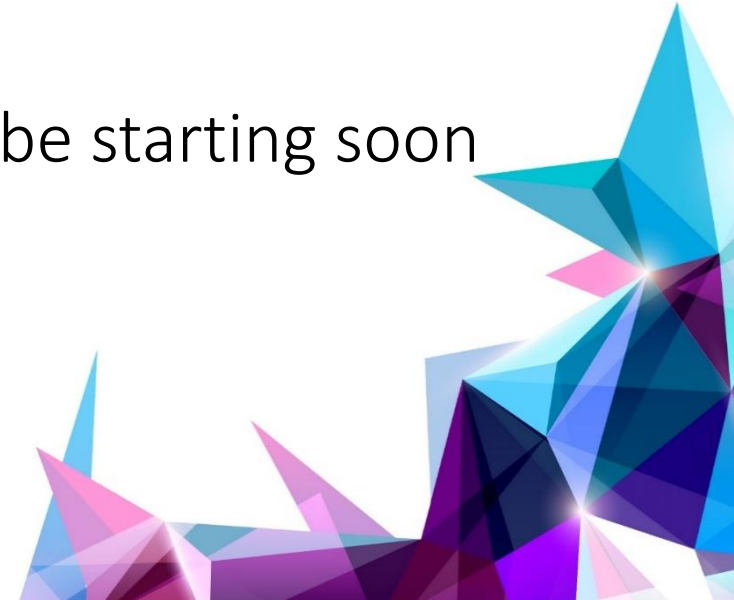
Welcome to the IT Learning Centre

You are in the right place …

We'll be starting soon



Research data:
What you need to know

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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?

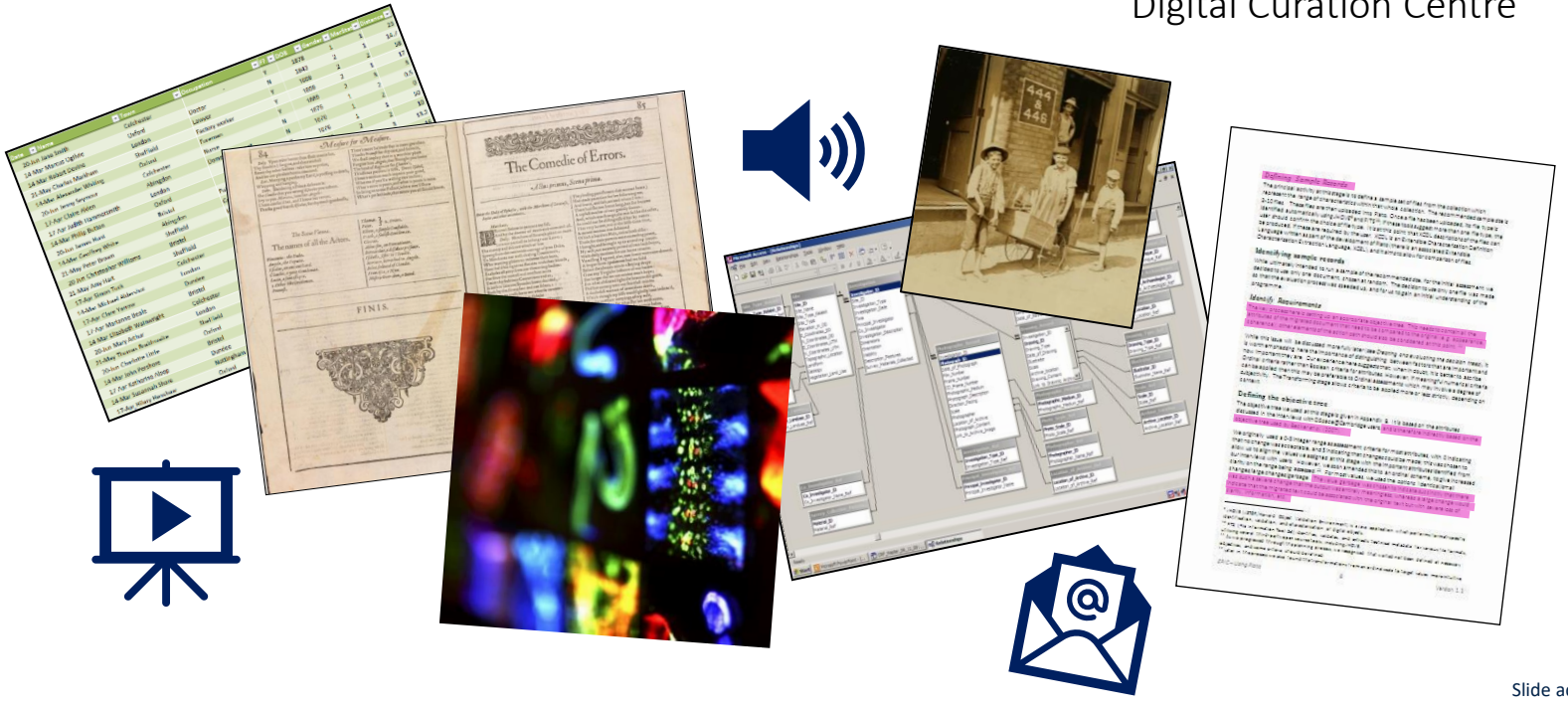
- ‘Data’ can mean very different things in different contexts
  - ‘My phone contract includes 100GB of data’
  - ‘Do I trust this company not to sell my data?’

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"

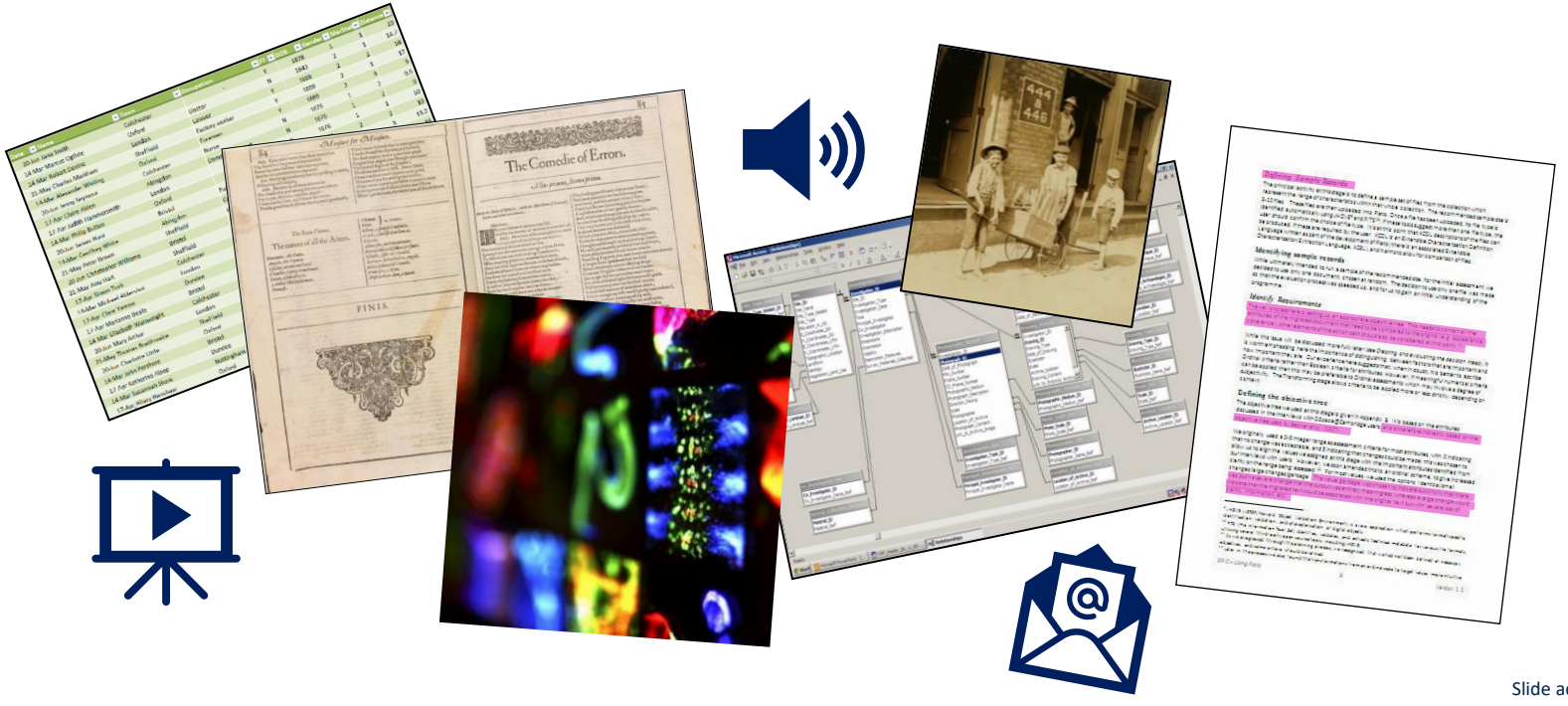
Digital Curation Centre



Slide adapted from the PrePARe Project

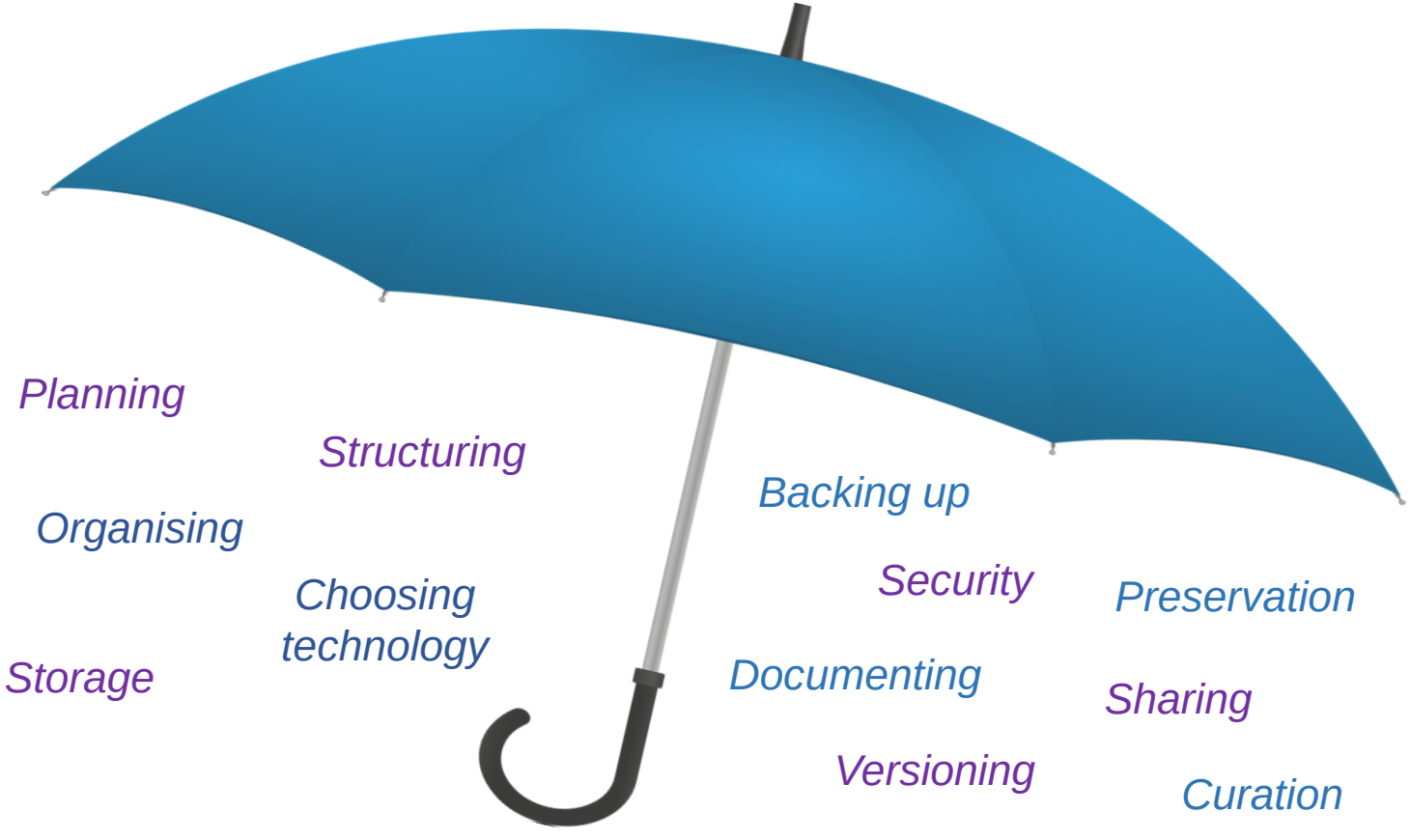
What counts as data?

Any information you use in your research



Slide adapted from the PrePARe Project

What is research data management?

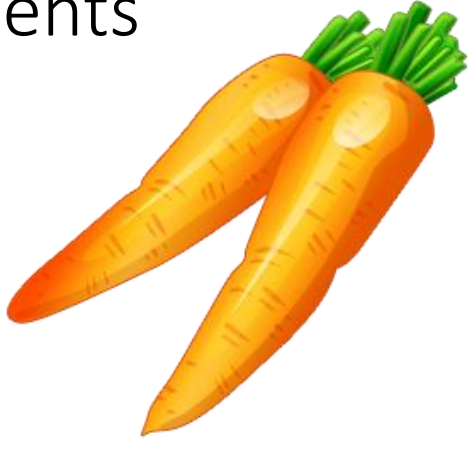


Why is this important?

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

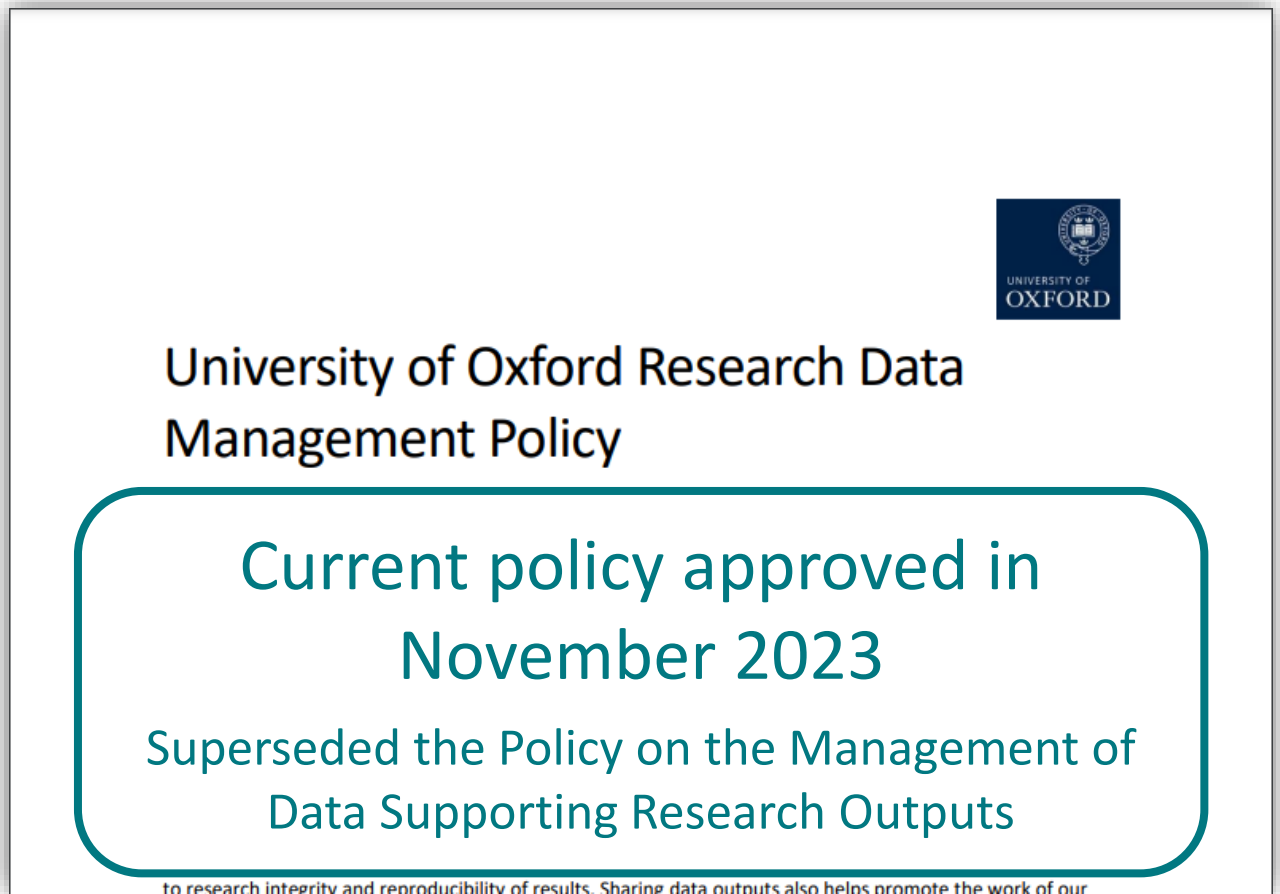
- University of Oxford Research Data Management Policy
- Funding body requirements



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 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

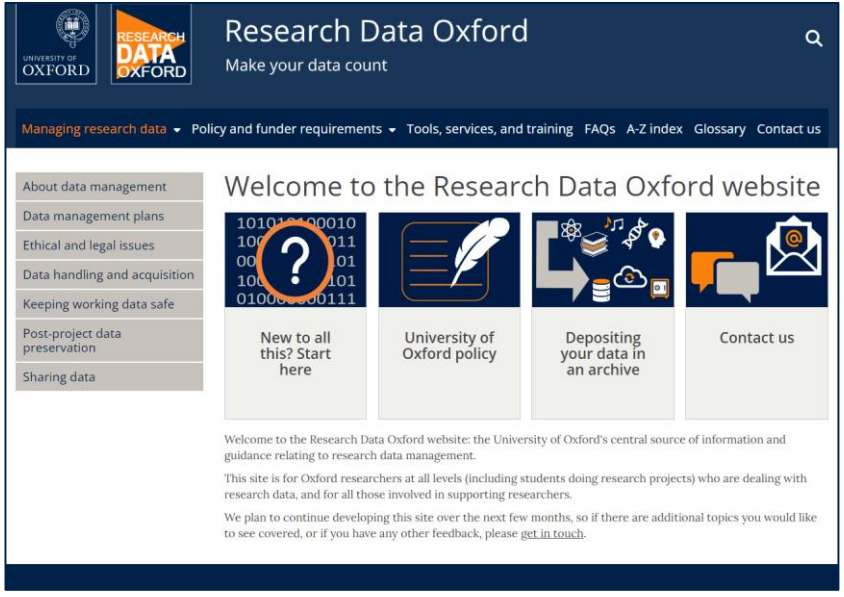
What support does Oxford offer?

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

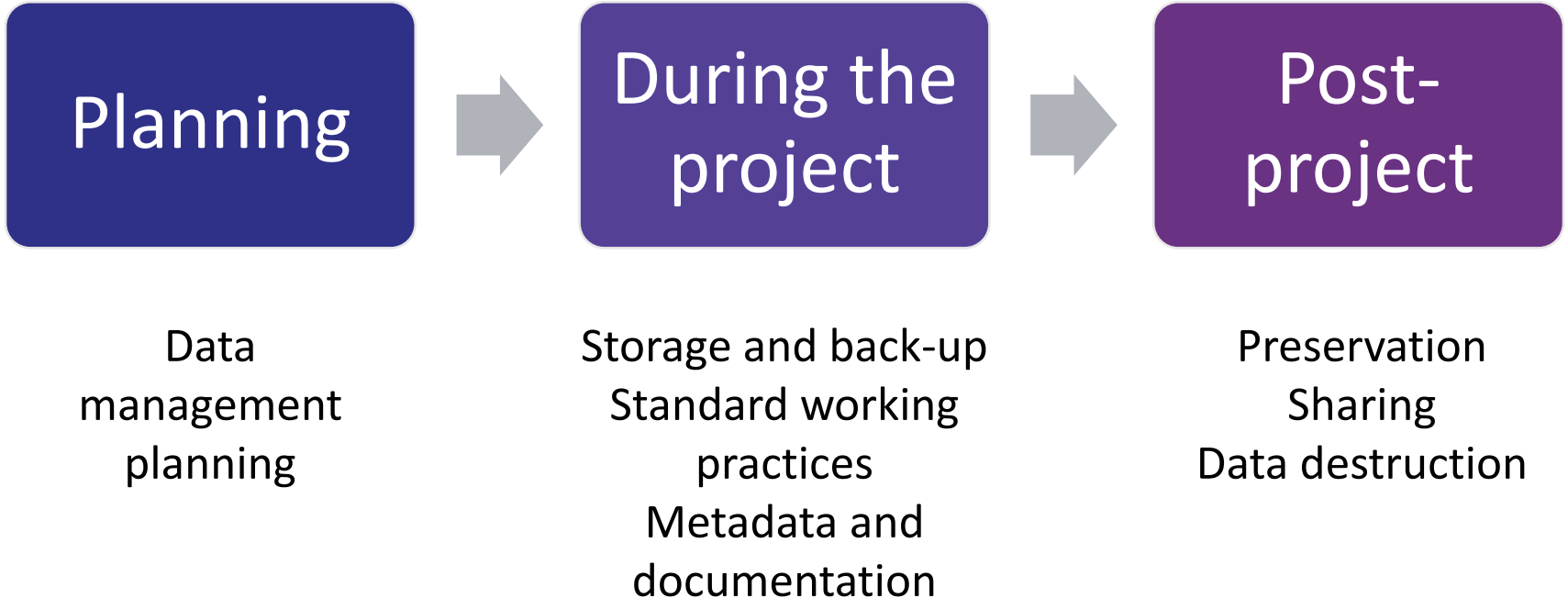


researchdata@ox.ac.uk

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

What do I need to think about?

Key phases of data management




Planning
During the project
Post-project
Data management planning
Storage and back-up
Standard working practices
Metadata and documentation
Preservation
Sharing
Data destruction

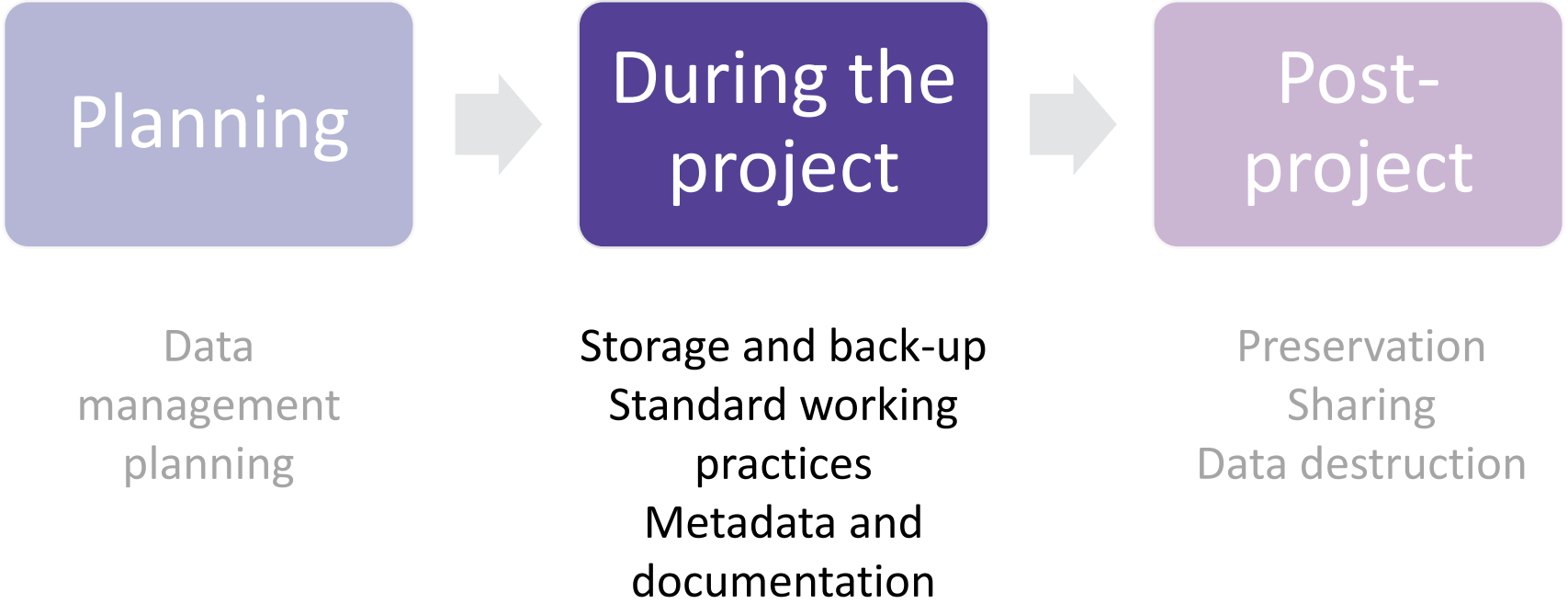
Data management plans

- 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/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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

UNIVERSITY OF OXFORD

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

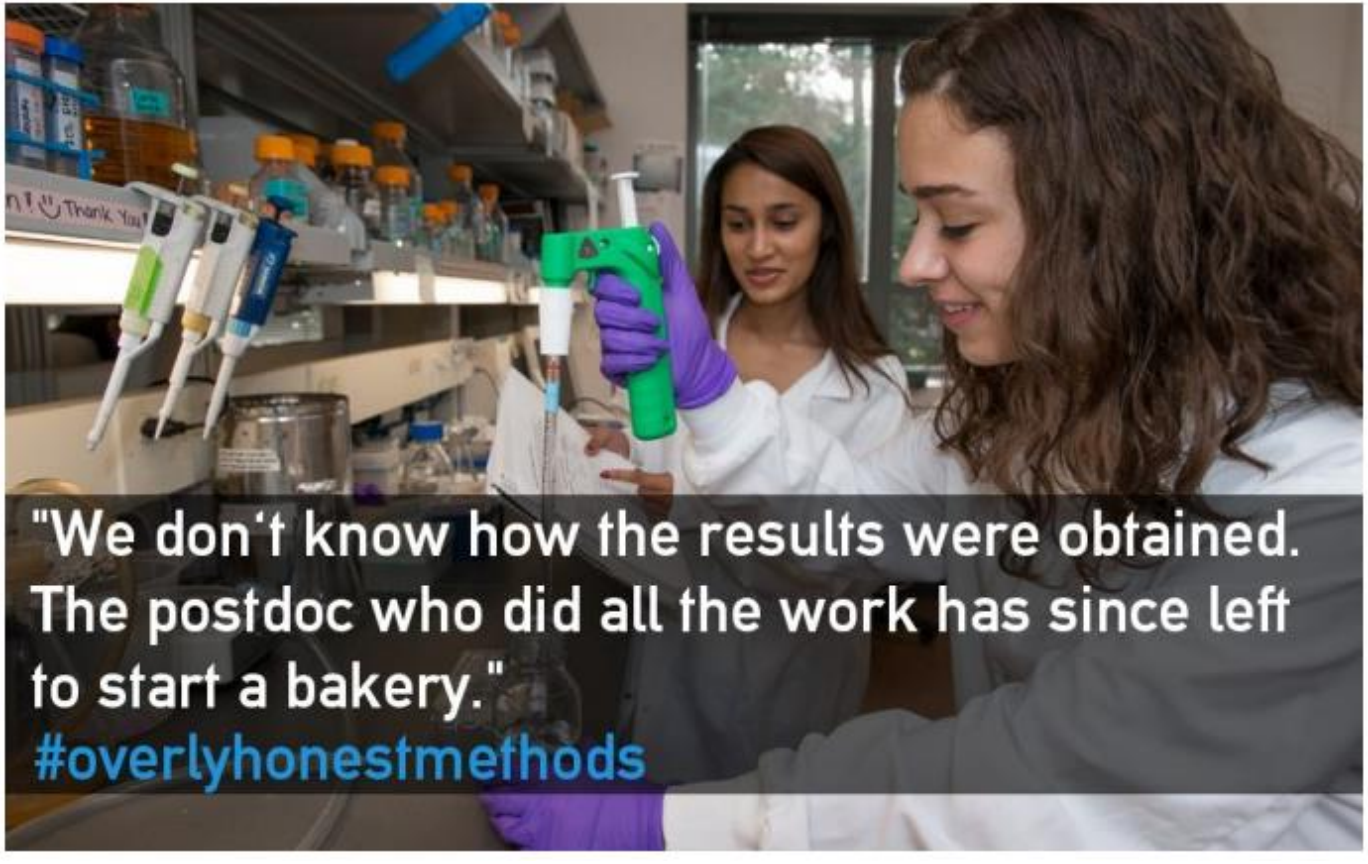
Metadata and documentation

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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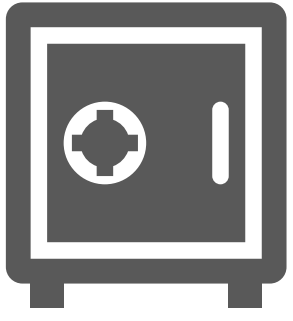
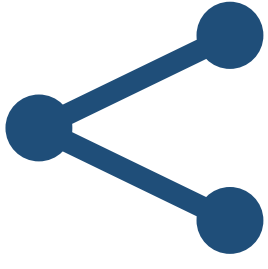
Preserving data

- 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

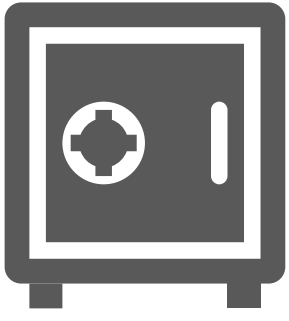
- Consider taking steps to make data FAIR:
  - Findable
  - Accessible
  - Interoperable
  - Reusable

https://www.go-fair.org/fair-principles/

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

re3data.org
REGISTRY OF RESEARCH DATA REPOSITORIES

https://www.re3data.org/

FAIRsharing.org lists databases, metadata standards, and policies

FAIRsharing.org
standards, databases, 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

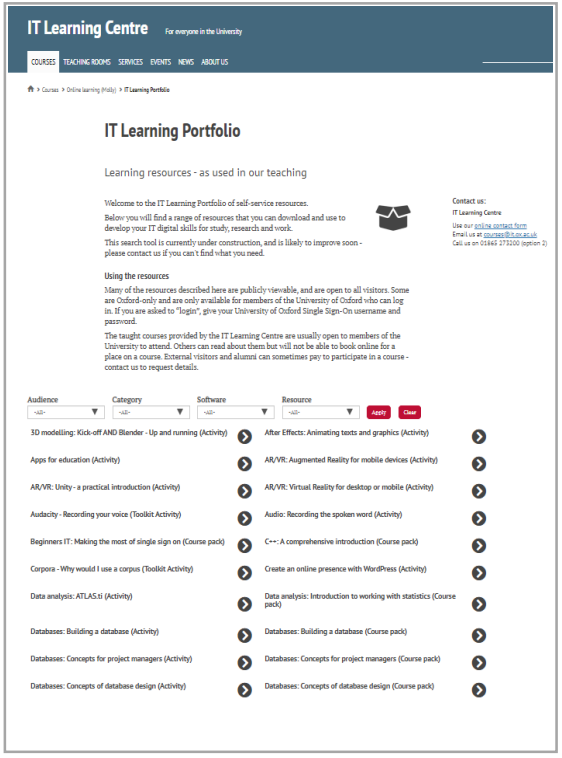
researchdata@ox.ac.uk

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



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