Virtual Research Environments Programme
Phase 2 Roadmap

Briefing Paper   June 2006

The JISC has recently allocated a further £2 million to continue the activities of its Virtual Research Environments (VRE) programme, which aims to build and deploy collaborative multi-disciplinary Virtual Research Environments, bringing together tools and technologies to demonstrate how researchers can better manage their increasingly complex tasks.

The intention is not to produce one single complete VRE, but rather to define and help to develop a common architecture, and to progress the institutional capabilities needed develop and populate VREs with applications, services and resources appropriate to their needs.

The main aim of the second phase of the VRE programme is to further develop and pilot such technologies with a wider range of users from real-life research settings within UK Higher Education Institutions and partner organisations. This would include both large- and small-scale pilots addressing the real needs of hybrid research teams and communities, as well as individual researchers.

What is a Virtual Research Environment?

Since the JISC VRE programme started in 2004 our understanding of what constitutes a Virtual Research Environment continues to evolve, based on current project work and ongoing debate in the community.

A concise definition, based on the one formulated by Michael Fraser from the University of Oxford, is:

> A VRE comprises a set of online tools and other network resources and technologies interoperating with each other to support or enhance the processes of a wide range of research practitioners within and across disciplinary and institutional boundaries. A key characteristic of a VRE is that it facilitates collaboration amongst researchers and research teams providing them with more effective means of collaboratively collecting, manipulating and managing data, as well as collaborative knowledge creation.

Three main groups of VRE user can be distinguished:

- Research-active staff: the primary target user group, including staff occupying a variety of roles within institutions, such as full- and part-time Lecturers, Readers, Chairs, Research Assistants, Research Fellows and Research Associates.

- Research support staff: including those who do not conduct research directly, but provide various types of support to research-active staff within their institutions.

- System administrators: staff who support the installation, technical set up and maintenance of a VRE.

The Roadmap for a UK VRE   identified that a VRE could provide most impact to the work of researchers and research teams who collaborate both within single-disciplinary or multi-disciplinary research settings. As researchers increasingly need to collaborate across institutional and national boundaries, a VRE should be able to work across infrastructures. A VRE could support a wide range of Research Enquiry and the Research Project Management activities; some of the specific processes that emergent VREs aim to support include data production, data retrieval, data analysis, collaborative production of research outputs, communication, research administration and project management.

Current Vision for Future VREs

A VRE will provide an integrated and interoperating set of networked tools, systems and resources to facilitate and enhance the practices of individual researchers, research teams and communities distributed across the UK and abroad. A VRE will be able to address the needs of hybrid teams and communities as well as those of individual researchers, and will provide them with ˝different time - different place˝ access to experts, knowledge, collaboration tools and computational resources from a personalised access point. Lastly, a VRE will be able to provide a mechanism for the creation of a flexible layered architecture of distributed and interoperable resources and tools, in order to meet different requirements.

Some of the key benefits of a VRE would be:

- Enhanced interactivity between researchers and resources leading to increased efficiency and effectiveness of collaborative research processes.

- Integrated access to a diverse set of resources and tools.

- Better integration of research processes and activities across the full research lifecycle.

Generically-speaking, a VRE would be:

- User-friendly;

- Would add value to the practice of its end users;

- Modular;

- Interoperable;

- Extensible;

- Supportive of component orchestration as much as possible;

- Distributed;

- Based on open standards;

- Secure;

- Customisable;

- Compatible with other widely-used and -deployed systems.

Scope of Phase 2 of the VRE Programme

The key aims of Phase 2 are:

- To stimulate change in research practices through the development and deployment of VRE solutions.

- To continue involving and engaging the research community in building and deploying VRE solutions.

- To start exploiting and extending such solutions amongst the Higher Education community.

- To continue raising awareness of the benefits of VRE solutions in the research community.

The focus of Phase 2 will be on pilots with a wider range of users in real-life research settings within UK HEIs and partner institutions. This would include large- and small-scale pilots addressing real target user group needs. The applicability and fitness for purpose of emerging VRE solutions to a wider range of research settings will also be established, where appropriate projects will be encouraged to conduct pilots in settings other than the ones they have been developed for.

The target user groups for the pilots would be formal and informal teams and communities of research practitioners, as well as individual researchers of all disciplines, focusing on hybrid teams of various types of research practitioners working within single- or cross-discipline research settings.

The focus of the pilots should be on implementing real change in the practices of the chosen user groups by providing support for a broad range of research activities.

The technical focus will be on creating and piloting interoperable and innovative VRE solutions that address the needs of the chosen target user groups, such as maturing current VRE solutions and integrating them with other existing solutions to provide breadth of functionality and ensure interoperability of tools and resources. Where gaps in the functionality are identified, existing tools should be assessed and new components developed to address these gaps. Projects will be asked to address as many of the key capabilities described in the "Current Vision for Future VREs" section during the development of their solutions.

Finally, projects under Phase 2 should evaluate the extent of change introduced into research practices as a result of implementing these technical solutions, as well as identify and address any barriers to their adoption, including social, behaviour, technical and institutional ones.

Funding Timescale

Funding is available for the following key activities related to the scope described above:

- Pilot Preparation, Execution and Evaluation.

- Further Development and Integration of VRE Solutions and Technologies to be used during the pilots.

The main call for proposals under Phase 2 of the VRE programme will be issued in September 2006. Successful projects will be expected to commence early in 2007 and complete by the end of March 2009.

In addition, an Invitation to Tender will be released early in 2007 for activities relating to community engagement and capability building.

Further information and resources

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Further details about the VRE programme and the current projects is available from:
www.jisc.ac.uk/programme_vre.html

Information about related calls for proposals can be found at: **http://www.jisc.ac.uk/capital_roadmap.html**