E-learning
10	15	Data centres
11	11	Business continuity, disaster recovery
12	14	Mobile computing, anytime, anywhere computing, home working

Using most IT/IS resources

Finally respondents were asked to identify and rank those matters from the candidate concerns that were using the most resources (human and/or fiscal).

Rank	#	Concern
1	23	Business systems to support the institution
2	9	Service availability and resilience
3	25	E-learning
4	6	Organisational change and process improvement
5	15	Data centres
6	13	IT/IS service quality
7	10	Dealing with an ageing infrastructure
8	1	Funding and sustainable resourcing of IT
9	11	Business continuity, disaster recovery
10	24	Interfacing between systems
11	18	Information security / Network security
12	8	The development of an architected, enterprise-wide IT Infrastructure

Preliminary analysis

Combining the ranks in one overall ranking produces the following result table.

Rank	#	Concern
1	1	Funding and sustainable resourcing of IT
2	23	Business systems to support the institution
3	6	Organisational change and process improvement
4	7	IT strategy and planning
5	9	Service availability and resilience
6	25	E-learning
7	13	IT/IS service quality
8	4	Governance of IT
9	8	The development of an architected, enterprise-wide IT Infrastructure
10	15	Data centres
11	14	Mobile computing, anytime, anywhere computing, home working
12	17	Identity/ access management

It is also instructive to look at how each of the 28 candidate concerns ranked across the four ranking schemes.

#	Concern	Strategic	Emerging	Senior time	Resources
1	Funding and sustainable resourcing of IT	1	1	2	8
2	"Environmentally friendly" computing / energy efficiency		3		
3	The impact of legislative compliance and government directives on IT policy development and IT/IS service delivery				
4	Governance of IT	7	4	4	
5	The Bologna Process				
6	Organisational change and process improvement	3	2	3	4
7	IT strategy and planning	2	6	1	
8	The development of an architected, enterprise-wide IT Infrastructure	9	8	8	12
9	Service availability and resilience	6	9	7	2
10	Dealing with an ageing infrastructure				7
11	Business continuity, disaster recovery			11	9
12	Extended hours support, 24*7 support		10		
13	IT/IS service quality	8		6	6
14	Mobile computing, anytime, anywhere computing, home working	10	4	12	
15	Data centres			10	5
16	Multi-Sourcing and Vendor Management				
17	Identity/ access management	11	5		
18	Information security / Network security				11
19	Information management strategy / Data administration				
20	Taking a more strategic approach to staffing IT/IS departments				
21	IT staffing - development and training				
22	Role Evaluation				
23	Business systems to support the institution	4	7	5	1
24	Interfacing between systems				10
25	E-learning	5		9	3
26	Enabling, the use of social network applications				
27	Research support: High Performance Computing, Virtual Research Environments and collaborative working	12	12		
28	Emerging technologies/keeping up with new "things"				

Conclusions

Following this initial analysis of the results, we offer the following conclusions.

1. The *sustainable funding of IT/IS* in the sector is the most highly ranked concern.
2. *Organisational change and process improvement, business systems to support the institution and IT strategy and planning* are in the top five concerns of the UCISA membership.
3. *IT Governance, service availability and resilience, service quality and e-learning* are also of significant concern to the membership.

4. "Environmentally friendly" computing / energy efficiency is seen as an emerging issue (as it was in the previous survey).
5. Staffing matters seem to be less of a concern than we might have anticipated.
6. *Social networking applications* appear now to be bedded in (or at least not a concern of the IT/IS senior management).
7. *Identity/ access management and information / network security* were ranked at the bottom or just below the top ten issues in each category indicating perhaps that these are now more in the "business as usual" category. Similarly, *business continuity* and *disaster recovery*, whilst of great importance, seem not to be as highly ranked as in previous surveys.
8. There is (still) no recognition of the results of the *Bologna Process* being a major concern to IT/IS groups in HE.

The "Top ten"

Based on the results we offer you this overall "Top-ten" of the matters of concern to the UCISA community.

Rank	#	Concern
1	1	Funding and sustainable resourcing of IT
2=	7	IT strategy and planning
2=	6	Organisational change and process improvement
4	23	Business systems to support the institution
5	2	"Environmentally friendly" computing / energy efficiency
6=	13	IT/IS service quality
6=	9	Service availability and resilience
8	4	Governance of IT
9	25	E-learning
10=	8	The development of an architected, enterprise-wide IT Infrastructure
10=	15	Data centres

Annex A lists the Top-ten concerns and provides the full text of each of these.

Changes since the 2006-7 survey

In 2006-7 the overall results of the UCISA Top Concerns survey were as follows.

Rank	Concern	# 2008-9 equivalent concern	Ranking of 2008-9 equivalent
1	Resources for IT	1	1
2	IT strategy and planning	7	2
3	E-learning	25	9
4	Business Systems	23	4
5	Service Availability	9	6
6	Architected Infrastructure	8	10
7	Governance	4	8
8	Disaster Recovery	11	-
9	Information Management	19	-
10	Identity Management	17	-

The top two concerns (*Funding and sustainable resourcing of IT* and *IT strategy and planning*) remain the same. *Organisational change and process improvement* is a new highly ranked concern for the

2008-9 survey. *Business Systems* and *Service Availability* remain at approximately the same relative position. "*Environmentally friendly*" *computing / energy efficiency* is now in the Top-ten as are *IT service quality* and *Data centres*. *E-learning* has a lower ranking in the 2008-9 survey but is still in the Top-ten. *Disaster recovery* and *Identity Management* are just outside the "top ten" in the 2008-9 results.

An international perspective

The EDUCAUSE organisation carries out an annual survey of the top issues of its members¹. Their Top-ten IT Issues for 2008 are listed below.

EDUCAUSE Ranking	EDUCAUSE Issue	# UCISA 2008-9 equivalent concern	UCISA Ranking of 2008-9 equivalent
1	Security	18	
2	Administrative / ERP Information Systems	23	4
3	Funding IT	1	1
4	Infrastructure	8	10
5	Identity / Access management	17	
6	Disaster recovery / Business Continuity	11	
7	Governance, organisation and leadership	4 (partial)	8 (partial)
8	Change management	6	2
9	E-learning / Distributed teaching and learning	25	9
10	Staffing / HR management / Training	20 & 21	-

The EDUCAUSE issues do not include an equivalent issue to the UCISA members' concern about *IT Strategy and Planning* which ranked second in the UCISA Survey. *Security* is not ranked within the UCISA Top-ten but is the highest issue in the EDUCAUSE survey. *Identity / Access Management* now falls outside the UCISA Top-Ten concerns; however, it is highly ranked as an emerging UCISA issue. *Disaster recovery* also now falls outside the UCISA Top-ten though respondents still rank this as costing significant amounts of resource. Despite the recent changes in UK university staff structures and role evaluation, staffing matters were not ranked within the UCISA Top-ten.

There remains a reasonable set of matters of common concern between UCISA and EDUCAUSE members and perhaps recent national events might account for some of the differences.

Acknowledgements

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¹ See "Top-Ten IT Issues, 2008" by Debra H. Allison, Peter B. DeBlois, and the 2008 EDUCAUSE Current Issues Committee <http://net.educause.edu/ir/library/pdf/ERM0831.pdf>

Annex A: UCISA's Top Concerns 2008-9

The Top-ten

Based on the results of the recent survey, the following are the Top-ten matters of concern to the UCISA community.

Rank	Concern
1	Funding and sustainable resourcing of IT
2	IT strategy and planning
2	Organisational change and process improvement
4	Business systems to support the institution
5	"Environmentally friendly" computing / energy efficiency
6	IT/IS service quality
6	Service availability and resilience
8	Governance of IT
9	E-learning
10	The development of an architected, enterprise-wide IT Infrastructure
	Data centres

Full text of the "Top Concerns"

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. 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 include²:

- What is the planning process?
- 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?

2. 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

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

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.

4. 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 following³:

- 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,

³ Based on EDUCAUSE Current IT Issues Survey Report 2006.[Educause Quarterly Number 2, 2006]

effective deployment of core business support systems will continue to be a strategic priority.

5. “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?

6. 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.

6. 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.

8. 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.

9. 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” VLE⁴.

10. 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.


10. 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

⁴ 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.



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.