iSkills: Managing Research Data and Data Management Planning

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Overview

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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
- Finish with overview of maintaining a DMP

University's policy on research data management (RDM)

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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/

Management policy

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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

Policy in practice

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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

Impact on you

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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

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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 <u>you</u> ***now*** (secure storage)
- Also in the ***future***
  - Accessible to you
  - Preserved for you

Working with data

What is data? Are there typical examples?

- Born digital
- Or digitised
- Used and unused

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Digital media - strengths

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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**

Digital media - weaknesses

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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’

Digital media curation

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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

FAIR Digital Objects
Responsible R&I
Open Research
Research Data Management
Research Practice
Research Impact
Open Access
Publication Practice
Research Integrity
Ethics

Typical curation issues

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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**

Getting support for RDM

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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 (Oxford Research Archive)
- RDO (https://researchdata.ox.ac.uk/welcome) on other options
- External archival services

Support frameworks (1/3)

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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 webpages and email
- ORA

Research Data Oxford

Make your data count

Welcome ▾ | Tools, services, and training | FAQs | Quick links | Glossary | Contact us

- 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/

Support frameworks (2/3)

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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)

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Outside Oxford:

- Digital Curation Centre
  - https://www.dcc.ac.uk/guidance
- UK Data Archive
  - https://www.data-archive.ac.uk
- UK Data Service
  - https://ukdataservice.ac.uk/deposit-data/
- Edinburgh Data Library – MANTRA Course
  - https://mantra.ed.ac.uk
- RDO Training links
  - https://researchdata.ox.ac.uk/tools-services-and-training

Mapping of RDM services

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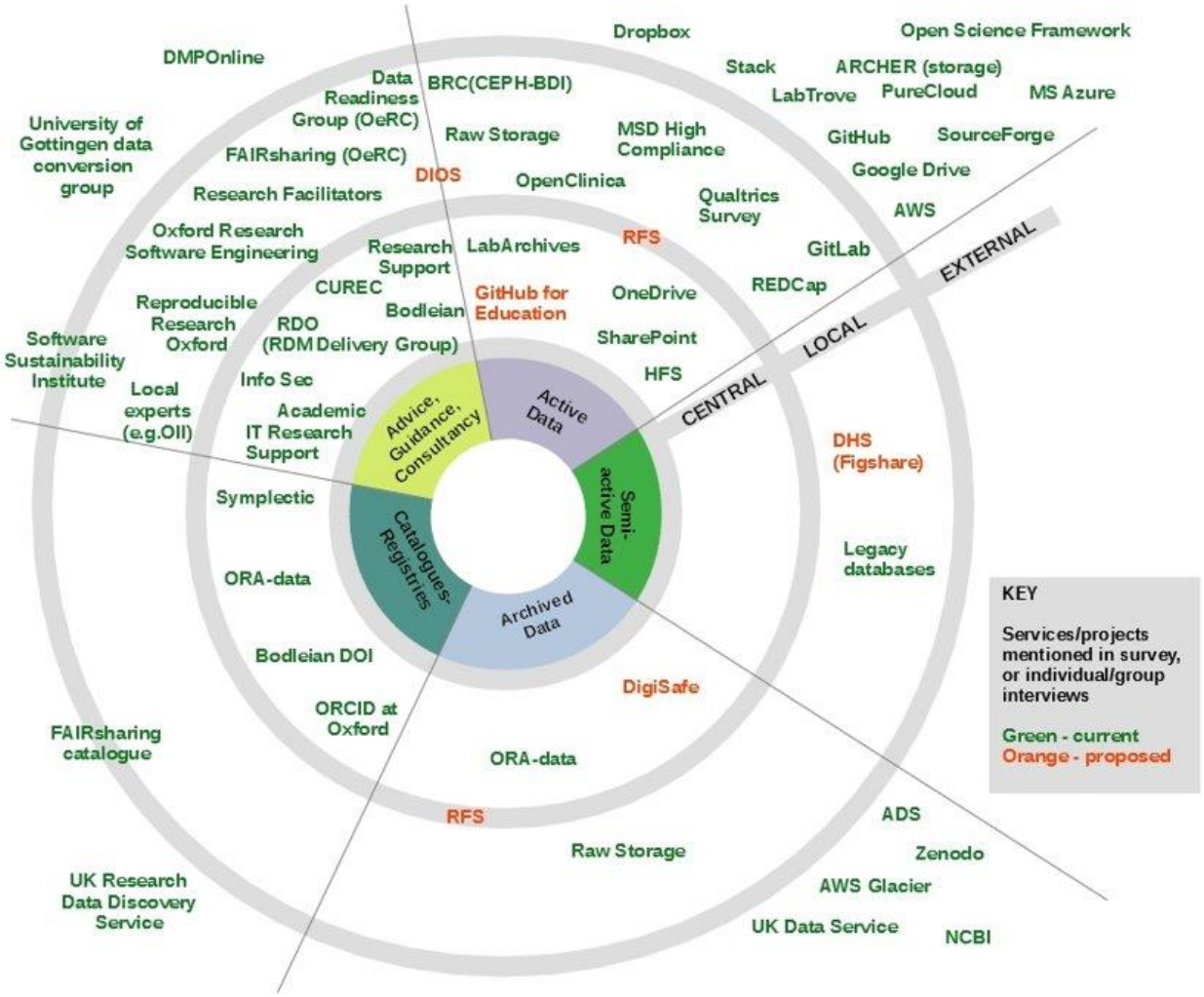

Open and Reproducible Research

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Key trend in academic research around:

- Preservation of materials
  - Data / Software / Methodology
- Documentation of research
- Transparency - verification

But there are limitations!

All research can be managed and planned

But **Not** all research is Open or Reproducible

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

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.

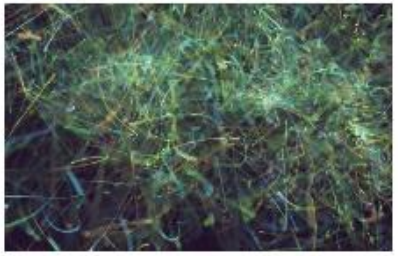
To support researchers in understanding and developing their research practice, we have created a set of short, e-learning modules on topics in research practice. These are free to take, and provide an understanding of the "what" and "why" of research practice. They also link to other resources to provide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

Data management planning

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Growing popular with funders and publishers

What is it?

- An application of everything discussed today
- Formalising previously informal stages
- Covers data, outputs, code etc…
- See ‘Research Data Oxford’ pages

But is it ‘A Plan’ or ‘the act of planning’ that’s important?

DMP – an outline

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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

Other Elements of DMPs

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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**

Investigate DMPonline as a helpful tool

Plan to make data work for you

DMPonline, provided by the Digital Curation Centre (DCC), facilitates the creation, review, and sharing of data management plans.

This tailored instance of the tool supports the University of Oxford's academic community by:

- Providing guidance on good data management practice
- Offering pointers to Oxford tools and services
- Helping researchers meet the requirements of both funder and institutional research data policies

This forms part of our commitment to exemplary data stewardship.

Sign in | Create account

* **Email**

* **Password**

Forgot password?

Remember email

Sign in

- or -

Sign in with your institutional credentials

In Conclusion

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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

Thank you

Any question to finish off??

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