

Federated access management: institutional preparedness study

Federated access management:

institutional preparedness study

CC273D001-1.0

5 December 2006

Cover + 64 pages

Matt Shreeve
Dr Max Hammond

Curtis+Cartwright Consulting Limited

Main Office: Surrey Technology Centre,
Surrey Research Park, Guildford
Surrey GU2 7YG

tel: +44 (0)1483 295020

fax: +44 (0)1483 295021

email: postmaster@curtiscartwright.co.uk

web: <http://www.curtiscartwright.co.uk>

Registered in England: number 3707458

Registered address:
Baker Tilly, The Clock House,
140 London Road, Guildford,
Surrey GU1 1UW

Executive summary

Introduction

- 1 Curtis+Cartwright Consulting Limited, supported by Mindset Research Limited, is conducting an institutional preparedness study for the Joint Information System Committee's (JISC's) federated access management initiative.¹ The study was initiated during July 2006 and originally reported in November 2006. This version of the report is the release issue (1.0).²

Objectives and scope

- 2 The objectives of the study are to:
- gather contact details for nominated institutional contacts;
 - gather and assess information from institutions, including their awareness of, and readiness and willingness for, federated access management;
 - conduct basic outreach activities;
 - inform the JISC's Access Management Transition Programme (AMTP), including outreach and support activities for institutions.
- 3 All UK Higher Education (HE) and Northern Irish, Scottish and Welsh Further Education (FE) institutions that have not participated in the JISC's Core Middleware programmes are in the scope of this study. English FE institutions were excluded. The study has elicited 170 (from 208) institutional responses.

Methodology

- 4 The JISC's information requirements³ were developed into a discussion guide for a small number of face-to-face interviews with FE and HE institutions. A telephone survey, based on the interviews, was designed and telephone interviews conducted in September and October 2006. Data gathered was processed and information analysis performed in order to extract relevant findings.
- 5 The outreach assessment and planning (Section 4) are based on the findings and a generalised model of an institution's adoption of federated access management (Annex B).

Findings

- 6 A number of quantitative and qualitative findings are set out in this report (Sections 2 and 3). They cover the federated access management context and technical environment; institutions' awareness and understanding of federated access management; likely uptake of federated access management and Athens subscriptions; assisted take-up and support requirements; envisaged barriers to adoption; anecdotal findings and lessons learnt from conducting the survey.
- 7 The main difficulty with interpreting the findings is the considerable uncertainty within institutions: many institutions can not yet provide firm responses to important questions on

1 *JISC Core Middleware Programme Institutional Preparedness Study*, Contract Letter, 5 July 2006.

2 Drafts were reviewed by Mindset Research (0.1) and the JISC Executive (0.2).

3 *Audit of institutional preparedness*, 12 May 2006, V0.3, Nicole Harris.

federated access management. This highlights the need for outreach activities and urgent promotion of federated access management.

8 A number of general caveats are set out to aid interpretation of findings (sub-section 2.3).

Awareness, understanding and preparedness

9 There is a very wide spectrum of awareness, understanding and preparedness between institutions.

10 HE institutions are far "ahead" in terms of awareness, readiness and willingness for uptake of federated access management. The difference between the FE and HE sectors is significant enough to consider them separately for analysis and outreach.

11 Although 31% of FE institutions and 71% of HE institutions are intending to adopt federated access management by July 2008, a range of analyses indicate a lower "pragmatic" range. 2-14% of FE institutions and 29-56% of HE institutions are likely to adopt by July 2008 (*ie* are ready and willing). The "pragmatic" range assumes "business as usual" until July 2008.

Outreach

12 The JISC's federated access management aim is to have substantial uptake, across FE and HE, by July 2008. Substantial outreach efforts are required to promote adoption from now until the summer of 2007 in order to achieve high uptake by this time. In addition, the JISC needs to ensure that every institution is aware of access management changes affecting them from the start of August 2008 and able to make an informed decision on an appropriate course of action.

13 The findings indicate that it will be difficult to achieve high, say 80%+, adoption of federated access management across FE and HE by July 2008, particularly assuming "business as usual". Achieving a longer-term uptake aim, say 95%+ at the end of July 2011 will require the JISC to continue and extend its outreach activities and ensure the success of those who adopt by July 2008.

14 It is proposed that the JISC prioritise its outreach activities and focuses on those institutions most likely to, and able to, adopt but not already committed to doing so. A segmentation analysis indicates that using the FE / HE sector split provides a useful and easy initial segmentation. For the HE sector, further segmentation is proposed, based on an institution's degree of senior management commitment and level of technical capability. One sub-segment, comprising 10-20% of institutions, is prioritised for promotion until the summer of 2007. For the FE sector, it is proposed to increase awareness, understanding and adoption by focusing on efficient outreach activities and "quick wins".

15 It is recommend that the outreach planning (Section 4) is developed for JISC's outreach activities. The key principles should be agreed and tested, and the planning should be adapted to meet institutional needs as encountered and as they evolve over time.

Success of the study

16 The study forms a "baseline" audit for the institutions in scope, against which to plan initial outreach activities, and to compare the progress of institutions going forward.

- 17 The study has proven to be a valuable outreach exercise in its own right, directly raising the awareness of relevant institutional staff at those institutions where it was previously particularly low.
- 18 The study has also been successful in eliciting 201 (from 208) sets of nominated contact details, despite great difficulties in identifying the appropriate institutional staff to conduct the survey.
- 19 It is recommended that the JISC consider disseminating the findings from this study to the community. Provision of this evidence base supports transparency and decision-making by institutions, suppliers and other stakeholders.

Further surveys

- 20 It is likely that a repeated study will be able to improve the consistency and certainty of the findings in this report. Either this can be conducted on a continual basis as part of outreach activities or further "snapshot" surveys could be conducted.
- 21 Further surveys (such as a sample of English FE) could add to the information available. A study of the preparedness of service providers would provide important evidence to build a business case for HE institutions. Repeated studies, covering all institutions, would provide progress tracking and contribute to the evaluation of the success of the JISC's access management activities.
- 22 It is recommended that the JISC synthesise the findings from this study with other relevant studies. An emerging evidence base on institutional systems, capabilities, structures, processes and intentions will help achieve the JISC's strategic aims.
- 23 It is recommended, where required to support outreach activities, that contact details are managed and maintained appropriately.

This page is intentionally blank

List of contents

Executive summary	1
List of abbreviations	7
1 Introduction	9
1.1 General	9
1.2 Objectives	9
1.3 Scope	9
1.4 Background	10
1.5 Methodology	11
1.6 Overview of this document	11
2 Quantitative findings	13
2.1 Introduction	13
2.2 Responses	13
2.3 Caveats	14
2.4 Federated access management context	15
2.5 Federated access management technical environment	17
2.6 Awareness and understanding	24
2.7 Likely uptake	28
2.8 Support requirements	35
2.9 Barriers to adoption	36
2.10 Resource requirements and budgeting	37
2.11 Miscellaneous	38
3 Qualitative findings	41
3.1 Introduction	41
3.2 Anecdotal evidence	41
3.3 Lessons learnt from conducting the survey	42
4 Outreach	45
4.1 Introduction	45
4.2 Aims and timeline	45
4.3 Adoption model	45
4.4 Assessment	46
4.5 Outreach planning	48
4.6 Outreach activities	53
5 Conclusions	55
5.1 Introduction	55
5.2 Success of the study	55
5.3 Awareness, understanding and preparedness	55
5.4 Outreach	56
5.5 Further surveys	57
6 Recommendations	59
6.1 Introduction	59
6.2 Use of study outputs	59
6.3 Further surveys	59

A	Methodology	61
A.1	Introduction	61
A.2	Information requirements	61
A.3	Data gathering	61
A.4	Data processing	62
A.5	Information analysis	62
B	Adoption model	63
B.1	Introduction	63
B.2	Outreach activities	64

List of abbreviations

AD	Active Directory
ADFS	Active Directory Federation Services
AMTP	Access Management Transition Programme
CM	Core Middleware
DA	Devolved Authentication
DELLS	Department for Education, Lifelong Learning and Skills
DELNI	Department for Employment and Learning
DS	Directory Services
FE	Further Education
HE	Higher Education
HEFCE	Higher Education Funding Council for England
HESA	Higher Education Statistics Agency
ICT	Information and communications technology
IdP	Identity Provider
IT	Information Technology
JANET	Joint Academic Network
JISC	Joint Information Systems Committee
JULIET	JISC Understanding the Landscape for Information Environments and their Take-up
LSC	Learning and Skills Council
MATU	Middleware Assisted Take-up
MIS	Management Information Systems
MUSIC	Measuring and Understanding the Systems Integration Challenge
RSC	Regional Support Centre
SAML	Security Assertion Mark-up Language
SFC	Scottish Funding Council
SSO	Single Sign-On
SP	Service Provider
USO	Unified Sign-On
VLE	Virtual Learning Environment

This page is intentionally blank

1 Introduction

1.1 General

1.1.1 Curtis+Cartwright Consulting Limited, supported by Mindset Research Limited, is conducting an institutional preparedness study for the Joint Information System Committee's (JISC's) federated access management initiative.⁴ The study was initiated during July 2006 and originally reported in November 2006. This version of the report is the release issue (1.0).⁵

1.1.2 The data collected during this study was presented as CC273D002 (containing the full dataset) and CC273D003⁶ (containing the details of nominated contacts).

1.2 Objectives

1.2.1 The objectives of the study are to:

- gather contact details for nominated institutional contacts;
- gather and assess information from institutions, including their awareness of, and readiness and willingness for, federated access management;
- conduct basic outreach activities;
- inform the JISC's Access Management Transition Programme (AMTP), including outreach and support activities for institutions.

1.3 Scope

1.3.1 All UK Higher Education (HE) and Northern Irish, Scottish and Welsh Further Education (FE) institutions that have not participated in the JISC's Core Middleware (CM) programmes are in the scope of this study. English FE institutions are excluded.

Region/Level	No. of institutions	No. surveyed
UK HE	167	111
England FE ⁷	388	2
Wales FE	23	17
Scotland FE	46	29
Northern Ireland FE	16	11
Total	N/A	170

⁴ *JISC Core Middleware Programme Institutional Preparedness Study*, Contract Letter, 5 July 2006.

⁵ Drafts were reviewed by Mindset Research (0.1) and the JISC Executive (0.2).

⁶ Note that HEFCE-agreed data protection rules apply to this data.

⁷ Although English FE were out of scope, two English joint FE/HE institutions were included in the survey. Throughout this document, we combine joint FE/HE with FE – see paragraph 2.3.2.

1.4 Terminology

1.4.1 This study makes the distinction between:

- “early adopters”: the institutions that have or are currently adopting federated access management;
- “Early Adopters”: the projects funded by the CM Infrastructure Programme. Not all of the institutions running these projects have classified themselves as early adopters in this study.

1.5 Background

1.5.1 In January 2007, the JISC will officially launch its UK Access Management Federation for Education and Research (“the Federation”). FE and HE institutions throughout the UK will be able to join the Federation and adopt new technology such as Shibboleth. This will provide institutions with a route to single sign-on to resources for users through the implementation of federated, devolved authentication.

1.5.2 The Athens service, currently funded by the JISC on behalf of institutions, will become a subscription service post-July 2008 for institutions which choose to use it. JISC funded technical solutions, free at the point of use, will ensure interoperability between:

- Athens-serviced institutions and federated access management enabled service providers;
- federated access management enabled institutions and Athens-serviced service providers.

1.5.3 Widespread uptake of federated access management is intended to provide a flexible infrastructure capable of functions beyond that covered by the Athens service. This includes, for example, access controls for intra-institution services and inter-institution collaborations. However, the current focus, and that adopted by this study, is as an alternative to the Athens service. In addition, there is a range of approaches to implementation (choice of software, approach to serving attributes, *etc*).

1.5.4 The JISC’s initiative, led by the AMTP, builds on the JISC CM Infrastructure Programme and, in particular, on the Early Adopter projects that have been exploring the process of adopting federated access management technologies. Projects within this programme have provided JISC and its community with insight into the process of institutional adoption of federated access management. Case studies from these projects will be made widely available.

1.5.5 In order to inform the AMTP the JISC commissioned this study of institutional preparedness. As an initial activity and as part of the JISC announcement of its plans to implement federated access management, UK FE and FE institutions were invited, by letter, to provide a named contact for further information and to classify their institution into one of four categories:

- institutions that are existing early adopters of federated access management;
- institutions that are willing to adopt federated access management by July 2008;
- institutions with an interest in federated access management, but no timeframe for adoption;
- institutions that will not adopt federated access management.

- 1.5.6 The data gathering for this study was concerned with the last three groups of institutions and those that did not respond to the JISC's invitation. In order to provide the overall picture for the UK, some of the findings include the first group of institutions and extrapolates across out-of-scope institutions, including English FE. It is clearly stated where this has been done.
- 1.5.7 The JISC has other streams of work, including MUSIC⁸ and JULIET,⁹ with common aims of developing an understanding of institutional IT facilities and use of information systems.

1.6 Methodology

- 1.6.1 The methodology employed for this study is set out in detail at Annex A. The data gathering was conducted via telephone interviews in September and October 2006.

1.7 Overview of this document

- 1.7.1 The remainder of this document is structured as follows:
- Sections 2 and 3 set out the quantitative and qualitative findings of the study respectively;
 - Section 4 assesses the findings of the study with respect to the JISC's outreach activities concerned with federated access management and discusses outreach planning;
 - Sections 5 and 6 summarise the key conclusions and recommendations, respectively;
 - Annex A describes the conduct of the study, including the methodology for data gathering;
 - Annex B describes the adoption model used for the outreach assessment.

⁸ Measuring and Understanding the Systems Integration Challenge (MUSIC), currently being conducted by the Newcastle Centre for Social & Business Informatics.

⁹ JISC Understanding the Landscape for Information Environments and their Take-up (JULIET), currently being conducted by the Newcastle Centre for Social & Business Informatics.

This page is intentionally blank

2 Quantitative findings

2.1 Introduction

2.1.1 This section sets out the quantitative findings of this study, including:

- the response rate and sector breakdown;
- general caveats for interpreting the findings;
- findings concerned with the federated access management context and technical environment;
- findings concerned with institutions' awareness and understanding of federated access management in the JISC context;
- findings concerned with likely uptake of federated access management and Athens subscriptions;
- findings concerned with assisted take-up and support requirements and envisaged barriers to adoption.

2.2 Responses

How many institutions took part in the study?

- 2.2.1 241 HE and non-English FE institutions were included at the start of the study. In the first half of 2006, the JISC wrote to all institutions to inform them of the intended adoption of federated access management, and asking about their current awareness or use of federated access management. On the basis of the responses to this letter, 18 early adopters were excluded from the survey. 223 institutions were therefore in scope of the survey, though recent mergers and non-JISC supported institutions reduced this number during the survey.¹⁰
- 2.2.2 170 responses, comprising 111 HE institutions, 48 FE institutions and 11 joint FE/HE institutions, were collected during the survey. 128 of the 170 responses are classed as "completed" and 42 as "partial".¹¹ In addition, a further 33 sets of contact details for a likely representative contact were elicited. In 5 further cases no contact details were elicited.

¹⁰ 16 institutions were classed as "duplicate" or "out of scope", though 1 additional institution was added.

¹¹ "Completed" responses are those in which all or the vast majority of questions were answered, or where the respondent felt it unlikely that involving another member of staff would be beneficial, or where involving another member of staff was not possible. "Partial" responses are those which are not classed as "completed".

2.3 Caveats

2.3.1 In line with all data gathering and processing there are a number of general caveats associated with the findings. For the institutional preparedness study, these include:

- a) **Be aware of the risk of unrepresentative responses:** survey respondents can only provide an approximation to their institution's status and viewpoint. The respondent may not have been best placed or informed to provide representative views. Whilst institutional views were requested there will be some error and uncertainty in the results.
- b) **Be aware of "don't know" and missing responses:** there is considerable uncertainty in many institutional responses, often reflecting a lack of understanding, knowledge and definitive decision-making within the institution. This uncertainty may mask a more positive, or negative, picture of institutional preparedness than that presented here.
- c) **Be aware of the limited lifetime of the findings:** the study only provides a "snapshot" view of an institution's activities and decision-making. Especially as regards likely uptake of federated access management, responses are based upon current institutional thinking and, presumably, their perception of the continued activities of JISC and other stakeholders into the future. Since this is an imperfect view, founded on a "business as usual" assumption extrapolated 21 months into the future, there is considerable opportunity for informing and influencing decisions.
- d) **Be aware of the risk of inconsistencies:** there are a number of known quantitative inconsistencies within the data, possibly reflecting misunderstanding or the input of multiple respondents. Further interpretation of the dataset may reveal further inconsistencies.
- e) **Be aware that some answers are subjective:** for example, answers regarding the understanding of federated access management may be misrepresentative due to the "can of worms" effect. Some institutions who have researched the subject have realised that there is a great deal more to know, and report lower awareness than those who have only "scratched the surface".
- f) **Be aware that cause and effect relationships are difficult to identify:** further consideration is always required to understand the cause and effect relationship behind a strong correlation between factors.¹²
- g) **Be aware of limited sample sizes:** extrapolation of findings from small groups results in significant uncertainty in the answer.

2.3.2 Institutions are categorised into FE and HE for presentation of results. The 11 institutions (6% of the sample) that stated they are joint FE and HE institutions do not provide a statistically significant sample for analysis. These institutions were grouped with other FE institutions

¹² For example, where a particular communication channel is correlated with increased awareness and understanding it may be that the channel is particularly effective, or that already knowledgeable institutions tend to utilise that channel. Alternatively, a third variable may control both other variables; for example, sufficient staff numbers to enable a broad understanding of many topics and to utilise a majority of communication channels.

because, on inspection, they most frequently resembled FE institutions. Further analysis may reveal that they require separate categorisation.

2.3.3 During the course of the study it became clear that the original list of institutions in scope included some which were actually out of scope and that other institutions should be in scope. The actual scope of the study appears to be at least 208 institutions.¹³ The difficulty in getting a definitive number is acknowledge and is thought to be due to:

- the lack of a common definition or list of institutions;
- numerous mergers and reorganisation activities;
- omissions from the mailing list originally provided.

2.3.4 Unless otherwise stated, percentages given here are of those respondents who answered the appropriate question. Where findings are extrapolated across all institutions it is assumed there are 473 UK FE institutions (388 English; 85 non-English) and 167 UK HE institutions.

2.4 Federated access management context

How many institutions have converged library and IT services?

2.4.1 An early finding from the Early Adopters funded by the CM Programmes was that adoption of federated access management is easier with converged library and IT services, due to the need for changes in business processes and responsibilities across what would otherwise be a organisational gap.

2.4.2 Approximately 32% of HE respondents state that they have converged library and IT services, compared to 21% of FE respondents (sample size: 59 FE, 111 HE).

How many institutions use the Athens service?

2.4.3 The use of the Athens service was gauged by asking “what is your institutional status with regards to Athens?”. The following table sets out the key results to this question:

	FE (59 responses)	HE (111 responses)
Athens	78%	57%
Athens Devolved Authentication (AthensDA)¹⁴	7%	35%

Table 2-1: what is your institutional status with regards to Athens?

¹³ Based on 170 responses, 33 sets of contact details and 5 absences of contact details, and acknowledging that there are likely to be other institutions that were not on the original list.

¹⁴ AthensDA uptake extrapolates to 85 institutions (32 FE, 53 HE) across the UK. This compares with a stated 70 institutions, *Eduserv presentation*, UCISA Access Management Event, 29 Nov 2006.

2.4.4 The number of Athens administrators at each institution is set out in the following table:

No. of Athens administrators	FE (59 responses)	HE (111 responses)
0	7%	9%
1	58%	37%
2	17%	30%
3	12%	14%
4	5%	5%
5 through 10	2%	5%
11+ members	0%	1%

Table 2-2: how many staff are involved in the administration of Athens at your institution?

2.4.5 The effort that is required for Athens administration was elicited by asking what proportion of their effort is required for the role. The majority of responses, acknowledging uncertainty, estimated less than 10%, although a few institutions stated that it is a full time role. Many responses indicated that the effort varied and, in relevant cases, that the effort was lower after adopting AthensDA.

How many institutions have an information strategy?

2.4.6 Institutions were asked “does your institution have an over-arching information strategy?”. From 161 responses, 62% of FE institutions and 70% of HE institutions have an information strategy. At least 30% of these strategies are publicly available, with a further 30% where the respondent did not know whether it is publicly available.

Who has responsibility for user records and identity management?

2.4.7 Institutions were asked about the management of student and staff information, and in particular who within the institution has responsibility for this information. The following table sets out the key results:¹⁵

	FE (59 responses)	HE (111 responses)
Institution holds responsibility	86%	83%
Departments hold primary responsibility	15%	21%
University colleges hold primary responsibility	N/A	4%
Management of information is subcontracted by the institution to a third party	0%	2%

Table 2-3: who has responsibility for user records and identity management?

2.4.8 A large majority of institutions hold responsibility for user and identity management, but there are many specific implementations of this; in a large number of cases, the institution provides the system, but departments are responsible for maintaining data on their members.

2.5 Federated access management technical environment

What technical capabilities and capacity do institutions have?

2.5.1 Institutions were asked "how many in-house technical and systems staff does your institution have?". The following table sets out the key results of this question:

No. of staff	FE (45 responses)	HE (81 responses)
<10	71%	20%
11-25	16%	17%
26-50	7%	21%
51-100	0%	14%
100+	0%	11%

Table 2-4: how many in-house technical and systems staff does your institution have?

¹⁵ Some institutions have responsibility at several levels. The figures here are the percentage of respondents who chose that option and hence the sums are greater than 100%

- 2.5.2 Institutions were asked in which areas they had technical experience, and the following table sets out the key results of this question:

	FE (43 responses)	HE (96 responses)
Windows	100%	100%
Linux/Unix	49%	95%
Web server deployment and configuration	84%	97%
Writing own CGI scripts	37%	80%
Directory service deployment and configuration	63%	89%
Firewall deployment and configuration	81%	95%
Application programming	65%	84%
Java programming	47%	68%
PKI certificate server deployment, configuration and management	5%	52%

Table 2-5: what technical skills does your institution have?

- 2.5.3 The gap in technical capability between the HE and FE sectors is strongly demonstrated by these results. Of particular concern is the limited experience within the FE sector of Linux/Unix, CGI and PKI management, as these technologies are critical for a successful deployment of the Internet2 Shibboleth implementation.

Where do institutions receive technical support?

- 2.5.4 Institutions were asked whether they participate in or gain technical support from inter-institutional collaborations, formal regional support groups and support contracts with commercial organisations. The following table sets out the key results:

	FE (48 responses)	HE (98 responses)
Inter-institutional collaborations	60%	62%
Formal regional support groups	65%	55%
Support contracts with commercial organisations	58%	67%

Table 2-6: from where does your institution receive technical support?

- 2.5.5 It is clear that institutions receive support through a range of channels, with broadly similar levels of uptake between the FE and HE sectors.

What sign-on systems do institutions have or plan to deploy?

- 2.5.6 Institutions were asked how users currently log in to resources at their institution, and asked to choose between single sign-on (SSO, where once logged in all resources may be accessed), unified sign-on (USO, where the user must log in to each resource separately, but with the same credentials at each), and having separate credentials for each resource.¹⁶ The following table sets out the key results:

	FE (56 responses)	HE (108 responses)
Single sign-on	14%	15%
Unified sign-on	18%	32%
Neither	63%	42%
Other	5%	11%

Table 2-7: what sign-on system does your institution have?

- 2.5.7 Those respondents who were not using single sign-on were asked whether they had plans to adopt USO or SSO.
- 2.5.8 The planned deployment of these sign-on technologies should be interpreted with some caution; only around 30% of those who stated a plan to move to SSO or USO had a timescale for this transition. The comments given by respondents demonstrate that many plans for these technologies are aspirational.

¹⁶ Note that these definitions are broader than sign-on for a web session.

2.5.9 The results are given in the figures below, for FE and for HE:

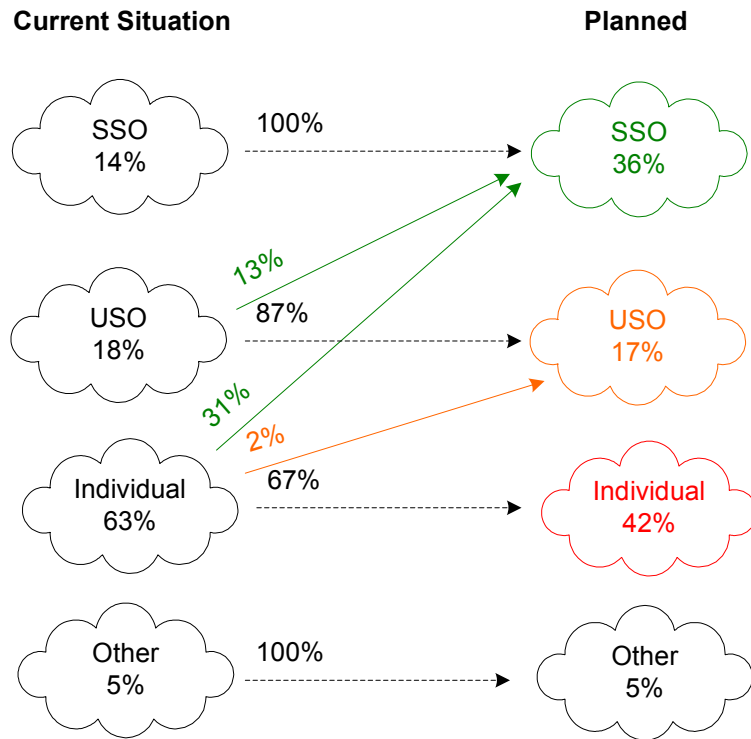


Figure 2-1: sign-on environment for FE

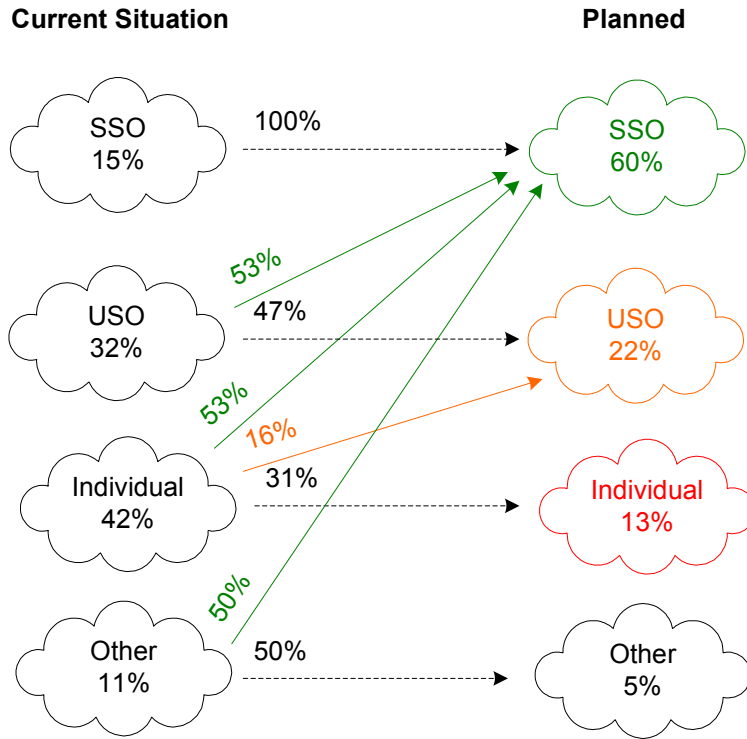


Figure 2-2: sign-on environment for HE

- 2.5.10 The technologies currently used for sign-on vary, and often developed in-house, and can not be quantitatively analysed.
- 2.5.11 When asked which technologies were intended to be used to implement single/unified sign-on, relatively few institutions were able to answer (sample size: 9 FE, 39 HE), but 80% of these respondents (for both HE and FE sectors) stated an intention to use Shibboleth for sign-on. It is possible that this, surprisingly high, figure represents confusion between using Shibboleth for access management, and using it as a sign-on technology.¹⁷

¹⁷ This confusion may partly arise from the fact that Shibboleth is both a protocol (as an implementation of SAML), and a software implementation (provided by Internet2). The Internet2 Shibboleth software provides a rudimentary sign-on capability, but this is unlikely to be adequate for most institutions.

What directory services do institutions have or plan to deploy?

2.5.12 Institutions were asked the question “does your institution have an enterprise directory service in place?”. The following table sets out the key results:

	FE (51 responses)	HE (104 responses)
Yes	41%	63%
No, but it is planned	6%	8%
No and no plans to	22%	12%

Table 2-8: does your institution have an enterprise directory service in place?

2.5.13 Those institutions which have enterprise directory services were asked which technologies they currently use for enterprise directory services. The following table sets out the key results:

	FE (16 responses)	HE (67 responses)
Apache Directory Server	–	1%
Microsoft Active Directory	69%	66%
Novell eDirectory (NDS)	13%	31%
Sun Directory Server	–	1%
Red Hat Directory Server	–	–
OpenLDAP	31%	27%
IBM SecureWay Directory	–	–
IBM Tivoli Directory Server	–	–
Siemens DirX	–	–
Microsoft Identity Integration Server	6%	–

Table 2-9: what technology does your institution use for enterprise directory services?

2.5.14 Microsoft Active Directory is the dominant technology for both the FE and HE sectors, followed by OpenLDAP for the FE sector and NDS and OpenLDAP for the HE sector.

- 2.5.15 Those institutions which currently use, or plan to deploy, enterprise directory services were asked which technologies they plan to use in future. The following table sets out the key results:¹⁸

	FE (25 responses)	HE (75 responses)
Apache Directory Server	4%	–
Microsoft Active Directory	16%	21%
Novell eDirectory (NDS)	8%	12%
Sun Directory Server	–	3%
Red Hat Directory Server	–	–
OpenLDAP	–	8%
IBM SecureWay Directory	–	–
IBM Tivoli Directory Server	–	–
Siemens DirX	4%	–
Microsoft Identity Integration Server	–	1%

Table 2-10: what technology will your institution use for enterprise directory services?

- 2.5.16 As with extant technologies, Microsoft Active Directory is dominant.

What identity management solutions do institutions have or plan to deploy?

- 2.5.17 Institutions were asked the question “does your institution have an identity management solution in place?”. The following table sets out the key results:

	FE (53 responses)	HE (101 responses)
Yes	32%	31%
No, but it is planned	11%	28%
No and no plans to	30%	21%

Table 2-11: does your institution have an identity management solution in place?

- 2.5.18 FE and HE institutions are approximately level in terms of present uptake of identity management solutions. However, this will change in the future towards higher uptake by HE institutions as a greater number of deployments are planned.

¹⁸ The majority of institutions which currently have a directory service do not intend to change their system in the future. As this table only gives plans for the future, the percentages given do not add up to 100%, as not all institutions in this population gave an answer to this question.

2.5.19 Those institutions which have identity management solutions were asked what technologies they currently use for identity management solutions. The sample size of 2 is not statistically significant for any conclusions on identity management technologies to be drawn.

2.6 Awareness and understanding

2.6.1 Institutions were asked how aware they were of JISC’s timeline and JISC’s activities in relation to federated access management. 156 respondents answered these questions. The following figures show the range of awareness for FE and HE institutions:

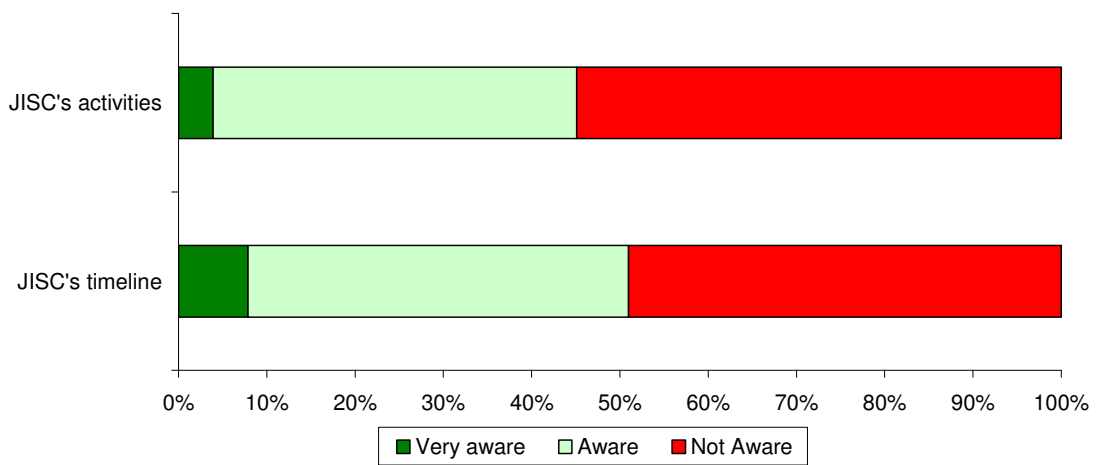


Figure 2-3: FE sector awareness of JISC's activities and timeline in relation to federated access management

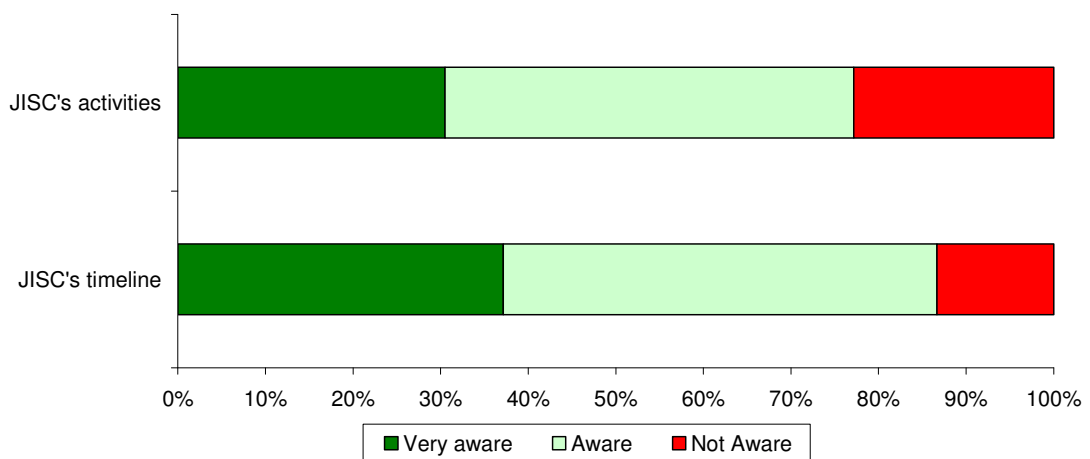


Figure 2-4: HE sector awareness of JISC's activities and timeline in relation to federated access management

2.6.2 Approximately 50% of FE institutions are unaware of the JISC’s activities and timeline in relation to federated access management. This proportion is much less, approximately 20%, for HE institutions (where over 30% of institutions stated that they were “very aware”).

2.6.3 Institutions were asked about their understanding of federated access management in relation to the following aspects:

- the overall concept;
- the technical aspects;
- the strategic implications;
- the budget and resource requirements.

2.6.4 The following figures show the range of understanding across the 156 responding FE and HE institutions:

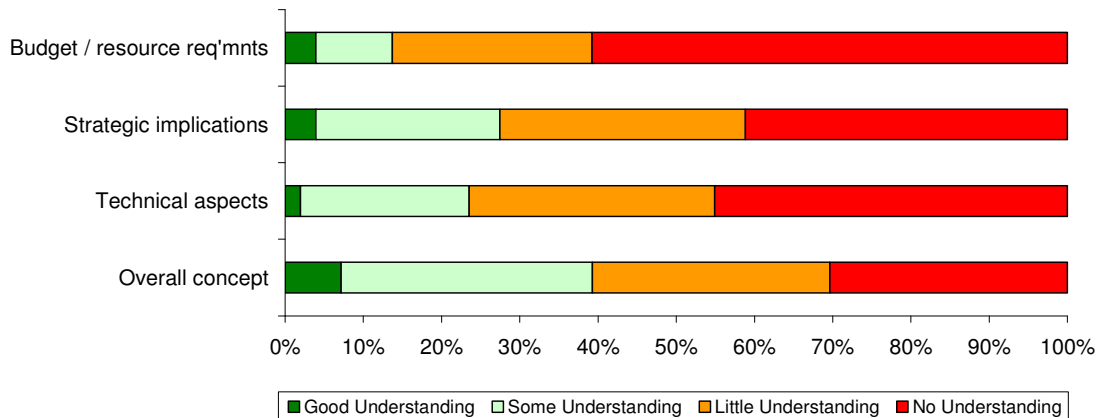


Figure 2-5: FE sector understanding of federated access management

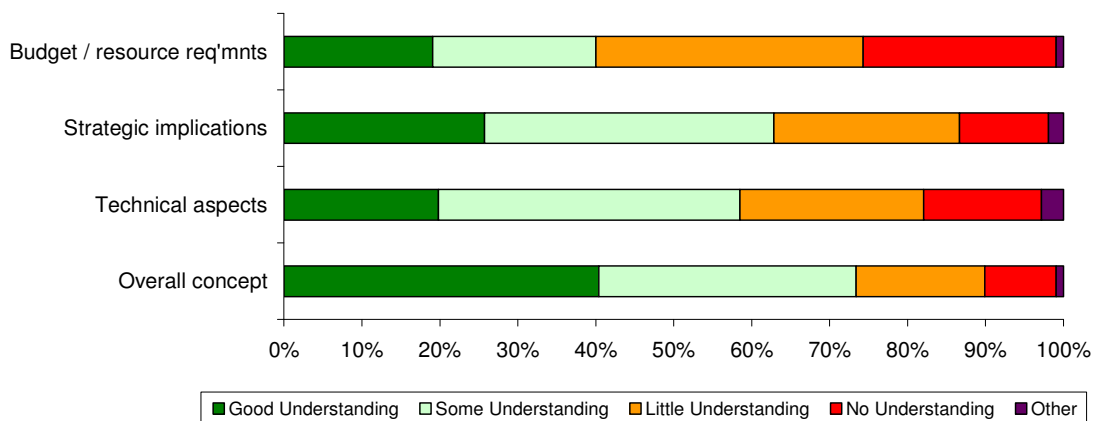


Figure 2-6: HE sector understanding of federated access management

2.6.5 Approximately 40% of FE institutions indicated no understanding of federated access management across these four key aspects of federated access management. Understanding

was least for budget / resource requirements. A "good" understanding was indicated by less than 10% of FE institutions across the four aspects.

2.6.6 Approximately 80% of HE institutions indicated at least a "little" understanding across the four aspects, and approximately 20% "good" understanding. Understanding was lowest for budget / resource requirements.

2.6.7 Responses of "aware" or "very aware," and also "good" or "some" understanding, across all aspects:

- 3% of FE institutions;
- 26% of HE institutions.

2.6.8 Responses of "not aware" and "little" or "no" understanding, across all aspects:

- 8% of HE institutions;
- 32% of FE institutions.

2.6.9 As the figures clearly show, the HE sector has substantially and significantly higher awareness and understanding of JISC's federated access management activities, and the implications for adoption than does the FE sector.

Is there a geographic bias to institutions' awareness of the JISC's activities?

2.6.10 HE institutional responses to questioning about awareness were grouped by region. The figures below show the 109 grouped responses by region.

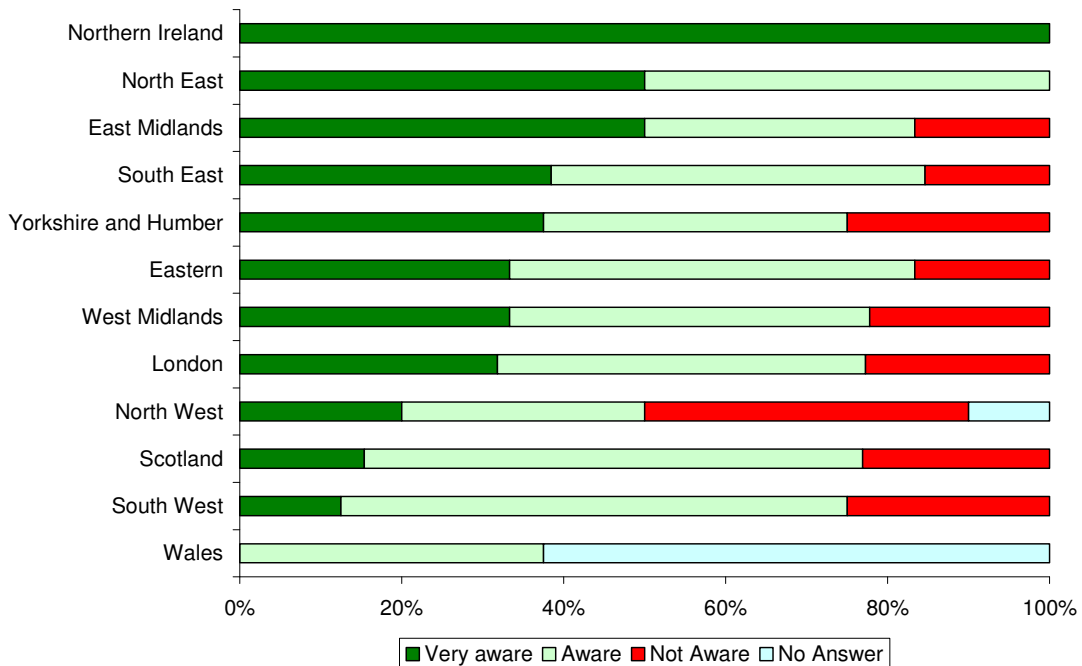


Figure 2-7: HE awareness of JISC's activities in relation to federated access management

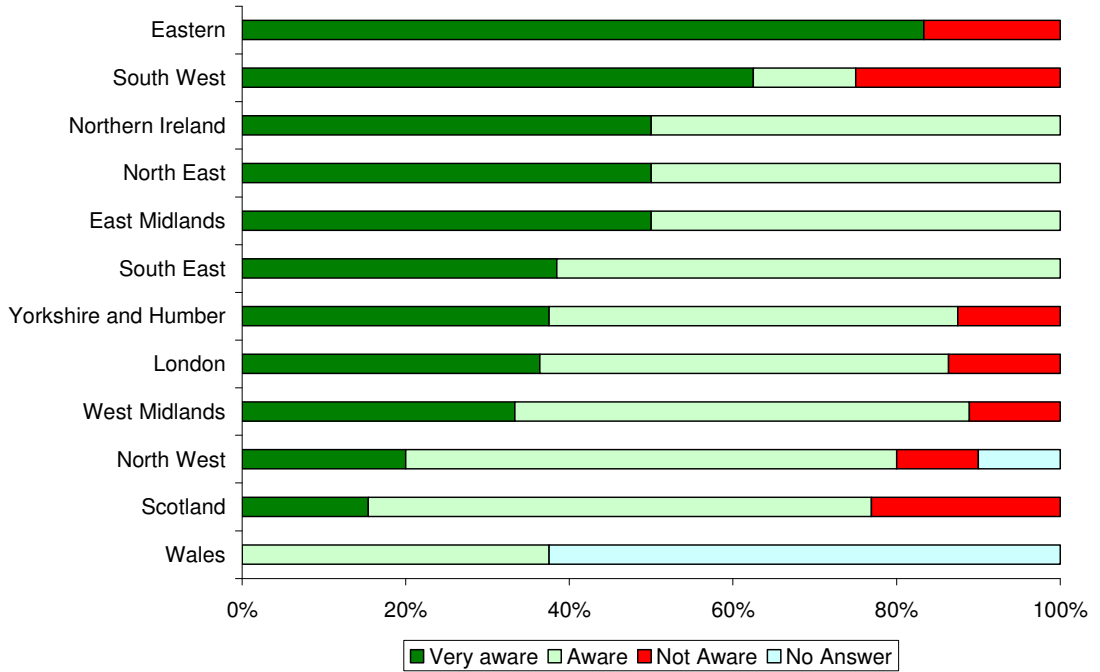


Figure 2-8: HE awareness of JISC's timeline in relation to federated access management

2.6.11 The above figures show that although there are regional variations in the awareness of institutions, there appears to be no systematic bias. Although these sample sizes are small, a tentative conclusion is that any regional bias perceived by the community has not affected institutions' awareness of federated access management. A similar analysis for the FE sector, or combined FE and HE sectors, cannot be completed because English FE institutions are out of scope and the differences in awareness between the FE and HE sectors are significant enough to bias the comparison.

What sources of information have informed institutions

2.6.12 Institutions were asked the question “how has your institution gained awareness and knowledge of federated access management?”. The following figures show the range of sources for FE and HE (sample size: 53 FE, 109 HE):

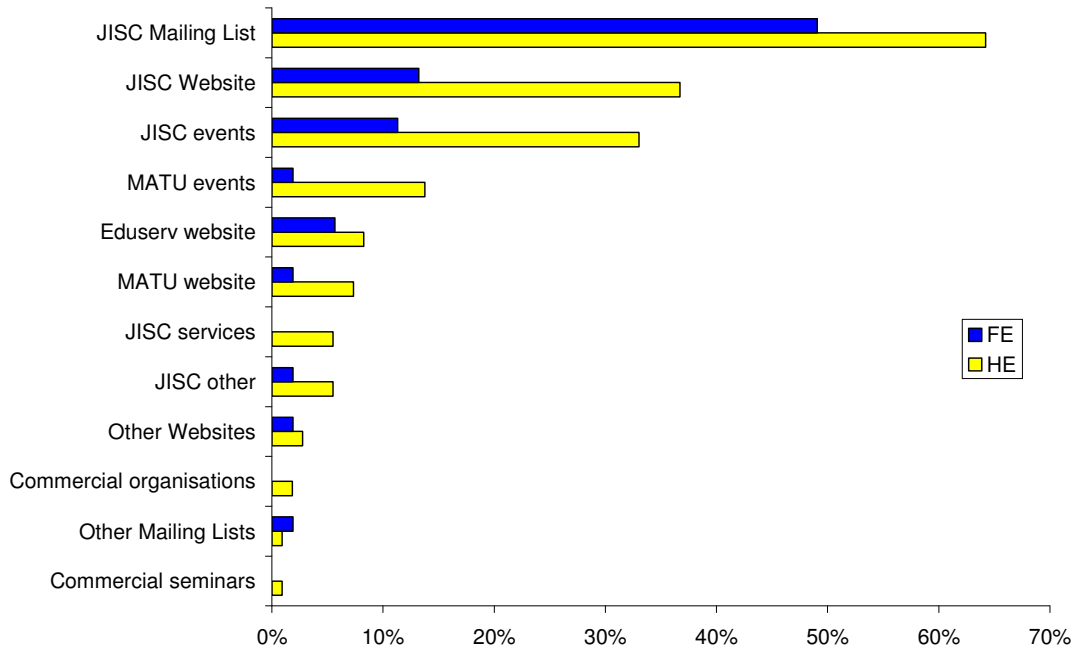


Figure 2-9: how has your institution gained awareness and knowledge of federated access management?

2.6.13 The dominant source of awareness and knowledge, particularly for FE institutions, has been the JISC mailing list. The JISC website and JISC events are the second and third placed sources for both the FE and HE sectors, although uptake of these was far higher for the HE sector than for FE.

2.7 Likely uptake

2.7.1 The JISC expect that institutions will adopt federated access management because adoption leads to benefits and new opportunities. Adoption forecasts and estimates of likely uptake would provide important information for the JISC’s strategic and operational planning, and for decision-making of institutions and service providers that are considering whether to adopt.

2.7.2 This study provides an analysis of the current situation regarding the adoption of federated access management. However, there are significant uncertainties involved in extrapolating this data into the future. Many institutions are at early stages of planning their adoption of federated access management, and much will depend on the perceived business case for adoption, and hence on the effectiveness of the JISC’s future outreach activities.

- 2.7.3 Given these uncertainties, reliable quantitative forecasts of adoption, adoption profile or estimates of likely eventual adoption are not possible. Instead, simpler estimates have been made and are discussed in the following paragraphs.

What are institutional positions towards adoption by July 2008?

- 2.7.4 Institutions were questioned on their position with regards to the adoption of federated access management. A number of precoded options were given, though respondents were able to provide other responses if necessary. The following table sets out the key results:

	FE (59 responses)	HE (111 responses)
No answer / don't know	29%	6%
Interested, but no plans to adopt	29%	21%
Existing early adopter	2%	6%
Plan to adopt by July 2008	29%	62%
Do not intend to adopt	3%	1%
Plan to adopt at a later date	8%	4%

Table 2-12: what best describes your institution's position with regards to the adoption of federated access management?

- 2.7.5 HE institutions are further "ahead" than FE institutions in moving towards federated access management. Approximately 30% of FE institutions plan to adopt by July 2008 and an equal number are interested. Twice as many HE institutions plan to adopt by July 2008 and approximately 20% are interested but do not have plans to adopt. Approximately five times as many FE institutions were unable to answer or did not know their position as compared to HE institutions. A few institutions stated that they were planning to adopt, but after July 2008.

What progress have institutions made along the JISC roadmap?

- 2.7.6 Those respondents who described themselves as planning to adopt federated access management or as early adopters were asked how far their institution had progressed along the JISC's adoption roadmap. The roadmap stages are:
- institutional audit, namely planning and assessing readiness for adoption;
 - directory development, namely implementing appropriate directory services;
 - authentication development, namely deciding on sign-on options;
 - implement identity provider software, namely choosing, deploying and configuring the software;
 - join the federation, namely registering with the federation and agreeing policy;
 - institutional roll-out, namely going live with the service, including staff training and provision of support.

2.7.7 Respondents were asked to describe their institution’s progress as one of:

- yes, have completed;
- no, but plan to;
- no, no plans to;
- don’t know;
- unable to answer due to lack of understanding on this subject.

2.7.8 The key results are presented in the figures below:

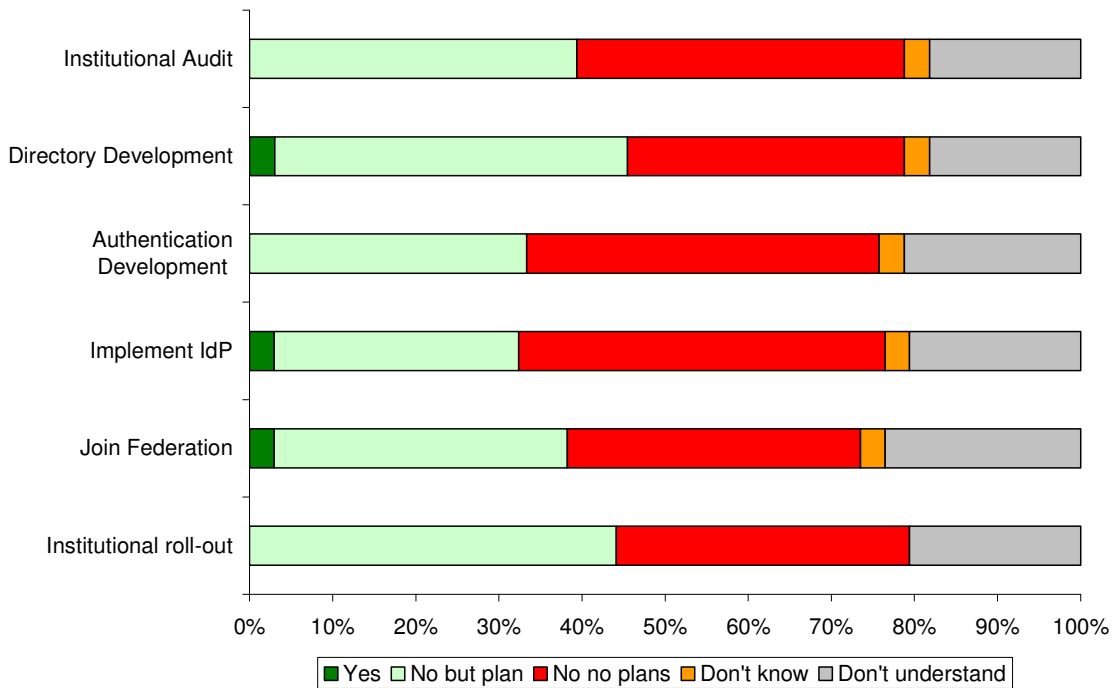


Figure 2-10 – FE institutions’ progress along JISC roadmap (34 responses)

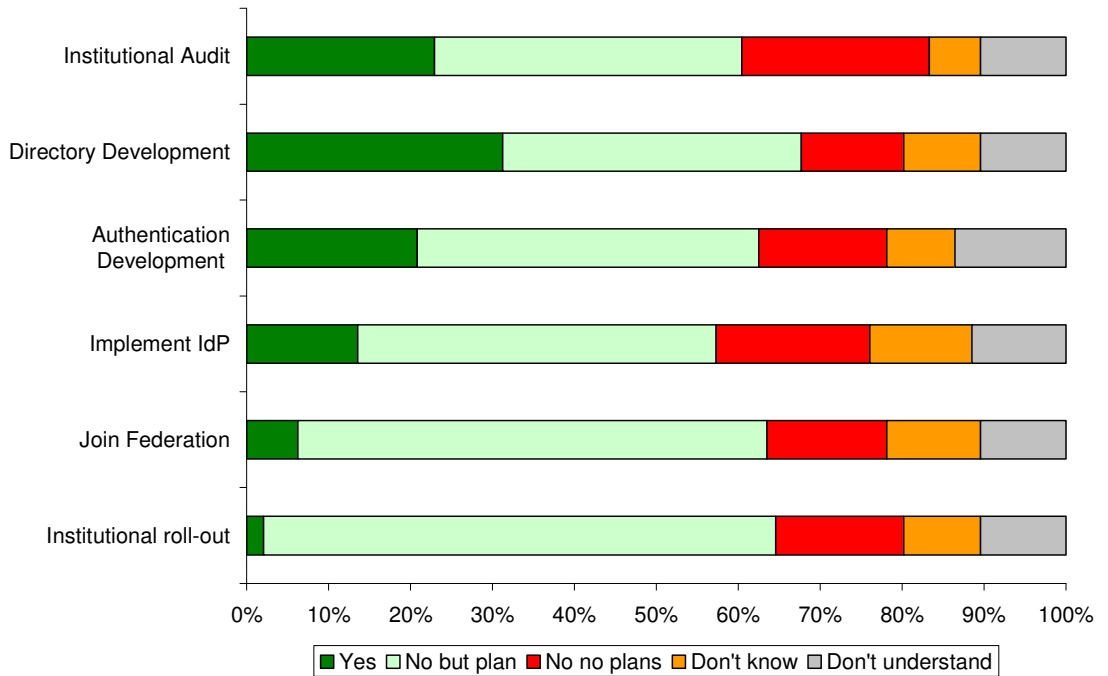


Figure 2-11 – HE institutions’ progress along JISC roadmap (96 responses)

2.7.9 HE institutions are significantly further advanced along the roadmap, both in terms of work already completed, and work planned. Importantly, the proportion of institutions with no plans for the various stages of the roadmap is significantly lower in the HE sector than for the FE sector.

How many institutions are likely to adopt by July 2008?

2.7.10 It is clear from the dataset and from anecdotal responses from the survey team that stated institutional positions were very likely to be optimistic (towards adoption). The key reason for this is that the option “plan to adopt by July 2008” actually covers a range of positions, including, for example, “we would like to adopt by July 2008”, “if it were down to me, we’d adopt by July 2008” and “we have firm plans to adopt by 2008”. General uncertainty and a lack of understanding of what adoption might require, in terms of technical capability, budget and resources, and business change, might reinforce this bias.

2.7.11 This optimism bias is deemed significant enough to warrant further analysis. A number of approaches to answering the question were used to provide a “pragmatic” range to likely uptake by July 2008.

2.7.12 The criteria used to determine different estimates of the institutions likely to adopt by July 2008 are:

- a) All steps of the JISC roadmap (bar institutional audit) are planned or have been completed;¹⁹
- b) Federation membership is planned or achieved;
- c) Good or some awareness and understanding in all areas;
- d) Appropriate technical skills;²⁰
- e) All steps of the JISC roadmap (bar institutional audit) are planned or have been completed, and good or some awareness and understanding in all areas.

2.7.13 Extrapolated to the entire UK, the pragmatic range is 29% through 56% for HE institutions, and 2% through 14% for FE institutions. Figure 2-12 shows the stated institutional position, and the "pragmatic" range.

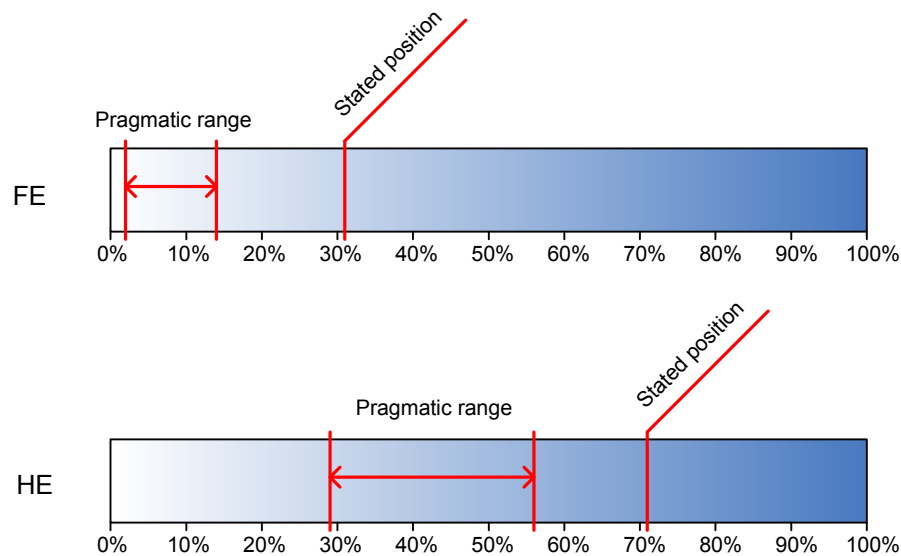


Figure 2-12: likely uptake by July 2008

¹⁹ Several institutions which were otherwise well advanced along the roadmap opted not to complete an institutional audit, on the basis that they already understood their systems and user records adequately.

²⁰ These are defined to be in Linux/Unix, web server deployment and configuration, directory service deployment and configuration, writing CGI scripts, Java programming and PKI certificate server deployment, configuration and management.

- 2.7.14 The proportion of institutions likely to adopt by July 2008 were extrapolated to cover all UK FE and HE institutions. Institutions classed as early adopters, including those out of scope of this study, were added to those likely to adopt. Together, this provides an estimate of the membership of the Federation in July 2008. This estimate comprises:
- Number of FE institutions: 11 through 67;
 - Number of HE institutions: 48 through 93.
- 2.7.15 One counter-argument to the FE sector “pragmatic” range is that the criteria applied to the HE sector should not be applied to the FE sector since FE institutions face different challenges in adopting federated access management. In particular, the average FE institution’s systems and processes are much simpler than the average HE institutions. This is backed up by earlier findings.²¹ The simplicity of enterprise directory services in the FE sector may enable easier deployment. Using Microsoft Active Directory to implement a Shibboleth Identity Provider (IdP) is one proposal. This requires FE institutions to have Active Directory (approximately 40% do) and the necessary Linux skills to deploy Shibboleth. It is possible to speculate, based on a small sample size,²² that around 22% of FE institutions can adopt relatively easily in this fashion if suitable guidance is available.
- 2.7.16 These estimates are based on current awareness, understanding and planning, and a “business as usual” assumption.²³ The dataset does not permit analysis of likely uptake given significant and unexpected changes in, for example, outreach activity and incentivisation.

Are “top” institutions planning to adopt?

- 2.7.17 An interesting finding is that the proportion of “top” universities adopting federated access management is likely to be much higher. One estimate, on the “top 20” universities, is that 94% will have adopted by July 2008.²⁴ Whether this is due to their “leadership” status, or other factors, such as their participation in key events and JISC activities, is unclear.
- 2.7.18 A similar analysis for FE institutions is not possible because there is no commonly-accepted ranking of FE institutions.

²¹ *Eg* as shown by the HE sector’s greater number of legacy directory service systems and sign-on systems and number of technical and systems staff required to manage and administer the IT facilities.

²² 18 respondents from FE institutions responded to both questions (regarding enterprise directory services and institutional skills). Of these, 11 FE reported using Active Directory, and 4 also report having Linux skills within their institution.

²³ *Ie* what the respondent considers to be “business as usual”.

²⁴ The Sunday Times University Guide 2006 was used as a measure of the top 20 universities. Of the top 20, information on their institution position is available for 18. Of the 18, 8 are early adopters; 9 plan to adopt by July 2008; 1 is interested but has no plans. All of the top 10 are likely to adopt.

How many Athens subscribers will there be post-July 2008?

- 2.7.19 118 respondents answered the question "will you subscribe to Athens post-July 2008?".²⁵ The following table sets out the results:

	FE (45 responses)	HE (73 responses)
Yes	17%	11%
No	16%	32%
Don't know	59%	50%
Didn't know payment is required	2%	1%

Table 2-13: will you subscribe to Athens post-July 2008?

- 2.7.20 The majority of responses were uncertain. The proportion that did not know that payment was going to be required from an Athens subscription was low for both FE and HE. This may be indicative of successful outreach.
- 2.7.21 The proportion of respondents which stated that their institution's position will be to subscribe to Athens were determined as a proportion of those who gave a definitive answer (36% for FE; 38% for HE).²⁶ Extrapolating these across all institutions provides a rough estimate of 236 FE and 43 HE institutions that are expected to subscribe to Athens post-July 2008.
- 2.7.22 The JISC Monitoring Unit indicates that there are currently 2.9m Athens FE and HE users (July 2006). Assuming a uniform distribution of student numbers and of Athens users at each institution, a rough estimate of 1.3m FE and HE Athens subscribers post July 2008 is obtained.²⁷ However, there are approximately 2.4m HE students and 5.2m FE students in the UK.²⁸ This implies that there is currently relatively low (38%) Athens uptake in the FE and / or HE sectors, and may indicate significant growth potential for electronic resources and access management.

²⁵ Not all respondents who had indicated an intention to adopt federated access management by July 2008 were asked whether they intended to subscribe to Athens. The survey's routing did not call for this question to be asked although some responses were provided. These responses were extrapolated to provide a rough estimate of responses for those who were not asked.

²⁶ Either a "yes" or "no". These proportions were calculated from the raw data before extrapolating to those who were not asked.

²⁷ There are 640 institutions in the UK in total, and since we expect 280 of them to continue subscribing to Athens post July 2008 (*ie* 44%), we can apply this ratio to the current number of subscribers of Athens.

²⁸ 2.4m HE students (HESA, 2004/05); 4.3m English FE students (LSC, 2004/05); 0.2m Northern Irish FE students (DELNI, 2004/05); 0.5m Scottish FE students (SFC, 2004/05); 0.2m Welsh FE students (DELLS, 2003/04).

2.8 Support requirements

2.8.1 Institutions were asked to consider the types of support required to adopt federated access management. The following figure shows the results (sample size: 28 FE, 71 HE):²⁹

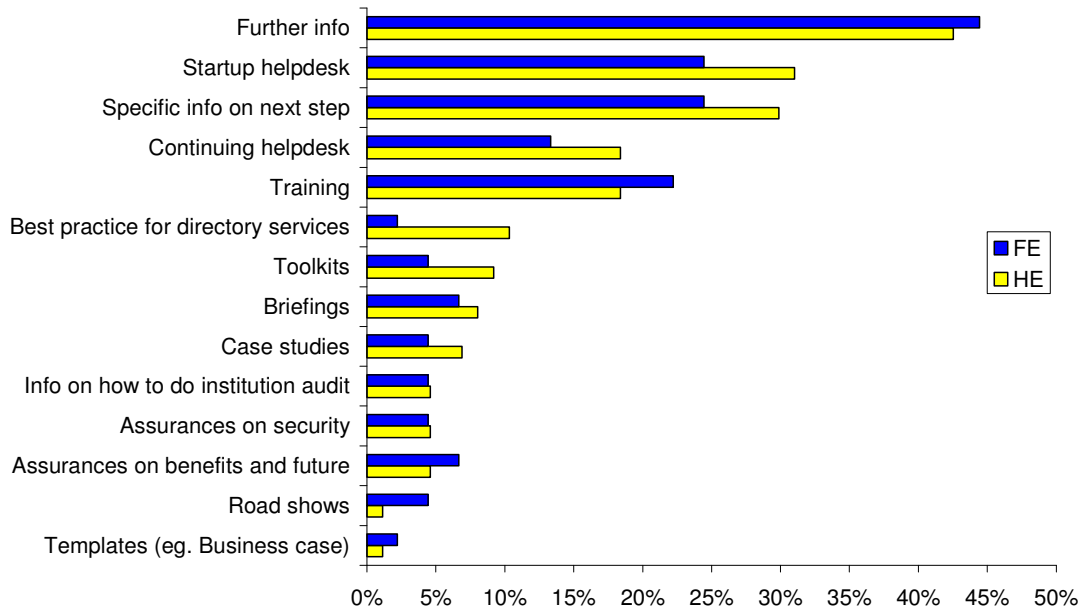


Figure 2-13: what forms of support do you require?

2.8.2 Further information and specific information on the next step is the most frequently requested type of support. A start-up and continuing helpdesk, via email and telephone, were the next most requested types of support.³⁰ Training was considered significant by approximately 20% of institutions. HE institutions, perhaps based on their greater understanding, also stated directory service best practices and toolkits as important.

²⁹ Respondents were asked to choose from a list of possible support options, and then asked to select the three with the highest priority. This chart represents the proportion of institutions who selected each option as a priority.

³⁰ The specific kind of helpdesk, for example supporting problems with IdPs or broader problems with directory services, was not defined. It is thought unlikely that respondents would be able to state specific support requirements or would want to restrict their support requests at this stage.

2.9 Barriers to adoption

2.9.1 Institutions were asked what barriers they foresee in possible adoption of federated access management. Respondents were initially unprompted, but then asked again given prompts. The following figure shows the results against precoded options (sample size: 51 FE, 105 HE):

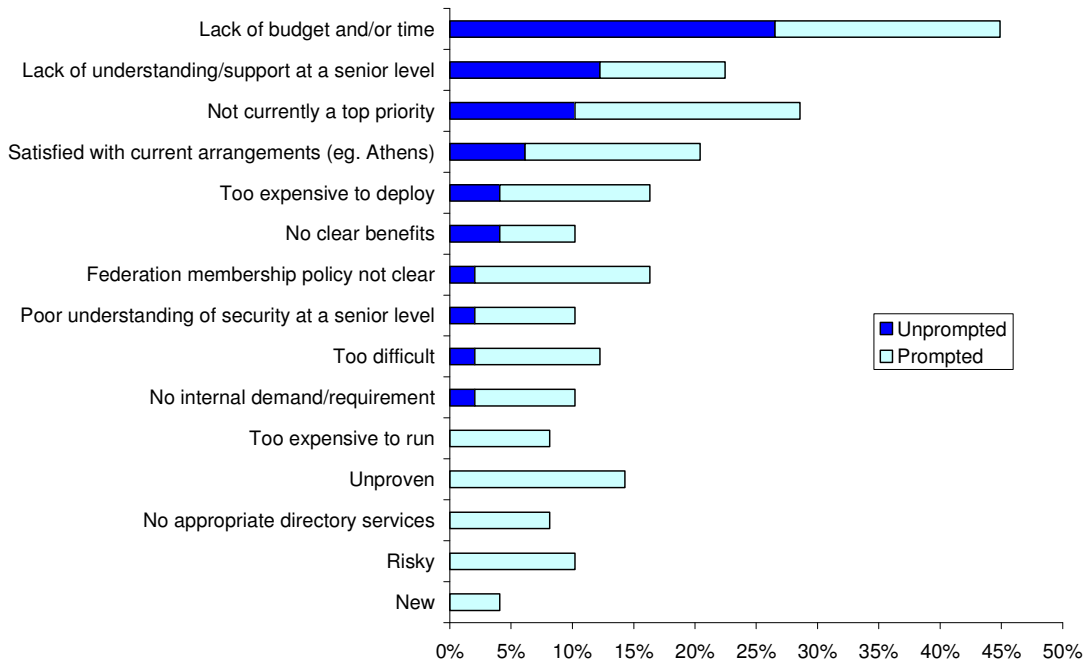


Figure 2-14: what barriers to adoption do you foresee? (FE)

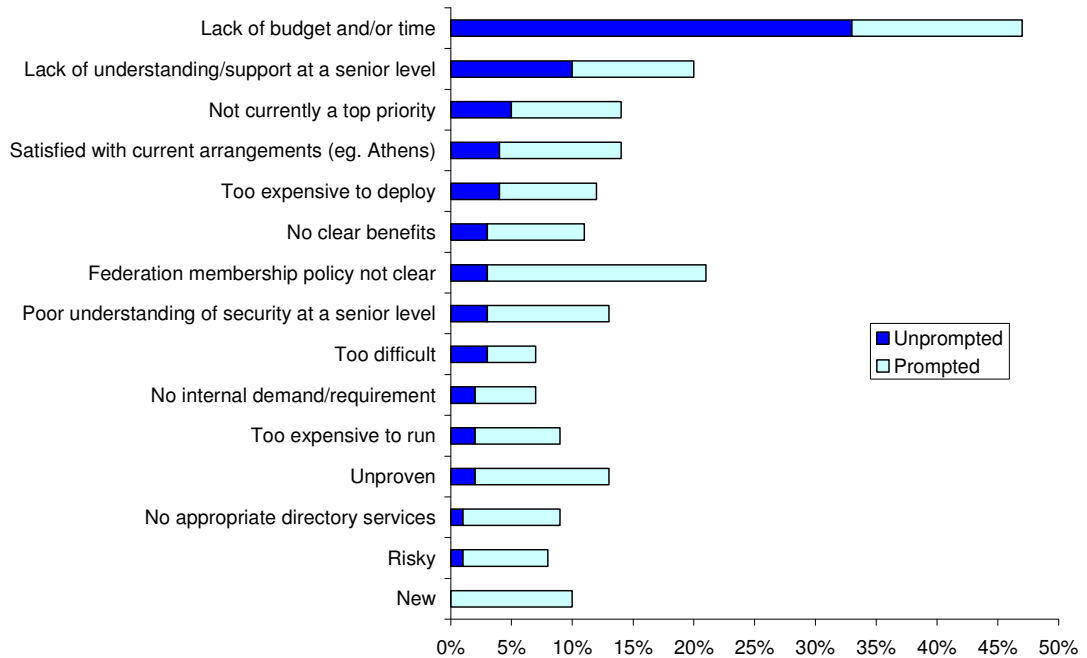


Figure 2-15: what barriers to adoption do you foresee? (HE)

- 2.9.2 In addition, 12% of HE institutions mentioned unprompted a requirement for publishers to be “signed-up” for the federation. On the chart above, this would be the second most frequently mentioned factor, and is clearly of considerable concern to the HE sector.
- 2.9.3 HE institutions foresaw greater numbers of barriers than FE institutions when unprompted. This evened out when prompted.
- 2.9.4 The single greatest barrier for all institutions is a “lack of budget / time”. Over 25% of respondents stated this unprompted. “Lack of senior buy-in” is a notable barrier for HE institutions; for FE “expensive to deploy” and “not a priority” are more significant.

2.10 Resource requirements and budgeting

What are institutions’ expected adoption costs?

- 2.10.1 159 responses were elicited to the question of “how much do you expect the adoption of federated access management might cost your institution?”. Of these:
 - 43% respondents stated “don’t know”;
 - 28% stated “no idea” or “no clue”;
 - 18% gave some qualitative answer;
 - 11% respondents provided a quantitative estimate of expected costs, ranging from £2k (for an HE institution) through £150k (for an HE institution).

- 2.10.2 Where estimates are given, they are in terms of cost of servers and number of FTEs required to deploy. In addition, there is little consideration of ongoing costs and the effort that might be required to ensure institutional data and records are ready for use.
- 2.10.3 Few institutions appear to have set budgets for the adoption of federated access management. This shows significant and substantial uncertainty in the critical area of detailed planning and budgetary approval for adoption.

2.11 Miscellaneous

- 2.11.1 Respondents were asked for any further comments, and a selection follows which broadly represents the types of comments received:

Sector	Comment
FE	"Anxious that we make a start. Need to sit down with our technical people, work out our own roadmap."
FE	"all about persuading people. Technical abilities exist."
FE	"Athens is working fine for us. Workshop would be useful on anything new like Shibboleth."
FE	"More info and guidance - very unclear - no clear policy as yet."
FE	"We are completely unaware if the forthcoming changes - need information and support please."
FE	"They should be sending and chasing me. It has not been flagged enough."
FE	"Interested in the concept of remote access. Need to know more about the costs, upheaval, changes required etc. Staff would need to be convinced and tend to be anti-technology, anti-change.."
HE	"Something that we're looking into even without the deadlines on Athens. Eduserv has prompted us to move quicker with cost of continuing with Athens."
HE	"In the early days - long learning curve ahead."
HE	"Pushing their luck if they think 2008 is realistic."
HE	"Shibb arriving at such a pace. Lack of exploration. I don't have time. Not enough push - desperately strapped for resources - need more help with this."
HE	"Aware and intending to adopt but need to know much more."
HE	"Puzzled about what trying to achieve. No clear benefit - JISC must plot development plan. Need clear definitive statement of how this is supposed to benefit HE - and our role with FE, Convergence with Janet roaming? How about GRID?"
HE	"Don't go it alone. More inter-uni collaborations and more info about early adopters."
HE	"We did do a study with Shibboleth and found we needed support in getting it up and running. MATU consultant helped us get it up and running and we are quite technically geared up so for those institutions who are not technically geared up they will struggle and will need specialist help."
HE	"Connection between Shibb and FAM and closing gap in perception, Need to facilitate different parts of inst. to come together. Libraries can't do it on their own. Not yet seen any business cases answering why to do it if it ain't broke."
HE	"Athens is v good resource for enabling authentication. Expectation is anything that replaces it has to be better. How this fits with FAM LIN (Local Independent Network?)."

HE	"Good luck! we look at 3 sources - student, staff, visitors (non-students and staff). Collecting their info and collating is very difficult. Really very hairy - JISC ignore this."
HE	"Make sure service providers get into new federation or there'll be trouble. Some still not compatible - poorly communicated by Athens. JISC must push service providers."
HE	"Overall cost of this. Moving from Athens system to something more expensive. Need to see the business case for this."
HE	"Meetings all down in London - can't afford to travel!! (Scotland)."
HE	"Help!"
HE	"JISC email group on FAM would be useful."
HE	"Would be useful to have an info pack: technical specs; involvement of library; IT etc."
HE	"Intend to adopt in 2007 - best to do it between university years - mid-year will cause confusion. [A local FE college] heavily reliant on this University - but respondent made it clear that adopting Shibboleth would not 'trickle down to them'. They will need to develop their own plan - but doubts they possess necessary awareness and expertise."

Table 2-14 – some further comments

This page is intentionally blank

3 Qualitative findings

3.1 Introduction

- 3.1.1 In addition to the quantitative findings from the survey, a number of qualitative findings, including lessons learnt from the survey, may be drawn.

3.2 Anecdotal evidence

- 3.2.1 A number of relevant findings come from the experience of conducting face-to-face and telephone surveys rather than the quantitative results of the surveys themselves. These include:

- **Terminology:** “Shibboleth” prompts were familiar, whereas “federated access management” is less familiar as a term.
- **Planning horizons:** institutions generally have a one year planning horizon for IT deployments. This implies that the case for a new deployment need to be made, and plans and budgets approved, a year in advance of its intended roll-out. This is probably a key reason for the level of uncertainty in institutional responses for their intended plans for July 2008.
- **Timeline perceptions:** July 2008 is often seen as a “deadline” for institutions and is driving access management activities for some institutions.
- **Influence:** librarians and other staff are, in some cases, the driving force for adoption. Their success in highlighting the adoption decision to senior management, and the case for and against, may be significant. The significant number of institutions citing “lack of understanding / support at senior level” as barriers to adoption supports this view.
- **Delayed decision:** some institutions are interested in adoption once the benefits and success of early adopters and the Federation has been confirmed. It will also enable them to learn adoption lessons from others. This “wait and see” strategy is deliberate and differs from the lack of capability to adopt in the short term.
- **Time and resources as a constraint:** time is the dominating constraint for institutions answering that “lack of budget and / or time” is a barrier to adoption. In many institutions, particularly within FE, there is little spare time to understand the concepts and consequences of adoption or to plan for major IT changes. This constraint follows into adoption: a common question raised was “how many FTEs will be tied up?”
- **JISC roadmap:** the roadmap was the basis of one of the survey’s questions. Not all respondents had seen the JISC roadmap and were therefore unable to answer this question.³¹

³¹ 130 responses were elicited to this question, implying that a maximum of 24% of institutions were unaware of the JISC roadmap.

- **Views of the early adopters:** institutions that stated that they were or are about to adopt expressed the following views:
 - more dialogue is required with the CM programmes' funded Early Adopter projects. These projects are viewed as having experiences and lessons that could and should usefully be passed onto those now seeking to adopt;
 - getting a significant number of institutions to adopt federated access management by July 2008 will be difficult. In addition, there is particular concern for smaller institutions and their ability to adopt at all;
 - reassurances are required about the extent of service providers' adoption. The success of institutional adoption is dependent upon service provider adoption.

3.3 Lessons learnt from conducting the survey

- 3.3.1 It can be extremely difficult to identify and contact the appropriate institutional staff, especially technical staff. This is due to a mixture of effective "filtering" processes for handling "cold calls", difficulties in identifying one (or more) staff to act as respondents and time pressures that mean that staff are out of office or otherwise unable to deal with phone calls. Any means of identifying and securing commitment from respondents in advance of a survey should be used as a critical enabling activity.
- 3.3.2 Once contact has been established respondents are generally co-operative even if the survey's timing coincides with the demanding start of term period. Where possible, surveying should avoid busy periods in the academic year.
- 3.3.3 In general, within each institution no single respondent is able to answer on all aspects of the survey. This is due to the cross-cutting nature of federated access management and the uncertainty and "pockets of knowledge" in many institutions. Survey design and conduct should account for this where possible.
- 3.3.4 An emailed or online survey, as a means of eliciting answers, can work if prior commitment is obtained from the respondent. If this approach is adopted for a study, the survey should be designed for independent completion.
- 3.3.5 Survey responses are not necessarily internally consistent. This is likely due to lack of awareness and understanding and different perceptions on questions. Surveys should contain checks and balances to reduce inconsistency and improve reliability of results.
- 3.3.6 There are strict and obvious limits of the ability of respondents to answer questions if they are unaware of or uninformed in the general topic.

3.3.7 Precoded options can be better tuned and new options introduced based on the respondent's unprompted comments. Similarly, additional, follow-up questions may aid data analysis. Examples of where the question and options might be improved are:

- **institutional position:** "firm plans to adopt", "would like to adopt";
- **barriers to adoption:** "not enough service providers adopting federated access management";
- **Athens usage:** eliciting the number of resources that an institutions uses and are protected by the Athens service would give an indication of the degree of reliance on the Athens service.

This page is intentionally blank

4 Outreach

4.1 Introduction

4.1.1 JISC's outreach activities encompass providing information and support to its community, and promoting involvement in JISC-related initiatives. This section sets out an initial assessment and proposal for JISC's AMTP outreach activities based on the findings provided in earlier sections.

4.2 Aims and timeline

4.2.1 The JISC's federated access management aim is to have substantial uptake, across FE and HE, by July 2008. It is clear from this study's findings that substantial outreach efforts are required.

4.2.2 Although the Federation is planned to launch officially in January 2007, institutions are able to continue using the Athens service without incurring institutional charges until the end of July 2008. Institutions that decide to use federated access management to access resources and services protected by the Athens service and avoid institutional charges, therefore have until July 2008 to adopt and roll-out. Some institutions are aiming to complete this prior to July 2008, some will wait until after and some will choose to subscribe to the Athens service. The JISC would like all institutions to be able to make an informed decision on an appropriate course of action.³²

4.2.3 Based on the experiences of the early adopters of federated access management and the planning horizon within institutions it will take approximately one year, following approval of a plan and allocation of resources, to adopt. This estimate includes pilot testing, rigorous final testing and an associated change programme, and is assumed to be a non-prioritised deployment of moderate scale and complexity. It may include deployment of new directory services, or development of existing directory services.

4.2.4 Given this aim and timeline, it is the JISC's challenge to promote adoption from now until the summer of 2007. All analysis indicates that this is a critical period for achieving high uptake by July 2008.

4.3 Adoption model

4.3.1 In order to link the findings of this study to outreach planning an "institutional adoption" model has been developed, which is described at Annex B. It permits key conditions for adoption to be identified and JISC outreach activities to be designed to maximise their relevance and timeliness.

4.3.2 The key principle of the model is that an institution is ready to and will adopt federated access management only when senior management commitment and the necessary technical capability are in place.

³² Given the consequences of some of these decisions, early and well-informed decision-making is preferred.

- 4.3.3 Although non-validated, the model is intended to be a broad generalisation of institutions' technical and decision-making processes, and has proved useful in considering appropriate responses to the outreach challenge.

4.4 Assessment

Awareness and understanding

- 4.4.1 This study shows there are many institutions (41% FE, 11% HE)³³ who have limited awareness of changes in access management that will affect them.
- 4.4.2 Very few of the institutions which provided responses are unaware of the Athens service switch to a subscription model. However, there is, very likely, a small number of extra institutions, including those in the English FE sector, which are not aware.
- 4.4.3 For an institution to make an informed decision on an appropriate course of action a degree of understanding is required. The findings clearly show that many institutions do not have a general understanding of federated access management or an appreciation of the resources and budget required for, and implications of, adoption.
- 4.4.4 It is likely that institutions, in developing awareness and understanding, will have queries and questions on the JISC's activities and federated access management. Answering these will be an important outreach activity.

Critical mass

- 4.4.5 The concept and goal of a "critical mass" of institutions has been suggested by the JISC, beyond which built-up momentum will ensure further uptake. This relies upon interdependent decision-making by institutions, such that the likelihood of an institution adopting is greater the more institutions that have already adopted.
- 4.4.6 In developing the concept of a critical mass, it will be important to consider the mechanisms by which this is true and the extent to which it will determine institutional decision-making.³⁴ For example, the JISC may be able to facilitate this by encouraging knowledge and experience sharing but it is not clear whether this, by itself, will be a determining factor in an institution's decision to adopt. The barriers to adoption cited in this study suggest that, in the HE sector especially, it is important that service providers have adopted.

33 "Not aware" of either JISC's timeline or activities related to federated access management (sample size: 51 FE, 105 HE).

34 It may be that the interoperability offered between adopters and Athens users uses some of the same mechanisms, therefore reducing the likelihood of adoption.

Short-term uptake

- 4.4.7 It will be difficult to achieve high, say 80%+, adoption of federated access management across FE and HE by July 2008 due to:
- the analysis presented at sub-section 2.7 showing that “pragmatic” ranges based on a “business as usual” assumption are 2-14% for FE and 29-56% for HE;
 - limitations in the JISC’s outreach resources and timeframe meaning that the JISC will, rightly, have to prioritise its outreach activities;
 - limitations in the JISC’s influence; the JISC can only promote, encourage and incentivise, but cannot mandate or participate in the decision.

Longer term uptake

- 4.4.8 Achieving a longer-term uptake aim, say 95%+ at the end of July 2011, requires institutions that don’t adopt by July 2008 to commit to adoption by July 2010, assuming a similar lead-time to deployment as in the initial tranche. The key factors in persuading these institutions will be:
- the perceived success of the participating Federation members, including the business benefits delivered and opportunities available to institutions;
 - the extent to which “costs and barriers to entry” are reduced by the experiences of earlier adopters and increasing “economies and benefits of scale” for the sector as a whole;
 - the ability to allocate a budget and resources over the medium-term to adoption within an institution.

Summary

- 4.4.9 To maximise uptake of federated access management by July 2008 and in the longer term, the JISC should:
- ensure that every institution is aware of access management changes that will affect them from the start of August 2008 and is able to make an informed decision on an appropriate course of action;
 - prioritise its outreach activities;
 - ensure the success of those who adopt by July 2008.

4.5 Outreach planning

Assumptions

- 4.5.1 The adoption model proposes that an institution is ready to, and will adopt, federated access management only when senior management commitment and the necessary technical capability are in place.
- 4.5.2 Senior management make decisions on priority activities and budgetary approvals. Senior management will make one or more decisions on federated management: whether to run a pilot project, adopt federated access management, subscribe to Athens, *etc.* Library and IT staff are important intermediaries: both in informing and selling the idea to senior management and in supporting eventual roll-out and associated business change.
- 4.5.3 Technical capability is built up through increased understanding, experiences from pilot projects and other institutions, training, hire of specialists, *etc.* It is sufficient when there are the necessary resources, skills, planning, *etc.* to meet the requirements of the institution's deployment of federated access management.
- 4.5.4 Based on the experiences of the CM Infrastructure Programme funded Early Adopter projects it is clear that the simpler the institution's IT, IS and records management are, the easier deployment will be. Conversely, the greater the complexity of an institution's systems and processes the harder a deployment will be. Example characteristics of a complex scenario are:
- multiple legacy systems with many extant access controls;
 - distributed record management with many people with responsibility for maintaining user records;
 - many categories of user and more user records than "active" users;
 - multiple, differently structured directory services.

Institution segmentation

- 4.5.5 "Segmentation" comprises dividing a population into a number of distinct groups. In the business context, segmentation is traditionally an important part of marketing and is used to target advertising, sales activities, *etc.* to specific groups. The use of segmentation (of institutions) is discussed here as a means of supporting the AMTP's outreach activities and meeting the outreach challenge.
- 4.5.6 The JISC needs to decide whether to use segmentation or not:
- **No segmentation:** outreach activities would not be targeted to any one group of institutions. This has the benefit of treating all institutions equally (*ie* no "discrimination") but limits scope for prioritising activities or tailoring support.
 - **Segmentation:** outreach activities would be targeted to particular groups. A number of criteria for segmenting options are available, leading to fine or coarse-grained segmentation. This option would "discriminate" through efficiently and effectively targeted groups.
- 4.5.7 It is judged that "no segmentation" is not an appropriate option given the JISC's outreach aims, the outreach challenge and institutional heterogeneity demonstrated in the findings.

- 4.5.8 The effectiveness of segmentation is traditionally measured by outcome and the segmentation / targeted activity combination improved on iteratively. As there will initially be no data as to whether the segmentation has been effective, a flexible approach is proposed which builds on earlier findings and is easily applied. In particular, there is a danger of too finely-grained segmentation using narrow criteria; the conduct of the survey has demonstrated the uncertainty in certain responses.
- 4.5.9 The major disadvantage of segmentation, *ie* perceived discrimination, is partly countered by the fact that many outreach activities will be non-discriminatory. For example, dissemination of additional information can support all institutions even if written for a specific group.
- 4.5.10 Criteria such as awareness / readiness / willingness to adopt; barriers to adoption, support requirements, *etc* are likely to lead to finely-grained segmentation. They are also not well aligned to early assumptions (see paragraphs 4.5.1-4.5.4).
- 4.5.11 The proposed approach is to use "difficulty of deployment", "senior management commitment" and "technical capability" as the segmentation criteria. Proxy measures from the findings are used to allocate institutions to segments. The first criterion to be applied is "difficulty of deployment" because it is considered that different approaches to outreach are required on this criterion.

Proxy measure for "difficulty of deployment"

- 4.5.12 Generally, FE institutions have relatively simple IT facilities, with just one computing platform/directory service. HE institutions on the other hand typically have large, complex, heterogeneous computing environments that have evolved over time and may be managed by academic departments. FE institutions have fewer technical staff and fewer technical skills than HE institutions, reflecting the relative simplicity of their IT facilities.
- 4.5.13 It is proposed to use the FE / HE sector split to provide an initial proxy measure of "difficulty of deployment". This provides a useful and easy initial segmentation on a criterion that is hard to measure accurately. It is not a perfect split and it is envisaged that:
- "simple" HE institutions should be grouped with the FE sector. For example, many specialist HE institutions are likely to have relatively simple IT facilities in which it would be less challenging to adopt federated access management. This study shows that a few institutions, for example those which do not currently use the Athens service, should be categorised as such.
 - "complex" FE institutions should be grouped with the HE sector. For example, large FE colleges with complicated and complex legacy systems and records management are likely to face similar challenges to mainstream HE institutions. None of the FE institutions surveyed in this study are judged to fit this criteria.
- 4.5.14 This study shows that the FE and HE sectors have very different levels of readiness and capability for adopting federated access management, but there are likely to be significantly different problems involved in the migration of these two types of institution.
- 4.5.15 Although the HE sector generally faces a harder problem for deployment than the FE sector, it does have significantly greater technical capability. Further analysis is required to assess likelihood of adoption. For example, whereas HE institutions are likely to have significant

capability to develop solutions in-house to fulfil their requirements, the FE institutions have simpler requirements, and only rarely have the capability to undertake significant development work themselves.

- 4.5.16 Since, on every measure, the HE sector has been “ahead” of the FE sector, including, crucially, that HE institutions are more willing to adopt than FE institutions, it is suggested to prioritise uptake in the HE sector during the critical period until July 2007. The following sub-sections analyse each sector separately with a view to segmenting by senior management commitment and technical capability.

FE sector

- 4.5.17 Outreach activities in the FE sector should be focused towards raising awareness of JISC’s access management activities, and providing training and support to enable institutions to make informed decisions on federated access management.
- 4.5.18 Due to the number of UK FE institutions, it will not be practical to approach them individually. JISC mailing lists have been successful in reaching approximately 45% of respondents from FE, so these should be used to promote activities and to distribute information. Writing to the directors of IT and library services at FE institutions should increase awareness of those institutions that have not used the mailing lists, and can be used to promote the mailing lists concurrently.
- 4.5.19 Different support models for the FE sector, for example utilising existing relationships and support mechanisms within the JISC’s Regional Support Centres, may be efficient and appropriate.

Routes to adoption

- 4.5.20 Approximately 40% of FE institutions use Microsoft Active Directory as a network environment,³⁵ and the approach most likely to lead to substantial uptake of federated access management is to assist organisations which wish to utilise Active Directory to implement a Shibboleth IdP. Windows Server 2003R2 provides Active Directory Federation Services (ADFS), which is a similar technology to Shibboleth, but not directly compatible with it. Microsoft has funded the Internet2 developers to produce a plug-in for Shibboleth 1.3 to allow for easier interoperation with ADFS.³⁶ With some additional technical capability, this should be a relatively easy route to adoption.
- 4.5.21 This presents a possibility for raising uptake relatively easily, because support can be focused on a relatively defined target: helping institutions to configure ADFS and operate a Shibboleth IdP. Training sessions and a technical helpdesk are likely to be the most appropriate ways to deliver this support.

³⁵ Sample size is 19 – /e those who were aware of their institution’s directory services strategy

³⁶ <https://authdev.it.ohio-state.edu/twiki/bin/view/Shibboleth/ShibADFS>

4.5.22 Other “quick wins” may be available that make the most of FE institutions’ existing IT facilities and solve their, comparatively simple, records management problem.³⁷

HE sector

4.5.23 The biggest barriers to adoption cited by HE institutions in the survey were “lack of budget and / or time” and “lack of understanding / support at a senior level”. It seems likely that increased support by senior management would result in the appropriate resources being dedicated to adopting federated access management.

4.5.24 The HE sector can be divided logically into four groups, depending on their levels of commitment and technical capability, and prioritised for outreach activities accordingly. The following table shows this division, and gives estimates for the proportion of HE institutions in each category, extrapolated nationwide:

		Senior management commitment	
		✓	✗
Technical Capability	✓	Maintain contact but not as a priority. Exemplar outreach activities: invite these institutions to speak at events where they can share their experiences (at a technical or business level) with other organisations. (30-40%)	Prioritise for contact and promotion activities. Exemplar outreach activities: enable understanding of the business implications of adoption and promote resultant benefits. Be proactive in inviting senior representatives to high-level events. (10-20%)
	✗	Maintain contact with these organisations. Exemplar outreach activities: be proactive in inviting these institutions to training and other technical events in order to build technical capability. (30-40%)	Not a priority for contact. Consider these institutions post July 2007. (10-20%)

4.5.25 An important initial outreach activity will be to triage institutions, by re-establishing contact with the individuals contacted during this survey to determine which category in the above table the institution should be categorised as. The telephone interviews conducted for this survey covered a wide range of subjects and collected data, but it is important for this initial triage activity to take a more flexible approach: the outreach team should aim to establish rapport with the contact to build a more detailed picture of that institution’s status with regards federated access management.

³⁷ It has been speculated that Virtual Learning Environments (VLEs) may be one such prevalent computing platform that already has user management functionality. Indeed, the Guanxi project, funded by the CM Technology Development Programme, has shown how this is possible using the Bodington VLE.

- 4.5.26 Apart from introducing the JISC outreach team, the priorities for this initial contact should be:
- to determine the levels of senior support and technical capability at an institution, with the intent of prioritising them for outreach work;
 - to build a more realistic picture of that institution's readiness for federated access management, especially regarding how far advanced their planning for adoption is;
 - to investigate the best way to support that institution, building on the comments collected in the survey;
 - to determine at what level attention should be focused to support the institution in their decision and planning for federated access management – is the contact who responded to the survey the person who will finally take the decision? If not, who is?
- 4.5.27 The results from the telephone survey can be taken as a starting point for prioritising HE institutions for outreach activities, but due to the limitations of this survey in establishing an institutional perspective, the results presented here should be seen as a starting point, and not a complete set.

Priority institutions

- 4.5.28 On the basis of the survey, the institutions which have technical capability but apparently not senior-level commitment, and should be prioritised for contact are:³⁸
- Goldsmiths College;
 - Institute of Cancer Research;
 - Kingston University;
 - Lancaster University;
 - Loughborough University;
 - National Rural (based at Harper Adams);
 - Oxford Brookes University;
 - School of Oriental and African Studies;
 - University of Aberdeen;
 - University of Greenwich;
 - University of Kent;
 - University of Lincoln;
 - University of Sheffield;
 - University of Stirling.

³⁸ These institutions cited "Lack of understanding/support at a senior level", "Lack of budget/time", or "Not currently a top priority" as barriers to adoption, but possess a set of skills that should allow for relatively easy development of a federated access management service, including a good or some understanding of the technical aspects of federated access management.

4.5.29 A further list of HE institutions who may have the technical skills, but not the specific technical understanding of federated access management, and also apparently lack senior commitment are:³⁹

- Bournemouth University;
- Canterbury Christchurch University College;
- Coleg Sir Gar;
- Glasgow Caledonian University;
- Liverpool Hope University College;
- Liverpool John Moores University;
- Napier University;
- Trinity and All Saints;
- University of Derby;
- University of East London;
- University of Wales, Bangor.

4.6 Outreach activities

4.6.1 The adoption model in sub-section B.1 has been augmented, in sub-section B.2, with illustrative “interventions” for outreach activities. Outreach activities should meet institutional needs and align with the outreach planning set out in sub-section 4.5, such that:

- support requirements (sub-section 2.8) are met and barriers to adoption (sub-section 2.9) are addressed;
- technical capability, appropriate to an institution’s “difficulty of deployment”, is built up;
- senior management are informed of the case for adoption, planning is informed and commitment to adoption is secured;
- institutions become increasingly “self-supporting”, such that institutions can meet more of their own support needs and, perhaps, those of other institutions.

4.6.2 The types of outreach activity should include:

- **Support helpdesk:** an initial and continued helpdesk were commonly cited as support requirements.
- **Provision of information:** further information and specific information (on the next step of the JISC roadmap) were commonly cited. Although the CM programmes and other initiatives have produced much information on adopting federated access management, the JISC will need to determine exactly what information is effective for its aims and how it should be disseminated. Based on the findings of this study, the following types of information should be considered:
 - best practice guides;

³⁹ These institutions cited “Lack of understanding/support at a senior level”, “Lack of budget/time”, or “Not currently a top priority” as barriers to adoption, but possess a set of skills which should allow for relatively easy development of a federated access management service, but have little or no understanding of federated access management.

- case studies;
 - technical “HOWTO” guides;
 - business case templates;
 - Federation policy;
 - assessments of service provider preparedness;
 - general publications.
-
- **Events** – for example, roadshows to elicit senior management commitment and training to build technical capability.

 - **Outreach management and segmentation** – for example, establishing rapport, managing contacts, conducting the activities suggested in paragraph 4.5.26 and answering questions from institutions.

5 Conclusions

5.1 Introduction

5.1.1 This section sets out the key conclusions from the study based on the findings presented and outreach assessment and planning discussed earlier.

5.2 Success of the study

5.2.1 This study has delivered a quantitative assessment of the awareness and readiness of the FE and HE sectors in the UK for the adoption of federated access management. One key result is that many institutions can not yet provide firm responses to important questions on federated access management. This uncertainty will affect the JISC's, and other stakeholders', planning, but highlights the need for outreach activities and urgent promotion of federated access management.

5.2.2 The study forms a "baseline" audit for the institutions in scope, against which to plan initial outreach activities, and to compare the progress of institutions going forward. Although significant information analysis has been conducted for the findings of this study, there is scope for further analysis, particularly when considering approaches to groups of, or individual, institutions.

5.2.3 The study has proven to be a valuable outreach exercise in its own right, directly raising the awareness of relevant institutional staff at those institutions where it was previously particularly low. Covering both library and technical activities in a single survey relied on multiple respondents taking part.

5.2.4 The study has been successful in eliciting responses from 170 (from 208) institutions, despite great difficulties in contacting the appropriate institutional staff to conduct the survey. Future activities will have a significant advantage provided by the 201 (from 208)⁴⁰ contact details collected by this study. It is expected that the expected lifetime of the contact details is low and that should they be required for ongoing outreach activities, will need to be formally managed.

5.3 Awareness, understanding and preparedness

5.3.1 There is a very wide spectrum of awareness, understanding and preparedness between institutions.

5.3.2 HE institutions are far "ahead" in terms of awareness, readiness and willingness for uptake of federated access management. The difference between FE and HE is significant enough to consider them separately for information analysis and outreach.

5.3.3 There are regional variations in institutional awareness but there appears to be no systematic geographic bias. Although sample sizes are limited, a tentative conclusion is that any perception of a JISC regional bias is not impacting on institutions' adoption of federated access management.

⁴⁰ Two sets of contact details elicited by respondents may not be released to the JISC due to data protection preferences of the respondents.

- 5.3.4 Although 31% of FE institutions and 71% of HE institutions are intending to adopt federated access management by July 2008, a range of analyses indicates a lower "pragmatic" range. 2-14% of FE institutions and 29-56% of HE institutions are likely to adopt by July 2008 (*ie* are ready and willing). The "pragmatic" range assumes "business as usual" until July 2008.
- 5.3.5 Few institutions appear to have set budgets for the adoption of federated access management. Where estimates are given, they are in terms of cost of servers and number of FTEs required to deploy. There is little consideration of ongoing costs and the effort that might be required to ensure institutional data is ready for use.

5.4 Outreach

- 5.4.1 JISC's outreach activities encompass provision of information and support and promoting involvement in JISC-related initiatives. AMTP outreach activities should be supported by the findings of this study.
- 5.4.2 An adoption model is set out at Annex B and used for outreach planning at sub-section 4.5. The key principle of this model is that an institution is ready to and will adopt federated access management only when senior commitment and the necessary technical capability are in place. The outreach planning segments the FE and HE sectors, and prioritises activities for each segment.

Ensuring awareness

- 5.4.3 The JISC must to ensure that every institution is both:
- aware of access management changes affecting them from the start of August 2008;
 - able to make an informed decision on an appropriate course of action.

Providing support

- 5.4.4 Provision of further information (both general and specific) and a helpdesk were the most cited forms of support required.

Promoting adoption

- 5.4.5 A lack of (budget and) time is the most cited barrier to adoption. Although the JISC cannot remove or lessen this barrier, it can promote the importance of moving to federated access management to help persuade institutions to prioritise its deployment.
- 5.4.6 It will be difficult to achieve high, say 80%+, uptake across FE and HE by July 2008. Assuming that the JISC's federated access management aim is to have substantial uptake, across FE and HE, by July 2008 substantial outreach efforts are required. The JISC will need to prioritise its outreach activities focusing on those institutions more likely to, and be able to, adopt but not those already committed to doing so. The period until summer 2007 is a critical period for promoting uptake.

5.5 Further surveys

- 5.5.1 Given present uncertainty, the increasing awareness of access management, and better means to identify the institutional staff most able to provide representative views, it is likely that a repeated study will be able to improve the consistency and certainty of the findings in this report. Either this can be conducted on a continual basis as part of outreach activities or further "snapshot" surveys could be conducted.
- 5.5.2 Further surveys (such as a sample of English FE) could add to the information available. A study of the preparedness of service providers would provide important evidence to build a business case for HE institutions. Repeated studies, covering all institutions, would provide progress tracking and contribute to the evaluation of the success of the JISC's access management activities.
- 5.5.3 Other JISC surveys, for example MUSIC and JULIET, should be assessed for their relevance to informing federated access management activities.

This page is intentionally blank

6 Recommendations

6.1 Introduction

6.1.1 This section sets out the recommendations resulting from this study, including for the JISC's outreach activities. Assumptions are noted where relevant.

6.2 Use of study outputs

6.2.1 It is recommended that this report and dataset be used to inform the JISC's decision-making on federated access management activities subject to their caveats. Relevant decision-making is envisaged to include:

- allocating resources to these activities;
- developing measures of success for the AMTP and other JISC initiatives;
- selecting support models and forms of support to the community.

6.2.2 It is recommended that the JISC consider disseminating the findings from this study to the community. Provision of this evidence base supports transparency and decision-making by institutions, suppliers and other stakeholders.

6.2.3 It is recommended that the outreach planning, as set out at sub-section 4.5, is developed for JISC's outreach activities. The key principles should be agreed and tested, and the planning should be adapted to meet institutional needs as encountered and as they evolve over time.

6.3 Further surveys

6.3.1 It is recommended that the JISC synthesise the findings from this study with other relevant studies. An emerging evidence base on institutional systems, capabilities, structures, processes and intentions will help achieve the JISC's strategic aims.

6.3.2 It is recommended that the JISC consider conducting further information gathering in the arena of federated access management. These may include:

- activities, perhaps continually or further "snapshots", to determine progress on the baseline presented here;
- a survey of a sample of English FE institutions to determine their current awareness of, and readiness and willingness for, federated access management, or a broader information collection exercise to elicit contact details of representatives;
- a survey covering service providers, particularly those whose services are currently protected by the Athens service and other key suppliers to FE and HE institutions, to determine their preparedness for federated access management.

6.3.3 It is recommended, where required to support outreach activities, that contact details are managed and maintained appropriately.

6.3.4 It is recommended that the lessons learnt in this study be applied to the design and conduct of future surveys.

This page is intentionally blank

A Methodology

A.1 Introduction

A.1.1 This annex sets out the methodology of the institutional preparedness study which encompassed the following stages:

- information requirements;
- data gathering, including:
 - face-to-face interviews;
 - survey design;
 - telephone interviews;
- data processing;
- information analysis.

A.1.2 The results of the information analysis were presented to the JISC⁴¹ and are documented in this report.

A.2 Information requirements

A.2.1 Information requirements were taken from the JISC briefing document⁴² and augmented with relevant additional requirements.

A.3 Data gathering

A.3.1 Based on the information requirements a discussion guide was developed for face-to-face interviews with a sample of FE and HE institutions. Eight face-to-face interviews were conducted, comprising FE and HE, converged / non-converged library and IT services and planning / not planning to adopt institutions.

A.3.2 Based on the results and experiences of the face-to-face interviews a structured survey was designed for use over the telephone.⁴³ A script, for initiating the telephone conversations with institutions, was developed. These were agreed with the JISC.

A.3.3 Relevant JISC and UCISA mailing lists were used to notify institutions of the survey and to elicit nominated contacts for institutions.

A.3.4 Over a period of seven weeks, commencing 11 September 2006, telephone interviews, based on the agreed survey, were held. Where it was difficult to speak to appropriate contacts emails from the market researchers and the JISC were used to prompt responses. In a few cases the survey was emailed to respondents so that it could be completed outside of a phone conversation. In the absence of extant contact details, Athens administrators and / or senior librarians at an institution were interviewed first, though frequently interviews were also required with staff from IT services.

A.3.5 Respondents were asked to consent to future processing of the data.⁴⁴

41 *Institutional preparedness study: initial findings*, CC273P002, Curtis+Cartwright, 16 Oct 2006.

42 *Audit of institutional preparedness*, 12 May 2006, V0.3, Nicole Harris.

43 *JISC Institutional Preparedness: Telephone questionnaire*, MS1127, September / Oct 2006.

44 The standard HEFCE data protection wording is used within the survey script.

- A.3.6 The dataset from survey responses was collected on paper forms, and subsequently entered into Snap software by Mindset. This software permitted export of the dataset in a standard file format.⁴⁵

A.4 Data processing

- A.4.1 The exported dataset was loaded into a MySQL database for analysis. The schemata for tables and views have been provided to the JISC separately to this report.
- A.4.2 The database was interrogated directly using an SQL client, and results were processed further in Microsoft Excel.

A.5 Information analysis

- A.5.1 Guided by the information requirements and the survey the results database has been interrogated to provide information on institutions' awareness of, and readiness and willingness for, federated access management. A range of examination strategies were employed to discover interesting and relevant correlations and issues.
- A.5.2 An understanding of the dataset's context, gained from relevant documentation and other activities, has been applied, where appropriate, to information analysis.

⁴⁵ The data is stored as comma separated values, each row representing one institution.

B Adoption model

B.1 Introduction

B.1.1 In order to systematise the processes involved in moving to a federated access management system, the model below was developed. This is a generic model for any significant IT project, and will not necessarily fit the situation in every institution, but nonetheless provides a structure for considering institutions' technical and decision-making processes.

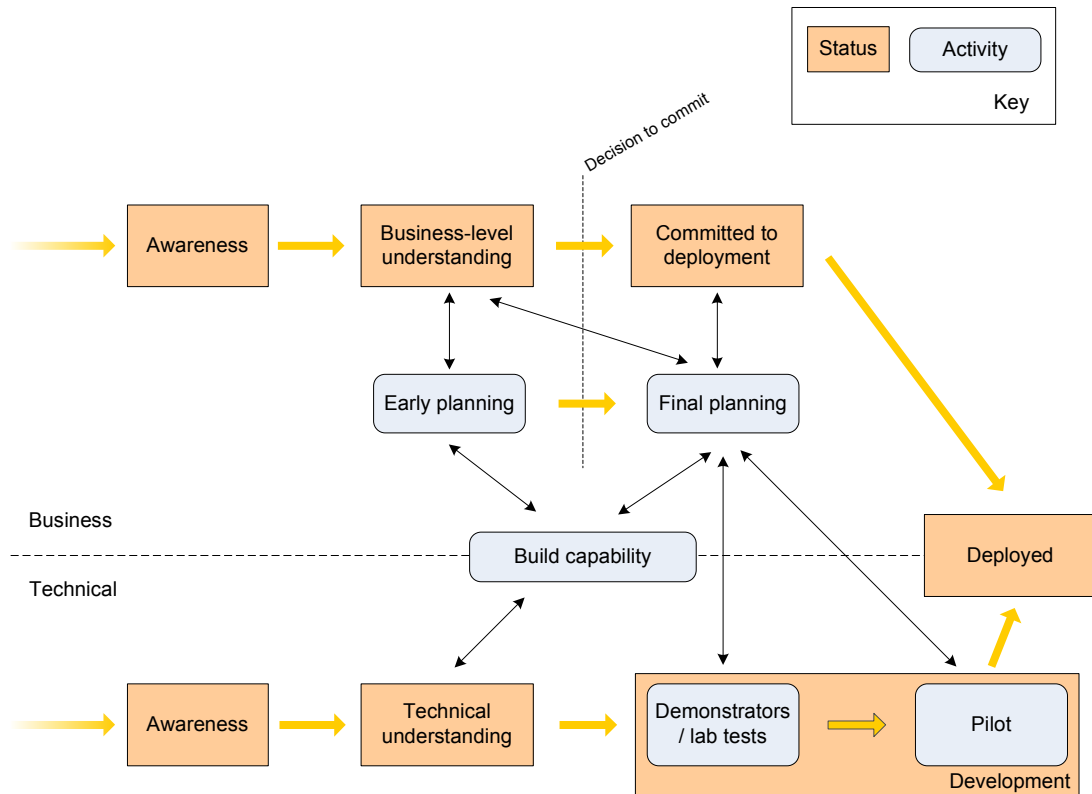


Figure B-1: generalised adoption model

B.1.2 The premise of this model is that two factors are required for a successful adoption of federated access management: commitment at a senior management level, and having the technical capability in place to adopt.

B.1.3 Senior management make decisions on priority activities and budgetary approvals. Senior management will make one or more decisions on federated management: whether to run a pilot, adopt, subscribe to Athens, etc. Commitment here refers to having the desire to adoption, and also having and assigning resources to make adoption possible.⁴⁶ Library and IT staff are important intermediaries: both in informing and selling the idea to senior management and in supporting eventual roll-out and associated business change.

B.1.4 Technical capability is built up through increased understanding, experiences from pilots and others, training, hire of specialists, etc. It is sufficient when there are the necessary resources,

⁴⁶ These include non-technical capabilities: for example, effective communication with users of library services to support the transition and new ways of working.

skills, planning, *etc* to meet the difficulties of the institution's deployment of federated access management. Technical capability can be expected to grow through adoption to roll-out.

B.2 Outreach activities

B.2.1 The model introduced in sub-section B.1 can be used to address how to best focus outreach activities, including provision of support and promotion of adoption. The following figure provides an example of where JISC "interventions" might secure greater senior management commitment and build up technical capability. It is intended to be illustrative, not prescriptive, of how the adoption, combined with outreach planning and activities can come together in a route to deployment.

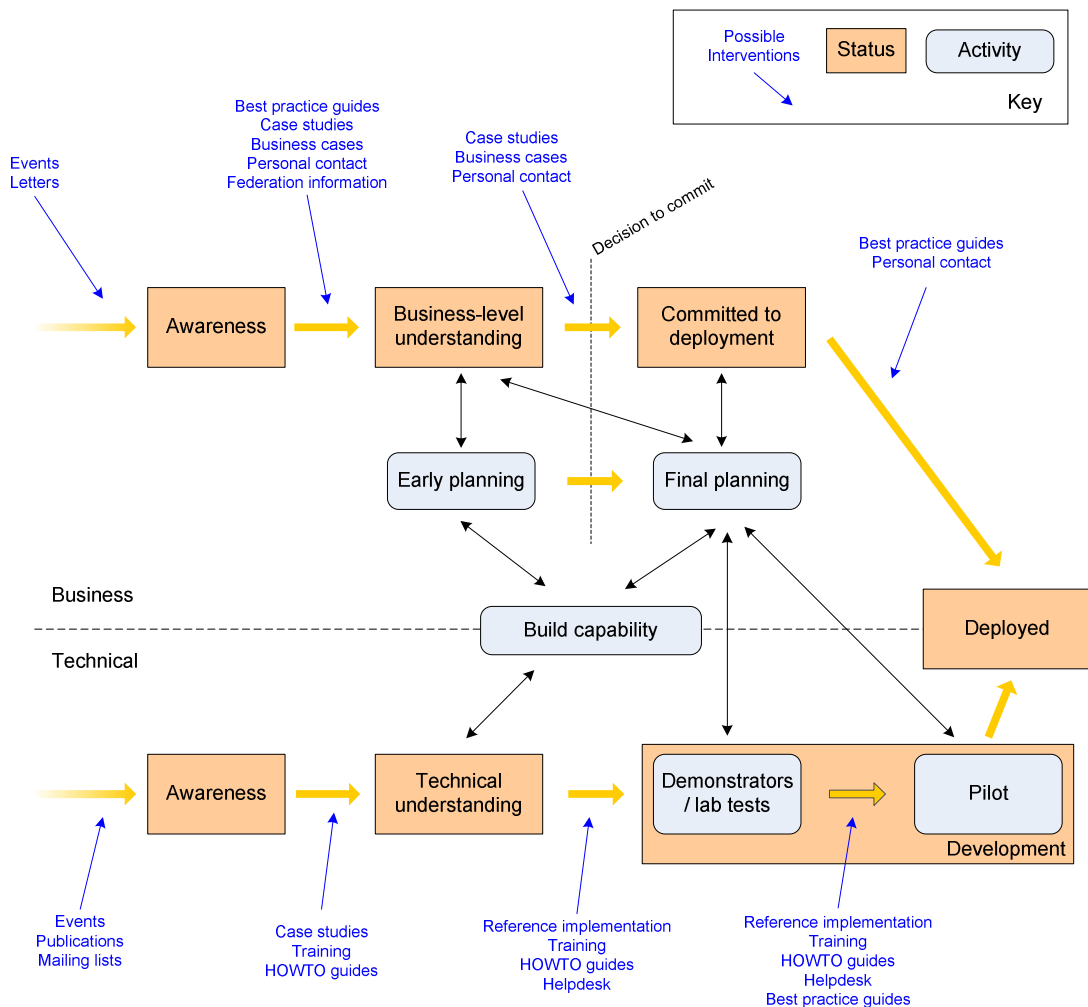


Figure B-2: adoption model with exemplar interventions