# RDM lifecycle

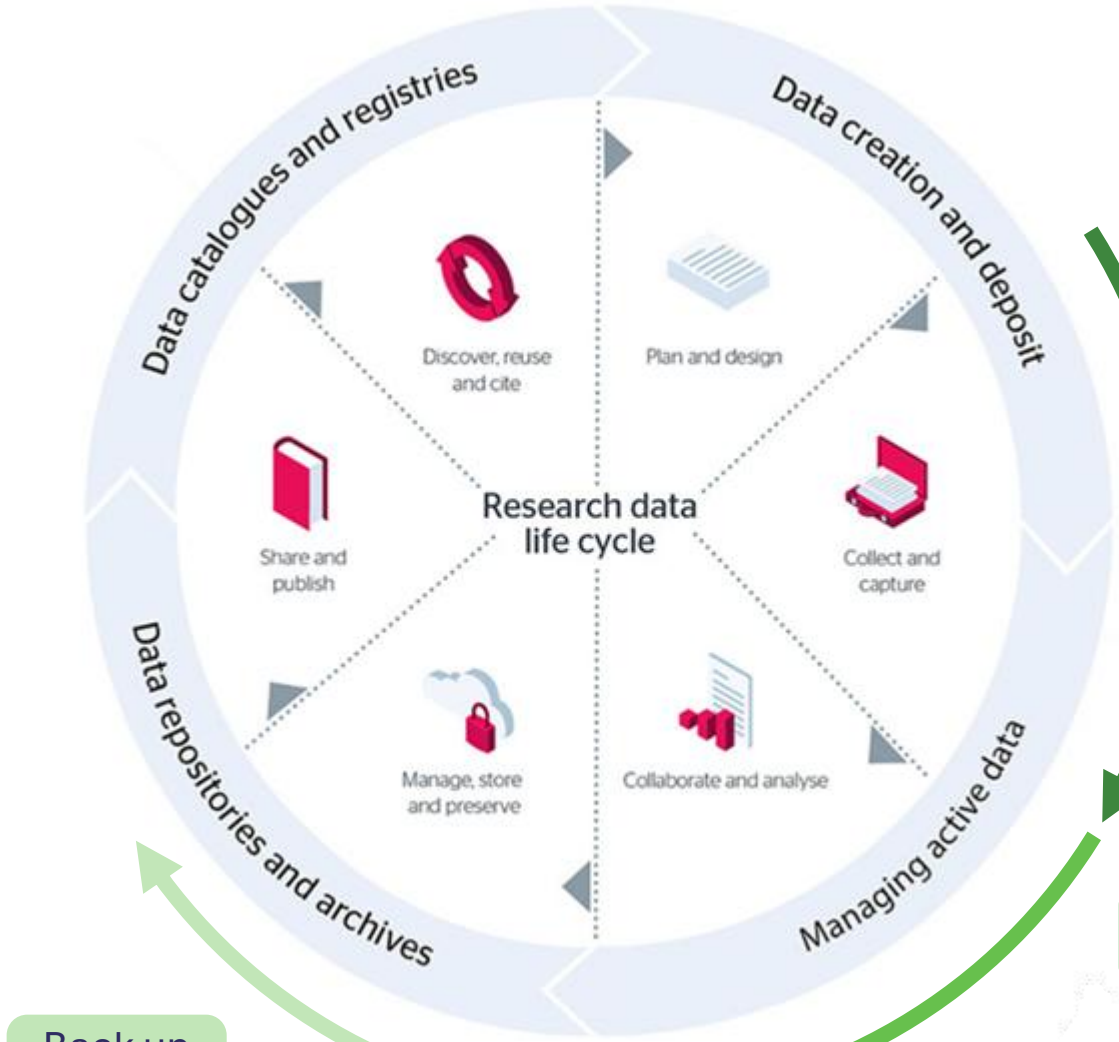
- Data Collection
- Processing and management day-to-day

Describe the data

Process the data

Organise the data

Save the data




Collection

Naming convention

Metadata

Versioning

Data formats

Back up storage

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# Collecting data in the field

Understand the deployment environment by asking yourself the following questions:

- Is it a deep field site or a remote field station?
- Data server – may have RAID storage, offline backups
- Time server – run an NTP client to sync accurate time
- Reliable power supply – consider UPS, surge protection, IP PDU
- Remote network comms: scheduled transmission and remote login

**General tips:**

- Storage is cheap, but collecting remote, in situ data, is expensive
- Structure raw data appropriately
- Monitor and alarm propagation
- Have a second storage device
- Ensure available storage can withstand a missed site visit
- Capture metadata along data acquisition

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# Case study: Data collection on a ship

Ship track – position data

'Event' deployments – needs to be linked to other continuous data

Physical sample/lab metadata

Multiple continuous data acquisition systems e.g. Multibeam echosounder, ADCP


I prepare the information and material I need for my analysis, record any information that might impact the  quality of the data, make sure to back up the data

# Data on a day-to-day basis

## DOCUMENTATION AT PROJECT LEVEL

- Data collection methods, including instruments and protocols
- Standards used and replication
- File and data structure
- Procedures for quality control and versioning
- Problems that may affect the use of the data

## DOCUMENTATION AT DATA LEVEL

- Date created and version
- Names and definitions of fields (variables)
- Reasons for missing values
- Problems that may affect specific records
- Code used to generate processed data values

Recording these details will make it easier to create metadata

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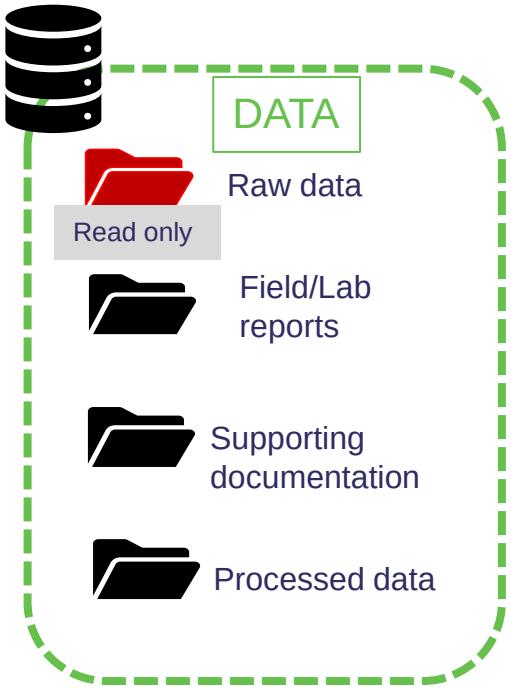
After Sandy Harrison presentation on RDM

Manage your citations and references using citation software


# Folder structures




## Use folders and structure them hierarchically

- Group files within folders so particular topics are in one place
- Make sure folder structure is understandable by others
- Start with a limited number of generic folders, then create more specific sub-folders

## Adhere to existing procedures

- Check for established team/department approaches which you can adopt
- Agree on a common folder structure that makes sense to everyone
- Document strategy in DMP

## Name folders and file appropriately

- Be consistent when you name your data and the folders they're stored in
- Avoid spaces and special characters
- Use a file naming convention

## Separate raw and working data

- Do not make any changes / corrections to the original raw data files to preserve original files
- Consider having your raw data read only to avoid deletion or changes.

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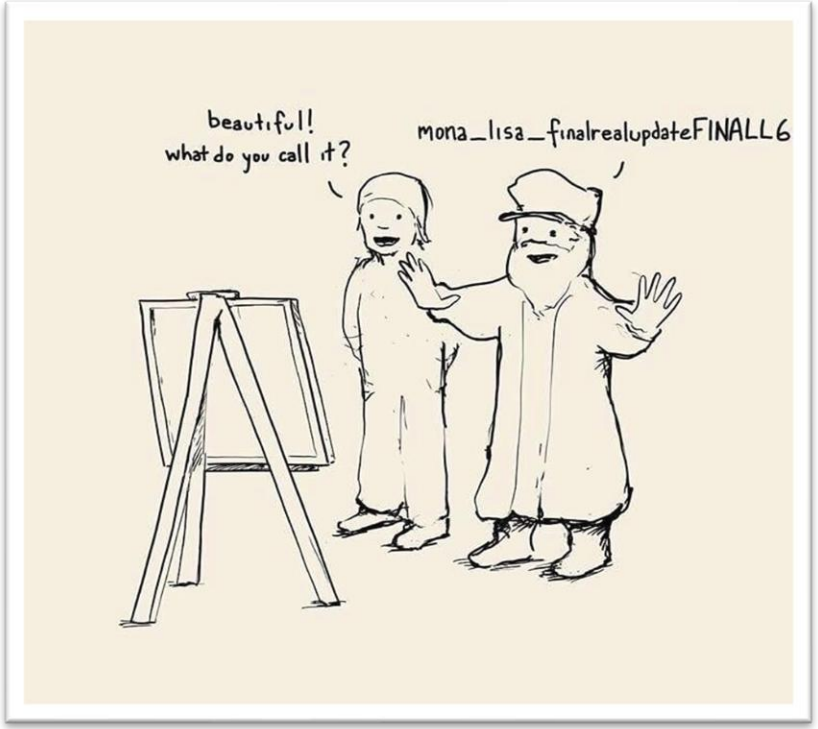
# File-naming conventions

Decide on a file naming convention at the start of your project. Useful file names are:

- ✓ Consistent
- ✓ Meaningful to you and your colleagues
- ✓ Allow you to find the file easily




**Some tips:**

- ✓Start your file name with the date, formatted as YYYYMMDD, to display your files in chronological order
- ✓Don't make file names too long
- ✓Special characters should be avoided
- ✓ For sequential numbering, use leading zeros to ensure files sort properly."01, 02…99, etc" instead of "1, 2…99, etc."
- ✓Do not use spaces: Instead use underscore (file_name), dashes (file--name), no separation (filename or FileName)
- ✓Include versioning when appropriate

| File name | Changes to file |
|---|---|
| ResearchReport_1.0 | Original document |
| ResearchReport_1.1 | Minor revision made |
| ResearchReport_1.2 | Further minor revisions |
| ResearchReport_2.0 | Second approved version |

https://help.eds.ukri.org/article/5182-file-naming

# Units

- Describing parameters in a reusable way
- Making data understandable for others
- Placed in the header, not in the data
- Unified Code for Units of Measurement (UCUM)
  - All units of measure
  - International science, engineering
  - 7-bit US-ASCII character set

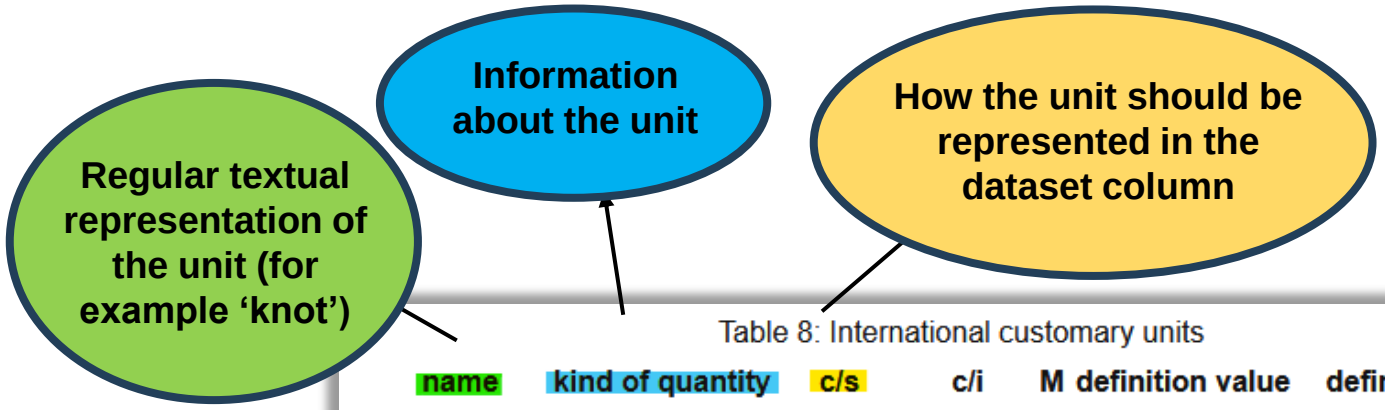



Table 8: International customary units

| name | kind of quantity | c/s | c/i | M | definition value | definition unit |
|---|---|---|---|---|---|---|
| inch | length | [in_i] | [IN_I] | no | 2.54 | cm |
| foot | length | [ft_i] | [FT_I] | no | 12 | [in_i] |
| yard | length | [yd_i] | [YD_I] | no | 3 | [ft_i] |
| mile | length | [mi_i] | [MI_I] | no | 5280 | [ft_i] |
| fathom | depth of water | [fth_i] | [FTH_I] | no | 6 | [ft_i] |
| nautical mile | length | [nmi_i] | [NMI_I] | no | 1852 | m |
| knot | velocity | [kn_i] | [KN_I] | no | 1 | [nmi_i]/h |
| square inch | area | [sin_i] | [SIN_I] | no | 1 | [in_i]2 |
| square foot | area | [sft_i] | [SFT_I] | no | 1 | [ft_i]2 |
| square yard | area | [syd_i] | [SYD_I] | no | 1 | [yd_i]2 |
| cubic inch | volume | [cin_i] | [CIN_I] | no | 1 | [in_i]3 |
| cubic foot | volume | [cft_i] | [CFT_I] | no | 1 | [ft_i]3 |
| cubic yard | volume | [cyd_i] | [CYD_I] | no | 1 | [yd_i]3 |
| board foot | volume | [bf_i] | [BF_I] | no | 144 | [in_i]3 |
| cord | volume | [cr_i] | [CR_I] | no | 128 | [ft_i]3 |
| mil | length | [mil_i] | [MIL_I] | no | $1 \times 10^{-3}$ | [in_i] |
| circular mil | area | [cml_i] | [CML_I] | no | 1 | [pi]/4.[mil_i]2 |
| hand | height of horses | [hd_i] | [HD_I] | no | 4 | [in_i] |

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