

# iSkills: Managing Research Data and Data Management Planning



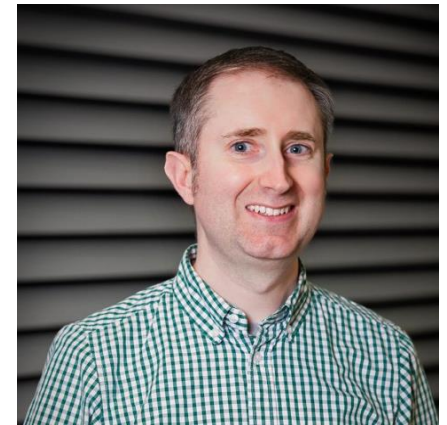
Michaelmas Term  
October 2024



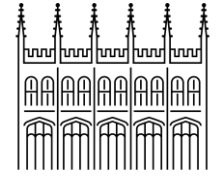
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# Overview

Help you think about practical issues to do with creating, working with and securing data

- Show how 'data management' benefits you
- Highlight what support is available
- Discuss how to apply these ideas through planning
- Link to Open and Reproducible Research

# University's policy on research data management (RDM)

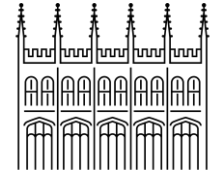


There is a formal policy on research data management (RDM) and records:

“The University of Oxford seeks to promote the highest standards in the management of research data and records as fundamental to both high quality research and academic integrity.”

See Research Data Oxford (RDO)

<http://researchdata.ox.ac.uk/>



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# Policy in practice

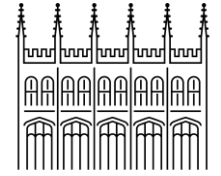
No one would disagree with the policy as it is worded, but in practice what does it mean?

- 'Management' - Protecting ourselves as projects develop or things go wrong;
- Laptop lost or stolen
- Hard drive crash
- Funding terminated
- Team members disperse
- Memory fails

# Management policy

Research data *and* records should be:

- a. Accurate, complete and reliable;
- b. Identifiable, retrievable, and available when needed;
- c. Secure and kept in an appropriate manner

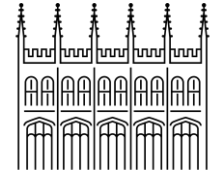


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# Impact on you

Responsibility is **yours** as data creators to be aware of policy

- Combine with wider research **skills** development
- Helps respond to funder/publisher **expectations**
- Make use of the **support** framework at Oxford
- Consider right from the **start** of a project



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“Overall, doing research robustly and fairly does not necessarily require more money, it simply requires that you think before you start.”

Ben Goldacre, *Bad Science* (2008)

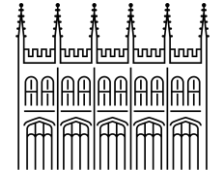
# Some principles of data management

How can RDM help with these concerns?

It deals with Data Management Planning and the research lifecycle

- All stages of research
  - Before - During - After
- Stresses Data *and* Metadata
- Keeps data usable for you **now** (secure storage)
- Also in the ***future***
  - Accessible to you
  - Preserved for you



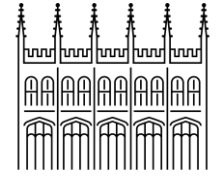


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# Working with data

What is data? Are there typical examples?

- Born digital
- Or digitised
- Used and unused



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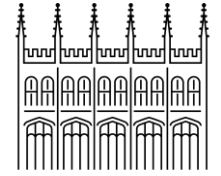
# Digital media - strengths

Digital – a key factor in RDM

What are the benefits and strengths of digital?

- Perfect copies
- Easy to share and access
- Convenient
- Represent latest – contemporary techniques

But there are weaknesses **to be managed**

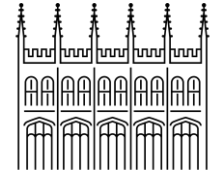


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# Digital media - weaknesses

## Weaknesses of digital?

- **Too** easy to share
- Medium dependent
- Corrupted - Immediate loss
- Inflexible – difficult to repurpose over time
- Too **many** copies
- Hardware and software dependent
- Long term use issues - Digital obsolescence as ‘the latest’ becomes ‘the unsupported’
- Ethical and licensing issues



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# Digital media curation

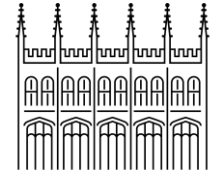
RDM promotes the need for curation of digital assets

- Understand the weaknesses
- Take active steps to avoid potential pitfalls
- Build effective procedures and workflows
- Consider key stages in the data lifecycle for your project

## Curate it

- Through recognising it as part of research practice
- Involving institutional stakeholders





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# Typical curation issues

Day to day protocols on collection and use

Disaster planning

- Multiple storage and backups
- Data security

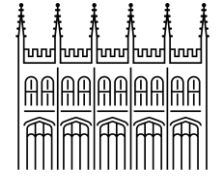
Appropriate workflow?

Documentation – Metadata

- Natural offshoot of literature search/ research diary?

Formalisation of procedures ensures **preservation**

- Preservation as basis of sharing **with others**



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# Getting support for RDM

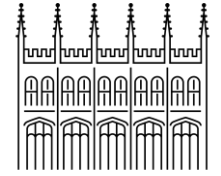
Important distinctions in managing your data **and** how others view it

Dynamic or static?

See where and **when** support fits in

During or after the project?

- One Drive for business (during but **not** after)
- HFS (during but **not** after)
- ORA-Data
- [RDO](https://researchdata.ox.ac.uk/welcome) (<https://researchdata.ox.ac.uk/welcome>) on other options
- External archival services



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# Support frameworks (1/3)

You are not left to figure this all out yourself!

At Oxford:

- The Library and its Subject Consultants
- Departmental level support
- Research Skills training
- Research Data Oxford webpage
- Research Data Oxford email
- ORA / ORA-Data



About data management

Data management plans

Ethical and legal issues

Data handling and acquisition

Keeping working data safe

Post-project data preservation

Sharing data

University of Oxford research data policy

Funder requirements

## University of Oxford research data policy



Policy overview

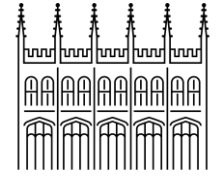


Policy on the Management of  
Data Supporting Research  
Outputs - full text



Applying the policy

<http://researchdata.ox.ac.uk/>



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# Support frameworks (2/3)

## Ethical and legal issues

- Creating data – live participants
- Curec
- Collecting data – Licensing

## Research Ethics

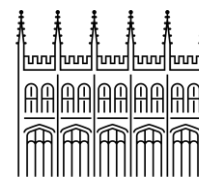
- Access Restrictions
- Participation/ Confidentiality agreements
- Ethics Committees and Informed Consent

# Support frameworks (3/3)



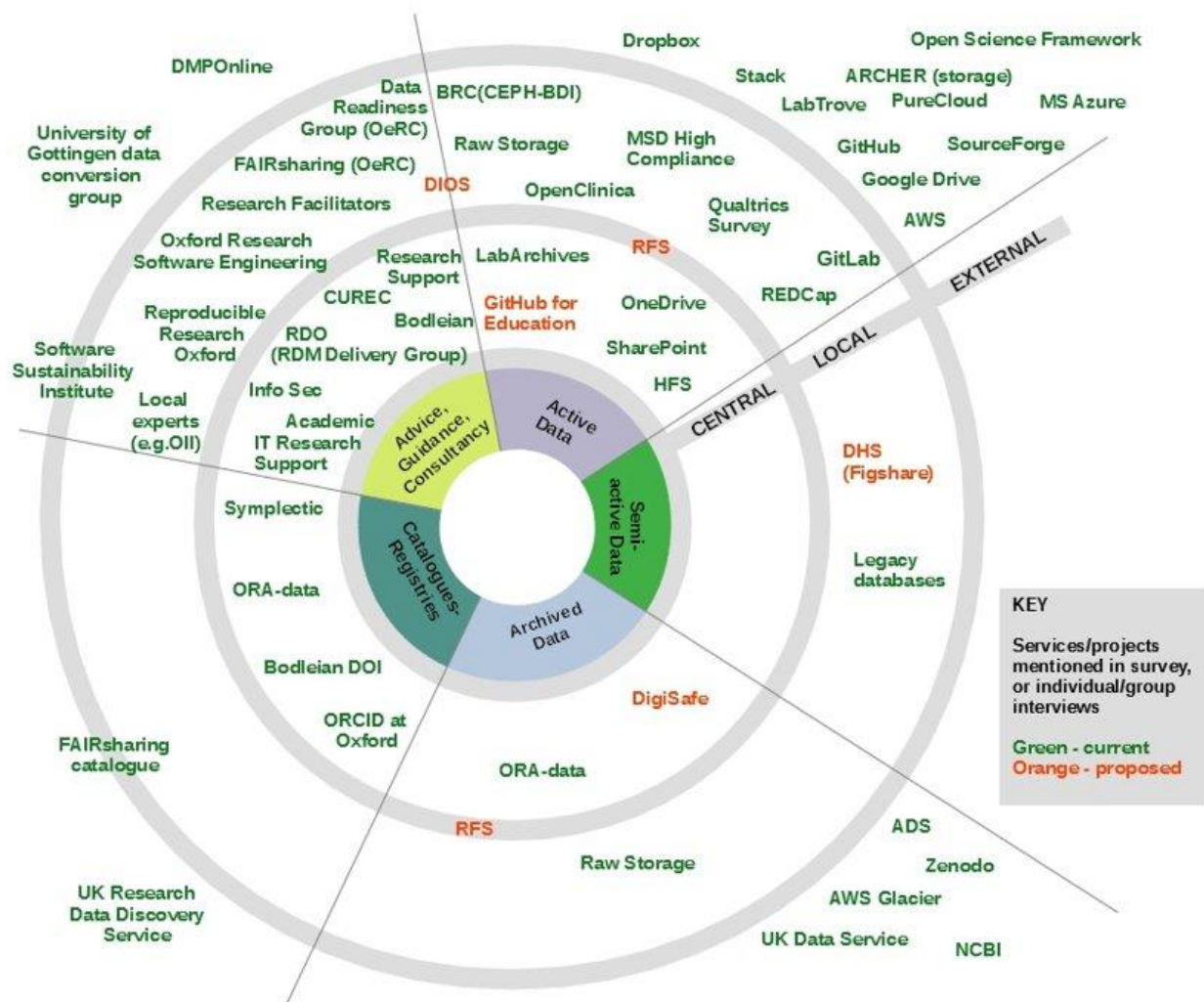
## Outside Oxford:

- Digital Curation Centre
- UK Data Archive/Service
- Edinburgh – MANTRA Course
- Publications (e.g. Rice & Southall 2016, Angus Whyte 2014)



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# Mapping of RDM services



# Open and Reproducible Research

Key trend in academic research around:

- Preservation of materials
  - Data / Software / Methodology
- Documentation of research
- Transparency in methodology
- Potential for provenance, verification etc.
- Augmentation

All research can be managed and planned

**Not** all research is Open or Reproducible

[Home](#) [Research](#) [Support for researchers](#)

# Support for researchers

Oxford provides a huge range of support for research staff, ranging from help finding funding, to career advice, to guidance for new principal investigators.

Your primary source of information and support will be your departmental administrator and your principal investigator or line manager. These pages point you to the wealth of support available from your division and the wider University, whether you've just arrived and want to find your way around, need help applying for or managing grants, want to get in touch with other researchers, or are thinking about the next step in your career.

If you are in a research support role, please see the [research section of the staff gateway](#) for additional information and guidance.

## SUPPORT FOR RESEARCHERS

[Researcher Hub](#)
[Network](#)
[Research funding](#)
[Research Practice](#)
[Research culture](#)
[Information and data services](#)
[Career and development](#)
[Teaching and supervision](#)


New to Oxford?



Researcher Hub



Network



Research funding



Research Practice



Research information and data services



Career and development



Teaching and supervision



Research Culture at Oxford

[www.ox.ac.uk/  
research/support-  
researchers](http://www.ox.ac.uk/research/support-researchers)



# Research Practice Training

Where to find training and support for Research Practice

Research Practice deals with all aspects of the research life cycle. Better research practice means that research will be more transparent, verifiable, reproducible, ethical, and reliable.

To support researchers in understanding and developing their research practice, we have created a set of short, e-learning modules on topics in research practice. These are free to take, and provide an understanding of the "what" and "why" of research practice. They also link to other resources to provide more training and detail about research practice in specific domains or using different tools.

The Research Practice modules are:



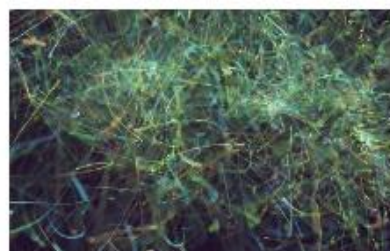
**Research ethics, integrity and governance at Oxford**



**Open research practices**



**Research design (coming soon)**



## • GUIDANCE ON RESEARCH PRACTICE

[Research Practice](#) includes the following topics:

- Before you start
- Planning your research
- Conducting your research
- Transparency in reporting
- Sharing and publishing your research
- Getting credit for your research

[Research Practice Guidance page](#)

## CONTACT THE RESEARCH PRACTICE TEAM

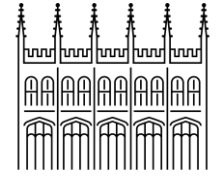
For further information about the Research Practice Programme, contact the [Research Practice team](#).

## COMMUNITY DRIVEN INITIATIVES

- UK Reproducibility Network
- Reproducible Research Oxford (RROx)
- FAIR Principles
- TRUST Principles for digital repositories
- CARE Principles for Indigenous Data Governance
- FAIRsharing Community Programme
- Oxford Festival of Open Scholarship 2023

## KEY UNIVERSITY POLICIES RELATING TO RESEARCH PRACTICE

- Academic integrity in research: code of practice and procedure
- Conflict of Interest policy
- Open Access Publications policy



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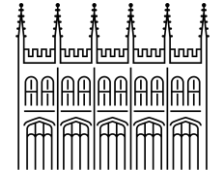
# Data management planning

Growing popular with funders and publishers

What is it?

- About applying RDM principles
- Formalising previously informal stages
- See chapter 7 (Rice & Southall 2016)
- Covers data, outputs, code etc...
- 'Research Data Oxford' pages





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# DMP – an outline

Describes the research data being created or collected

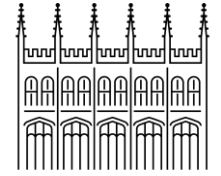
- Key responsibilities
- How the data will be organised
- Disaster recovery
- Documentation during the collection and analysis phase
- Tools
- Plan v. Planning - a considered approach

# Other Elements of DMPs

This may include;

- Policy on data storage and security
- What facilities and equipment will be required
- How stakeholder requirements being addressed
- How / If the data will be **preserved**
- How / If the data will be **shared**
- ORA-Data Pre-deposit checklist

Note: A DMPOnline tool is available



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# In Conclusion

Beneficial to you

Make more efficient use of data

Protect against common problems of 'fragile' digital data

Increase citations/ impact of research

Respond to funder, publisher expectations:

- Good Data Management
- Open Research
- Reproducible Research