

Research Data Management

What is research data management?

Research data management may seem a slightly forbidding term – but in fact just refers to the part of the research process that happens between gathering your sources and producing your final outputs. It covers:

- How you organise and structure material (both print and electronic)
- How you store it and back it up
- How you prepare material for analysis, or to share with others

It includes working with structured data (the sort that might be stored in a table or database), but certainly isn't limited to that – it also covers textual sources, images, recordings, and much more.

The two key goals of good data management are both about making the research process as efficient as possible:

- In the short term, to make sure you can find the information you need when you want it
- In the longer term, to ensure the information you've collected remains useful: that it's stored safely, and that it will still make sense if you return to it in a few years' times.

There may also be funding body requirements that you need to meet:

- You may need to submit a data management plan when you apply for funding
- You may be required to make your data publicly available at the end of a project

Start early and think ahead

A key principle of good data management is forward planning. The earlier you start thinking about how you'll manage your information, the easier it will be: that way you can put good systems in place before you're swamped with material.

But while the beginning of a project is the ideal time to think about this, it's never too late to make some improvements. Take some time to look at your current ways of dealing with information. Are there changes you could make to make life easier for yourself? It's worth having one eye on the future – how are things likely to develop over the course of your research project? Is it likely you'll wish to reuse this material in later projects?

For those working with a lot of structured data, [OUCS's InfoDev team](#) can provide technical advice. They can also help with the technical aspects of funding bids.

Backing up

We all know that it's important to back up our files, but it's very easy not to get around to doing so. Setting up an automated backup can remove the pressure to remember to do this on a regular basis.

You can make your own backups onto, for example, an external hard drive. However, it's worth keeping backups in multiple places – in case of fire or theft, for example.

OUCS's [HFS backup service](#) is available free of charge to university staff and postgraduates, and will store backups of your data in three separate places, one of which is outside Oxford.

If you work on multiple computers, a synchronisation service can ensure you always have the latest version of your files wherever you're working. [Dropbox](#) is popular, but plenty of others exist.

Data sharing and curation

Even if your research project isn't one that's focused on creating a major database, you may nevertheless produce some structured data. You may wish to consider sharing this through a data repository: in addition to being useful to other researchers, if people use and cite your data, this can help boost your own academic reputation.

Although data sharing is usually done towards the end of a project, it pays to think about it from the beginning. Shared data needs to be consistently presented and properly documented – that is, in a form that's intelligible to other people, and accompanied by any auxiliary information another user will need to make sense of it (notes on the sources, for example, or on how the data has been manipulated or edited). It's a lot easier to think about this sort of thing when you first collect or compile the data, rather than having to go back and fill in the gaps later.

Oxford has its own research archive, [ORA](#): this currently focuses mostly on text-based research outputs, but there are plans for it to play a formal role in the preservation of datasets in the future. The Oxford University Research Data Management website offers further advice about [data sharing and archiving](#), including details of other repositories. The national [Digital Curation Centre's website](#) is also a useful source of information.

Information management tools

Managing your data is far easier if you're using the tools that are best suited for the job, so it's worth taking some time to explore the variety of software that is available:

- If you want to be able to search and sort information easily, a spreadsheet or a relational database may be what you need
- Bibliographic software can be used for more than just generating citations: many people find it helpful for creating a searchable index of their source materials and notes
- There's also a wide range of software out there designed for specific jobs – to annotate Web pages, PDF files, or images, to help organise ideas and notes, and to help organise and analyse information

The [Research Skills Toolkit](#) website provides an overview of lots of useful software and services. Your colleagues may also have useful recommendations to make.

Training

[OUCS's IT Learning Programme](#) offers a wide range of courses – for both beginners and more advanced users. There are courses on specific software packages and on more general skills (database design, working with digital images, and so on), including some on data management.

The [Skills Hub](#) offers links to other University training providers.

Further information and advice

The Oxford University [Research Data Management website](#) provides guidance and further information about the services available. A [leaflet](#) covering the key issues can be downloaded from the Sudamih Project's website.