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1. Draft version of AHDS History report. Not to be circulated without permission.
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Academic and technical reviews of historical digital resources

**A report prepared for the IHR/RHS Peer
Review and Evaluation of Digital Resources
in the Arts and Humanities Project**

By

AHDS History

August 2006

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Introduction

The IHR/RHS Peer Review and Evaluation of Digital Resources in the Arts and Humanities Project is one of 12 ICT Strategy Projects funded under the AHRC's ICT in Arts and Humanities Research Programme. This project proposes to establish a framework for evaluating the quality, sustainability and impact over time of digital resources for the arts and humanities, using History, in its broadest sense, as a case study. The project is headed by Professor David Bates (IHR), Professor Janet Nelson (KCL), Professor Charlotte Roueché (KCL), and Dr Jane Winters (IHR).

The mechanisms for the evaluation and peer review of the traditional print outputs of scholarly research in the arts and humanities are well established, but no equivalent exists for assessing the value of digital resources and of the scholarly work which leads to their creation. If digital resources are genuinely to contribute to the research profile of UK Higher Education Institutions, it is essential that a framework for evaluating digital resources, and ensuring quality control, be established. A consistently-applied system of review (of both the intellectual content and the technical architecture) would serve to reassure academics and their host institutions of the worth of time spent in the creation of digital resources, establish those types of resource which are of most use and interest to the academic community, contribute to the development of common standards and guidelines for accessibility and usability, and inform proposals to ensure the sustainability and preservation of high-quality scholarly material. Such an evaluation process might also convince publishers of the value of investing in longer term projects. Any review process will add to the guidelines and practice models being developed within the AHDS and thus assist in achieving one of the recommendations of the recent British Academy review on e-resources for research.¹

Summary

This report makes a number of generic proposals to establish such a system of review. These take the form of a series of recommendations which predominantly deal with the functionality and usability of any web-based resource, alongside a series of guidelines relating to the modelling of the data within the system. These recommendations are based on a detailed study of four projects, including in depth conversations with project staff, along with

¹ British Academy, *E-resources for research in the humanities and social sciences* (London: British Academy, 2005). Available as: British Academy, April 2005, 'E-resources for research in the humanities and social sciences: A British Academy policy review' <<http://www.britac.ac.uk/reports/eresources/report/eresources-pdf.pdf>> [31 August 2006].

an examination of a number of other historical resources which are available on-line. We have chosen to distinguish between two forms of recommendations. First, those which are predominantly technical, which are laid out in Appendix A; second, those which we have chosen to call intellectual, but really relate to the intersection of 'scholarly' and 'technical'. These guidelines are laid down in Appendix B. These two sets of recommendations can generally be applied at different periods within the project time-frame. We distinguish between those elements of review which we feel should take place *before* the initiation of any medium to large scale digital resource-creation project, those which can fairly take place either at the end or towards the end of any such project, those which may take place during the project itself and those which need a longer evaluation period. Appendix C summarises some additional guidelines and recommendations which may be of value in this exercise.

Much of the research in this report has been influenced by the (anonymous) Survey Report prepared for the Peer Review and Evaluation of Digital Resources in the Arts and Humanities Project by the IHR (referenced below as IHR survey). It is also influenced by a series of conversations between AHDS History and four of the digital resource creation projects under observation here. The conversations were structured around a series of recommendations prepared in advance of the meetings, but there was considerable opportunity for the project teams to discuss other opinions they held about the review and assessment of digital resources for historians. The projects approached and with whom we had conversations were the Robert Boyle Workdiaries project, the Newton project, the Science in the nineteenth-century periodicals project and the proceedings of the Old Bailey, London 1674 to 1834. We also approached the Clergy of the Church of England database project but received no response.

The results of the IHR Survey carried out on review and evaluation establish the basis for this report. Of 507 respondents to the question: "how important is peer evaluation or recommendation in your selection of resources for your personal research?" fully 91 per cent believed that it was at least "somewhat important".

This report is also partially influenced by the notes to the history panel for the forthcoming RAE. The notes for the history panel lists a series of outputs which will be evaluated "where there is a visible contribution to research". The list includes "critical databases and other scholarly support materials deriving from research" and "scholarly web-sites". Point 14 also notes that "all cited outputs will be judged on academic merit regardless of medium (for example in paper or electronic form) or location of publication. Furthermore:

“web-based publications, including for instance those published on publicly available departmental web-sites, will be judged by the same standards and criteria as other outputs.”² The significant term used here is ‘academic merit’ – AHDS History believes that ‘academic merit’ is not wide-ranging enough to fully judge digital resources, though it is a major criterion for assessment. Generally, but not completely, this report excludes academic merit, but looks at technical competence and the ability to meet both required technical standards and user needs.

The RAE will be using three main criteria for evaluation:

- *Originality* – reshaping interpretations or approaches or opening up new sources, new data or material;
- *Significance* – depth and likely lasting scholarly value;
- *Rigour* – accuracy, clarity and standards of scholarship.

These three criteria remain planks within this report, though the emphasis on rigour – both from a technical and scholarly point of view are prioritised because this report deals predominantly with the technical implementation of outputs. That is that the output is a scholarly output which has been made usable by the same team as that which created it.

Timing of review

At present the AHDS makes an assessment of each and every proposal made to the Research (and formerly Resource Enhancement) schemes of the AHRC which contain a technical element. These assessments are made on the basis of a funding proposal which contains a separate, so-called, technical appendix, but in order to be able to follow some of these appendices, it is necessary to read the appendix in conjunction with many of the other elements of the proposal. In the case of AHDS History, each proposal is read by two members of staff with the aim of ensuring that the technical elements of the application are technically *feasible*. While this process does attempt to ensure the relevant standards and best practice is followed, it is not explicit within the remit of this assessment.

In this assessment process we consider information provided by the applicant under the following headings:

- Project management of technical aspects;
- Data development methods;
- Infrastructural support;

² Research Assessment Exercise, 2008 (nd) ‘UOA 62, History’
<<http://www.rae.ac.uk/pubs/2006/01/docs/n62.pdf>> [31 August 2006].

- Data preservation and sustainability;
- Access;
- Copyright and IPR.

For simplicity's sake these subjects are 'graded' to these broad categories:

- *Support* where technical aspects are satisfactory;
- *Support with advice* where advice provided would improve the project;
- *Conditional support* where there are problems which must be addressed before the award is made;
- *Unsatisfactory* where there are significant technical concerns and cannot be supported;
- *Insufficient information* where there is not enough information provided to make an assessment.

This form of assessment has been in operation for almost the whole of the period of the operation of these schemes, and has played a key role in the assessment of proposals to the AHRC. Based on examination of six years worth of applications made to the AHRC it is also clear that this element of assessment, while not becoming redundant, has led to an almost universally high quality of technical appendices.³ In recent rounds the technical appendices have been of a generally high quality, with only small comments being made to applicants to assist them in their project planning. Some recent critical comments and suggestions include:

- Good project management structure though monitoring includes checking actual against planned events in the project plan. The applicant may wish to make contingency plans in the event of [deleted word] Consultancy going bust.
- Project management structure as defined in the application is rather vague. A reporting structure amongst project members should be outlined, a timetable should include milestones and monitoring refers to keeping an eye on whether the timetabled activities of the project match actual progress.
- Data development methodologies are very loosely described. There is no mention of software, or evidence that any preliminary database design has taken place.
- Data development methods are highly underspecified. There are no standards mentioned, no software (except pdf) discussed, and no mention of audio formats to be used. The applicant has misunderstood the meaning of documentation in this context.

³ Zoe Bliss and Alistair Dunning, The skills that are required for funding applications, Paper presented at Humanities Beyond Digitisation Conference, Institute of Historical Research, London, 20-21 September 2005.

- Adequate infrastructural and technical support, but backup is a little under-discussed. A good backup policy consists of: multiple copies made at a specified and appropriate frequency on multiple media including multiple formats and an offsite copy.
- The application does not propose a data preservation strategy. Backup is mentioned, but no distinction between backup and preservation is made. If the AHDS is not to be offered this resource for dissemination or preservation, then an appropriate preservation strategy must be mentioned.
- If access is restricted to the 'research public' only, the website should be clearly labelled on how appropriate users may register; the current website is not public - and there are no details on the site on how to register. The proposal does not explain why the resource is not to be made publicly available especially since both copyright and confidentiality issues are well covered.
- Copyright issues addressed though it would probably be wise to initiate a strategy in advance of the project. Explicit arrangements will need to be made for third parties (e.g. AHDS) to disseminate materials. Also Intellectual Property Rights in final resource is not explicitly mentioned.

The purpose of showing these comments here is simply to demonstrate that many of them are relatively trivial, and only affect the *feasibility* of the proposal rather than the detailed technical implementation necessary to achieve the project.

The various AHRC Panels which make the decisions relating to funding are at liberty to ignore these comments and the AHDS's overall assessment of the technical elements of a project, but we understand from informal conversations that this part of the AHDS's activity is considered to be highly valuable to both the panels and to the applicants. This is particularly pertinent to this discussion because, if all AHRC-funded proposals which have a technical element are to remain being assessed at the point of application from a technical point of view, this assessment could be linked to any review of the final resource. Despite the considerable improvement of the quality of technical assessments over the last six years, we believe that it remains a necessity for research councils, especially the AHRC to continue to assess the practicality and feasibility of any proposal from a technical point of view; indeed we suggest that a two stage application stage may be appropriate. The first would remain much the same as at present, though might allow a lower level of technical detail than at present (to save the time and effort of both applicants and assessors); once the panel has made decisions about funding, then applications with a high technical element should be assessed on a more

detailed project plan including meeting the requirements listed in this document.

A number of the conversations we had with project workers highlighted a further area where assessment could take place, which is during the project's lifetime. We came to the conclusion that while it would be possible to look at the project management and workflow of any given project within the context of the creation of a large scale digital resource it would be unfair to make judgments on these processes as they were taking place. We firmly believe that a relevant verdict on workflow and management can be made from consideration of the final resource. However, this conclusion is predicated on the ability to assess the final resource. If this is not possible, because the project has not achieved its main objectives, then it would be necessary to examine workflow and management practices in order to see where the problems lay.

For the purposes of reviewing on-line digital resources from a technical and scholarly point of view, we suggest that while some understanding of the management of the project may be necessary to explain idiosyncrasies and outcomes of the decision-making process it should not actually impinge severely on the final resource. During the life-time of any project initial project plans will be altered, and sometimes quite substantially. The reasons for these are many, but new standards, technology changes, missed deadlines and personnel alterations are amongst them. We would suggest that while the aims stated in the project proposal or initial project plan should be compared with the final outcomes, it is only if these bear little resemblance to each other that any assessment should be made of the overall management of the project.

So while the decision-making process during a project will affect the final resource, we should not be judging that process in itself only the consequences of that process. For example, for the Boyle Workdiaries project, text was captured by hand by researchers within a broad HTML format. Tagging was subsequently added following the TEI-lite DTD. During this process a negative decision was made relating to tagging geographical information within the work diaries. A consequence of this is that it is only possible to search the full text of the resource rather than specific places. The value of place names and their alternative spellings is indicated by a separate page on the site which lists all known place names.⁴ Another example of this type came from the SciPer project, where their initial choice of mark-up language (i.e., SGML) was made as early as 1999 and consequently not done by the technical officer in charge of the project now. This caused a number of

⁴ 'The Workdiaries of Robert Boyle (nd) 'Placenames register'
<<http://www.livesandletters.ac.uk/wd/resources/placeindex.html>> [31 August 2006]

technical deficiencies which the project team are now very keen to correct by improving several technical aspects including style sheets, tagging elements, standard and advanced search facilities, and even the adding of new registers. It may be possible that a project team is aware of technical “failings” of a project but limited budgets, inflexible project plans and limited risk assessment on technical standards have precluded the resolution of these problems. It is not suggested that a project which creates an electronic resource in the humanities should be assessed on the basis of the success of all aspects of its project management, but it is clear that some level of assessment can be made at this level, and this can only be done with an examination of the continuous project documentation.

It is worth noting that one of the most difficult problems in the project planning of digital resources relates to rights management. The AHDS suggests that these should, as far as possible, be cleared in advance of project initiation. This is certainly the case for the principal materials selected for any resource, but for less critical materials there is probably a level of overkill. However, the satisfactory resolution of rights issues in the initial project planning stages is usually a good indicator of good project planning.

Data modelling

One key concern which has come out of this examination of these digital resources relates to the question: What is the relationship between the intellectual content of a resource and its technical architecture? It can be best characterised as a symbiotic relationship — it is not possible to separate these fully; technical decisions will be influenced by the nature of the historical source; usability and functionality will be influenced by the available technology; and the ability of the project members to use the technology to its best advantage, but will be constrained by the historical sources and then manner in which they can be modelled. We strongly recommend that any evaluation of resources is carried out with three distinct elements. First, the purely technical (outlined in sections 1 below); second, the interface between the technical and the scholarly (section 2 below) and third, the purely intellectual. We also recommend, but less strongly, a fourth element of assessment relating to impact and use (section 3 below).

We do not discuss in detail where any of the recommendations made in this report might fit into the existing process of output assessment by any research council. The evaluation of digital resources should be shoehorned into such a process, but any recommendations made to the research councils must take into account the differing forms of output envisaged by different research projects. We are unsure as to whether the assessment of an electronic resource

can be carried out in a “fair” manner in relationship to the assessment of a book, a series of articles or any other research output.

Many of the resources we are considering here might be looked at in a similar way to a critical edition. It is possible in some cases to use this as a metaphor for a web-based or electronic resource; however we can say that, generally speaking within history, resources fall into one of three general categories, the reproduction, the edition and the research project. Examples of the former include the Digital Colonial Documents project which publishes reproductions of census reports and other documents relating to the history of India in the late nineteenth century.⁵ A digital edition may be typified by the Scottish Parliament Project which aims to transcribe and edit pre-Union Scottish Acts of Parliament.⁶ An example of the latter is Corpus of Romanesque sculpture.⁷ However, it is vital to explain that many online resources are of higher quality, importance, and especially, of greater flexibility than usual critical editions. While they may generally be serving the same core audience, they will also be serving a much wider and more general audience.

The purpose of making resources available on line must to some extent be included within any evaluation criteria. Why is an electronic resource being proposed? We feel that unless decisions on funding are also based on enhanced functionality, widening audiences and value for money there is little point in creating a resource which might receive attention from a commercial publisher.

The ‘technical’ review is supposed to complement the ‘academic’ review. However any technical review must take account of the underlying sources in what may be seen as an appropriate ‘historical’ or academic manner. As an example, if a database is supposed to represent an historical source, like a parish register, either all of the material within the parish register should be made available within the database or a very clear explanation of why this material has been omitted should be provided. The reason for the omission may be ‘technical’ or at the very least related to the inability of some systems to easily represent the data in the correct structure, but it may also be due to the selection procedure. In either case documentation should make it plain that material is missing.

⁵ Digital Colonial Documents (India), 25 July 2006 [Last update] <<http://www.chaf.lib.latrobe.edu.au/dcd/>> [31 August 2006].

⁶ The Scottish Parliament Project (nd) ‘About the Acts’ <<http://www.st-andrews.ac.uk/~scotpar/acts.html>> [31 August 2006].

⁷ Corpus of Romanesque Sculpture in Britain and Ireland, 4 August 2006 [Last update] <http://www.crsbi.ac.uk/> [31 August 2006].

Thus while these reviews cover the technical aspects of these electronic resources they must also relate to the intellectual decisions taken during the data development or data modelling phase of the construction of the resource. Appendix A outlines the main criteria used to evaluate the technical aspects of these resources. Appendix B outlines the criteria which may be seen to be a combination of both technical and intellectual.

The five resources under review here are all established online projects which have completed their development and are available openly for public use without restriction. None of the resources being evaluated allow databases to be downloaded for the users' personal use — that is they are only available over the internet. We have concentrated in this document on online resources but many of the discussions in section 2 and 3 are relevant to electronic resources which are not available online.

It is to be noted that all web-based assessment was initially carried out using Mozilla Firefox version 1.5.0.6 running Microsoft Windows XP Professional x64 version 5.2. Microsoft Internet Explorer 6.0 was also used for testing purposes.⁸ The main monitor used was a 19" flat screen monitor, with a screen resolution setting of 1280x1024 pixels.⁹

1. General technical assessment of online resources

The first few headings in this section are in no way related to the intellectual assessment of an online resource; however these are some common-sense guidelines which allow virtually any web developer to be immediately assessed by their users. If a site does not have a proper name it does not affect the intellectual content within the site, it simply means that no one will remember where it is and its traffic will be low. Inability to adhere to a number of simple guidelines restricts usability and may damage usage. These guidelines should not be weighted strongly in any assessment, but they can be used to give an indication of the thoroughness of usability testing.

1.1 Location of site

The projects and their main sites are listed below:

⁸ The Robert Boyle Workdiaries Project does not render well using Firefox. The note on the home page which states that the site is optimised for use with IE v.5 and above is slightly disingenuous; it should state that the site was designed for IE v.5.

⁹ We chose not to test using Mac or Linux browsers, e.g., Safari and Mozilla, but in many instances it is not the browser which is of importance, but the ability of the browser to interpret standard html. One should beware of testing sites using non-standards compliant software. We chose Mozilla Firefox and Internet Explorer because, these browsers account for over three-quarters of the hits to the AHDS History web site.

The Robert Boyle Workdiaries Project	http://www.livesandletters.ac.uk/wd/ http://www.bbk.ac.uk/~ubra110/
The Newton project	http://www.newtonproject.ic.ac.uk/
Clergy of the Church of England database	http://www.theclergydatabase.org.uk/
Science in nineteenth-century periodicals	http://www.sciper.org/
The Proceedings of the Old Bailey, London 1674 to 1834	http://www.oldbaileyonline.org/

It may seem a minor point but the URL for any particular electronic resource should be memorable and relate to the resource itself (rather than an institutional sub-domain – some of the reasons for this suggestion can be seen in the discussion at the end of section 3.1 below.). Thus of the five resources under examination here, the URL Boyle’s Workdiaries is not highly informative, and that for SciPer would probably only be known to those already in the know.

AHDS History was initially presented with the five sites by name only. When used Google to search for the words ‘The Robert Boyle Workdiaries Project’, the website: <http://www.bbk.ac.uk/~ubra110/>, which is not the site under assessment, but related to it, was returned. Delving slightly more deeply into the Google hit list gave us a slightly closer link to another page at Birkbeck College which contained a link (in a frame) to the Lives and Letters Project Page, but does not actually take one to the Boyle Workdiaries. Navigation through to Boyle’s diaries from this home page is not intuitive.

It is strongly recommended that wherever possible the homepage to any project site is as simple and as memorable as possible. Failure to adhere to this guideline will seriously reduce traffic on the site and will prevent users from finding the resource. Furthermore, the use of a sensible title tag within the HTML version of a page makes both book-marking and web-searching easier. Even if a project title begins with the word “The” it is not recommended to include the word the in the title element as users will not generally browse their bookmarks in this fashion. A number of tips for homepage usability can be found in Neilson and Tahir’s book.¹⁰

1.2 Links on home page

A further item, which is hardly scholarly (or technical), but of particular interest to funder of a project, are approved logos which link to their site. The results of a rapid examination are given below.

¹⁰ Jakob Nielsen and Marie Tahir, *Homepage usability: 50 websites deconstructed* (New Riders Press, Indianapolis, 2001).

Boyle's Workdiaries: All logos visible but for some reason in black and white. The Boyle page contains no link to the AHRC, the Wellcome Trust or any of the other funders listed on credits page.

Newton Project: Appropriate logos at the very bottom of the page, but there is a need to scroll a long way down. At the time of examination the AHRC link still goes to AHRB.

Church of England Clergy Database: All logos of funders are present and correct, though at the time of examination, clicking on the University of Kent logo took one to the University of Reading and clicking on the University of Reading logo took one to *Family Tree Magazine*. (Small errors like this are inconvenient and distracting; but they also lead to a concern about quality control. If something simple like this is faulty what is the quality of the rest of the site like?)

Old Bailey: All appropriate logos present and correct, but placed in the navigation pane rather than on the home page

SciPer: No logos are present, although links to the funders are provided in the first paragraph of the home page.

Some funders are more diligent about the production of guidelines for the use of their logos. The JISC page 'Using the JISC logo' gives a very clear indication about what is usable or not.¹¹ The AHRC is not quite as forthcoming publicly about the use of its logo.

We recommend that each home page should have prominently visible the logo of the funder and the lead institution if applicable. These should be displayed according to the guidelines of the organisation.

1.3 Aesthetics

The visual aesthetics, including use of colour and layout (especially the balance of material across the screen) in websites is a strong influence on the satisfaction of users.¹² The IHR Survey received a number of comments relating to poor layout, presentation and poor icons. Neilson and Tahir recommend strongly (as opposed to essentially) that black text should be displayed on a white background, but even the online journal *Usability News*

¹¹ Joint Information Systems Committee, 27 August 2003 [Last update] 'Using the JISC logo', <http://www.jisc.ac.uk/toolkits_production_logos.html> [31 August 2006].

¹² Talia Lavie and Noam Tractinsky, 'Assessing dimensions of perceived visual aesthetics of web sites', *International Journal of Human-Computer Studies*, 60 (2004) 269-298.

published at the University of Wichita uses black text on a cream background!¹³

We recommend that the main pages of any resource should not offend general aesthetical sensibilities: none of the sites we looked at were upsetting.

1.4 Enlarging and decreasing text size

An important matter surrounding accessibility is the possibility of altering the text size of a browser. It is important to note that the two examples shown in Figure 1 are extreme and are not avoidable, but the unwelcome results caused by placing bounds on text boxes in these cases makes it not only unattractive but in the case of SciPer the navigation pane is unreadable.

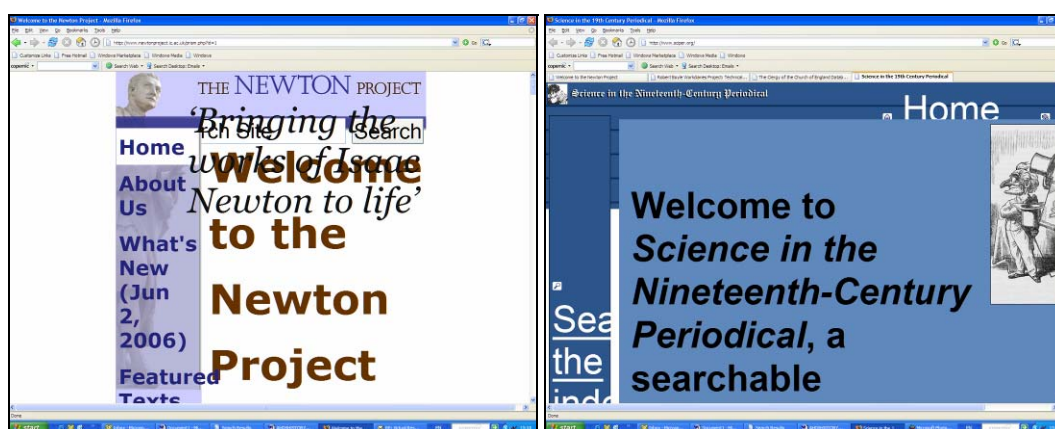


Figure 1: Two sites with ‘extreme’ levels of text enlargement

1.5 Quality per se



Figure 2: Poorly cropped image

Issues relating to scanning quality are frequently alluded to in the IHR’s survey. The quality of a reproduction of a published volume should not be considerably lower than the original. Quality assurance is a tedious, but necessary process in digital resource creation projects. The thumb in the image in Figure 2 received by the OHPR project carried out at AHDS History does not obscure any of the information within the image, but is off-putting and demonstrates a lack of care. In sites which

¹³ See note 10 which gives an interesting example of the effects of colour on appeal and perceived usability. Laurie Bradley and Christine Phillips, 2003, ‘Aesthetics and usability: a look at color and balance’, *Usability News*, 5.1
<<http://psychology.wichita.edu/surl/usabilitynews/51/aesthetics.htm>> [31 August 2006].

purport to be *reproductions* of printed sources rather than transcriptions, indexes or other resources, the highest level of quality possible is vital. There is little point making what might be a scarce resource available unless it is legible. For display purposes the AHDS recommends that either PNGs or GIFs are used, while for preservation purposes TIFF files are created. Digital reproductions of source materials are displayed in the sites of the Old Bailey, the Newton and the Workdiaries projects. In the case of the Old Bailey Project a very small number of these reproductions are very poor quality and are virtually unreadable. See Figure 3. In the case of the right hand image, we assume that this is the fault of the original microfilm. When publishing very large quantities of images of this nature it is virtually impossible to quality assure every image, but if reproductions like this are spotted and it is impossible to alter them immediately then a 'health warning' should be applied.

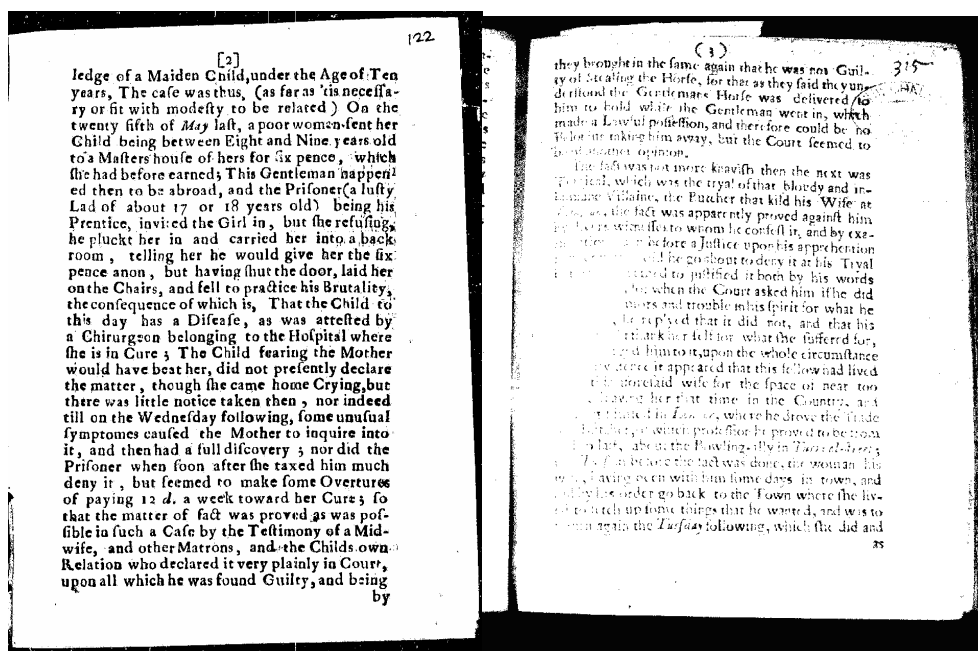


Figure 3: Example images from Old Bailey, showing clear and less clear reproduction

We also recommend that all image manipulation or processing which has taken place during digitisation which may affect the users' ability to interpret or use the original source material should be documented.

1.6 Technical standards

Resources should be compliant with general technical standards. As the resources under discussion are all web-based, the most obvious standard at present is the Hypertext Transfer Protocol (HTTP 1.1).¹⁴

Resources should be compliant with general accessibility standards. Sites must be accessible to all, thus sites should achieve level A compliance with the W3C WAI (World Wide Web Consortium's Web Accessibility Initiative Recommendations).¹⁵ The purpose of adhering to these standards is not simply to allow users with disabilities equal access to a resource, but to promote interoperability and quality and to reduce development and maintenance times. The W3C WAI have not only published recommendations, but useful hints as how to best ensure evaluation of accessibility, and not only for static web sites but for dynamically generated sites.¹⁶

It should be a condition of funding for any web-based resource that accessibility issues are addressed adequately. Basic mark-up validation services like the W3C's service provide a useful tool to check the mark-up.¹⁷ This site has been used to validate the five home pages listed above.

Newton Project	HTML 4.01 Strict	Passed
Workdiaries Homepage	XHTML 1.0 Transitional	Failed
SciPer	No DOCTYPE found	Failed
Old Bailey	No DOCTYPE found	Failed
Clergy Database	No DOCTYPE found	Failed

The fact that four of these sites do not pass the strictures of the W3C Validator does not mean that they do not function properly. There may be good reasons for a resource not adhering to all of the standards, but these should be outlined within the documentation. Furthermore, the resources' claims to technical and accessibility standards adherence should match actuality (i.e., if it says that it is XHTML 1.0 compliant it should be).

¹⁴World Wide Web Consortium (W3C), 1 September 2004 [Last update] 'Hypertext Transfer Protocol - - HTTP/1.1' <<http://www.w3.org/Protocols/rfc2616/rfc2616.html>> [31 August 2006].

¹⁵ Web Accessibility Initiative (WAI), 20 July 2006 [Last update] <<http://www.w3.org/WAI/>> [31 August 2006].

¹⁶Web Accessibility Initiative (WAI), 4 April 2006 [Last update] <<http://www.w3.org/WAI/eval/Overview.html>> [31 August 2006].

¹⁷ W3C Markup Validation Service, 20 February 2006 [Last update Version 0.7.2] <<<http://validator.w3.org/>>> [31 August 2006].

Some of the more common technical issues which relate to accessibility include the use of flexible screen widths and pop-up windows. It is important to note that while authors on the style of web sites highly depreciate the use of pop-up windows, there are methods of ensuring that these features are both useful and fully accessible.

Increasingly websites are using JavaScript to support dynamic content. According to securityspace.com, as of August 2006 JavaScript is used by almost 60% of websites.¹⁸ W3C has discouraged the use of JavaScript, though accepts that server-side scripting is an acceptable alternative.¹⁹ From an accessibility point of view JavaScript can cause problems, but it is also fair to say that JavaScript can also be problematic from preservation and sustainability points of view. In the less-commercial environment of the academic humanities resource, where finance for sustainability and development is less forthcoming, keeping things simple must remain the watchword. It is particularly important to impress on some technically naïve investigators that what is possible on a web based resource is not always desirable from cost, accessibility, usability and preservation points of view.

Other tools such as WebXACT (formerly known as Bobby) and Vincent Flanders's 'Fixing Your Web Site' allow one to check pages on a web site for adherence to a number of other standards.²⁰ No validator is perfect, and as mentioned above there may be reasons why certain standards must be broken. It would be unreasonable, for example, for every single scanned image from the Old Bailey collection to have a detailed alt text tag. The primary purpose of the alt text tag is to provide a textual alternative to the image being displayed, either if, for whatever reason, the image is unable to be displayed, or the image is unable to be seen by the user. The Old Bailey solution is to provide an alt text tag which reads along the lines of "Original page image, Old Bailey Proceedings, 13 Apr 1681 image number a003. Use your back button to return to a full transcript of this page" – a pragmatic solution to a potentially knotty problem.

It is not proposed that all these standards be tested or checked in any detailed review of web-based electronic resources; this should be considered to be good practice in any publicly funded resource. We suggest that in the proposal stage of any application much greater detail is given about the

¹⁸ Security Space, 1 August 2006, 'Technology Penetration Report' <http://www.securityspace.com/s_survey/data/man.200607/techpen.html> [31 August 2006].

¹⁹ World Wide Web Consortium (W3C), 5 May 1999, 'Web Content Accessibility Guidelines 1.0' <<http://www.w3.org/TR/WCAG10/wai-pageauth.html>> [31 August 2006].

²⁰ Watchfire WebXact (nd) <<http://webxact.watchfire.com/>> [31 August 2006] and Vincent Flander's Fixing Your Website (nd) <<http://www.fixingyourwebsite.com/drhtml.html>> [31 August 2006].

technical standards and software being used to create a web-based application.

1.7 Usability

Levels of usability are slightly more of a pragmatic quality of any web resource. The basic point for assessment is whether or not users find what they're looking for efficiently and quickly. This is especially the case when users know that something is present but have not bookmarked the particular page or it is not possible to bookmark the page. There are many published guides to usability of web-sites, with the works of Jakob Nielsen predominating.²¹ It should also be remembered that usability and accessibility are often highly intertwined, and when the latter is correctly addressed the former is usually less problematic. Amongst the key questions which are particularly significant to web-based (and other digital resources) are the following:

Navigation. Are there clear backward and forward links to sections on the site? Are links to other parts of the site clearly marked? Is there always a return to home page? Can a user determine what page they are on from the URL? Can the site be navigated using only a keyboard? For complex sites, is there a site map?

Searching. Do users need to search the resource? If so, does the resource allow both simple and advanced searching? Are searches ranked? How much of the tagged data/metadata can be searched? Are thesauri/controlled vocabularies used in searching? If so how? Are users told if OCR on which text search is based is not QA'd? For most resources full-text searching has become a prerequisite, and the full text being searched must be the highest quality as possible.

Browsing. Are there clear paths from the home page to the historical material? To what extent can one navigate through the material using a browse facility?

Accessibility. Can a screen-reader be used appropriately?²² Does the site contain an accessibility statement? Does the site comply with the SENDA

²¹ Jakob Nielsen and Hoa Loranger, *Prioritizing web usability* (New Riders Press, Berkeley CA, 2006), and Jakob Nielsen, *Designing web usability: the practice of simplicity* (New Riders Press, Indianapolis, 2000). See also note 10.

²²World WideWeb Consortium (W3C), 5 May 2005, 'How people with disabilities use the web', < <http://www.w3.org/WAI/EO/Drafts/PWD-Use-Web/Overview.html>> [31 August 2006].

legislation of 2001?²³ Does the site use any proprietary plug-ins which may be difficult for some users?

Download. Can users download any of the material, and if so in what format? Can one download citations to source, or is there a citation guide. Are URIs provided for each page?

Printing and saving. Can users print either digital images or digital texts directly from the browser?

These questions may assist in the construction of a basic usability review matrix for digital resources, but we firmly recommend that in most cases, the issues of usability and accessibility are addressed appropriately in the project planning stage. It may be possible to construct a detailed checklist of guidelines which could be issued to projects in advance of the submission of their proposals for them to conform to.

Two other issues which relate to usability but are clearly impossible to address properly during the project planning stages relate to the availability of help files and the provision for post-implementation usability testing. Design gurus and web usability experts would argue that a well designed commercially-oriented site needs little or no help facilities. This is much less the case in the non-homogenised world of academic web sites. In the case of the University of Leicester's Historical Directories website there is a useful 'How to use this site' page.²⁴ The Vision of Britain site contains comprehensive 'documentation' on how to use the site, but it is rather buried behind a user feedback form.²⁵ Peter Higginbotham's Workhouse resource contains a constructive Frequently Asked Questions page.²⁶ These three rather different sites, all pitched at different audiences, have found model methods of providing help with both the site and with its content. Well-used and well designed sites often have FAQ which alleviate any pressures of feedback and help to build a user community.

The ability to print is an issue which was highlighted by a number of the respondents to the IHR survey. Printable versions of web pages should be

²³ Office of Public Sector Information, 3 July 2001, 'Special Educational Needs and Disability Act, 2001: Chapter 10' <<http://www.opsi.gov.uk/acts/acts2001/20010010.htm>> [31 August 2006].

²⁴ Historical Directories (nd) 'Getting Started' <<http://www.historicaldirectories.org/hd/howto1.asp>> [31 August 2006].

²⁵ A Vision of Britain Through Time (nd) 'Help' <<http://www.visionofbritain.org.uk/footer/help.jsp>> [31 August 2006].

²⁶ Peter Higginbotham, 24 January 2006 [Last update] 'Frequently Asked Questions' <<http://users.ox.ac.uk/~peter/workhouse/faq.shtml>> [31 August 2006].

supplied if appropriate; high quality images should be made available for viewing or downloading.

Proper user-centred design should, to a large extent, obviate the necessity for detailed usability testing during and towards the end of the project. The usability.gov site provides some useful information about carrying out usability testing.²⁷

1.8 Page content: general

We suggest that there are three areas which relate to the non-academic page content which need to be considered in an evaluation. These are:

- writing style;
- credibility/authority;
- currency.

The first three of these criteria are more qualitative indicators of a valuable resource. Writing style may need to be focussed on a particular audience, but in general, material written for the web needs to be written differently from material that is presented on paper. This is simply because it's harder to read on screen than on paper. Hence, shorter snappier paragraphs written in an active tense, with more headings and sub-headings than in normal 'academic' prose are a prerequisite for web based texts.²⁸ Avoiding verbosity is axiomatic.

Analysis of the credibility of commercial websites is an important topic of research. There are many factors relating to the public perception of a web site, generally speaking these are *name reputation*, *information source* and *company motive*. The precise relationship between these three issues is difficult to discern and may differ from one commercial environment to another. The web-credible website makes a number of suggestions about credibility, most of which are pertinent to the commercial world, however, some of these apply to research-driven websites, and most importantly that the site is professional and exudes confidence. Thus there should be no broken links, automated confirmation of email, information should be verifiable, and all errors should

²⁷ Usability.gov (nd) <<http://www.usability.gov>> [31 August 2006].

²⁸ For example: Gerry McGovern, Rob Norton and Catherine O'Dowd, *The web content style guide: an essential reference for online writers, editors and managers* (London, 2002). See also: Gerry McGovern (nd) 'The Web Content Style Guide excerpt: Writing for the Web: Part 1' <http://www.gerrymcgovern.com/guide_write_01.htm> [31 August 2006].

be avoided.²⁹ Stanford Web Credibility Research which provides empirical evidence for these guidelines, suggest that typos and broken links hurt the credibility of a site “more than most people imagine”.³⁰ Typographical errors can also hurt the reputation of off-line digital resources.

Authority and (academic) credibility are potentially more difficult to assess than commercial credibility, but it will be clear that authorial information will provide users with an indication of the status of a resource, also cut-and-paste citations and a clear .ac.uk address will also boost credibility and thus use of a site. Without these relatively simple academic devices credibility may fall. It is interesting to note that amongst the respondents to the IHR survey that authority is considered a more important determinant of value of a digital resource than its clarity of presentation.

Also given prominence by the Stanford Persuasive Technology Laboratory is the finding that the content of commercial sites is given higher credibility ratings if users can see that the content of the site is updated recently. This may not be the case for humanities based resources, but clear indications of dating should be provided. It should be clear when a resource was first made available and when it was last updated. Sites should be current and have no broken links to outside sites. When sites are in progress is it useful to have record-level information about their currency as in the English Monastic Archives site.³¹

1.9 Documentation

The term documentation when relating to a digital resource refers to a written record of various decision-making processes. Hamish James’ information paper ‘Guidelines for documenting data’ only refers to documentation which is suggested for the data creation process, but the reasoning for retaining this form of documentation applies to much of the remainder of a digital resource creation project.³² Iain Wallace and Eileen Maitland’s information paper reflects on documentation as metadata.³³ There is a level of overlap between

²⁹Web Credible (nd) ‘Beyond Web usability: Web credibility’
<<http://www.webcredible.co.uk/user-friendly-resources/web-credibility/beyond-web-usability.shtml>> [31 August 2006].

³⁰ B. J. Fogg, May 2002, ‘Stanford guidelines for web credibility’, A research summary from the Stanford Persuasive Technology Lab. Stanford University
<www.webcredibility.org/guidelines> [31 August 2006].

³¹English Monastic Archives, 23 August 2005 [Last update]
<<http://www.ucl.ac.uk/history/englishmonasticarchives/>> [31 August 2006].

³² Hamish James, 20 July 2004 [Last update] ‘Guidelines for documenting data’
<<http://ahds.ac.uk/creating/information-papers/documentation/index.htm>> [31 August 2006].

³³ Iain Wallace and Eileen Maitland, 8 June 2004, ‘Metadata for your Digital Resource’
<<http://ahds.ac.uk/creating/information-papers/metadata/index.htm>> [31 August 2006].

metadata and documentation but in the context of this report the term is being used to describe prose descriptions of managerial, intellectual and technical decisions made.

There are three main reasons for good documentation: it leads to a higher quality end product which because it rests on consistent work practices has higher than average levels of usability; it allows for the long-term preservation of a resource and it contributes substantially to a resource's scholarly value. A further reason for good documentation is that it allows others to both follow and possibly replicate decisions made though this is a by-product rather than a reason for keeping good documentation.

Ideally documentation should provide the bare bones necessary to allow another project team get close to replicating the resource under consideration. Thus while a project plan is not vital documentation it would retain utility even after the project is complete. We suggest that the following elements of a resource should be documented, and that this documentation could be used to assist in any technical and intellectual assessment of a resource.

- *Selection process*: a clear statement of why any particular resource is made up of its constituent parts.
- *Content*: a statement of what is actually within the resource.
- *Digitisation workflow*: a statement of the process(es) by which all elements of the resource were digitised. For projects which involve data modelling including tagging of information with the data this should be included. This would include transcription, tagging, editorial rules.³⁴
- *Standards compliance*: a statement of all published standards used and details of any modifications implemented within the resource which are undocumented elsewhere.
- *Rights management*: a clear statement of all issues related to rights including any other terms and conditions.

It is true that much of this information should already be provided within preservation-level metadata, but to articulate this information within a prose format will be more readily understandable by most readers.

If the resource is available online, particularly through interactive web browsing, additional documentation relating to the functional and technical specification of the web site should also be provided.

³⁴ Sciper Project, September 1999, 'Staff Manual. Version 6' (Unpublished: Copy supplied by Jon Topham; The Clergy of the Church of England Database, 2003, 'Research Assistants Handbook, v. 6.1', <http://www.theclergydatabase.org.uk/redist/pdf/RA_handbook.pdf> [31 August 2006].

During discussion with one of the evaluation projects, some distinction was made between documentation which was made freely available, project documentation which might be made available to certain other researchers, documentation which might be made available for assessment and finally documentation which would not be made public under any circumstances. Hence the availability of documentation is an issue in any digital resource creation project. We would advocate that most documentation should be freely available and online; however, circumstances may apply where some documentation should retain a level of confidentiality. Even so, we would recommend that any resource at least makes the existence of any 'confidential' documentation known.

The presence or absence of documentation within any resource should not be part of any review process, but its overall availability should. Project documents such as the editorial conventions, metadata standards and project reports should either be publicly available or at least made available for consultation upon request. The assessment process should take into account whether or not all the relevant documentation is easily available, i.e., whether it is online or not; whether it covers all the technical standards in operation within the resource; and whether it appropriately distinguishes any pertinent scholarly questions which might cause naïve users any troubles.

Furthermore, the assessment process should take into account the level of detail provided within the documentation, but should also reflect the level of complexity of the resource. Thus, the provision of documentation for the 'Workdiaries of Robert Boyle' project includes 'Editorial definitions', 'Referencing System', 'Transcription Policy', 'Editorial apparatus', 'Abbreviations' and 'Technical Policy' all of which refer to what is described above as 'Digitisation Workflow', but are in fact mostly policy documents relating to the manner in which the raw transcriptions have been augmented. These are vital documents to understand the processes which have taken place on the resource during its construction. Other documentation relating to rights are found elsewhere on the site.³⁵

It should also be noted that while quality documentation is an important element for any internet resource, the creation of high quality documentation and its provision is both a costly and time consuming process. While clear guidelines are already laid down by the AHDS, for the provision of documentation for deposits of data with the AHDS there are not clear guidelines for the creators of online resources. These guidelines need to be

³⁵ The Workdiaries of Robert Boyle (nd) 'Copyright'
<<http://www.livesandletters.ac.uk/wd/foot/copyright.html>> [31 August 2006].

created, and funding bodies should be made aware of the costs of production of quality documentation and should allow for the provision of such material accordingly. Projects should also be notified in advance about the appropriate level of 'public' documentation so that it can be incorporated at the planning stages of the project.

The question of whether project progress reports made periodically to the relevant funding bodies for administrative purposes should be made available to a review process was asked by a couple of the project teams we met with. The general consensus was that they should be, but these progress documents might be rearranged to be of greater value to any evaluation process.

1.10 Sustainability

In their reviews of technical appendices the AHDS attempt to assess the likelihood and levels of sustainability of any particular resource. This is clearly a qualitative and potentially ad hoc measure. The sustainability of a resource should not affect the conclusions of any review/assessment, but the provision of the materials necessary for the dismantling and reconstructing with only technical expertise could be made part of a review.

1.11 Conclusion

What we really have here is a check list of possibilities which could be assessed, but perhaps it is better to retain them as guidelines with the possibility of checking through them in any assessment process. With the exception of documentation which relates to many aspects of a project it would be relatively straightforward to assess these technical aspects of any project relatively rapidly, and indeed the JISC-funded Netskills already provides such a service.³⁶

Finally, it is important to note that many of the 'technical' elements listed above are relatively easy to review, and while they are important to review, they may not be as important as other elements of a project which are more difficult and potentially impossible to measure quantitatively.

2. Intellectual review

In many respects the 'intellectual' element of the review process should be carried out by those with knowledge of the material under review, thus a historian of science should be considering the content provided by the SciPer

³⁶ Netskills (nd) <<http://www.netskills.ac.uk/content/index.html>> [31 August 2006].

Project or Boyle's Workdiaries. However, unlike critical editions, where this would clearly be appropriate, it is less appropriate for digital resources because while the primary target audience of the Boyle Workdiaries may be historians of science, there is also another audience, those who use the resource for any other purpose. We firmly recommend that any scholarly review of an online digital resource should take into account secondary audiences, and where appropriate give 'non-peer' reviewers the opportunity to participate.

2.1 Data modelling

Earlier the concept of three general types of history site was introduced. We typify these as: the *reproduction*, the *edition* and the *research site*. In many respects the level of scholarly information in these sites tends to increase from the reproduction through to the research site, though this is not always the case. However, what is typical in all of these types of resources is the dissemination of historical source material.

For all three cases, it is clear that the scholarly materials need to be presented with a high level of scholarly rigour. The resource must attain high standards of accuracy, clarity and scholarship, there must, for historical resources at least, be a link between the provenance of the material and the material itself. Thus if a collection of material is being presented it must have a clear relationship to the original source material. In each of the projects under examination here, a different approach has been taken in the selection and presentation of the material. Boyle's Workdiaries displays images of the manuscript along with their transcriptions; the Newton project presents normalised and diplomatic transcriptions of Newton's works with some of the manuscript material presented as images;³⁷ the Church of England Clergy database is a compilation of many historical sources, bringing together material to document the lives of Church of England Clergymen between 1540 and 1835. The Scientific Periodicals project (SciPer) describes itself as "a searchable electronic index to the science content of sixteen nineteenth-century general periodicals", and the Old Bailey Online project contains amongst other material complete printed texts along with machine-readable transcriptions of the proceedings of the Old Bailey. Additionally information has been extracted from the Old Bailey Proceedings to create a searchable database of "trial summaries" which allow statistical analysis to take place. Each of these resources are designed with different models, but each follows,

³⁷ An example of an image can be found at: The Newton Project (nd) 'Philosophical Transactions 82 (1672), p. 4034' <http://www.newtonproject.imperial.ac.uk/web_keynes/philt/pt82-4034.html> [31 August 2006].

where appropriate, what is termed source-oriented principles, that is that there is an attempt to model the original source materials in their entirety, and present this material to the users of the site. In one case this paradigm is partially disregarded and it is impossible to reconstruct the original sources; in another case (SciPer) it is irrelevant because it is essentially an index.

In many respects the Clergy Database looks relatively simple, if exceptional in size, however, the scholarly input into the process which the project dubs 'personification', the creation of a 'person' to which individuals recorded in historical sources are linked, is considerable. This process is clearly time-consuming, demanding and requires significant knowledge of orthography, clerical careers and the administrative structure of the Church of England.³⁸ This process is not inherently technical, that is that it could be carried out on a card index; however, the ability to search and produce 'career histories' at the touch of a button means that a technical solution needs to be found to bring together information which relates to almost 42,000 people to date.³⁹ Furthermore the ability to create 'location' summaries and histories is also technically demanding, especially with a database which requires updating. For this resource the process of data modelling is constrained by the sources being used, the scholarly methodologies underpinning the project as well as database design implications. In this case the technical sub-contractors for this project, the Centre for Computing in the Humanities, have managed to transform a relatively straightforward relational database which can be use by the Research Assistants into an Open Source dynamic web-site, which has multiple entry points for users. Can an assessment of the scholarly methodologies in operation within this resource do justice to the technologies and programming which assemble all the technical components? Can an assessment of the website alone ignore the intellectual processes which disambiguate the multiple versions of names recorded in the various historical sources being used as primary source material? The answer to both of these questions must be an unqualified no.

The Newton Project's website which contains transcriptions of many of Newton's manuscript and published works is based on similar Open Source software as the Clergy database, but with a much greater use of the TEI for marking up and tagging texts, to allow for the display of both normalised and

³⁸ A. Burns, K. Fincham and S. Taylor, 'Reconstructing clerical careers: the experience of the Clergy of the Church of England Database', *Journal of Ecclesiastical History*, 55 (2004), 726–37. Pre-publication version available at: A. Burns, K. Fincham and S. Taylor, 31 August 2006 [Last update] 'JEH Article' <http://www.theclergydatabase.org.uk/content/publications/jeh_article.html> [31 August 2006].

³⁹ Number taken from sum of all standard persons available in surname listings.

diplomatic versions of the texts. This project's innovative use of TEI to mark up the texts requires both considerable knowledge of the content of the texts under consideration, and some of the mechanics of the tagging.⁴⁰ Again the inter-relationship between the scholarly and the technical within this project is seamless, but neither could be reviewed independently of the other.

In the case of the SciPer project, things are a little more straightforward, but the ability to create a reference work which allows relatively complex searching on a variety of keywords and full text within capsule summaries of articles and other periodical content is clearly a demanding process.⁴¹ The original data for this project was created in an SGML format, and in its current incarnation over the WWW is a large series of HTML pages with some server-side Java scripting. These are not particularly complex to create from a technical point of view, but there is very little which the user might wish to do with the resource that is not technically possible.

The Boyle Workdiaries project is in some respects similar to the Newton Project. The resource mainly consists of a diplomatic and 'normal' transcription of the primary source material and the facility to view the original documents alongside these transcriptions. The possibility of linking between the transcription and additional notes has been provided. As with the Newton project, it is only the combination of intellectual and technical skills that makes this resource as usable as it might otherwise be. In order to assess this project one would need to be able to clarify whether certain technical solutions were necessary because of the original form of the transcription. It should be noted that the raw transcribed data for this resource was originally created for a purpose other than for this site, and the expectations of the original creators were other than creating a linked image/transcription. Hence, place names are marked up in the text (and displayed as such), but are not linked to any further information, or standard vocabulary lists.⁴² The complex procedures necessary for the creation of the XML for these particular resources given in a 'technical policy' document demonstrates some of the challenges faced by the project. The use of TEI-XML also shows that the technical elements of the project can not be separated from scholarly concerns.⁴³

⁴⁰ John Young, 21 November 2002, 'Newton Project: Transcription guidelines and XML tag set' <<http://www.newtonproject.ic.ac.uk/resources/pdfs/techspec.pdf>> [31 August 2006].

⁴¹ SciPer Project, 'Staff Manual'.

⁴² On a couple of the days of examination of this site, in some cases this feature did not seem to work properly.

⁴³ Stella Wong, (nd) 'Technical policy' <<http://www.livesandletters.ac.uk/wd/editorial/technical.html>> [31 August 2006].

Finally, the Old Bailey website, which in many ways is the most complex of the sites under observation here, also requires the combination of scholarly and technical concerns to be taken into consideration. Ignoring the relatively straightforward element of the production of many thousands of page (or film) scans, we shall note two areas where this crossover work occurs. This can particularly be seen in the creation of a database which contains normalised version of key information about individual trials which took place in the Old Bailey. This database did not need much technical skill to create, but the process by which information was abstracted was clearly time-consuming and demanding, and involved ability to extract information precisely. This database feeds the tabulation facility provided on the site; again a feature which might only have been considered useful by quantitative historians. The second particular area where technical and intellectual coincides in this resource relates to the ability to 'search' display the results of searches on maps. (The manner in which the user uses this functionality is generally the other way about – it is possible to search for places which appear on maps, and the returned information includes both the map and the details of particular cases which mentioned that place as either a crime location or a defendant's house.) This is not technically advanced but could not be achieved by a novice. Furthermore, it could not be achieved unless the project had had the foresight and knowledge to create a normalised list of place names which occur.

All of the resources under consideration here, and all the others referenced within this report, have had to make decisions about the modelling of the information contained within the original source material. In the case of the Old Bailey project it was necessary to be certain about the usage of street and parish names in advance of the implementation of that information in a structured way in the website. In the case of the SciPer project categories had to be formalised in advance of the extraction of the information from the periodicals being abstracted.

Furthermore, it is not just decisions taken in modelling certain information, but the manner in which decisions have been made to model the whole 'corpus'. In the case of the Boyle project, while the manuscript page would by necessity be a 'sub-document' level, the individual numbered paragraphs have been made to take precedence, either through design or accident. With the digitisation of many of the State Papers domestic it might be possible to reconstruct the archive in a different form to that artificially constructed within the National Archives.⁴⁴ Decisions taken in modelling data may impact on the way in which the data can ultimately be used by others in the future

⁴⁴ University of Hull State Papers Project (nd) <<http://www.sp12.hull.ac.uk/>> [31 August 2006].

and the reasons for all decisions should be documented to allow for future users to reinterpret the process.

Using the term data modelling to describe all the processes involved in getting from the original material into a format where it can be used by software is slightly limited. This process is considerably more complex, as it involves decisions which may be dictated by the software in use or the available technology. Data modelling must be reviewed on a case by case basis in order to allow for the complexity of the information used within a resource. The review process should also attempt to answer the question to what extent have the resource creators dealt with this complexity. The complexity of information content of the Old Bailey site and of other projects is staggering, and the manner in which the interrelations are mapped or displayed is both relevant and important. We do not believe that there is any particular way in which one could quantitatively measure this complexity, except to submit the resource to rigorous user testing.

Consequently, while it is possible for someone who is technically adept to examine resources such as these from a user point of view, the usability of the resource remains paramount, and these levels of usability relate to some extent to what someone may wish to do with the resource.

2.2 Research value-added

Research value-added is defined here as something additional added to the original source which was not already present within the data. For example the SciPer site is almost entirely research value-added, the Workdiaries, Newton, Old Bailey projects contain full transcriptions of manuscript and printed materials.

If data modelling can not be evaluated empirically, then making a judgement about the research value-added is even more problematic. Who is to make the decisions about:

- whether something is scholarly value-added or designed for usability purposes?
- whether it is rigorously applied from a scholarly point of view?
- whether it has been correctly implemented or not?

Returning to the example of the Old Bailey site: the ability to show the location of a particular crime or home of a defendant is clearly of more than novelty value, especially when it is plotted on a contemporary map along with locations of other crime/defendants' homes. Extracting the information from all the trials relating to geographic location was carried out in the construction of the case summary database. Similarly information from the

three main maps must have been extracted, or at least provided by the original publisher of these maps. The places given in the cases must then have been standardised, according to a set of carefully constructed rules and mapped to the places in the map index. This may be low-level scholarly value-added, but is value-added none the less and was quite probably implemented because it was seen as something which would be of value to the target audience, but would also assist scholars finding other cases within proximity of other cases.

However, some scholars might say that the implementation of this value-added material is misleading. If one takes the example of the trial of Daniel Wingfield, who carried some stolen silk onto a barge at George Yard.⁴⁵ Clicking on the 'Crime Location' link returns a list of 21 possibilities to show on Strype's map of London. The context of the information within the trial makes it clear that the location of George Yard was close to somewhere a barge could be positioned. Only two of the excerpts from Strype's map show a George Yard contiguous to the Thames, so perhaps the site should explicitly exclude those which unlikely to be possible locations for this particular crime. Some evaluators might say that this is not really very rigorous from a scholarly point of view; on the other hand, users are being given the opportunity to evaluate all the evidence themselves. In this case the level of interpretation is relatively light.

In another example, in the case of William Jackson and Thomas Randall there is a clear reference to Craig's Court, an alleyway off Charing Cross, the crime location is given as Craig's Court and the map to which one is pointed does not show Craig's Court, but the circle points at the correct place. The method used to identify a location just south of Charing Cross off Whitehall is invisible to the user, but it is the correct location.⁴⁶ Again some knowledge must have been applied to allocate Craig's Court to a map which does not mention it. This form of disambiguation is everyday fare to scholars working in this environment.

The Workdiaries resource also provides similar disambiguation, though it has not been implemented in perhaps the most desirable fashion. When Boyle mentions a place in his diaries, it has been tagged and highlighted – clicking on this place brings up a short 'gazetteer' which explains the place, e.g., Dullodge is how Boyle spelled Dulwich. Technology has not been harnessed

⁴⁵ The proceedings of the Old Bailey, London 1674 to 1834, August 2006 [Last update Version 4.2], 'August 1694, trial of Daniel Wingfield (t16940830-8)' <www.oldbaileyonline.org> [31 August 2006].

⁴⁶ The proceedings of the Old Bailey, London 1674 to 1834, August 2006 [Last update Version 4.2], 'April 1783, trial of William Jackson and Thomas Randall (t17830430-60)' <www.oldbaileyonline.org> [31 August 2006].

to its full potential with this particular resource, but this footnoting is a time-consuming and tedious process which requires care and attention.

Each of these five resources shows originality in terms of both methodological and technical issues. They open up new sources to a much wider audience, and they open up these sources in a way which would not be possible without the appropriate technology. The manner in which the data has been modelled in these sites can lead users towards new interpretations of the data under consideration, and through what may seem to be tedious linking, classifying and standardisation, add considerable value to the resources. The academic value added, which is often invisible to the uninitiated, adds significance to these resources and if carried out rigorously provides resources informed by high standards of scholarship.

When attempting to assess 'academic value-added' we need to reflect upon the subject from three slightly different points of view. First, that what may be appropriate for the target audiences is present; second, that it has been carried out well (i.e., with scholarly rigour) and third; that it has been implemented in a technically appropriate fashion. What is hard to do here is to attempt to disentangle an implementation which has been made because of technical reasons rather than from an initial desirability point of view.

It is also worth mentioning that a lot of good work may go into a site, like for example, the Bethlam Archives site, but there is very little value-added either from a usability or a scholarly point of view, but this does not mean that the resource is not constructed on scholarly principles.⁴⁷ In this case, the aim of the project seems to have been achieved; it has a simple search facility; it provides some example images from the archive, though there is little additional contextual material to assist the user in interpreting any of the original source material available. The project uses recent, if not current technical standards and in all respects is a model of a small-scale archival catalogue.

Furthermore it is worth noting that it might not always be possible to assess research value-added at the project end, because it is only after some time that the resource's ability to do things which had not been thought of before or were not necessarily part of the original project plan becomes clear. For example, someone has 'harvested' the words used in the Old Bailey Online

⁴⁷ Bethlem Royal Hospital Archives and Museum, 24 January 2006 [Last update] 'Catalogue of the records held at Bethlem Royal Hospital Archives and Museum'. <<http://bethlemheritage.org.uk/web/brha.htm>> [31 August 2006].

system to do linguistic analysis.⁴⁸ This form of value-added should probably be included in any assessment as it opens up sources to new forms of analysis, which can be considered to be part of any resources originality. However one should probably not go too far down this route because these serendipitous bonuses were not the necessarily part of the intention of the creators. The form of data modelling suggested by the AHDS for electronic version of historical sources should however allow scholars to fully use resources in ways their initial creators did not intend.⁴⁹ If unusual use is able to be made of such resources then their creators should be credited for the flexibility in their resource.

When we discussed the issue of assessment of value-added material with a number of the projects it was clear that many were of the opinion that it was impossible to assess anything other than the value-added elements of a resource. This is far-fetched, because, it is possible to assess on other criteria, but in terms of 'intellectual' assessment, this may possibly be the case, especially if one considers data modelling as part of the value added.

Value added may not only be assessed from a scholarly point of view, but from a usability point of view. If resources lend themselves to forms of visualisation then visualisation tools should be used.

2.3 Standardisation, categorisation and classification

In source-oriented principles of modelling of historical sources, it is assumed that the original data is kept separately from any interpretative material, in case the standardisation or classification imposed by a creator of such a resource has made a mistake. We strongly recommend that data should not be standardised at the point of data entry. If this can be seen within any resource, it will not be achieving high levels of academic rigour, and it will prevent others from using the resource with confidence.

When classification schemes are used in order to make data more amenable to quantitative analysis, these should be documented and not used to replace the original data. In the Old Bailey resource, the term 'coining' has been used as a sub-category of crime which includes the forgery of banknotes.⁵⁰ We are told

⁴⁸ Tim Hitchcock and Robert Shoemaker, 'Digitising History From Below: The Old Bailey Proceedings Online, 1674-1834', *History Compass*, Vol. 4 Issue 2 Page 193 March 2006 [doi: 10.1111/j.1478-0542.2006.00309.x]

⁴⁹ S. Townsend, C. Chappell and O. Struijvé, *Digitising history: a guide to creating digital resources from historical documents* (Oxford, 1999), 12-13.

⁵⁰The proceedings of the Old Bailey, London 1674 to 1834, August 2006 [Last update Version 4.2] 'Crimes tried at the Old Bailey' <<http://www.oldbaileyonline.org/history/crime/crimes.html>> [31 August 2006].

that a scholar has been involved in a prolonged discussion about the inapplicability of this categorisation. If the user is aware of the problems of classification, then it should be possible for the user to reclassify to their own system.

If any standardisation (including classification) has been imposed on any of the original source materials provided in a resource it should be fully documented and, if possible, an explanation given as to the possible ramifications of this alteration.

2.4 Use of XML DTDs, tagging and retrospective tagging

XML is a mark-up language for describing and manipulating all forms of machine-readable data. DTD's define the structure of that document with lists of legal elements. The AHDS's guide to good practice on electronic texts while predominantly concerned with *literary* texts is of value to the humanities as a whole;⁵¹ the Text Encoding Initiative's *Guidelines* also provide a baseline for XML type mark-up schemes.⁵² Using TEI requires a reasonable knowledge of both the content of the texts being tagged as well as the mechanics of the tagging process. The use of TEI also shows that the technical elements of the project can not be completely separated from scholarly concerns. The informative documentation provided by the Newton Project shows clearly how the technical and the scholarly interrelate here.⁵³ The slightly less detailed information provided on the Lives and Letters website also documents the use of TEI in its tagging processes, while the site of the original TEI's creator's notes gives fuller detail, but is reported to be misleading causing additional work for the Lives and Letters team.⁵⁴

When using XML as mark-up for data, it is important to ensure that any decisions about how tagging should be used should be documented, and should also be provided for users to see those principles in action. In projects where more than full-text searches are available, because of a more detailed mark-up, this increased functionality should be rewarded.

⁵¹ A. Morrison, M. Popham and K. Wikander, *Creating and documenting electronic texts* (Oxford, 2000).

⁵² C. M Sperberg-McQueen and L. Burnard, eds, *TEI P4: Guidelines for Electronic Text Encoding and Interchange. Text Encoding Initiative Consortium. XML Version* (Oxford, Providence, Charlottesville, Bergen, 2002). Available at C. M Sperberg-McQueen and L. Burnard, eds, 2004, 'The XML Version of the TEI Guidelines' <<http://www.tei-c.org/P4X/>> [31 August 2006].

⁵³ Young, 'Newton Project: Transcription guidelines'.

⁵⁴ Wong, 'Technical Policy'. See also Charles Littleton, 17 February 2003 [Last update] 'Markup policy and TEI tag usage in the electronic edition of Robert Boyle's Work-diaries' <<http://www.bbk.ac.uk/~ubra110/TagUsage.html>> [31 August 2006].

3. Further considerations

3.1 Impact and economic worth

The relationship between (technical or scholarly) *quality* and *impact* of research outputs within the academy are generally seen as distinct. One of the suggestions we were offered during a project visit was that it should be possible to assess the *impact* of the site as opposed to the *quality* of its content – in fact it was suggested that quality could be (generally) guaranteed, but that impact was far more important.

We believe that technical (and scholarly) quality must remain the main planks in any assessment of digital resources within the humanities. However, impact can not be ignored, and since impact assessment is partially a technical process it should be discussed within this report.⁵⁵

There are a number of methodological issues which impinge on any discussion of impact; first regarding the form of impact which needs to be assessed or measured, second the information which can be collected and analysed in order to indicate relative levels of impact. Third, ‘assessment moment’ has to be defined.

The interest in impact studies in the humanities is probably predicated on the wish to establish levels of public value on humanities research. Public value can be viewed in different ways; the value to individuals (both within and without the academy); in more general social terms; and in economic terms.

Impact is less measurable than use, though it would be fair to say that use can be employed as a part proxy for impact. We can probably say that because Dan Brown’s *Da Vinci Code* sold more copies than Kenneth Clarke’s biography of da Vinci it had a greater cultural impact on individuals. It almost certainly has had a greater social and economic impact than the scholarly biography, but we suspect that its impact on the academy has been much slighter. We must beware of using indicators of use or activity for impact, but with care they can act as a part proxy.

The most basic form of usage can be calculated from web logs, registrations or downloads. However, each of these only gives very basic information about usage. For example, page views (defined as a request for a ‘page’) and visits (defined as a sequence of requests from a single client expiring after a pre-specified period of inactivity) are both considered to be unsophisticated measures of use, especially since caching may prevent an entry being made in

⁵⁵ Arts and Humanities Research Council, May 2006, ‘Impact Assessment Position Paper’ <http://www.ahrc.ac.uk/ahrb/website/images/4_97802.pdf> [31 August 2006].

the logfile. However, page views and visits show what is known as the 'reach' of a web site. Page tagging was developed to counter some the problems of logfile analysis, but remains problematic because it usually relies on third-party analysis and first-party cookies.

Furthermore, most of the commercial methods of web analytics are of little value within the HE/FE context simply because it is usual to (try to) make a distinction between academic/scholarly use and non-scholarly use. This can not be performed without page tagging where a cookie is used to identify individual users. Despite the perception that scholarly users are more prone to paranoiac tendencies when using web browsers there is no evidence to suggest that this is the case. Some web tracking companies give very high figures for the number of people who block third party cookies.⁵⁶ The use of session cookies, which seems to be standard practice amongst JISC funded websites can be helpful.⁵⁷

What this discussion boils down to is that commercial metrics for web analytics are irrelevant to HE/FE for most purposes. Reach is about the only generally accurate measure which one can use to determine impact. Other metrics used like click-path reporting which show how people have moved in the site or conversion measurement, which analyses the proportion of losses along fixed paths in a website may be useful for usability purposes will not help assess any levels of impact.

If reach is the only (reasonably) reliable, easily defined measure which one can use, it should potentially be examined in conjunction with the length of stay at a site. For most HE/FE resources one might argue that 100 users per month who stay on average for 15 minutes has greater impact than 1,000 users in the same period who stay for one or two minutes. However, given that institutional caches may make a multiple users look like a single user this method is still problematic.

Another simplistic measure could be to take the total cost of the resource to the funding body and divide that by the number of page views over a fixed period of time, the result would be a stable, comparable figure. This is too simplistic. It remains difficult to measure to usage on dynamically maintained sites, and there are all sorts of other complaints which might be laid against such a suggestion. For example, some research council funded resources are known to have a limited audience, which is taken into account when funding

⁵⁶ For example the commercial site Open Tracker suggests that up to 40 per cent of people block third party cookies. Open Tracker (nd) 'All About (third-party) Cookies' <<http://www.opentracker.net/en/articles/all-about-cookies-third-party.jsp>> [31 August 2006].

⁵⁷ For example Joint Information Systems Committee (nd) 'About this web-site' <http://www.jisc.ac.uk/printer_friendly.cfm?name=about_website> [31 August 2006].

is being awarded. Others may have a massive secondary audience, like the Old Bailey Online, which contains countless names and appeals to a genealogical audience. However the impact of Old Bailey Online in bringing genealogists face to face with original historical source material may have a greater impact on local historical studies than any such resource.

We do not believe that web-statistics as they currently stand can be of more than the most limited value for the assessment of the impact of a resource. (Many measures can be of importance for usability, accessibility and functionality, and should not be ignored.) The use of a simple registration system, while considered potentially off-putting to many users, might alleviate all these problems.) Users have come to realise that registration can be part of the funding bodies' requirements for a resource. Registration does not mean that anyone should be excluded from use, and it will not prevent bogus registration, but it should provide a much more accurate picture of usage.

We recommend firmly that registration is made compulsory on a number of AHRC-funded websites for experimental purposes to assess the possibility of examining the potential impact of a resource. If the experiment shows no significant decline in usage this should be considered as the best tool for collecting information about usage. The Census Registration Service and the ESDS both require registration for the use of data, and the ability to both target users for feedback and to measure "proper" usage is demonstrable.

A further method of measure of the impact of a resource on scholarly usage is through citation. Again, metrics based on the available evidence is patchy, and can not easily be calculated. In an earlier presentation attempting to assess the impact on digital resources on economic and demographic history, evidence was presented which demonstrated the unwillingness of many academics to cite digital resources regardless of whether they are online or not in their research papers despite having clearly used them.⁵⁸ Until the academy takes steps to promote the treatment of electronic resources in the same manner as it does paper or archival sources, using citations to get even more than an indication of impact will not be possible.

As an experiment we tested, using both Google's and MSN's Link feature, the number of sites which linked to the home pages of the evaluation sites. The results were quite surprising and are shown in the following table.

⁵⁸ Matthew Woollard, 'The impact of digital resources on research: new questions and opportunities - Economic history/historical demography'. Paper presented at Humanities Beyond Digitisation Conference, Institute of Historical Research, London, 20-21 September 2005.

Internet links to home pages of five sites

	Google	MSN
The Proceedings of the Old Bailey	about 1,590	7,629
Science in the nineteenth-century periodicals	about 536	207
The Newton project	about 244	1,328
Clergy of the Church of England database	about 188	247
The Robert Boyle Workdiaries Project	about 9	7

Note: count took place on 29 August 2006.

These results confirm to a certain extent the value of having a precise URL rather than being part of a domain. (It is worth noting that www.livesandletters.ac.uk has many more links to its home page than to the w[ork]d[iary] sub-domain.) Does this table show the relative impact of these five sites? Almost certainly not, but it may give an idea of relative usage, and given that both these searches include self-referential links this methodology would need to be fully documented before being implemented.

This discussion has shown that both analysis of web usage and citation are unreliable tools for assessing impact.

It is also necessary to think about when one might attempt to measure impact fairly; should a project like the Newton Project be assessed in the same way as the Old Bailey Proceedings? The Newton Project is ongoing, while the first phase of the Old Bailey is complete, though some updates are being made periodically. Since many projects of this type are not funded post-launch and impacts often occur well after the project has been completed, what is the real value of assessing impact? We would suggest that if any attempt is made to measure impact it must be done in a relatively controlled context and it must be related to the perceived audience at the outset of the project.

3.2 Users vs use

Related to impact are users and use. There is an argument that prolonged use is more important than actual use. As argued above, 100 users per month who stay on average for 15 minutes may represent more use than 1,000 users in the same period who stay for one or two minutes while the amount of time a resource is being used is the same. 100 downloads of one dataset in a month may look like greater usage than a single download of a different dataset, but the purpose to which the dataset is put is likely to be more important than the number of users. Usage is clearly very important but it is difficult to meaningfully quantify it.

One way in which usage can be investigated is through an examination of feedback and project responses to that feedback. We suggest that all online resources and services which provide digital resources accept and keep feedback from users, and also keep the responses to that feedback where appropriate.

3.3 Selection procedure

Selection procedure is the process whereby materials are selected for inclusion in a digital resource. Clearly, any assessment of the selection process should be carried out in the project planning/funding process; but there remain some 'selection' issues which may be related to technical processes during a project's lifetime. Most notably this relates to the scholarly value-added material. For example, in the Old Bailey project there was the issue of how to map eighteenth-century features to current geographical terms. During an assessment process the decisions to include additional information which may not have been envisaged at the outset should be reviewed.

3.4 A different model?

A picture which emerged from the different projects which we visited was the possibility of altering the project methodology for *resource creation* type projects. There are a growing number of centres of excellence within the UK which deal with the different types of project. These centres could be contracted to carry out all the technical and intellectual development of resources with the appropriate level of subject specific academic guidance. At one end of the spectrum this guidance might be restricted to selection, start-up, and consultation about specific historical/humanities issues; at the other end the guidance may encompass all aspects of the project except those which are wholly technical. However, a couple of the projects we visited expressed their doubts and concerns about a model where technical work is carried centrally. They argued that this would reduce the wide levels of expertise available in different centres and stifle 'creativity' or the way in which people come up with different solutions to different problems. On the other hand some responses to the IHR survey noted the need for a standardisation of approach.

Some general thoughts in this area were that a broader national structure was necessary to prevent the exclusion of interoperability. Two possible training opportunities were noted. First, a professional qualification in humanities/historical information science would allow projects to employ trained staff; second, proper training for humanities researchers in project management techniques should be offered. It was also suggested that project would like to be able to have cross-project or at least discussions

outside of the project team, i.e., it would almost certainly be useful if the complete project team of one project were to visit another one – even if for only one day per year. The AHDS is running a series of Developing Digitisation Project Workshops which AHRC-funded electronic resource creators are expected to attend *during* the lifetime of their projects, which allow for some discussion between project teams.

4. Who should carry out the assessments?

We address this problem in this report because it is certain to be an issue. The AHDS already carry out initial technical assessments of project proposals. AHDS History, for instance do around 60 such each year, taking around 120 person hours of assessment and administrative work. The AHDS would probably be unable to carry out any such assessments without additional financial and personnel resources.

The skills base to carry out assessments fully and to the levels suggested above is presently inadequate. There is no way in which a full evaluation could be made of all the resources currently or projected to be carried out in detail, but it would be possible to carry out less detailed reviews confirming that technical standards and procedures had been carried out successfully. But there remains the question how to react to projects which are inadequate in these areas. Who would be responsible for ‘correcting’ them?

The areas which we have suggested need assessment, to large extent, relate to usability, operability and accessibility, because these are the issues which seem most pressing to users. In one respect this can be seen as job for experts and need for considerable technical knowledge, on the other hand because researchers themselves can usually discern many of these issues, it might be possible for scholars to carry out a formal (open?) peer review of resources which could influence a more in-depth technical assessment. Furthermore in the standard AHRC Peer Review College Assessment Form, assessors are asked to consider ‘people’ within the project. Perhaps these people could also assist in the assessment of their counterparts’ projects?⁵⁹ However, we note that there is a need to ensure that any assessment is impartial.

The cost of carrying out assessments should be borne by the funders.

Conclusions

In conclusion we believe that it is necessary to balance the assessment or review between pre-project and post-project; though it would not be

⁵⁹ Arts and Humanities Research Council, August 2005, ‘Peer Review College Assessment Form’ <http://www.ahrc.ac.uk/ahrb/website/images/4_96451.pdf> [August 2006].

impossible to have regular project assessment meetings at critical points during life-time of project.

We strongly recommend that pre-project assessment should be made more strictly on technical procedures to be followed during the lifetime of the project, despite the very strong likelihood of technical change during the lifetime of the project. We believe that this emphasis will allow project investigators to gain a much greater technical awareness. Further, we recommend that a two stage process involving a shorter than current technical appendix is included in an initial submission and that a post award assessment is carried out on all management and technical issues (i.e., all matters which are not exclusively scholarly). We believe that placing a higher value on more formal front-end assessment means that the intellectual emphasis is placed in a more prominent position.

We also recommend that 'technical' assessments especially when they relate to the purely technical elements, like site naming, accessibility, etc., can mostly be assessed through checklists. Consideration needs to be taken on how to resolve any issues which may arise during this process. For example, if a project has no further funding, and is only just being sustained by its institution, but is in flagrant breach of current accessibility guidelines, how should this be rectified?

Finally we recommend that scholarly assessments of any technical elements of digital resources be carried out in tandem with assessments of the scholarly elements. There are few people with enough skills to carry this out, and many of those who do may not be fully objective.

Acknowledgements

We are grateful to four of the five projects which we approached for information about their sites and their views on this particular piece of research. We were rather disappointed about a lack of response from the Clergy of the Church of England Database. We would particularly like to thank Robert Iliffe, Mike Hawkings and John Young from the Newton Project; Jan Broadway and Alison Wiggins from the Centre for Life and Letters; Tim Hitchcock from the Old Bailey On-line project and Geoffrey Cantor, Jonathan Topham and Jamie McLaughlin from the SciPer Project.

This report was mainly written by Matthew Woollard with significant contributions and interventions from Roberto Cozatl and Zoe Bliss from AHDS History.

We have also received critical comments from our colleagues in the AHDS and from members of the Peer Review in the Arts and Humanities.

APPENDIX A

1. Very general

A.1.1 *Location/ name*

- Resources should be memorably named.
- Resources should not be *hidden* within institutional web-sites.
- Resources should be easily navigable within an institutional context (i.e., how easy/difficult is it to navigate out of the site).
- The relationship between the resource's site and other related sites should be clear.

A.1.2 *Funding bodies*

- Resources should be 'badged' according to the funding bodies' requirements. Approved logos of funding bodies and lead institutions where applicable should be displayed at the start (access) page of the resource.

A.1.3 *Aesthetics*

- Resources should not offend aesthetical sensibilities.
- Resource creators should, whenever possible, consider the use of white background and black text.

A.1.4 *Enlarging and decreasing text size*

- Resource creators should ensure that it is possible to alter the size of the text while browsing the resource.

A.1.5 *Quality of reproductions*

- Quality assurance controls should be implemented throughout the life-time of the project.
- The quality of a reproduction of a published volume should not be lower than the original.
- Care should be taken in describing any image manipulation which has taken place during the digitisation process which may affect the users' ability to interpret the original document.

A2. Technical

A.2.1 *Technical Standards*

- Resources should be compliant with general technical standards.

A.2.2 *Accessibility*

- Resources should be compliant with general accessibility standards and CENDAR requirements.
- Resources' claims to technical and accessibility standards adherence should match actuality.
- In case of non-adherence to particular standards, resources should outline in their documentation the reasons why those standards are not being followed.
- Resources should have flexible screen widths.
- Resources should not use pop-up windows unless necessary.

A.2.3 *Software usage*

- Resources should strive to use open source components.
- Resources should be usable in multiple common browsers.
- The functionality, accessibility and sustainability of the resource should be considered whenever contemplating the use of JavaScript to support its dynamic content.

A.3. Usability/Accessibility

A.3.1 *Navigation*

- Navigation should be enhanced by the presence of clear back and forward links to sections on the site as well as a return to home page button.
- Browsing the resource using only a keyboard should be enabled.

A.3.2 *Searching*

- Resources should allow simple and advanced searching facilities.
- Enough provisions should be made so that to make as much as possible of the tagged data/metadata can be searched.
- If thesauri/controlled vocabularies are used in searching, documentation explaining how this is being done should be made available to the user.

A.3.3 *Browsing*

- Resources should be built so that the paths from the home page to the historical material are as clear as possible.
- Navigation through the material using a browse facility should be...

A.3.4 *Accessibility*

- Resources should contain an accessibility statement.

- Resources should ensure that screen-readers can be used appropriately.
- Resources should, whenever possible, avoid the use of proprietary plug-ins.

A.3.5 *Downloads*

- Information detailing which data is available for download and in which format(s) should be made available to the user.
- Resources should make citations to source available for download and should ensure this information is easily accessible to the users.
- Help files should also be provided if appropriate.
- Uniform Resource Identifiers (URIs) should be provided for each of the constituent pages of a particular resource.
- It is recommended that usability tests be conducted and that details of these tests are made available to the users of the resource.

A.4. Page content: general

A.4.1 *Writing style*

- Creators should avoid the use of the passive tense and the writing of text which could be deemed verbose.
- Sentences should be written using a small number of points per paragraph.
- Users should be able to print, if not all, most of the available texts.

A.4.2 *Credibility and authority*

- Extreme care should be exercised to check the entire text of the resource for grammar, spelling, and or textual inconsistencies.
- Thorough checks should be made to ensure there are no broken links.
- Substantial authorial information should be incorporated to the resource so as to provide users with a good indication of the status of a resource.
- It should be made clear when a resource was first made available and when it was last updated.
- If a resource is 'in progress' it should have record-level information about the currency of particular records.

A.5. Documentation

A.5.1 *Selection process*

- Resources should include a clear statement of why any particular resource is made up of its constituent parts.

A.5.2 *Content*

- Resources should also include a detailed statement of what is actually within the resource.

A.5.3 *Digitisation workflow*

- Information about the process(es) by which all elements of the resource were digitised should be given.
- For projects which involve tagging of information, a document detailing their data modelling strategy should be included. This document should ideally contain information on tagging and transcription policies and editorial rules which were followed during digitisation.

A.5.4 *Standards compliance*

- Documentation should also comprise a statement of all published standards used and details of any modifications implemented within the resource which are undocumented elsewhere.

A.5.5 *Rights management*

- A clear statement of all issues related to rights including any other terms and conditions should be available.

A.5.6 *Functional and technical specifications*

- If the resource is available online, particularly through interactive web browsing, additional documentation relating to the functional and technical specification of the web site should also be provided.

A.5.7 *Availability of documentation*

- Prose format documentation should be provided even if much of the information is also provided within preservation-level metadata.

APPENDIX B

B.1. Very general

B.1.1 Intellectual Innovation

- Resources should deliver a resource which is new and as beneficial as possible to as wide an audience as possible. Any assessment should, however, be aware of the proposed audience, and state this within documentation.

B.1.2 Disambiguation efforts

- The ability of resource creators to combine source adequacy with the correct use of technologies and programming skills to produce a high quality resource should be recognised.

B.2. Data Modelling

B.2.1 Benefit of resource

- Resources should show whenever possible the relationship between what is shown on screen or made available for use and the original material.
- An effort should be made to provide as much information as possible on the provenance of the data.

B.2.2 Use of source-oriented principles

- Source-oriented principles should, when necessary be evoked. Resource creators should be aware and articulate the extent data modelling decisions have impacted on the modelling of the overall 'corpus'.

B.2.3 Handling of model complexity

- The complexity of any data modelling should be taken into consideration in any evaluation process.

B.3. Research-Value Added

B.3.1 Maximisation of the resource's value

- Can the material within the resource easily be used by others, and potentially for purposes which were not in the minds of the creators? To what extent could repurposed resources be of value to other researchers?

- Resources should be flexible enough to allow usage by people who are naïve and those who are well versed in the material.
- Creators should maximise and point out, whenever possible, the added value of their resource over 'printed' or other 'non-digital' forms.

B.3.2 *Scholarly value*

- Creators should attempt to add the scholarly value element to their resources in a rigorous and technically appropriate fashion.

B.3.3 *Alternative (non-scholarly) added value*

- Resources should, whenever this is relevant and appropriate, be evaluated in ways other than their scholarly value.

B.3.4 *Evaluation of serendipitous bonuses*

- Resources should allocate time, towards the end of the project and even at post-completion stage to evaluate the serendipitous bonuses that the project may have yielded. Serendipity in this context may serve as an indicator of the resources' flexibility and over-all added value.

B.4. Standardisation, categorisation and classification

B.4.1 *Compliance with standards*

- Data collection or digitisation should be carried out in accordance with the criteria set out by their particular discipline.
- Resource creators should, whenever possible, maximise the use of recommended guidelines, preferred standards and good practices.

B.4.2 *Appropriate use of standardisation /classification schemes*

- Resources working should avoid the standardisation of original material and should draw a clear line between original and interpretative material.
- Classification schemes intended to make data more amenable and ready for analysis should not, in any way, replace the original data and appropriate documentation explaining any ramifications or data alterations arising from the use of these schemes should be given.

B.5. Use of schemas and tagging

B.5.1 *Provision of documentation*

- The provision of adequate documentation where any decisions about the use of particular schemas is given should be a paramount element of resources.

B.5.2 *Tagging and coding flexibility*

- The provision of adequate documentation where any decisions about the use of particular schemas is given should be a paramount element of resources.

APPENDIX C

C.1. Additional elements which should be considered in advance of project commencement.

C.1.1 Selection

- Enough time should be allowed to consider whether the material selected for the resource is of value to the research community i.e., is the material selected of value to potential users.
- Resources should evaluate to what extent the material to be made available is suitable for use by a broad(ish) element of the research community.

C.1.2 Usability

- Does the value added elements proposed actually add anything to the overall knowledge, usability or use of the existing material?
- Will the project actually deal with users? If so, has the provision to allocate someone who will be answering any historical questions about the site after launch been made?
- Are there technical issues relating to sustainability here too?

C.1.3. Rights related problems

- Have all copyright issues been dealt with appropriately?
- Are there any intellectual property rights which need to be considered, and if so, can they be dealt with pre-project initiation?

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