

# JOINT INFORMATION SYSTEMS COMMITTEE

## INVITATION TO TENDER

### Frameworks Scoping Study

#### Summary

1. The Joint Information Systems Committee (JISC) is seeking to commission a study to inform the new [Frameworks Programme](#). The aim of the programme is to 'Develop and evaluate a framework to facilitate interoperability across learning, teaching, research and their supporting systems.'
2. The purpose of the proposed study is to collate, analyse, and map JISC development activity associated with the main frameworks and architecture initiatives (listed below). The study will produce a visual planning tool that supports the JISC in the prioritisation of future development activities.
3. This initial study will form the basis of an iterative development cycle extending over the programme's lifetime. Validation of the study outcomes through consultation with user groups is a key requirement. It is intended that this work will help scope future JISC activity in this area.
4. Up to £75,000 (including VAT and expenses) is available for this study over a 5 month period (March – July 2004). Tenders should be submitted no later than noon on Friday 30 January 2004.

#### Background

5. The JISC is a committee of the UK further education (FE) and higher education (HE) funding bodies which supports colleges and universities in their use of the Internet and other Information and Communications Technology (ICT) applications. The JISC supports FE and HE institutions in exploiting the opportunities of ICT by exercising vision and encouraging collaboration and co-operation. It does this by funding and managing national development programmes and services.
6. The JISC aims to enable 'the development and exploitation of a common infrastructure for finding, accessing, delivering and using Internet based resources tailored to, and seamless across, education and research communities'.<sup>1</sup>
7. The JISC is already supplying a range of services (including JANET) and is involved in a number of relevant development activities and initiatives, specifically:
  - [Information Environment \(IE\)](#) architectural developments.
  - Demonstrators of a [Common Information Environment \(CIE\)](#) that crosses library, research, learning and teaching, museum and archive and health infrastructures.
  - Development of [Managed Learning Environment](#) (MLE) architectures.
  - Explorations into a common technical framework to support [e-Learning](#).
  - Infrastructure developments to support e-Research and e-Science (e.g. [AAA ESSTA](#), [Semantic Grid](#)).
8. The above initiatives support the integration of systems to provide access to and manipulation of information, resources and tools in response to user needs. The initiatives serve different user communities, and are at varying levels of maturity. Some already have a well defined set of standards and are offering central services (e.g. the IE), others are at pre-production stage of services and middleware (e.g. Core e-Science programme), and in a third group development has been patchy, with few mature specifications or service definitions despite much recent

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<sup>1</sup> [http://www.jisc.ac.uk/index.cfm?name=about\\_draft\\_strat\\_intro](http://www.jisc.ac.uk/index.cfm?name=about_draft_strat_intro)

activity (e.g. e-learning). The different communities and environments have typically been addressed and served independently. Whilst common functions and services do exist (in the form of centralised repositories and access management tools, for example), there is no coherent understanding of the relationships between these initiatives and the points of commonality, intersection and interoperability.

9. The difficulty of producing a coherent overview is compounded by the fact that there are disparate user groups, diverse needs and differing cultural influences involved. As a result users and their requirements have been identified and analysed at a variety of levels using a variety of methodologies, terminologies and practises.
10. To deliver the vision of a common infrastructure the JISC needs to link its development initiatives to ensure that they address user requirements, avoid duplication of effort and support interoperability at local, regional, national and international levels.
11. To address this the JISC is developing a new three year Frameworks Programme (2003 –2006) with the primary aim of developing and evaluating a framework to facilitate interoperability across learning, teaching, research and their supporting systems.
12. The work being commissioned under this invitation to tender is an initial scoping study. It is the first step in an iterative process and will produce an initial high level review and analysis of the JISC user communities, common requirements, and the frameworks, standards and technologies that have already been developed. It will investigate links between these and what gaps exist.
13. The study will also produce a visual planning tool to support the prioritisation of JISC's development activities. This should help address common requirements across different user groups.

### **Aims and Objectives**

14. This high level review and analysis will address the following objectives:
  - Identify common requirements across user groups.
  - Define the common functions required to meet the needs of the user groups.
  - Define the range of services needed to support these functions.
  - Analyse the current JISC frameworks and architectures and identify common functions/ services or intersection points across all domains.
  - Produce a visual planning tool and map the JISC's current development programmes/projects to it.
  - Establish standard representations, conventions and a common vocabulary.
  - Identify any gaps and produce recommendations on further development of the framework and reference sets.

### **Overview**

15. Although the ultimate goal of the programme is to produce a detailed Technical Framework, it must be remembered that this study is an initial mapping of the terrain.
16. This study is expected to produce a framework at a conceptual level. It should provide key reference points and a sound basis for further mapping and detailed planning. We expect that the study will be developed through a process with rapid reporting and regular consultation.
17. The contractor will be expected to consult with representative groups of user communities, for example CETIS, UKOLN, UCISA and BECTa in order to seek advice, check and validate their interpretations and definitions, as well as consulting the user community at large. The contractor should therefore expect, and budget for, participation in at least five user group meetings and organisation of one open workshop during the contract period.
18. The study should define and establish a core set of documentation that can be immediately used by the JISC and the educational community, and also advise the JISC on how best to develop this into a working resource. The resource will support planning for future JISC development

activities. Furthermore, the outputs of this study will be further revised during the on-going JISC Frameworks Programme and the study should propose how this revision might best take place.

### **Suggested Approach**

19. The study should operate at three levels:
  - The analysis of user and stakeholder groups, and their requirements.
  - Synthesis of requirements into a smaller number of models (“domain models” and “process models”) that provide a shared high-level picture of key concepts, processes and structures.
  - Comparison and analysis of technical frameworks.
20. It is expected that all three levels will be examined in parallel and closely cross reference each other. The suggested objectives of each level are detailed below, but are open to discussion with the potential contractors.

### **Level 1. Reference Set of Users and Requirements**

21. The study should collate and define users and user groups. This will include:
  - collation and synthesis of all relevant work related to user, user groups and user requirements, beginning with the core architectures identified within this tender.
  - consolidation and refinement of these results to produce definitions of a core set of users and user groups for JISC funded activities.
22. The study should also compare and contrast user functional requirements to identify the common needs of the core users and user groups identified. This will involve:
  - collation and synthesis of work carried out in this arena by previous JISC development projects. These requirements have manifested themselves in different forms, for example task scenarios, functional requirements lists, and enquiry analysis (for examples see <http://www.jisc.ac.uk/index.cfm?name=referances>).
  - consolidation and refinement of these results to produce a set of high level task scenarios that describe common requirements of each environment.
  - collation of a representative set of local implementations of technical architectures.

### **Level 2. Domain and Process Modelling**

23. This section of the study should synthesise the requirements collated in the first “level” to produce a set of domain models and process models. These models should provide common high-level descriptions of common processes and structures. These models should be expressed using the Unified Modelling Language (UML), specifically Static Structure models and Activity models, with an accompanying narrative.
24. The purpose of the models is to provide a starting point for institutions to analyse their own processes and structures, and to understand their requirements in a wider, shared context. Providing common models for recurring structures and processes (e.g. the structure of courses, the process of enrolment) should also aid developers of software, databases, and business processes.
25. The study should produce a broad range of models, including roles, structures, and processes that are common in enterprise architectures for universities and colleges. For example:
  - “Course”
  - “Learner”
  - “Researcher”
  - “Timetable”
  - “Enrolment”
  - “Resource Discovery”
  - “Assessment”
  - “Accreditation”
  - “Research”

26. A good example of the style in which to document models would be the Analysis Patterns work by Martin Fowler (<http://www.martinfowler.com>).

### **Level 3. Framework Comparison and Development**

27. The study should analyse the current frameworks and architectures that have been developed by the JISC to identify common functions/services or intersections across all domains. It should produce a visual planning tool to support the JISC to prioritise its development activities, in particular meeting common requirements across different user groups. Finally it should test the resulting framework by mapping on current JISC development programme/projects. Specific activities for this part of the work are as follows:

- Identify, in liaison with the JISC Executive, the development activity that should form part of this study and confirm the boundaries for this study.
- Define a core set of users and user groups that fall within the JISC remit.
- Collate and compare high level user functional requirements from previous JISC development work associated with framework and architecture initiatives.
- Produce a representation that identifies common functions across domains and their differing implementations.
- Define terminology and establish a common vocabulary across domains, to support a shared understanding.
- Map JISC current development programme/projects to the visual planning tool.
- Structure and present the data produced as part of the study to support easy reference and updating by JISC and ultimately the wider educational community.

### **Deliverables**

28. The outputs from this study are expected to be as follows:

- A revised and detailed work plan four week from contract start date.
- A reference set of core users and user groupings within the JISC remit.
- High-level user functional requirements of a common educational framework articulated as a set of task scenarios and associated diagrammatic representations.
- A representative set of domain models represented in UML diagrams with supporting descriptions.
- A visual planning tool for the JISC articulated as a diagrammatic representation and a set of descriptors.
- A representation that identifies common functions across domains and their differing implementations.
- A mapping of the JISC development projects to the visual planning tool
- Organise one open workshop to present and validate study findings.
- A commentary on gaps identified, issues arising through the development process of the study and recommendations on the scope of the next review cycle.

29. Other expectations are:

- The contractor will be expected to liaise with the JISC Executive on a fortnightly basis to ensure there is a shared understanding of the work and its progress.
- In order to meet the aggressive timetable there is an expectation that there will be a multi-skilled team working on this study, which is reflected in the level of funding allocated to this study.
- The Frameworks Programme will be commissioning two other related studies on Standards and Sustainability, with which this study will be expected to co-operate.
- The study's prime function is to act as a source of information for the JISC Executive and Frameworks Programme Steering Group. However the outputs should be produced so they can be shared more widely with the further and higher education community.
- Prior to final acceptance of the outputs a draft should be submitted to the JISC Executive for comment.
- The information provided in the reports of the study, and the rights to all other outputs, shall become the property of the Higher Education Funding Council for England (HEFCE) on behalf of the JISC and the other funding councils.

- At the conclusion of the study the contractor may be invited to present the results at a meeting of the relevant JISC committee or committees.

### **Timescale**

30. The timescale is as follows:

- Bids should be submitted by 12 noon on Friday 30 January 2004.
- It is expected that bidders will be notified of the outcome of the evaluation process by Friday 20th February 2004.
- The contractor will be expected to commence work at the beginning of March 2004 and to meet with JISC programme managers and to have agreed the project plan by 19 March 2004.
- An interim report that contributes to the yearly programme review cycle will be expected by 10 May 2004.
- A draft final report to include all outputs will be expected by 19 July 2004.
- A complete final report should be submitted by 30 July 2004.

### **Evaluation**

31. An evaluation panel comprising of experts from the educational community and the JISC Executive will be responsible for evaluating submitted proposals on the basis of the following criteria:

- Compliance with and understanding of the requirements, including addressing the scope of the study.
- Quality and comprehensiveness of the proposals.
- Suitability of the proposed methodology.
- Relevance of previous experience of the tendering organisation(s) and of the particular consultants and/or researchers to the study.
- Analysis of risks to successful completion of the study.
- Value for money.

### **Funding**

32. Up to £75,000 inclusive of VAT and related travel and subsistence is available for this study.

### **Proposals**

33. Proposals should clearly and fully demonstrate the following:

- Knowledge and understanding of the JISC main framework and architecture initiatives.
- A clear of understanding of the concepts described in the '**Suggested Approach**' section above.
- Knowledge and understanding of the UK Further and Higher Education sectors.
- Experience in undertaking similar types of work.
- Methodology to be adopted.
- A work plan with milestones and deliverables.
- Details of personnel to work on the scoping study.
- Overall budget and detailed breakdown of main areas of work, including the relevant daily rates/pro-rata salary against each member of the team to work on the study.

### **Management**

34. The contract will be overseen by Tish Roberts, a member of the JISC Executive, and report to the Frameworks Programme Steering Group. The contractor will provide a plan of work that will facilitate this and will report at regular intervals as agreed at the time of commissioning. In agreeing the work plan with the successful contractor, the JISC will wish to discuss the list of bodies and people who should be consulted in the course of the study.

### **Submission of Proposals**

35. Persons wishing to tender should request a tender envelope from Faye Gardiner (email [f.gardiner@jisc.ac.uk](mailto:f.gardiner@jisc.ac.uk), tel: 0117 931 7111). Proposals of no more than ten pages of A4 should be submitted in hard copy (single sided; unbound) to the JISC Executive in the envelope provided. An electronic copy should also be emailed to Faye Gardiner. Both copies must arrive by the deadline. Proposals must also include the completed cover Sheet at Annex A and the Statement of Bona Fide Tender at Annex B. These pages are in addition to the ten page maximum bid.
36. Proposals must be received no later than noon on Friday 30 January 2004. Proposals not submitted in the tender envelope or late proposals will not be accepted. Proposals should be sent to:
37. Faye Gardiner, JISC Executive, Northavon House, Coldharbour Lane, BRISTOL, BS16 1QD, tel: 0117 931 7427; email: [f.gardiner@jisc.ac.uk](mailto:f.gardiner@jisc.ac.uk).
38. The JISC reserves the right not to accept the lowest (or any) tender received.

#### **Further Information**

39. Any queries regarding this tender, should be sent to Tish Roberts, Programme Manager, JISC Bristol Office, tel: 01736 850 605 email: [t.roberts@jisc.ac.uk](mailto:t.roberts@jisc.ac.uk).

**JISC Executive  
December 2003**

**Appendix A**

Cover sheet for proposals

JISC Invitation to Tender: Frameworks Scoping Study

*(NB: All sections must be completed)*

<b>Name of lead institution/organisation</b>
<b>List consultants/partners, if any</b>
<b>Full contact details for primary contact</b>  Name: Position: Email: Address:   Tel: Fax:
<b>Total cost to the JISC:</b>
<b>Outline proposal description</b>
<b>Names and contact details of any additional contacts</b>

**Appendix B**

**To: JOINT INFORMATION SYSTEMS COMMITTEE, Northavon House, Coldharbour Lane, Bristol, BS16 1QD**

**Statement of Bona Fide Tender**

We certify this is a Bona Fide Tender in that we have not fixed or adjusted the amount of the Tender by or under or in accordance with any agreement or arrangement with any other person. We also certify that we have not at any time before the hour and date specified for the return of the Tender performed any of the following acts:

- i) communicated to any person other than the person calling for the Tender the amount or approximate amount of the proposed Tender, other than for obtaining a quotation for an insurance premium required for the purpose of the Tender.
- ii) entered into any agreement or arrangement with another person so that he or she shall refrain from tendering, or as to the amount of any tender to be submitted.
- iii) offered, paid, given or agreed to pay or give consideration directly or indirectly to any person for having done or for doing, or caused to have done or for doing, in relation to another tender or proposed tender for the said work any act or thing of the sort described above.

In this Certificate, the word 'person' includes any person, or body or association, corporate or otherwise; and 'any agreement or arrangement' includes any such transaction, formal or informal and whether legally binding or otherwise.

Signed..... Name.....

Occupation/Profession .....

For and on behalf of:

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