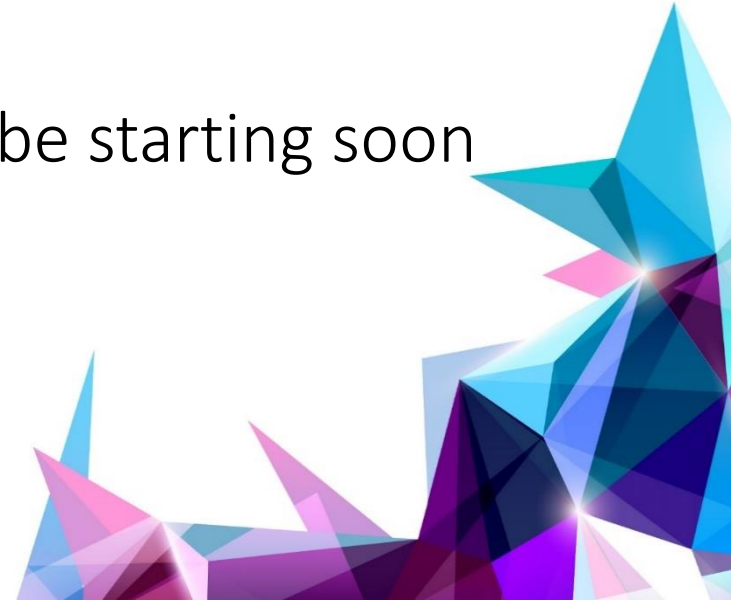


# Welcome to the IT Learning Centre

You are in the right place ...

We'll be starting soon



# Research data: What you need to know

Meriel Patrick

Research Support, IT Services and Research Data Oxford  
[meriel.patrick@it.ox.ac.uk](mailto:meriel.patrick@it.ox.ac.uk)



# Resources for your learning

These slides are available from the IT Learning portfolio:

<https://skills.it.ox.ac.uk/research-data-what-you-need-to-know-course-pack>

# Your safety and comfort are important

Where is the fire exit?

Please tell us if anything doesn't work

The welcome area has vending machines  
and a water cooler

The toilets are along the corridor outside the  
teaching rooms



# Definitions



# What counts as data?

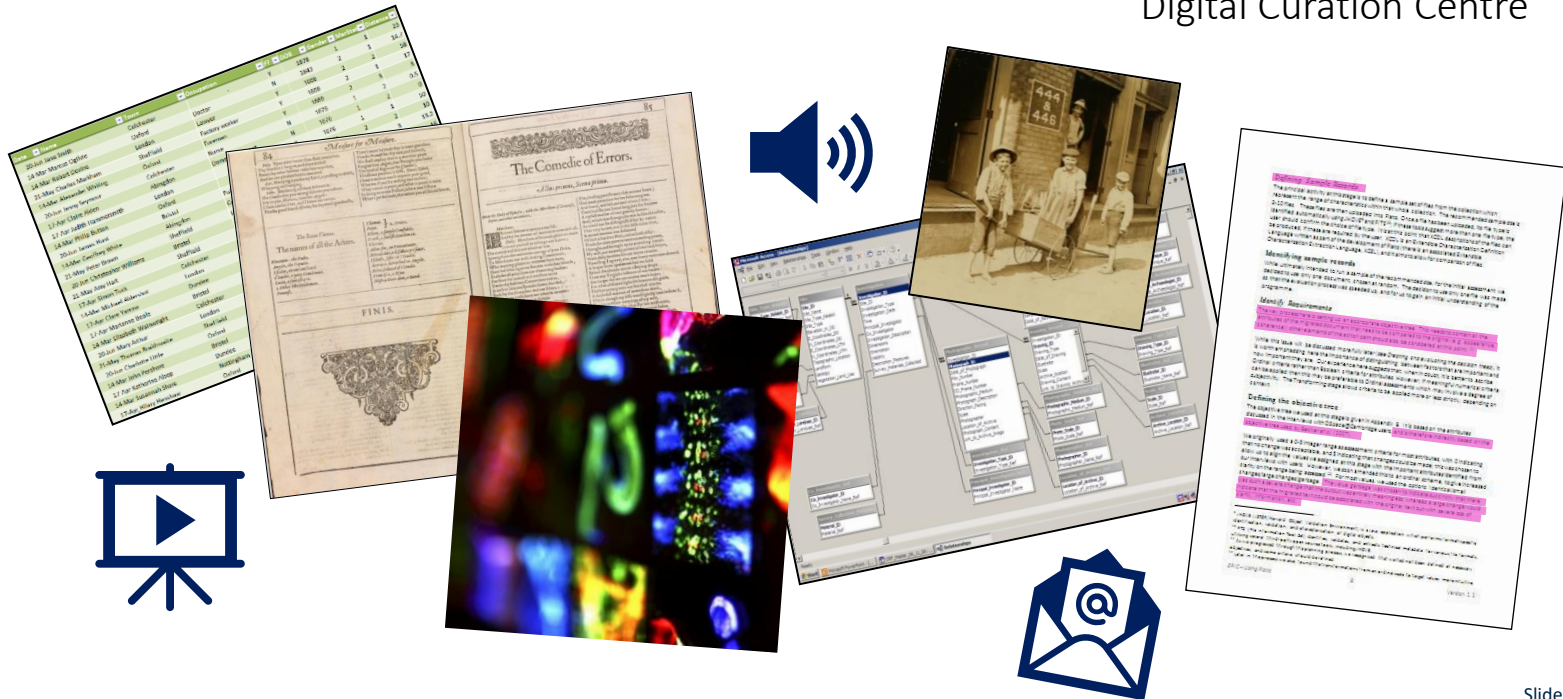
- ▶ ‘Data’ can mean very different things in different contexts
  - ▶ ‘My phone contract includes 100GB of data’
  - ▶ ‘Do I trust this company not to sell my data?’

How would you define ‘data’ when the word is used in a research context?

# What counts as data?

“Representations of observations, objects, or other entities used as evidence of phenomena for the purposes of research or scholarship”

Digital Curation Centre



Slide adapted from  
the PrePARE Project



# What counts as data?

Any information you use in your research

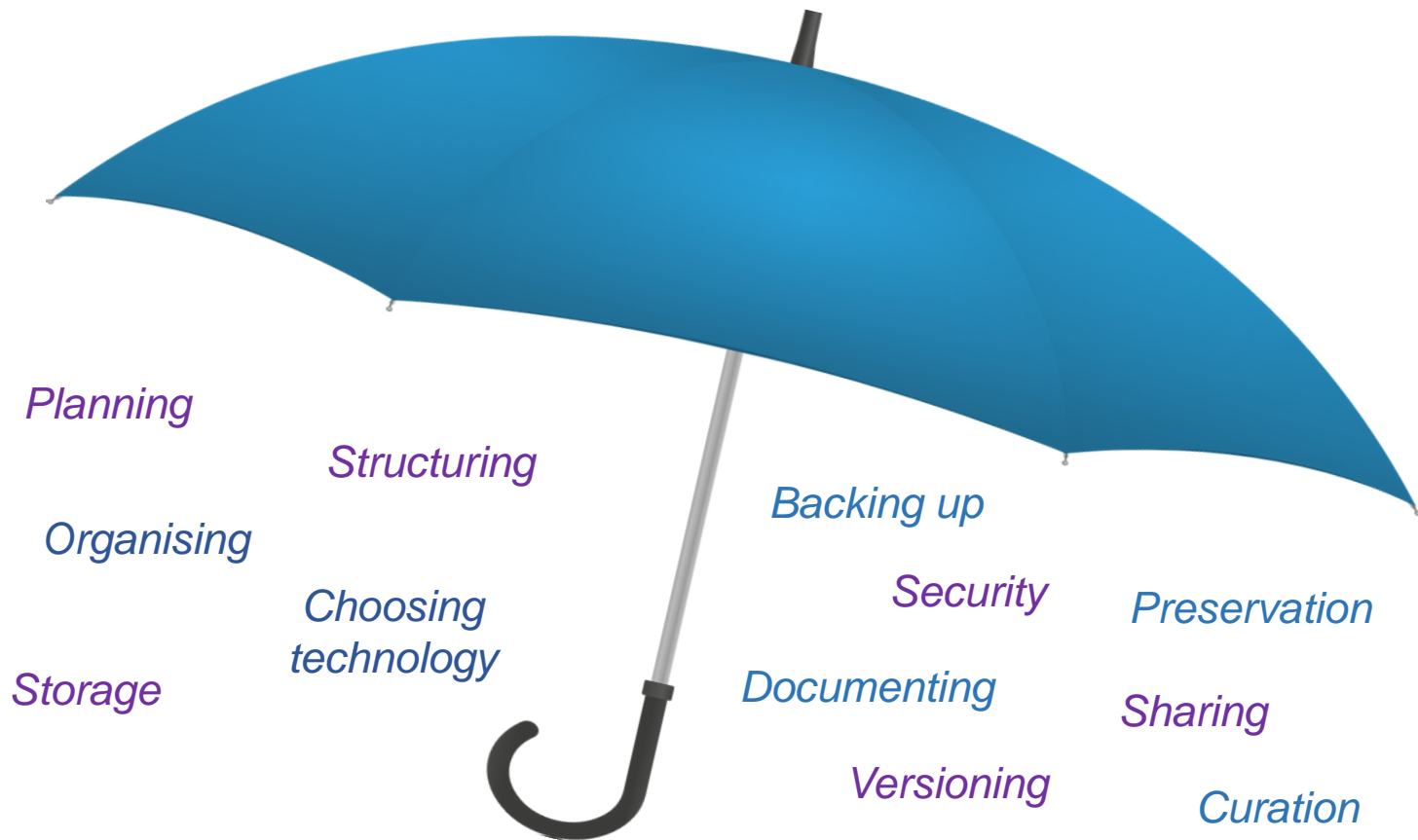


Slide adapted from  
the PrePARE Project





# What is research data management?

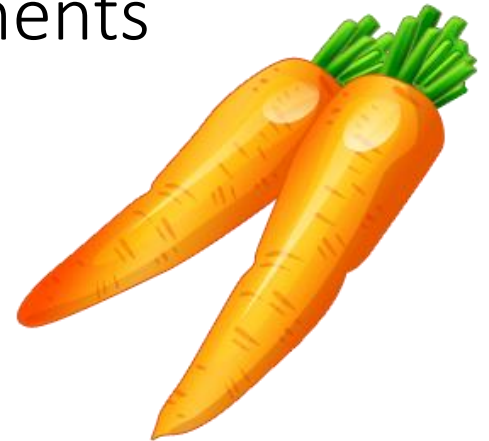


# Why is this important?



# Carrots and sticks

- ▶ Work efficiently and with minimum hassle over the lifetime of the project
- ▶ Save time and avoid problems in the future
- ▶ Make it easy to share your data
- ▶ University of Oxford Research Data Management Policy
- ▶ Funding body requirements



# Sharing data for reuse

- ▶ Producing a good dataset takes skill and effort
- ▶ Rare for a single project to mine its full potential
- ▶ Sharing data has a range of benefits
  - ▶ Allows researchers to get proper credit for their work
  - ▶ Reduces duplication of effort
  - ▶ Research funding can be used more efficiently
- ▶ Not all data can be shared
  - ▶ But there's a move towards data sharing as the default

# University of Oxford policy



## University of Oxford Research Data Management Policy

Current policy approved in  
November 2023

Superseded the Policy on the Management of  
Data Supporting Research Outputs

# University of Oxford policy

- ▶ The research data covered by the policy is the information needed ‘to support or validate a research project’s observations, findings or outputs’, or which is required for legal or regulatory compliance
- ▶ Research data should be:
  - ▶ Securely stored, identifiable, retrievable, accurate, complete, reliable, and compliant
  - ▶ Preserved for as long as it has continuing value – but a minimum of three years
  - ▶ Made available for reuse where possible



# Funder requirements

- ▶ Funding bodies are taking an increasing interest in what happens to research data
- ▶ Many funders require a data management plan as part of grant applications
- ▶ May also require data to be preserved and/or made available for reuse at the end of project



# UKRI common principles on data

- ▶ Publicly funded research data should be made openly available, with as few restrictions as possible
- ▶ A period of privileged use is permitted
- ▶ Legal, ethical and commercial constraints recognised
- ▶ Published results should state how supporting data can be accessed
- ▶ Appropriate to use public funds for data management and sharing



# What support does Oxford offer?



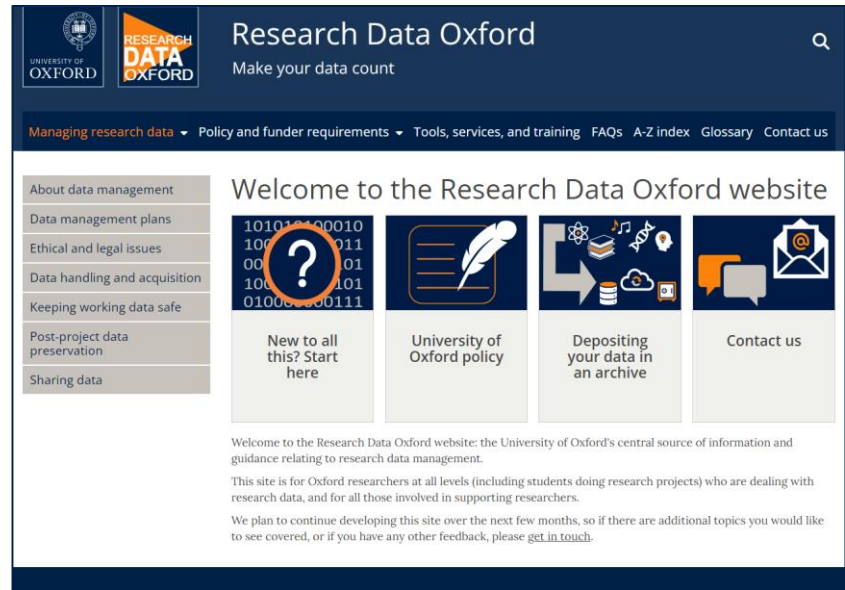
# Plenty!

- ▶ Support and advice available from departments, IT Services, Bodleian Libraries, Research Services, CUREC, Information Compliance...
- ▶ But one key resource to help navigate this area

# Research Data Oxford

- ▶ Website
  - ▶ Information and advice
  - ▶ [University](#) and [funder](#) policies
- ▶ Enquiry service
  - ▶ Ask questions
  - ▶ Request support

[researchdata@ox.ac.uk](mailto:researchdata@ox.ac.uk)



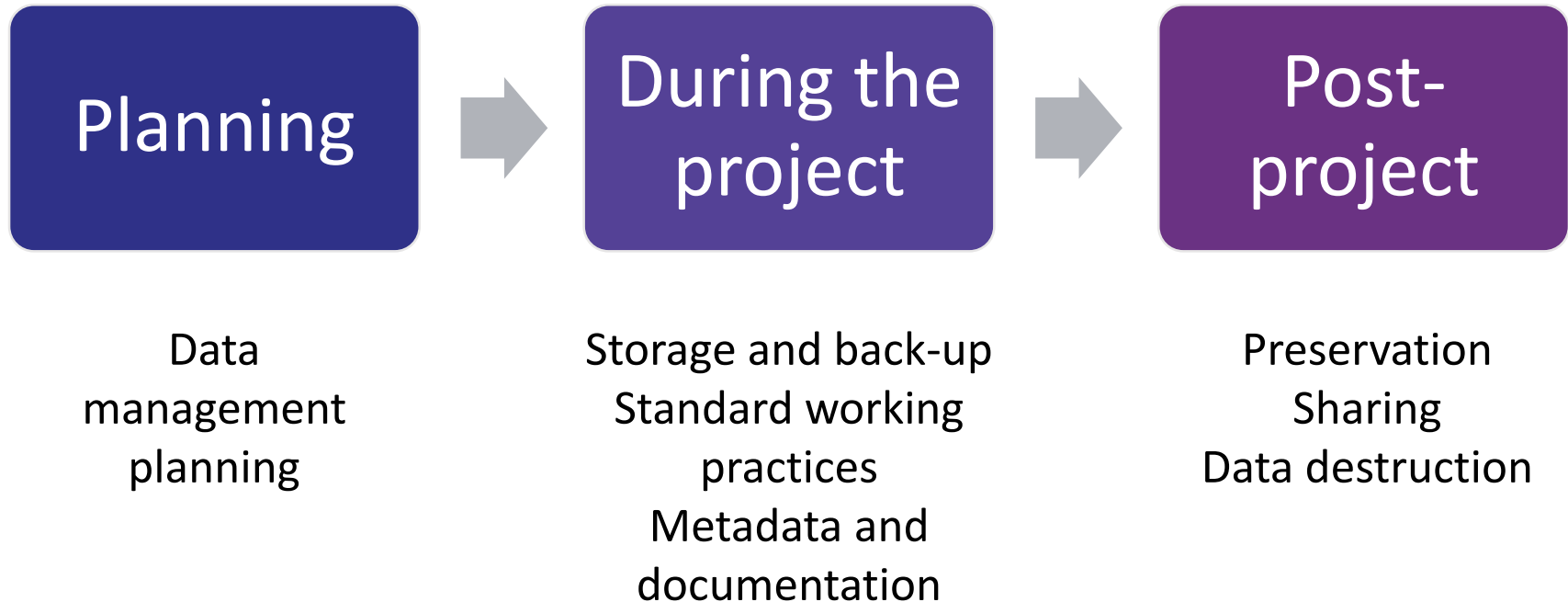
The screenshot shows the Research Data Oxford website homepage. At the top left is the University of Oxford logo and the Research Data Oxford logo. The main header reads "Research Data Oxford" and "Make your data count". A navigation menu includes "Managing research data", "Policy and funder requirements", "Tools, services, and training", "FAQs", "A-Z index", "Glossary", and "Contact us". A sidebar on the left lists topics: "About data management", "Data management plans", "Ethical and legal issues", "Data handling and acquisition", "Keeping working data safe", "Post-project data preservation", and "Sharing data". The main content area features a "Welcome to the Research Data Oxford website" message, a "New to all this? Start here" button, and three other buttons: "University of Oxford policy", "Depositing your data in an archive", and "Contact us". Below these buttons is a paragraph of text: "Welcome to the Research Data Oxford website: the University of Oxford's central source of information and guidance relating to research data management. This site is for Oxford researchers at all levels (including students doing research projects) who are dealing with research data, and for all those involved in supporting researchers. We plan to continue developing this site over the next few months, so if there are additional topics you would like to see covered, or if you have any other feedback, please [get in touch](#)."

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

What do I need to think about?



# Key phases of data management



```
graph LR; A[Planning] --> B[During the project]; B --> C[Post-project]
```

Planning

Data  
management  
planning



During the  
project

Storage and back-up  
Standard working  
practices  
Metadata and  
documentation



Post-  
project

Preservation  
Sharing  
Data destruction

# Data management plans

- ▶ Typically created near the start of a project
  - ▶ While applying for funding or setting up
- ▶ Details plans and expectations for data
  - ▶ Type of data and where it will come from
  - ▶ Storage and security
  - ▶ Preservation and sharing
- ▶ Ask key questions *before* problems arise
  - ▶ Provides time to look for solutions
  - ▶ Saves time and reduces stress later



# DMPonline

- ▶ Online tool for building data management plans
- ▶ Templates from major funding bodies
  - ▶ Plus a generic one
- ▶ Guidance is provided
- ▶ Share and export plans



<https://dmponline.dcc.ac.uk/>



```
graph LR; A[Planning] --> B[During the project]; B --> C[Post-project];
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Planning

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Post-  
project

Preservation  
Sharing  
Data destruction

# Storage and back-up

- ▶ Ensure everyone who needs access has it – and no one else
  - ▶ What level of security do you need?
  - ▶ A central file store is preferable to individual copies
- ▶ Be wary of commercial cloud storage
  - ▶ Especially with personal or sensitive data
- ▶ Automate back-up if you can
  - ▶ Ensure back-ups are stored separately from main copy



# Oxford services

- ▶ You may be entitled to departmental server space
  - ▶ Check with local IT staff
- ▶ [Nexus365 OneDrive](#), [SharePoint Online](#), and [Microsoft Teams](#) offer storage and sharing options
- ▶ [Research File Service](#) offers storage for research data
- ▶ [LabArchives](#) electronic lab notebook service offers unlimited storage
- ▶ [HFS](#) back-up service is free of charge to graduate students and staff
- ▶ [InfoSec](#) provide advice on security



# Standard working practices

- ▶ Worth thinking about at the start of a project
- ▶ Particularly important for teams – but also useful for lone researchers
- ▶ Possible areas include:
  - ▶ Folder structure or other information architecture
  - ▶ File naming practices
  - ▶ Workflows
  - ▶ Version control
- ▶ Document decisions for future reference



# Metadata and documentation

- ▶ The contextual information required to make data intelligible and aid interpretation
  - ▶ A users' guide to your data
  - ▶ For whole datasets, or specific aspects
- ▶ Helps ensure data remains useful in the future
- ▶ Minimises risk of misunderstanding and misuse
- ▶ Makes work reproducible



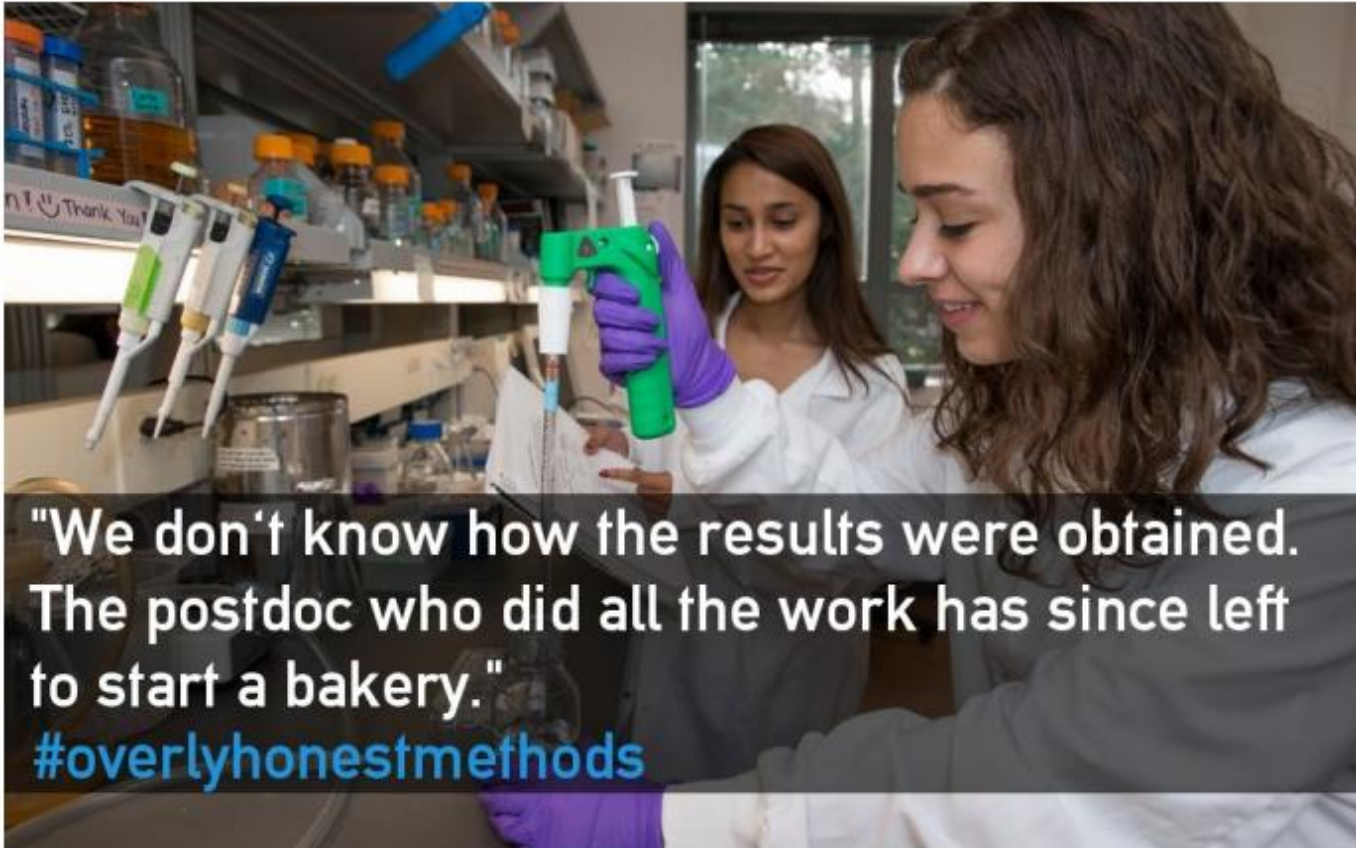
# Metadata and documentation

## What to record

- ▶ Who created the data, when, and why
- ▶ Description of data
  - ▶ Methods
  - ▶ What's been done to the data
- ▶ Units of measurement, explanation of abbreviations, jargon, and coding

## Disciplinary metadata standards

- ▶ Standard data structures used within specific fields
- ▶ Worth being aware of and using if applicable
- ▶ For details see:
  - ▶ DCC: <https://www.dcc.ac.uk/guidance/standards/metadata>
  - ▶ FAIRsharing: <https://fairsharing.org/standards>



"We don't know how the results were obtained. The postdoc who did all the work has since left to start a bakery."

[#overlyhonestmethods](#)

```
graph LR; A[Planning] --> B[During the project]; B --> C[Post-project];
```

Planning

Data  
management  
planning



During the  
project

Storage and back-up  
Standard working  
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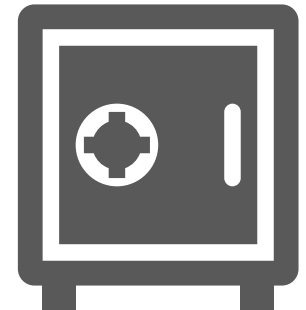
Post-  
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Sharing  
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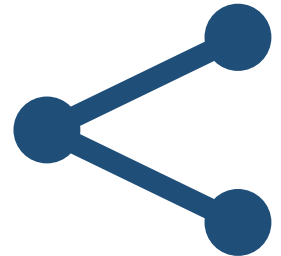
# Preserving data

- ▶ Happens towards the end of the project, but needs planning from the beginning
- ▶ Unless there's a pressing need to destroy data, it's good practice to preserve as much as possible
  - ▶ If you *do* need to destroy data, ensure it's done securely
- ▶ Consider depositing a copy of your data in an archive or repository



# Sharing data

- ▶ Unless there are specific reasons to keep data private, consider making it available for reuse
- ▶ Even if the complete dataset can't be shared, could you share a version of it?
  - ▶ E.g. an anonymised, redacted, or aggregated version?
- ▶ If you don't want to share immediately, an embargo may be an option



# FAIR principles

- ▶ Consider taking steps to make data FAIR:
  - ▶ Findable
  - ▶ Accessible
  - ▶ Interoperable
  - ▶ Reusable

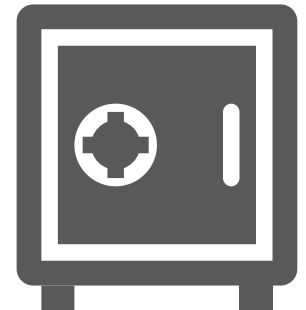


[https://www.go-fair.org/  
fair-principles/](https://www.go-fair.org/fair-principles/)

FAIR doesn't always imply openly available  
Even restricted data can often be made FAIR

# Repositories and archives

- ▶ A secure long-term home for research data
- ▶ Some can offer a range of access conditions
  - ▶ Data doesn't have to be either fully public or not available
- ▶ There are many different options
  - ▶ Subject-specific
  - ▶ General archives
  - ▶ Institutional archives
- ▶ Some funders have a preferred archive



# Finding repositories and archives

**Re3Data.org** lists over two thousand archives and repositories



<https://www.re3data.org/>

**FAIRsharing.org** lists databases, metadata standards, and policies



<https://fairsharing.org/>

# Oxford provision and services

- ▶ ORA is Oxford's institutional archive for research outputs
  - ▶ If you deposit data in another archive, please add a metadata record
  - ▶ See <https://libguides.bodleian.ox.ac.uk/ora-data>
- ▶ Sustainable Digital Scholarship service offers long-term hosting
  - ▶ See <https://www.sds.ox.ac.uk/>
- ▶ DigiSafe offers secure long-term storage for sensitive data
  - ▶ Subscription to the service is per department/unit
  - ▶ See <https://help.it.ox.ac.uk/digital-preservation-service>
- ▶ Ask within your department/unit about other local provision



Where can I learn more?



# Guidance and information

[Digital Curation Centre](#)

Advice and resources

[Research Data Mantra](#)

Online training course



[UK Data Service](#)

National repository

[Research Data Oxford](#)

Website and enquiry service





Get in touch

[researchdata@ox.ac.uk](mailto:researchdata@ox.ac.uk)

Any questions?



# Find the resources for this workshop in our IT Learning Portfolio

Download the files (and more) from  
the IT Learning Portfolio at

[skills.it.ox.ac.uk/it-learning-portfolio](https://skills.it.ox.ac.uk/it-learning-portfolio)



The screenshot shows the IT Learning Centre website. The header includes the logo and navigation links: COURSES, TEACHING ROOMS, SERVICES, EVENTS, NEWS, ABOUT US. The main heading is "IT Learning Portfolio" with a sub-heading "Learning resources - as used in our teaching". Below this, there is a welcome message and contact information for the IT Learning Centre. A table of resources is displayed with columns for Audience, Category, Software, and Resource. Each resource entry includes a brief description and a right-pointing arrow icon.

Audience	Category	Software	Resource
			3D modelling: Kick-off AND Blender - Up and running (Activity)
			Alter Effects: Animating texts and graphics (Activity)
			Apps for education (Activity)
			AR/VR: Augmented Reality for mobile devices (Activity)
			AR/VR: Unity - a practical introduction (Activity)
			AR/VR: Virtual Reality for desktop or mobile (Activity)
			Audacity: Recording your voice (Toolkit Activity)
			Audio: Recording the spoken word (Activity)
			Beginners IT: Making the most of single sign on (Course pack)
			C--- A comprehensive introduction (Course pack)
			Corporate - Why would I use a corpus (Toolkit Activity)
			Create an online presence with WordPress (Activity)
			Data analysis: ATLAS.ti (Activity)
			Data analysis: Introduction to working with statistics (Course pack)
			Databases: Building a database (Activity)
			Databases: Building a database (Course pack)
			Databases: Concepts for project managers (Activity)
			Databases: Concepts for project managers (Course pack)
			Databases: Concepts of database design (Activity)
			Databases: Concepts of database design (Course pack)

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[meriel.patrick@it.ox.ac.uk](mailto:meriel.patrick@it.ox.ac.uk)

