

Prepare your teams for effective data management (plans)

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*This presentation was made with the kind help of A. Soldánová,
Data steward for natural sciences, Library of CAS, CZ*



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the European Union



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Program

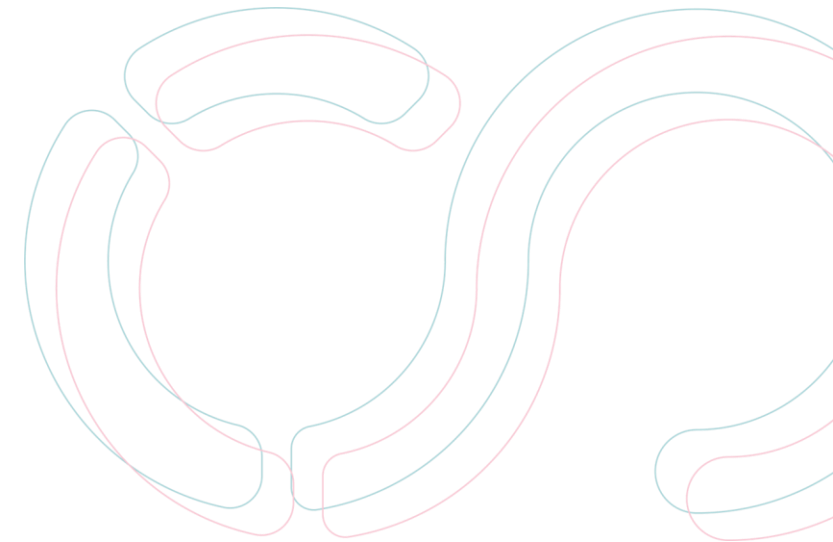
First part 10:00-10:55

Break 10:55-11:00

Second part 11:00-11:55

Break 11:55-12:00

Q & A 12:00-12:30



Introduction & basics of data management



Open science

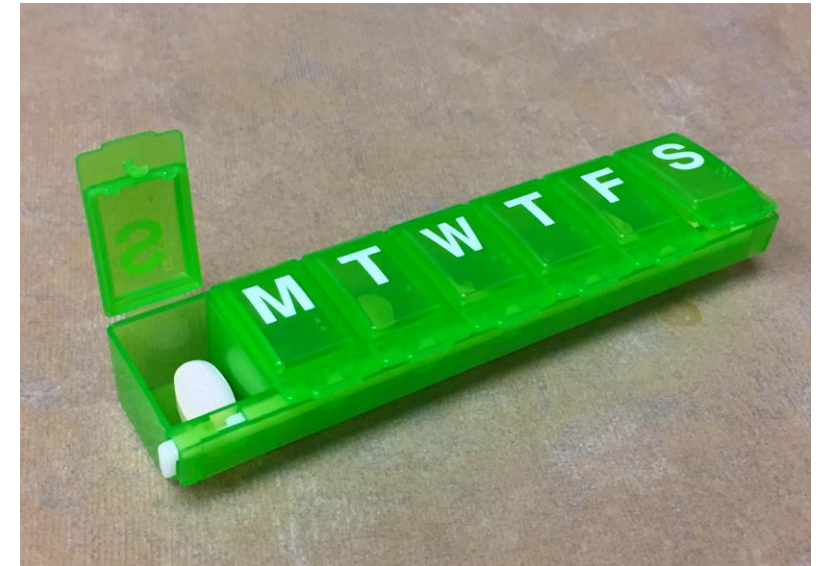
- ✓ A measure to open research to other scientists and the public
- ✓ A method to ensure transparent research
- ✓ A helpful way to keep pieces of work relevant for the future
- ✓ A way to establish external workflows and continuation of research
- ✓ A pathway towards reusability

Open science - what do we mean?

- ✓ Transparency in methodology and documentation of research
- ✓ Establishing management practices for internal and archiving purposes
- ✓ Appropriate formats of data, codes, software, hardware and publications.
- ✓ Appropriately using other works based on their licenses
- ✓ Licensing created works so everyone knows how to use them properly

Data management

Data management is an everyday task,
we just don't realize that we are doing it.



"Pill Box (32636946385).jpg" by NIAID, licensed under [CC BY 2.0](#). Source: [Wikimedia Commons](#)

It is hidden under *labeling* laboratory samples and *dating* them,
adding our *name* on our sample boxes, *storing* results of a
measurement in a school computer, *making a folder* for pictures
from our family in our flash drive.

Data management – what do we mean in research?

Data management involves several steps:

- ✓ Finding out what data are you using or creating
- ✓ Creating a plan that shows how you would expect the data to be managed:
naming, dates, which data are you keeping, which data are you deleting
- ✓ Deciding which data will be published and how
- ✓ Calculating possible costs from operating and analyzing data, to making them available and open
- ✓ ...

Data management plans (DMPs)

- Not just a funder requirement
- DMPs are and should be a reflective, living document for you and your team
- They should include all management processes related to data
- They can save you time and resources

How can DMPs be useful?



Public domain. AI generated.

Scenario: A funded project is running for 5 years. You start the project with 7 master and 3 bachelor students, 5 PhD students and 1 post-doc. You are the PI and the responsible person for reporting the outputs of the grant.

On the 3rd year, the post-doc finds another university to do research in, and the 3 bachelor students are getting their diploma. Two of the PhD students are leaving too.

What are your next steps?



You look to hire new students, and especially a post-doc to help with the workload, and possibly PhD students that will be also supervising earlier researchers.

- *How do you explain your project to them without losing information?*
- *How do you explain the data they find from previous work that they need to understand and work on?*
- *How will you make sure that GDL_Jan1 is the last sample of a student and not GDL1_Jan?*

Saving time and resources through DMPs

An internal DMP can save you as the team PI when it comes to introducing new people in the group

- ✓ Giving all the important information through DMP
- ✓ No need to have the whole team discuss with the researchers the moment you hire them
- ✓ All the researchers have now the same information and work in an organized and understandable way
- ✓ Any time you do not know what a folder is, you can go to the DMP and find out, even when the students and researchers are no longer in the team

Saving time and resources through DMPs

An internal DMP can save you as the team PI when it comes to introducing new people in the group

- ✓ You have access to information related to all the students simply by looking the DMP
- ✓ Updates are essential – **A DMP must be updated often** internally, so everyone can keep up with the changes
- ✓ As the projects evolves, so does the DMP
- ✓ When funder reporting comes, you only need to review!

How to not freak out?



Public domain. AI generated.

When to start preparing?



- ✓ When conceptualizing
- ✓ During the writing of proposals
- ✓ If not during the proposal writing, then
immediately after acceptance of a grant

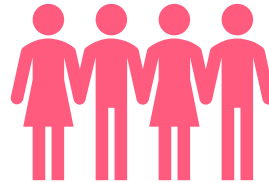
Not last minute

What to consider?

An approachable manager is an informed manager



Get to know your OS
requirements



Get to know your team



Get to know your data

An informed manager is a happy manager

What to not skip in a team meeting

An informed team is a happy team



Inform them of the OS requirements for the project they work on



Give them information on possible help from the institute
(aka. Data Steward, open science office, project center)



Give them the DMP with the information that you wish their data to have
(metadata, names, formats, publishing possibilities)

A happy team is an effective team

DMP timeline



Thanks
Boss!



DMP after the project – for the manager

- ✓ A detailed scheme of all data available from the project: raw, analyzed, reused..
- ✓ Where are the data, what are the data
- ✓ An easy way to create new plans for future projects

DMP after the project – for the team

- ✓ Easy access to what was done
- ✓ Correctly citing people's work based on DMP, without having to “guess” who did what and how
- ✓ Easy repeatability, help with continuation of works
- ✓ A guide for publishing and thesis organization

Commonly used tools for DMP

- Data Stewardship Wizard: **FREE** - Question and answer, collaborative environment, prefilled answers, personalization
- Fair Wizard: **Commercial** - cloud hosted extension on top of DSW build in mind of the RDM needs for organizations (**Free** for individual researchers).
- ARGOS: **FREE** - Choose from a catalogue of funders, grants, and possible templates and answer questions for your DMP
- DMPOnline: **FREE** - Simple UI, reply to the main points that need to be in the DMP based on funders' requirements or the DCC template

Funding Open science



Co-funded by
the European Union

Common requirements from funders

- ✓ Publications – OA
- ✓ Open Access publications under an open license
- ✓ Submission of Data Management plan (usually 3x times in the project)
- ✓ Submission of datasets in a repository
- ✓ Ethics mentioned in DMP
- ✓ ...

Common requirements from journals

- ✓ Data related to publication in a repository
- ✓ Data of publication in the journal's repository
- ✓ Pre-print in a repository related to the journal
- ✓ Data availability statement
- ✓ CRediT (Contributor Roles Taxonomy)
- ✓ ...

Common mistakes and questions



Common questions and mistakes

- Data formats for long term archiving
- Licensing of publications
- Persistent identifiers for data and publications
- Creating a record in a repository – publication and data together? **No**
- Data in repository – all data for a paper together? **Usually no**
- What is a data repository vs. software repository

Data formats for long term archiving - sources

- <https://unlimited.ethz.ch/spaces/DD/pages/194127879/File+formats+for+archiving>
- <https://www.dpconline.org/handbook/technical-solutions-and-tools/file-formats-and-standards>
- <https://libraries.mit.edu/data-management/store/formats/>
- <https://data.research.cornell.edu/data-management/archiving-and-preservation/file-formats-for-preservation/>



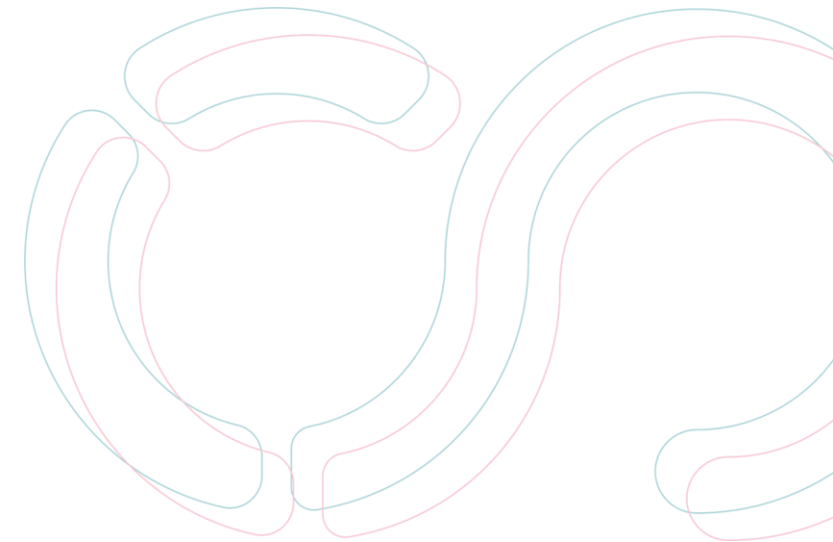
**BREAK
TIME**

Common questions - data

- How to upload a large data set? – *curate, minimize, find repository*
- Who owns my data? - *contracts*
- Does my university accept my deposit of data online? *Ask*
- Does my industry collaborator need to know the deposit of data online? *YES.*
- I do not know if I work with sensitive data – *Data steward, team*
- What is metadata??? - *Data steward*

Common questions - Metadata

- What is it?
- How to create metadata for my project?
- What do I need to include?
- How does it look like?



Metadata

Appendix.

2. Chessnut. *Roasted under the Embers, or dry fried, till they shell, and quit their Husks, may be slit; the Juice of Orange squeezed on a Lump of hard Sugar dissolved; to which add some Claret Wine.*

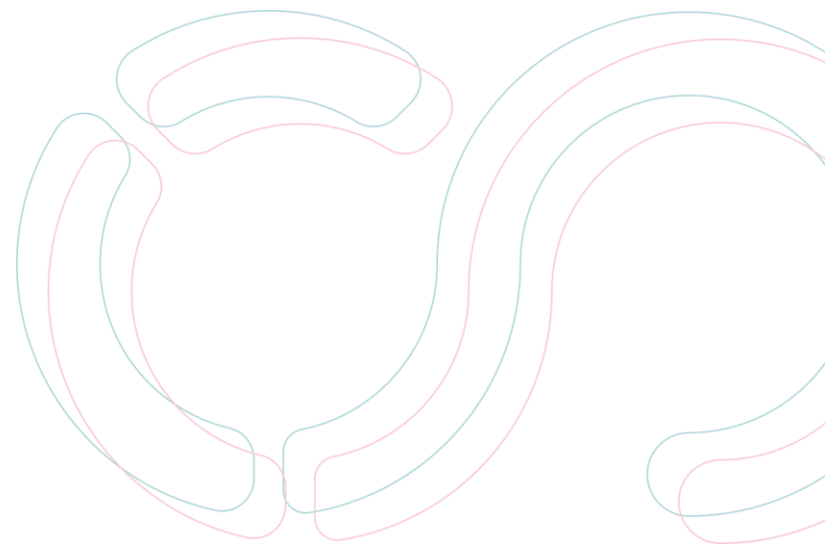
Collyflower. }
Cucumber. }
Elder-flowers. } See Pickle.
Flowers. }
Gilly-flowers. }

Herbs. *See Pudding and Tart.*
Limon. *See Pickle.*

3. Mushroom. *Chuse the small, firm and white Buttons, growing upon sweet Pasture Grounds, neither under, or about any Trees: strip off the upper Skin, and pare away all the black spongy Bottom part; then slice them in quarters, and cast them in Water a while to cleanse: Then Boil them in*
O 2 *fresh*

Examples of metadata

1. Name of authors /collectors/ rightsholders
2. Contact person
3. Abstract
4. Explanation of names of the files
5. Methodology
6. Terms of use (License)
7. ...



Example Data & metadata

Data

Working Conc. (uM)	Final Conc. (uM)			SH2 (+His)	24x_25/28_sub8_3	24x25/28_3_2SH2
23.000	20.700		mg/mL	5.2	18.6	17.4
11.500	10.350		Stock (uM)	381.1	112.0	69.0
5.750	5.175					
2.875	2.588		To get [A2]	57	194	79
1.438	1.294		Buffer	888	751	866
0.719	0.647			945	945	945
0.359	0.323					
0.180	0.162					
— SH2 (medicine): Src homology 2 domains - protein structure — SH2 (chemistry): H ₂ S hydrogen sulfide – colorless gas						
0.006	0.005					350
0.003	0.003					
			Mw	Stock (uM)	Work conc. (uM)	Final conc. (uM)
		SH2	13645	381.1	23.000	20.700
		24x_25/28_sub8_3	166113	112.0	23.000	20.700
		24x25/28_3_2SH2	252240	69.0	5.750	5.175

Naming of sheets: e.g. 20190510_24x2528-2SH2

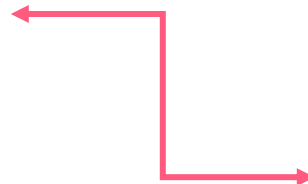
Data

Naming of sheets: e.g. 20190510_24x2528-2SH2

Example Data & metadata

Data

Link?



Fluorescent Polarization Data for Figure 7 (doi:10.7910/DVN/ROSFLC) https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/ROSFLC	
View:	Part 1: Document Description Part 2: Study Description Part 3: Data Files Description Part 4: Variable Description Entire Codebook
Document Description	
Citation	
Title:	Fluorescent Polarization Data for Figure 7
Identification Number:	doi:10.7910/DVN/ROSFLC
Distributor:	Harvard Dataverse
Date of Distribution:	7/9/2021
Version:	1
Bibliographic Citation:	Doyle, Lindsey, 2021, "Fluorescent Polarization Data for Figure 7", https://doi.org/10.7910/DVN/ROSFLC , Harvard Dataverse, V1, UNF:6:PhSdiPa5rzTex2tZaPP6FQ== [fileUNF]
Study Description	
Citation	
Title:	Fluorescent Polarization Data for Figure 7
Identification Number:	doi:10.7910/DVN/ROSFLC
Authoring Entity:	Doyle, Lindsey (Fred Hutchinson Cancer Research Center)
Distributor:	Harvard Dataverse
Access Authority:	Doyle, Lindsey
Depositor:	Doyle, Lindsey
Date of Deposit:	7/9/2021
Holdings Information:	https://doi.org/10.7910/DVN/ROSFLC
Study Scope	
Keywords:	Medicine, Health and Life Sciences Raw Fluorescent Polarization Data for Figure 7
Abstract:	
Methodology and Processing	
Sources Statement	
Data Access	
Notes:	CC0 1.0
Other Study Description Materials	
File Description--f4884994	
File: Figure7_FluorPolarize.tab	
	Number of cases: 35
	No. of variables per record: 13
	Type of File: text/tab-separated-values
Notes:	UNF:6:PhSdiPa5rzTex2tZaPP6FQ==

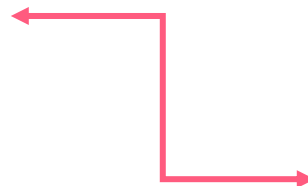
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Variable Description	WorkingConc.(uM) - WorkingConc.(uM) FinalConc.(uM) - FinalConc.(uM) C - C D - D SH2(+His) - SH2(+His) 24x25/28sub83 - 24x25/28sub83 24x25/2832SH2 - 24x25/2832SH2 H - H I - I Tir10 - Tir10 K - K L - L M - M
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	Notes: UNF:6:DWVGzsTb6rAQnQhDCP PWig==
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f4884994 Location:	

Example Data & metadata

Data

Link?



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Abstract:	
	Methodology and Processing Sources Statement Data Access
Notes:	http://creativecommons.org/publicdomain/zero/1.0/ CC0 1.0
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f4884994 Location:	

Example Data & metadata

Data

Link?

Figure 7 of what?

Where is this Figure 7 shown?

Is this connected to an article?

Metadata

Fluorescent Polarization Data for Figure 7 (doi:10.7910/DVN/ROSFLC)
<https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/ROSFLC>

View:

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[Entire Codebook](#)

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Keywords:

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doi:10.7910/DVN/ROSFLC
Doyle, Lindsey (Fred Hutchinson
Cancer Research Center)
Harvard Dataverse
Doyle, Lindsey
Doyle, Lindsey
7/9/2021
<https://doi.org/10.7910/DVN/ROSFLC>

Abstract:

**Medicine, Health and Life Sciences
Raw Fluorescent Polarization Data
for Figure 7**

Methodology and Processing
Sources Statement
Data Access

Notes:

<a
href="http://creativecommons.org/publi
cdomain/zero/1.0">CC0 1.0

Other Study Description Materials
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WorkingConc.\(uM\)](#)
[FinalConc.\(uM\) - FinalConc.\(uM\)](#)
[C - C](#)
[D - D](#)
[SH2\(+His\) - SH2\(+His\)](#)
[24x25/28sub83 - 24x25/28sub83](#)
[24x25/2832SH2 - 24x25/2832SH2](#)
[H - H](#)
[I - I](#)
[Tir10 - Tir10](#)
[K - K](#)
[L - L](#)
[M - M](#)

List of Variables:

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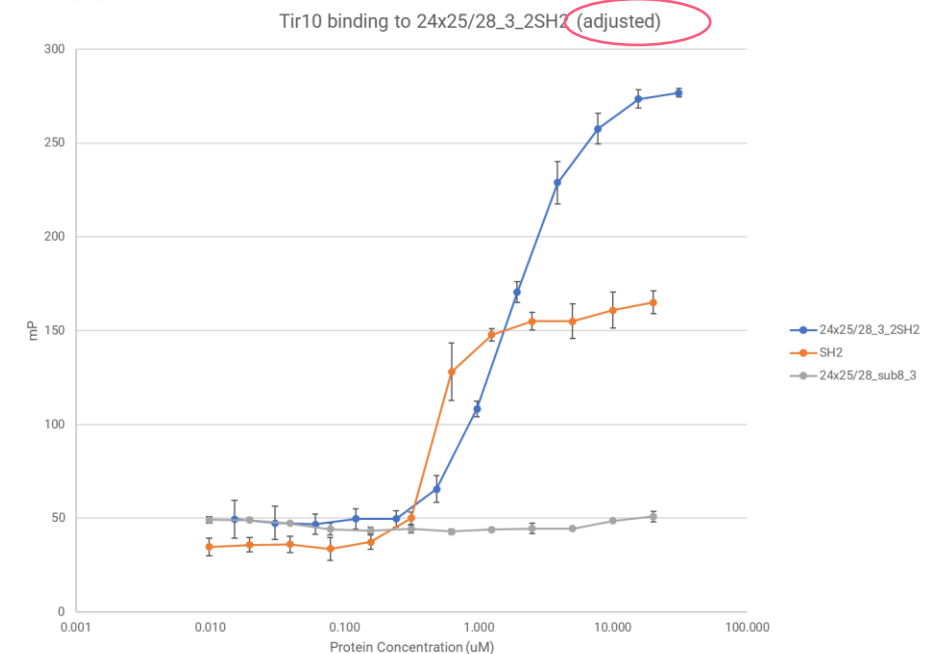
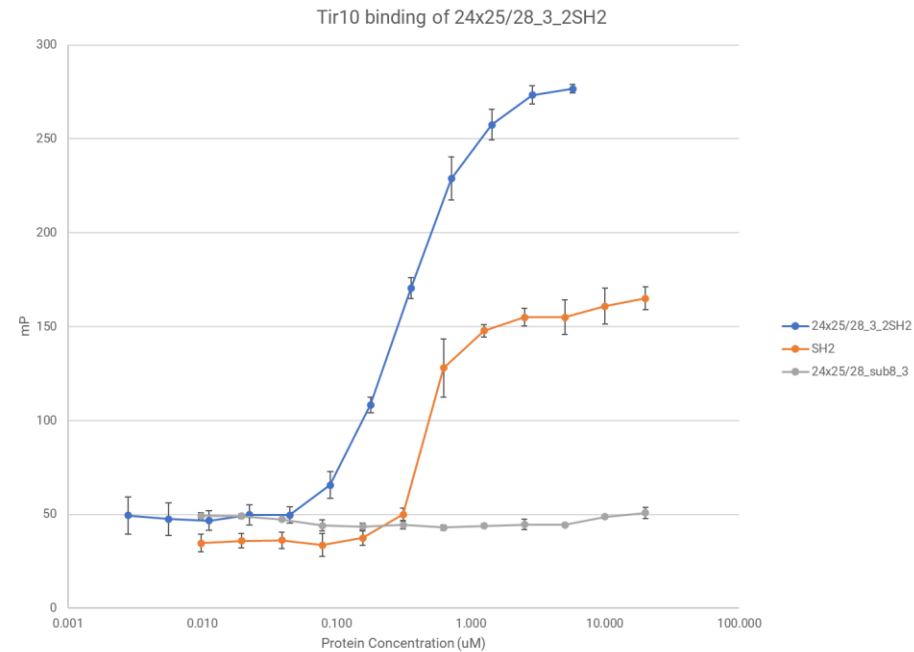
f4884994 Location:

Example Data & metadata

Data

Which one is supposed to be Figure 7?

What is the second figure adjusted to?



Example Data & metadata

Data

Working Conc. (uM)
23.000
Data 11.500
5.750
2.875
1.438
0.719
0.359
0.180
0.090
0.045
0.022
0.011
0.006
0.003

Link!

Metadata

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Distributor:

Harvard Dataverse

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Version:

1

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Citation

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Authoring Entity:

Doyle, Lindsey (Fred Hutchinson Cancer Research Center)

Distributor:

Harvard Dataverse

Access Authority:

Doyle, Lindsey

Depositor:

Doyle, Lindsey

Date of Deposit:

7/9/2021

Holdings Information:

<https://doi.org/10.7910/DVN/ROSFLC>

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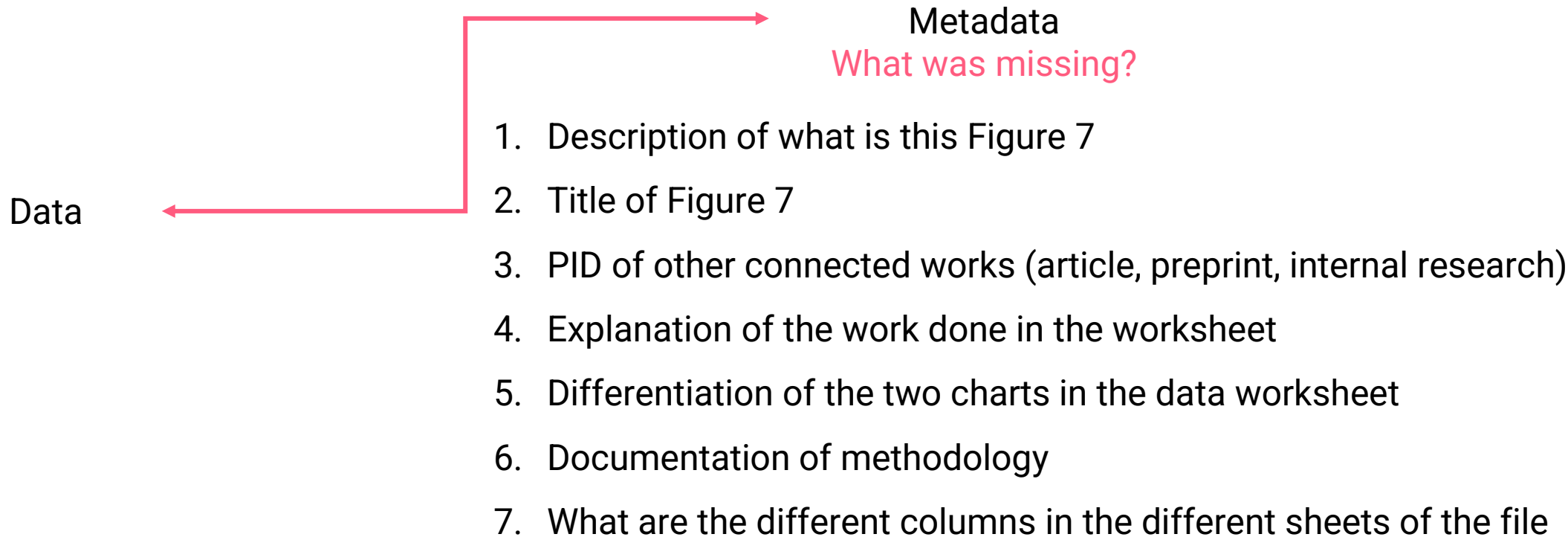
Variable Format: numeric

Notes:

UNF:6:DWVGzsTb6rAQnQhDCP
PWig==

Example

Data & metadata



Data Re-use



Reused data – Common Issues

- × “License?? I don’t see it, so I’ll just use it” – big no-no
- × All data together for one publication – not ideal
- × Data and publication together – not clear which PID is for what
- × Data and software together – licenses do not fit everything

Reused data – solutions of issues

- ✓ Prefer open data with license than without one
- ✓ Data together linked to related open-source software
- ✓ Separate license for data and software
- ✓ Separate license, PID and metadata for each data set

How to stay up-to-date?



Public domain. AI generated.

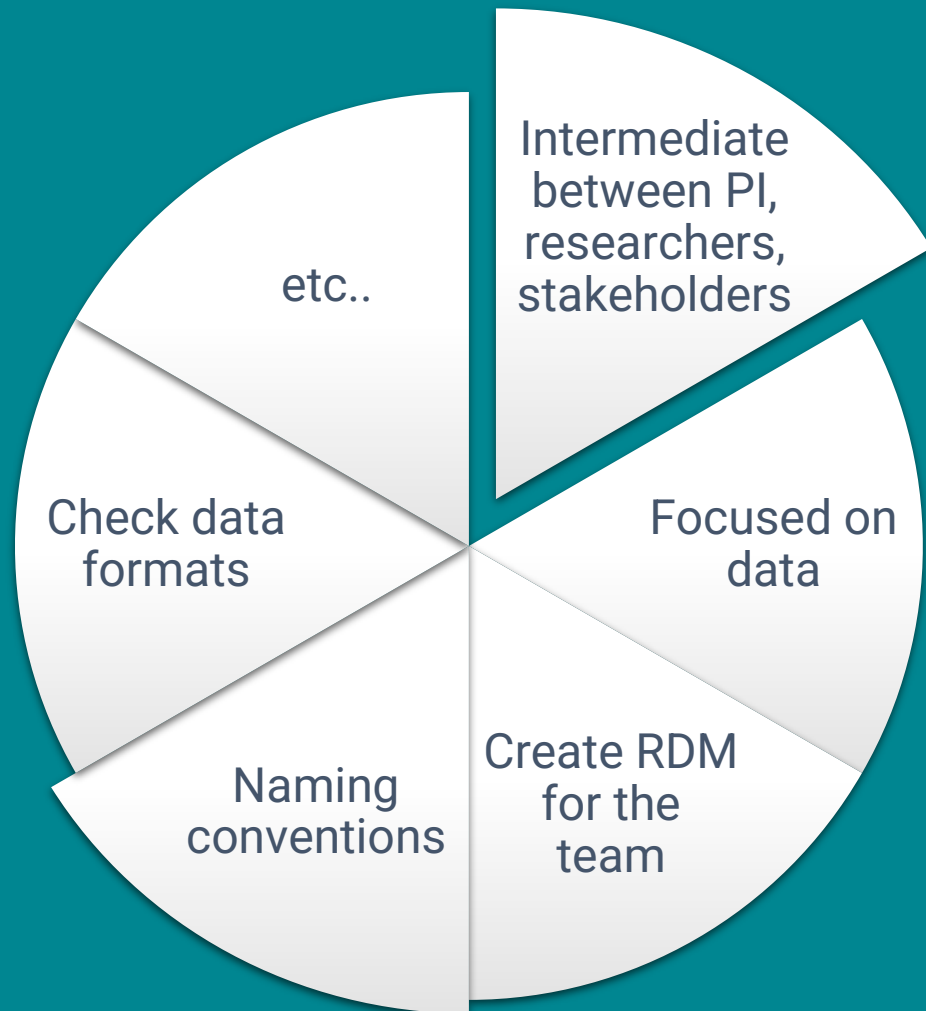
What to learn?

- “What data do I produce?” *Many researchers do not recognize the different data they use or create.*
- Licenses for data reuse – which data can my team reuse and under which conditions
- What data do I need/want to submit? Raw, analyzed, curated?

Possible trainings for the team

- Mandatory one/two-hour workshop on data management for team members
- Data Stewardship - [module](#) 1 (free)
- 3-month data check with all the team
- Individual short DMPs for team members or sub-teams
- A specialized person to deal with data management practices

How can a project data steward help?





**BREAK
TIME**

Help for Institutes



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Help for institutes - EOSC CZ

EOSC CZ trainings - <https://www.eosc.cz/en/training>

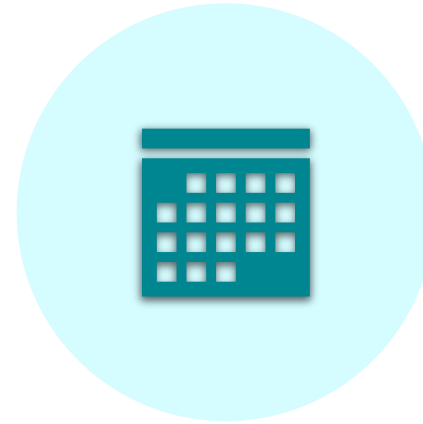
- *Field-specific repositories for STEM*
- *Open Science Week 2025*
- *Research on human subjects - legal and ethical aspects of handling sensitive data*
- *Today's seminar and more...*

Help for institutes - National Library of Technology



SKILL SET MAP FOR MENTORS OF EARLY
CAREER RESEARCHERS:

[HTTPS://WWW.TECHLIB.CZ/EN/84109-
STEMSKILLER](https://www.techlib.cz/en/84109-stemskiller)



CALENDAR:

[HTTPS://WWW.TECHLIB.CZ/CS/2931-
KULTURNI-A-VZDELAVACI-AKCE](https://www.techlib.cz/cs/2931-kulturni-a-vzdelavaci-akce)

Help for institutes – Funders

Ministry of Education, Youth and Sports of the Czech Republic (MŠMT). (2025). Open science in the Czech Republic. Retrieved November 4, 2025, from <https://msmt.gov.cz/vyzkum-a-vyvoj-2/otevrena-veda-v-cr>

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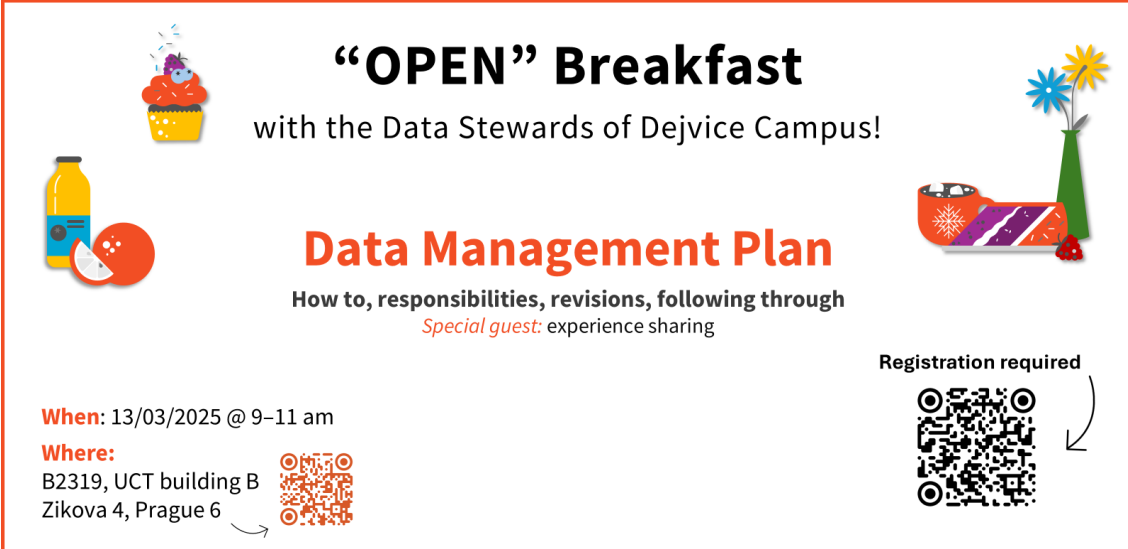
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...and more...

Help for institutes

Breakfasts with data stewards

- Open and free to everyone
- Informal setting
- Coffee served
- Knowledge served
- Collaborative



“OPEN” Breakfast
with the Data Stewards of Dejvice Campus!

Data Management Plan
How to, responsibilities, revisions, following through
Special guest: experience sharing

When: 13/03/2025 @ 9–11 am
Where: B2319, UCT building B
Zikova 4, Prague 6

Registration required



Source: “OPEN” Breakfast with the Data Stewards of Dejvice Campus!,
G. Koutentaki, J. Vališ, M. Schätz, H. Thürlová , 2025, [CC-BY 4.0 International](#)

For updates and news on breakfasts you can follow: <https://www.linkedin.com/company/data-stewardship-uct/>

Other things to consider



Lawyers



Ethical committee



Use of AI



International
collaborations

Thank you for your attention

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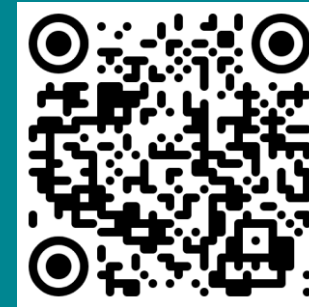
Co-funded by
the European Union



General Q&A



What topics would you like to hear more about?



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