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Principles & Practices of Open Research

An online module for undergraduate and Masters students


What is research data?
A

What is research data?

Research data is the information underlying research findings.

What is research data?

Data can be quantitative or qualitative and can exist in different formats

Notes

Videos

Applications

Audio

Spreadsheets

Dialogue/ spoken word

Images

Code

Performances

Algorithms

Music

Artefacts

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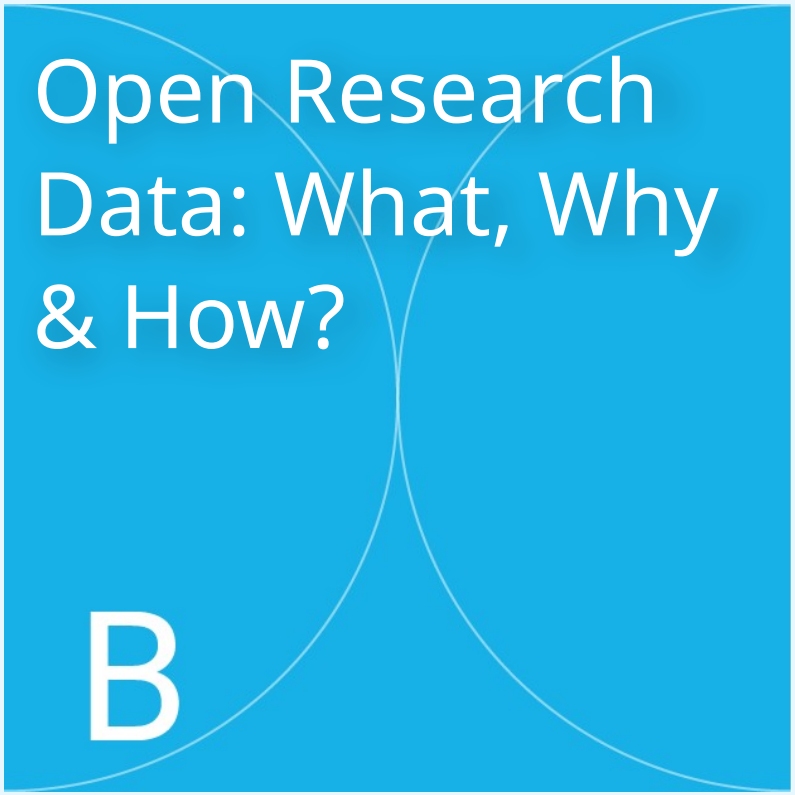
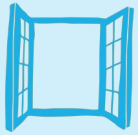

Open Research Data: What, Why & How?
B

What is open research data?

Open data is data that is made publicly available without any restrictions



It is data that is available to anyone to access, use and share

The FAIR Principles and data management plans enable open data sharing

Making data openly available reinforces the principles of open research

What is open research data?

1. It enables others to verify and/or reuse your data
2. You may be able to use openly available data in your own research
3. When you make your data available on an online repository it has a Digital Object Identifier (DOI) that you can cite as an output of your research
4. Making data open and/or using open data enhances opportunities for collaborations
5. Research funders and journals are increasingly adopting open research practices- so this may be important for you in the future

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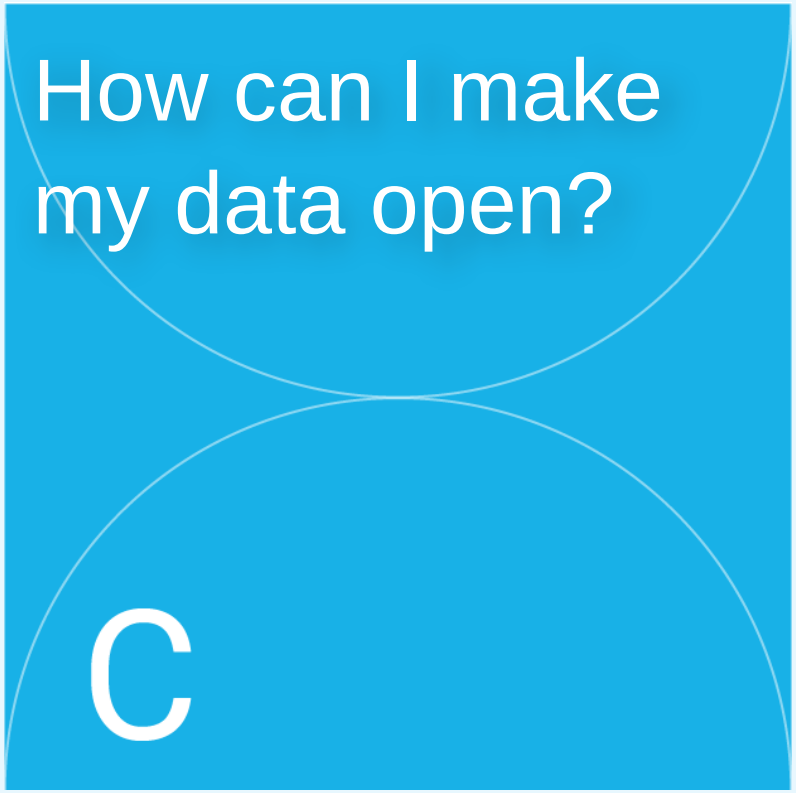

How can I make my data open?
C

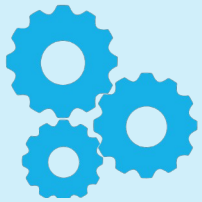
How can I make my data open?

- A good place to start is the FAIR Data Principles
- The FAIR principles outline the importance of making data:

Findable

Accessible

Interoperable



Reusable

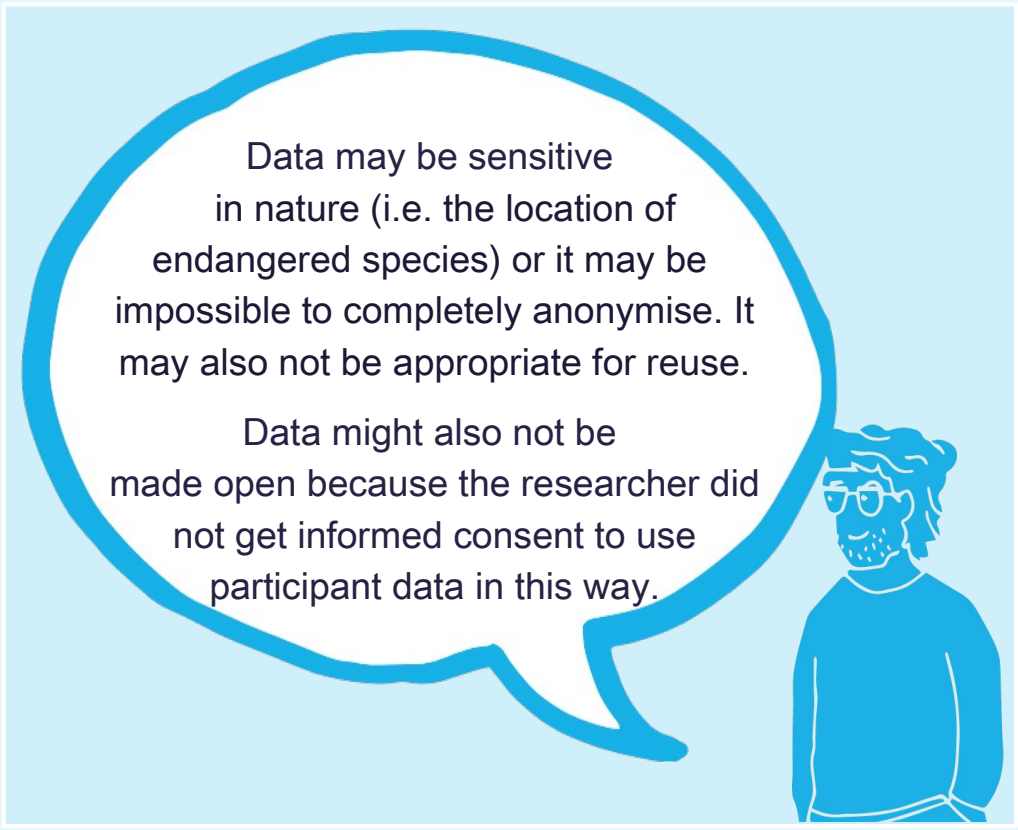
The FAIR Principles

The FAIR Principles

Why are the FAIR Principles important?

1. Sharing data according to FAIR Principles helps ensure that others have enough information to verify or reuse your data
2. They help to make your data more transparent
3. They help to make your data more reusable
4. They help to make your research more reproducible (see module 4)

Why isn’t all research data open?



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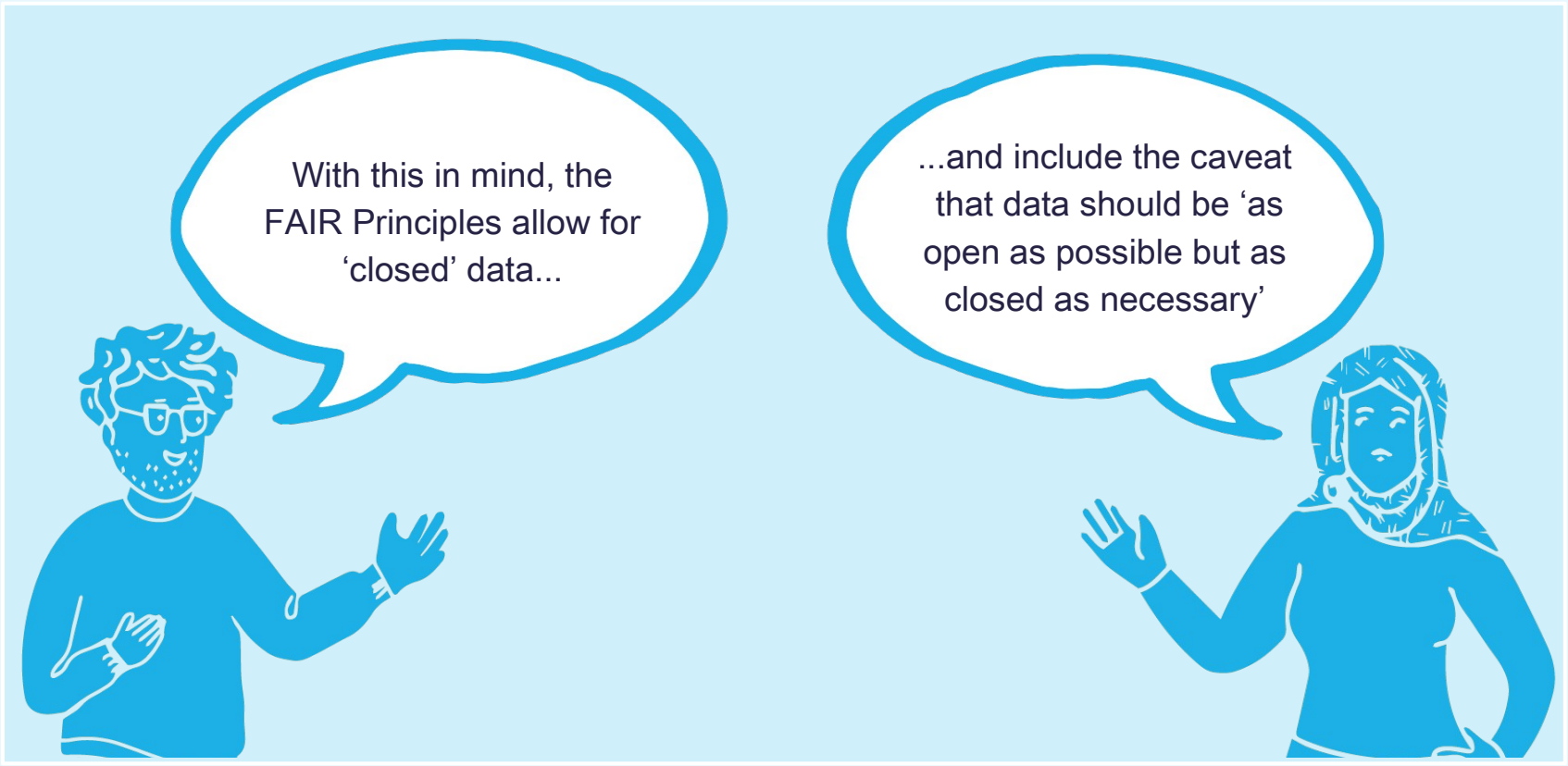
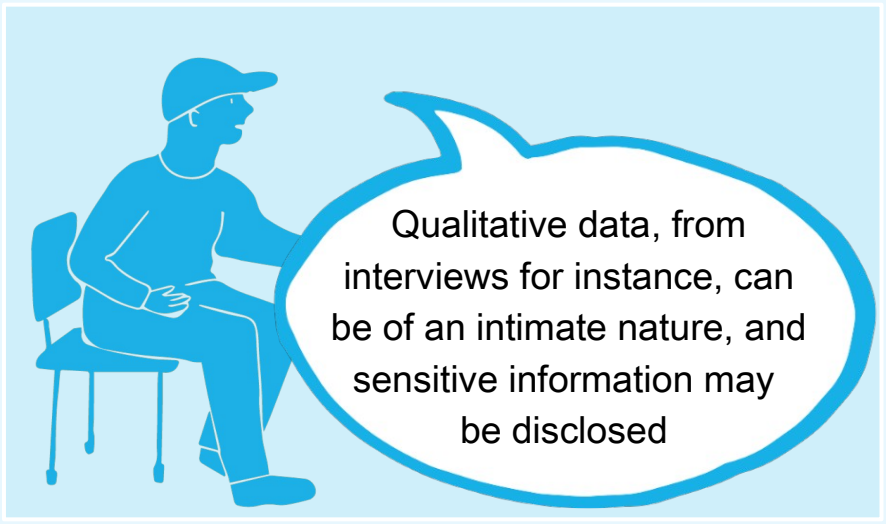
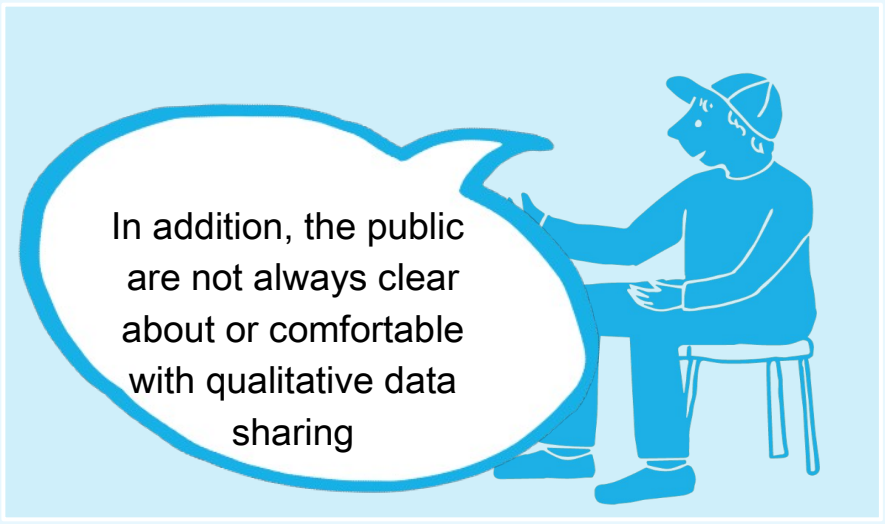
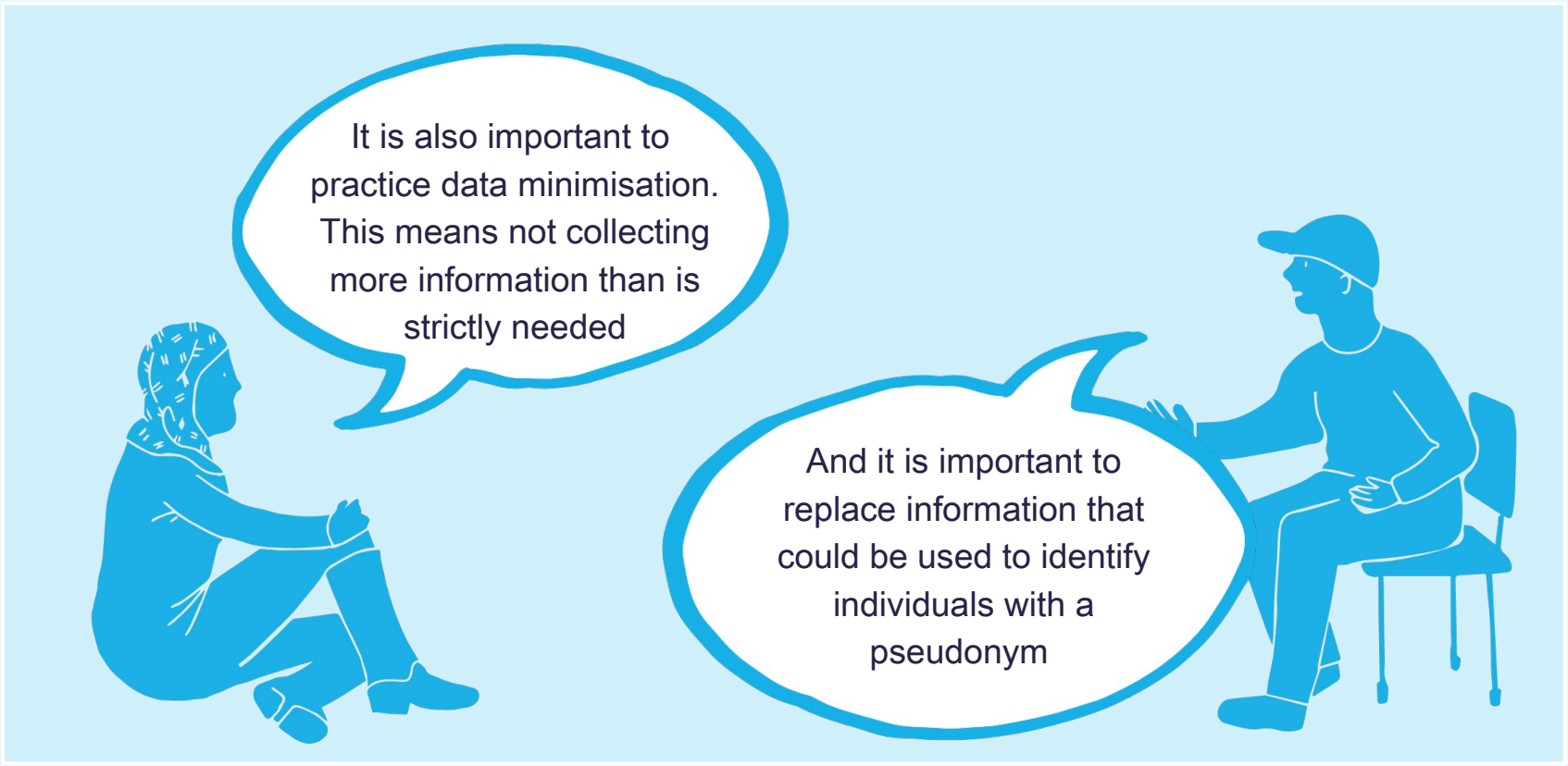


What about qualitative data?





What about qualitative data?



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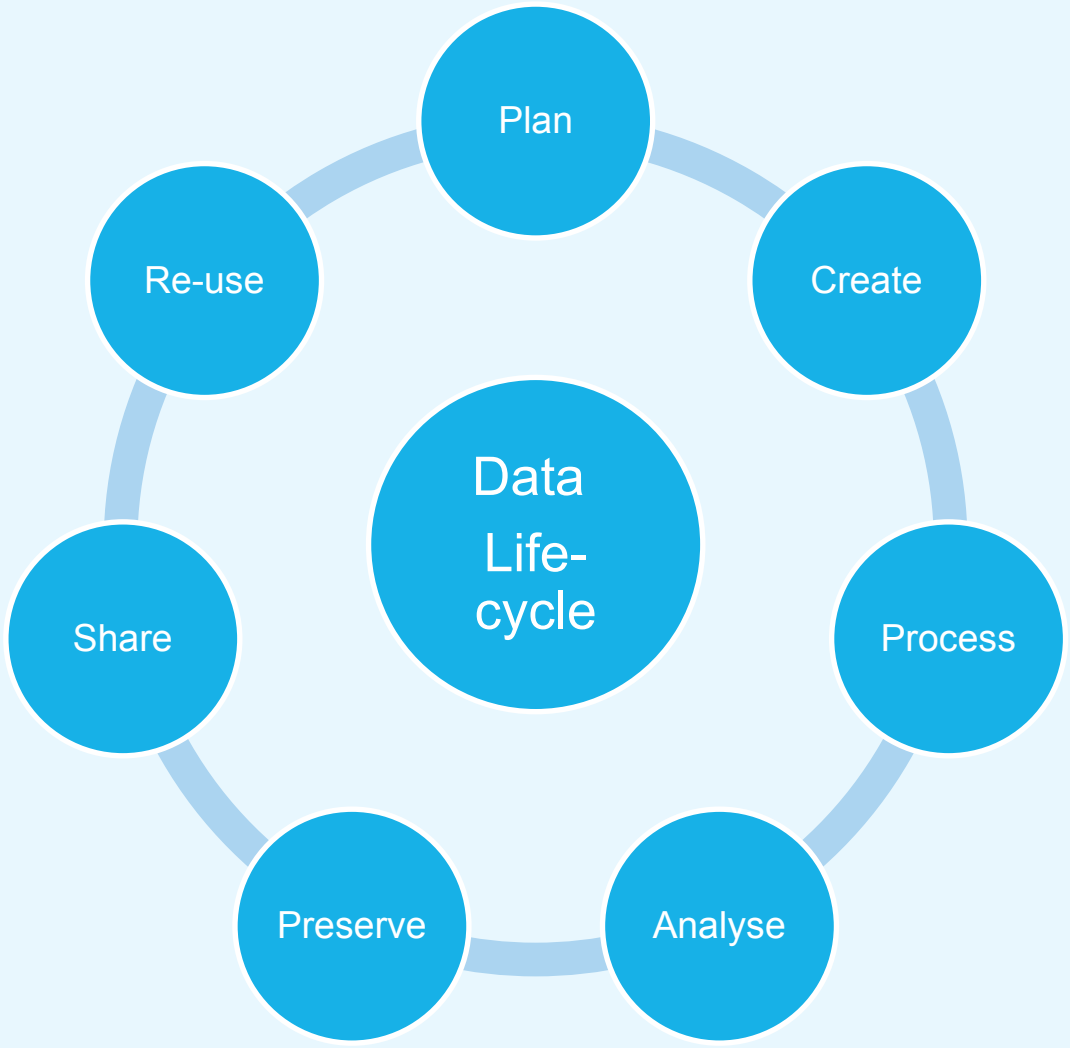
Module 3 – **Research Data Management**

What is data management?

Data management is a series of processes employed throughout the research cycle to manage data.



Why is data management important?

1. It helps you keep track of your own work and protect against data loss
2. It increases research efficacy
3. It minimises errors and data omission
4. There are funding and publishing incentives for good data management
5. There are institutional and legal requirements for good data management
6. Data management enables and facilitates sharing of research data as FAIR and open data

What is a data management plan?

It is a living document which is developed at the outset of a research project and updated throughout

It details how data will be organised, managed, stored while the project is active and how it will be preserved and shared (if relevant) once the study is over

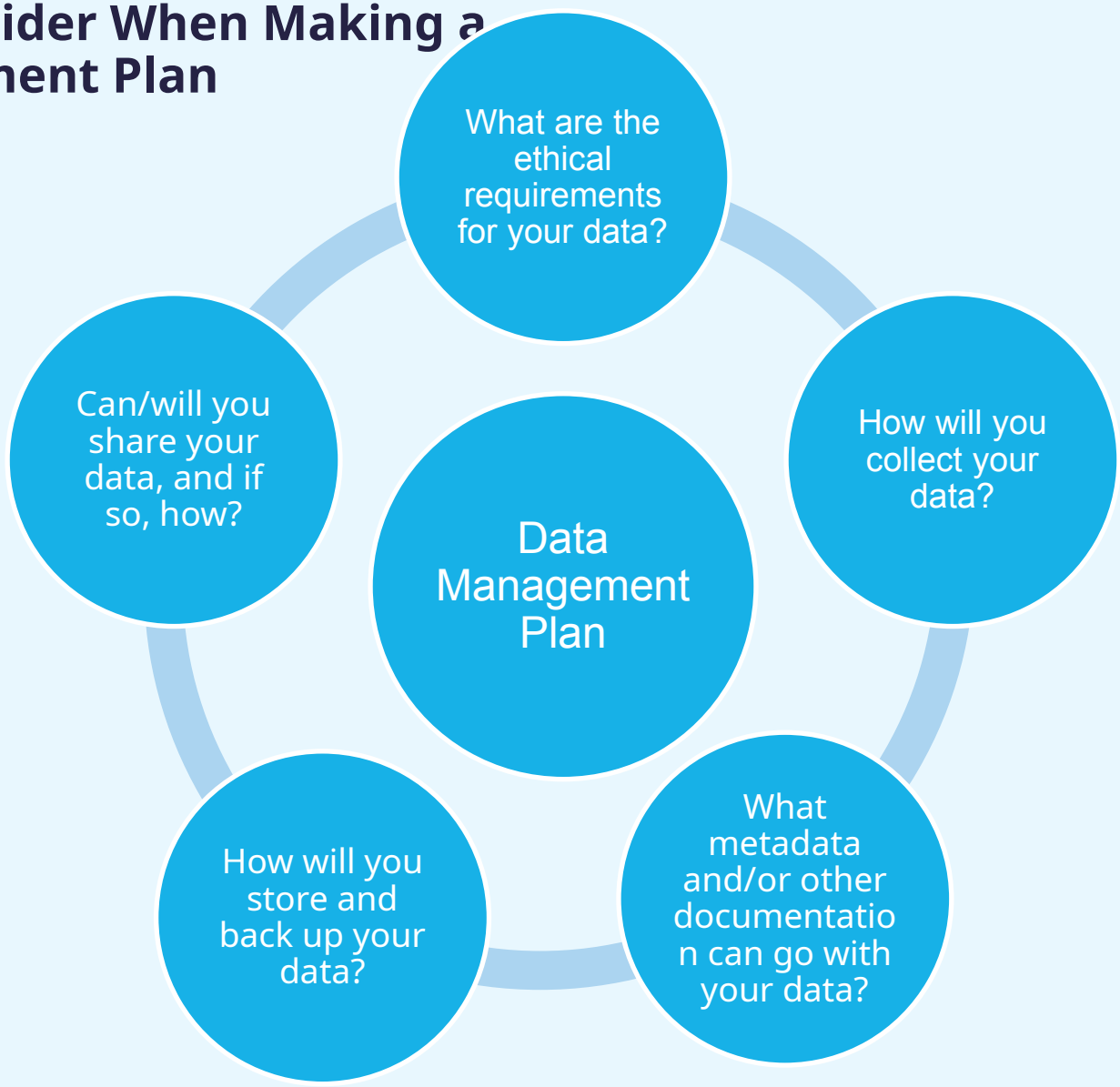
It is a core “good research practice” and ensures research reproducibility

It is important to familiarise yourself with data management plans early in your research journey

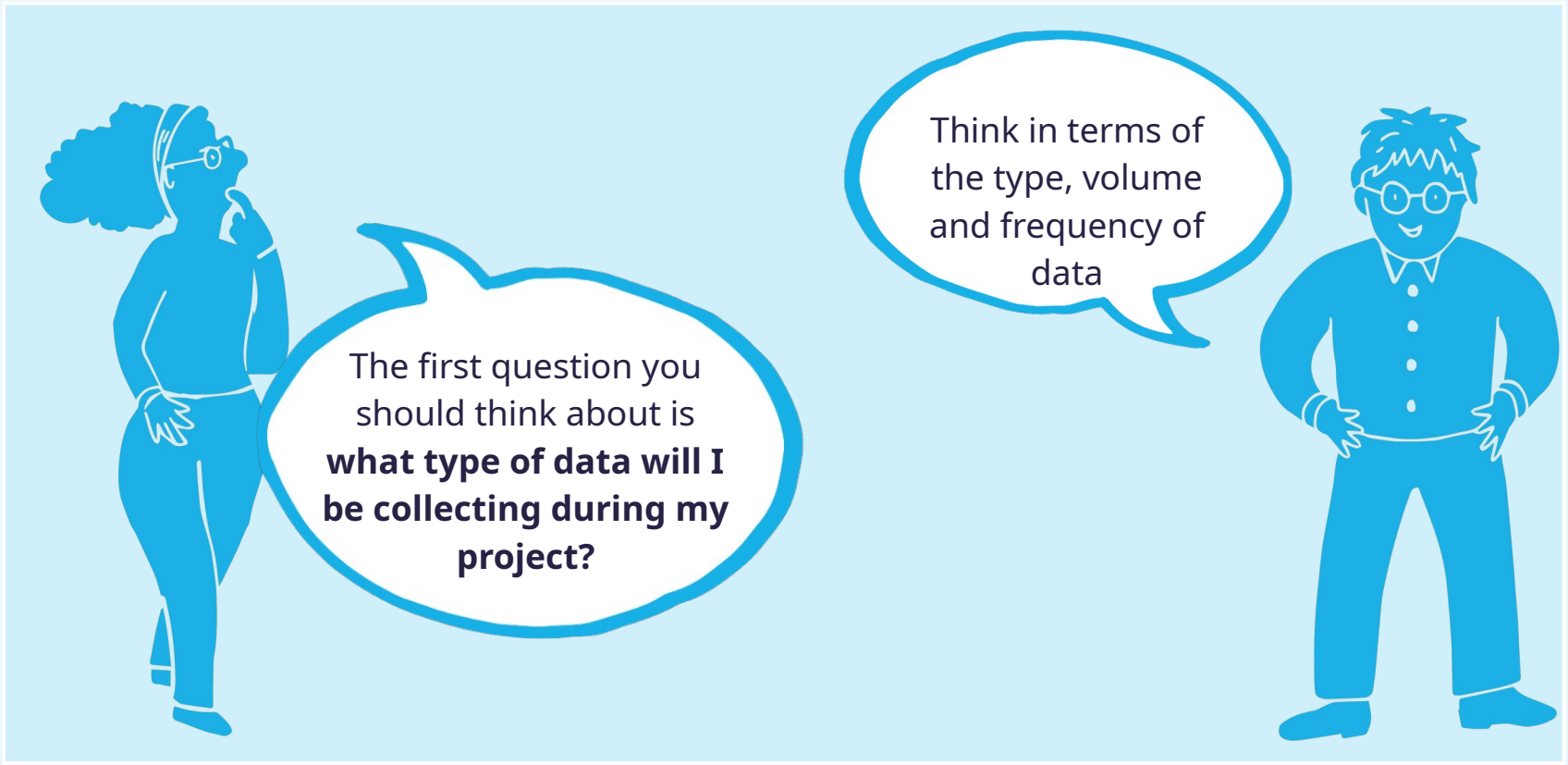
Why is data management important?

1. They set out transparent data practices for the research project
2. They make it easy to find and understand your data when you need to use it
3. They help to avoid unnecessary duplication (e.g. recollecting data)
4. They help you to maintain your data so it can be validated by other researchers
5. They help you remember what you did and what you plan to do with your data
6. Well-managed research data can also be another output from a project - which is good for your CV!

Things to Consider When Making a Data Management Plan



Think About the Data Before Collecting Any



What is metadata?

Metadata is data about your data

It can be contextual information provided with your data (i.e. variable names, types of measurement)

It can include things like keywords to help people find your data

These give your data meaning and make them findable and reusable

How do you create a data management plan?

Use these 6 headings to begin drafting a data management plan:

1. Data Collection
2. Documentation and Metadata
3. Storage and Back-up during Active Research
4. Legal & Ethical Considerations
5. Data Sharing & Long-term Preservation (FAIR & Open Data)
6. Data Management Responsibilities

How do you create a data management plan?

- Take a look at our data management template to get a sense of what is required.

Where can I share my data?

- Research data can be shared openly in many repositories worldwide
- There are lots of examples of repositories where you can make your data openly available
- Some are general, e.g:
  - Zenodo
  - Figshare
  - Software Heritage

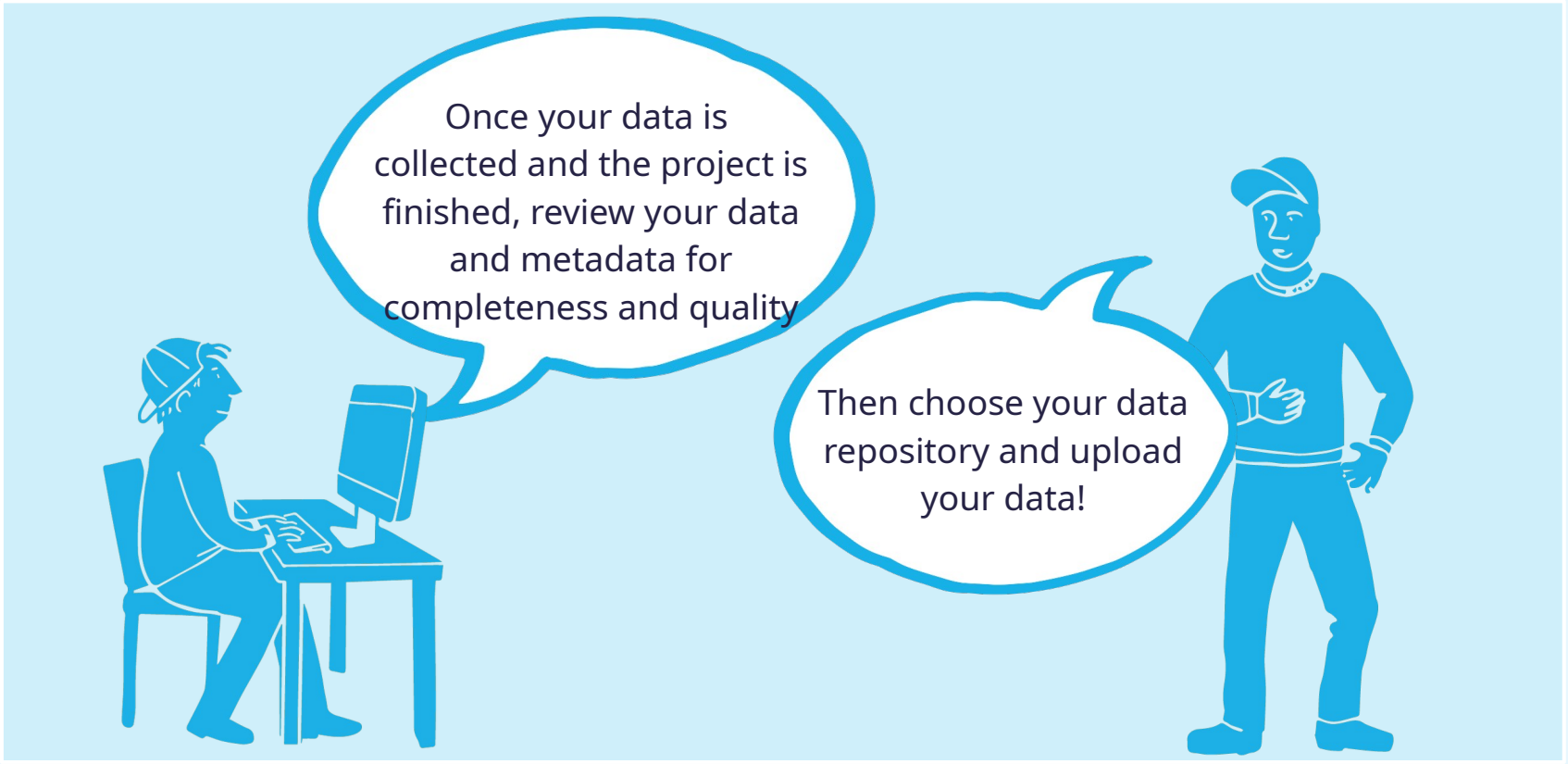
Where can I share my data?

- For specialist data repositories FAIRsharing.org is a good place to start!

- Here you can search data repositories according to the kind of data you are working with.

Steps Towards Open Data

Steps Towards Open Data



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