

A Review of the AHRC Technical Appendix and Recommendations for a Technical Plan

Compiled by the Humanities Research Institute, University of Sheffield

on behalf of the Network of Expert Centres TA Working Group

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Executive Summary

The purpose of this consultation has been to identify problems relating to the scope, purpose, interpretation and use of the AHRC's existing Technical Appendix and to make recommendations for improvement. The consultation has taken the form of online surveys directed at technical reviewers and successful AHRC applicants, interviews and a stakeholder workshop.

The surveys showed that there is widespread support for the need to provide a Technical Appendix but the document is problematic for the following broad reasons:

- Its current structure is only appropriate for certain types of projects and does not account for the full range of digital outputs and digital technologies which are possible in today's research environment.
- The meaning of the section headings are unclear to many people and there is widespread confusion about what information the Technical Appendix is asking applicants to provide.
- The terminology of the Technical Appendix is alien to certain disciplines and research practices, such as the performing arts.
- There is uncertainty as to when a Technical Appendix is required.
- Applicants have a tendency to treat the Technical Appendix as an afterthought or minor document within the research application and do not fully engage with its issues.
- There is very little guidance for applicants, creating the feeling that the Technical Appendix is a test.
- Applicants have a poor understanding as to what the terms 'preservation' and 'sustainability' actually mean, with many believing that the two are interchangeable.

In order to address these issues, we propose the following recommendations:

1. That the Technical Appendix be renamed 'Technical Plan', and should be supplied by all project grant applications where digital outputs or digital technologies are essential to the planned research outcomes.
2. That the Technical Plan be a prose document which is uploaded to Je-S as an attachment. It should be fully integrated with the Case for Support and Impact Plan, and assessed by Technical Reviewers in conjunction with these.
3. That the Technical Plan be limited by an overall word count of 2000 (approx. 4 sides of A4) and the applicant be provided with comprehensive guidance as to the types of headings and sections that he or she should consider addressing.
4. That the Technical Plan constitute the following sections and the applicant encouraged to produce a level of detail as appropriate for the nature and value for the project of the digital output or digital technology being proposed:

Section 1: Summary of Digital Outputs and Digital Technologies

Section 2: Technical Methodology

Section 2.a: Standards and Formats

Section 2.b: Hardware and Software

Section 2.c: Data Acquisition, Processing, Analysis and Use

Section 3: Technical Support and Relevant Experience

Section 4: Preservation, Sustainability and Use

Section 4.a: Preserving Your Data

Section 4.b: Ensuring Continued Access and Use of Your Digital Outputs

5. That information concerning project management, timetabling, monitoring, risk, IP and copyright issues for the technical components of a project be subsumed within the Case for Support.
6. That a section called 'Technical Summary' be introduced to the Case for Support in which a summary of the project's technical component can be given, or a
7. That the Technical Summary should enable applicants to justify where they believe that digital outputs or technologies in their proposed project do not warrant the inclusion of a Technical Plan.
8. That applicants should be encouraged as a matter of good practice to preserve data outputs essential to their project's research outcomes after the end of the project period, and where appropriate make them accessible to the research community and beyond; but the resource devoted to this should be proportionate to the value of the data and its position in their Impact Plan.
9. That there be considerable online guidance and recommendations of best practice provided for the applicant, tailored to the perspectives of different disciplines and research techniques.

AHRC Technical Plan

First draft of headings and related help pages

Compiled by the Humanities Research Institute, University of Sheffield and the Network of Expert Centres Technical Appendix Working Group, on the basis of the Technical Appendix Review.

A. General

1. The Technical Plan (TP) should be supplied by all project grant applications where digital outputs or digital technologies are essential to the planned research outcomes. We consider a digital output or digital technology to be an activity which involves the creation, gathering, collecting and/or processing of digital information in support of a project's research methodology and/or dissemination and impact plans.
2. The TP should be closely integrated with the Case for Support and the Impact Plan.
3. It should be written as a single prose document, and uploaded to Je-S as an attachment, using the headings below, with a maximum overall word count of 2,000. The degree of detail provided under each heading should be proportionate to the value and importance of the proposed data outputs or technologies to the research outcomes and for the larger research community.
4. The section on project management in the Case for Support should take into consideration the technical aspects of the project if a digital output or digital technology is proposed, and should provide an assessment of risk. The Technical Reviewer (TR) will assess this part of the application as part of his or her review of the TP. Copyright, intellectual property and ethical issues relating to digital outputs and technologies should also be dealt with in the Case for Support.
5. Further supporting materials are available at XXXXXXXXXXXXXXXXXXXXXXXX.

B. The Technical Summary

6. Applications for projects involving digital outputs or technologies must include a Technical Summary in the case Case for Support, similar to the existing Impact Summary. The Technical Summary should be a brief description of the project's proposed digital outputs or digital technologies.
7. If you do not feel the inclusion of a TP is warranted, because the digital output or technologies are not essential to the planned research outcomes, you should justify this in the Technical Summary. The most obvious example would be websites that provide information about the project but do not include other data resources. You should also show in the Technical Summary that they you have read and understood the guidance provided for such outputs in the supporting materials. All other digital outputs or digital technologies described within the Technical Summary should be described more fully through the inclusion of a TP, using a level of detail appropriate to the project.
8. If the project is proposing a digital output or digital technology which are essential to the project's research outcomes but cannot or need not be preserved beyond the period of funding, you should still complete a TP, explaining the reasons for not preserving the data.

C. TP, Section 1: Summary of Digital Outputs and Digital Technologies

9. This should provide a brief and clear description of the digital output or digital technology being proposed, considering the following aspects: purpose, source data, content, functionality, use and its relationship to the research questions. You should identify the type of access envisaged, if applicable, such as 'freely available online'.
10. The intention here is to provide the Technical Reviewer with a clear overview of what you intend to achieve technically, so that the Reviewer is then able to assess whether the proposals for realising this are appropriate. You should provide a level of detail which is appropriate to the digital output or digital technology being proposed and its status within the project.

D. TP, Section 2.a: Technical Methodology: Standards and Formats

11. This should provide information about your choice of data and file formats. You should provide any relevant vital statistics relating to the data, such as size, quantity and duration. Although such statistics might need to rely on estimation, you should provide the reasoning behind your calculations.
12. Guidance is available in the supporting materials about commonly-agreed standards and formats. You should give your reasons for using the standards or formats chosen.

E. TP, Section 2.b: Technical Methodology: Hardware and Software

13. You should provide information about any hardware or software which will be used to support the project's research methodology which is additional or exceptional to conventional desk-based research and institutional provision. They should be included in the Justification for Resources and cross-referenced if there is an associated budget line. Where necessary you should produce additional justification of the use of such items.
14. This subsection is optional, depending on the type of digital output or digital technology proposed.

F. TP, Section 2.c: Technical Methodology: Data Acquisition, Processing, Analysis and Use

15. You should give information here about the process of technical development, articulating a workflow, and showing how the standards and formats given in section 2.a and the hardware and software given in section 2.b relate to each other. You should show that you have thought through how you will achieve your digital output or digital technology in practice.
16. This section should consider the technical development process from the point of data capture or data creation through to final delivery (in the case of a digital output) or analysis (in the case of a digital process). You should consider issues such as backup, monitoring, quality control and internal documentation where relevant, identifying procedures which are appropriate to the research environment. For example, technical reviewers acknowledge that the backup procedures which are possible during fieldwork might be very different to those which are possible within an office environment. Further guidance about recommended practices is available in the supporting materials.
17. This section needs to relate to the timetable and milestones given in the Case for Support as well as the project's overall research methodology. The Technical Reviewer will be assessing the

alignment of the technical development process with other project activities for logic and timeliness.

G. TP, Section 3: Technical Support and Relevant Experience

18. You should provide information about the individuals, facilities or institutions that will be responsible for the technical components of the project. You should summarise expertise and cite similar examples of work which the individual, facility or institution has conducted in the past, where they are similar to the proposed digital output or digital technology in terms of scope, content, objectives, technology or technique. The intention here is to enable the Technical Reviewer to obtain an insight into the skills and track record of the individuals, facilities or institutions involved in order to assess the knowledge base from which the project is drawing and identify the need for any additional expertise and training. Technical Reviewers will note that a project team which is able to demonstrate expertise and experience has a positive effect on the assessment of risk.
19. You should identify which aspects of the technical work will be undertaken by the individual, facility, institution or service, naming key individuals where possible. You should consider the risks to the project if a key individual becomes unavailable, including the contingency plan for acquiring these skills from elsewhere. Further, you should consider how the individual, facility, institution or service will support and sustain the project beyond the period of funding, where relevant, with reference to the project's sustainability plan (section 4.b).
20. When summarising technical expertise and experience, this can be with reference to your own skills in addition to those of third parties. Third parties might be individuals within your institution, an external HEI, other public organisations or non-public organisations such as SMEs and freelancers. Only facilities, institutions and services which are dedicated to the type of work being proposed or which are not part of conventional HEI IT infrastructure should be summarised. Examples of such facilities, institutions and services might be an e-Science infrastructure, a performing arts studio facility, a humanities computing centre or a server infrastructure which lies outside a HEI's standard provision.
21. You should identify the need for any additional training or expertise and give information as to how this will be provided. You should provide information about any external advice which you have sought in order to supplement the existing knowledge base.
22. All accounts of expertise and experience should be relevant to the technical work being proposed, the research methodology and the work and impact plans as appropriate.
23. The expertise and experience of the individual, facility, institution or service responsible for the project's technical components - whether internal or outsourced to a third party - should be self-evident within the quality of the TP as a whole. An applicant who claims to be able to draw upon considerable expertise but is unable to show that they have worked closely with the individual, facility or institution in completing the other sections of the TP will not be viewed favourably by the reviewer. The application will not be prejudiced if you have had to seek external advice.

H. TP, Section 4.a: Preservation, Sustainability and Use: Preserving Your Data

24. 'Preservation' here means the storage of project data beyond the period of funding, whilst 'sustainability' refers to the plans for ensuring that a digital output remains publicly accessible

and usable. Preservation of data means that it is potentially usable, but not necessarily accessible or easy to use. This sub-section is about preservation.

25. You should state what, if any, data you intend to preserve beyond the period of funding and why there is value in preserving this data. If you believe that none of the project's data should be preserved over the long term then this should be justified. As a matter of good practice, however, projects are encouraged to preserve data that is essential to their research findings for an appropriate period beyond the end of the funding period, with a view to supporting the research findings if necessary. They should also consider the potential value of any data produced for other researchers. However the length and cost of preservation should be proportionate to the value and significance of the data. It is open to applicants to make a case, where appropriate, for not preserving data outputs of the project at all, and if the case is a good one the application will not be prejudiced.
26. You should consider the preservation of data in four ways: what, where, how and for how long. You should also consider any institutional support needed in order to carry out these plans, if not covered under Section 3.
27. The term 'data' includes primary research data (derived or 'born digital'), programming code and documentation. You should think about the possibilities for re-use of your data in other contexts and by other users, and connect this as appropriate with your Impact Plan.
28. You should consider where your data will be preserved over the long term, for how long, and who will be responsible for its survival in the future. See the related supporting materials on recommended data repositories, as well as information about what constitutes appropriate storage. You should consider how the data will be able to endure changes in the technological environment and remain potentially usable in the future. The Technical Reviewer will be looking for evidence that you understand the reasons for your of technical standards and formats in section 2.a 'Technical Methodology: Standards and Formats'.
29. You should describe the types of documentation which will accompany the data. Documentation in this sense means technical documentation rather than user documentation. It includes, for instance, technical description, code commenting, project-build guidelines, the documentation of technical decisions and resource metadata which is additional to the standards given in Section 2.a. Not all types of documentation will be relevant to a project and the quantity of documentation proposed should be proportionate to the envisaged value of the data.

I. TP, Section 4.b: Preservation, Sustainability and Use: Ensuring Continued Accessibility and Use of Your Digital Outputs

30. You should provide information here about plans for ensuring that data outputs remain sustainable in the sense of accessible and usable beyond the period of funding.
31. There are costs to ensuring sustainability in this sense over and above the costs of preservation. The project's sustainability plan should therefore be proportionate to the envisaged longer-term value of the data for the research community and should be closely related to the Impact Plan. If you believe that none of the digital outputs should be sustained beyond the period of funding then this should be justified. However it is not mandatory to sustain all digital outputs. While you should consider the long-term value of the digital outputs to the research community, where data is purely ancillary to a project's research outputs there may not be a case for sustaining it (though

there would probably be a case for preserving it). See the supporting materials for further information.

32. Where sustainability plans are made, you should provide justification if you do not envisage open, public access. A case can be made for charging for access, but the default expectation is that access will be open.
33. You should consider the sustainability of your digital outputs in five ways: what, where, how, for how long and at what cost. You should also consider any institutional support needed in order to carry out these plans, if not covered under Section 3. You should also consider the economics of keeping the digital output publicly available in the future, including issues relating to maintenance, infrastructure and upgrade (such as the need to modify aspects of a web interface or software application in order to account for changes in the technological environment).
34. You should identify whether or not you envisage the academic content of the digital output being extended or updated beyond the period of funding, addressing the following issues: how this will be done, by who and at what cost. You will need to show how the cost of this will be sustained after the period of funding ends. See the support materials for further guidance.
35. A sustainability plan does not necessarily mean a requirement to generate income or prevent resources from being freely available. Rather it is a requirement to consider the direct costs and expertise of maintaining digital outputs for continued access by the public. Some applicants might be able to demonstrate that there are no significant sustainability issues with their digital output; in some cases the university's computing services or library might provide a firm commitment to sustaining the resource for a specified period; others might see the benefit of Open Source community development models. The applicant should provide reassurances of sustainability which are appropriate to the digital output and its wider value to the arts and humanities community.
36. When completing this section, you should consider the potential impact of the data on research in your field (if research in the discipline will be improved through the creation of the digital output, how will it be affected if the resource then disappears?), and make the necessary connections with your Impact Plan. You should factor in the effects of any IP, copyright and ethical issues during the period in which the digital output will be publicly accessible, connecting what you say with the relevant part of your Case for Support.
37. You must make appropriate provision for user consultation and user testing in this connection, and plan the development of suitable user documentation.
38. When completing this section, you should consider the opportunities for re-use of the data by other resources and web services with a view to increasing its overall impact within the academic and non-academic communities. See the supporting materials for guidance on the use of recommended standards and formats along with the provision of appropriate user documentation to increase these opportunities. Examples of opportunities for re-use might include linked datasets for integrated searching across multiple research resources or ingestion into systems and services which are able to add further value and reach new audiences.

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