

Usability Research Challenges in e-Science

UK e-Science Usability Task
Force

Usability in e-Science

- **As e-Science matures issues surrounding Usability is a growing concern**
 - [Is office politics killing grid computing?](#) Front page of NESC web site
- **User issues in e-Science will require a broad perspective that**
 - Involves a broad range of disciplines .
 - Consider a broad set of user perspectives
- **Issues can be considered in terms of four main themes**
 - ***Global Communities.*** How do we maximise the use of e-Science technologies and applications to support new forms of scientific community?
 - ***Trust and Ethics.*** How do we handle the ethical and policy issues to emerge from the use of an e-Science infrastructure?
 - ***Knowledge Production.*** How do we exploit an e-Science infrastructure and techniques to support scientists' expertise, new research methods and new forms of knowledge production?
 - ***Design, Assessment and Management.*** How can we best assess e-Science technologies and applications, and use this assessment to guide the design and management of these Systems?

New forms of Global Scientific Community

- **New methods and techniques to understand community;** How do we understand e-Science communities and conveying these understandings to help form e-Science systems?
 - How do we *understand the dynamics* of a distributed e-Science community?
 - How are e-Science facilities and *tools used in practice*?
 - How might an e-Science system *capture a community's activities*?
- **Fostering new forms of e-Science community:** How might we promote the formation of e-Science communities through e-Science systems?
 - How do we identify and overcome the *barriers* to the formation of e-Science communities?
 - What are the key *opportunities* offered by the formation of e-Science communities?
 - What are the *techniques* needed to support the formation of dynamic e-Science communities?
- **Strategies for embedding e-Science facilities:** How will e-Science systems become embedded within the working lives of scientists located within multiple sites and disciplines of scientific practice?
 - How will e-Science be *presented* to promote a close fit to existing scientific practice?
 - How will e-Science be *designed* to promote innovations in scientific practice?
 - How will e-Science be *deployed* to promote a close fit with organisational goals?

Trust and ethics in eScience

- **Support of trust across global e-Science communities**
 - *What are the perceptions of trust and accountability across e-Science systems and what is the impact on the use of these systems?*
 - *How do we evolve work practices to promote trust in e-Science Systems?*
 - *How do we design for different levels of accountability and responsibility needed to promote trust?*
- **Ethics in e-Science**
 - *How do we understand ethical practice in e-Science and what support can be provided for scientists?*
 - *What are the ethical barriers to the use of e-Science techniques?*
 - *How might scientist best manage the various ethical constraints in e-Science?*
 - *How do we best manage the issues of distributed access, disclosure and anonymity in large scale data repositories?*
- **What kinds of awareness raising activities might be useful for educating the general public and achieving greater acceptability of e-Science?**

Knowledge production and expertise in eScience

- *Understanding the knowledge lifecycle in e-Science.*
 - *How do we understand the production of new forms of knowledge in e-Science?*
 - *What new forms of reasoning are enabled by e-Science?*
- *Representation of information, knowledge and expertise in e-Science*
 - *How do we design appropriate representations for e-Science?*
 - *How do we understand the use of representations in e-Science?*
- *Understanding the future role of records in e-Science*
 - *How will future scientific records be constructed shared and used?*

Design, Assessment and Management in Global eScience Systems

- **Design of e-Science systems**

- *What are the most appropriate design methods, approaches and techniques for e-Science systems?*
- *What methods are appropriate for understanding scientific practices and what are the best ways of presenting these understandings to designers?*
- *What sort of tools can be used to support the design of e-Science systems?*

- **Assessment of e-Science Systems**

- *What are the most appropriate evaluation methods, approaches and techniques for e-Science systems?*
- *How might we understand and assess interaction with e-Science artefacts?*
- *What tools can be developed to support the assessment of e-Science systems?*

- **Management of e-Science systems**

- *How might we support the management of e-Science infrastructures?*
- *How might we manage large scales collaborative research, and how can we support this management?*

Some On-going Activities

6-9th June – “Designing for Usability in eScience” workshop week at NeSC.

22nd June – “The role of the social sciences in making e-Science usable”, “Workshop at e-Social Science Conference, Manchester

13 July – Deadline for EPSRC call Research in the Usability Challenges to Emerge from e-Science.

19-22nd Sept – Workshop at All Hands Meeting in Nottingham