



**Universities and Colleges
Information Systems Association**

The cost of IT downtime

Appendices

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Appendix 1 – Filtering questions

IT service management

1. Which of the following best describes your Institution?
 - A. The central IT department is responsible for all hardware, network and service components.
 - B. The central IT department is responsible for core shared services and network components but individual colleges / departments / schools are responsible for their own services.
 - C. Colleges / departments / schools are primarily responsible for delivering their IT services with the central IT department providing limited support and/or resources.
 - D. The central IT department is responsible for all hardware, network and service components for some colleges / departments / schools whilst others are primarily responsible for delivering their IT services with the central IT department providing limited support and/or resources.

2. Is the central IT department also responsible for Library services? (Yes/No)

Current IT resilience arrangements

3. Has your institution completed an assessment of the cost of IT downtime during the last 5 years? (Yes/No)

4. Which of the following best describes your IT resilience strategy? (tick all that apply)
 - A. None / very limited IT resilience arrangements.
 - B. Component level resilience (e.g. clustered servers in a single location).
 - C. Dual data centres (internally provisioned).
 - D. Dual data centres (secondary data centre is externally provisioned).
 - E. IT is mainly outsourced to a third party provider.
 - F. Other external solution (e.g. third party recovery site, mobile recovery solution, replacement equipment contract).
 - G. Other solution (please provide brief details).

History of IT service interruptions

5. In the last 5 years have you experienced any of the following (Yes/No for both parts):
 - A. Loss of a single core system (e.g. email) for 24 hours or more.
 - B. Loss of multiple core systems for a period of less than 24 hours.

6. In the last 5 years has your Institution suffered a major disruption to IT services (i.e. a loss of core services for 24 hours or more). If yes, what was the cause:
 - A. External catastrophe event (e.g. fire, flood, extreme weather).
 - B. Mains power failure.
 - C. System failure, programming error, human error or similar.
 - D. Security failure, virus, denial of service attack or similar.
 - E. Other cause (please give brief details).

Key risk factors

7. What are the key risk factors that you believe are likely to impact on IT service delivery at your institution?
 - A. External catastrophe event (e.g. fire, flood, extreme weather).
 - B. Main power failure.
 - C. Terrorism or sabotage.
 - D. Security failure, virus, denial of service attack or similar.
 - E. Inadequate or inappropriate infrastructure investment due to financial constraints.
 - F. Shortage or lack of key staff due to financial constraints.
 - G. Uncontrolled use of new technology outside the central IT function (e.g. virtualisation, VOIP etc.)

Institutional profile

8. Which of these best describe the campus layout? (tick all that apply)
 - A. Single self-contained campus
 - B. Primary self-contained campus with one or more smaller satellite campuses
 - C. City centre location (not self-contained)
 - D. Suburban / rural campus location.
9. What is the importance of the following to your institution? (High/Medium/Low)
 - A. Research
 - B. Overseas students
 - C. Post-graduate recruitment
 - D. Clearing.

Appendix 2 – Filtering results

Institution	Q1	Q2	Q3	Q4							Q5	
				A	B	C	D	E	F	G	A	B
Institution A	A	A	B	N	N	Y	N	N	N	N	Y	N
Institution B (M)	A	B	B	N	N	Y	N	N	N	N	N	Y
Institution C	A	A	B	N	N	Y	N	N	N	N	N	Y
Institution D	A	B	B	N	Y	N	N	N	N	N	Y	N
Institution E	A	B	B	N	N	N	N	N	Y	N	N	N
Institution F	D	B	B	Y	N	N	N	N	Y	N	N	Y
Institution G	A	A	B	N	Y	N	N	N	N	N	Y	Y
Institution H	B	B	B	N	Y	Y	N	N	N	N	N	N
Institution I	D	A	B	N	N	N	Y	N	N	N	N	Y
Institution J	A	B	B	N	Y	N	N	N	N	N	N	N
Institution K	A	B		N	N	N	N	N	N	N	N	N
Institution L	A	B	B	N	Y	Y	N	N	N	N	N	N
Institution M	A	A	B	N	N	Y	N	N	N	N	Y	N
Institution N	A	B	B	N	Y	Y	N	N	N	N	N	Y
Institution O	A	A	B	Y	Y	Y	N	N	N	N	N	Y
Institution P (F)	D	B	B	N	N	Y	N	N	N	N	N	N
Institution Q	D	B	B	N	Y	Y	N	N	N	N	N	N
Institution R	D	A	B	N	Y	N	N	N	N	N	N	Y
Institution S	A	B	B	N	N	Y	N	N	N	N	N	N
Institution T	A	A	B	N	Y	N	N	N	N	N	Y	N
Institution U	A	B	B	N	Y	N	N	N	N	N	N	N
Institution V	A	B	B	N	Y	N	N	N	N	N	Y	Y
Institution W	D	B	B	N	Y	N	N	N	N	N	Y	N
Institution X	B	B	B	N	N	N	N	N	Y	N	N	N
Institution Y	B	A	B	N	N	Y	N	N	N	N	N	N
Institution Z (F)	A	A	B	N	N	Y	N	N	N	N	Y	N
Institution AA	A	B	B	Y	N	N	N	N	N	N	N	Y
Institution AB	A	B	B	N	N	Y	N	N	N	N	N	Y
Institution AC	A	B	B	Y	Y	N	N	N	N	N	Y	Y
Institution AD	A	A	B	N	Y	N	N	N	N	N	Y	N
Institution AE	B	A	B	N	N	Y	N	N	N	N	N	N
Institution AF	B	A	B	N	N	Y	N	N	N	N	N	N
Institution AG	D	A	B	N	N	Y	N	N	N	N	Y	Y
Institution AH	A	A	B	N	N	Y	N	N	N	N	Y	N
Institution AI (F)	B	B	B	N	N	Y	N	N	N	N	Y	N
Institution AJ	B	A	B	N	Y	N	N	N	N	N	Y	N
Institution AK	D	B	B	N	N	Y	N	N	N	N	N	Y
Institution AL	A	B	B	N	N	Y	N	N	N	N	N	N
Institution AM	B	A	B	N	Y	Y	N	N	N	N	Y	N
Institution AN (F)	D	A	A	N	N	Y	N	N	N	N	Y	Y
Institution AO	A	A	B	N	N	Y	N	N	N	N	N	N
Institution AP	A	A	B	N	N	Y	N	N	N	N	Y	N
Institution AQ	D	B	B	N	N	Y	N	N	N	N	N	Y
Institution AR	A	B	B	N	Y	Y	N	N	N	N	Y	N
Institution AS	D	A	A	N	Y	N	N	N	N	N	Y	N

Institution	Q6					Q7						
	A	B	C	D	E	A	B	C	D	E	F	G
Institution A	Y	N	Y	N	N	M	H	M	H	H	M	L
Institution B (M)	N	N	N	N	N	H	H	L	M	M	H	M
Institution C	N	N	N	N	N	L	M	L	M	L	M	L
Institution D	N	N	Y	N	N	L	H	L	L	L	L	L
Institution E	N	N	N	N	N	M	L	L	M	L	M	L
Institution F	N	Y	N	N	N	M	H	L	M	H	H	M
Institution G	N	Y	Y	N	N							
Institution H	N	N	Y	N	N	M	H	L	M	H	H	H
Institution I	N	Y	Y	N	N	L	H	L	L	H	M	L
Institution J	N	N	N	N	N	M	L	L	L	L	M	L
Institution K	N	N	N	N	N							
Institution L	N	Y	N	N	N	L	M	L	M	M	H	L
Institution M	N	Y	N	N	N	L	L	L	L	L	H	L
Institution N	N	N	N	N	N	H	H	L	L	H	H	L
Institution O	N	N	N	N	N	L	H	L	M	M	M	M
Institution P (F)	N	N	N	N	N	L	H	L	M		M	L
Institution Q	Y	N	N	N	N	L	M	L	M	M	L	H
Institution R	N	N	N	N	N							
Institution S	N	N	N	N	N	M	H	L	H	H	H	L
Institution T	N	N	N	N	N	M	H	L	M	M	H	L
Institution U	N	N	N	N	N	L	M	L	M	M	M	L
Institution V	N	Y	N	N	N	L	L	L	M	M	M	L
Institution W	N	N	N	N	N	L	L	L	M	M	M	L
Institution X	N	N	N	N	N	L	L	M	M	L	L	L
Institution Y	N	N	N	N	N							
Institution Z (F)	N	N	Y	N	N	L	L	L	M	L	H	L
Institution AA	N	N	N	N	N	L	M	L	H	L	L	L
Institution AB	N	N	N	N	N	L	H	L	M	M	M	L
Institution AC	N	Y	N	N	N	L	H	L	L	M	H	L
Institution AD	N	N	N	N	N	L	M	L	H	H	H	M
Institution AE	N	N	N	N	N	M	H	L	H	M	M	M
Institution AF	N	Y	N	N	N	M	H		M	L	M	L
Institution AG	N	N	Y	N	Y	L	L	H	H	H	H	L
Institution AH	Y	Y	N	Y	N	H	H	L	H	H	H	M
Institution AI (F)	N	Y	N	N	N	L	M	L	L	H	L	
Institution AJ	N	N	N	N	N	L	M	L	L	M	M	L
Institution AK	N	N	N	N	N	L		M	M	L	L	L
Institution AL	N	N	N	N	N	L	M	L	L	L	L	L
Institution AM	N	N	Y	N	N	M	M	L	H	H	H	M
Institution AN (F)	N	Y	Y	Y	N	L	H	L	M	L	H	L
Institution AO	N	N	N	N	N							
Institution AP	N	N	N	N	Y	H	M	L	M	L	H	L
Institution AQ	N	N	N	N	N	L	L	L	L	H	H	M
Institution AR	N	N	N	N	N	L	L	L	M	M	M	L
Institution AS	N	Y	N	N	N	M	H	L	M	M	L	L

Institution	Q8				Q9			
	A	B	C	D	A	B	C	D
Institution A			Y		L	M	M	H
Institution B (M)			Y		H	H	H	M
Institution C		Y			H	H	H	M
Institution D			Y	Y	L	M	H	M
Institution E		Y		Y	L	H	L	M
Institution F			Y		H	H	H	
Institution G								
Institution H			Y		M	H	H	H
Institution I			Y		H	H	H	L
Institution J	Y				L	M	L	H
Institution K								
Institution L		Y			M	M	M	H
Institution M	Y				L	H	L	L
Institution N	Y				H	H	H	M
Institution O		Y			H	H	H	L
Institution P (F)		Y			H	H	H	L
Institution Q		Y			H	H	H	L
Institution R								
Institution S		Y			L	H	L	L
Institution T		Y			L	M	M	H
Institution U		Y			L	L	M	M
Institution V		Y		Y	M	H	H	H
Institution W		Y			M	H	M	M
Institution X			Y		M	M	M	L
Institution Y								
Institution Z (F)		Y			H	H	H	H
Institution AA		Y			M	H	M	H
Institution AB	Y				H	H	H	H
Institution AC	Y				H	H	H	H
Institution AD		Y		Y	M	H	H	
Institution AE		Y			M	H	M	H
Institution AF		Y			H	H	H	H
Institution AG	Y	Y		Y	H	H	H	M
Institution AH			Y		M	M	M	H
Institution AI (F)	Y				H	H	H	L
Institution AJ		Y			H	H	H	L
Institution AK	Y				L	M	M	H
Institution AL		Y	Y	Y	M	M	M	M
Institution AM	Y				H	H	H	H
Institution AN (F)		Y			M	H	H	H
Institution AO								
Institution AP		Y			M	M	M	L
Institution AQ			Y	Y	H	M	H	
Institution AR		Y			L	L	M	H
Institution AS				Y	M	M	L	L

Please note: HEIs that participated in the focus group stage of the project are suffixed with “(F)”. HEIs that participated in the modelling stage of the project are suffixed with “(M)”. London South Bank University (focus group) and Leeds Metropolitan University (modelling) were involved in the project without first being involved in filtering, as they replaced other HEIs that declined to proceed further. Partially completed surveys have been included.


The following institutions responded to the survey:

Aberystwyth University
Brockenhurst College
Brunel University
Glyndwr University
Goldsmiths - University of London
Institute of Cancer Research
Liverpool Institute for Performing Arts
Loughborough University
Norwich City College of Further and Higher Education
Queens University Belfast
Royal Holloway, University of London
St. George's, University of London
Sussex Downs College
Teesside University
Thames Valley University
The College of Law
University College Chichester
University for the Creative Arts
University of Abertay
University of Birmingham
University of Bradford
University of Bristol
University of Buckingham
University of Chichester
University of Derby
University of East Anglia
University of Edinburgh
University of Exeter
University of Greenwich
University of Huddersfield
University of London
University of Northampton
University of Nottingham
University of Plymouth
University of Reading
University of Sheffield
University of St Andrews
University of Sunderland
University of Wales
University of Wales Lampeter
University of Westminster
University of Winchester
University of Wolverhampton
Warwickshire College
York St John University

Note not all institutions provided complete responses.

Appendix 3 – Time periods of impact occurrence

Impact	Time Period (Month) in Which Impact can Occur											
	J	F	M	A	M	J	J	A	S	O	N	D
Loss of Income												
Loss of overseas students if can't process visas and entry forms					X	X	X	X	X			
Loss of direct applicants	X							X	X	X	X	X
No applicants from UCAS										X	X	
Unable to submit HESA data									X	X	X	X
Unable to submit to Research Excellence Framework	During Research Excellence Framework exercise											
Loss of property income from summer schools				X	X	X	X	X	X			
Loss of graduation income						X	X					
Increased Costs												
HEFCE financial penalty for over recruitment of students								X	X			
Printing and posting of induction materials									X			
More staff needed for graduation						X	X					
Contingent Liabilities and Intangible Costs												
Removal of approved sponsor status from UK Borders Agency (loss of overseas students)					X	X	X	X	X			
[During results process] Failure of IT during external examiner marking - would need to rebook examiners						X	X					
[During enrolment process] Failure of reporting to the UK borders agency									X	X		



The table lists all impacts that will only happen during specific periods of the year (i.e. if the IT disruption occurred during the time periods indicated with an “X” above). These periods are indicative for the HEIs involved in the Focus Group and Modelling stages. Other HEIs may have different impact time periods, depending on when processes occur.

Appendix 4 – Loss of income

Please Note: See section 3.1 of the report for an explanation of magnitude and column headings.

Impact	Impact Timeline		
	When could it occur?	How soon to manifest?	Will impacts recur?
High Magnitude			
[During enrolment process] Loss of overseas students if can't process visas and entry forms	Specific	Weeks	Yes
Loss of direct applicants	Specific	Months	Yes
No applicants from UCAS	Specific	Months	Yes
Loss of enterprise income	Any	Months	Yes
Unable to submit research proposal submissions	Any	Months	Yes
Unable to submit HESA data	Specific	Years	Yes
Unable to submit to Research Excellence Framework	Specific	Years	Yes
Medium Magnitude			
Can't deliver third party / commercial services	Any	Weeks	Yes
Failure to submit research grant - loss of funding	Any	Months	No
Low Magnitude			
Loss of interest earned	Any	Days	No
Library loans not effectively managed - loss of fines	Any	Days	No
Loss of property income from summer schools	Specific	Days	No
Loss of reprographics service (staff service)	Any	Days	No
Student's can't use print/ copy/ scan	Any	Days	No
Tills not working - cannot collect catering income	Any	Days	No
Harder to collect Alumni donations	Any	Weeks	Yes
Loss of rents for student accommodation (impact only arises if space remains unlet)	Any	Weeks	Yes
Inability to collect other income	Any	Weeks	No
Loss of automated invoicing, follow up of non payments	Any	Weeks	No
Not able to offer commercial lectures	Any	Months	Yes
Loss of graduation income	Specific	Months	No
Loss of property income (excluding student accommodation & summer school)	Any	Months	No
Loss of web payments	Any	Months	No
Unable to submit timesheet data to funding bodies	Any	Years	No

Appendix 5 – Increased costs

Please Note: See section 3.1 of the report for an explanation of magnitude and column headings.

Impact	Impact Timeline		
	When could it occur?	How soon to manifest?	Will impacts recur?
High Magnitude			
HEFCE financial penalty for over recruitment of students	Specific	Months	No
Low Magnitude			
Late payment charges/ loss of prompt payment discounts	Any	Days	No
Academic hours extended - staff costs	Any	Days	No
Increased planning and management costs - staff costs	Any	Days	No
Increased security - staff costs	Any	Days	No
Library hours extended - staff costs	Any	Days	No
Manual student records management - staff cost	Any	Days	No
Paper based process for fee collection	Any	Days	No
Increased interest paid	Any	Weeks	No
Compensation for cancelled conferences	Any	Weeks	No
Manually target marketing spend (aiming courses at postcode areas)	Any	Weeks	No
Printing and posting of induction materials	Specific	Weeks	No
Procurement of replacement research materials	Any	Weeks	No
Procurement of replacement teaching materials	Any	Weeks	No
Remedial marketing to restore image	Any	Weeks	No
Increased cost of admin work (to clear backlogs)	Any	Weeks	No
Manual cash collection and credit control	Any	Weeks	No
SIP phones down so increased costs of mobiles	Any	Months	Yes
More staff needed for graduation	Specific	Months	No
Inefficient communication with research partners	Any	Months	No

Appendix 6 – Contingent liabilities and intangible costs

Please Note: See section 3.1 of the report for an explanation of magnitude and column headings.

Impact	Impact Timeline		
	When could it occur?	How soon to manifest?	Will impacts recur?
High Magnitude			
Removal of approved sponsor status from UK Borders Agency (loss of overseas students)	Specific	Months	Yes
Depositors of special collections may bring legal action	Any	Months	Yes
Lower standing in league table and student experience survey results	Any	Years	Yes
Medium Magnitude			
[During results process] Failure of IT during external examiner marking - would need to rebook examiners	Specific	Weeks	No
Loss of security causes thefts	Any	Weeks	No
Financial compliance and governance (financial memorandum in place with HEFCE and bank to report student numbers, finances etc)	Any	Months	Yes
Controlled environments including datacentre not available (e.g. mould growth to special collections, freezers), restock and repair costs	Any	Months	Yes
Diminished reputation and perception	Any	Months	Yes
Student and contractor compensation claims	Any	Months	No
Loss of specific course accreditations	Any	Years	Yes
Loss of future research contracts (loss of reputation)	Any	Years	Yes
Low Magnitude			
Late payment causing non delivery and sourcing temporary supplier	Any	Days	No
Loss of Life Sciences' Home Office license	Any	Days	No
[During enrolment process] Failure of reporting to the UK borders agency	Specific	Weeks	Yes
No access to student disability requirements - disclosure issues	Any	Months	Yes
Consortium discounts not applied	Any	Months	No
Future academic recruitment and retention	Any	Years	Yes
Research results not validated	Any	Months	Yes
Acquisitions and disposals - loss of efficiency	Any	Months	No
Increased staff loss - recruitment and expertise	Any	Months	No

Appendix 7 – Impacts specific to scenarios

Process Scenarios

The tables below list the impacts that would occur due to IT disruption during specific scenarios. The column “Scenario Specific?” states whether the impact is wholly specific to the scenario. “No” indicates that it could occur due to the loss of another process.

IT Disruption during Admissions			
Impact Category	Impact	Magnitude	Scenario Specific?
Loss of Income	Loss of direct applicants	High	No
	No applicants from UCAS	High	No
Increased Costs	Increased planning and management costs - staff costs	Low	No
Contingent Liabilities and Intangible Costs	Diminished reputation and perception	Medium	No
	Future academic recruitment and retention	Low	No
	No access to student disability requirements - disclosure issues	Low	No

IT Disruption during Clearing			
Impact Category	Impact	Magnitude	Scenario Specific?
Loss of Income	Loss of direct applicants ¹	High	No
Increased costs	HEFCE financial penalty for over recruitment of students	High	No
	Increased planning and management costs - staff costs	Low	No
	Manually target marketing spend (aiming courses at postcode areas)	Low	No
	Remedial marketing to restore image	Low	No
Contingent Liabilities and Intangible Costs	No access to student disability requirements - disclosure issues	Low	No

¹ Please note: While applicants approach institutions directly during clearing, they must still go through UCAS to complete the application.

IT Disruption during Enrolment			
Impact Category	Impact	Magnitude	Scenario Specific?
Loss of income	Loss of overseas students if can't process visas and entry forms	High	Yes
	Loss of rents for student accommodation (impact only arises if space remains unlet)	Low	No
Increased Costs	Paper based process for fee collection	Low	No
	Increased planning and management costs - staff costs	Low	No
	Manual cash collection and credit control	Low	No
	Printing and posting of induction material	Low	No
Contingent Liabilities and Intangible Costs	Removal of approved sponsor status from the UK Borders Agency (loss of overseas students)	High	No
	Diminished reputation and perception	Medium	No
	Student and contractor compensation claims	Medium	No
	Failure of reporting to the UK Borders Agency	Low	Yes
	No access to student disability requirements - disclosure issues	Low	No
	Future academic recruitment and retention	Low	No

IT Disruption during Results			
Impact Category	Impact	Magnitude	Scenario Specific?
Loss of Income	Can't deliver third party / commercial services	Medium	No
	Library loans not effectively managed - loss of fines	Low	No
Increased Costs	Academic hours extended - staff costs	Low	No
	Increased planning and management costs - staff costs	Low	No
Contingent Liabilities and Intangible Costs	Failure of IT during external examiner marking - would need to rebook examiners	Medium	Yes
	Diminished reputation and perception	Medium	No
	Student and contractor compensation claims	Medium	No
	Future academic recruitment and retention	Low	No

IT Service Loss Scenarios

The tables below list the impacts that would occur due to specific IT service disruption. The column “Scenario Specific?” states whether the impact is wholly specific to the scenario. “No” indicates that it could occur due to the loss process or due to the loss of other IT services.

IT Disruption to Virtual Learning Environment			
Impact Category	Impact	Magnitude	Scenario Specific?
Increased Costs	Academic hours extended - staff costs	Low	No
	Increased planning and management costs - staff costs	Low	No
Contingent Liabilities and Intangible Costs	Lower standing in league table and student experience survey results	High	No
	Student and contractor compensation claims	Medium	No
	Diminished reputation and perception	Medium	No
	Future academic recruitment and retention	Low	No

IT Disruption to Email			
Impact Category	Impact	Magnitude	Scenario Specific?
Loss of Income	Loss of direct applicants	High	No
	Unable to submit to Research Excellence Framework	High	No
	Unable to submit research proposal submissions ²	Medium	No
	Can't deliver third party / commercial services	Medium	No
	Unable to submit HESA data ³	Low	No
	Library loans not effectively managed - loss of fines	Low	No
Increased Costs	Increased planning and management costs - staff costs	Low	No
	Library hours extended – staff costs	Low	No
	Increased interest paid	Low	No
	Compensation for cancelled conferences	Low	No
Contingent Liabilities and Intangible Costs	Student and contractor compensation claims	Medium	No
	Diminished reputation and perception	Medium	No
	Future academic recruitment and retention	Low	No
	Research results not validated	Low	No

² Most research proposal submissions are made online but not by email.

³ HESA data is submitted online but not by email. Disruption of the email service would prevent data queries by email, but these could be made by other means.

IT Disruption to Research Management Systems			
Impact Category	Impact	Magnitude	Scenario Specific?
Loss of Income	Unable to submit research proposal submissions	High	No
	Unable to submit to Research Excellence Framework	High	No
	Failure to submit research grant - loss of funding	Medium	No
	Loss of automated invoicing, follow up of non payments	Low	No
Increased Costs	Inefficient communication with research partners	Low	No
	Academic hours extended - staff costs	Low	No
	Increased planning and management costs - staff costs	Low	No
Contingent Liabilities and Intangible Costs	Diminished reputation and perception	Medium	No
	Loss of future research contracts (loss of reputation)	Medium	No
	Research results not validated	Low	No
	Future academic recruitment and retention	Low	No