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Environmental
Data Service

NERC EDS: Research Data Management Best Practice

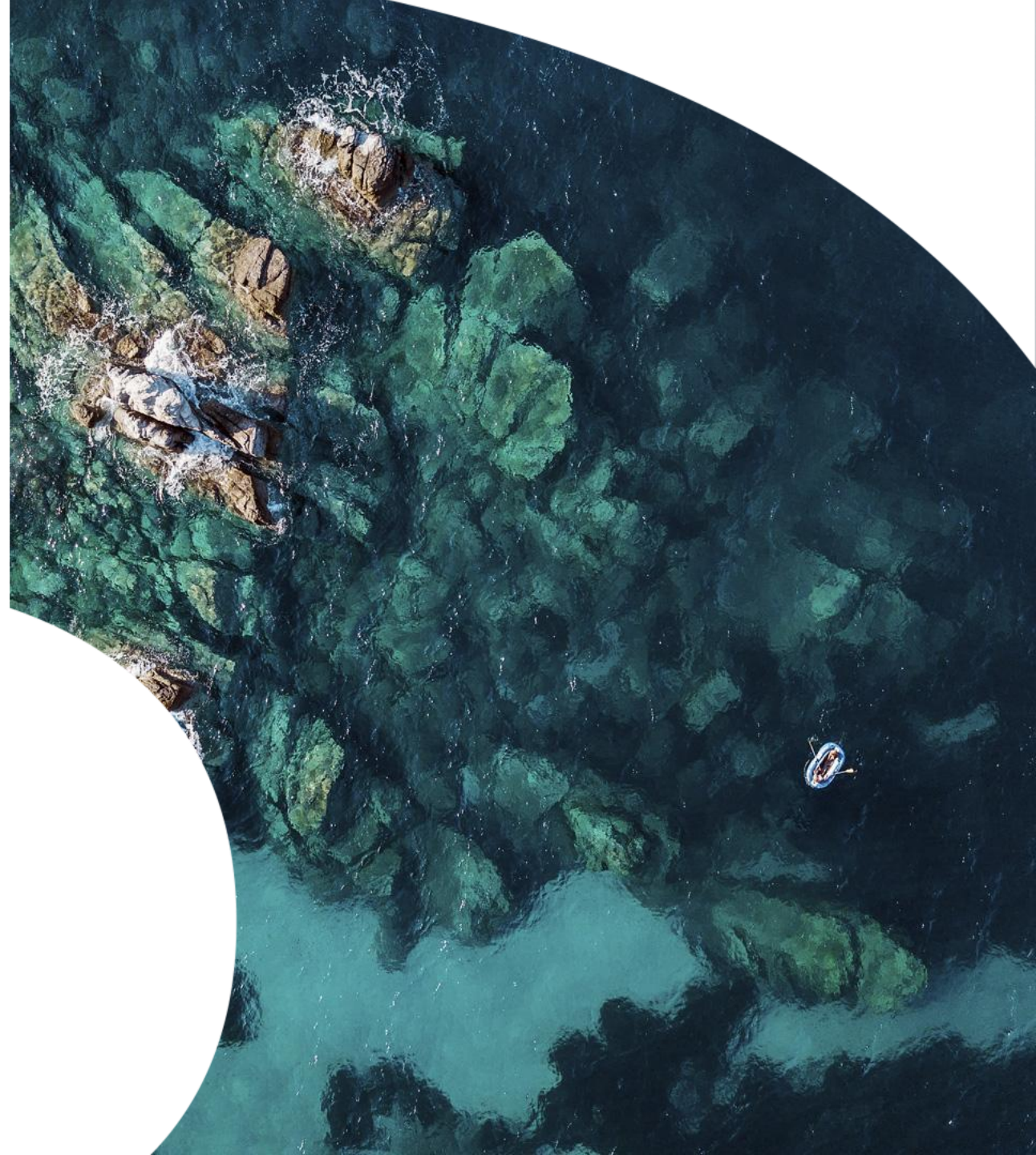
With thanks to the EDS Training
Activity Working Group

Content

- Data Life Cycle
- Data Management Plan



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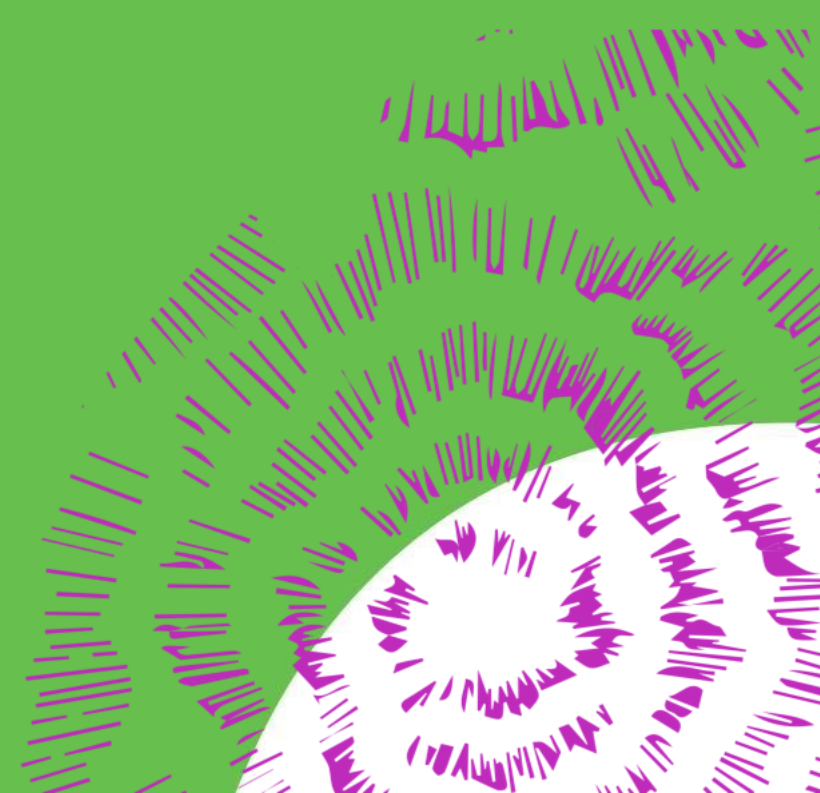
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The Data Life Cycle

In this section, you will learn how to organise your data through planning, collection, analysis, publication and beyond



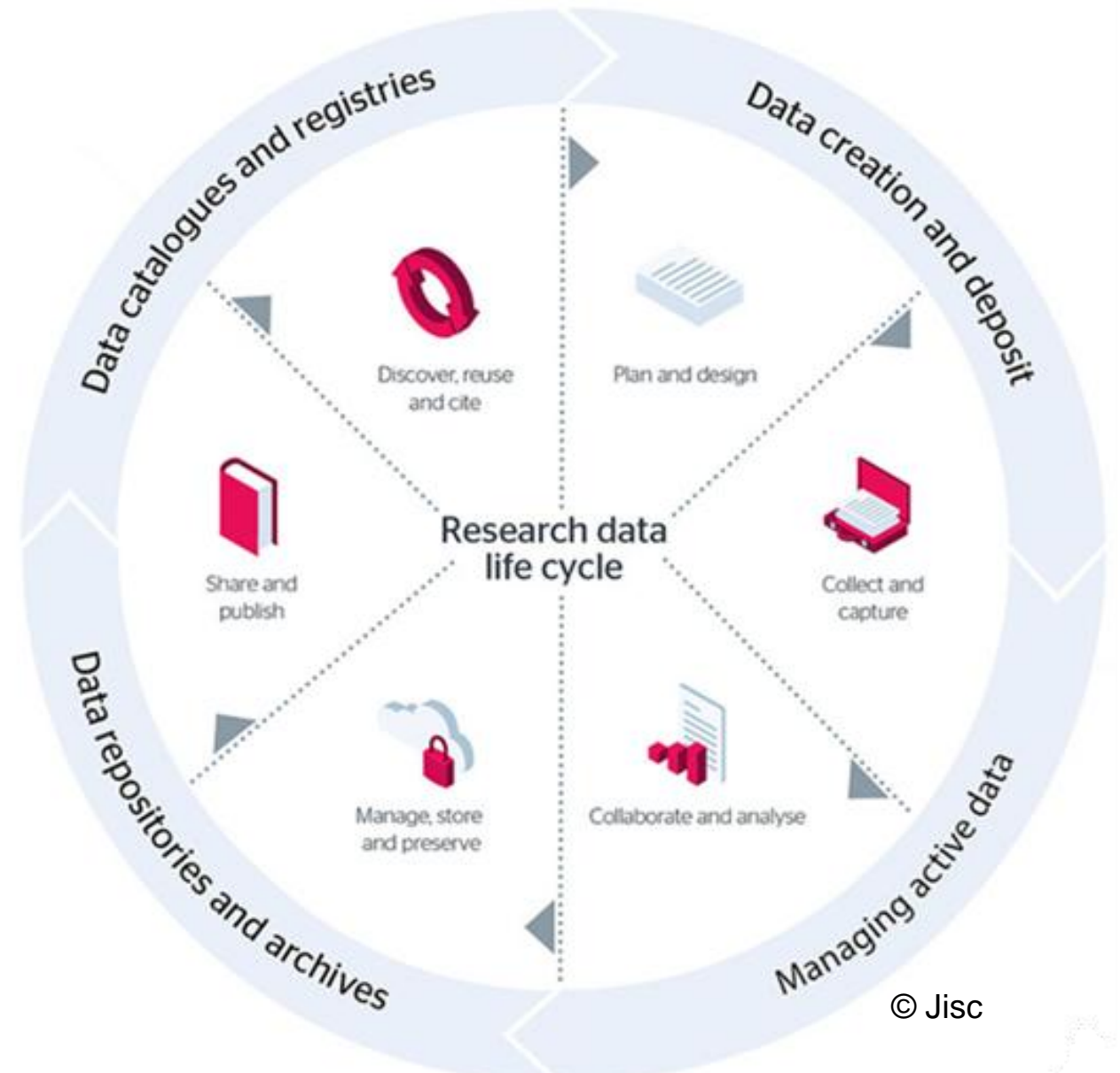
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Research Data Management Lifecycle

The data life cycle is the sequence of stages that a particular unit of data goes through from its initial generation or capture to its eventual archival and/or deletion at the end of its useful life.

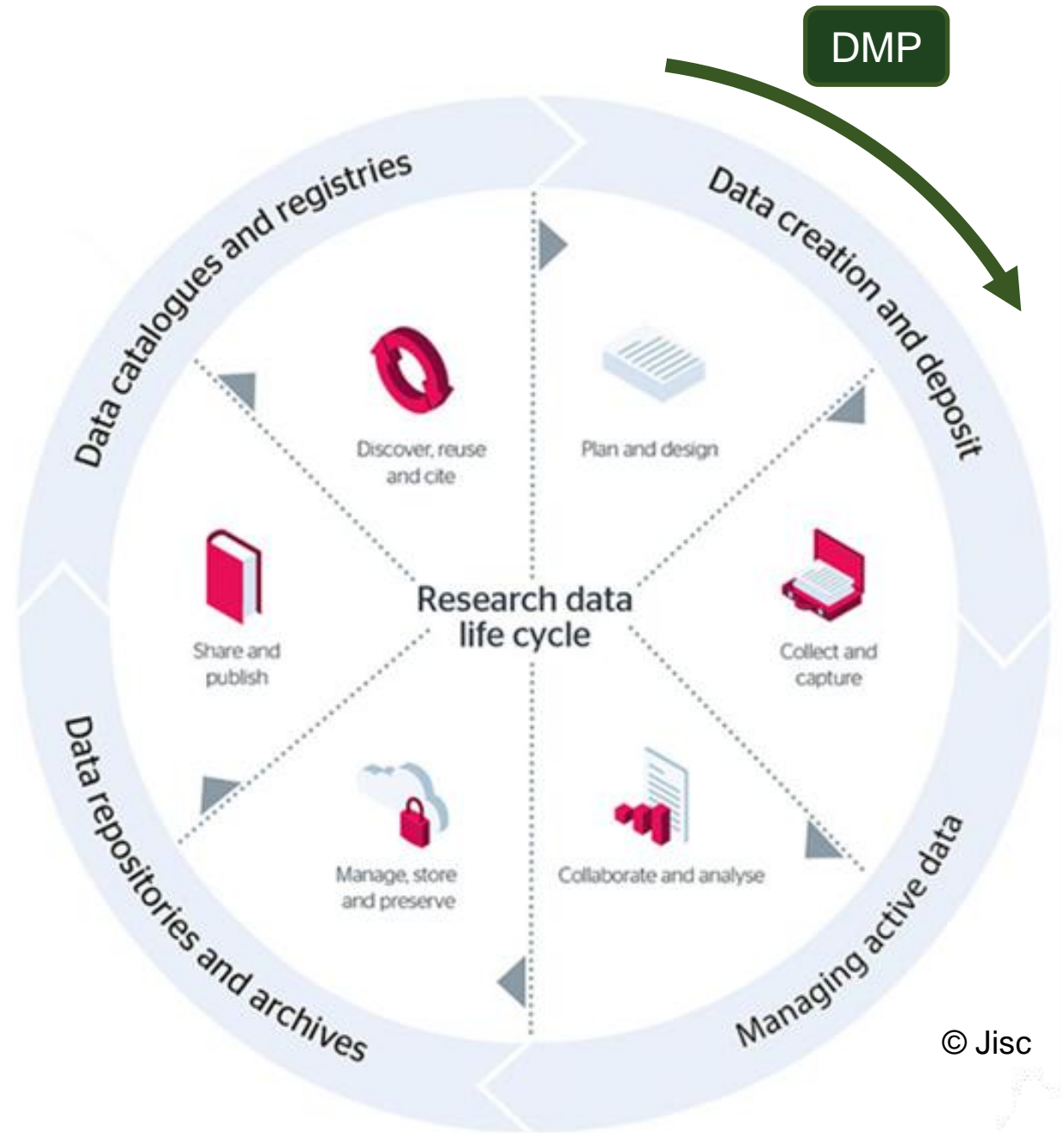
- 1) Data Management planning
- 2) Data collection and capture, collection and analysis
- 3) Data storage and archiving, sharing and publishing
- 4) Data cataloguing, discovery and reuse



RDM lifecycle

1) Data Management Planning

A Data Management Plan (DMP), is a document that **describes how your project outputs will be generated, stored, used and shared**



Data Management Planning

- A DMP is a living document, which can be updated throughout the research project as needed.
- Important for agreeing approach with project **members what happens to the data during and after the project life time.**



DMP

1. Project description 
2. Roles and responsibilities 
3. Reusing data 
4. Creating and collecting data 
5. Processing and analysing data
6. Data preservation 
7. Licensing and ethics 



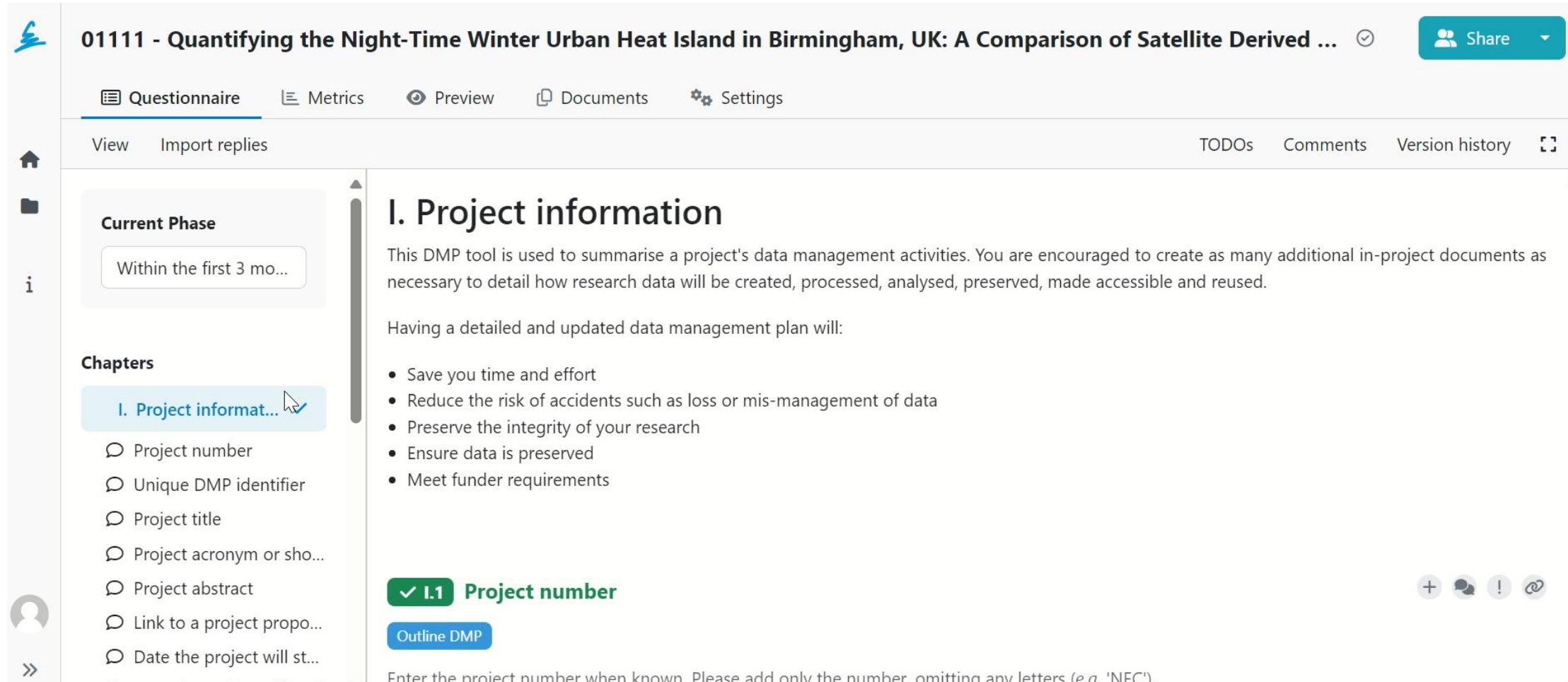
Project costings

Creating a DMP will ensure costings can be estimated before data are expected so that data centres can allocate the correct resource for:

- Creating DOIs
- Allocating enough high-volume server space
- Data managers to ingest the data



What is the Data Stewardship Wizard?



The screenshot displays the 'Data Stewardship Wizard' interface for a project titled '01111 - Quantifying the Night-Time Winter Urban Heat Island in Birmingham, UK: A Comparison of Satellite Derived ...'. The interface includes a top navigation bar with tabs for 'Questionnaire', 'Metrics', 'Preview', 'Documents', and 'Settings'. A 'Share' button is located in the top right corner. Below the navigation bar, there are sections for 'View' and 'Import replies', and a sidebar with 'TODOs', 'Comments', and 'Version history'. The main content area is divided into two columns. The left column contains a 'Current Phase' section with a text box 'Within the first 3 mo...' and a 'Chapters' section with a list of project details: 'Project number', 'Unique DMP identifier', 'Project title', 'Project acronym or sho...', 'Project abstract', 'Link to a project propo...', and 'Date the project will st...'. The right column displays 'I. Project information', which includes a description of the DMP tool, a list of benefits, and a 'Project number' field with a green checkmark and a blue 'Outline DMP' button. A note at the bottom of the right column states: 'Enter the project number when known. Please add only the number. omitting any letters (e.g. 'NEC').'

01111 - Quantifying the Night-Time Winter Urban Heat Island in Birmingham, UK: A Comparison of Satellite Derived ...

Questionnaire Metrics Preview Documents Settings

View Import replies TODOs Comments Version history

Current Phase

Within the first 3 mo...

Chapters

I. Project informat...

- Project number
- Unique DMP identifier
- Project title
- Project acronym or sho...
- Project abstract
- Link to a project propo...
- Date the project will st...

I. Project information

This DMP tool is used to summarise a project's data management activities. You are encouraged to create as many additional in-project documents as necessary to detail how research data will be created, processed, analysed, preserved, made accessible and reused.

Having a detailed and updated data management plan will:

- Save you time and effort
- Reduce the risk of accidents such as loss or mis-management of data
- Preserve the integrity of your research
- Ensure data is preserved
- Meet funder requirements

✓ I.1 Project number

Outline DMP

Enter the project number when known. Please add only the number. omitting any letters (e.g. 'NEC').

How is this better than just writing a DMP?

FAIR DS Wizard

01111 - Quantifying the Night-Time Winter Urban Heat Island in Birmingham, UK: A Comparis...

Questionnaire | Metrics | Preview | Documents | Settings

View | Import replies | TODOs | Comments | Version history

Chapters

- I. Project inf... ✓
- II. Re-using d... ✓
- III. Creating ... 1**
- IV. Processing... ✓
- V. Preserving... ✓
- VI. Project Cl... ✓

III.1.b.11 Will all the datasets you create be given a licence?

It is not always clear to everyone in the project (and outside) what can and can not be done with a dataset. It is helpful to associate each dataset with a licence as early as possible in the project.

A licence should ideally be as free as possible: any restriction like 'only for non-commercial use' or 'attribution required' may reduce the reusability and thereby the number of citations.

☒ Desirable: *Within the first 3 months of the project*

☒ External links: [Read more: Data licensing & agreements](#)

☒ Experts: *UKCEH Data Licensing Team (spatialdata@ceh.ac.uk)*

☐ **a. No** **DMP Practice** **Reusability**

☐ **b. Yes** **DMP Practice** **Reusability**

Easily write your DMP with the Data Stewardship Wizard

User-friendly
questionnaire-
driven tool for
creating
comprehensive
Data
Management
Plans (DMPs)

I.12 Is this project likely to require more than one full data management plan?



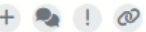
Outline DMP

For most projects, only one full data management plan will be needed, but for some more complex projects / programmes it may be more appropriate to have more than one DMP, depending on the nature of the data handled in the different work packages or components. The Data Stewardship Team can advise on the most appropriate DMP setup for your project.

☒ Desirable: *Before submitting the proposal*

- ☐ a. No, all the data handling can be covered by one plan
- ☐ b. Yes, it is a large project/programme with distinct work packages or areas of work with distinct data handling requirements and outputs
- ☐ c. Not sure yet

I.13 Will you require specialist expertise in addition to what is usually available?





Outline DMP

If more than one option applies (e.g. you plan to train existing staff and bring in new specialists), please select the one that will require most resources to implement. This question is a prompt for you to consider if you will need to budget for additional, perhaps specialist, expertise.

☒ Desirable: *Before submitting the proposal*

 External links: [Read more: Data stewardship skills](#)

- ☐ a. No, we have all the expertise we need
- ☐ b. Yes, we will be training existing staff/students 
- ☐ c. Yes, we will be recruiting new people with additional expertise 

How does this promote FAIR data?

The screenshot displays a web-based questionnaire interface. At the top, the title is "01111 - Quantifying the Night-Time Winter Urban Heat Island in Birmingham, UK: A Comparison of Satellite Derived ...". Navigation tabs include "Questionnaire", "Metrics", "Preview", "Documents", and "Settings". A "Share" button is in the top right. On the left, a sidebar shows a "Chapters" list with items like "I. Project informat...", "II. Re-using data", "III. Creating and col...", "IV. Processing and ...", "V. Preserving and s...", and "VI. Project Closure". The main content area is titled "Will you need consent for any newly collected personal data?". It includes an "Outline DMP" button and a definition of personal data. Below this, there are four radio button options: "a. No, we won't collect any new personal data" (with a green "Reusability" tag), "b. No, our work on personal data can be done using another legal base" (with a yellow "Reusability" tag), "c. Yes, but we will only collect consent specifically for our use of the data" (with a red "Reusability" tag and selected), and "d. Yes. we will collect consent for our use as well as reuse of the data" (with a green "Reusability" tag). There are also checkboxes for "Desirable: Before submitting the proposal" and "External links: Read more: Sensitive data in environmental datasets".

01111 - Quantifying the Night-Time Winter Urban Heat Island in Birmingham, UK: A Comparison of Satellite Derived ...

Questionnaire Metrics Preview Documents Settings

View Import replies

Within the first 3 mo...

Chapters

- I. Project informat... ✓
- II. Re-using data ✓
- III. Creating and col... ✓
- IV. Processing and ... ✓
- V. Preserving and s... ✓
- VI. Project Closure ✓

Will your project collec...

✓ III.1.b.8 Will you need consent for any newly collected personal data?

Outline DMP

Personal data are any information relating to an identified or identifiable natural person (e.g. name, ID, location, identity/physical/genetic/cultural traits, etc.).

☒ Desirable: Before submitting the proposal

☒ External links: [Read more: Sensitive data in environmental datasets](#)

☐ a. No, we won't collect any new personal data **Reusability**

☐ b. No, our work on personal data can be done using another legal base **Reusability**

☒ c. Yes, but we will only collect consent specifically for our use of the data **Reusability**

☐ d. Yes. we will collect consent for our use as well as reuse of the data **Reusability**

How is this better than just writing a Data Management Plan (DMP)?

Time-consuming



Compliance-led

DSW



Less time and energy

Collaborative effort for all PIs

Standardised and structured

Machine-readable

Consensus across EDS

Easy updates

Extensive help resources

How was it adapted?

The DSWizard

- has a core set of questions common across all Data Centre
- enables sharing DMP across Data Centres
- allows a Data Centre-specific profile

✓ III.1.b.1.b.2 Who will do the measurements?

BODC CEDA EDS EIDC PDC

Tick all that apply.

☒ Mandatory: *During the grant*

☒ a. Staff in the project, with our own or third party equipment

☒ b. Experts in the project, at a specialised infrastructure

☒ c. External party

✓ III.1.b.1.b.1 Will you be implementing a pre-determined or standard survey/experimental design?

EDS EIDC

☒ Mandatory: *During the grant*

☐ a. No, we will use a design created specifically for this project

Reusability

☒ b. Yes

Reusability

↺ Clear answer

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DMP in summary

Everyone knows what they need to do and when

- ✓ Devise your strategies early and apply them consistently
- ✓ Keep it simple and make it work for you and your data
- ✓ Document strategies in a README file at the top level of your file structure and in your DMP
- ✓ Share the strategy with others you work collaboratively with



Data Management Plan Exercise

- Fill in the table with details of one (or more) datasets you will produce during your research.

Dataset Description	Estimate d dataset size (e.g. GB, MB, TB)	Data Format	When will this data be produced and published?	Where will you publish this data?	Roles and responsibilities associated with this dataset