Dig Digital.

Work Digital. Think Archive. Create Access.

A guide to managing digital data generated from archaeological investigations

Infosheet #7 – project monitoring and digital archives

This case study introduces good practice for digital archives for advisers who monitor archaeological projects or act in the role of project executive.

The use of digital technology is well established within archaeology, with born-digital data and digitised records being central to most current projects. Good-practice standards in archaeology stipulate that digital data created during an archaeological project are an intrinsic part of the archaeological archive and must be managed to the same standard as all parts of the working project archive. The CIfA *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (2014) requires that archaeological material is kept and curated as part of a stable, ordered and accessible archive.

Digital data needs to be carefully planned for and managed throughout a project to ensure that the correct infrastructure is in place to enable teams to collect, manage and resource the long-term preservation of project archives. Curation of digital data is a specialist undertaking and the selected digital element of a project archive will also need to be deposited with a trusted digital repository.

The methodology for digital archives can be described and documented during project planning stages using a data management plan (DMP), which is then updated as the project is delivered. Providing clear details at the start of a project provides those monitoring projects with relevant information about how project teams intend to meet the requirements of project stakeholders and CIfA Standards. As such, CIfA standards and guidance recommend having a DMP within project planning documentation, such as WSIs.

The Dig Digital resource is an Archaeological Archives Forum guidance document that supports CIfA Standards and guidance. It was created by DigVentures, in partnership with CIfA, and funded by Historic England.

You can find the full resource online at: https://www.archaeologists.net/digdigital

What's in a digital archive?

It is important for archaeological advisers monitoring projects to be aware of the size and range of digital archive material that is generated within a project, and that may form part of the preserved archive.

The types of records within a digital archive vary depending on the significance of the heritage asset(s) and the intensity of the investigation undertaken. Large-scale, open-area excavations or deeply stratified urban sites will often record significant archaeological remains, resulting in a rich digital archive. The scale of an archaeological project is not always an indicator of the digital archive produced. Other variables may affect the size and complexity of a digital archive, including the range of apparatus and digital techniques used (cameras, survey equipment), methods of recording (including born-digital recording systems and photogrammetry), data analysis techniques (GIS, databases), the nature and complexity of the finds assemblage (assemblage data, analysis data, conservation records, x-rays) and methods of dissemination (from PDFs to virtual reality).

As with the material archive, the digital aspect of the working project archive should be subject to a selection process. Depending on the project, the final deposited archive could range from submission of a project report as a PDF within an updated OASIS record, through to a comprehensive digital archive made available through a trusted digital repository. Table 1 below provides details of the types of data the preserved digital archive may contain. As with other parts of the archive, digital data should be subject to a process of selection prior to deposition.

Table 1. Types of data in a preserved digital archive

Project reports	While a PDF/A version of the report is an excellent form of dissemination (and you may wish to request a copy to accompany the physical archive deposition), it is likely that the composite parts of the report (text, illustrations, tables, images, etc.) will also appear in the digital archive.
Specialist reports and data	The digital archive should include full specialist reports and accompanying datasets, such as spreadsheets and images, that can be accessed separately to the combined project report.
Images	The digital archive can contain many more images than will be included in the report or publication, and the accompanying metadata and registers will provide additional details.
Born-digital site records	Increasingly, archaeologists are employing the use of on-site digital recording. Born-digital records, including context data, plans and databases, will be deposited as accessible data files with the digital archive, with no need to provide an analogue version for deposition with the physical archive.
Digitised records	Many records created in analogue form are digitised during an archaeological project. While it is unnecessary to duplicate material included in the physical archive, it may be preferable to retain primary analogue records as master copies. These kinds of decisions should be made with relevant stakeholders (museum curator, project lead, digital repository, among others).
Survey and geophysics data	Survey and geophysics data should be included in the digital archive in a format that maximises re-use. It is likely that processed images and an interpretation of the data will also be included in a combined report. In the case of geophysical survey, a separate report is also likely to be included in the archive.
GIS files	If the archaeological team created and used a GIS project, the digital archive should contain the raw data, such as 'shapefiles' and 'rasters', which would support re-use of the archive.
Laser scans, photogrammetry and 3D models	While scans or photogrammetry taken as part of the primary record may form part of the digital archive, orthoimages created to enhance public engagement may not always be included, so you may wish to request a copy.

The data management plan

A data management plan (DMP) is a planning tool that should be completed at the start of the project by the team managing the delivery. It is a live document and should be reviewed at key stages during project delivery. The DMP should be included as an appendix to key project documentation, such as the WSI or project design, the assessment report and updated project design, and as part of the final technical report. Ideally, it will also be deposited with the selected project archive. Find out more about and download a Dig Digital template of a DMP.

The DMP provides an early document that project advisers can access and review; it will articulate the variety of data the team expects to collect and the intended location for the final digital archive. By treating the plan as a living document, it remains relevant and flexible to any changes that may occur through the project delivery stages. Any developments or changes are then recorded and visible to all project stakeholders – including advisers, the trusted digital repository and the museum receiving the physical archive.

The completed DMP should be submitted with planning documents, including the WSI or brief, as well as project reports, such as the assessment report, updated project design and final technical report. Teams are also encouraged to submit the DMP as part of the digital archive, as it houses all relevant documentation in an accessible format and records processes relevant to its creation, management, and deposition.

Museums and digital archives

Long-term preservation of digital archives requires specialist resources, knowledge, capacity, and technical solutions to facilitate the storage, curation and accessibility of data in perpetuity. Best-practice standards in the care of archaeological archives stipulate that digital material should be kept and curated by a trusted digital repository with Core Trust Seal accreditation. A trusted digital repository is an accredited service; museums without Core Trust Seal accreditation are not trusted digital repositories and are not equipped to store digital data in perpetuity. Advisers should therefore expect that digital archives are deposited with a trusted digital repository, and that the location of the archive is signposted using OASIS (in England, Scotland, and Northern Ireland) and/or the relevant HER (in Wales).

The CIfA *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* require the project team to contact the appropriate repository during pre-project planning stage (CIfA 2014, para 3.10.2), and this should be identified within the DMP. A key platform facilitating the ongoing discussion of archives is OASIS, which now supports communication between project stakeholders, including the record creator (such as a commercial company), the HER and the museum. The OASIS record should signpost the location of the archive once deposited, and provide a unique link to the data and metadata.

Museums or repositories may like to retain a copy of digital archives (for example, to accompany artefactual assemblages, provide background data for their own access or enhance public engagement), but this should be seen as in addition to storage at a trusted digital repository and no additional charge should be levied against this.

CIfA Standards for advisers

The CIfA Standards identify the overarching expectation for the work being conducted and provide a benchmark to measure performance against. They are deliberately not prescriptive about the methods and approaches used to achieve that benchmark, as it is impossible to foresee every circumstance and prescribe for every potential investigative method without unwittingly inhibiting opportunities for innovation. Compliance is therefore supported through the provision of good practice guidance that outlines the procedures by which outcomes or products can be attained, and against which performance can be monitored. The CIfA *Standard for the creation, compilation, transfer, and deposition of archaeological archives* states:

> All archaeological projects that include the recovery or generation of data and/archaeological materials (finds) will result in a stable, ordered, accessible archive. All archaeologists are responsible for ensuring that the archive is created and compiled to recognised standards, using consistent methods, and is not subject to unnecessary risk of damage or loss. It is the responsibility of all curators of archaeological archives to ensure that archives are stored to recognised standards for long-term preservation and made accessible for consultation.

In addition to the CIfA Standard for archaeological archives, relevant information can be found in CIfA Standard and guidance documents relating to archaeological advice, consultancy, and project delivery. Table 2 includes requirements taken from the CIfA *Standard and guidance for archaeological advice*, indicating how advisers can support good practice for digital data management.

Table 2. Relevant requirements from the CIfA *Standard and guidance for archaeological advice* (2014) in relation to digital archives

Requirement	Standard and guidance for…	Action for digital data
Advisers [planning archaeologist/ project executive] should seek to ensure that the archives of archaeological investigations are deposited in a suitable repository (Para 1.60)	archaeological advice by historic environment services	The planning archaeologist and/or project executive should ensure that pre-project planning documentation and the DMP identifies the repository for the digital archive. Ensure the archive repository for digital data is a trusted digital repository, has the appropriate level of accreditation and is recognised by Core Trust Seal or equivalent.
Advisers [planning archaeologist/ project executive] should seek to ensure that the specification for the work makes provision for the deposition of archive material (Para 1.6.2)	archaeological advice by historic environment services	The planning archaeologist or project executive should ensure that pre-project planning documentation articulates appropriate provision for physical and digital archives to be deposited. Require that a completed DMP is submitted with pre-project planning documentation.

Checklist for project advisers

There is no checklist that can provide all the necessary checks for all projects. As with CIfA Standards, different methods and approaches may be used to achieve benchmarks, and monitoring projects will depend on how easy it is to understand how good practice guidance is implemented. Depending on the nature and location of the project, different attributes may come into play.

These are some common features that can be indicators of good practice:

- ✓ Has the DMP been submitted with pre-project planning documentation (eg WSIs, project design)?
- ✓ Does the DMP sufficiently describe the process and standards used for collection, management, selection, and deposition of the digital data archive?
- ✓ Is there a selection strategy in place?
- ✓ Has provision been made for archive preparation and costs of deposition?
- ✓ Has the intended trusted digital repository been identified?
- ✓ Has an updated DMP been submitted with subsequent project reports, including assessments, research designs and final technical reports?
- ✓ Where an OASIS record is required, is it being updated at appropriate stages and does the record indicate where the digital archive will be deposited?
- ✓ Has the digital archive been deposited with the intended trusted digital repository?

The role of advisers in supporting good practice for digital archives

The list below defines the things which project advisers can do to support good practice in the management of digital archives.

During project start up

- ▪ *advisers* produce a project proposal or project brief that will
  - – highlight the standards to which the project must adhere, eg CIfA Standards and guidance.
  - – require the inclusion of a DMP and selection strategy that meets the requirement of CIfA Standards and guidance

During project initiation

- ▪ the *adviser* monitors the project design/WSI against the brief and agrees the approach and methods outlined in the project design/WSI, and in the DMP

During project execution

- ▪ the *adviser* monitors the project to ensure that standards are being met and certifies completion
- ▪ the *adviser* monitors the project as appropriate, ensuring that the condition and security of all archive material is maintained