User Requirements Gathering for the Humanities

AHRC

Investigators' Report

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Executive Summary

The three workshops collectively titled ‘User Requirements Gathering for the Humanities’ were funded under the AHRC Research Workshops call to broaden awareness of requirements capture for humanities eResearch projects and to create a community through which a ‘Guide to Best Practice’ might be compiled and promoted. This initiative was a natural outcome of the Oxford-based programme, funded by JISC, “Building a Virtual Research Environment for the Humanities”. The identification and analysis of user requirements had been central to this programme from its inception, not least because it developed from a survey of ICT applications in humanities research at Oxford, undertaken in 2004/5. This survey had highlighted the fact that researchers in particular subject areas were used to defining the outcomes they wanted to achieve in their research ‘product’ and developing or looking for technologies specific to them, while ICT tended to develop smart tools and applications and offer them to the humanities research community, often without a real awareness of what the researchers wanted or were prepared and able to use. The main aim of this series of workshops was to analyse and articulate ways in which that gulf could be crossed.

The workshops have been extremely successful in emphasizing the importance of requirements gathering for eResearch within the humanities community and have attracted a broad cross-section of attendees from across the humanities, eScience and eSocial Science. Gathering such a diverse group of people together enabled the humanities community to learn about methods of requirements capture in eScience and then decide as a community which methods were most suited to the needs and the research objectives of the humanities. The presentation and discussion led by Dr Marina Jirotka at the second workshop, was particularly successful in determining which eScience methods might be applicable to the humanities and which might translate less well due to differences in culture and work practices.

The workshops have established a route through which best practice for user requirements and ongoing user testing within the humanities can be disseminated to the wider humanities community. The 'Best Practice' document will be made available through a wiki, the format and functionality of which will be decided by the community which has in effect been created through attendance and interest in the workshops on the partt of the individual researchers named at the end of this report..

Introduction

The JISC funded ‘Building a Virtual Research Environment for the Humanities’ (BVREH) project recently carried out an extensive user requirements survey of humanities researchers at Oxford University. This is one of a number of ICT projects based in the humanities which have begun to focus on user requirements gathering as an essential prerequisite to developing technology for humanities research. This is an important time to bring together these initiatives and work towards building a requirements capturing community for the humanities sector.

The power of modern computing and network capabilities brings many opportunities for the development of technologies to support research in the humanities (often termed 'eScience' or 'Grid' technologies). As new systems are created they need to be introduced in a way that genuinely enhances the working practices of the individual researcher. This is only possible if those involved in creating these technologies have a full understanding of how research is undertaken and how new developments will be incorporated. User requirements gathering is an important part of the process where this understanding is communicated to those involved in a development project.

The humanities computing sector shares with the wider e-Science sector the need to gather requirements, but there are areas where needs may differ. With this in mind it is important to explore existing e-Science methodologies, to discover which techniques are likely to be a good fit, gaining the most insight into the needs of humanities researchers; which are likely to be of less benefit, and finally to investigate the ways in which the humanities sector might begin to define its own methodologies and practices.

Between June 2006 and January 2007 the BVREH project held three workshops designed to emphasize the importance of requirements gathering for eResearch within the humanities community. The workshops aimed to establish best practice for humanities user requirements capture and succeeded in creating a community of individuals commited to embedding this important initiative within the humanities. The programme provided a good understanding of where the current issues and gaps in humanities user requirements are and what methodologies and practices currently exist within the humanities and eScience communities allowing attendees to decide what methods would and would not be relevant to the humanities.

Workshop Aims and objectives

- To emphasize the importance of requirements gathering for eResearch within the humanities community
- To establish best practice for user requirements and ongoing user testing within the humanities
- To establish which eScience methods of requirements capture are relevant to the humanities
- To bring together individuals from the humanities, eScience and established Requirements Gathering Centres
- To create a humanities-based user requirements community

Activities of workshops and themes explored

The aims of the workshops were to develop methods of identifying user requirements specifically within the humanities research community. The workshops were designed to allow attendees to share knowledge, whilst furthering thoughts and ideas on the methods by which projects within the humanities work with users, as the technology to support research is conceived, designed, developed and deployed. In gathering together a diversity of IT projects within the humanities, broadly applicable concerns were identified with the valued input of a wider community of eScience and eSocial Science attendees.

The three workshops were conceived to be of particular importance in identifying the needs of humanities researchers in a broad range of subject areas and disciplines. Building on existing expertise in eScience they were designed to identify ways in which humanities research can develop equivalent and inter-disciplinary structures and methodologies which will serve the needs of the research community and link it more firmly to ICT research structures on a national scale.

Workshop One: User Requirements in ICT Projects in Humanities – 20 July 2006

'The AHRC's eScience Scoping Survey' - Sheila Anderson, Arts and Humanities Data Service

'Log Analysis of Internet Resources in the Arts and Humanities' (LARIAH)
Dr Melissa Terras, University College London

'Silchester Roman Town: A VRE for Archaeology' - Professor Michael Fulford, University of Reading

'Building a Virtual Research Environment for the Humanities' (BVREH) - Ruth Kirkham and John Pybus, University of Oxford

(All presentations available here http://bvreh.humanities.ox.ac.uk/workshop_one)

The focus of the first workshop was to define and discuss the methods that humanities projects are currently using to gather user requirements and to initiate discussion around current issues and concerns. The workshop was designed to encourage the community to think collectively about improving and advancing these methodologies.

After a series of presentations from humanities IT projects in which there is experience of user requirements capture, the workshop went on to look at the wider issues of gathering requirements for the humanities in a discussion led by Jenny Fry of the Oxford Internet Institute. The themes discussed were: To what extent should we steer practices? How do we move towards innovative methods for requirements capture? How do we make this

sustainable? Attendees split into three groups and discussed each of the three themes, after which the whole group reconvened in a plenary session for a final round-up.

During the final round-up the following points emerged:

1. To what extent should we steer practices?

- What are we capturing user requirements for? Resources and tools must serve user needs and we must keep this in mind.

- Early adopters are essential, but it is essential to keep in mind the other end of the spectrum. Large numbers of users don't have the IT knowledge base, and it is important for early adopters to show the way.

- Users aren't necessarily aware of the potential of tools and services, yet at the same time many possibilities have not been realised because of practical cultural issues such as computer scientists limiting user expectations.

- There was some discussion as to who the 'we' in this context might be and what was meant by 'steering'. Suggestions included steering committees, 'nudging' people into better practice or straightforwardly telling them what to do.

- Funding bodies steer practices in terms of their application bids with keywords etc. and it was mentioned that they tend only to fund the big research questions as opposed to existing resources which benefit many. At this stage there was a lot of discussion as to how humanities scholars might work together to create ways of steering funding bodies into funding these ongoing resources and supporting the creation of new, usable resources.

- The conversation moved on to whether it should be humanities scholars who steer the funding bodies and indeed who steers them at the moment. It was argued that good research and proving the usefulness of that research, including its reusability is what should be steering the funding councils.

- It was pointed out that a top-down approach, forcing humanities scholars to use technology, would meet with a great deal of resistance. The experience of those who attended the workshop suggested that giving scholars tools which are demonstrably useful and over time prove to support their research will be the only sure way to begin to invite take-up, or to 'steer' practices.

2. Towards innovative methods for capturing user requirements:

- It was agreed that there is not a single correct approach; requirements capture must be tailored to the particular group of users and stakeholders.

- A chosen methodology must capture the persepctive of both the user and the developer.

- The problem lies less in developing the technology as such, but in making people aware of where the technological potential lies; what doors are opening, what great things can be done?

- Is this technology push or technology pull?

- Humanities researchers should take advantage of the opportunities opened up by technologies, but do not need slavishly to follow the methods and the culture of the science domains.

- Researchers should be encouraged to look at the way that they do things and reflect on the way that they work. It is often for scholars in the course of carrying out their research to take a step back and to appreciate and evaluate the full range of tasks, tools and methods which they employ on a daily basis. It was suggested that capturing practice and processes would give a useful basis for both reflection and analysis for individuals and for those building IT tools and services to support their work.

3. Sustainability – Redefining the Humanities:

- How do we get user requirements gathering embedded in the humanities? To make it part of the research culture? Suggestions included:

    - Dissemination and budgeting user requirements into projects, along with sufficient IT support and university funding.

    - Changing cultures: the humanities need to establish their own form of collaboration, perhaps with an area on the web for user requirements analysis.

    - We must implement and use standards for sustainability.

Workshop Two, Requirements Gathering in eScience – October 12th 2006

'User Engagement in the eSciences' - Marina Jirotka, Centre for Requirements and Foundations

'Contextual Resource Evaluation Environment (CREE)' – Tony Brett, Oxford University

'Evaluation of a Large Scale VRE Implementation (ELVI)' – Shirley Grimshaw, University of Nottingham

'Integrative Biology Virtual Research Environment (IBVRE)' – Matthew Mascord, Oxford University

'Motivating example for discussion' – Annamaria Carusi, Computing Laboratory, Oxford University

(All presentations available here http://bvreh.humanities.ox.ac.uk/workshop_two)

The second workshop was designed to provide information about current methods of requirements capture within the eScience sector and to encourage discussion of the similarities and differences in the sciences and humanities. The workshop addressed what the wider community is doing, what is and is not relevant to requirements capture within humanities research, and encouraged participants to begin to think about a methodology specific to the humanities.

Informed by a number of presentations about eScience methods of requirements capture, participants led by Dr Marina Jirotka of the Oxford Requirements Gathering Centre, discussed how the humanities research community might work towards defining best practice for future IT projects. The discussions covered the various areas of the requirements process including; Elicitation, Representation, Management of the Requirements Process and Deployment. At the end of the session a list of suggestions for 'Best Practice' was drawn up ready for further discussion.

The following points for 'Best Practice' emerged:

1. Elicitation:

In order to elicit the interest and participation of potential users a 'free lunch' is no longer seen as enough to draw individuals away from their work and into a workshop or focus group. The following ideas/strategies were suggested as good practice to elicit user feedback by both eScience and humanities experts gathered at the workshop:

- A personal approach makes researchers feel connected and much more likely to participate in a user requirements exercise than do blanket communications to large groups of people.

- When gathering user requirements it is important to be aware of what other people and projects are doing not only to ensure that no duplication of effort occurs, but also to encourage cross fertilization between projects and to establish valuable contacts.

- Giving humanities scholars a technology and saying 'take it away and do what you will with it' pushes the technology further and benefits both the computer scientist and the arts/humanities researcher. It is also useful to provide humanities scholars with technologies from other areas and ask them to test them. A recent example of this would be the use of the Access Grid by Performance Artists.

- It is important to match computer scientists with arts and humanities scholars, utlilizing the humanities 'cross-over' people, developers who already have an interest in the humanities. It was noted that there is currently a lack of facilitation for this and that the matching should be a two-way process to benefit both humanities scholars and computer scientists alike.

- Ensure that developers attend meetings with researchers, even if they are not immediately enthusiastic about the prospect, to ensure that everyone knows what is expected at all times.

2. Representation – prototyping, demonstrators etc:

- Iterative development with prototypes and rapid prototyping without concern for the redundant work were strongly recommended by attendees as ways of engaging researchers and capturing their imagination, providing an idea of what might be possible. Developers should mix throwaway and developable prototypes.

- It was suggested that shadowing and the practice of observing researchers at work to understand what it is they do would be useful. The wider group felt that this might be easier in the sciences where scientists often carry out their experiments in the lab. Humanities researchers are more likely to carry out their work at any or all times of the day and not necessarily just in their office but in a range of locations.

- Attendees who had experience in requirements gathering and deploying tools in the sciences had found it important to create a strong feeling of ownership amongst researchers. This entails researchers being involved with the development of the tools and engaging with them on an ongoing/iterative basis.

- Project directors must take a positive role and the importance of engaging directors and early adopters at an early stage should be understood.

The following points were also raised during the discussions on Representation, Management of the Requirements Process and Deployment:

- Will people use a tool/system if they didn't build/design it?

- People don't always use the things they say they'd like – e.g. Wikis and discussion forums that go unused for months

- Many humanities researchers are pen-and-paper bound

- Research doesn't only go on in an office, or laboratory. Online resources don't necessarily reflect or support other ways of working.

3. Evaluation strategies:

The following strategies for evaluating tools and services, once under development were proposed:

- Workshops and seminars

- Cultural probes – give users the technology (e.g. digital pens) or a technology that looks like one you're developing and start to assess how it's working in the workplace

- Usability tests, 'do this task and give us feedback'. This approach needs a good cross-section of users and users of different experiences.

- Utilise case studies of eScience success stories and produce case studies where appropriate

4. Early Best Practice Suggestions:

The final discussion of the day expanded and consolidated the points raised above and provided the following 'Best Practice' list to take forward for discussion at the final workshop:

- At the application stage, PIs should ensure that the budget includes an element for the cost of requirements capture, design process and final evaluation strategies

- Budget for administrative work created by the need to collect and analyse information about user requirements

- Where possible, provision should be made for appointment of a Project Manager to structure and manage the project

- The need to be informed about what other relevant people and projects in the research area are doing
    - Ensure no duplication of effort
    - Encourage cross fertilization between projects

    - Establish valuable contacts with other researchers in the subject

- Utilise case studies of eScience success stories (AHRC/AHeSSC)

- Build on structures already in place
    - AHRC funding/reporting structure
    - Project reports already available through the funding councils

- Take a personal approach to make researchers feel more connected to the community
    - This is likely to encourage them to participate more readily in a user requirements exercise
    - More effective than blanket communications to large groups of people

- Ensure a high level of ownership amongst researchers
    - Researchers to be continuously involved with the development of the tools, engaging with them on an ongoing and recursive basis, identifying modifications need to make the tools effective for the purpose intended

- Encourage project directors to take a positive role
    - Engage directors and early adopters from the start

- Find a 'hook' to engage a particular community

- Encourage a 'tame' group of users
    - Someone teaching a course/starting a new project
    - A pre-existing user community

- Shadow and observe researchers at work
    - This might obviously be easier in the sciences where scientists often carry out their experiments in the lab but it is applicable to certain kinds of research in humanities
    - Humanities researchers are more likely to carry out their work at any or all times of the day and not necessarily just in their office but in a range of locations

- Use Access Grid interviews, (both desktop and room based) along with face to face meetings which can demonstrate how humanities researchers can work collaboratively from remote locations

- Provide humanities scholars with a technology and say 'take it away and do what you will with it'
    - Pushes technology further, benefits computer scientist and arts/humanities researcher
    - Useful to provide humanities scholars with technologies from other areas (successful example of this would be the use of the Access Grid by Performance Artists)

- Match computer scientists with arts and humanities scholars
    - Utilise those developers with interdisciplinary interests which include humanities
    - Do something to improve current situation in which there is a comparative lack of facilitation for this? Matching should be a two way process to benefit both humanities scholars and computer scientists alike

- Encourage developers to attend meetings with researchers and to understand the nature of their research and the material with which they are working, even if they are not immediately enthusiastic
    - Ensure that everyone knows what is expected at all times

- Use iterative development with prototypes
    - Rapid prototyping without concern for the redundant work
    - Engages researchers and captures the imagination, providing an idea of what might be possible
    - Mix throwaway and developable prototypes

- Develop a two strand approach
    - Find out what users want
    - Introduce new things to them that could move practices forward

Workshop Three: Establishing and Embedding Best Practice - 25th January 2007

Defining a 'Guide to Best Practice' for User Requirements Capture in the Humanities, chaired by Professor Alan Bowman

Next Steps: Dissemination, Preservation and Updating Best Practice, chaired by Professor Alan Bowman

This session aimed to consolidate the first full draft of a requirements capture 'Guide to Best Practice' for ICT projects in the Humanities, drawing on the list of suggestions from workshop two. To make the session as collaborative and accessible as possible the workshop was hosted in the Access Grid facility at the Oxford eResearch Centre and attendees at the Oxford node were joined by a group at the Edinburgh eScience Centre.

The workshop was split into two discussions; Defining a 'Guide to Best Practice for User Requirements Capture' and Next Steps: Dissemination, Preservation and Updating 'Best Practice'. The outcomes of the workshop including the current draft of the 'Best Practice' document will shortly be available on a wiki or web resource hosted and disseminated by the 'Building a Virtual Research Environment for the Humanities' (BVREH) project.

Agreement as to how this resource will be delivered will be decided by the wider community (further details below) and links will be made available at http://bvreh.humanities.ox.ac.uk/. The outcomes of the second discussion concerning 'Next Steps' can be found under Future Plans and Dissemination Activities later in this document.

Overview of people and organisations

Each of the three workshops was extremely well attended by a broad range of humanities, eScience and eSocial Science representatives. Individuals from the humanities research community attended along with representatives of a wide range of humanities-based research projects. The humanities disciplines represented included English, Classics, Music, Archaeology and Phonetics. The workshops were also attended by representatives of VRE projects http://www.jisc.ac.uk/whatwedo/programmes/programme_vre.aspx; the AHeSSC http://www.ahessc.ac.uk/; the JISC http://www.jisc.ac.uk/; The Methods Network http://www.methodsnetwork.ac.uk/; Intute Arts and Humanities http://www.intute.ac.uk/artsandhumanities/; the Oxford eResearch Centre http://www.oerc.ox.ac.uk/; The National eScience Centre http://www.nesc.ac.uk/; the Oxford Internet Institute http://www.oii.ox.ac.uk/ and The Centre for Requirements and Foundations http://www.softeng.ox.ac.uk/crf/.

Workshop attendees:

Sheila Anderson – Arts and Humanities Data Service
Tobias Blanke - AHeSSC
Gabriel Bodard – Kings College London
Ann Borda – JISC
Alan Bowman – University of Oxford
Tony Brett – University of Oxford
Annamaria Carusi – University of Oxford
Colin Connolly – University of Oxford
Fabio Corubolo – University of Liverpool
Julia Craig McFeely – University of Oxford
Charles Crowther – University of Oxford
Paul Dolby – University of Lancaster
Stuart Dunn – AHeSSC
Alun Edwards – University of Oxford
Grace de la Flor – University of Oxford
Michael Fraser – University of Oxford
Jenny Fry – University of Oxford
Michael Fulford – University of Reading
Shirley Grimshaw – University of Nottingham
Simon Hodson – University of Hull

Dolores Iorizzo – Imperial College London
Marina Jirotka – University of Oxford
Ruth Kirkham – University of Oxford
Simon Mahony – Kings College London
Matthew Mascord – University of Oxford
Elaine Matthews – University of Oxford
Nikoleta Pappa – University College London
Nick Pearce – University of Lancaster
John Pybus – University of Oxford University
Brian Rea – University of Liverpool
Ralph Schroeder – University of Oxford
Rupert Shephard – AHDS Visual Arts
Melissa Terras – University College London
Daniela Tsaneva – Cardiff University
Florian Urmetzer – University of Reading
Alexander Voss – National Centre for eSocial Science
Andrew Warr – University of Oxford
Martin Wynne – University of Oxford

The rich mix of attendees at the workshops allowed for diverse and well informed discussions allowing the humanities community to discuss methods of user requirements gathering currently used in the eScience sector and to decide for themselves which methods were relevant and which were less so for the humanities. The workshop series was also successful in creating a community of interested participants from across the wide range of projects and organisations in attendance and allowed the eSocial Scientists to get an insight into the relationship between the sciences and humanities regarding requirements capture, noting how the communities overlap and in other areas differ.

User Requirements Gathering for the Humanities – how has the area advanced?

As eScience progresses towards an eResearch focus the workshops were well placed to harness the interdisciplinary interests and knowledge of the humanities, eScience and eSocial Science communities. As user requirements gathering for the humanities is a new area, the opportunity to learn from the methods of the eScience community was an extremely valuable experience and significant areas of requirements capture knowledge and experience translated directly to the needs of the humanities community. Through a greater understanding of eScience methodologies, the community was also able to define and discuss why some methods might not work for the humanities, but work well for the sciences. This was particularly well demonstrated by the suggestion of shadowing and observation, which works well in the controlled environment of the scientists' lab but which might not be as appropriate for the humanities where researchers are more likely to carry out their work in many different locations or at different times of the day and night.

The workshops have served to emphasize the importance of requirements gathering for the humanities and have created a strong community across a broad range of disciplines, organisations and interests, all focused on creating and maintaining this new and important area of requirements capture. Through the ongoing input of this community a 'Best Practice' wiki will operate, hosted by the Building a Virtual Research Environment for the Humanities (BVREH) project at the University of Oxford. For the first time, humanities researchers about to embark on IT projects will have a designated resource to consult regarding the usefulness, relevance and conduct of user requirements capture.

They will also, along with the wider community, be able to submit their own thoughts and ideas and share their own user requirements experiences through the wiki, updating and progressing 'Best Practice' over time. It is envisaged that the resource will be designed so that an up-to-date 'Best Practice' text will be available, but individuals will be able to submit comments on the various sections, eventually creating multiple archived versions of the Best Practice resource as it evolves over time.

Future topics for investigation

A great deal of material resulted from the workshops, not least in the first session which dealt much more widely with the ways in which the community might steer practices and make the outcomes of the User Requirements Workshops and the 'Best Practice' resource sustainable over time.

At the final workshop attendees agreed to continue to get together on an ongoing basis to discuss, and evolve the 'Best practice' resource to ensure that it stays both relevant to the needs of the humanities research community and is constantly informed by the knowledge and experiences of that community. As such, it was agreed that a workshop arranged to coincide with the DRHA each year would be a good time to discuss the resource on a yearly basis.

Future plans and Dissemination activities

The third workshop in the series agreed a detailed plan for disseminating, preserving and updating the Best Practice resource. Included in this was the decision to put together an interactive wiki, so that members of the wider research community can add their thoughts and experiences as time goes on. To ensure that edits are relevant and useful to those embarking on user requirements surveys, a system of archiving the wiki contents, together with a layer of security will be decided by the community and implemented by the BVREH project. In order to facilitate such decisions, it was also agreed that a workshop to coincide with the Digital Resources for the Humanities and Arts (DRHA) would be a sensible and feasible way of reviewing and updating the Best Practice resource each year.

During the third workshop the group also spent some time discussing the importance of embedding this important work in the community and agreed to review strategies for this on an ongoing basis. Further strategies agreed for dissemination include; creating links to the resource on the AHRC, AHeSSC, The Centre for Requirements and Foundations, the Usability Task Force and the Methods Network websites and to encourage these organisations along with The National eSocial Science centre to promote the outcomes of the workshops at relevant events. It was also thought useful to tailor a version of the document for different groups, for example, mentioning different funding bodies where relevant, ensuring that researchers in different disciplines can relate to the content of the document.

The project will look into the possibility of getting an ISBN published for the Best Practice document in order that a hard copy version, including the address of the online resource, can be picked up and promoted through the libraries. Various suggestions of potential publishers were put forward. Once published, it is also planned to ask the Methods Network to get involved in promoting the document, or handing out flyers pointing to the resource at relevant events. The BVREH project will also ask the AHDS to draw attention to the resource at the application stage and humanities computing resources within universities will be encouraged to use and recommend the resource to potential users.

Acknowledgements

The project would like to thank the advisory committee for ongoing support and advice, enabling the workshops to make full use of the collective knowledge, experience and contacts held by the group. The group was comprised of individuals from the e-Science sector, the e-Science Requirements Capture field and from the humanities ICT community. The composition of the group was designed to ensure that the workshops provide maximum benefit to the humanities research community in establishing user requirements methodologies. The advisory committee members were:

Anne Trefethen – Director of the e-Science Core Programme
Seamus Ross – Director of Humanities Computing and Information Management at the University of Glasgow
Marina Jirotka – Director of the Oxford Centre for Requirements and Foundations
Michael Fulford – Professor of Archaeology at Reading University and Project Director of ‘Silchester Roman Town – A Virtual Research Environment for Archaeology’

The project also wishes to thank all of those who took part in the workshops and who took time to present their projects and contribute to the ongoing theme of User Requirements Gathering for the Humanities. Special thanks to Jenny Fry of the Oxford Internet Institute and Marina Jirotka of the Oxford Centre for Requirements and Foundations for facilitating extremely interesting and stimulating discussions.