JISC Grant Funding 01/12

JISC Digital Infrastructure Programme: Call for Projects

January 2012

Of Interest To: **Pro Vice Chancellors for (e)Learning and (e)Research**
Directors of Information Services and Systems
Research and Enterprise Directors
Learning Resource Managers, Librarians and Archivists
Principal Investigators in Research Teams
Learning Technologists
Heads of e-Learning and ILT Managers

Introduction

1. The Joint Information Systems Committee[1] (JISC) invites institutions to submit funding proposals for projects to help institutions and the HE sector as a whole develop their digital infrastructure, in particular those parts of the infrastructure concerned with research data management, research tools, research vocabularies relevant to specific disciplines, research information management, information and library infrastructure, and access and identity management.

Programme/ Initiative	Description	Funds and timescale	For further details see appendix
Managing Research Data			Appendix A
Managing Research Data: Innovative Data Publication	Projects to design and implement innovative technical models and organisational partnerships to encourage and enable publication of research data.	Total £320,000 2-4 projects Between £80,000 and £150,000 per project. Jun 2012 – Jul 2013.	Appendix A1
Managing Research Data - Scoping a Service to Collate and Summarise Journal Research Data Policies	Feasibility study (augmented with the development of a pilot demonstrator and the analysis of a range of possible business models) for a potential service to provide knowledge of – and a ready source of information covering – the journal policy landscape for research data.	Total £90,000 One project Jun 2012 – Nov 2012	Appendix A2
Managing Research Data: Research Data Management Training Materials	Projects to design, pilot and test training materials for research data management adapted for the needs of: 1. discipline-focussed post-	Total £300,000 Five – eight projects Between £30,000 and £60,000 each	Appendix A3

[1] Further information on JISC is available at: http://www.jisc.ac.uk

Programme/ Initiative	Description	Funds and timescale	For further details see appendix
	graduate courses; 2. discipline liaison librarians; 3. research support roles, including dedicated data managers.	project Jun 2012 – May 2013	
Managing Research Data: Training Materials Support and Synthesis Role	A support project for the above activity, to assist projects in following best practice, ensure reusability, engage stakeholders and synthesise outcomes.	Total £80,000 One project Jun 2012 – Jul 2013	Appendix A4
Research Tools			Appendix B
Research Tools - emerging research tools	Emergent and novel hardware and software tools and techniques, particularly projects which will identify future trends and disruptive technologies	Total £400,000 Three – five projects Between £75,000 and £160,000 each Jun 2012 – March 2013	Appendix B1
Research Tools - facilitating research communications	Advanced tools facilitating communications during the research process, for example within research communities, between research peers, engagement with wider audiences such as the general public.	Total £200,000 Up to three projects Up to £100,000 each Jun 2012 – March 2013	Appendix B2
Research tools - projects to develop sustainable and open vocabularies for research and information management	Projects to build upon existing vocabularies that support academic disciplines, to develop exemplars demonstrating the support of the semantics of a discipline.	Total £300,000 Up to five projects Up to £70,000 each Jun 2012 – Jan 2013	Appendix B3
Research tools - synthesis project focused on sustainable and open vocabularies for research and information management	A project to synthesise lessons from the enhancement of research vocabularies, and ensure that those lessons and best practice are made available to guide others in similar endeavours.	Total £50,000 One project Jun 2012 – March 2013	Appendix B4
Research Information Management			Appendix C
Research Information Management: rapid innovation	Projects to lower the barriers to the adoption of CERIF in the sector, thereby allowing institutions to streamline and lower the cost of managing their research activities.	Total £240,000 Up to eight projects Up to £30,000 each Jun 2012 – Nov	Appendix C

Programme/ Initiative	Description	Funds and timescale	For further details see appendix
		2012	
Information and library infrastructure			Appendix D
Library Systems (Information and Library Infrastructure) - Synthesis and Scoping project	A project to provide a new vision for the future of library systems and a 'roadmap' for the delivery of that vision.	Total £85,000 One project Jun 2012 – Dec 2012	Appendix D1
Library Systems (Information and Library Infrastructure) - Pathfinder projects	Pathfinder projects to investigate a broad range of potential new models and approaches to library systems and services	Total £250,000 Up to 10 projects £20,000-£40,000 each Jun 2012 – Dec 2012	Appendix D2
Access and Identity Management			Appendix E
Access and Identity Management: future directions	Projects to embed Access and Identity Management related outputs and help to build communities using these tools.	Total £250,000 5-10 projects £20,000-£40,000 each June 2012 – May 2013	Appendix E1
Access and Identity Management: Raptor Evaluation	Projects to evaluate Raptor	Total £50,000 3-5 projects £10,000-£20,000 each	Appendix E2
Access and Identity Management	Identity Management Toolkit Case Studies	Total £75,000 2-3 projects £25,000-£50,000 each	Appendix E3

2. The deadline for receipt of proposals in response to this call is **12:00 noon UK time on 16 March 2012.**

Eligibility

3. Proposals may be submitted by HE institutions funded via HEFCE, SFC, HEFCW and DEL Northern Ireland, and by FE institutions funded via BIS, SFC, DFES Wales and DEL Northern Ireland.

4. With regard to bids from Scottish institutions, SFC has applied a significant budget cut to JISC in 2011-12 AY. Following consultation with Scottish institutions, SFC has requested that the impact of this budget cut falls on the number of innovation projects JISC is able to fund at Scottish institutions, rather than to cut or increase charges for national services, such as JANET, JISC Collections and JISC Advance. Whilst Scottish institutions therefore remain eligible to bid for project funding in response to this call, depending on the quality of the submissions, JISC may need to limit the number of projects awarded to Scottish institutions.

5. Proposals may be from single institutions or consortia unless indicated otherwise in the relevant call. Partnership arrangements may be developed outside the sector (for example with research council sites, publishers, commercial suppliers), but the lead partner must meet the criteria outlined above. Funds can only be allocated through the lead partner.

Background

6. JISC supports higher and further education by providing strategic guidance, advice and opportunities to use Information and Communications Technology (ICT) to support research, teaching, learning and administration. JISC is funded by all the UK post-16 and higher education funding councils.

7. The JISC's vision is one of easy and widespread access to information and resources, anytime, anywhere: a vision with technology and information management at the heart of research and education.

8. JISC invests in technologies and practice through its programmes to support innovative and effective research and learning so that UK higher and further education can maintain its position as a world leader. The projects funded through this call for proposals will support the development and implementation of infrastructure for education and research. The scope of the infrastructure includes national services (for example at Edina and MIMAS), institutional technical services, technical standards, software tools, supporting policies, practice and regulatory frameworks. Both innovation and service activities contribute to the provision of the infrastructure. It allows for the appropriate creation, management and exploitation of information, resources and services to enable effective and high quality research and education.

9. The infrastructure needs to enable researchers, teachers, learners, managers and support staff to accomplish a wide variety of things if it is to fulfil its purpose, and different approaches are required across this variety. For example, the ubiquitous access to content and resources enabling far-reaching re-use is best served by exploiting the Web, machine interfaces and open data using a resource orientated approach, whereas in some cases infrastructure needs to support the use of restricted datasets and collaborations with appropriate access management controls. Finally, institutions may find service-orientated approaches to interoperability are effective in managing information between their systems for internal administrative purposes. These are not incompatible approaches, but reflect the broad scope of the infrastructure. They share concerns with the persistence of information, the extent to which it can be understood, trusted and reused, and hence with the semantics, provenance and rights associated with the information, and the policies, skills, organisational arrangements and cultures of the people using it.

10. The activities in this call are targeted at addressing particular aspects of the infrastructure but they all contribute to the rich vision of infrastructure for education and

research. They contribute to the delivery of JISC's strategic objectives with particular emphasis on the following objectives as set out in the JISC Strategy:

- Provide cost-effective and sustainable shared national services and resources
- Help institutions to improve the efficiency and effectiveness of their corporate and business systems
- Help institutions to improve the quality of learning and teaching and the student experience
- Help institutions to improve the quality, impact and productivity of academic research

Programme Scope

11. Between June 2012 and July 2013, JISC intends to fund projects and activities that help institutions and the FHE sectors as a whole develop their digital infrastructure, in particular those parts of the infrastructure concerned with research data management, research tools, research vocabularies relevant to specific disciplines, research information management, information and library infrastructure, and access and identity management.

12. This grant funding call invites proposals in the following areas:
    - Research Data Management (Appendix A)
    - Research Tools (Appendix B)
    - Research Information Management (Appendix C)
    - Information and library infrastructure (Appendix D)
    - Access and Identity Management (Appendix E)

13. Further information on the terms of reference for each area is given in the relevant appendix to this call below (A-E).

Evaluation Criteria

14. Proposals in all areas except Research Information Management (Appendix C) will be evaluated according to the criteria in the table below:

Evaluation Criteria	Questions Evaluators will be Considering
Appropriateness and Fit to Programme Objectives and Overall Value to JISC Community – the extent to which the proposal addresses the issues and demands outlined in the call, and shows innovation as appropriate; the extent to which the project outcomes will be of overall value to the HE and research communities (25%).	Is the proposal in scope and addresses the terms of reference in the call? If not, you should score the bid poorly under this criterion and NOT recommend the bid for funding. Is the proposal a good idea? Does the proposal clearly articulate its intentions? Does the proposal demonstrate that the project outputs meet a need and will result in benefits to the community? If appropriate, is the proposal technologically innovative and sound (i.e. has not been repeated elsewhere)? Is there evidence that the proposal has been developed in the context of institutional learning, research and/or information management strategies to ensure that project outputs can be embedded and sustained beyond the JISC funding period? Where appropriate, does the proposal take a service-oriented and/or resource-oriented approach and adopt open standards to ensure that developments can be more easily taken up and reused elsewhere? If appropriate, does the proposal discuss sustainability beyond project funding?

Evaluation Criteria	Questions Evaluators will be Considering
Quality of Proposal and Robustness of Workplan – the quality of the proposal will be assessed on the basis of the deliverables identified, and the evidence provided of how these will be achieved, including an assessment of the risks (25%).	Are there clear deliverables? Is the IPR position clear and appropriate with regard to project outputs? Is the methodology for meeting the deliverables sound and achievable? Is there active engagement throughout the project to ensure a sustainable and embedded end-product, where applicable? Is the workplan robust in terms of project management arrangements? How will the success of the project be measured? Does the proposal include a well-thought-through initial assessment of risks, which considers the project's failure to deliver, and predictable consequences that are not necessarily positive?
Engagement with the Community – the degree to which the proposal demonstrates an openness and willingness to work with and share findings with the JISC community and to work in partnership with JISC in forward planning, dissemination and evaluation, and to continue to make available the findings beyond the project period (20%).	Does the proposal include engagement with project stakeholders and practitioners (if appropriate) throughout the life of the project? Is a stakeholder mapping and/or user needs analysis provided? Does the proposal include an appropriate dissemination approach? Does it have an appropriate evaluation approach, e.g. talking to stakeholders? Does the proposal demonstrate willingness to work in partnership with JISC in the dissemination and evaluation activities and to make available outputs beyond the funding period?
Value for Money – the value of the expected project outcomes, vis-à-vis the level of funding requested, institutional contributions; taking into account the level of innovation, chance of success and relevance to the target communities (15%).	When considering value for money, evaluators will refer to their assessment under the above evaluation criteria and compare this with the cost requested from JISC. Does the proposal discuss the quantitative and qualitative benefits to the project partners of undertaking the work? Given the benefits, are institutional contributions appropriate?
Previous experience of the project team – evidence of the project team's understanding of the technical and/or management issues involved, and of its ability to manage and deliver a successful project, for example through work done to date in the area or in related fields (15%).[2]	Does the proposal demonstrate a realistic understanding of the scale of the task, both in terms of technical and management issues? Does the proposal demonstrate previous successful delivery and management of projects? Does the proposal link the expertise of the team with the roles to be undertaken and the staffing budget? If the proposal is from a consortium: i) have the partners provided evidence of their commitment in the form of supporting letters? ii) have the partners demonstrated how the work aligns with their objectives and priorities?

[2] In the case of consortium proposals, the ***strength of the consortium*** will be considered as part of the project team criteria. This refers to evidence of the commitment shown by the consortium partners to the consortium and the proposed project, and the degree to which the work proposed is aligned with institutional strategies and is shown to be embedded within the mainstream of the consortium and with the collaborative partners' priorities. Bidders may wish to refer to documents that exist such as partnership agreements, strategic plans etc. that the evaluation panel can obtain copies of upon request. Please do NOT include such documents as appendices to a bid.

Evaluation Criteria	Questions Evaluators will be Considering
	iii) is it clear what the role of each partner is and how the actual or planned management structure, governance, decision-making and funding arrangements will function?

15. "Rapid Innovation" proposals in the area of Research Information Management (Appendix C) will be evaluated according to the following criteria:
- Extent to which bid meets the scope and requirements of the Call
- Value for money
- Robust project plan
- Clear and compelling use case
- Potential benefits/impact
- Engagement with users and stakeholders
- Risk assessment

Structure of Proposals

16. The content of the proposal should reflect the evaluation criteria as set out above.

17. To assist in the assessment of all proposals against a common baseline, proposals in all areas except Research Information Management (Appendix C) should be structured as follows:

a. **Bid Cover Sheet** – all proposals must include a completed bid cover sheet (using the template at Appendix I) which is included in the proposal as part of the overall maximum page limit.
b. **Appropriateness and Fit to Programme Objectives and Overall Value to the JISC Community** – this section should demonstrate how the bid addresses the issues and demands outlined in the call, and shows innovation as appropriate; and the extent to which the project outcomes will be of overall value to the JISC community.
c. **Quality of Proposal and Robustness of Workplan** – a description of the intended project plan, timetable and deliverables, project management arrangements, risks, IPR position, and sustainability issues. (NB: Any further/specific requirements to a particular programme will be outlined in the call).Recruitment should be properly addressed in the bid. Do not underestimate the amount of time it takes to set up and establish a project and undertake any necessary staff recruitment.
d. **Engagement with the Community** – a description of how project stakeholders and practitioners (if appropriate) will be engaged throughout the project and an overview of the dissemination and evaluation mechanisms that are envisaged for the project. Any stakeholder mapping and/or user needs analysis will strengthen this section of the bid. Proposals should also ensure there is scope for working in partnership with JISC in dissemination and evaluation activities, and in making available the outputs of the project beyond the JISC funding period. Further guidance on JISC's expectations with regard to stakeholder engagement, evaluation and dissemination can be found in Section III of JISC's Project Management Guidelines (http://www.jisc.ac.uk/proj_manguide).
e. **Budget –** a summary of the proposed budget, which in broad outline identifies how funds will be spent over the life of the project. The budget should be broken down across financial years (August–July) or parts thereof and should include itemised staff costs, any equipment and consumables, travel and subsistence, dissemination, evaluation, and any other direct costs required, e.g. rights

clearance if required. All costs must be justified. Transparent Approach to Costing (TRAC) methodology must be used to calculate costs in bids from UK HE institutions. An Example Budget and guidance on the budgetary terms used can be found in Appendix H to this document. Bidders should provide a summary of the qualitative, and any quantitative, benefits the lead institution and any project partners as a whole expect to receive from the project in order to inform the funding to be requested from JISC and the costs being borne by the host institution and any project partners. Institutional contributions should be determined by taking into account the benefits to the lead institution and any project partners.

f. **Previous Experience of the Project Team** – names and brief career details of staff expected to contribute to/be seconded to the project, including qualifications and experience in the area of work proposed, linking the expertise to the roles required within the project, and evidence of any projects of similar nature successfully completed. Clearly indicate when posts will need to be advertised. Do not underestimate the problems in recruiting suitable staff to work on the project. Staff with suitable qualifications in areas where the JISC is interested can be in short supply or expensive. You should provide contingency plans in the event that you experience problems with recruitment.

g. **FOI Tick List** – all proposals must include a FOI Withheld Information Form, indicating which sections of the bid you would like JISC to consider withholding in response to a freedom of information request or if your bid is successful and your project proposal is made available on JISC's website. This can be found in Appendix F of this document. The FOI form will not count towards the page limit and should be included in a separate PDF file to the main bid sections described in a-f above, alongside the supporting letters.

h. **Supporting Letter(s)** – a copy of the letter(s) of support from a senior representative of the institution and any project partners. Only one supporting letter per project partner should be submitted. The supporting letter(s) will **not** count towards the page limit and should be included in a separate PDF file to the main bid sections described in a-f above, alongside the FOI tick list. The address to include on letters should be JISC, Northavon House, Coldharbour Lane, Bristol, BS16 1QD. It is not necessary to address the letter to a particular contact within the JISC Executive.

18. Proposals in the area of Research Information Management (Appendix C) should follow the bidding form (Appendix J).

General Expectations

19. All proposals will need to identify relevant previous and current work, and show either how the proposed project builds on it, or why it cannot. Proposals should also declare all other JISC work in which individual team members are currently participating. Projects may include this statement as an annex (that will not count against the proposal page limit) if they so choose.

20. Projects are expected to allocate at least five person-days per year (for projects up to £100,000) or at least 10 person-days per year (for larger projects) and related expenses to engage in programme-level activities. In particular, all projects are expected to attend programme meetings and relevant special interest groups. Any further expectations will be outlined in the relevant call.

JISC Services

21. Bidders should be aware of the range of JISC services that may be relevant to provide advice, guidance or support dependent upon the proposal being submitted. Further information on JISC's advisory services (JISC Advance), including the Regional Support Centres, can be found at: http://www.jisc.ac.uk/whatwedo/services/jiscadvance.aspx.

Technological Approaches to be Employed

Open Standards

22. Open standards should be used wherever possible, and any deviation from these should be justified in the proposal. Any alternative interface specifications should be designed with re-use by others in mind. The JISC recognises that emergent technologies lack the maturity of standards of some existing technologies. Interoperability and data transfer are key to the provision of next generation technologies for education and research, and projects are expected to work with JISC to address these issues.

23. Bidders must also ensure that they request adequate funding for any additional costs that may be incurred by adopting a standards-based approach. Projects should demonstrate sound risk management with regard to the adoption of standards for immature emergent technologies and refer to appropriate sources of expertise.

24. Further guidance on standards and their stipulation can be found in the relevant Appendices.

Software Outputs

25. It is expected that software outputs will normally be licensed as open-source unless a case is made to the contrary and accepted by the evaluation panel. Applicants should make clear the licence under which software outputs will be released, mechanisms that will be put in place for community contribution (users and developers) throughout the project, and the sustainability plan for the software beyond the period of project funding. Applicants should consult with JISC's open source software advisory service OSS Watch[3] on matters relating to open source software development. Applicants should refer to JISC's Policy on Open Source Software for JISC Projects and Services[4].

26. To enable re-use the software must be of a certain quality and maturity. For example, it must have supporting information, FAQ, installation guides, test data etc. to help others use it. In addition to the advice from the OSS Watch, elements that contribute to software quality and project maturity are outlined in the Software Quality Assurance (QA) and Open Source Maturity Model (OSMM) Development guidelines.[5] Projects will be expected to follow the recommendations from these sources of guidance. Projects may also find additional guidance and material from the Software Sustainability Institute[6].

[3] *OSS Watch* http://www.oss-watch.ac.uk/resources/bidsupport.xml and http://www.oss-watch.ac.uk/resources/adviceforprojectbids.xml
[4] *Open Source Policy* http://www.jisc.ac.uk/fundingopportunities/opensourcepolicy.aspx
[5] *Software Quality Assurance* (QA) and *Open Source Maturity Model* (OSMM) Development guidelines: http://www.jisc.ac.uk/uploaded_documents/SQA_OSMM_09.06.doc
[6] *Software Sustainability Institute* http://www.software.ac.uk/

Risk Assessment

27. All projects have an element of risk. Even in the best-planned projects there are uncertainties, and unexpected events can occur. A risk can be defined as:

> "The threat or possibility that an action or event will adversely or beneficially affect the ability to achieve objectives."

28. A risk analysis when putting together a bid will help you predict the risks that could prevent a project from delivering on time or even failing. It will also help you to manage the risks should they occur. Consideration should be given not only to threats that could lead to failure to deliver objectives (as has already happened) but also to consider opportunities (constructive events) which if exploited could improve the way of achieving objectives.

29. A risk analysis addresses the following questions:
    - What could possibly happen?
    - What is the likelihood of it happening?
    - How will it affect the project?
    - What can be done about it?

30. Further guidance on Risk Assessments can be found in Section III, paragraph 7 of the Project Management Guidelines. JISC InfoNet also hosts an InfoKit on Risk Management[7]. It explains what risks are, how to do a risk analysis, and how to manage risks during a project.

Costing and Pricing a Bid

31. JISC innovation projects are funded in UK higher education institutions on the basis of full economic costs. Bids from these institutions should therefore be constructed on a full economic cost (fEC) basis using the TRAC methodology. An example budget for bidders to use can be found in Appendix I.

32. Other institutions submitting bids should use their usual costing and pricing practices but all costs should be clear and transparent, clarifying the number of days each individual working on the activity will provide, in order to assist the evaluators in determining the value for money of the proposal.

33. The bid should indicate the contribution to the project being sought from JISC and the intended contribution from the lead institution and any project partners. The funding levels outlined in this call are the maximum that JISC will provide towards the total cost of a project; institutional contributions are additional. Where a bid involves partners from outside UK HE, such as English FE or a commercial company, the partners should cost their activities using current costing practice in their college or organisation and clearly identify partner contributions.

34. When assessing proposals, JISC will take into consideration the reasonableness of the total cost of the project and the institutional contributions. It is important to JISC that HE institutions are costing proposals accurately and seeking the appropriate level of support from us, so that they are not over-committed, and hence are ensuring the long-term availability of their activities. However, JISC also needs to ensure consistency of treatment, and that it is using its funding effectively across all proposals.

[7] *JISC InfoKit on Risk Management* http://www.jiscinfonet.ac.uk/InfoKits/risk-management

35. Through the funding provided to projects there will clearly be sector-wide benefits. However, there may also be benefits to the lead institution and any project partners (e.g. prestige/kudos, academic synergy, and financial benefits) in delivering the individual projects. Bidders should provide a summary of the qualitative and quantitative benefits the lead institution and any project partners as a whole expect to receive from the project. JISC expects these benefits to be taken into account when considering the funding requested from JISC. JISC reserves the right to ask additional questions about the budget prior to agreeing any funding for a project.

36. Further guidance on fEC for JISC-funded research and development projects can be found at: http://www.jisc.ac.uk/fundingopportunities/bidguide/fulleconomiccosting.aspx
For more information about TRAC, see the HEFCE web site at:
http://www.hefce.ac.uk/finance/costing/.
The consolidated TRAC Guidance can be found at
http://www.jcpsg.ac.uk/guidance/about.htm.

Freedom of Information

37. JISC is subject to the Freedom of Information Act 2000 (FOIA). Therefore potential bidders should be aware that information submitted by them to JISC during this tender process, and throughout the life of any project subsequently funded, may be disclosed upon receipt of a valid request.

38. JISC will not disclose any information received during this bidding process whilst the evaluation of the bids received is still underway. The evaluation process is still deemed to be active until such time as all grant letters to successful projects have been sent out.

39. It is JISC policy to make the content of any bid funded by JISC through this call publicly available via the JISC web site shortly after funding has been awarded. Unsuccessful bids will be destroyed one month after the lead institution has been notified that their bid was not successful. However, it should be noted that the contents of unsuccessful bids *may be* disclosed should JISC receive a relevant FOI request prior to destruction taking place.

Terms and Conditions of Grant

40. JISC will oversee and monitor the progress of projects. All projects will be expected to follow JISC's Generic Terms and Conditions of Grant. A copy of this is attached at Appendix H to this document. It is the bidders' responsibility to read this.

41. All projects will be managed following JISC project management guidance, which can be found at http://www.jisc.ac.uk/proj_manguide . These guidelines may also be of use to bidders when putting together a project proposal.

42. It is intended that the deliverables created as part of this programme will, as appropriate, be deployed by JISC as part of a long-term strategy for providing access to community resources, and where this is possible, arrangements for archiving of deliverables will be set in place. However, wherever possible, projects will be encouraged to set in place mechanisms to ensure the continued availability and currency of deliverables after funding has ended. In the majority of cases JISC will not be able to commit to the long-term delivery or maintenance of project outputs after the end of the programme, though guidance will be given about any opportunities for continuation funding and embedding within institutions.

Intellectual Property Rights

43. As a general rule, JISC does not seek to retain IPR in the project and/or service outputs created as part of its programmes. However, funding is always made available on the condition that project outputs are made available, free at the point of use (or 'at cost' where appropriate), to the UK HE, FE and Research community in perpetuity and in accordance with JISC's Open Access and/or JISC's Open Source Software Policy wherever possible, and that these outputs may be disseminated widely in partnership with JISC. Further information is available in Appendix G.

44. JISC, however, reserves the right to acquire all Intellectual Property Rights, including, without limitation, copyright, database right, performers rights, patents and trademarks, whether registered or unregistered, in any works created as a result of the funding either indefinitely or for a certain fixed period of time on behalf of HEFCE. JISC also reserves the right to request that all Moral Rights are waived. This ability to acquire the Intellectual Property Rights will only be used under exceptional circumstances and in any such case where JISC considers this necessary, the JISC will explain in writing to you the reasons for the transfer. This includes the situation where JISC is funding the creation of a national service for the community and there may be a need for HEFCE, on behalf of JISC's funding partners, to retain ownership of certain rights in order to maintain flexibility of future provision and availability of the service.

45. For all project and/or service outputs, acceptance of the terms and conditions of the grant will provide JISC or its representatives with an irrevocable, non-exclusive royalty-free licence in perpetuity to exploit the outputs in any way it sees fit, including enabling the JISC to use, archive, preserve and disseminate the outputs.

Open Access

46. JISC supports unrestricted access to the published output of publicly-funded research and wishes to encourage open access to research outputs to ensure that the fruits of UK research are made more widely available. JISC firmly believes in the value of repositories as a means of improving access to the results of publicly-funded research and is investing significantly in this area. JISC expects that the full text of all published research papers and conference proceedings arising from JISC-funded work should be deposited in an open access institutional repository, or if that isn't available, a subject repository. Deposit should include bibliographical metadata relating to such articles, and should be completed within six months of the publication date of the paper. Further details are provided in JISC's Terms of Conditions of Grant (see Appendix G).

Submitting a Bid

47. A guide to bidding for JISC projects can be found at: http://www.jisc.ac.uk/bidguide.

48. The deadline for receipt of submissions is **12:00 noon UK time on Friday 16 March 2012.** Late proposals will **NOT** be accepted. It is the responsibility of the bidder to ensure that the proposal has arrived by the deadline stated. The JISC Executive will strictly adhere to this policy. **There will be no appeals process for late bids.** In light of this, it is recommended that bidders plan to submit proposals several days before the deadline in case of any technical difficulties or other extenuating circumstances.

49. Proposals (except those for Research Information Management, Appendix C) should **NOT** exceed ten single-sides of A4 pages and should be typeset in Arial or a similar font at 11-point size. All key information as outlined in the guidance on structure of proposals **MUST** be included within the ten-page limit unless otherwise indicated. **Any**

bids exceeding the ten-page limit will be rejected by the Executive prior to the evaluation stage.

50. Proposals **MUST:**
    i. Include a completed bid cover sheet (the template at Appendix G must be used) **which is included in the page limit for the proposal**;
    ii. Include a completed FOI Withheld Information Form (see Appendix F) – this is not included in the page limit.
    iii. Be accompanied by a letter(s) of support from an authorised senior manager at the lead institution and from any partner institutions (only one letter per institution) – this is not included in the page limit.

51. Proposals for Research Information Management, Appendix C, should use the bidding form at Appendix J.

52. This is an electronic-only submission process; therefore, all documentation must be submitted in PDF format. The size of the overall submission should not exceed 10Mb and should be in one zipped folder (note: any files exceeding 10Mb are likely to be returned by the mail server).

53. Bidders must ensure their proposals have paragraph and section numbers in case of any queries or FOI requests. No additional security settings should be activated for PDFs to allow JISC to redact information if necessary prior to any release under FOI.

54. All proposals must complete the *FOI Withheld Information Form* (see Appendix G) indicating those sections or paragraphs of your proposal which you believe should be exempt from disclosure under the Freedom of Information Act. It should be noted that whilst JISC will actively consider withholding any of the information indicated within this appendix, it is ultimately JISC's decision (as the holder of the information) and JISC may not be able to uphold such decisions in all cases. JISC will consult with the lead institution prior to the release of any information listed in the *FOI Withheld Information Form.*

55. The types of information which *may* be considered exempt from disclosure include (but may not necessarily be limited to):
    i. Information, which if disclosed, would materially damage the commercial interests of the institution or its partners;
    ii. Information, which if disclosed, would break the principles of the Data Protection Act 1998.

56. Bidders are encouraged to consult with their institutional FOI officer for further information if required. Failure to fill in or submit this information will be construed as consent for disclosure and/or publication on JISC's website should your proposal be successful.

57. The bid submission email address is outlined below.

Programme/Initiative	Bid Submission email Address
Research Data Management	RDMBIDS@JISC.AC.UK
Research Tools	RESEARCHDATA@JISC.AC.UK
Research Information Management	RIMBIDS@JISC.AC.UK
Information and Library Infrastructure	LIB-BIDS@JISC.AC.UK
Access and Identity Management	AIM-BIDS@JISC.AC.UK

58. All bids should include the name of the lead institution in the subject line of the email. It is the responsibility of the bidder to ensure that the bid is sent to the correct email address. Bidders will receive an automatic confirmation of receipt of any proposal sent to the relevant email address. The email address should not be used for general enquiries. Separate contact details for enquiries are provided below. Bidders submitting more than one bid in response to this call must submit these in separate messages to the relevant email address(es).

59. If no automatic confirmation is received, it is the responsibility of the bidder to contact JISC within one day of submitting the bid to confirm whether the proposal has been received. In case of any dispute about the submission of proposals, it is the responsibility of the bidder to provide evidence that the proposal was emailed to the correct address prior to the deadline.

Evaluation Process

60. A selection panel will be established to review the bids received. A standard mark sheet and guidance for markers is prepared for each evaluation process. This is to help to ensure a common approach from evaluators and to clarify the evaluation criteria, and definitions for the different marks it is possible to award. There are a number of sections which the evaluator is required to complete to inform decisions: a score for each evaluation criteria; detailed comments to clarify the mark awarded for each criteria; a section to describe overall impressions of the bid; and a recommendation. Further information about JISC's procedure for evaluating bids can be found at: http://www.jisc.ac.uk/bideval.

61. JISC will endeavour to notify successful bidders by 8 May 2012.

62. JISC will expect to work with the selected projects to agree the workplan and to ensure that the project budget is appropriate and suitably profiled. It may be necessary to negotiate some aspects of the project objectives and content with the project teams in the interest of maximising the expected benefits of the programme as a whole.

63. Notwithstanding the weightings of the evaluation criteria, proposals that fail badly on any one criterion may be rejected, and proposals showing exceptional strength in one or more areas with serious weaknesses in others may be funded. In making awards under this call, JISC will take into account the need for an appropriate, varied and affordable portfolio of projects and partners. It is not, therefore, necessarily the case that the projects with the highest raw scores will be those funded in all instances.

64. JISC reserves the right not to commission the full amount of funding outlined in this call, and to issue a subsequent call to address any remaining work.

Checklist for Bid Submission

65. When submitting your bid, we recommend you check the following points:
    i. Have you completed the bid cover sheet (see relevant appendix for the template which must be used)?
    ii. Have you followed the bid format outlined?
    iii. Have you paragraph- and section-numbered your proposal?
    iv. Have you read JISC's Generic Terms and Conditions of Grant (see relevant appendix)?
    v. Are you clear about the evaluation criteria on which your bid will be judged?
    vi. Have you looked at the Example Budget and guidance (see relevant appendix) to help you present your costings?

vii. Have you provided a summary of the qualitative and quantitative benefits the lead institution and any project partners as a whole expect to receive from the project and clarified the nature of the institutional contributions?
viii. Have you kept within the page limit for the main body of the proposal (do NOT include any appendices to your bid unless specifically requested in the call)?
ix. Is your bid in a PDF format with no additional security settings switched on?
x. Have you completed the FOI Withheld Information Form (see relevant appendix)?
xi. Have you included a letter(s) of support from the lead site and each project partner?
xii. Is your bid in a zipped folder? If it exceeds 10Mb it is likely to be returned by the mail server.
xiii. Are you aware of the email address to which you need to submit your bid and the need to include the name of the lead institution in the subject line of the email?
xiv. Are you aware of the deadline for submitting bids? (12:00 noon UK time, Friday 16 March 2012).

66. To summarise, a bid will be automatically rejected if:
    i. It is received after the stated deadline;
    ii. A bid cover sheet (completed according to the template attached) is not included;
    iii. The bid exceeds the page limit outlined in the call;
    iv. An additional appendix/appendices is/are provided (as these will be considered to count towards the page limit outlined in the call).

Further Information

67. Contact details for enquiries about a specific strand within this call are outlined below.

Programme / Initiative	Enquiries About The Call	Enquires About Submission Process
Research Data Management	Simon Hodson (s.hodson@jisc.ac.uk, 07545 524009)	Avalon McAllister (a.mcallister@jisc.ac.uk; 0117 9317124)
Research Tools	Torsten Reimer (t.reimer@jisc.ac.uk, 0203 0066034) Chris Brown (c.brown@jisc.ac.uk, 0203 0066072)	Avalon McAllister (a.mcallister@jisc.ac.uk; 0117 9317124)
Research Information Management	Josh Brown (j.brown@jisc.ac.uk, 07875 120019)	Avalon McAllister (a.mcallister@jisc.ac.uk; 0117 9317124)
Information and Library Infrastructure	Ben Showers (b.showers@jisc.ac.uk, 07891 470735)	Avalon McAllister (a.mcallister@jisc.ac.uk; 0117 9317124)
Access and Identity Management	Chris Brown (c.brown@jisc.ac.uk, 0203 0066072)	Avalon McAllister (a.mcallister@jisc.ac.uk; 0117 9317124)

68. The Digital Infrastructure Team will post updates about the status of this Call on their team blog at: http://infteam.jiscinvolve.org/.

Appendices

Appendix A: Managing Research Data
Appendix B: Research Tools
Appendix C: Research Information Management
Appendix D: Information and Library Infrastructure
Appendix E: Access and Identity Management
Appendix F: FOI Withheld Information Form
Appendix G: JISC's Generic Terms and Conditions of Grant
Appendix H: Example Budget
Appendix I: Bid Cover Sheet
Appendix J: Bidding Form for Rapid Innovation projects

NB: All appendices should be read in conjunction with the main body of JISC Grant Funding 01/12.

All appendices and the main body of JISC Grant Funding 01/12 can be found at:
http://www.jisc.ac.uk/fundingopportunities.aspx

Appendix A: Managing Research Data: General overview

1. By means of the Managing Research Data Programme, JISC seeks a) to address a strategic requirement for UK HE to improve its research data management capability while better understanding how this may best be achieved, and b) to encourage the wider reuse and repurposing of research data for the further advancement of research.[8]
2. Throughout this Call document 'research data' is taken to mean the data and other information sources which are gathered, created, assembled during the research process, or by third parties for the purposes of research, and which, once analysed and interpreted, form the evidence underpinning scholarly hypotheses. It is recognised that 'research data' can be extremely diverse across different research areas. It is also recognised that, in some research areas, the curation and preservation of code is an integral part of research data management.
3. There are many drivers to this programme and the need to improve research data management in UK universities. Fundamentally these drivers emanate from changes in the practice of research and the opportunities and challenges presented by the ability to extract information and knowledge from vast amounts of digital data. Such drivers are both recognised and reinforced by research funders' and journals'[9] policies designed to encourage good management, sharing and reuse of research data assets. A more developed Digital Infrastructure (including technical services, standards, software tools, supporting policies, practice and regulatory frameworks) is required to help UK universities respond to these drivers.
4. The proper management and curation of research data is necessary to underpin the research record. A growing number of researchers considers making research data easily available for verification and reuse to be an essential component of good research practice. Where data are the product/record of unrepeatable observations, then sound management, curation and long-term preservation strategies become imperative. Meanwhile, certain research disciplines continue to become increasingly 'data-centric' and the creation, sharing and reuse of data have become a core focus of activity for some researchers. Some disciplines have been revolutionised by the community's adoption of open data principles.
5. When data are the product of publicly funded research then they become an asset in which the public has a stake. Indeed, there is increasing recognition that the organisations and individuals involved in publicly funded research have a responsibility to ensure the availability of the outputs of that research, both to underpin the scholarly record, and to enable such outputs to be the basis for future research. These principles are recognised in the OECD Principles and Guidelines for Access to Research Data from Public Funding.[10] Initiatives in recent years to ensure the openness of government and public data share the same guiding principles.
6. All UK Research Councils, and many other research funders, now have policies in place that encourage or mandate a data sharing statement or the creation of a research data management plan and the deposit of research data in an appropriate place.[11] The

[8] Information about the second JISC Managing Research Data Programme 2011-13 may be obtained at http://www.jisc.ac.uk/whatwedo/programmes/di_researchmanagement/managingresearchdata.aspx. Information about the first JISC Managing Research Data Programme 2009-11 is available at http://www.jisc.ac.uk/whatwedo/programmes/mrd.aspx and there is also a Briefing Paper providing an overview: http://www.jisc.ac.uk/publications/documents/bpresearchdatachallenge.aspx.

[9] It is recognised – and stressed below at Appendix A1, para 17 – that a 'journal' often consists of a 'partnership' of some form between editors/editorial board, a learned society and a (not-for-profit or commercial) publisher and that these various stakeholders have input into the policy.

[10] http://www.oecd.org/dataoecd/9/61/38500813.pdf

[11] See the overview at http://www.dcc.ac.uk/resources/policy-and-legal/overview-funders-data-policies

Research Councils' intent in this area has been underlined by RCUK's 'Common Principles on [Research] Data Policy.[12]

7. A number of leading journals now require underlying datasets to be published or otherwise made accessible as part of the essential evidence base of a scholarly article. *Nature* announced its policy thus: 'Three major responsibilities are covered: preservation of the original data on which the paper is based, verification that the figures and conclusions accurately reflect the data collected and that manipulations to images are in accordance with *Nature* journal guidelines, and minimisation of obstacles to sharing materials, data and algorithms through appropriate planning.'[13] A number of BioMed Central journals now 'encourage or require authors, as a condition of publication, to include in some article types a section that provides a permanent link to the data supporting the results reported in the article.' [14] Other journals have made comparable statements, and data publication is being encouraged in a variety of ways.[15]
8. The issue of research data management in an age of increasingly data centric research is receiving a great deal of attention internationally. The Australian government has invested AUS$72.85M over 3.5 years (Jan 2009 to Jun 2013) in the Australian National Data Service to improve data management and promote reuse of research data assets.[16] In the US, the National Science Foundation has invested in the DataNet programme.[17] The German Research Foundation (DFG) has launched a €10M programme to develop research data management infrastructure.[18] In the national and international context, the capacity to provide an effective supporting infrastructure is seen as contributing to a university's competitiveness.
9. JISC funds the Digital Curation Centre (DCC), an internationally-recognised hub of expertise in curating digital research data.[19] The DCC produces useful guides and training materials, tools to assist data management planning as well as running successful training and outreach events (see the Research Data Management Forum and the DCC Data Management Roadshows).
10. The JISC Managing Research Data Programme 2009-11 represented an investment of c.£4.3M designed to stimulate change and achieve the broad objectives described in **1)** above.[20] The programme was divided into four strands as follows:

    - projects to develop **research data management infrastructure** in institutions, or in specific disciplines, to build evidence and provide examples to stimulate change;
    - projects to improve (and make a case for) **research data management planning**;
    - projects to develop **training materials to improve capacity and skills** in the sector;
    - projects to promote the more **open publication of data** and develop mechanisms for this.

[12] http://www.rcuk.ac.uk/research/Pages/DataPolicy.aspx
[13] Nature (2009), Editorial: Authorship Policies, *Nature*, 458: http://www.nature.com/nature/journal/v458/
[14] See http://www.biomedcentral.com/about/supportingdata.
[15] See, for example, a preliminary list at http://oad.simmons.edu/oadwiki/Journal_open-data_policies
[16] See the Australian National Data Service Business Plan: http://ands.org.au/resource/andsbusinessplan10.pdf
[17] Two large projects (DataONE http://www.dataone.org/ and the Data Conservancy http://dataconservancy.org/) were launched in 2009; three further large projects were announced in 2011. Along with smaller grants, projects under the heading of the NSF Datanet Programme total an investment of US$35M: see http://www.nsf.gov/awardsearch/tab.do?dispatch=2 search Datanet under program.
[18] See the presentation by Stefan Winkler-Nees at http://www.jisc.ac.uk/whatwedo/programmes/mrd/rdmevents/mrdinternationalworkshop.aspx
[19] Digital Curation Centre: http://www.dcc.ac.uk/
[20] For more information on the JISC Managing Research Data Programme 2009-11 see: http://www.jisc.ac.uk/whatwedo/programmes/mrd.aspx

11. The JISC Managing Research Data Programme 2011-13[21] is designed to build on this work by developing and embedding supporting infrastructure and services in institutions. To achieve this, it is vital to understand and promote good practice in research data management. Starting in October the new programme currently comprises:

    - seventeen large projects to develop research data management infrastructure and supporting services and policies;[22]
    - eight projects to help research groups, projects or departments fulfil disciplinary best practice and the requirements of research funders by designing and implementing data management plans and supporting systems;[23]
    - two projects to customise and enhance the DCC's DMPonline tool in order to improve its interaction with institutional or disciplinary information systems and allow the better exchange of structured information and valuable metadata.[24]

12. The strands of the present call relating to Managing Research Data are designed to complement this work by:

    - exploring innovative technical models and organisational partnerships to encourage and enable publication of research data;
    - scoping a service to collate and summarise journal research data policies;
    - seeking to embed research data management training in post-graduate curricula and HEI staff development programmes;
    - supporting and ensuring the greatest level of coherence in the development of training materials.

[21] Managing Research Data Programme 2011-13:
http://www.jisc.ac.uk/whatwedo/programmes/di_researchmanagement/managingresearchdata.aspx
[22] Research Data Management Infrastructure projects:
http://www.jisc.ac.uk/whatwedo/programmes/di_researchmanagement/managingresearchdata/infrastructure.aspx
[23] Research Data Management Planning Projects:
http://www.jisc.ac.uk/whatwedo/programmes/di_researchmanagement/managingresearchdata/planning.aspx
[24] Enhancing DMPonline Projects:
http://www.jisc.ac.uk/whatwedo/programmes/di_researchmanagement/managingresearchdata/dmponline.aspx

Appendix A1: Managing Research Data - Innovative Data Publication

Background and rationale

1. Many researchers have misgivings about making their data freely available. Prominent among these are concerns relating to professional recognition and reward. Specifically, many researchers believe, with some justification, that the publication of data – and the considerable overhead required to make data available of sufficient quality and with the documentation necessary for effective reuse – is not sufficiently recognised and rewarded.
2. If the UK HE sector is to derive greater benefit from its research data assets, incentives are needed to counter these perceived disadvantages. Potentially strong incentives in the academic context would include publication channels by which recognition and reward redound to researchers and to their institution.
3. Evidence is beginning to emerge that the publication of the data supporting a given research article or publication, and the linking of that data to the paper is associated with an increase in the paper's citation rates.[25]
4. Arguments in favour of research data sharing stress the need for verification and reproducibility. It is fundamental to the scientific method and to good research practice for other researchers to be able to test the evidence underpinning the hypotheses and interpretations presented in a given scholarly publication. In recognition of this, as noted above, a number of journals have recommended or mandated that research data be deposited in appropriate data repositories prior to publication.
5. An important model in this regard is the Dryad Digital Repository, which has as its mission 'to promote and support preservation and sharing of data that accompany journal publications'. Fundamental to the Dryad project was a joint declaration by a group of journals in the fields of evolution and ecology which reads:

   > This journal requires, as a condition for publication, that data supporting the results in the paper should be archived in an appropriate public archive …. Data that have an established standard repository, such as DNA sequences, should continue to be archived in the appropriate repository, such as GenBank. For more idiosyncratic data, the data can be placed in a more flexible digital data library such as the Dryad archive at http://datadryad.org.[26]

6. Other significant features of the Dryad model include:
   a. an integrated submission process to facilitate authors' data archiving;[27]
   b. mechanisms for data embargo;
   c. a sustainable business model which couples the costs of long-term digital preservation to those of research publication.[28]

[25] See Piwowar HA, Day RS, Fridsma DB (2007) Sharing Detailed Research Data Is Associated with Increased Citation Rate. PLoS ONE 2(3): e308. doi:10.1371/journal.pone.0000308; and more recently, Edwin A. Henneken & Alberto Accomazzi (2011) Linking to Data - Effect on Citation Rates in Astronomy. arXiv:1111.3618v1 [cs.DL] at http://arxiv.org/abs/1111.3618v1

[26] 'Data Archiving' editorial in *The American Naturalist*, Vol. 175, No. 2, February 2010, DOI: 10.1086/650340, Stable URL: http://www.jstor.org/stable/10.1086/650340.

[27] Dryad Submission Integration: http://wiki.datadryad.org/Submission_Integration

[28] The estimated costs of archiving (ingest and preservation) of datasets in Dryad are $25-75 per publication while the estimated full costs of research and publication for an OA article are $2500. This puts the costs of data archiving in Dryad 1-3% of costs of producing the article. See Piwowar http://researchremix.wordpress.com/page/2/ and Vision 'Open Data and the Social Contract of Scientific Publishing' http://www.bioone.org/doi/full/10.1525/bio.2010.60.5.2.

7. The Dryad Data Archive was originally piloted and established with funds from the US National Science Foundation. The JISC-funded Dryad-UK project increased the range of participating journals and contributed towards the business model.[29] The Dryad Digital Repository is now being established as a US not-for-profit company. Dryad offers a model which links journals in a given research area or areas to a given data repository.[30] An analogous initiative is the EDaWaX Project funded by the DFG (Deutsche Forschungsgemeinschaft/German Research Foundation) which is implementing a data archive for 'Schmollers Jahrbuch / Journal of Applied Social Sciences'.[31] Hand-in-hand with promoting data deposit, it seems appropriate for existing (inter)-national, disciplinary data archives to encourage and facilitate bidirectional linking between data set records and publications. This has been established between Elsevier journals and the Pangaea 'Data Publisher for Earth & Environmental Science'.[32] A series of SURF-funded projects in the Netherlands have demonstrated how journals may be 'enhanced', inter alia through linking to datasets. A notable example is the Journal of Archaeology in the Low Countries Project, aims to create enriched publications based on the Open Access e-journal Journal of Archaeology in the Low Countries (JALC), and the e-depot for Dutch archaeology (EDNA), in collaboration with Data Archiving and Networked Services (DANS) and the collection of the Amsterdam Archaeological Centre (AAC).[33] More challenging, but potentially desirable, would be to explore the human and technical processes required to link between journals and data exposed by institutional data archives, where these exist or are under development. Establishing cross-links between open access publications and data sets is an objective of the EU FP7 OpenAIRE*plus* Project.[34]
8. Another, related, area of interest is the data journal, data paper or enhanced publication: a scholarly, peer-reviewed, online publication that champions the sharing of data as an output of research activity. This may be done in a variety of ways, e.g.:
    a. by enabling 'in-article' data visualisation,
    b. by linking directly to data behind the graph,
    c. by focussing on the publication and discussion of datasets,
    d. by publishing complex research objects.
9. Enhanced publications, data papers etc are likely to provide researchers with recognition and reward for publishing datasets and thus encourage data to be viewed as a first class research output, for data publication to be considered an essential part of the scholarly process. Likewise, it seems likely that as well as making it easier for researchers to locate and access datasets, linking between publications and supporting data will provide a means for established data centres, or even institutional data repositories to enhance and draw attention to well-curated research outputs.[35]
10. There are a number of challenges which need to overcome before such approaches (data publications, linking data to publications) can become more widely embedded in

[29] For Dryad-UK see http://www.jisc.ac.uk/whatwedo/programmes/mrd/clip/dryaduk.aspx and http://wiki.datadryad.org/dryaduk
[30] The journals linked to Dryad have expanded beyond the original constituency in ecology and evolutionary biology: http://blog.datadryad.org/2011/12/21/celebrating-a-diversity-of-journals/
[31] See http://www.edawax.de/about/
[32] Pangaea: http://www.pangaea.de/about/
[33] http://www.surffoundation.nl/en/projecten/Pages/JALC-–-Journal-of-Archaeology-in-the-Low-Countries-Verrijkte-publicaties-in-de-Nederlandse-archeologie.aspx; see also Woutersen-Wondhouwer, S., et al., (2009) Enhanced publications: linking publications and research data in digital repositories http://dare.uva.nl/aup/nl/record/316849
[34] OpenAIRE*plus*: http://www.openaire.eu/en/component/content/article/76-highlights/326-openaireplus-press-release
[35] See for example, the arguments in Vishwas Chavan and Lyubomir Penev , 'The data paper: a mechanism to incentivize data publishing in biodiversity science' BMC Bioinformatics 2011, 12(Suppl 15):S2 doi:10.1186/1471-2105-12-S15-S2, http://www.biomedcentral.com/1471-2105/12/S15/S2

scholarly activity. Technical solutions exist, for example, for linking between research data and publications, or for exchanging metadata between journals and data repositories, but are not widely incorporated into practice. Even more significant perhaps are the organisational, procedural and economic challenges. What policies are required on the behalf of journals' editorial boards to achieve greater levels on data sharing, citation and linkages between publications and datasets? What partnerships between journals, data centres and research organisations are necessary to establish sustainable solutions, and what business models are appropriate? How may the costs of long term data archiving be met and appropriately distributed in models that stress the importance of publishing data and linking data sets to published outputs? What characterises a suitable repository and what criteria of quality and assurance are necessary of the data archive underpinning such collaborations? What, if any, peer review of data is appropriate before publication?

Overarching aim of this programme area

11. The overarching aim of this programme area, then, is to help remove barriers to data publication, and therefore to promote a culture and the adoption of processes which allow researchers to obtain reward and recognition for making research data publicly available. This is seen as an important complementary step to developing a national research data fabric and improving research data management in HEIs.
12. The programme aims to contribute towards these overarching aims by providing innovative examples and models of research data publication.

Scope

13. It is intended, where possible that projects should build on existing technologies and approaches. While the further development, testing and implementation of technical solutions for linking scholarly publications with underlying datasets, or for enhancing a publication with innovative data visualisation, may be included in the project, the focus must also be upon exploring innovative models for scholarly publications that embrace the publication of research data along with interpretation and analysis.
14. The Call aims to encourage partnerships between research organisations, data centres and journals to develop platforms and processes for data publication. Proposals involving partnership between research organisations, journals and established, discipline-specific data archives are particularly encouraged.
15. It is recognised that a 'journal' may consist of a 'partnership' of some form between editors/editorial board, a learned society and a (not-for-profit or commercial) publisher and that these various stakeholders have input into the policy. Therefore, projects should work in a way that ensures the greatest possible engagement of the appropriate stakeholders.
16. Given the emphasis here on partnerships involving stakeholders and organisations outside the HE sector, it should be stressed, for the avoidance of doubt, that the **lead** partner in any proposal must meet the eligibility criteria laid out at paragraphs 3-5 in the main Call, above. Appropriate partnerships with organisations outside the HE sector are strongly encouraged.
17. The objective of the Call is not to develop proofs of concept, but to generate sustainable models which encourage data publication. Therefore, proposals must contain assurances that the partnership is committed to sustaining the platform developed; funded projects will be required to develop a business model to ensure sustainability.
18. Funding and timescales necessarily limit the amount of technical development which can be undertaken. Where possible, therefore, projects should reuse existing technologies.

Proposals using the technologies underpinning the Dryad Digital Repository, the Dutch 'enhanced publications'[36] or building on the work of previous JISC projects are particularly encouraged.[37]

19. This Call is intended to promote open access data publication. Appropriate embargos and necessary restrictions to protect personal or sensitive information notwithstanding, all projects must propose to work with open access journals, and with data centres, data archives or university data repositories whose purpose is to make research data as freely available as possible.

Objectives

20. The objective of this strand, therefore, is to explore and embed mechanisms (human and technical infrastructures) that will promote greater levels of research data publication, whether this is through linking publications to data or through piloting data centric publications of various forms.
21. Projects should seek to solve specific, targeted problems with data access and publication and reuse that will have real benefits for a scientific community and progress in knowledge dissemination or discovery. Focus might be on embedding licensing structures which encouraging data publication; implementing a given publishing model which may catalyse data publication for a given research discipline; implementing a visualisation tool which encourages data sharing by requiring access to the 'data behind the graph' etc.
22. Similarly, it is hoped that this initiative will encourage open access data publication, the linking of data to open access publications and campus based publishing initiatives.[38]
23. Projects must address the practical and organisational challenges involved in the publication of research data to a scholarly audience. A variety of activities may be in scope, of which the following is a non-exhaustive list of possibilities:
    a. piloting an enhanced publication that provides visualisations, links or other more sophisticated interfaces to the 'data behind the graph', etc;
    b. piloting a platform for data papers, focussing on the publication and discussion of datasets;
    c. establishing policies, partnerships, mechanisms for deposit and exchange of metadata, embargo management between groups of journals and (an) existing data centre(s);
    d. establishing the same in a way that takes in institutional data repositories;
    e. implementing a publishing mechanism(s) that links postgraduate theses with associated research data.
24. All projects must develop a business plan to establish the outputs on a sustainable footing.

Methods

[36] SURF, 'Enhanced Publications', http://www.surffoundation.nl/en/themas/openonderzoek/verrijktepublicaties/Pages/default.aspx; for rough notes and further links, see also http://ldfocus.blogs.edina.ac.uk/2011/01/21/notes-on-the-surf-foundation-enhanced-publications-report/

[37] See for example projects in the Citing, Linking, Integrating and Publishing Research Data Strand of the first JISC Managing Research Data Programme: http://www.jisc.ac.uk/whatwedo/programmes/mrd/clip.aspx

[38] See for example, some of the projects funded under the JISC Scholarly Communications Programme: http://www.jisc.ac.uk/whatwedo/programmes/inf11/inf11scholcomm.aspx

25. Projects should put in place a mechanism for data publication, or for linking publications to research data.
26. From an organisational perspective, this should involved partnerships between research organisations, data repositories and journals (including editors, learned societies and publishers).
27. Depending on the approach taken, projects may need to:
    a. explore mechanisms and processes to make data and metadata deposit easier for researchers;
    b. explore mechanisms and processes to facilitate metadata exchange between RDM systems, journals and data repositories;
    c. implementation, customisation and where necessary enhancement of authoring and article enhancement tools for semantic enrichment with associated research data;
    d. incorporate appropriate use of identifiers and citation mechanisms for data;
    e. mandate citation practice for data reuse;
    f. consider, adopt and require recognised standards for data type, data quality, citation, metadata etc;
    g. implement mechanisms for linking research data to publications;
    h. explore processes to minimise the overhead in establishing such links or automating bidirectional links;[39]
    i. develop and implement appropriate processes for peer review of articles *and* research data, or mechanisms for ensuring research data quality and validation where possible and/or appropriate;
    j. depending on the nature of the research data publication, some clarification, statement and communication of policies relating to data archiving and publication is likely to be necessary;
    k. design and undertake necessary outreach and engagements with stakeholders, including learned societies and representative researchers.
28. Projects must address take-up and sustainability of the models they develop. Effort should be put into engaging with stakeholders in the research community and representative bodies such as scholarly societies.
29. There must be resourced workpackages in each application describing how 1) stakeholder engagement and 2) sustainability will be achieved. The project must produce a business model designed established the data publication platform on a sustainable footing.

Requirements

30. Projects should make a serious commitment to disseminating news, findings and outputs from their project to the wider community during as well as on completion of the work.
31. Funded projects will be required:

[39] Here the work of the JISC-funded Webtracks project http://www.jisc.ac.uk/whatwedo/programmes/mrd/clip/webtracks.aspx and http://webtracks.jiscinvolve.org/wp/; which itself built on previous projects StoreLink http://www.jisc.ac.uk/whatwedo/programmes/digitalrepositories2007/storelink.aspx and CLADDIER (see Matthews B, Portwin K, Pepler S, Miles A, Jones C, Latham S, Hey J, Bouton K, Lawrence B: Cross-linking and referencing data and publications in CLADDIER. In UK e-Science All Hands Meeting September 2007; 10-13 Sep 2007; Nottingham. 2007. http://www.allhands.org.uk/2007/proceedings/papers/858.pdf) may be of relevance.

a. to deliver a project plan in accordance with the standard JISC project management guidelines;

b. to report on progress via means of 1) regular updates on a blog or similar RSS-enabled web presence and 2) short monthly reports to the programme manager of progress against workpackages;

c. to deliver a final report and closure survey in accordance with the standard JISC project management guidelines.

32. Depending on the characteristics of the projects funded, there will be a small start-up workshop early in the project life or programme manager visits.

33. Projects will be expected to contribute to JISC Managing Research Data Programme events, in particular a large international programme workshop which will be scheduled for March 2013.

34. Role of the Digital Curation Centre (DCC): Bidders are invited to consult with the DCC in preparing their bids and to take advantage of DCC information resources. The DCC will provide general support for these strands of activities and for the programme more broadly. This will be done by contributions to programme events as well as the current channels of information, and through its principal role as a broker for expertise and advice in the management and curation of data. Projects are encouraged to engage directly with the DCC and its programme of information exchange – for example, by contributing to the Research Data Management Forum (RDMF).[40]

Outputs

35. Projects must develop and implement a partnership, process and platform which addresses the practical, technical and organisational challenges involved in the open publication of research data. This may include the various approaches described above.

36. Projects should report in detail on technical and organisational issues in a way that allows lessons to be synthesised across the programme. Of particular interest will be issues of technical interoperability, particularly with regard to metadata, as well as the effects of policies, incentives and data publication on researcher attitudes and motivations.

37. Projects must develop a business model designed to establish the data publication platform on a sustainable footing.

Partnerships

38. A key objective of this strand is to encourage and develop sustainable partnerships which will promote data publication.

39. Consequently, projects **must** engage and collaborate with key stakeholders in the field, and this will likely include stakeholders outside the ac.uk domain. Key stakeholders in this space are data centres and archives, publishers of open access journals, learned societies and scholarly organisations, charities and heritage organisations, the British Library and institutional libraries, managers of institutional and subject specific repositories, creators of authoring and journal management tools, etc. By means of such collaborations, or otherwise, bids **must** demonstrate the proposed project will have the broadest possible impact (e.g. by making a widely applicable case for the importance, value and feasibility of the suggested model of data publication).

40. It is hoped, given the nature of the output that the various partners in any project will be willing to contribute effort in kind, thus amplifying the effect and impact of the JISC funding.

[40] http://www.dcc.ac.uk/data-forum/

Further information on requirements and how they might be interpreted by markers

41. By means of a coherent workplan, appropriate partnerships, tangible and well-described outputs and strategy for dissemination, uptake and sustainability, bids should demonstrate that their proposed activity will have significant impact (that is building community support and likely contribute to a transformation in research publication) and has a good chance of providing a sustainable platform for research data related publication. Markers will be asked to pay specific attention to these criteria.
42. The funding levels have been set with a wide latitude, and a limited degree of flexibility, in the hope of attracting a number of proposals with varied approaches. Within the bounds of what is possible, efforts will be made to have a balanced portfolio in terms of the funding requested, as well as the general approach, the discipline focus etc.
43. Markers will be expected to favour proposals offering a substantial contribution of in kind effort from project partners.

Funding available

44. A total of £320,000 is available for this work. JISC intends to fund 2-4 projects of between £80,000 and £150,000 per project. .

Length of projects and start and end dates

45. Projects should start as soon as possible after 1 June 2012 and should finish and finalise deliverables by 31 July 2013.

Further information

46. Any enquiries about this section of the call should be directed to Simon Hodson, the Programme Manager responsible for this area of activity (s.hodson@jisc.ac.uk, 07545 524 009).

Appendix A2: Managing Research Data - Scoping a Service to Collate and Summarise Journal Research Data Policies

Background and rationale

1. It has been noted above 'Managing Research Data, General Overview' at 7, that one of the emerging drivers for research data sharing and its precondition – effective research data management – is the appearance of policies, emitted by journal editorial boards, requiring that the research data underpinning a given research publication should be made available for verification and reuse. Policies of journal editorial boards requiring the deposit and appropriate sharing of research data that constitutes the research record and underpins the conclusions drawn in scholarly articles are particularly welcome as it seems likely that they are designed by researchers who sit on such boards for their peers and thus may be seen as constituting an important element of the social contract of research.[41] Therefore, it is reasonable to surmise that journal research data policies will exercise a transforming influence upon researcher practice towards the greater sharing and reuse of publicly funded research data. Indeed, evidence is emerging that journal data policies are one of the most important drivers of data archiving behaviour.[42]
2. The Digital Curation Centre provides an overview of UK Research Funders' policies relating to the management and sharing of research data.[43] The Sherpa Juliet service provides some information of research funders' policies in this area beyond the UK.[44] However, there is currently no such comprehensively collated source of information for journal policies (or the absence of a policy) requiring the sharing of research data.
3. The Sherpa Romeo service provides collated and abbreviated information for researchers and repository managers on publishers' copyright transfer agreements.[45]
4. In April 2011, the Australian National Data Service facilitated an international workshop for research data infrastructure providers.[46] One of the desiderata to have emerged from these discussions was for a service to collate and summarise journal policies relating to research data.
5. A service to collate and summarise journal research data policies would serve the purpose of providing researchers, managers of research data services and other stakeholders with an easy source of reference to understand the requirements and recommendations made by journal editorial board with regard to data sharing. Given the rate of change in this area, it is essential for research funders and institutional managers to have access to the 'big picture' of journal data policies. Such a service would provide a useful information and advocacy tool for a variety of stakeholders in this area (including exponents of open data, research data infrastructure providers, institutional managers with responsibilities for research data management etc). It would provide a helpful incentive for the increasing systematisation and codification of such policies and for their more regular review.

[41] See Todd Vision 'Open Data and the Social Contract of Scientific Publishing' http://www.bioone.org/doi/full/10.1525/bio.2010.60.5.2.
[42] See Piwowar HA (2011) Who Shares? Who Doesn't? Factors Associated with Openly Archiving Raw Research Data. PLoS ONE 6(7): e18657; doi:10.1371/journal.pone.0018657
[43] See http://www.dcc.ac.uk/resources/policy-and-legal/overview-funders-data-policies
[44] See http://www.sherpa.ac.uk/juliet/
[45] See http://www.sherpa.ac.uk/romeo/
[46] See p.10 of the ANDS Newsletter, 'Share', http://www.ands.org.au/newsletters/newsletter-2011-03.pdf

6. Existing initiatives to provide overviews of journal policies on research data have been the work of individuals or small groups and, although extremely welcome and useful, they have hitherto been piecemeal, unsystematic and unlikely to be maintained.[47]

Overarching aim of this programme area

7. The overarching aim of this programme area is to provide researchers, institutional managers, research funders, research data infrastructure providers and other stakeholders with improved knowledge of – and a ready source of information covering – the policy landscape for research data.

Scope

8. **The present project is conceived as a feasibility study (but one including or augmented with the development of a pilot demonstrator and the analysis of a range of possible business models)**, the aim of which is to improve understanding of what a 'full-blown', comprehensive and sustainable service to collate and summarise journal research data policies would entail and the challenges involved.
9. **Consequently, the scope of the project should include:**
    a. **conducting a detailed examination of the technical and procedural challenges in developing such a service, including a thorough analysis of stakeholder benefits;**
    b. **developing a pilot demonstrator platform to indicate how best the required information may best be presented and delivered;**
    c. **analysing and presenting a broad range of possible business models for the sustainability of such a service.**
10. The project should collate a large range of journal policies, to be determined by the project design. The project should examine and develop an understanding how diverse journal research data policies may most helpfully be presented to the range of stakeholders to provide the information required and developing a pilot to show how this may be done.
11. It is noted that journal data policies, where they exist, are often complex, presenting different requirements for different data types. The project would have to determine how best to classify and present such information in the pilot service. Considerations of the classifications to be used are important, for example: firmness of policy (request vs require), mechanisms (if any) for policing the policy, consequences for noncompliance and latitude for exceptions; permitted embargo length; stipulations on timescales for data retention; preferred mechanism for sharing (on request vs data archive); stipulations on archive qualities (publicly accessible, specific list of recommended archives, etc); data formatting and completeness standards; approach to data citation; etc.
12. Given this complexity, it is essential that the project should consult widely and gather requirements from a range of stakeholders to ensure that an approach can be adopted which allows the information to be presented in an accessible, useful and consistent way.
13. On the basis of this work, the project should develop a prototype, demonstrating the most effective and useful presentation of information, and mechanisms for ensuring that

[47] See for example the preliminary list provided by the Open Access Directory at http://oad.simmons.edu/oadwiki/Journal_open-data_policies. Heather Piwowar has provided information on some journal policies as part of a Dryad data package Piwowar HA (2011) Data from: Who shares? Who doesn't? Factors associated with openly archiving raw research data. Dryad Digital Repository. doi:10.5061/dryad.mf1sd ; Larry King links to a number of journal policies at http://gking.harvard.edu/pages/data-sharing-and-replication

information will be promptly and accurately updated. The project should also ensure that the information presented is consumable by humans (by means of a website) and by machines (by means of an API). The project should develop a detailed set of requirements for developing a more comprehensive service.

14. As a feasibility study, an essential part of the project must also be to analyse and present **a range of alternative, candidate business models which may sustain the potential service in the long term.** This would include scenarios in which such a service would be wholly or partly supported by ongoing JISC funding, exploring what other sources of income may be available ranging from support from other funders, through subscriptions and contributions of various sorts. **The range of possible business models must consider, therefore, a variety of possible service providers and sources of funding / cost recovery.**
15. Research and scholarly communications are thoroughly international endeavours. It is conceived and intended that this JISC-funded initiative may 'kick-start' an international collaboration around a sustainable service to collate and summarise journal research data policies. Therefore, the project should seek to liaise as closely as possible with experts and with stakeholders outside the UK.
16. The international dimension of such a potential service means that JISC intends, through this project, to explore a variety of options for how such a service may be maintained. JISC intends to keep an open mind and a free hand with regard to any transition to service and indeed how such a service may be run and sustained. For this reason it is important that the project to be funded here should analyse and present a broad range of possible business models, in wide consultation with potential partners.
17. Bidders should be aware that the purpose of this project is to help define requirements and to help inform future investment decisions; participation in this project does not mean automatic inclusion in any related future service arrangement. Currently there is no future provision planned, but should it be decided that a service should be taken forward, JISC and other funders are most likely to undertake a new commission.

Objectives

18. The objective of the project is to provide the stakeholders listed above with:
    a. a detailed examination of the technical and procedural challenges in developing such a service, including a thorough analysis of stakeholder benefits
    b. a well-researched consideration of the best way to present information about journal data policies;
    c. a pilot demonstrator of a potential service to collate and summarise journal research data policies;
    d. a detailed set of requirements for development of a comprehensive service, supported by,
    e. a range of alternative, candidate business models to sustain such a service in the long term.

Methods

19. Projects should build wherever possible on existing work and the examples of similar projects and collations of like information.

20. It is important that projects should undertake effective user requirements analysis with the various stakeholders and potential users of such a service to understand precisely what information is required and how best to present it.
21. Projects should work with relevant stakeholders, and with the journals in particular, to understand what mechanisms for updating the information as journal policies change is likely to be most effective.
22. Projects should include a resourced workpackage – and be able to draw on appropriate expertise – to develop a range of business models that can be considered for any future service.

Requirements

23. The project should make a serious commitment to disseminating news, findings and outputs from their project to the wider community during as well as on completion of the work.
24. The funded project will be required:
    a. to deliver a project plan in accordance with the standard JISC project management guidelines;
    b. to report on progress via means of 1) regular updates on a blog or similar RSS-enabled web presence and 2) short monthly reports to the programme manager of progress against workpackages;
25. To deliver a final report and closure survey in accordance with the standard JISC project management guidelines.
26. Although falling after the funded period, the project will be expected to contribute to JISC Managing Research Data Programme events, in particular a large international programme workshop, which will be scheduled for March 2013.
27. Role of the Digital Curation Centre (DCC): bidders are invited to consult with the DCC in preparing their bids and to take advantage of DCC information resources. The DCC will provide general support for these strands of activities and for the programme more broadly. This will be done by contributions to programme events as well as the current channels of information, and through its principal role as a broker for expertise and advice in the management and curation of data. Projects are encouraged to engage directly with the DCC and its programme of information exchange – for example, by contributing to the Research Data Management Forum (RDMF).[48]

Outputs

28. The outputs of this project consist of:
    a. a detailed examination of the technical and procedural challenges in developing such a service, including a thorough analysis of stakeholder benefits;
    b. a pilot demonstrator collating and summarising journal research data policies, with discussion and evidence for the decisions underpinning the approach taken;
    c. a detailed set of requirements for the development of a more comprehensive service to collate and summarise journal research data policies, supported by;

[48] http://www.dcc.ac.uk/data-forum/

d. a range of alternative business models that might be used to sustain such a service for the long term, covering a variety of possible service providers and sources of funding / cost recovery.

29. The project will be expected to be very active in communicating and disseminating news, findings and outputs from the project to the wider community.

Partnerships

30. As a sustainable service to collate and summarise journal research data policies is likely to be international in its stakeholders, the pilot project is encouraged to include partners, stakeholder representatives, experts or advisors from outside the UK to inform its recommendations.

31. The Australian National Data Service has expressed an interest in contributing towards this work. Incorporation of effort and expertise provided by ANDS to this will be managed during the project start-up process.

32. Projects are encouraged to provide evidence of buy-in from potential users (for user surveys) and other stakeholders (research data centres, institutional managers, research funders, funders of research infrastructures, journal publishers and editorial boards).

Further information on requirements and how they might be interpreted by markers

33. Important criteria for markers will include:

    a. compelling evidence of a strong basis for user engagement and requirements analysis;

    b. evidence of foresight and a methodology for determining how best to present the information gathered about journal data policies;

    c. evidence of expertise and resource for developing a range of business models;

    d. evidence of an appropriately wide range of stakeholders to be engaged with the project.

34. This project requires a range of specific skills covering the analysis of journal policies, consideration of stakeholder requirements with regard to the presentation of this information, the development of an appropriate platform, stakeholder and partner liaison, and above all, the skills to present a wide variety of business models, covering provision of service and means of funding / cost recovery and on the basis of effective consultation with a range of possible service providers, international partners. **The requirement of assembling a team with these skills may impose on projects the need to seek partners outside the HE sector.** Markers will be asked to pay particular attention to the evidence presented that project teams possess the necessary range of skills for this work.

Funding available

35. A total of £90,000 is available for a single project to undertake this work.

Length of projects and start and end dates

36. The project should start as soon as possible after 1 June 2012 and should finish and finalise deliverables by the end of November 2012.

Further information

37. Any enquiries about this section of the call should be directed to Simon Hodson, the Programme Manager responsible for this area of activity (s.hodson@jisc.ac.uk, 07545 524 009).

Appendix A3: Managing Research Data - Research Data Management Training Materials

Background and rationale

1. There is a recognised need to increase skills in managing research data among staff in HEIs, including researchers, librarians and research support staff. This area was explored by Swan and Brown's 2008 report on 'The skills, role and career structure of data scientists and curators'; and it was considered further in the second Research Data Management Forum, November 2008. The latter discussions were presented in the form of a white paper by Graham Pryor and Martin Donnelly, where the case is forcefully made that 'data skills should be made a core academic competency'; that 'data handling [should be] embedded in the curriculum'.[49]
2. The shortfall in data management training in UK HE is widely recognised. A 2009 Nature editorial 'Data's shameful neglect' concluded that 'data management should be woven into every course, in science, as one of the foundations of knowledge'.[50] Additionally, under the heading 'Information Management' the Vitae Researcher Development Framework includes the following description of necessary skills acquisition: 'Develops a sustained awareness of the creation, organisation, validation, sharing and curation of data.'[51] An 'Information Literacy Lens' on the Researcher Development Framework, which includes considerable emphasis on data management skills has been developed in consultation with the RIN Research Information Handling Working Group,[52] and will shortly be put out for wider feedback.[53] Under its Researcher Development Initiative, the ESRC funded a 'Data Management and Sharing for Researchers Training Programme' which will provide a programme of training for researchers and research support staff.[54]
3. Consonant with such initiatives and the concern they reflect, it has been observed: 'There is a need to go beyond the workshop and the short training course, and embed preparation for a professional (and personal) lifetime of digital data curation within the academic curriculum.'[55] As well as integrating research data management skills in the curricula for discipline specialists, it is also necessary to develop targeted course materials for librarians, research support staff and data managers. The Data Management Skills Support Initiative (DaMSSI) Project[56] produced a series of career profiles which 'aim to demonstrate how data management skills contribute to and underpin high-quality performance in a number of professions', including a number of research areas and data managers.[57]

[49] Swan and Brown 2008; Pryor and Donnelly 2009.
[50] Nature. (2009, September). Editorial: Data's shameful neglect. Nature, 461, p. 145. doi:10.1038/461145a. Published online September 9, 2009: http://www.nature.com/nature/journal/v461/n7261/full/461145a.html. Also, Pryor and Donnelly 2009, p.166, paraphrasing Professor Sheila Corrall's presentation to RDMF2; relating the findings of the UK e-Science Envoy's work on a national e-Science Curriculum and the ICEAGE (2008) Group's Curricula for Undergraduate and Masters Level Courses; and quoting Nature editorial.
[51] http://www.vitae.ac.uk/policy-practice/165001/Researcher-development-framework-consultation.html
[52] http://www.rin.ac.uk/our-work/researcher-development-and-skills/information-handling-training-researchers/working-group-i and see, e.g. http://www.vitae.ac.uk/researchers/1271-414711/Learn-about-information-handling-lens-on-Researcher-Development-Framework.html
[53] See e.g. http://www.vitae.ac.uk/researchers/437191/Increasing-the-impact-and-engagement-of-researchers.html
[54] ESRC Researcher Development Initiative, 'Data Management and Sharing for Researchers Training Programme', http://www.rdi.ac.uk/projects/round4/56.php
[55] Pryor and Donnelly 2009, p.166.
[56] See http://www.dcc.ac.uk/training/data-management-courses-and-training/skills-frameworks
[57] See http://www.dcc.ac.uk/training/data-management-courses-and-training/career-profiles

4. The DCC has developed a wealth of digital curation and research data management training materials.[58] The UK Data Archive provides extensive guidance and training materials on the creation, management and sharing of research data.[59]
5. Some of the large projects in the first Managing Research Data programme produced online generic guidance for university researchers and more targeted training materials. See in particular:
    a. Sudamih Project, University of Oxford: guidance for researchers http://www.admin.ox.ac.uk/rdm/ and training materials for humanities researchers http://sudamih.oucs.ox.ac.uk/documents.xml
    b. Incremental Project, Universities of Cambridge and Glasgow: guidance for researchers: http://www.lib.cam.ac.uk/dataman/ and http://www.gla.ac.uk/services/datamanagement/.
6. The first Managing Research Data programme included five projects tasked with producing discipline-focussed training materials targeted at post-graduate students and where possible integrated with post-graduate courses.
    a. CAiRO Project, University of Bristol, artistic research: http://www.projectcairo.org/ and http://www.projectcairo.org/module/unit1-0.html
    b. DataTrain Project, University of Cambridge, archaeology and social anthropology: http://www.lib.cam.ac.uk/preservation/datatrain/; http://archaeologydataservice.ac.uk/learning/DataTrain and http://www.lib.cam.ac.uk/dataman/datatrain/socanthintro.html
    c. DATUM for Health Project, University of Northumbria, health research: http://www.jisc.ac.uk/whatwedo/programmes/mrd/rdmtrain/datum.aspx and http://www.northumbria.ac.uk/sd/academic/ceis/re/isrc/themes/rmarea/datum/health/?view=Standard
    d. DMTpsych Project, University of York, psychology: http://www.jisc.ac.uk/whatwedo/programmes/mrd/rdmtrain/dmtpsych.aspx and http://www.dmtpsych.york.ac.uk/
    e. Research Data MANTRA, University of Edinburgh, social science, clinical psychology, and geoscience: http://www.jisc.ac.uk/whatwedo/programmes/mrd/rdmtrain/mantra.aspx and the online course materials http://datalib.edina.ac.uk/mantra/
7. The DaMSSI Project provided a support and synthesis role for these 'RDMtrain' projects. The course components were mapped against Vitae's Researcher Development Framework and Sconul's Seven Pillars of Information Literacy[60] as well as against the DCC's digital curation lifecycle.[61] Importantly, the DaMSSI Project Final Report makes a number of detailed recommendations for projects developing discipline-focussed research data management training materials.[62]
8. An important observation is that many aspects of research data management training are generic across disciplines, but require translation, targeting and exemplification to make course materials more meaningful.

[58] See http://www.dcc.ac.uk/training
[59] See http://www.data-archive.ac.uk/create-manage
[60] See http://www.dcc.ac.uk/training/data-management-courses-and-training/skills-frameworks and http://www.rin.ac.uk/our-work/researcher-development-and-skills/data-management-and-information-literacy
[61] See http://www.dcc.ac.uk/training/train-trainer/disciplinary-rdm-training/disciplinary-rdm-training
[62] See the final report at: http://www.dcc.ac.uk/webfm_send/532

9. The Dutch 3TU Datacentrum has developed the 'Data Intelligence 4 Librarians' for which there is a substantial amount of online material.[63] The course aims to equip librarians better to 'to advise researchers effectively and efficiently' in data curation.
10. These initiatives have developed a range of useful materials. However, there remains a need for research data management training materials to be further developed and **embedded** in a number of targeted areas, notably for those disciplines not covered by previous JISC projects or other work. In particular, there is a need for training for those, in universities and other research organisations, whose role it is to support researchers in making best use of the research data infrastructure which may be available (inter-)nationally or at an institutional level. This call particularly hopes to encourage, therefore, the creation training materials for subject or research librarians, for research support staff and dedicated data managers in universities.

Overarching aim of this programme area

11. The overarching aim of this programme area is to contribute to an increase in RDM skills in UK higher education and research organisations. It aims to achieve this by providing high quality training materials which will serve the needs of a variety of roles and stakeholders requiring research data management skills.
12. The present strand aims to build on previous work by funding projects **to design and pilot the delivery of course materials that** HEIs can use to improve the skills and abilities of academics, research professionals, research support staff and dedicated data managers, library staff and postgraduate researchers.

Scope

13. It is recognised – as, for example, the work of the DaMSSI project has amply demonstrated – that training in RDM is part of the larger 'information literacy' or researcher knowledge and skills that are required by researchers or other information professionals. Stand-alone guidance is viewed as a necessary step, particularly in response to the need to equip institutions to respond to research funder mandates. Nevertheless, it is intended that projects should apply effort to integrate new or adapted RDM units with existing or planned curricula to the greatest possible extent.
14. The objective of this Call is to encourage the means by which skills and capacity for data management and curation in HEIs may be increased. It aims, in large part, to promote the transition to embedded training in management of research data within academic curricula. It is accepted, depending on the nature of the activity that embedding may be within a variety of existing course offerings, whether that is PG courses, further professional development units, research skills training offered by graduate schools or DTCs, ongoing professional training or LIS courses etc.
15. The Call seeks to encourage appropriate partnerships within (and, potentially, across) institutions. Training in research data management and curation may draw on a number of areas of expertise within HEIs (in research oriented departments or faculties, in graduate training schools, in DTCs, in the library, and in other groups which provide research and information management support).
16. For bids proposing to develop discipline-focussed training materials, it is **essential** that proposals include a named scholar and academic department in which requirements will be scoped and training units trialled.
17. It is recognised that approvals and Quality Assurance requirements, certification and accreditation schedules may limit what can be implemented as units in existing

[63] See http://dataintelligence.3tu.nl/en/about-the-course/

postgraduate programmes. Nevertheless, bids will be encouraged to offer innovative ways of piloting the training materials or units which are designed: e.g. roadshows, summer schools, research data management days as collaborations between institutions etc.

18. Proposals are encouraged as far as possible to build upon and extend existing materials, courses etc – particularly those listed above – to tailor them to meet specific needs and to seek to **embed** them in existing or new curricula as appropriate.

19. Proposals including the development of online learning modules, exploiting where possible additional media and attested design methods for the development of online materials, particularly such as may easily be adapted and embedded in a variety of online course are particularly encouraged.

Objectives

20. The specific objective of this programme strand is to develop, test and embed training materials to cover a variety of needs and use cases. Specifically, there is a need for:

    a. discipline-focussed training materials for embedding in PG courses, or in further professional development offerings, for research areas not covered by the previous JISC projects described above;

    b. activities to take existing materials and embed them further in the PG training courses, or in the further professional development offerings, of a number of research institutions;

    c. training materials for subject librarians who will need to acquire RDM skills and may be providing RDM services in their institutions;

    d. training materials for research support staff or dedicated data managers providing RDM support services in universities.

21. Proposals should indicate clearly which of these use cases they intend to target.

Methods

22. The project's methods should be adapted as appropriate to meet the requirements of the use case targeted. However, appropriate steps within projects' approach should include:

    a. using appropriate partnerships and expertise;

    b. building to the greatest extent possible on existing materials;

    c. developing appropriately adapted materials for the use case targeted;

    d. trialling the materials in an appropriate context (for example, existing courses, optional/supplementary courses, a research data management/curation 'summer school', training workshop run collaboratively between institutions etc.);

    e. as a result of these experiences, embedding a research data management / curation training component in the use case targeted (i.e. discipline-focussed postgraduate courses, in doctoral training programmes, or in professional development programmes).

23. There is a strong expectation that all delivery of training materials undertaken by funded projects should gather robust and detailed feedback from participants. Feedback must not be sought as an afterthought, but should be designed as an integral part of the development of the training offering. It is important that feedback is gathered in a way which is well targeted, concise and does not consist of gathering unnecessary

information. Reflections based on results from feedback should be shared with the support project and the DCC; and considered in project reports.

24. Projects will be expected to liaise closely with the parallel support project, with the DCC and with other stakeholders as appropriate. This activity is particularly important to avoid duplication, making the best use possible of existing resources and expertise and to maximise the effectiveness of outreach and dissemination activities.

Requirements

25. Outputs should be made available for reuse in higher education with an appropriately non-restrictive licence (e.g. CC-BY). All outputs must be deposited in the Jorum Repository for Learning Resources.[64] Keywords for each JORUM deposit should be determined in conjunction with the support project and should be recorded at the time of deposit with the support project and the DCC.
26. Projects should make a serious commitment to disseminating news, findings and outputs from their project to the wider community during as well as on completion of the work.
27. Funded projects will be required:
    a. to deliver a project plan in accordance with the standard JISC project management guidelines;
    b. to report on progress via means of 1) regular updates on a blog or similar RSS-enabled web presence and 2) short monthly reports to the programme manager of progress against workpackages;
    c. to deliver a final report and closure survey in accordance with the standard JISC project management guidelines.
28. Depending on the projects funded, there will be a small start-up workshop early in the project life or programme manager visits.
29. Projects will be expected to contribute to JISC Managing Research Data Programme events, in particular a large international programme workshop, which will be scheduled for March 2013.
30. Role of the Digital Curation Centre (DCC): Bidders are invited to consult with the DCC in preparing their bids and to take advantage of DCC information resources. The DCC will provide general support for these strands of activities and for the programme more broadly. This will be done by contributions to programme events as well as the current channels of information, and through its principal role as a broker for expertise and advice in the management and curation of data. Projects are encouraged to engage directly with the DCC and its programme of information exchange – for example, by contributing to the Research Data Management Forum (RDMF).[65]

Outputs

31. Projects must develop, trial, test and refine, training materials to meet one of the use cases described above.
32. Projects should aim to ensure that such training materials are embedded in ongoing courses and should undertake necessary outreach and dissemination activities to encourage uptake beyond the lead institution.
33. Projects must deposit materials created, as Open Educational Resources, with an unrestrictive licence, in the Jorum repository.

[64] Jorum: http://www.jorum.ac.uk/
[65] http://www.dcc.ac.uk/data-forum/

Partnerships

34. Proposals are encouraged to partner with providers of existing courses, modules and expertise (e.g. DCC, UKDA, ULCC, DPC, NERC and other data centres etc), as well as stakeholders, accrediting bodies and professional bodies (RCs, VITAE, RLUK, CILIP, SCONUL, etc). For discipline-focussed activities, partnerships with scholarly or learned societies are particularly encouraged.

Further information on requirements and how they might be interpreted by markers

35. By means of a coherent workplan, appropriate partnerships, tangible and well-described outputs and strategy for dissemination, uptake and sustainability, projects should demonstrate that their activity will have significant impact on the sector and has a good chance of being adopted by other institutions or stakeholders. Markers will be asked to pay specific attention to these criteria.

Funding available

36. A total of £300,000 is available for 5-8 projects of between £30,000 and £60,000 per project.

Length of projects and start and end dates

37. The projects should start as soon as possible after 1 June 2012 and should finish and finalise deliverables by 31 May 2013.

Further information

38. Any enquiries about this section of the call should be directed to Simon Hodson, the Programme Manager responsible for this area of activity (s.hodson@jisc.ac.uk, 07545 524 009).

Appendix A4: Managing Research Data - Training Materials Support and Synthesis Project

Background and rationale

1. The objective of the training strand of the Managing Research Data programme is to increase RDM skills in UK higher education and research organisations. It aims to achieve this by providing high quality training materials which will serve the needs of a variety of roles and stakeholders requiring research data management skills. However, if the objective is to be realised, it is not sufficient simply to develop the materials and make them available in the hope that users will appear.
2. Similarly, if training materials are to be appropriately targeted, projects need to liaise closely with a variety of stakeholders, experts and practitioners.
3. Building on the experience of the previous programme and the lessons presented by the DaMSSI project, it is felt that projects will benefit from support in a number of ways designed to maximise the benefits to be realised from the development of RDM training materials.

Overarching aim of this programme area

4. The overarching aim of this programme area is to contribute to an increase in RDM skills in UK higher education and research organisations. It aims to achieve this by providing high quality training materials which will serve the needs of a variety of roles and stakeholders requiring research data management skills.
5. This project will contribute to that aim by enhancing the benefits realised from this strand of activity and by increasing the chances that outputs will be widely embedded in the sector. This will be done through providing the funded projects with a general support function, liaising with stakeholders, leveraging expertise, amplifying dissemination and outreach activities, maximising learning and exchange of ideas across the programme, analysing outputs and lessons and providing a digest of key outcomes and lessons.

Scope

6. This activity is intended to 'amplify' the more general support work of the DCC and should complement and coordinate closely with DCC activity.
7. The support role is intended to be programme wide: while the first responsibility is to assist projects which will be funded by the present Call, the project will also have a responsibility to support those Research Data Management Infrastructure Projects which are currently developing guidance and training materials.[66]
8. Proposals are encouraged to build in commitments (whether in costed time or in kind) from likely stakeholders. Nevertheless, the precise scope of activity will depend on the nature of the training projects which are funded and so some flexibility should be available.

Objectives

9. The objective of this project is to ensure that programme benefits are realised in a number of ways, including:
    a. providing the funded projects with a general support function;

[66] See http://www.jisc.ac.uk/whatwedo/programmes/di_researchmanagement/managingresearchdata/infrastructure.aspx

b. leveraging expertise, particularly from the DCC, but also from other organisations working in the space;

c. assisting the projects in liaising with stakeholders (professional bodies, scholarly/learned societies, non-governmental public agencies with functions and stakes in this area etc);

d. supporting and amplifying projects' dissemination and outreach activities;

e. maximising learning and exchange of ideas across the programme;

f. running at least two events or workshops, as appropriate, 1) for cross programme discussion and 2) to assist the programme in engaging with external stakeholders;

g. assist projects with the coherent and polished presentation of their outputs,

h. assisting projects to ensure deposit in Jorum (and if appropriate working with the Jorum team to explore means of increasing discoverability (e.g. by appropriate and best practice tagging, perhaps by working with the Jorum team to develop a research data management lens or feature if appropriate);

i. ensuring in this and other appropriate ways that the guidance and training outputs of the JISCMRD programme are well signposted;

j. analysing outputs and lessons and providing a digest of key outcomes and lessons.

Requirements

10. The project should make a serious commitment to disseminating news, findings and outputs from their project to the wider community during as well as on completion of the work.

11. The funded project will be required:

    c. to deliver a project plan in accordance with the standard JISC project management guidelines;

    d. to report on progress via means of 1) regular updates on a blog or similar RSS-enabled web presence and 2) short monthly reports to the programme manager of progress against workpackages;

    e. to deliver a final report and closure survey in accordance with the standard JISC project management guidelines.

12. The support project will be expected to conduct visits to the funded projects in the training strands, and/or arrange workshops meetings as appropriate to ensure the support and liaison functions are fully understood and performed.

13. The support project will be expected to assist the programme manager with the organisation and conduct of the start-up activities, including any kick-off workshop, or programme manager visits.

14. The project will be expected to contribute to JISC Managing Research Data Programme events, in particular a large international programme workshop, which will be scheduled for March 2013.

15. Role of the Digital Curation Centre (DCC): Bidders are invited to consult with the DCC in preparing their bids and to take advantage of DCC information resources. The DCC will provides general support for these strands of activities and for the programme more broadly. This will be done by contributions to programme events as well as the current channels of information, and through its principal role as a broker for expertise and

advice in the management and curation of data. Projects are encouraged to engage directly with the DCC and its programme of information exchange – for example, by contributing to the Research Data Management Forum (RDMF).[67]

Outputs

16. The outputs of this project consist in fulfilling the various support functions described as the objectives of this project above.
17. In particular, also described above, the project will be expected to:
    a. be very active in communicating and disseminating news, findings and outputs from the project to the wider community;
    b. run two workshops as described above;
    c. through an appropriate platform ensure that the guidance and training outputs of the JISCMRD programme are well signposted and discoverable;
    d. provide a report analysing outputs and lessons and providing a digest of key outcomes and lessons.

Partnerships

18. An important function of this project is to assist the projects in making the most out of existing partnerships and in forging new ones where appropriate.
19. Proposals for this role must be ready to adapt as appropriate, but it is likely that this project will need to liaise with: providers of existing courses, modules and expertise (e.g. DCC, UKDA, ULCC, DPC, NERC and other data centres etc); with stakeholders in the training and curricula design space, accrediting bodies and professional bodies (RCs, VITAE, RLUK, CILIP, SCONUL, etc); and for discipline-focussed activities, scholarly or learned societies.

Funding available

20. A total of £80,000 is available for a single project to undertake this work.

Length of projects and start and end dates

21. The project should start as soon as possible after 1 June 2012 and should finish and finalise deliverables by 31 July 2013.

Further information

22. Any enquiries about this section of the call should be directed to Simon Hodson, the Programme Manager responsible for this area of activity (s.hodson@jisc.ac.uk, 07545 524 009).

[67] http://www.dcc.ac.uk/data-forum/

Appendix B: Research Tools - General overview

Background and rationale

1. Over the last twenty years, the power and capability of IT has increased exponentially, providing both new research processes and increasing researchers' productivity and ability to communicate their research within and without their communities. During this time, various infrastructures for networking and communication; data transfer, storage, discovery and retrieval; and computation and processing have emerged driven by initiatives such as the e-science programme.
2. However, whilst there are many researchers making effective use of IT and infrastructure in their research, there are still researchers who are unaware of the opportunities today's technology can offer in their research, or who, whilst aware of the opportunities, lack the capability, support and skills to realise these opportunities. Meanwhile, the potential capability of IT and infrastructure is increasing at breakneck speeds whilst research institutes and HEIs have increasingly limited resources (staff, time, money, energy, etc.) to take advantage of these opportunities.
3. The Research Tools Programme incorporates work undertaken by the Virtual Research Environment (VRE) Programme[68] and the Research Infrastructure Programme[69] and is a natural progression from earlier work funded in these areas. The VRE Programme concentrated on funding work that helped researchers from all disciplines to work collaboratively by managing the increasingly complex range of tasks involved in carrying out research on both small and large scales. The Research Infrastructure Programme focussed on infrastructures for network/communications; data/storage; compute/processing; access management; and both the technologies and support (social infrastructures) needed for these to interact. It also included generic services and applications built upon these infrastructures.
4. The VRE programme consisted of three phases, running from 2004 until 2011. Under the VRE3 programme a number of Rapid Innovation projects were funded.[70] In June 2011 a request for proposals from projects that had been funded under the VRE3 programme was released, aiming to perform follow-on work to embed and build on their activities. Four VRE3 projects received further funding and are due to complete by January 2012 (ViCo VRE[71]; CRIB[72]; TEXTvre[73]; VRIC[74]).
5. Under the Research Infrastructure Programme a range of activities have been funded, most notably: the UK National Grid Service (NGS); the National Centre for Text Mining (NaCTeM); and projects in the area of cloud computing, including a range of pilot projects on the use of cloud computing in research[75] (co-funded with EPSRC). The programme has also supported projects to develop more usable and easier to learn user interfaces for research tools and to embed usability methods.[76]
6. Under the first call of the Research Tools Programme, seven projects have been funded to demonstrate how infrastructure can be exploited for research and to embed research

[68] http://www.jisc.ac.uk/whatwedo/programmes/vre.aspx
[69] http://www.jisc.ac.uk/whatwedo/programmes/researchinfrastructure.aspx
[70] Details of these projects, some of which relate to the projects listed under Phase 3 above, are available on the projects' wiki - http://code.google.com/p/vreri/.
[71] http://www.jisc.ac.uk/whatwedo/programmes/vre/vicovre.aspx
[72] http://www.jisc.ac.uk/whatwedo/programmes/vre/crib.aspx
[73] http://www.jisc.ac.uk/whatwedo/programmes/vre/textvre.aspx
[74] http://www.jisc.ac.uk/whatwedo/programmes/vre/vric.aspx
[75] http://cloudresearch.jiscinvolve.org/wp/
[76] http://www.jisc.ac.uk/whatwedo/programmes/inf11/usability.aspx

tools in research communities. [77]

7. Projects bidding for funding should not just be aware of relevant activities funded under the two predecessor programmes and the recent call, but also of lessons learned and relevant project outputs.

Overarching aim of this programme area

8. The rationale for the Research Tools Programme is to ensure the research community is fully informed of the potential that IT and IT infrastructure can offer in the research process. The Tools and Technologies strand focuses on exploiting technologies and infrastructure in the research process as well as innovating and extending the boundaries to determine the future demands of research on infrastructures. Researchers will benefit through access to compute facilities and tools for research that facilitate collaboration and communication, improve research processes and enable new research discovery.
9. The objective of this programme is to support world-class research by ensuring that all UK researchers and research organisations are well informed about the potential and benefits of the use of (software) tools for research, with access to a suitable digital infrastructure and the right level of support. This will enable them to select the tools and platforms that are best suited for their work and provide input for national and international development of research digital infrastructure that is both efficient and effective. Researchers will be able to collaborate in teams, no matter whether they are local, national or international, with full and easy access to all the tools and data required.
10. This call is specifically looking for projects exemplifying the use and development of research tools in the following three areas:
    a) emergent and novel hardware and software tools and techniques, particularly projects which will identify future trends and disruptive technologies
    b) advanced tools facilitating communications during the research process, for example within research communities, between research peers, engagement with wider audiences such as the general public.
    c) projects to develop sustainable and open vocabularies for research..

[77] http://www.jisc.ac.uk/fundingopportunities/funding_calls/2011/10/grantcall1611.aspx The seven projects funded under the Research Tools strand of the call will be announced shortly.

Appendix B1: Research Tools - emerging research tools

Scope

11. This strand is looking for projects exemplifying the use and development of research tools in the area of emergent and novel hardware and software tools and techniques; particularly projects which will identify future trends and disruptive technologies.
12. For the purpose of this strand, "emergent and novel" refers to new tools and/or techniques that show promise but are not yet widely used or tested in a research context. These can be software, hardware or a combination of both.
13. In particular, we invite projects that will identify future trends and explore disruptive technologies. The term "disruptive technologies" goes back to a 1995 article entitled "Disruptive Technologies: Catching the Wave".[78] The concept of disruptive technologies or innovations often refers to technologically straightforward, even off-the-shelf components that, put together in a relatively simple product architecture, disrupt an existing market and displace previous, more costly and complex solutions.
14. The Internet and in particular the World Wide Web is often cited as one of the most disruptive innovations of the past decades. It has had impact on society as a whole, transformed many business sectors and has also changed the way how Higher and Further Education Institutes work and how research is conducted. Another example of an emerging technology that is likely to be a disruptive innovation is Kinect, the motion sensing input device developed by Microsoft for the Xbox gaming console. As a mass-produced hardware it is starting to replace significantly more expensive and sometimes less flexible devices and it has recently seen a lot of interest from research projects.[79] Similarly, 3D technologies including 3D printing and 3D displays have potential to transform research processes, and we can already see the influence mobile devices and touch screen technologies have across academia. Other areas to explore could include, but are by no means limited to, hybrid/augmented reality, tactile user interfaces or serious gaming.
15. Projects funded under this strand should demonstrate how developing and implementing novel approaches can benefit the research process, they should help the .ac.uk sector to identify new and future trends in the area of research tools and, where possible, explore and exemplify the use of potentially disruptive technologies.

Objectives

16. The objective of this programme is to support world-class research by ensuring that all UK researchers and research organisations are well informed about the potential and benefits of the use of (software) tools for research, with access to a suitable digital infrastructure and the right level of support. This will enable them to select the tools and platforms that are best suited for their work and provide input for national and international development of research digital infrastructure that is both efficient and effective.
17. Specifically, this strand aims to identify future trends and disruptive technologies as well as to, more generally, exemplify the use and development of research tools in the area of emergent and novel hardware and/or software tools and techniques.

[78] Bower, Joseph L. & Christensen, Clayton M. (1995). "Disruptive Technologies: Catching the Wave" Harvard Business Review, January–February 1995

[79] Just to give one example, an American research project saved an estimated $100,000 by using the Kinect: http://www.kare11.com/news/article/914028/14/Minnesota-prof-uses-Xbox-Kinect-for-research-

18. Through work under this strand, projects will help the sector to identify the potential of these tools, develop exemplars and provide guidance on how they can be successfully implemented in research processes.

Methods

19. Bidders are generally free to specify the methodologies that would enable them best to meet the requirements set out below, however they must clearly specify how their chosen method(s) will enable them to achieve the aims and objectives of this call. It is understood that some of the work undertaking through this strand may be speculative and the outcome thus not certain, so a careful selection of methods is very important.
20. Because of the experimental nature of the work, the methods used for software development are likely to include, but not limited to rapid innovation and agile development.[80]
21. Particular care should be taken so that the work of the project is suitable to exemplify the use and development of tools; this means that the whole process of work (as opposed to just the outputs) should be undertaken, documented and communicated in as open and transparent a way as possible.
22. As far as end user-facing development is undertaken, projects should consider the needs of the users and implement appropriate usability methods. For more information and examples of the use of such methods in an academic context see the JISC "Usability and Adaptability of User Interfaces" activities[81] and in particular the Usability UK[82] resource.

Requirements

23. Projects may be experimental in how they apply, combine, develop etc. new tools and techniques and are not limited to any discipline or technology, but proposals need to give a clear indication of the potential of the proposed work for research.
24. Proposals need to show that either the tool(s) used or the way they are using them are novel, either in general or in the context of a specific research process.
25. This strand allows for projects that exemplify either the development or the use of novel research tools; a combination is also acceptable and may even be the most likely scenario.
    a) Projects that concentrate on the use of tools should demonstrate how their work will be embedded in actual research processes, how it will benefit the specific use case and how lessons learned might be applied beyond the concrete project scenario.
    b) Projects that have a development component should demonstrate how the benefits for research are likely to outweigh the resources used in the development of the solution.
26. All projects need to develop a clear dissemination plan that ensures that not only the project findings and outputs but also the processes used will be effectively communicated to relevant stakeholders. Proposals that do not include a list of stakeholders or a dissemination plan will not be funded.

Outputs

27. Projects will be expected to produce:

[80] http://www.jisc.ac.uk/whatwedo/programmes/inf11/jiscri.aspx
[81] http://www.jisc.ac.uk/whatwedo/programmes/inf11/usability.aspx
[82] http://mspace.usabilityuk.org

- A project workplan including a dissemination plan.
- A project website/blog to effectively support the project.
- Regular blog posts on the progress of the project; some of those will follow a template agreed with the programme manager and the project work plan will also be made public as one or several blog posts. These postings will form the basis for the final project report.
- Projects that undertake software development will be expected to, unless agreed otherwise, make the software, source code and suitable documentation available under an open source licence. They will also be expected to use appropriate usability methods and provide information on their implementation to the Usability UK resource.
- Dissemination materials and activities that may include case studies, training materials, best practice guides or tool kits.
- A final project report compiled from the blog posts and, where appropriate, other materials. This will be made available through the JISC website, but the project web presence will effectively be the project report.

Partnerships

28. Partnerships are encouraged but, considering the amount of funding involved, are not a requirement of this call.

Further information on requirements and how they might be interpreted by markers

29. Markers should judge the money requested against potential benefits for researchers; for instance, a demonstrator that has very little chance of uptake or changing research practice is less likely to be funded even if the solution it offers may appear interesting.

Funding available

30. A total of £400,000 is available for this work. Proposals are invited to bid for between £75,000 and £160,000 per project and between three and five projects are likely to be funded.

Length of projects and start and end dates

31. Projects should start as soon as possible after June 1st 2012 and should finish and finalise deliverables by March 31st 2013.

Further information

32. Any enquiries about this section of the call should be directed to Torsten Reimer (t.reimer@jisc.ac.uk, 0203 0066034) or Christopher Brown (c.brown@jisc.ac.uk, 0203 0066072), the Programme Managers responsible for this area of activity.

Appendix B2: Research Tools - facilitating research communications

Scope

33. This strand is funding projects exemplifying the use and development of tools facilitating communications during the research process, for example within research communities, between research peers, engagement with wider audiences such as the general public.

34. Under the JISC VRE Programme several projects have been funded to support research communication. These include MEMETIC, a VRE1 project that supported research meetings through Access Grid Technology,[83] or Collaborative Research Events on the Web (CREW)[84]. The focus of these and other projects[85] has been more on supporting communication after the research has been completed and not so much on facilitating it during the process (although it is understood that the line between those areas is of necessity somewhat blurred). The JISC-funded my-Experiment project has demonstrated how social media approaches can be used to share, discuss and expand workflows for experiments.[86]

35. Projects are free to choose the technologies that are most suitable for supporting and enabling communication during research processes, but the use of social media is particularly encouraged. This may include blogging or services such as Twitter, Facebook, Ning or Google+, but is not limited to these or other social networking tools.

36. This strand of work relates to activities commonly referred to as “cyber science”. Cyber science projects, such as Galaxy Zoo[87], allow interested members of the public to take part in research projects. JISC is funding the Old Weather project that relies on members of the public to transcribe logbooks of Royal Navy vessels.[88] Projects funded under this strand are similar to cyber science activities in that they might actively involve wider audiences in the research process.

37. Complementary to cyber science, crowdsourcing approaches have become popular recently and projects such as the Great War Archive[89] have demonstrated their use for building up collections and engaging with the public. Different from crowdsourcing, projects funded under this strand will actively involve audiences in the research process as opposed to, mainly, using them as contributors (although it is understood that the line between these approaches may not be clear).

38. Projects funded under this strand will differ from scholarly communications activities in that they focus on supporting communication during the research process as opposed to communication around scholarly publications that result from such a process. Projects that are mainly about scholarly communication will not be funded under this strand.

Objectives

39. The objective of this programme is to support world-class research by ensuring that all UK researchers and research organisations are well informed about the potential and benefits of the use of (software) tools for research, with access to a suitable digital

[83] http://www.jisc.ac.uk/whatwedo/programmes/vre1/accessgrid.aspx
[84] http://www.jisc.ac.uk/whatwedo/programmes/vre2/crew.aspx
[85] See for instance the OneVRE and ViCo-X projects:
http://www.rcs.manchester.ac.uk/research/ViCoVRE/ViCoX
http://wiki.rcs.manchester.ac.uk/community/vre3
[86] http://www.jisc.ac.uk/whatwedo/programmes/vre2/myexperiment.aspx
[87] http://www.galaxyzoo.org/
[88] http://www.oldweather.org/
[89] http://www.oucs.ox.ac.uk/ww1lit/gwa

infrastructure and the right level of support. This will enable them to select the tools and platforms that are best suited for their work and provide input for national and international development of research digital infrastructure that is both efficient and effective. Researchers will be able to collaborate in teams, no matter whether they are local, national or international, with full and easy access to all the tools and data required, as well as the means of communication to facilitate these processes.

40. Specifically, this strand aims to facilitate and improve communications during the research process. This can be done by either exemplifying the use of existing tools and/or developing new functionality that helps researchers to communicate more effectively with their peers or wider audiences. This can be achieved in different ways, but proposals need to demonstrate how their work will make research communication more effective and/or efficient.
41. Projects should be looking to help embed their work in research communities rather than solely trying to solve technical issues. The outputs should aim to help researchers in their research as well as guide the sector in how new approaches and communication technologies can benefit the research process.

Methods

42. Bidders are generally free to specify the methodologies that would enable them best to meet the requirements set out below, however they must clearly specify how their chosen method(s) will enable them to achieve the aims and objectives of this call.
43. The methods used for software development are likely to include rapid innovation and agile development[90] to ensure that the software meets the requirements of the users and that the development incorporates user feedback.
44. Projects should consider the needs of the users and implement appropriate usability methods. For more information and examples of the use of such methods in an academic context see the JISC "Usability and Adaptability of User Interfaces" activities[91] and in particular the Usability UK[92] resource.

Requirements

45. Proposals need to demonstrate that they will facilitate effective communication during research processes, thereby leading to an improvement in the research process.
46. This strand supports the use of existing as well the development of new tools/functionality, or a combination of both. However, projects developing new tools need to demonstrate that existing solutions do not meet their needs and that resources allocated for new development are proportionate to benefits gained.
47. Where new software is developed, projects should as far as possible aim to embed their work in existing ecosystems, for instance by developing apps for social networks, browser extensions or plugins to software used in the relevant research communities. This is to increase the sustainability of outputs as well as to encourage uptake as researchers may be more likely to use tools that integrate with their existing environment. Standalone tools are acceptable where integration with other solutions is not appropriate, for instance where no such solutions exist or where it would restrict the effectiveness of the tool.
48. Development work should produce usable results (such as beta software) early enough that the project can demonstrate at least some use by researchers during the funding

[90] http://www.jisc.ac.uk/whatwedo/programmes/inf11/jiscri.aspx
[91] http://www.jisc.ac.uk/whatwedo/programmes/inf11/usability.aspx
[92] http://mspace.usabilityuk.org

period. The development of exemplars demonstrating technical feasibility without addressing the use in a research context will only be funded if they can show a significant advantage over existing solutions.

49. Projects should expect to identify technical and organisational lessons from the development and implementation work undertaken, and to report these appropriately to JISC and the wider community. JISC is collating lessons, technologies and advice from the VRE and Research tools programmes into a range of infokits and other dissemination routes, and projects would be expected to engage fully with these activities.

Outputs

50. Projects will be expected to produce:

- A project workplan.
- A project website/blog to effectively support the project.
- Regular blog posts on the progress of the project; some of those will follow a template agreed with the programme manager and the project work plan will also be made public as one or several blog posts. These postings will form the basis for the final project report.
- Projects that undertake software development will be expected to, unless agreed otherwise, make the software, source code and suitable documentation available under an open source licence. They will also be expected to use appropriate usability methods and provide information on their implementation to the Usability UK resource.
- Through guidance, exemplars and, where appropriate, software outputs projects must exemplify the use of tools facilitating communications during the research process. This may include case studies, training materials, best practice guides or tool kits.
- A final project report compiled from blog posts and, where appropriate, other materials. This will be made available through the JISC website, but the project web presence will effectively be the project report.

Partnerships

51. Partnerships are encouraged but, considering the amount of funding involved, are not a requirement of this call.

Further information on requirements and how they might be interpreted by markers

52. Under this strand, exemplary use of existing tools is seen as at least as valuable as the development of new tools.

Funding available

53. A total of £200,000 is available for this work. Proposals are invited to bid for up to £100,000 per project and up to three projects will be funded.

Length of projects and start and end dates

54. Projects should start as soon as possible after June 1st 2012 and should finish and finalise deliverables by March 31st 2013.

Further information

55. Any enquiries about this section of the call should be directed to Torsten Reimer (t.reimer@jisc.ac.uk, 0203 0066034) or Christopher Brown (c.brown@jisc.ac.uk, 0203 0066072), the Programme Managers responsible for this area of activity.

Appendix B3: Research tools - projects to develop sustainable and open vocabularies for research and information management

Background, scope and objectives

56. Thesauri (vocabularies) have always been key to knowledge organisation. With the advent of open approaches to the sharing of key vocabulary sets and the development of Linked Data there is an opportunity to further develop key thesauri in more open, re-useable and sustainable ways. This would also contribute to a better understanding of whether, and how, interoperability between various XML dialects might be enabled, which is necessary for interdisciplinary research and information management.
57. This work will build on the lessons from JISC's work in Linked data[93] and key identifier sets, UKOLN-Microsoft's research community capability modelling[94], as well as interests in the support of new types of scholarly communication and research, in order to progress thesauri developments to support academic disciplines. These should be developed in such a way that they can support researchers, learned societies, publishers and information professionals in the new ways in which information is created managed and re-used in line with the Web.
58. Up five to subject specific projects are sought which would build upon existing vocabularies that support academic disciplines (including, but not limited to, astronomy, physics, chemistry, the social sciences) to develop exemplars demonstrating the support of the semantics of a discipline across many different information types (data, text etc.) and also across the different aspects of the research lifecycle. Projects should not develop new vocabularies, but should identify the drivers, enablers and barriers to the enhancement and curation of disciplinary vocabularies. Projects should also consider long term sustainability of their outputs and recommendations.

Methods

59. Bidders are generally free to specify the methodologies that would enable them best to meet the requirements set out below, however they must clearly specify how their chosen method(s) will enable them to achieve the aims and objectives of this call.

Requirements

60. Projects should devote time and resource to identifying and documenting the lessons from their work that would be of value to other disciplinary communities, working closely with the associated synthesis project (see Appendix B4, below).
61. Projects would be expected to engage actively with the programme manager and with programme level synthesis activity throughout their life.

Outputs

62. Projects would be expected to produce
    - A project workplan
    - A project website/blog to effectively support the project
    - Regular blog posts on the progress of the project; some of those will follow a template

[93] http://www.jisc.ac.uk/whatwedo/programmes/inf11/jiscexpo.aspx
[94] http://communitymodel.sharepoint.com/Pages/default.aspx

agreed with the programme manager and the project work plan will also be made public as one or several blog posts. These postings will form the basis for the final project report, and will include reflections on the technical and organisational lessons learned, sustainability challenges and approaches, etc.

- Projects that undertake software development will be expected to, unless agreed otherwise, make the software, source code and suitable documentation available under an open source licence. They will also be expected to use appropriate usability methods and provide information on their implementation to the Usability UK resource.

Partnerships

63. Partnerships are encouraged but considering the amount of funding involved, are not a requirement of this call. Project should however indicate how they will engage with both subject expertise and communities and linked data expertise and communities.

Length of projects and start and end dates

64. Projects should start in June 2012, and must complete by 31st January 2013.

Funding Available

65. A total of £300,000 is available for this work. Subject specific projects are invited to bid up to £70,000 and it is anticipated that about five projects will be funded.

Further Information

66. Any enquiries about this section of the call should be directed to Torsten Reimer (t.reimer@jisc.ac.uk, 0203 0066034) or Christopher Brown (c.brown@jisc.ac.uk, 0203 0066072), the Programme Managers responsible for this area of activity.

Appendix B4: Research tools – synthesis project focused on sustainable and open vocabularies for research and information management

Scope and Objectives

67. To accompany and support the activities described in Appendix B3, above, a single synthesis activity is also sought that would engage with the projects (and other related activities) to ensure that lessons and best practice could be made available to guide others in similar endeavours.
68. Take-up of guidance is unlikely to be straightforward, and the project will need to consider the most effective ways to ensure that the lessons from the subject-specific projects have a significant impact both within and, importantly, beyond those disciplines.

Methods

69. Bidders are generally free to specify the methodologies that would enable them best to meet the requirements set out below, however they must clearly specify how their chosen method(s) will enable them to achieve the aims and objectives of this call.

Requirements

70. The project would be expected to engage with the programme managers actively throughout its life, and collaborate with them to align its work with related work, for example at the Digital Curation Centre.

Outputs

71. Projects would be expected to produce
    - A project workplan
    - A project website/blog to effectively support the project
    - A draft dissemination plan in month 2 and a final version, to be agreed with the programme manager, in month 4
    - Regular blog posts on the progress of the project; some of those will follow a template agreed with the programme manager and the project work plan will also be made public as one or several blog posts. These postings will form the basis for the final project report.
    - Other outputs likely to meet the objectives and requirements specified above, perhaps including guidance documents, multimedia artifacts, workshops and engagement with learned societies.

Partnerships

72. Partnerships are encouraged but considering the amount of funding involved, are not a requirement of this call. Project should however indicate how they will engage with the Digital Curation Centre, and with both subject expertise and communities, and linked data expertise and communities.

Length of projects and start and end dates

73. The project should start in June 2012, and must complete by 31st March 2013.

Funding Available

74. A total of £50,000 is available for a single project.

Further Information

75. Any enquiries about this section of the call should be directed to Torsten Reimer (t.reimer@jisc.ac.uk, 0203 0066034) or Christopher Brown (c.brown@jisc.ac.uk, 0203 0066072), the Programme Managers responsible for this area of activity.

Appendix C: Research Information Management – Rapid innovation

Background and rationale

1. In a time of constrained resources, the informed, strategic management of research is essential. Such management requires reliable information, for benchmarking, planning and external reporting. Many institutions are investing in IT infrastructure and business processes to address this requirement. However, without the appropriate use of open technical standards, information will not be available to the right people at the right time. A strong case has been made that the appropriate use of the Common European Research Information Format (CERIF) standard could significantly benefit the sector.[95]
2. While current and forthcoming JISC Research Information Management (RIM) projects[96] are generating two-way data exchange, measuring efficiency savings, and exploring research reporting and research impact there is a need for ongoing development of CERIF-based systems to support a range of business processes and needs.
3. Development in this area is uneven across the sector, and while the number of Higher Education Institutions who have invested in commercial or custom-built current research information systems (CRIS) continues to rise, the increasing diversity of Institutions suggests that local, small-scale customisable solutions can be deployed to support specific activities.
4. However, to maximise the benefits of these developments to the sector, institutions may need to undertake work to improve their systems or processes, informed by good practice elsewhere. That is the requirement addressed by the work specified here.

Overarching aim of this programme area

5. The aim is to lower the barriers to the adoption of CERIF in the sector, thereby allowing institutions to streamline and lower the cost of managing their research activities, with lightweight[97] single-institution projects centred on a specified business process which can focus on
    a. Creating new data stores to improve the availability of validated research information
    b. Tools for the analysis and/or visualisation of research information
    c. Linking up systems (e.g. HR, Finance, award management) to improve data quality or to enable new services or processes.

Scope

6. The scope of this programme area is research information; that is, structured information about projects, facilities, researchers, research outputs and their value and impact, funding streams, organisations such as funders and Institutions, and so on.

Objectives

7. The purpose of this call is to improve the availability or communication of structured and high-quality information about research activities by encouraging the continued uptake of CERIF-based systems and tools. A number of approaches to CERIF exchange are being

[95] http://www.jisc.ac.uk/publications/reports/2010/businesscasefinalreport.aspx
[96] http://www.jisc.ac.uk/whatwedo/themes/informationenvironment/researchinfomgt.aspx
[97] See requirements below for more information.

trialled, both as part of the RIM3 programme[98] and by related projects and commercial products. This call aims to complement their activities and to support the development of a broader community of CERIF practitioners in the UK.

Methods

8. Bidders are free to specify the most appropriate method for their project, but should demonstrate how their chosen method will enable them to meet the relevant objective.

Requirements

9. These projects must produce solutions that enhance the available technical infrastructure for research administration. These are Rapid Innovation projects. The benefits of this approach are described in "Why Rapid Innovation?"[99] In keeping with the size of the grants and short duration of the projects, the bidding process is lightweight (see the Bidding Form), and the reporting process will be blog-based.
10. Bids must demonstrate how the project will **address the needs of users** by
    - providing the outline of a compelling **Use Case**[100] that the project is designed to meet;
    - naming a specific community being addressed by the project;
    - specifying what the requirement is, how the bid will meet this requirement and thus how it will resolve particular "pain points";
    - indicating plans for user engagement including strategies for involvement in the development process and how users will validate the project deliverables.

11. Projects must **deliver solutions**

- Solutions might be:
  - Prototype of a lightweight service or interface;
  - Demonstrator prototypes;
  - User-ready widgets for common platforms
  - APIs, plug-ins or add-ons onto content and infrastructure. These should produce code which should deliver new functionality rather than 'tweaking' of existing resources;
- All solutions must be open source or reusable with full documentation. Project deliverables can build on proprietary components but wherever possible the final deliverables should be open source. If possible a community based approach to working with open source code should be taken rather than just making the final deliverables available under an open source licence
- Critique of the technical solutions, standards and protocols used and their fitness for purpose;
- Solutions should target a specific, demonstrable benefit to the institution and should indicate how this will be measured.
- Commentary/recommendations on how the solutions/applications might realistically be further adopted.

12. As these projects are small and lightweight, **all staff must be in place at the start of the project**, including interns and/or consultants. External developer expertise can be used, providing any consultant or partner is in a position to commence work on the project start

[98] See IRIOS2 <http://www.jisc.ac.uk/whatwedo/projects/irios2.aspx> and CERIF in Action <http://www.jisc.ac.uk/whatwedo/projects/cerifinaction.aspx>
[99] http://ie-repository.jisc.ac.uk/451/1/OBC.pdf
[100] http://en.wikipedia.org/wiki/Use_case

date. Project reporting requirements for these projects will be relatively lightweight. Bidders should therefore focus on areas where they have existing staff, skills and capacity to deliver solutions for the benefit of users.

13. In order to deliver rapid innovation within the timeframe and budget for these projects. JISC requires an **open innovation project management approach**:

    - Development should be to a rapid, open or agile methodology that allows for iterative development in consultation or in parallel with the target community. Appropriate bidders are encouraged to liaise with OSS Watch[101], who can provide advice in this area. Bidders are also encouraged to engage with the JISC funded DevCSI project based at UKOLN and the developer community it supports[102].
    - Project management should be lightweight but effective, using a method such as SCRUM[103] to ensure the project is responsive to changes over its course;

14. Projects should **build on existing work**:

    - Funding will not be allocated to allow a simple continuation of an existing project or activity. The end deliverable must address a specific problem that is accepted by the community it is intended for, and produce deliverables within the duration of the project funding;
    - There should be no expectation that future funding will be available to these projects. The grants allocated under this call are allocated on a finite basis. Ideally, the end deliverables should be sustainable in their own right as a result of providing a useful solution into a community of practice, although it is recognised that the some project outputs may take the form of 'lessons learned' rather than sustainable deliverables;
    - Wherever possible projects should use existing software and tools to meet the project use case(s) and deliver the desired functionality, in order to add value and avoid duplication. Therefore, bidders proposing the development of new software and tools should show evidence of consideration of existing solutions, for example, by listing what services, software and tools have been considered and why they are not sufficient.

15. The **tag** for activity relating to this strand is "jiscrim". This tag will be used for the entire lifecycle of the rapid innovation projects. The purpose of the tag is to enable aggregation and analysis of discussion. Please use this tag when discussing the call or rapid innovation projects using any site that supports tagging (e.g. Twitter, delicious, Flickr, blogs etc). We also encourage the creation and use of tags for individual rapid innovation projects, these can be created during proposal writing if this would be useful.

16. There are a number of commercial suppliers and products which will be relevant to this work and could be involved as partners in any project. Examples include commercial publishers, who act as sources of information (e.g. funder attribution) which will be of value to Institutions and funders, and/or CRIS vendors and developers who will be working with a significant proportion of the information covered in this call already and will have experience of exporting such data.

17. Given the complexity of the information and links between it, the project will be required to use CERIF as a means of structuring, combining and sharing data and recording the heterogeneous relationships that characterise the research environment. Projects will be encouraged to capitalise on CERIF expertise from, for instance, euroCRIS[104], other JISC

[101] http://www.oss-watch.ac.uk/
[102] http://devcsi.ukoln.ac.uk/
[103] http://en.wikipedia.org/wiki/Scrum_(development)
[104] http://www.eurocris.org

RIM projects and the CERIF Support Project at UKOLN[105] and to use standardised vocabularies and definitions to ensure that the information is expressed consistently. This will help to provide sufficient flexibility to export data in a variety of formats as appropriate to specific needs.

18. Projects should set aside at least five days for project staff to participate in community-building activities, over and above participation in programme-related activities as specified elsewhere in this document.

Outputs

19. Because of the nature of these projects, **the primary reporting mechanism will be blog posts.** Therefore, the project **outputs** should include:

    - Project blog, with updates expected every month over the duration of the project. Minimum blog posts required:
        - Project plan (a lightweight project plan, which details what is to be done, will be required within two weeks of receipt of the project grant letter)
        - Use case documentation
        - Project in a nutshell post: 140char description, paragraph description, image
        - At least 2 interim updates
        - Lessons learnt post
        - List of outputs
        - Descriptive post per output
        - Reflections
        - 2 minute video describing your output
        - Final post summarising the project outcomes
    - The outputs (solutions) themselves

    Projects will need to acknowledge and report on organisational issues such as how their solution fits with/impacts on workflows, data management, roles and responsibilities. All outputs should comply with JISC's IPR policy in terms of open access and open licensing (see terms and conditions below). Bidders should be aware of those requirements before they start.

20. In order to maximise **access to deliverables**, bidders should adhere to the following criteria:

    - Projects should consider the different access restrictions on different data/resources to be used within the project.
    - Without formal service level agreements, dependency on third party systems can limit the shelf life of deliverables. For these types of projects, long term sustainability although always desirable, is not an expected outcome. However making the project deliverables available for at least one year after the end of the project is essential so opportunities are realised and lessons can be learned.

21. Project teams will be expected to contribute to a joint dissemination event (or events) for all the projects in this strand in order to showcase the solutions developed.

Partnerships

[105] Postholder currently being recruited: http://www.bath.ac.uk/jobs/Vacancy.aspx?ref=BB887

22. Partnership and consortia working will need to be managed according to the scale of work, timescales and resource. Partnership working with other members of the higher education community is, however, welcome.
23. The successful bidders are encouraged to work with experts and outputs from past and present RIM projects to ensure that practical, technical and cultural lessons learned are shared.
24. Proposals that seek to demonstrate successful interactions with and between commercial systems are encouraged.
25. Bidders seeking to build on or create communities of practice are particularly advised to liaise with OSS Watch during the preparation of their bid (See paragraph 25 under the heading 'Technological Approaches to be Employed' of the main section of this circular for details of OSS Watch support for bid writers.).

Further information on requirements and how they might be interpreted by markers

26. Proposals will be evaluated with reference to the evaluation criteria noted below, specifically how they meet the terms of reference above, and how they engage with the initiatives mentioned in this section of the call.
27. Examples of the type of solution that would fit the spirit of this call include:
    - Implementing RMAS connectors
    - Developing CERIF wrappers for existing systems
    - Working with CERIF Import or Export (e.g. from a commercial supplier to an in-house system)
    - Implementing the outputs from the IRIOS-2[106] and CiA[107] projects
    - Exchanging research information with research funders who have not been involved in previous JISC projects
    - Extending existing tools to include additional research outputs (e.g. datasets or non-publication outputs)
    - Tools to improve internal reporting/analysis of research information. This could be related to current reporting requirements or could enable new exploitation of existing information.
28. Solutions that involve improving linkages between Institutional repositories and other research systems are strongly encouraged to implement the recommendations of the RIO Extension project[108] with regard to funder attribution data.

Funding available

29. A total of £240,000 is available for this work. Up to eight projects will be funded under this call. Maximum funding for any one project will be £30,000.

Length of projects and start and end dates

30. The projects should start in June 2012 and should finish and finalise deliverables by 30th November 2012.

[106] http://irios2.wordpress.com/
[107] http://cerifinaction.wordpress.com/
[108] RIO Extension project:
http://www.jisc.ac.uk/whatwedo/programmes/di_researchmanagement/repositories/rioextension.aspx

Further information

31. Any enquiries about this section of the call should be directed to Josh Brown, the JISC Programme Manager responsible for this area of activity (j.brown@jisc.ac.uk, 07875 120019).

Appendix D: Library Systems (Information and Library Infrastructure) – General overview

Background and Rationale

1. Since 2007 and the publication of the JISC and SCONUL Library Management Systems (LMS) Landscape study[109] and its core message of investing cautiously and carefully, the library systems environment has changed rapidly and user expectations grow as they assume the same kind of technological engagement they experience in their everyday lives.
2. Following the LMS landscape study, JISC funded and managed a programme of work exploring the potential of current LMS systems and helping to address some of the concerns around the functionality and suitability of current systems[110]. The projects making up the programme explored a broad horizon including usability, electronic resource management, open systems and the library in the web. It was clear from the work of the projects involved that a lot could be achieved through relatively small amounts of investment, the right local skills and an understanding of user requirements. However such was the timing of the programme much of the work remained wedded to the proprietary systems of the institution involved.
3. It was also clear from the programme that the requirement for institutional systems to interoperate and share data is becoming a critical factor in an institutions ability to deliver efficient and improved services to its students and researchers. A significant amount of work has already taken place across JISC programmes to explore the potential of data across the institution including: library system widgets[111], reading lists[112], recommenders[113], activity data[114], and library/VLE integration[115]: Such a body of evidence and work demands to be taken seriously in a new vision and approach to library systems infrastructure.
4. The final LMS programme report concluded, in contrast to the LMS landscape report three years earlier, that now was the time for change. Indeed, it was clear that 'doing nothing is no longer an option' and the pressures from both internal and external drivers make this a moment when transformational change could be affected.
5. This call also comes at a time when JISC and organisations such as RLUK[116] and SCONUL[117] are collaborating around innovative new approaches to the way libraries manage and provide content and services to their users. Similar directions of travel are also underway outside of the UK.
6. By helping to ensure researchers and students can access resources seamlessly, without concern for location or format the Discovery[118] programme is building a new type of resource discovery infrastructure. Similarly, the Knowledge Base+ project[119] , that is the result of a JISC programme and a HEFCE/SCONUL feasibility study, radically reduces the duplication of effort for libraries in managing their e-resources. This shared

[109] http://www.jisc.ac.uk/publications/briefingpapers/2008/librarymanagementbp.aspx
[110] http://www.jisc.ac.uk/whatwedo/programmes/inf11/jisclms.aspx
[111] Library management Systems projects:
http://www.jisc.ac.uk/whatwedo/programmes/inf11/jisclms.aspx
[112] http://blogs.kent.ac.uk/list8d/
[113] http://www.jisc.ac.uk/whatwedo/programmes/inf11/activitydata/rise.aspx
[114] http://www.jisc.ac.uk/whatwedo/programmes/inf11/activitydata.aspx
[115] http://library.ulster.ac.uk/4i/
[116] http://www.rluk.ac.uk/
[117] http://www.sconul.ac.uk/
[118] http://discovery.ac.uk/
[119] http://www.jisc-collections.ac.uk/KnowledgeBasePlus/

community service provides an open approach to the removal of barriers and resolution of the historic failures of electronic resource management (ERM).

7. These projects form the centre of JISC's data-driven information and library infrastructure strategy[120] that encompasses the preservation and curation of digital resources, the administration and analysis of e-resources and the discoverability of content across academia. Such an approach benefits libraries and information provision by:

   - providing a more sustainable and feasible approach to system interoperability: data can be repurposed for different systems (a particular advantage when data is likely to outlive the systems it inhabits);
   - enabling a more vibrant and lively information ecosystem: new and innovative third party applications and tools can be built on top of the data;
   - reducing duplication of effort: shared and community services will help create enriched and better quality metadata, as well as management information.

8. Such developments, as well as those in the wider information environment from commercial organisations such as Amazon, Google and Apple, are having an impact on the requirements and 'footprint' of the traditional library management system (LMS) as well as other systems within the library. What was once business critical functionality is increasingly being de-coupled from the LMS and either declining in importance or finding a home in other library (or wider institutional) systems, or may be more appropriately shared across institutions.

9. It is commonplace that management of areas such as finance, e-resources, open educational resources (OER), research outputs, and institutional social media content and digital content in general fall outside the LMS. In many cases management and delivery of such services and resources fall outside the functionality of library systems altogether, increasingly throwing into question the current scope and functionality of core systems such as the LMS. Questions about the scope of the LMS are therefore raised since these resources are critical to library provision.

10. The role of library systems and the LMS in particular, is increasingly becoming the 'squeezed middle' between the innovations that are currently taking place in the management of e-resources and discovery. A recent workshop, hosted by JISC and SCONUL, saw delegates discussing the future of library systems. In particular the workshop helped develop a list of core 'objectives'[121] that would help focus and prioritise the development of library systems in the future.

11. In light of these developments, this programme of work is an attempt to develop a practical vision for a future library systems infrastructure to support institutions in their continuing mission to provide users with access to a range of services and content that supports their teaching, learning and research. Libraries will be able to plan strategically for new systems developments and ensure they're able to continue delivering the mission critical services that form the heart of the twenty-first century academy. At the same time JISC (as well as vendors) will be equipped with a visionary 'roadmap' for how they can support UK colleges and universities in developing world-class systems to meet the needs and expectations of its users.

12. The JISC therefore seeks proposals to investigate what the future potential of library systems is. How can library systems ensure they are able to serve the needs of next-generation library services and users, as well as being both effective and efficient in meeting reduced budgets and rising user expectations?

[120] http://www.jisc.ac.uk/whatwedo/programmes/di_informationandlibraries.aspx
[121] http://bit.ly/zW9dep

Appendix D1: Library Systems (Information and Library Infrastructure) - Synthesis and Scoping project

Overarching aim of this programme area

13. The aim of this work is to provide a new vision for the future of library systems and a 'roadmap' for the delivery of that vision.

Scope

14. JISC invites a single project to explore the potential for new approaches to library systems infrastructure. The term 'library systems' is used throughout this call: It should be noted that this invites considerations beyond the traditional library management system (LMS) to include other business critical systems within the library. This broadening beyond the LMS is to ensure that future conceptions of library systems are able to move beyond the current gravitational pull of the LMS.
15. It should also be noted that it is acceptable for the final recommendations of the project to include more than one potential system, or approach. For example, it is possible that both a shared library management systems infrastructure is proposed and scoped, along with a new approach to the management of digital content across the campus and the systems it relies upon.
16. Projects are expected to take account of recent library system and service innovations, highlighted in the background section above. Furthermore, proposals are expected to explore beyond the confines of the library and into the wider institutional environment. This may include other institutional systems such as virtual learning environments (VLEs), digital repositories, campus-based publishing developments[122], and the growing importance of research data management[123], as well as other critical administrative and teaching systems.
17. Beyond the specific institutional systems, it is critical that 'emerging' formats and content types are explored. The growing importance of open educational resources, e-books and e-textbooks are all crucial to an understanding of the future of library systems. Indeed, it might be argued that it is these disruptive innovations are the catalyst for ensuring library systems and infrastructure is able to address the changing needs and expectations of its users.
18. Proposals must be led by an institution complying with the eligibility criteria noted in the main body of the call document. Higher education institutions are encouraged to partner with individuals or organisations from other sectors that are able to bring complementary experience and skills to the project.
19. Proposals should keep in mind the likely audience for the final output of this work. It is expected that the primary audience will be the HE (and Further Education) library sector, specifically senior library managers and IT directors, in the UK as well as internationally. It will also be of interest to sector bodies and organisations such as SCONUL, RLUK, CILIP and JISC, as well as systems vendors.
20. It should be noted that while there is the intention that this work will form the basis for potential new library systems infrastructures in the future, there is no follow up programme of activity currently planned or resourced. Proposals should therefore acknowledge that this needs to be a contained and time limited piece of work, which will feed into future developments should funding become available or opportunities arise. It

[122] http://www.jisc.ac.uk/whatwedo/programmes/inf11/inf11scholcomm.aspx
[123] http://www.jisc.ac.uk/whatwedo/programmes/mrd.aspx

should aim to inform future deliberations and provide an evidence base for new directions.

Objectives

21. The overall objective of this work is to understand the potential for new models and approaches to library systems. In order to achieve this objective the project will:
    a. undertake a synthesis of previous reports, case studies and project outcomes from the library systems environment and evaluate the potential to build on existing communities, products and services to achieve the aim of the project;
    b. provide a baseline for the current programme and a description of the current library systems landscape;
    c. identify and prioritise relevant pathfinder projects (see Appendix D2 below) to evaluate the potential of the project to contribute to an understanding of the requirements for a future library systems infrastructure;
    d. explore and evaluate the options and necessary infrastructure for any proposed service(s) or approach;
    e. identify and define the scope and requirements for any proposed new library systems infrastructure.

Methods

22. Given the objectives of this work it is expected this project will proceed in a phased and structured way to take account of the past, present and future aspects of the work. The objectives for this work might be usefully grouped into three main phases (with indicative timescales) to assist in the methodological approach to this work:
    1. **Synthesis**: This includes the recommendations and case studies from previous reports and work as well as providing the baseline for this programme (2 months);
    2. **Landscape**: The landscape phase includes close engagement and liaison with relevant and prioritised 'pathfinder' projects, as well as an outline of the current 'state of the nation'. This will include liaison with other relevant initiatives and entities within the wider environment. (3 months);
    3. **Evaluation and scoping**: The final phase involves a feasibility analysis of the options that emerged from the landscape phase and the close collaboration with the path finder projects. This phase should also provide an initial scope for the proposed service(s) and system(s) infrastructure (1 month).

23. The above methodological approach also provides the pathfinder projects a period at the start of the programme to undertake a significant proportion of their work prior to engagement with this project. This is important to allow initial work to be undertaken to help inform the landscape/scoping work, while allowing sufficient space for the pathfinder projects to collaborate closely with this project.

24. Proposals should feel free to propose a new or slightly revised methodological approach to the work, although it will need to ensure it is able to address the overarching aim of this project and align with the timetable for the pathfinder projects.

Requirements

25. After the initial synthesis and base-lining phase of work, projects will be expected to work closely with the JISC programme manager to identify and prioritise engagement with the

pathfinder projects (see below). It is expected that the pathfinder projects will form a set of dynamic case studies that will help inform the project outputs and form of the final requirements and recommendations.

26. No formal methodology (over and above an appropriate project management approach) needs to be adopted but there should be a demonstrable focus on evaluation, engagement, and reporting in the project proposals.
27. While the successful project will be required to work closely with appropriate pathfinder projects, there should also be a strong willingness to engage the wider academic library sector. This might manifest itself through the provision of briefing days, workshops or potential training/skills development events. While the format is open for proposals to decide, it should be a key part of the engagement aspect of any successful proposal for this wider community commitment.
28. It is essential that proposals should be open to working in a collaborative and consultative way and should, as far as possible, be ambitious, visionary and entrepreneurial in their activity to maximise the impact, benefits and sustainability of the final library systems infrastructure recommendations.
29. The successful project should make a serious commitment to disseminating the work of this programme and its outputs to the wider library and institutional systems community. This may also involve presenting to sector bodies, such as SCONUL, to help inform their work and ensure alignment of work on shared library systems.
30. The successful project should also give thought to how the final report will be delivered. Given the audience for this work and the likely levels of engagement it will be important to have a well presented and engaging report as the final output. The final presentation of the output should be as engaging and dynamic as possible, this might, for example, require a more innovative approach such as web based presentation. The exact format of the output will need to be agreed with the JISC programme manager once the project is underway, however bids should demonstrate their view of how this will be achieved.

Outputs

31. While the outputs for this project are broken down in the following list, it is important that the project recognises the main output from this work will be a **single output** made up from three sub-sections:

    a. synthesis and benchmarking

    b. landscape study

    c. evaluation, requirements and scoping study

    In addition the project will also deliver:

    d. an initial project workplan and regular updates

    e. After the initial synthesis work the project should have a web presence to effectively support the work (e.g, a website, a blog, a Twitter account, etc.).

    f. Complete an online completion survey

32. The project should ensure that the programme manager has access to each project output (a, b and c) as they are completed to ensure sign off and progression to the next stage.

Partnerships

33. Partnerships are welcomed as part of this call. It is anticipated that an institutional perspective will be necessary to provide local context but that partnerships with others to bring complementary views and skills to the work may be necessary.
34. Bidders must make reasonable allowances for managing partnerships in the short timescales available.

Further information on requirements and how they might be interpreted by markers

35. The types of issues that markers will pay attention to and might consider beneficial within proposals include:
    - A tangible enthusiasm and commitment to engage with the 'pathfinder' projects of this programme (see Appendix D2 below);
    - A proposal that understands the key stakeholders and work within this systems environment, and the implications and impact on existing library services and workflows;
    - A proposal that can demonstrate solid institutional support and that have a sufficient mixture of expertise and outlooks to undertake this expansive and transformative work;

Funding available

36. A total of £85,000 is available for a single project to undertake this work.

Length of projects and start and end dates

37. The project should start in June 2012 and should finish and finalise deliverables by December 31st 2012.

Further information

38. Any enquiries about this section of the call should be directed to Ben Showers, the Programme Manager responsible for this area of activity (b.showers@jisc.ac.uk, 07891 470735)

Appendix D2: Library Systems (Information and Library Infrastructure) - Pathfinder projects

Overarching aim of this programme area

39. The aim of this work is to contribute to a new vision for library systems and provide concrete, practical examples of work that might help contribute to the creation and implementation of that vision.

Scope

40. JISC invites pathfinder projects to explore the potential role and functionality of local library systems and innovative approaches to library systems infrastructure both locally and 'above campus'.
41. Within this call 'pathfinder' should be understood to refer to projects focused on activities to explore innovative and forward-looking approaches to the requirements and functionality required for managing resources in a twenty-first century context. Pathfinder projects should also be understood in the context of the overarching synthesis and scoping project (see Appendix D1, above), and its role to synthesise and evaluate relevant projects from this investigative strand of work.
42. The term 'library systems' is used throughout this call: It should be noted that this invites considerations beyond the traditional library management system (LMS) to include other business critical systems within the library. This broadening beyond the LMS is to ensure that future conceptions of library systems are able to move beyond the current gravitational pull of the LMS.
43. It is expected that successful projects within this strand will be exploring a wide variety of areas within the library systems environment, however it will be impossible to fund every opportunity available. Therefore, JISC funding will be prioritised for those projects that are able to demonstrate the following:
    - A clear understanding of the wider library systems landscape. In particular projects are encouraged to engage with work that JISC, with partners including SCONUL and RLUK, has undertaken around Discovery and Knowledge Base+.
    - Are able to demonstrate engagement with one or more of the priority 'objectives' identified as part of the JISC/SCOUL Future of Library Systems workshop (see here for a full list: http://bit.ly/zW9dep).
    - Are able to demonstrate the value to both their own institution and to the wider library community.
44. Proposals must be led by an institution complying with the eligibility criteria noted in the main body of the call document. Proposals are welcomed from any eligible individual, organisation, group or consortia and partnership working is encouraged where it delivers benefit to the project.
45. It should be noted that while there is the intention that this work will form the basis for potential new library systems infrastructures in the future, there is no follow-up programme of activity currently planned or resourced. Proposals should therefore acknowledge that this needs to be a contained and time limited piece of work, which will feed into future developments should funding become available or opportunities arise. It should aim to inform future deliberations and provide an evidence base for new directions.

Objectives

46. The overall objective of this work is to investigate a broad range of potential new models and approaches to library systems and services. In order to achieve this objective the projects in this strand will:
    a. provide outputs that are progressive in their approach; exploring new opportunities, testing new approaches, or implementing new technologies.
    b. document the practices undertaken and knowledge obtained through the project;
    c. evaluate the success (or otherwise) of the project and to formulate recommendations, advice and guidance to the community about interventions that may or may not contribute to enhanced or improved library systems and/or services;
    d. where appropriate, collaborate closely with the synthesis project in strand A to help define the future opportunities with the library systems environment.

Methods

47. It is expected that the projects making up this strand of the programme will investigate a broad spectrum of library systems and opportunities. While it is important that there is a diverse range of projects within this strand, it is important that projects are able to demonstrate the ability to meet the overall aim of this strand.
48. The future library system objectives[124] should be seen as an opportunity for projects to articulate how their work will help address, explore or scope a particular area highlighted in this list. This will also function as a form of hypothesis for the expected results from the work and how it will help address these core objectives. These objectives were chosen for their transformative potential, as well as a focus on being able to deliver mission critical functionality for institutions and users.
49. JISC invites projects to undertake work under one of the following broad themes:

    1. *Shared library systems*

       Projects under this theme will explore the feasibility, requirements and scope of any potential shared library system. It is likely projects under this theme will undertake case studies exploring the relationships and functionality that would remain locally, and that which could be moved above campus or higher (nationally). Projects may also be funded to extend existing shared systems where this will help enhance or build on existing shared systems work.

    2. *Emerging tools and technologies*

       Projects under this theme are invited to explore the potential and application of new tools and technologies within the library systems environment. Specifically this might refer to developments around bibliographic data and the range of new and emerging tools available to utilise library data for new services and innovations[125]. These tools and techniques may also enable exploitation of datasets in the wider ecosystem, for example: Reading lists, reference management data (such as Mendeley and Zotero), descriptions of OERs and VLE assets.

    3. *Emerging library systems opportunities*

[124] http://bit.ly/zW9dep
[125] A useful guide to these bibliographic tools can be found through the Discovery project at: http://discovery.ac.uk/files/pdf/projectsPDF/discovery_lessons_technologies.pdf

Projects under this theme will explore new and emerging opportunities for exploiting the potential of library systems. This may be via interoperability, exploiting data, or more radical approaches such as 'dismantling' the LMS. Projects may also wish to undertake explorations around the current 'footprint' of the LMS. Projects may choose to explore data beyond the library walls and the potential that useable and accessible institutional data gives to innovators and developers across the campus. Projects should familiarise themselves with some of the work undertaken across JISC programmes that explore this area (see the background section above)

50. Projects may select any approach which is demonstrably appropriate for the work being carried out. The following are some suggested methodological approaches that might be undertaken within this strand, although these should be seen as indicative, not exhaustive:
    a. Case studies and feasibility studies (in particular exploring systems options and business models/case studies
    b. Use case[126] (this may be used to explore real-life workflows and processes)
    c. Development of prototypes and demonstrators (prototypes should be open and re-usable by others, and supported by the institution for a minimum of two years)

Requirements

51. Projects must be willing to engage with the synthesis and scoping project after approx. 2-3 months from project initiation. It is expected that pathfinder projects will be in a position to have initial findings to enable engagement and evaluation by the synthesis project.
52. While projects should recognise the need to be self-contained and tightly scoped due to the financial limitations and timescales involved, projects should be able to demonstrate how they help contribute towards the future of library systems. In particular projects should see themselves as a stepping stone toward a different future for library systems. While the project may be time limited and contained, the opportunities and potential vision for a future library system should not.
53. Projects should also consider the core use-case(s) for the work they are undertaking as well as how these use cases impact upon wider strategic aims such as student satisfaction or the researcher experience.
54. It is expected that significant benefits will accrue to the institutions participating in this work, so it will be important that proposals are able to demonstrate the wider benefits to the community. Lessons learnt and outputs from the projects should be disseminated as widely as possible; the dissemination plans of proposals will therefore be of key importance.
55. Given the limited timescales and funding for these projects, it is not expected that projects will be recruiting externally for project roles. It is expected that an agile and iterative methodology will be adopted by projects to ensure successful completion of the work.

Outputs

56. Projects will be expected to produce:
    a. A project plan
    b. Some form of web presence to effectively support the project (e.g, a website, a blog, a Twitter account, etc.)

[126] http://en.wikipedia.org/wiki/Use_case

c. An interim progress report (format to be agreed in consultation with the programme manager)
d. A final report to include the final 'product' developed (this may be a case study, technical prototype etc.).
e. A completion report

57. Projects will also be expected to engage in programme-level events such as programme meetings, workshops or similar events.

Partnerships

58. Partnerships are welcomed as part of this call. Bidders must make reasonable allowances for managing partnerships in the short timescales available.
59. Partnerships with organisations from outside the higher education sector are welcomed but the benefits to higher and further education of such partnerships must be clear.

Further information on requirements and how they might be interpreted by markers

60. Proposals should set out a clear timetable and activity plan for the phasing of this project, in particular the engagement with the synthesis and scoping project (see above).
61. No formal methodology (over and above an appropriate project management approach) needs to be adopted but there should be a demonstrable focus on evaluation, engagement, and reporting in the project proposals.
62. Projects should also be able to demonstrate solid institutional support and demonstrate the wider potential for the work beyond the significant potential benefits that will accrue to participating organisations.
63. The pathfinder projects should be willing and enthusiastic about working with the synthesis and scoping project. It is the function of this overarching project to realise any potential wider impact in the pathfinder projects. Projects under this strand may, therefore, end up working closely with the synthesis and scoping project, and potentially other relevant and complementary projects in this strand.

Funding available

64. A total of £250,000 is available for this work. Proposals are invited to bid for between £20,000 – £40,000 per project and up to 10 projects will be funded.

Length of projects and start and end dates

65. Projects should start in June 2012. Projects are free to propose appropriate timescales commensurate with the type of work they plan to undertake the funding amount requested. However, all projects should be finished by 31st December, 2012.

Further information

66. Any enquiries about this section of the call should be directed to Ben Showers, the Programme Manager responsible for this area of activity (b.showers@jisc.ac.uk, 07891 470735)

Appendix E: Access and Identity Management – General overview

Summary

1. The main purposes of the Access & Identity Management Programme[127] (AIM) are to build upon the UK Access Management Federation[128] to develop the technologies and strategies for future developments particularly in the areas of identity management and user centric systems, and to improve the practices, policies and technologies surrounding Access and Identity Management within institutions so that they can meet their moral and legal obligations, increase organisational efficiency and flexibility, and improve user experience. The programme started in 2009 after previous programmes, in this area, had focused primarily on the technologies used to provide good access and identity management. It shifted the focus from mainly technological solutions towards exploring the issues around policy and process..

2. The programme has the following objectives:

    a. Continue the evolution of the UK HE Access and Identity Management structures, which began with a centralised system with ATHENS, within an international context; this consists of embedding the current institution centric approaches whilst investigating user centric approaches.
    b. To raise the profile of Identity Management within FHE, highlighting the importance in having the correct processes and policies in place and how these lead to improvements in efficiencies and effectiveness and reduced costs.
    c. To show how to incorporate rapid technological changes in Access & Identity Management and how these might potentially impact on HE and the UK federation.

3. This will involve continuing the evolution of the UK HE Access and Identity Management structures, within an international context. It will also involve identifying and addressing particular use cases in UK further and higher education, for researchers, teachers, learners, librarians, managers and support staff, where these use cases clearly affect institutions' effectiveness and efficiency.

4. Previous work within the programme has looked at embedding institution-centric approaches based on standards and technologies such as SAML and Shibboleth whilst investigating user-centric approaches. As more user-centric approaches become more established the programme will look at how these can be embedded within institutions and what the benefits are of doing so.

5. This appendix contains the three strands that make up this call and are part of continuing work for the AIM Programme. These three strands are as follows:

    Strand A – Future Directions
    Strand B – Raptor Evaluation
    Strand C – Identity Management Toolkit Case Studies

6. Details of each strand follow this general introduction and background to the programme. Although the conditions and requirements for each of the above are in each strand's

[127] http://www.jisc.ac.uk/whatwedo/programmes/aim
[128] http://www.ukfederation.org.uk/

section, it is important that potential bidders consider the generic information in the following section.

Background and rationale

7. The JISC funded AIM Programme ran from 1 January 2009 to 31 March 2011 with further funding made available for certain AIM projects to continue beyond this date. JISC continues to be committed to resolving the many issues within AIM and has recently funded a further four projects as part of the recent AIM strand within the larger 16/11 Digital Infrastructure call[129].

8. The AIM programme funded the Identity Management Toolkit[130], details of which can be found in Strand E3 – Identity Management Toolkit Case Study, and a number of development projects between 1 January 2010 and 31 March 2011:

Proxy Credential Auditing Infrastructure for the UK e-Science National Grid Service	http://www.jisc.ac.uk/whatwedo/programmes/aim/pcai.aspx
eCert	http://www.jisc.ac.uk/whatwedo/programmes/aim/ecert.aspx
GRAND	http://www.jisc.ac.uk/whatwedo/programmes/aim/grand.aspx
Identity & access management using social networking technologies	http://www.jisc.ac.uk/whatwedo/programmes/aim/aimsocialnetworking.aspx
Logins4Life	http://www.jisc.ac.uk/whatwedo/programmes/aim/logins4life.aspx
RAPTOR	http://www.jisc.ac.uk/whatwedo/programmes/aim/raptor.aspx
SMART	http://www.jisc.ac.uk/whatwedo/programmes/aim/smart.aspx
SOFA	http://www.jisc.ac.uk/whatwedo/programmes/aim/sofa.aspx
WSTIERIA	http://www.jisc.ac.uk/whatwedo/programmes/aim/wstieria.aspx

9. Of these projects, SMART (http://smartjisc.wordpress.com/) and Raptor (http://iam.cf.ac.uk/trac/RAPTOR) received follow-on funding, particularly to standardise their work so that they could be used by other institutions and groups looking for a User Managed Access solution or usage statistics tool, respectively. Raptor also aimed to establish a small community of users. This follow-on funding extended SMART to 31/08/2011 and Raptor to 30/11/2011. Further details on the Raptor project are in Strand B – Raptor Evaluation. The award winning SMART project (http://smartjisc.wordpress.com/) which developed an online data access management system based on the User Managed Access (UMA) Web protocol building on OAuth, received follow-on funding to enhance code libraries and standardise some of their work via the UMA Working Group (part of the Kantara Initiative[131]). As part of the 16/11 Digital Infrastructure call JISC is now funding the SMART Deployment projectwhich will make the software more usable by extending it with federated identity management functionality, thus allowing flexible and fine-grained data sharing between organisations. This will also embed the software within an academic institution and integrate it with the

[129] http://www.jisc.ac.uk/fundingopportunities/funding_calls/2011/10/grantcall1611.aspx
[130] http://www.identity-project.org
[131] http://kantarainitiative.org/

UK federation to provide the community within the UK with better generic tools to share data across organisational boundaries.

10. The AIM Programme strand within the recent 16/11 Digital Infrastructure Call[132] looked to fund projects that could embed AIM related outputs and help to build communities using these tools, or tools/outputs from non-JISC funded work. The following four projects have recently been funded under this call and run from 1 February to 31 July 2012:

CONSENT (Communities on NGS via SARONGS ENabled Trust)	University of Manchester
RAPID (Raptor Informing Decisions)	Newcastle University
Supporting Institutional Access to External Services	University of Bristol
SMART Deployment: Student-Managed Access to Online Resources Deployment	Newcastle University

11. The AIM Programme also includes the funding of the Shibboleth Consortium[133] through EDINA. Support of Shibboleth moved from Internet2 to the Shibboleth Consortium (jointly funded by Internet2[134], JISC and SWITCH[135]), which JISC has supported financially from 2010 to 2012. This is a transition stage as the Consortium moves to a possible Foundation model and becomes sustainable through membership funding and sponsorship.

[132] http://www.jisc.ac.uk/fundingopportunities/funding_calls/2011/10/grantcall1611.aspx
[133] https://wiki.shibboleth.net/confluence/display/consort/Shibboleth+Consortium
[134] http://www.internet2.edu/
[135] http://www.switch.ch/

Appendix E1: Access and Identity Management – Future Directions

Background and rationale

12. The recent 16/11 Digital Infrastructure Call[136] looked to fund projects that could embed AIM related outputs and help to build communities using these tools. The current call will help determine the future directions of AIM. Community feedback has identified key areas that require development. These areas specifically include the following which are described in more detail below::

    a. User centricity
    b. Cloud Computing
    c. Persistence of identity
    d. Identity and identifiers
    e. Delegation
    f. Inter-federation
    g. Bridging between technologies.

User Centricity

13. With the ever growing use of web and social networking tools there has been a move away from institutionally controlled identity towards a more user-centric control. This area has already been investigated within the AIM programme but the technologies are continually developing. JISC remains engaged both within Europe and globally to understand how these technologies impact the FHE sector within the UK, particularly the UK federation. Examples of such approaches include OAuth (http://oauth.net/), "an open protocol to allow secure API authorisation in a simple and standard method from desktop and web applications". This technology has been used by various applications for some time. Twitter, Tripit, Google Apps are just a few examples of successful implementations. How is OAuth being used within institutions? Are there successful implementations of OAuth helping to provide access to collaborative environments? The use of OAuth has the potential to impact across various Digital Infrastructure Programmes in JISC. Managing Research Data, Repositories, VREs, Research Tools, Cloud for example. JISC welcomes bids that show the potential for OAuth within and across institutions. JISC is particularly interested in seeing innovative and new uses for OAuth. Bids should show how this technology brings benefits to the community and can help address institutional requirements within research, teaching and learning, work based learning, administration and Business Community Engagement.

Cloud Computing

14. JISC has been investigating the implications of Cloud Computing in the areas of research and the impacts and implications for enterprise computing within institutions. JISC has already funded three studies in this area[137]. The £12.5 million Shared Services and the Cloud Programme[138] are part of a suite of activities under the University Modernisation Fund (UMF), a HEFCE fund that aims to help universities and colleges deliver better efficiency and value for money through the development of shared services. Whilst the security aspects of Cloud Computing are included in the UMF programme, there are other related Access and Identity Management issues that require investigation. For example, how can the different Levels of Assurance, depending on how a user has logged in to their institution, be applied when accessing Cloud resources? How can users

[136] http://www.jisc.ac.uk/fundingopportunities/funding_calls/2011/10/grantcall1611.aspx
[137] http://www.jisc.ac.uk/whatwedo/topics/networkinfrastructure/cloudcomputing.aspx
[138] http://www.jisc.ac.uk/whatwedo/programmes/umf.aspx

be assured that security and privacy issues are being dealt with effectively when they are using Cloud solutions for storing and processing their data? How can we ensure that users can access Cloud services using single sign-on? JISC has been following with interest the work of SURFnet[139] in building a new collaboration infrastructure, SURFconext[140]. Is this a potential solution for UK FHE to create a collaboration infrastructure, providing access to Cloud services? There are also emerging standardisation activities about identity on cloud services[141].

Persistence of Identity

15. Academics and students, like the majority of internet users, have a multitude of unique identifiers. These may be assigned by our institution/organisation as well as from the many services and social networks available, for example Google, Facebook, OpenIDs, etc. (The My Private Cloud project[142] at the University of Kent developed a private cloud which allowed access using identities from these providers). Many of these can be used to access other services but there are still barriers to using social IDs within scholarly research[143]. These include persistence, privacy concerns and the authority of any information associated with the identity. In addition, many academics perform different roles within their institution (teaching, research, administration and work-based learning) as part of their job. JISC is interested in bids that explore these issues from both user and institutional perspectives.

Identity and Identifiers

16. As well has having many online identities, or personas, academics and students researchers can also have an ambiguity problem with the names used in scholarly communications. This is exacerbated when it comes to linking their identities to these identifiers. The problem may derive from researchers using different forms of their name or many researchers having the same name. ORCID[144] (Open Researcher and Contributor ID) is one author scheme that attempts to solve the author/contributor problem by “creating a central registry of unique identifiers for individual researchers and an open and transparent linking mechanism between ORCID and other current author ID schemes”. With many of these solutions, policies and processes are felt to be more difficult to deal with than the lesser technical challenges. ORCID is one solution that has sought to solve the problem with scholarly identifiers, but what are the issues that need resolving for researchers to adopt ORCID and what are the barriers to this solution? Despite being open source and available to all researchers there are a number of issues, for example the actual cost and who pays, integration with other scholarly identification systems, ownership of the data and what happens to the data if ORCID ceases to exist. Any potential bidders interested in working with ORCID should link with the UK Researcher ID Task and Finish Group[145] and refer to Neil Jacobs (n.jacobs@jisc.ac.uk) or Josh Brown (j.brown@jisc.ac.uk) for further information.

Delegation

17. The current UK federation model allows for a user to access resources by being identified through the federation. In numerous applications it is sometimes necessary to "become" someone else in order to take advantage of some privilege they have. This delegation of identity and privileges allows one system to use that identity to gain access to information on another system. This requires the second system to “know” who the user is and determine what they should have access to. This other person has been given rights to

139 http://www.surfnet.nl/en/Pages/default.aspx
140 http://www.surfnet.nl/en/Thema/coin/Pages/default.aspx
141 See http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=id-cloud for example
142 http://cloudresearch.jiscinvolve.org/wp/category/projects/my-private-cloud/
143 http://irisc-workshop.org/wp-content/uploads/2011/11/IRISC2011-workshop-full-report.pdf
144 http://orcid.org/
145 http://technicalfoundations.ukoln.info/blog/researcher-id-task-and-finish-group

act on behalf of the person the system was expecting and it will require this other person to carry some credentials. The person being delegated may have to prove their own identity and also show some evidence of being delegated authority on behalf of someone else. An example of delegation would be when a Principal Investigator provides their researcher access to resources on their behalf. This is essentially a risk decision as the level of signoff is dependent upon the level of risk incurred. The AIM funded GRAND[146] project worked on enhancing Newcastle University's Identity Management infrastructure by providing a group management service that would enable greater delegation of control to non IT staff. This project made particular use of Internet2's Grouper (Groups Management Toolkit)[147]. JISC is interested in projects that further explore the delegation of access controls within institutions.

Interfederation

18. Inter-federation involves the joining of multiple access management federations and provides access to services available in other federations, such as e-resources. It expands the circle of trust of a federation and is an efficient way to collaborate with members from other federations. Inter-federation agreements are often between two federations, for example UK federation and Edugate[148]. The GÉANT project eduGAIN[149] is attempting to interconnect federations together internationally. The eduGAIN service is intended to enable the trustworthy exchange of information related to identity, authentication and authorisation between the GÉANT (GN3) Partners' federations. eduGAIN is intended to simplify the movement of people and data between federations, providing all the resources researchers need. This service and other inter-federation agreements have the potential to offer researchers great benefits, when using their institutional credentials, to access other federation services' and allow for more secure collaboration between federations. Projects that are interested in exploring these benefits and issues should be aware of current inter-federation work and the work being undertaken by TERENA activities such as TF-EMC2[150] and REFEDS[151].

Bridging between Technologies

19. This call is also seeks projects that can enable bridging between technologies. What are the issues involved when embedding Access and Identity Management solutions into different platforms, for example adding UK federation functionality via single sign-on into a portal, Virtual Research Environment, etc? Also, with technologies such as Moonshot[152], OAuth, OpenID, and Facebook Connect – are there ways to bridge between these and the UK federation? Would a link between an Identity Provider and a Moonshot RADIUS server, via the UK federation, solve many of the issues researchers and scientists have with connecting their resources, particularly Grid and Cloud resources, with the UK federation? Project Moonshot is currently in a pilot phase, but this is due to complete by spring 2012. Moonshot has been developed to satisfy a demand from the e-science and e-research communities, "to develop a single unifying technology for extending the benefits of federated identity to a broad range of non-Web services, including Cloud infrastructures, High Performance Computing & Grid infrastructures and other commonly deployed services including mail, file store, remote access and instant messaging". However, it is not an alternative to Shibboleth. JISC welcomes projects that explore the connectivity between the two technologies, particularly those that benefit researchers.

[146] http://www.jisc.ac.uk/whatwedo/programmes/aim/grand.aspx
[147] http://www.internet2.edu/grouper/
[148] http://www.edugate.ie/ukfederation
[149] http://www.geant.net/service/edugain/pages/home.aspx
[150] http://www.terena.org/activities/tf-emc2/
[151] https://refeds.org/
[152] http://project-moonshot.org/

20. The above areas have been identified as requiring further investigation but should not be seen as a comprehensive list and bidders are encouraged to identify other areas which could also benefit from further development. Bids are welcomed that look at innovative technologies and issues within Access and Identity Management and how these can be addressed.

Scope

21. Proposals are invited which look at new and emerging technologies, solutions and trends in Access and Identity management. The following areas having been identified as requiring particular attention, however, this is not an exhaustive list and proposals are invited which show an innovative approach and use of access and identity management related technologies, particularly those that have an impact across domains and communities:
    a. User centricity
    b. Cloud Computing
    c. Persistence of identity
    d. Identity and identifiers
    e. Delegation
    f. Inter-federation
    g. Bridging between technologies

22. Projects should consider use cases including but not limited to research, teaching and learning, library and administration, business and community engagement and work-based learning. Projects which cover a number of areas or which bridge between the Access and Identity Management programme and other JISC programmes, such as Managing Research Data, Repositories, Virtual Research Environments, Research Tools, Research Information Management, Business and Community Engagement, e-Learning, etc. are particularly welcome. Projects interested in tackling issues in business community engagement may wish to consult the recent guide for institutions from the Extending Access Management to Business and Community Engagement (EAM2BCE[153]) project which identifies some of the common BCE challenges and potential solutions using tools such as the Internet2 developed Grouper[154]. It is important that projects seriously consider the sustainability of any outputs produced. JISC is not seeking projects which offer a purely technical solution and isolated to Access and Identity Management alone: projects should consider the institutional or infrastructure context and problem that they are trying to address.

23. One of the purposes of the Access and Identity Management programme is to identify requirements for, and potential enhancements to, the UK federation and fund projects that can be moved to services or enhancements within the UK federation. Another purpose is to raise the importance of related issues within institutions and to help assist in finding effective solutions.

24. Projects that are applying for funding under this strand should be aware of work being undertaken by organisations such as Internet2, TERENA and its working groups, for example, and have an international perspective, as well as previous outputs of the Access and Identity Management programme[155].

[153] http://www.jisc-collections.ac.uk/Our-projects/EAM2BCE/
[154] http://www.internet2.edu/grouper/
[155] http://www.jisc.ac.uk/whatwedo/programmes/aim.aspx)

Objectives

25. Proposals should consider how they contribute to the objectives of this strand which are to:

    a raise the profile and enhance understanding of the importance and benefits of Identity Management within FHE, highlighting the importance in having the correct processes and policies in place and how these lead to improvements in efficiencies and effectiveness and reduced costs

    b determine how to incorporate rapid technological changes in Access & Identity Management and how these might potentially impact on FHE and the UK federation.

    c build on work that comes out of previously funded projects (JISC and non-JISC funded). This could be done, for example, by enhancing tools that enable researchers (although not just restricted to this user group), to more easily use the UK federation to access wikis, VREs, etc.

    d. highlight Access and Identity Management issues within other JISC programmes. These issues could relate to data management, collaborative environments, business and community engagement, repositories, access to Cloud resources, etc.

    e. improve the usability of AIM related tools.

Methods

26. Whilst JISC does not propose any particular methodology, projects should adopt a methodology appropriate for a project of short duration.

27. Projects are expected to liaise with JISC and the wider community while engaging with a specific community relevant to the project.

Requirements

28. Projects should adopt a methodology that is relevant to projects with short timeframes.

29. Projects should implement a technological solution, framework or standard that has a benefit to a specific community, but the potential to benefit the wider community. Any tool may be enhanced to make it better fit with the requirements of its potential users.

30. It is the responsibility of any funded project to highlight their work within their institution, in particular the benefits of the work being undertaken. Raising the awareness of Identity and Access Management issues is a key requirement of this call. Bids should be backed by senior management at a departmental level and also have institutional backing for their work.

31. To move towards a sustainable model once JISC funding ends. This could involve working with the UK federation if developing a service, embedding within an institution, or for exploratory projects to consider how they might be embedded or built upon. Projects are required to look beyond the official end date of the project and to think about addressing issues of sustainability and take-up.

32. Collaboration with other institutions is not a prerequisite and any collaborative bids should clearly show the benefits of working together and provide evidence of support from each institution.

Outputs

33. Projects outputs are expected to include (but are not limited to) the following:

    a. Case studies of how the work undertaken has successfully impacted institutions and the community, met requirements and addressed known issues. These may take the form of reports published on the project's web page or as blog postings, for example.

    b. How the work has helped a particular group of users. Details of how the communities were engaged and the impact made to a specific community should be included in project documentation.

    c. A web presence and use of social media to highlight the benefits of the work undertaken and reach out to as wide an audience as possible.

    d. Documentation as stipulated in JISC's Project Management Guidelines (http://www.jisc.ac.uk/fundingopportunities/projectmanagement.aspx).

    e. Details of how the work will be continued beyond JISC funding of the project must be included.

Partnerships

34. Partnerships are encouraged but are not a requirement of this call.

Further information on requirements and how they might be interpreted by markers

35. Bids should clearly describe the following:
    a. The tool, standard, technology being developed.
    b. Identify the community that will benefit from this work and exactly how they will benefit.
    c. How the outputs will benefit the wider community.
    d. The benefit to the institution.
    e. How awareness of Access and Identity Management issues will be raised within the project's institution.
    f. Usability – review technical solutions and see how these can be improved for the users.
    g. How the project intends to progress beyond the end of the funding from JISC.

Funding available

36. A total of £250,000 is available for this work. Proposals are invited for between £20,000 and £50,000 per project and 5-10 projects will be funded.

Length of projects and start and end dates

37. Projects should start as soon as possible after 4 June 2012 and should finish and finalise deliverables by 31 May 2013.

Further information

38. Any enquiries about this section of the call should be directed to Christopher Brown (c.brown@jisc.ac.uk), who is based at the Central London JISC Office.

Appendix E2: Access & Identity Management (AIM) Programme – Raptor Evaluation

Background and rationale

39. In the current economic climate and decreasing funding, understanding the usage of e-resources is becoming increasingly important, as it allows an institution to make effective management decisions over resources they subscribe to - potentially resulting in real-world cost savings (see the Journal Usage Statistics Portal (JUSP)[156] for other JISC work on usage statistics). To quote from Raptor's Final Report[157], "Institutions that have a need for statistical usage information of their authentication systems can deploy Raptor to give them a single point of interaction for this information. This will then allow institutions to make better decisions based on value for money."

40. Raptor[158] is a free to use, open source software suite generally designed to enable accounting within event-based systems, and specifically aimed at accounting within systems that handle authentication events such as the Shibboleth IdP, OpenAthens LA, and EZproxy, which was developed as part of the JISC Access and Identity Management programme. It was originally developed for the IT services community as an easy to use tool for non-technical staff looking to analyse reports on e-resource usage statistics. A production ready version (v1.0) was released in December 2011, after a number of beta versions of the tool were released allowing the team to incorporate valuable feedback from the community on the installation and use of the tool.

41. The original aims and objectives of the Raptor project were as follows:

    a. To understand institutional accounting and reporting requirements around statistics of e-resource access via current common access management technologies (most notably Shibboleth) through a process of requirements gathering within the partner institutions, pilot institutions, and all interested parties.
    b. To engage with the national bodies such as the JISC and JANET(UK) in order to understand accounting and reporting requirements they face on a federation level, and how institutional-based reporting technologies could help meet these needs.
    c. To use these dual requirements to inform the functionality of a software toolkit called Raptor whose primary aim is to present statistical accounting information about e-resource usage within an institution via Shibboleth (and also potentially EZProxy) to non-technical users of that institution, and whose secondary aim is to make basic aggregated usage information available to suitably authorised external organisations (e.g. a federation operator).
    d. To implement the Raptor software toolkit through a process of a quickly developed initial release and subsequent regular updates during the lifetime of the project.
    e. To install the Raptor software toolkit at a group of around 8-10 pilot institutions, using their feedback regarding both bugs and desired features to inform the regular updates.
    f. To make the Raptor software toolkit available on a free-to-use, open source licensed basis for the UK academic community, and beyond, with full documentation and support structures.

[156] http://jusp.mimas.ac.uk/
[157] http://www.jisc.ac.uk/media/documents/programmes/aim/raptorfinalreport.pdf
[158] http://iam.cf.ac.uk/trac/RAPTOR

42. Of these aims and objectives, the project team felt that all were met, with only a few modifications and one exception:

    a. The exception is that the original plan to develop the software in an agile style and make use of pilot institutions for testing the software was changed with the agreement of the JISC and Raptor governance group; this was because the creation of a secure architecture was more of a prerequisite to building the software than originally envisaged, and because the creation of secure communication between client components came (arguably necessarily) late in the development process – and the project team did not want to release beta, insecure, versions of the software to pilot institutions that would be working with real live, personally identifiable, information.
    b. The minor modifications from the original plan were that the software's initial release would not just function with the Shibboleth v2 IdP and potentially EZproxy, but definitely function with the Shibboleth v2 IdP, the Shibboleth v1.3 IdP, EZproxy, and the OpenAthens LA product.
    c. Additionally, the software supports batch loading of historical log files from the supported systems in order to quickly build a repository of such information (hence the support for the Shibboleth v1.3 IdP).

43. Of the 08/09 projects, Raptor was one of two that received follow-on funding which allowed the opportunity to standardise the work, harden the code and worked closely with the SWITCH funded AMAAIS project, who were working on a similar tool. Raptor also aimed to establish a small community of users via its wiki and mailing lists

44. The recent 16/11 Digital Infrastructure Call[159] looked to fund projects that could embed AIM related outputs and help to build communities using these tools, or tools/outputs from non-JISC funded work. The RAPID (Raptor Informing Decisions) project at Newcastle University has been funded under this call and will run from 1 February to 31 July 2012.

45. This aims to provide rich, meaningful, management information from structured but unwieldy log data; this information will be used in resourcing decisions. Utilizing the Raptor tool a range of resources will be analysed. The project will create a set of use cases and reporting techniques aimed at producing useful demographical information. For example which types of students are accessing which resources, when and how? This information will inform resourcing of "on campus" resources as well as advising budgetary spend on e-resources. The project will feedback to the community relating to how to utilize Raptor along with institutional data to provide detailed, useful, statistics from logs and the uses that data provides. The project will also examine data protection concerns to ensure that reporting is appropriate and compliant with best practice. RAPID will provide benefit to the access and identity management community by establishing best practice for service usage monitoring.

46. As part of this activity, projects are invited to provide small case studies evaluating the installation and use of the Raptor toolkit within an institutional context to aid management decisions which can feed back into the future development of the Raptor toolkit.

47. The focus of this strand is the evaluation of the Raptor toolkit. It is important that prospective bidders have support from their institution in undertaking such an evaluation. As part of the evaluation bids should consider the following:

    a. Installation of the toolkit. Is it easy to install? Are there any issues?

[159] http://www.jisc.ac.uk/fundingopportunities/funding_calls/2011/10/grantcall1611.aspx

b. Ease of configuration.
c. Usability of the toolkit. Is it easy to use for non-technical staff?
d. The ability to analyse log files from different sources.
e. Usefulness of statistics and graphs produced.
f. Potential cost savings for institutions of using such a tool.
g. Recommendations for enhancements and other features.

48. The evaluation should be undertaken within an institution that is looking to analyse live data and provide valuable information, for the institution, on e-resource usage. Projects must write up their results as a case study. This should include feedback on the above areas for evaluation. JISC understands that some of the results might contain sensitive information that cannot be included in such a case study.

49. Successful projects are expected to liaise with the Raptor developers at Cardiff University and provide feedback on any issues or suggest possible enhancements to the Raptor development team.

50. As well as the usual reports expected from JISC funded projects and the feedback provided to the Raptor development team, successful projects are also expected to be involved in dissemination events. This will involve one workshop and will be organised by the Raptor team.

Objectives

51. A fundamental objective of the AIM programme is to raise the profile and enhance understanding of the importance and benefits of Identity Management within FHE, highlighting the importance in having the correct processes and policies in place and how these lead to improvements in efficiencies and effectiveness and reduced costs. The evaluation of the Raptor toolkit is seen as being part of this objective as it is an open source tool that offers improved statistics, which offers efficiency improvements and cost savings to institutions. To achieve this, the project would be expected to:

    a. provide valuable feedback to the Raptor development team helping to enhance the toolkit.

    b. share the institutional experience of using the Raptor Toolkit and raise the awareness of the Toolkit to the FHE community.

    c. work with JISC to contextualise the findings within the context of broader usage work, for example JUSP, and potentially with the UK federation operator by making basic aggregated usage information available.

Methods

52. JISC does not mandate any particular methodology, but a methodology appropriate for a project of short duration should be selected.

53. Projects are expected to liaise with JISC, the Raptor development team and the wider community while engaging with a specific community within your institution.

54. Projects must have a clear plan in place to implement Raptor, with appropriate time to evaluate it, and the appropriate support from their institution.

Requirements

55. The evaluation of the toolkit must be supported by the institution and the users who will be making use of the statistics generated by the toolkit.

56. Projects are expected to liaise with the Raptor development team during the lifetime of the project.

57. Projects must engage with the wider community and feeding back evaluation results.

58. A case study must be written up detailing the evaluation of the Raptor toolkit.

59. Projects will be expected to be involved in a Raptor workshop and engage with other Raptor evaluation projects.

60. It is the responsibility of any funded project to highlight their work within their institution, in particular the benefits of the work being undertaken. Raising the awareness of Identity and Access Management issues, in this case through use of the Raptor toolkit, is a fundamental objective of the AIM programme.

Outputs

61. Project outputs are expected to include (but are not limited to) the following:

    a. Case study of the Raptor evaluation. Results from the evaluation should be fed back to the Raptor team and the wider community during the lifetime of the project. This may take the form of reports published on the project's web page or as blog postings, for example.

    b. Details of how users within the institution were engaged in the evaluation and the impact of using the Raptor toolkit should be included in project documentation.

    c. A web presence and use of social media to highlight the benefits of the evaluation work undertaken and reach out to as wide an audience as possible.

    d. Documentation as stipulated in JISC's Project Management Guidelines (http://www.jisc.ac.uk/fundingopportunities/projectmanagement.aspx).

Partnerships

62. Due to the nature of the evaluation and the benefit to an individual institution, partnerships are not expected in this call. However, any bids that do involve a partnership between institutions/organisations must clearly state the benefit from undertaking such a partnership.

Further information on requirements and how they might be interpreted by markers

63. Bids should clearly describe the following:

    a. The group that will be implementing and supporting the Raptor toolkit.
    b. The users who will be making use of the statistics generated from the toolkit.
    c. The institutional support for using such a tool.

d. How the project will engage with the Raptor development team.
e. How the project will communicate their findings to the wider community.
f. How the tool will be used beyond the project if the evaluation is successful.

Funding available

64. A total of £50,000 is available for this work. Proposals are invited for between £10,000 and £20,000 per project and 3-5 projects will be funded.

Length of projects and start and end dates

65. Projects should start as soon as possible after 4 June 2012 and should finish and finalise deliverables by 31 December 2012.

Further information

66. Any enquiries about this section of the call should be directed to Christopher Brown (c.brown@jisc.ac.uk), who is based at the Central London JISC Office.

Strand E3 – Access & Identity Management (AIM) Programme – Identity Management Toolkit Case Studies

Background and rationale

67. Identity management (IdM), in a general sense, includes all the processes and systems that allow the creation, retrieval, update, verification and destruction of identities and information relating to identities including any rights / authority granted to the identities. It is important to note that identities have been, and continue to be, managed using paper-based systems operated by people. In addition, many IT based identity management systems are used to create artefacts (e.g. identity cards) which may be subject to visual checks and/or machine-based verification.

68. As the use IT systems has become pervasive, Identity management has become increasingly important to ensure confidentiality and prevent fraud and the disruption of critical activities. Furthermore, legislation has been introduced, including the Data Protection Act 1998, the Copyright, Designs and Patent Act 1988, The Regulation of Investigatory Powers Act (RIPA) 2000 and the Computer Misuse Act 1990, that place legal requirements on institutions to protect personal privacy and to ensure the confidentiality and security of their information. Holders of personal data must not only be registered under the Data Protection Act, but also take adequate steps to protect that data from unauthorised access.

69. Aside from security concerns, consistent and accurate use of identities across IT systems increases organisational efficiency and flexibility, and improves user experience (through personalisation and customisation), leading to reduced costs and competitive advantage.

70. Although institutions often realise the importance of identity and access management, adequate resources to resolve these issues are not always allocated. It is often the case that AIM is seen as a "middleware" problem. It is only when something is broken that users and managers realise its importance and, often only then, that institutions allocate time and resources towards it. With financial pressures it's important that institutions look to become more efficient and effective. Ignoring access and identity management issues is often adopted as a short term solution and is not always the most efficient or effective one.

71. To address this JISC funded the development of the Identity Management Toolkit Project[160] based on direct experience gained by project partners from work undertaken in previous work on The Identity Project[161].

72. The primary aim of the Toolkit project was to produce downloadable and online versions of the Toolkit for use by executive and technical staff in Further and Higher Education institutions who wanted to review, assess and improve the performance of Identity Management in their organisations.

73. A secondary aim of the project was to support efforts by JISC to raise and maintain awareness of the importance and key issues of Identity Management for the UK academic community, particularly with respect to:

[160] http://www.jisc.ac.uk/whatwedo/programmes/aim/idmtoolkit.aspx
[161] http://www.Identity-Project.org

a. business and process efficiencies
b. good information governance and legal compliance
c. participation in the UK Access Management Federation for Education & Research
d. awareness of UK and international standards and trends in Identity and Access Management

74. The Toolkit was launched at the UCISA[162] and JISC[163] annual conferences in March/April 2010. The availability of the Toolkit has been highlighted in a number of publications and presentations at events relevant to the target audience. There has been a high level of interest in the toolkit both nationally and internationally.

75. The Toolkit has been field-tested during the project by use in institutional projects at a large university and a FE college, with detailed feedback from staff involved in those projects being used to refine the final versions of the Toolkit. Bidders may want to refer to the case study ("*Case Study: Identity Management at Cardiff University: Membership, Categories and Entitlement.*"[164]), on the Identity Management Toolkit website for further information. Although Cardiff was not one of the field-test sites for the Toolkit (and this use case was a supplementary piece of work produced after the Toolkit was published), it provides an example of a possible template for collecting use cases. Other formats including multimedia formats will be accepted.

76. In addition JISC funded two early adopter projects at Imperial College London[165] and the UK Data Archive [166] to use the Identity Management Toolkit within their institutions to assess and review their identity management processes and policies. These helped access the effectiveness of the Toolkit and provided real world case studies to other users of the toolkit.

At the conclusion of the Identity Management Toolkit project, it was decided by the governance group, with JISC's agreement, that a review of the toolkit should be undertaken 18 months after the project's end date. This review will run from the 1 February till 31 July 2012, with the following scope

a. Evaluating the results of the two JISC-funded case-study projects (by UK Data Archive and Imperial College) and other known examples of substantial institutional use of the Toolkit.
b. A communications exercise to identify other relevant and recent UK FHE projects with significant IdM content, including any known of via recent proposals to JISC for funding.
c. A survey of UK FHE institutions to measure changes in management awareness of IdM issues (since a similar survey in 2008) and current awareness and use of the IdM Toolkit.
d. An initial review of Toolkit structure and sections to decide whether any major changes should be made to these.
e. Consideration of how work done for JISC Collections to produce the 'Extending Access Management to Business and Community Engagement'[167] might be included to supplement the Toolkit.
f. Specific revision and updating of the Toolkit coverage of the evaluation, selection and implementation of commercial IdM products and services, as this market has matured a great deal.

[162] http://www.ucisa.ac.uk/events/2010/conference2010/programme.aspx
[163] http://www.jisc.ac.uk/events/2010/04/jisc10/programme/identity.aspx
[164] https://gabriel.lse.ac.uk/twiki/bin/view/Projects/IdMToolkit/UserCaseCardiffJul10
[165] http://www.jisc.ac.uk/whatwedo/programmes/aim/identitymanagement.aspx
[166] http://www.jisc.ac.uk/whatwedo/programmes/aim/ukdataarchive.aspx
[167] http://www.jisc-collections.ac.uk/Our-projects/EAM2BCE/

g. General review and updating if necessary of all other Toolkit sections.
h. Re-packaging of the Toolkit contents on a new host platform.
i. A Final Report of the Review, including recommendations to JISC on any support or maintenance of the Toolkit that should be provided to ensure sustainability during a further anticipated lifespan of 3 years (to July 2015).

Projects are invited which will apply the revised toolkit produced as part of this review to empirically assess the revisions to the toolkit in real world scenarios and to provide additional case studies based on the revised Toolkit to assist the adoption and application of the Toolkit within institutions.

Overarching aim of this programme area

77. Case studies funded under this call are expected to make use of part (or parts) of the Identity Management Toolkit to assess and review their Identity Management processes and policies. Projects are required to share lessons learned during the project with the sector and also provide feedback on the Toolkit. This work should bring benefit to their institutions and valuable lessons to other institutions within FHE.

Scope

78. This call requests proposals from bidders who can use and apply the Toolkit, or parts of it, within eligible institutions, and produce case studies that will positively illustrate use of the Toolkit for the benefit of other institutions. Bids must show they have the support and backing of their institution. We are particularly keen to fund institutions which have not previously received JISC funding from previous Access and Identity Management calls, who are in the early stages of determining their Identity Management policies or who are considering joining the UK Access Management Federation.

79. Successful projects are expected to liaise with the IdM Toolkit developers and provide feedback on any issues or suggest possible future enhancements to the Toolkit.

80. As well as the usual reports expected from JISC funded projects and the feedback provided to the IdM Toolkit development team, successful projects are also expected to be involved in dissemination events to highlight the usefulness of the Toolkit in helping to solve identity management issues within institutions.

Objectives

81. A fundamental objective of the AIM programme is to raise the profile and enhance understanding of the importance and benefits of Identity Management within FHE, highlighting the importance in having the correct processes and policies in place and how these lead to improvements in efficiencies and effectiveness and reduced costs. Using the Toolkit within institutions is seen as being part of this objective as it is free tool, which can improve IdM processes and policies and potentially offers efficiency improvements and cost savings to institutions.

82. The objectives of this programme area are to:

a. show how the Toolkit can be used within institutions
b. demonstrate how effective the Toolkit can be at improving processes and policies

c. illustrate how cost savings can be made by institutions by both using the Toolkit and by acting on the advice held within it.
d. empirically validate the revisions to the Toolkit determined during the current review of the Toolkit

83. To provide valuable feedback to the Toolkit developers and produce case studies that can be incorporated into the Toolkit.

84. To share the institutional experience of using the Toolkit and raise the awareness of the Toolkit to the FHE community

Methods

85. Whilst JISC does not propose any particular methodology, projects should adopt a methodology appropriate for a project of short duration.

86. Projects are expected to liaise with JISC and the wider community while engaging with a specific community within their institution.

Requirements

87. Projects must address at least one of the sections of the Toolkit.

88. It is up to the bidders as to whether, in the timescales available, they choose to deal with a selection of the sections from the Toolkit or take a holistic approach. If the former, then proposals must detail which issues they are dealing with; if the latter, proposals must show how this can be achieved within the timeframe.

89. Proposals must include a brief outline of how they intend to structure the case studies.

90. Projects must adopt a methodological approach that is relevant to projects with short timeframes.

91. The evaluation of the toolkit must be supported by the institution.

92. Projects must liaise with the JISC Programme Manager to coordinate the inclusion of the case study into the new IdM Toolkit website.

93. It is the responsibility of any funded project to highlight their work within their institution, in particular the benefits of the work being undertaken. Raising the awareness of Identity and Access Management issues, in this case through use of the IdM toolkit, is a fundamental objective of the AIM programme.

94. The case studies produced should be part of an institutions' roadmap to solving identity management issues within the institution, or at least bids should make it clear that this work is a first step in trying to solve these issues.

Outputs

95. Project outputs are expected to include (but are not limited to)

a. Case study of the IdM Toolkit. Findings and progress during the project should be fed back to the Toolkit team and the wider community during the lifetime of the project. This may take the form of reports published on the project's web page or as blog postings, for example. JISC is aware that some of the information might be sensitive and not for wider dissemination, but projects are encouraged to publish as much information as possible for the benefit of the wider community. Other formats including multimedia formats will be accepted.

b. A web presence and use of social media to highlight the benefits of the evaluation work undertaken and reach out to as wide an audience as possible.

c. Documentation as stipulated in JISC's Project Management Guidelines (http://www.jisc.ac.uk/fundingopportunities/projectmanagement.aspx).

d. Details of how the work will be continued beyond JISC funding of the project must be included.

Partnerships

96. Due to the nature of the case studies and the benefit to an institution, partnerships between institutions are not expected in this call. However, any bids that do involve a partnership between institutions/organisations must clearly state the benefit from undertaking such a partnership.

Further information on requirements and how they might be interpreted by markers

97. Proposals will be evaluated with reference to the evaluation criteria, specifically how they meet the terms of reference above.

98. Bids should clearly describe the following:
    a. The group that will be using and supporting the Toolkit.
    b. The stakeholders within the institution who will be involved in the project.
    c. The institutional support for using such a Toolkit.
    d. How the project will engage with the Toolkit team.
    e. How the case study will feed into further IdM work within the institution.
    f. How awareness of Access and Identity Management issues will be raised within the project's institution.
    g. How the project will communicate their findings to the wider community.
    h. How the outputs will benefit the wider community.
    i. How the project intends to progress beyond the end of the funding from JISC.

Funding available

99. A total of £75,000 is available for this work. Proposals are invited for between £25,000 and £50,000 per project and 2-3 projects will be funded.

Length of projects and start and end dates

100. Projects should start as soon as possible after 1 August 2012 and should finish and finalise deliverables by 31 May 2013.

Further information

101. The Toolkit project has a number of contact points for further engagement with the JISC community specific to Identity Management issues, including the website, an email enquiry point (jisc-identity-management@jiscmail.ac.uk) for direct (private) communication with JISC support for Identity Management, and a public email discussion list (identity-project-public@jiscmail.ac.uk). To contact the creators of the Toolkit, please use the jisc-identity-management@jiscmail.ac.uk mailing list.

102. Any enquiries about this section of the call should be directed to Christopher Brown (c.brown@jisc.ac.uk), who is based at the Central London JISC Office.

Appendix F

FOI Withheld Information Form

We would like JISC to consider withholding the following sections or paragraphs from disclosure, should the contents of this proposal be requested under the Freedom of Information Act, or if we are successful in our bid for funding and our project proposal is made available on JISC's website.

We acknowledge that the FOI Withheld Information Form is of indicative value only and that JISC may nevertheless be obliged to disclose this information in accordance with the requirements of the Act. We acknowledge that the final decision on disclosure rests with JISC.

Section / Paragraph No.	Relevant exemption from disclosure under FOI	Justification

Please see http://www.ico.gov.uk for further information on the Freedom of Information Act and the exemptions to disclosure it contains.

Example:

Section / Paragraph No.	Relevant exemption from disclosure under FOI	Justification
2.4	s.43 Commercial Interests	Contains detailed description of our proposed system design which would damage our commercial interests if disclosed, by making this information available to competitors.

Appendix G

Annex to JISC Grant and Contract Letters for Projects
Generic Terms and Conditions of Funding

Preamble

1. JISC funds a wide variety of projects on behalf of its funding bodies. These projects include supporting studies where the main deliverable is a report, and projects where the deliverables include products or services as well as reports. These generic terms and conditions apply to all projects and define the responsibilities of the lead institution and its project partners.

Adherence to Project Management Guidelines

2. The institution and its partners must adhere to the Project Management Guidelines available electronically at http://www.jisc.ac.uk/fundingopportunities/proj_manguide.aspx. The Guidelines provide initial advice on project planning, project management, the relationships between JISC programmes and projects, evaluation, and dissemination. However, the institution and its partners should refer to the designated JISC programme manager for details of how these guidelines are to be interpreted. The Guidelines will be updated from time to time, and the lead institution will be notified of any major changes. It is the responsibility of the lead institution to inform its project partners accordingly.

Submission of Agreed Deliverables

3. The institution and its partners must supply all deliverables specified in the agreed project proposal. The schedule for submitting deliverables must be included in the Project Plan and agreed with the JISC Executive. Any changes to this schedule must be agreed in writing with the JISC Executive.

4. Project deliverables are subject to approval by the JISC Executive, and the framework for approval is outlined in the Project Management Guidelines.

5. Project deliverables will be deposited in the appropriate JISC data centre or managed repository, where appropriate.

Core Project Document Set

6. The lead institution must also supply a core set of documents to indicate how the project work will be planned and implemented, to report on progress, and to inform future auditing and evaluation. It is the responsibility of the lead institution to agree these documents with its project partners prior to submission.

7. The core project documents are listed below and further information about each document is provided in the Project Management Guidelines and by reference to the designated JISC programme manager.

8. Core project documents are subject to approval by the JISC Executive, and the framework for approval is outlined in the Project Management Guidelines.

9. Core project documents will be deposited in the JISC records management system and/or project information management system so they are accessible to the JISC Executive.

Core Project Document	Timing
Project Plan (including an Evaluation Plan, QA Plan, Dissemination Plan, and Exit/Sustainability	Within 1 month of start date

Plan)	
Project Web Page on JISC Web Site (including copy of accepted Project Plan)	Within 1 month of start date
Project Web Site at Lead Institution	Within 3 months of start date
Consortium Agreement (for projects involving more than one institution)	Within 3 months of start date
Progress Reports (including financial statement)	Default 2 per year; schedule to be agreed with Programme Manager for projects of less than 12 months
Technical and Supporting Documentation (for projects creating technical deliverables)	Timing to be agreed with Programme Manager
Final Report	Draft version 1 month before project end date; final version at project end date
Completion Report (including financial statement)	Project end date

Intellectual Property Rights

10. As a general rule, JISC does not seek to acquire or retain IPR in any outputs created as part of the project and/or service. IPR ownership shall therefore vest with you [and your partners, as laid out in your Consortium Agreement]. However, if this is not the case for the particular piece of work you are undertaking, the correct IPR position will be documented in the grant/contract letter.

11. The funding is made available on condition that outputs from the project are made available, free at the point of use (or 'at cost' where appropriate) and under Open Access or Open Source principles where possible, to the UK HE, FE and Research communities in perpetuity in accordance with JISC's Open Access Policy and/or JISC's Open Source Software Policy wherever possible.

12. A condition of funding is that you grant JISC, on behalf of HEFCE, an irrevocable, non-exclusive royalty-free licence in perpetuity to exploit the outputs in any way it sees fit, including enabling the JISC to use, archive, preserve and disseminate the outputs. This may include, where appropriate, the delivery of project outputs to the community under a suitable open access and/or Open Source licence. In all cases, JISC will also retain the right to modify or adapt the project outputs. The purpose of this is to give JISC the ability to ensure outputs are available to the UK education and research community for non-commercial use should you fail to fulfil this condition of funding. You further agree to ensure that any licence you enter into in order to acquire third party materials for the purposes of this project may legally be transferred to a third party, nominated by HEFCE, to enable such continued availability of outputs to the UK education and research community.

13. JISC may terminate this Agreement immediately without further obligation in the event of:

(i) any breach of this Agreement which cannot be remedied or is not remedied within thirty (30) calendar days of you being requested to do so; or

(ii) any resolution being passed or petition being presented to wind up your business (otherwise than for reconstruction or amalgamation) or a receiver being appointed of the whole or part of your assets; or a failure to complete a satisfactory Consortium Agreement, where required, in the time required by your JISC project manager; or where, in the reasonable opinion of the JISC, any of the terms or conditions of funding have not been fulfilled.

If termination occurs under any of these circumstances, all rights in any works created by you as a result of the funding shall revert to the JISC on behalf of HEFCE.

14. You [and your partners] must ensure that outputs do not infringe the copyright or any other Intellectual Property Right existing at the time the project is completed (including, but not limited to, database rights, moral rights, performers rights, unregistered or registered trade marks, patents, or registered designs) of any third party. Where necessary, copyright and other Intellectual Property Rights should be cleared before digitisation or incorporation into outputs begins. You must obtain written permission for any third party rights that you incorporate, using a standard clearance letter whose wording has been agreed with your JISC Programme Manager. You must also document all attempts to identify the owner of works where the rightsholders cannot be located (so-called “orphan works”.) It is a condition of funding that you must discuss any orphan works you encounter with your JISC Programme Manager and must follow your programme manager’s advice regarding how to deal with such orphan works.

15. It is a further condition of grant that you respect the Moral Rights of those individuals who contribute to the project outputs and in particular requires that you (1) acknowledge them by listing the names of those individuals who made a significant contribution to the project outputs in such project outputs, (2) that the text or content of any outputs should be checked by those individuals before release.

16. JISC, however, reserves the right to acquire all Intellectual Property Rights, including, without limitation, copyright, database right, performers rights, patents and trade marks, whether registered or unregistered, in any works created by you as a result of the funding, as appropriate, either indefinitely or for a certain fixed period of time on behalf of HEFCE. JISC also reserves the right to request that all Moral Rights are waived. This ability to acquire the Intellectual Property Rights will only be used under exceptional circumstances and in any such case, the JISC will explain in writing to you the reasons for the transfer.

Open Access

17. JISC supports unrestricted access to the published output of publicly-funded research and wishes to encourage open access to research outputs to ensure that the fruits of UK research are made more widely available. JISC firmly believes in the value of repositories as a means of improving access to the results of publicly-funded research and is investing significantly in this area. A national support project is available to help institutions develop repositories and share practice (http://www.jisc.ac.uk/whatwedo/programmes/programme_rep_pres/reps_support.aspx).

18. JISC requires that all project or service outputs and the full text of all published research papers and conference proceedings arising from the funded work to be deposited into an institutional or subject open access repository. Deposit should include appropriate bibliographical metadata relating to said articles, and the deposit should be completed within six months of the first publication date of the paper. JISC mandates the deposit of the native version (Word, PPT, etc.), with PDF as well if wanted, but certainly with a format from which usable xml can in principle be derived (not PDF).

19. Which version of the article should be deposited depends upon publishers’ agreements with their authors but JISC mandates that articles should be made available through publishers that adopt the RoMEO "green" approach as a minimum (for further information see http://www.sherpa.ac.uk/romeoinfo.html#colours). Authors should go to another journal if the journal chosen does not adopt the RoMEO "green" conditions.

20. Jorum [http://www.jisc.ac.uk/whatwedo/services/jorum.aspx] is a free national repository that provides a long-term solution for hosting and registering the availability of learning and teaching materials. It contains two collections each supporting a different type of licence for use. JorumOpen provides access to resources licensed under Creative Commons that are

free to anyone worldwide to use; JorumUK provides access to resources from those who prefer to share their work only within UK Further and Higher Education institutions. Deposit into both collections is, initially, by staff only in UK Further and Higher Education. Information about each collection and how to deposit can be found on the Jorum website. It is mandatory that all learning and teaching materials produced by JISC projects and services should be represented (deposited or linked to) in JorumOpen together with the appropriate metadata. JISC strongly encourages use of Jorum by all JISC-funded projects.

Open Source

21. It is highly desirable that any software components of the outputs are released under appropriate open source licences to ensure that they can also be freely shared with organisations and communities with which the JISC has close working arrangements, see JISC's Open Source Software Policy (http://www.jisc.ac.uk/fundingopportunities/opensourcepolicy.aspx) and advice from JISC's Open Source Software (OSS) Watch (http://www.oss-watch.ac.uk/resources/adviceforprojectbids.xml)

Adherence to Standards

22. The institution and its partners must use the technical standards stipulated by JISC and where unstipulated open standards wherever possible. Any deviation should be justified in the proposal and any alternative be designed with re-use by others in mind. Ease of interoperability between systems is key to the provision of next generation technologies for education and research, and projects are expected to work with JISC to address this issue. It is the responsibility of the lead institution to inform its project partners accordingly. Relevant standards can be found in the JISC Standards Catalogue http://standards.jisc.ac.uk/.

Charging

23. Funding is made available on the condition that the institution and its partners shall make available deliverables developed by the project free of charge to the teaching, learning, and research communities during the period of funding, except for a handling and/or usage charge which must be agreed in writing with the JISC Executive.

Programme Meetings and Events

24. Programme meetings and other events are organised by JISC to brief project staff and share knowledge. Two major programme meetings are held per year, and attendance at programme meetings is mandatory. Projects should allocate staff time to participate in programme activities, and the Project Management Guidelines provide guidance on days per year to allow. The project will be provided with a schedule of meeting dates.

25. Projects should also allocate time to liaise with the Programme Manager on a regular basis, and institutions should provide access to the Programme Manager at any reasonable time.

Dissemination

26. The institution and its partners must commit to disseminating and sharing learning from the project throughout the community. The institution and its partners must develop a Dissemination Plan as part of the overall Project Plan and report on dissemination activities in Progress Reports and the Completion Report. Further information about dissemination is available in the Project Management Guidelines.

Project Web Site

27. The institution and its partners must create a web page and web site to explain the project aims and objectives and to disseminate information about project activities and

results. The Project Management Guidelines give guidance on the scope, content, and design of web sites.

28. Where appropriate, project deliverables and core project documents may be posted on the project web site. As the project web site is primarily a dissemination vehicle, deliverables and documents posted are considered to be copies, and the masters will be deposited in the appropriate repository (see paragraph 18 above).

29. The lead institution or one of its partners must agree to host the web site on their server for a minimum of 3 years after the end of the project and to assist JISC in archiving it subsequently.

Publicity

30. In any publicity material, online presence (including project web sites), or presentation (face to face or online) about the project, it is essential to include an indication that the project was made possible by funding from JISC. Projects and services must adhere to JISC Brand and PR Guidelines and to any additional advice established by the JISC Communications and Marketing team in due course.

Evaluation

31. JISC undertakes evaluation of its development projects and programmes to ensure that knowledge and results are shared with the wider community and to improve the development programme itself. Projects are required to participate in programme evaluation activities organised by JISC.

32. The institution and its partners are also required to undertake evaluation of their work. The institution and its partners must develop an Evaluation Plan as part of the overall Project Plan and report on evaluation results in Progress Reports and the Final Report. Further information about evaluation is available in the Project Management Guidelines.

Exit/Sustainability Plan

33. Funding is for a limited term as set out in the letter of grant. The institution and its partners must develop an Exit/Sustainability Plan as part of the overall Project Plan to document the planning needed to get the best value from the work that has been funded. This will include an assessment of what should happen to deliverables and options for sustainability after funding ceases. Where the institution and its partners wish to exploit deliverables on a commercial basis after funding ceases, they should submit a business plan with economic models that demonstrate how the product or service will be self-sustaining. Further information about exit/sustainability is available in the Project Management Guidelines.

Quality Assurance

2. The institution and its partners must put in place appropriate formal quality assurance procedures to ensure that deliverables are fit for purpose and comply with specifications, JISC guidelines on standards and best practice, and accessibility legislation. Projects must develop a QA Plan as part of the overall Project Plan describing the QA procedures they will put in place and supply evidence of compliance when deliverables are submitted. Further information about QA is available in the Project Management Guidelines.

Payment Schedule

35. The schedule of payments will be indicated in the letter of grant. If more than one institution is involved in a project or service, payments will be made to the lead institution. It is the responsibility of the lead institution to disburse the funds to its project partners.

36. Payment is conditional upon satisfactory progress with milestones and deliverables. The institution and its partners must supply deliverables and core project documents on schedule or subsequent payments may be withheld.

37. At the end of the project, any unspent funds should be returned to JISC unless a formal agreement is reached with the JISC Executive about how these funds may be spent to further support the work of the project.

38. For financial audit, the procedures of the lead or fund-holding institution will apply. In general, JISC does not intend to send financial auditors to projects. However, there remains the possibility that JISC's auditors may wish to audit projects. Project fund holders are required to make themselves available for a visit by members of the JISC Executive or nominees on reasonable notice.

Staff Development

39. Funding is for a limited term as set out in the letter of grant. Near the end of the project funding, institutions should inform project staff about career development opportunities. These might include information about job vacancies within the institution or opportunities for training and career guidance.

Compliance with UK and EU Legislation

40. The institution and its partners must comply with any UK or EU legislation or any international Treaty obligations currently in force or introduced during the timescale of the project that has implications for the conduct of projects or the deliverables/documents they supply. JISC will endeavour to inform the lead institution of relevant legislation and supply guidance for compliance. It is the responsibility of the lead institution to inform its project partners accordingly. Further advice and guidance is available from the JISC Legal Information Service (http://www.jisclegal.ac.uk/), email: info@jisclegal.ac.uk, tel: 0141 548 4939.

Accessibility

41. In line with Government legislation and social inclusion initiatives, JISC is committed to providing resources that are accessible to a diverse range of users. In order to achieve this, JISC advise that all resources including the project web site meet good practice standards and guidelines pertaining to the media in which they are produced, for example HTML resources should be produced to W3C html 4.01 strict (http://www.w3.org/TR/1999/REC-html401-19991224/) and use W3C WAI guidelines to double A conformance (http://www.w3.org/WAI/WCAG20/quickref/). Further advice and guidance is available from the JISC TechDis Service (http://www.techdis.ac.uk), e-mail: helpdesk@techdis.ac.uk, Tel: 01904 754 530.

Data Protection

42. The institution and its partners must accept responsibility as the data controller or Joint Data Controllers as defined by the Data Protection Act 1998 ('the Act') for the personal data collected and processed as a result of this project. Neither HEFCE nor the funding bodies accept responsibility for any breaches of the Act which occur due to the actions of project staff or agents directed by them.

43. HEFCE is the recognised data controller for JISC. In line with the requirements of the Data Protection Act 1998, the institution and its partners hereby grant HEFCE permission to hold the names, job titles, and work contact details of project staff to enable administration of the programme that the project is part of and to keep project staff up to date with information pertinent to it.

44. The institution and its partners also grant HEFCE permission to hold these contact details as part of the main JISC Contacts Database and Project Information Management System. They will be used to contact staff or send them information from other JISC sources relating to forthcoming events or initiatives which may be of interest.

45. This information is made available to the JISC Executive, staff within the Regional Support Centres and staff within other JISC-funded services and initiatives only for the purposes described above. Contact details held within the Project Information Management System are also published on the project pages on the JISC web site (http://www.jisc.ac.uk/projects). This data will be held until such time as the institution instructs HEFCE otherwise or for the lifetime of HEFCE.

46. Any institution which prefers that project details were not held as part of the JISC Project Information Management System or Contacts Database, or would like any further information about how this data will be processed, should contact the JISC Executive.

Freedom of Information

47. The institution and its partners should be aware that educational institutions are listed as public authorities under Schedule 1 of the Freedom of Information Act 2000 ('the Act'). The information created by project staff during the course of the project and as described in their original bid is therefore covered by the provisions of the Act.

48. Neither HEFCE nor the funding bodies accept any responsibility for the project's compliance with the Act for information held by the project staff. This is deemed to be the responsibility of their host institution(s).

49. HEFCE will comply with the terms of the Act for information relating to the project or programme of which it is part that is held by the JISC Executive. Project staff should therefore be aware that any contracts, information or communications in written form (including email) which are sent to the JISC Executive (including the Programme Manager) may be made available to the public on receipt of a valid request and unless covered by one of the classes of exempt information listed in Part 2 of the Act.

JISC Executive
September 2010

Appendix H: Template Budget[168]

Directly Incurred Staff	**August 11– July 12**	**August 12– July 13**	**TOTAL £**
Post, Grade, No. Hours & % FTE	£	£	£
Etc.	£	£	£
Etc.	£	£	£
Total Directly Incurred Staff (A)	**£**	**£**	**£**
Non-Staff	**August 11– July 12**	**August 12– July 13**	**TOTAL £**
Travel and expenses	£	£	£
Hardware/software	£	£	£
Dissemination	£	£	£
Evaluation	£	£	£
	£	£	£
Total Directly Incurred Non-Staff (B)	**£**	**£**	**£**
Directly Incurred Total (C) (A+B=C)	**£**	**£**	**£**
Directly Allocated	**August 11– July 12**	**August 11– July 12**	**TOTAL £**
Staff	£	£	£
Estates	£	£	£
	£	£	£
Directly Allocated Total (D)	**£**	**£**	**£**
Indirect Costs (E)	**£**	**£**	**£**
Total Project Cost (C+D+E)	**£**	**£**	**£**
Amount Requested from JISC	**£**	**£**	**£**
Institutional Contributions	**£**	**£**	**£**
Percentage Contributions over the life of the project	**JISC X %**	**Partners X %**	**Total 100%**
No. FTEs used to calculate indirect and estates charges, and staff included	**No FTEs**	**Which Staff**	

[168] *See overleaf for further guidance and an explanation of the terms directly incurred, directly allocated and indirect costs.*

Explanation of Terms

All applications from UK HE institutions for development funding from JISC should be costed on the basis of full economic costs (fEC). fEC is the total cost of a project.

Projects should be costed using the TRAC Research indirect and estates charge-out rates, and TRAC fEC methods for Research. However, this does not affect their classification as Research or Other/Other Services Tendered for reporting in annual TRAC, HESA, the financial statements or with regard to Customs and Excise (VAT) treatment.

If a project is not classified as Research under annual TRAC the Research charge-out rates should still be used. However, there is no need to amend the denominator or the numerator of the charge-out rate calculations to try to incorporate these projects.

Academic-related staff who lead or work directly on a project should be classified as 'researchers' when costing the project and should be allocated indirect/estates costs. They should be included in the annual TRAC time allocation collection exercises when those are carried out, and their time on projects should be included in the denominator of the indirect and estates charge-out rate calculations when they are next calculated.

Further guidance on fEC for JISC-funded research and development projects can be found at: http://www.jisc.ac.uk/fundingopportunities/bidguide/fulleconomiccosting.aspx.

Cost Headings

Directly Incurred
These are costs that are explicitly identifiable as part of the project, are charged at cash value actually spent and can be supported by an audit record. They include:

Staff – payroll costs requested for staff, full- or part-time, who will work on the project and whose time can be supported by a full audit trail during the life of the project. Directly incurred staff should be completing timesheets if they are not 100% chargeable to the project.

Unless a member of staff will be spending 100% of their time on a project, all estimates of time on a project should be made in numbers of hours or days, for each year of the project. This should then be converted to a FTE for use in calculating the indirect and estate costs charges.

Where a post graduate research (PGR) student is carrying out some of the work on a project, the fEC associated with that student should be included on the project application.

This will include:
- Stipends/maintenance costs
- The principal investigator's (PI) supervision/training time
- Indirect and estates costs on the PI time
- Indirect and estates cost on the PGR FTE (weighted by 0.2 for indrect costs, and 0.5 or 0.8 for estates).

Tuitions fees should not be included in the fEC.

Travel and Expenses – funds for travel and subsistence for use by staff who work on the project where these are required by the nature of the work. This should include attendance at programme meetings (two per year) and other relevant meetings dependent upon the project/programme.

Equipment – the cost of individual items of hardware or software dedicated to the project, including VAT, e.g. a computer for a newly recruited member of staff for the project.

Dissemination – the cost of any dissemination activities proposed for the project.

Evaluation – the cost of any formative or summative evaluation activities proposed for the project.

Other Costs – costs of other items dedicated to the project, including consumables, recruitment and advertising costs for staff directly employed on the project.

Directly Allocated
These are the costs of resources used by a project, which are shared by other activities. They are charged to projects on the basis of estimates rather than actual costs and do not represent actual costs on a project-by-project basis. They include:

Staff – proposals will need to show the costs of any principal investigators/project directors and any co-investigators/co-directors if their time charged to the project is based on estimates rather than actual costs. This may also include the costs of technical and clerical staff, and if a project is buying a small amount of one or more of a person's time.

Estates – these costs may include building and premises costs, basic services and utilities, and any equipment maintenance or operational costs not already included under other cost headings. Institutions should use the non-laboratory estates rate if desk-based work (not requiring specialist computing facilities) is done by staff in laboratory departments. Work carried out by academic-related staff such as librarians or IT managers would normally be categorised as non-laboratory but this would depend on the type of project.

Other Directly Allocated – these costs may include, for example, access to institutional research facilities such as equipment and IT systems.

Indirect Costs
These include non-specific costs charged across all projects based on estimates that are not otherwise included as Directly Allocated costs. They include the costs of administration, such as personnel, finance, library and some departmental services.
NB: The budget section of the proposal should clarify the FTEs used to calculate the indirect and estates charges, and indicate which staff have been included.

Indexation
Costings for subsequent years should factor in inflationary increases for salaries and other costs. All costings should be inclusive of any VAT applicable.

Project Partners
Funding for project partners, e.g. staff time, should be clearly identified in the proposal under the relevant heading. Resources to be provided by project partners, whether cash or in-kind contributions, should also be clearly identified in the proposal.

Justification of Costs
All costs associated with the project must be fully justified.

Virement
Directly Incurred Costs can be vired within the overall Directly Incurred budget heading, however, Directly Allocated and Indirect Costs cannot (they do not vary from the estimates made on project application).

Appendix I - Bid Cover Sheet

Cover Sheet for Bids ***(All sections must be completed)***	JISC
Please indicate which strand you are applying for:	A1 A2 A3 A4 / B1 B2 B3 B4 / C D1 D2 / E1 E2 E3
Name of Lead Institution:	
Name of Proposed Project:	
Name(s) of Project Partners(s) (except commercial sector – see below)	
This project involves one or more commercial sector partners **YES / NO** (delete as appropriate)	**Name(s) of any commercial partner company (ies)**
Full Contact Details for Primary Contact: **Name:** **Position:** **Email:** **Tel:** **Address:**	
Length of Project:	
Project Start Date:	**Project End Date:**
Total Funding Requested from JISC:	
Total Institutional Contributions:	
Outline Project Description	
I have looked at the example FOI form at Appendix A and included an FOI form in this bid	**YES / NO** (delete as appropriate)
I have read the Funding Call and associated Terms and Conditions of Grant at Appendix B	**YES / NO** (delete as appropriate)

Appendix J - Bid Form

JISC Grant Funding 01/12

Cover Sheet for Bids ***(All sections must be completed)***	JISC
Name of JISC Initiative: Digital Infrastructure. Research Information Management: Rapid Innovation	
SECTION ONE	
Name of Lead Institution:	
Name of Proposed Project:	
Name(s) of Project Partners(s)	
Full Contact Details for Primary Contact: **Name:** **Position:** **Email:** **Tel:** **Address:**	
Length of Project: **(no longer than 6 months)**	
Project Start Date: **(no earlier than Monday 19th March)**	**Project End Date:** **(no later than Friday 19th October)**
SECTION TWO	
Total Funding Requested from JISC:	
Total Institutional Contributions:	
Funding for project partners:	
SECTION THREE	
Outline Project Description **(Max 500 words)**	
Use Case	

Max 1 page / 500 words, diagrams welcome. **Please include Use Case within proposal, as a separate attachment or provide a link** **Bidders retain copyright of their use case and should clearly indicate ownership, but licence the use case as CC BY SA. Bidders are encouraged to make their use cases public, and JISC reserves the right to publish submitted use cases.**
Proposal **Max 6 pages / 3,000 words including diagrams/charts** **Please attach Proposal** **This should include intended benefits/impact of the work, a schedule and structure for the work, risk assessment and a commitment to engaging with users and stakeholders**
REMINDER OF EVALUATION CRITERIA (and weighting): **Extent to which bid meets the scope of the Call (Strong / Weak / Out of Scope)** **Value for money (10%)** **Robust project plan (30%)** **Clear and compelling use case (20%)** **Potential benefits/impact (20%)** **Engagement with users and stakeholders (10%)** **Risk assessment (10%)**
SECTION FOUR

I have looked at the example FOI form at Appendix F and included an FOI form in this bid	**YES / NO** (delete as appropriate)
I have read the Funding Call and associated Terms and Conditions of Grant at Appendix G	**YES / NO** (delete as appropriate)