

# September 06 e-Learning circular

Technical developments to support teaching & learning

Assessment

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- Technical development projects to produce and test 3 open source software tools implementing the QTI 2.1 specification that deliver an:
  - Item Authoring Tool
  - Item Bank Software
  - Assessment Delivery Tool
- March 2007 - March 2008
- Up to £100,000 per project

- Overview of JISC e-assessment activities:  
[http://www.jisc.ac.uk/uploaded\\_documents/ACFC6B.pdf](http://www.jisc.ac.uk/uploaded_documents/ACFC6B.pdf)
- Tools and standards
- FREMA domain map (reference model)
  - service based approach to provide institutions with flexible and interoperable e-assessment systems
- April 2007 - call for large scale projects that can demonstrate the use of a range of tools to deliver integrated e-assessment in a variety of contexts

- Produce and test a software tool that supports the following features:
  - item authoring using QTI 2.1
  - load and deposit of items from an item bank using the Remote Question Protocol technical standard (RQP) as well as being used from a local file system
  - pre-viewing of items (for example using R2Q2 toolkit)
  - easily user-configurable to support different rendering engines and item banks
  - support for extensibility, for example availability as an Eclipse plugin
  - designed with potential extensibility to support test composition in future
  - desk top based and easily deployed and configured on a range of platforms
- The project should build on toolkits such as R2Q2, SPAID, APIS, PyAssess, ISIS, and on outputs of demonstrator projects such as Serving Maths, ASSIS, ISIS, ASAP and the FREMA reference model project

- Produce and test a software tool that supports the following features:
  - discovery, deposit, and retrieval of QTI 2.1 items
  - usage tracking and item tagging by users
  - item validation workflow
  - the management of item pools
  - the creation by users of item sets for retrieval
  - the use of RQP for item retrieval
  - provision of a means for the Item Authoring Tool to add and update items using a simple API (e.g. HTTP POST and PUT using packaged items)
  - retrieval of items and sets using IMS Content Packaging specification v1.2
  - discovery using standard query mechanisms (e.g. SRU/SQL)
  - pre-viewing of items (for example using R2Q2 toolkit)
  - easily deployable and configurable on a range of platforms.
- The project should build upon the work of the IBIS report, SPAID, CATS, and FREMA projects

# Assessment delivery tool

- Produce and test a software tool that supports the following features:
  - provisioning with user and group information using IMS Enterprise Services Specification 1.0 and LDAP, as well as static configuration files
  - search and retrieval of IMS QTI 2.1 items from item banks using SRU/CQL and RQP
  - assembly of items into assessments
  - export and import of assessments using IMS QTI 2.1
  - scheduling of assessments against users and groups
  - delivery of items using a web interface, including marking and feedback
  - provision of a web service API for retrieving assessment results. This should be specified based on existing standards (e.g. IMS Enterprise Services 1.0 and IMS QTI 2.1) and use a basic level of security (HTTP Basic Authentication over TLS)

## Assessment delivery tool (cont.)

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- capable of being deployed as a standalone web application without any dependency on a VLE or other 'host' system
- suitable for both summative and formative assessment workflows
- integrate easily with JISC-funded Item Bank Software
- easily deployable and configurable on a range of platforms using standard open-source components such as Apache and MySQL
- While not required for this implementation, the software should be extensible to support future provision for sequencing and adaptive logic in assessments and other future enhancements

- All projects funded under this section will be expected to:
  - Refer to, use and build upon previous development activity in this area especially the toolkits such as R2Q2, SPAID, APIS, PyAssess, ISIS, and on outputs of demonstrator projects such as Serving Maths, ASSIS, ISIS, ASAP and the FREMA project.
  - Organise their work plan around two 6 month phases, the first 6 months focussing on development and the final 6 months testing with the 2 other projects listed in this section and projects that may be funded under the April 07 circular.

- A demonstration of the tool or system in action on test data live from the developer's own site, and a downloadable product that can be installed and run from other sites.
- If any software development is undertaken by these projects, the deliverables will also include that software, tested and documented to a high standard and made available through an open-source licence
- A report or case study that includes:
  - discussion of any issues encountered during the development process
  - evaluation of and feedback on the QTI 2.1 standards, including an evaluation of the usability of the standards for work such as this, with identification of any problem areas and suggestions for improvements;
  - evaluation of and feedback on any JISC project outputs re-used during the projects.
- Contributions, as appropriate, to the e-Framework

- E-Learning Framework toolkits projects: <http://www.elframework.org/projects/>
- E-Learning Focus page on e-assessment provides links to projects and overview article on Assessment Web Services Projects: [http://www.elearning.ac.uk/subjects/assessmentfold/assessment/topic\\_view](http://www.elearning.ac.uk/subjects/assessmentfold/assessment/topic_view)
- IMS Content Packaging Specification: <http://www.imsproject.org/content/packaging/>
- Item Banks Infrastructure Study: <http://www.toia.ac.uk/ibis/IBIS-Item-Banks-Infrastructure-Study.pdf>
- IMS Enterprise Services Specification: <http://www.imsproject.org/es/index.html>
- Lightweight Directory Access protocol: <http://en.wikipedia.org/wiki/Ldap>
- SRU/CQL protocol: <http://www.loc.gov/standards/sru/>

- All enquiries regarding this section of the call should be sent to Lou McGill (tel: 07766 424188; email: [l.mcgill@jisc.ac.uk](mailto:l.mcgill@jisc.ac.uk)).
- Information on submission process from Lesley Hawkins, [l.hawkins@jisc.ac.uk](mailto:l.hawkins@jisc.ac.uk), 0117 931 7277.