Research Data Management

Data Skills: Planning for Research Success

Countway Library
Research Data Services

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Slides: bit.ly/rdm2018

HARVARD MEDICAL SCHOOL | Data Management Working Group

Countway Library of Medicine
An Alliance of the Harvard Medical School and Boston Medical Library

Center *for the* History *of* Medicine

Harvard Chan Bioinformatics Core

hms | hsdm
office for postdoctoral fellows

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Department of Systems Biology

HARVARD MEDICAL SCHOOL
Research Information Technology Solutions - RITS

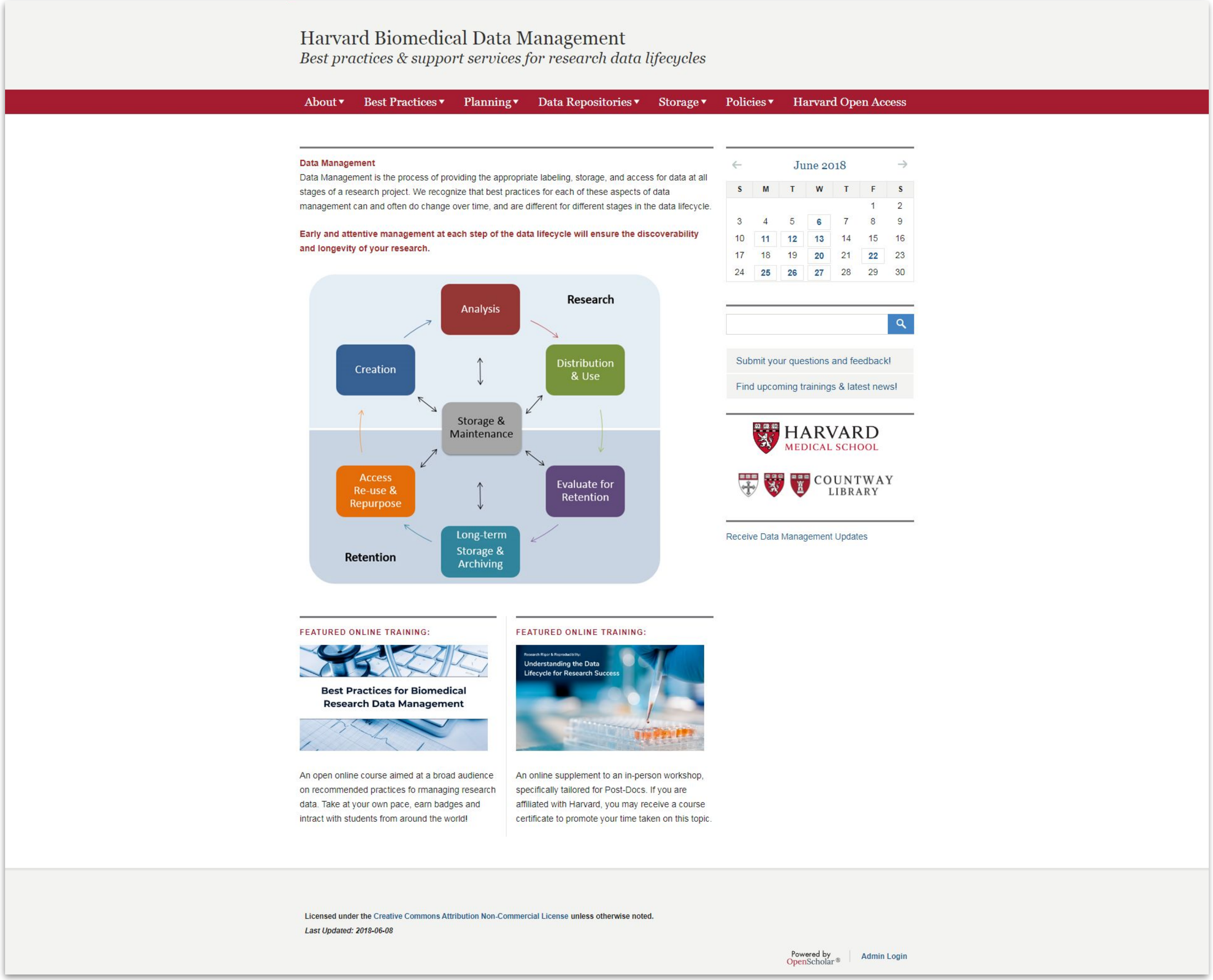
HMS Information Technology

ICCB-Longwood Screening Facility

DRSC/TRiP Functional Genomics

The Neurobiology Imaging Facility
in the Neurobiology Department of Harvard Medical School

HiTS
Harvard Program in Therapeutic Science



Harvard Biomedical Data Management
Best practices & support services for research data lifecycles

Data Management
Data Management is the process of providing the appropriate labeling, storage, and access for data at all stages of a research project. We recognize that best practices for each of these aspects of data management can and often do change over time, and are different for different stages in the data lifecycle.

Early and attentive management at each step of the data lifecycle will ensure the discoverability and longevity of your research.

FEATURED ONLINE TRAINING:

An open online course aimed at a broad audience on recommended practices fo rmanaging research data. Take at your own pace, earn badges and intract with students from around the world!

FEATURED ONLINE TRAINING:

Research Rigor & Reproducibility:
Understanding the Data Lifecycle for Research Success

An online supplement to an in-person workshop, specifically tailored for Post-Docs. If you are affiliated with Harvard, you may receive a course certificate to promote your time taken on this topic.

← June 2018 →

S	M	T	W	T	F	S
					1	2
3	4	5	**6**	7	8	9
10	**11**	**12**	**13**	14	15	16
17	18	19	**20**	21	**22**	23
24	**25**	**26**	**27**	28	29	30

Submit your questions and feedback!

Find upcoming trainings & latest news!

HARVARD MEDICAL SCHOOL

COUNTWAY LIBRARY

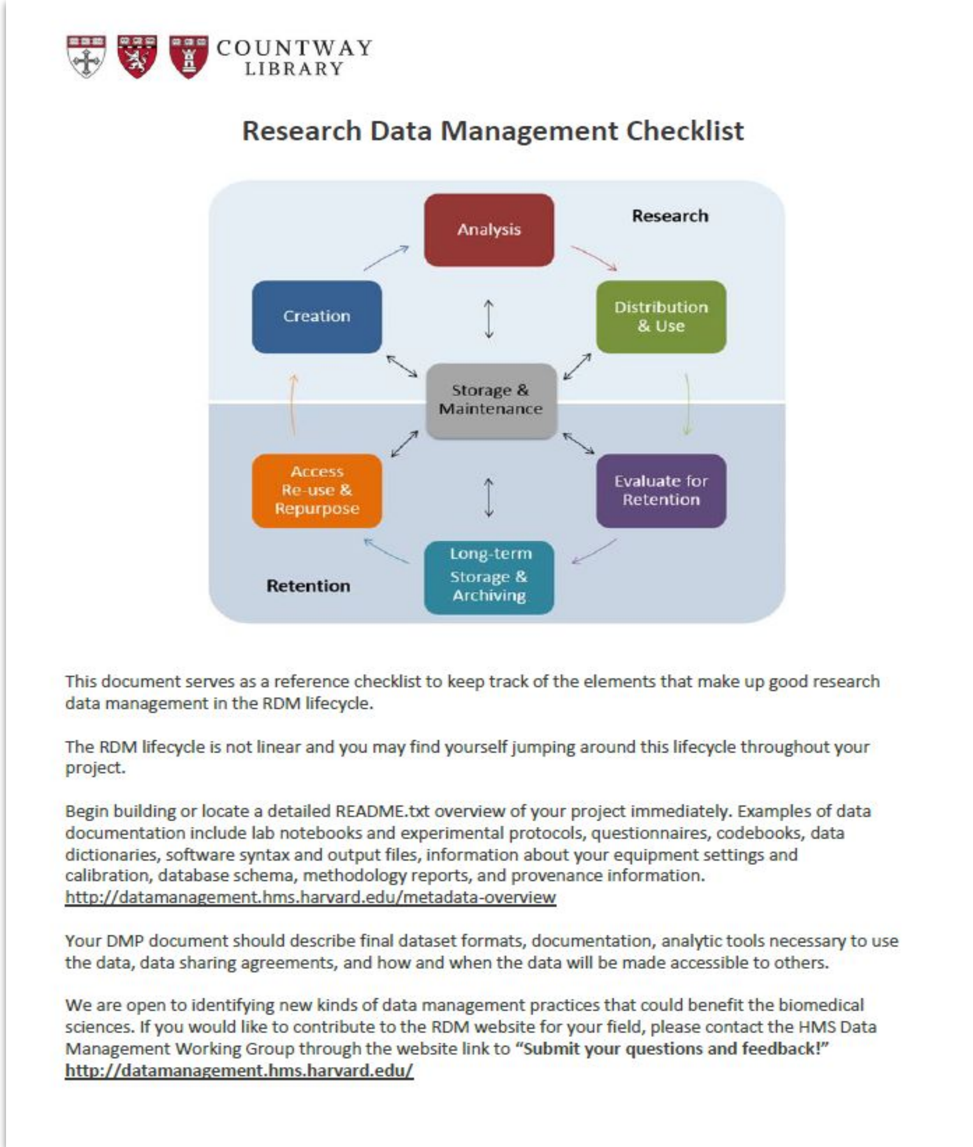
Receive Data Management Updates

Last Updated: 2018-06-08

Powered by OpenScholar® | Admin Login

Harvard Biomedical Data Management Website

https://datamanagement.hms.harvard.edu



COUNTWAY LIBRARY

Research Data Management Checklist

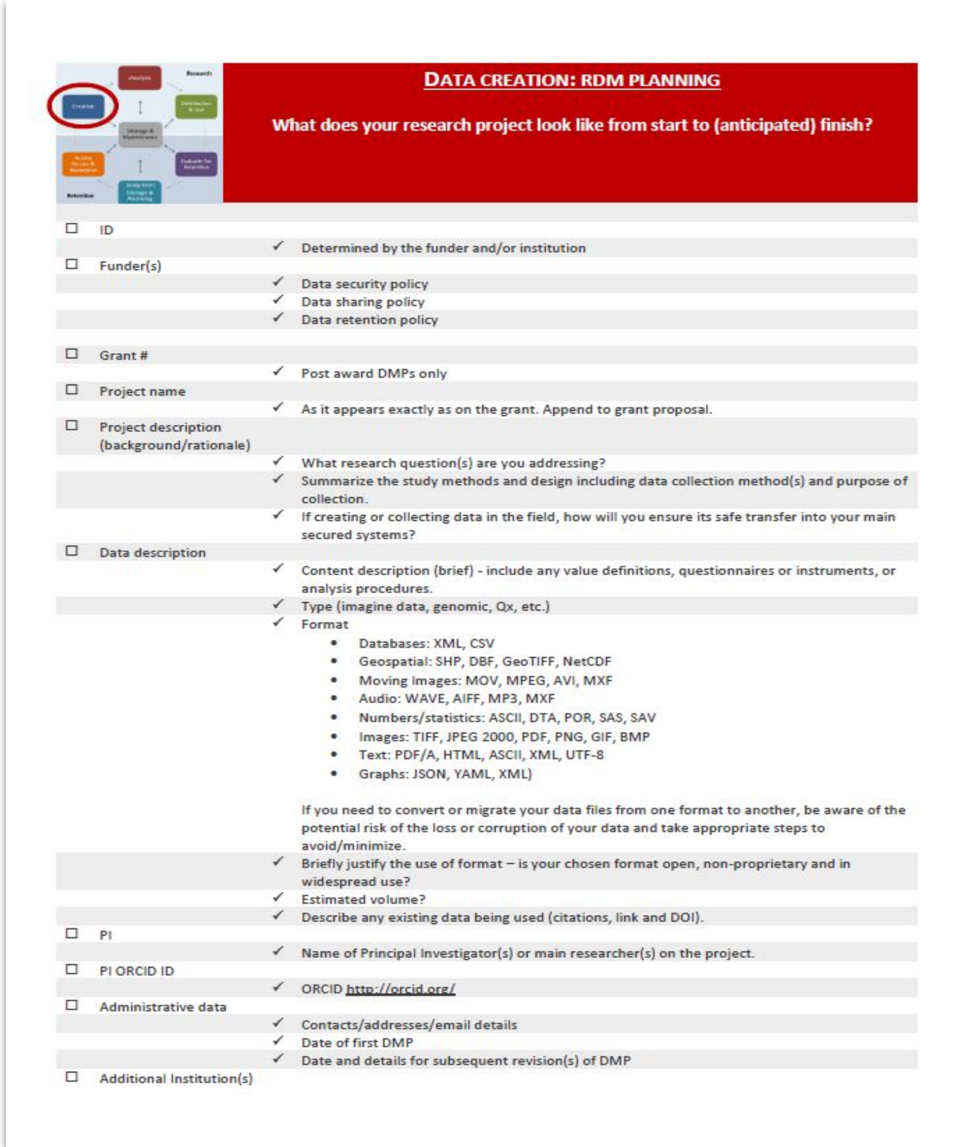
This document serves as a reference checklist to keep track of the elements that make up good research data management in the RDM lifecycle.

The RDM lifecycle is not linear and you may find yourself jumping around this lifecycle throughout your project.

Begin building or locate a detailed README.txt overview of your project immediately. Examples of data documentation include lab notebooks and experimental protocols, questionnaires, codebooks, data dictionaries, software syntax and output files, information about your equipment settings and calibration, database schema, methodology reports, and provenance information. http://datamanagement.hms.harvard.edu/metadata-overview

Your DMP document should describe final dataset formats, documentation, analytic tools necessary to use the data, data sharing agreements, and how and when the data will be made accessible to others.

We are open to identifying new kinds of data management practices that could benefit the biomedical sciences. If you would like to contribute to the RDM website for your field, please contact the HMS Data Management Working Group through the website link to **"Submit your questions and feedback!"** **http://datamanagement.hms.harvard.edu/**



DATA CREATION: RDM PLANNING

What does your research project look like from start to (anticipated) finish?

□ ID
- ✓ Determined by the funder and/or institution

□ Funder(s)
- ✓ Data security policy
- ✓ Data sharing policy
- ✓ Data retention policy

□ Grant #
- ✓ Post award DMPs only

□ Project name
- ✓ As it appears exactly as on the grant. Append to grant proposal.

□ Project description (background/rationale)
- ✓ What research question(s) are you addressing?
- ✓ Summarize the study methods and design including data collection method(s) and purpose of collection.
- ✓ If creating or collecting data in the field, how will you ensure its safe transfer into your main secured systems?

□ Data description
- ✓ Content description (brief) - include any value definitions, questionnaires or instruments, or analysis procedures.
- ✓ Type (imagine data, genomic, Qx, etc.)
- ✓ Format
  - Databases: XML, CSV
  - Geospatial: SHP, DBF, GeoTIFF, NetCDF
  - Moving Images: MOV, MPEG, AVI, MXF
  - Audio: WAVE, AIFF, MP3, MXF
  - Numbers/statistics: ASCII, DTA, POR, SAS, SAV
  - Images: TIFF, JPEG 2000, PDF, PNG, GIF, BMP
  - Text: PDF/A, HTML, ASCII, XML, UTF-8
  - Graphs: JSON, YAML, XML)

  If you need to convert or migrate your data files from one format to another, be aware of the potential risk of the loss or corruption of your data and take appropriate steps to avoid/minimize.
- ✓ Briefly justify the use of format – is your chosen format open, non-proprietary and in widespread use?
- ✓ Estimated volume?
- ✓ Describe any existing data being used (citations, link and DOI).

□ PI
- ✓ Name of Principal Investigator(s) or main researcher(s) on the project.

□ PI ORCID ID
- ✓ ORCID http://orcid.org/

□ Administrative data
- ✓ Contacts/addresses/email details
- ✓ Date of first DMP
- ✓ Date and details for subsequent revision(s) of DMP

□ Additional Institution(s)

Research Data Management Checklist

https://datamanagement.hms.harvard.edu/hms-data-lifecycle

Introduce Yourself!

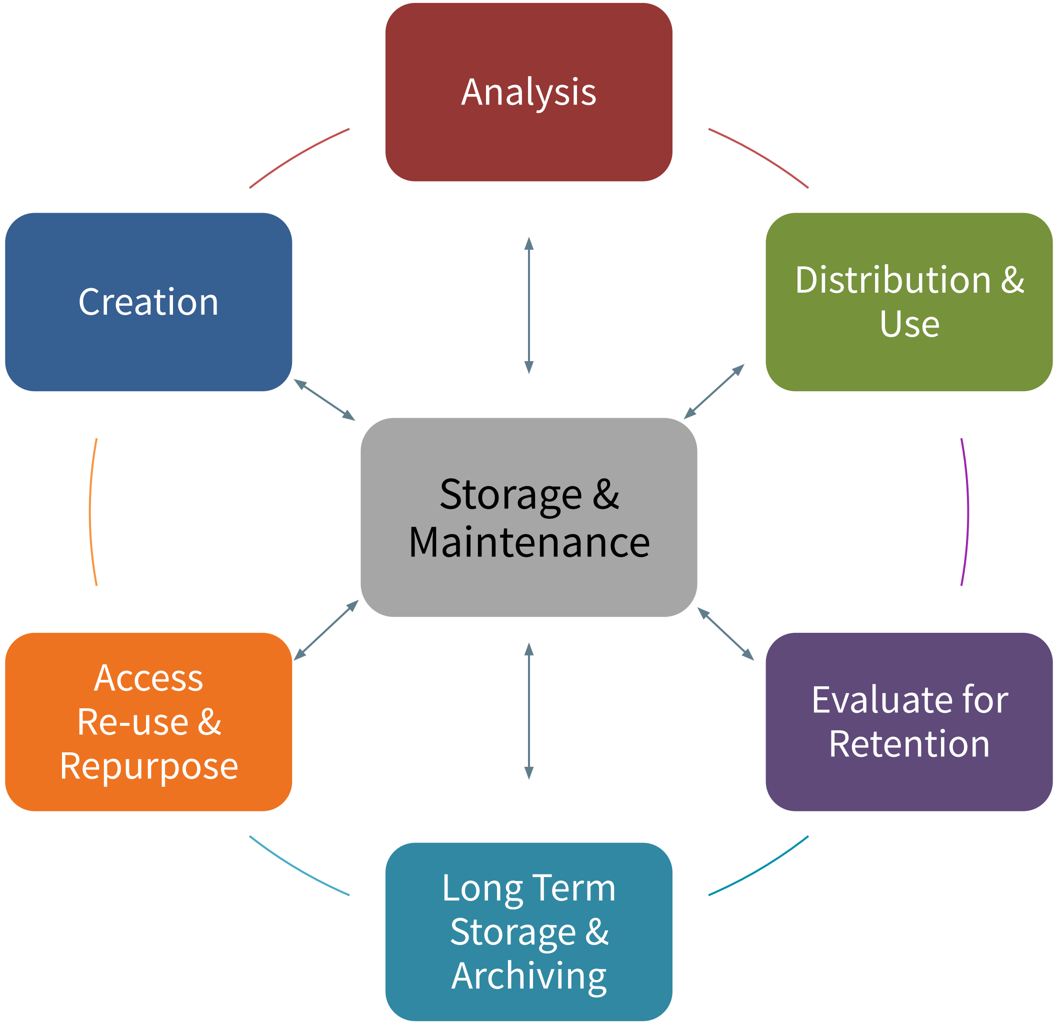
Name

School / Department

Most common data format

(Text, Excel, SPSS, Google Docs, etc.)

Data Lifecycle for Biomedical Data



Analysis

Creation

Distribution & Use

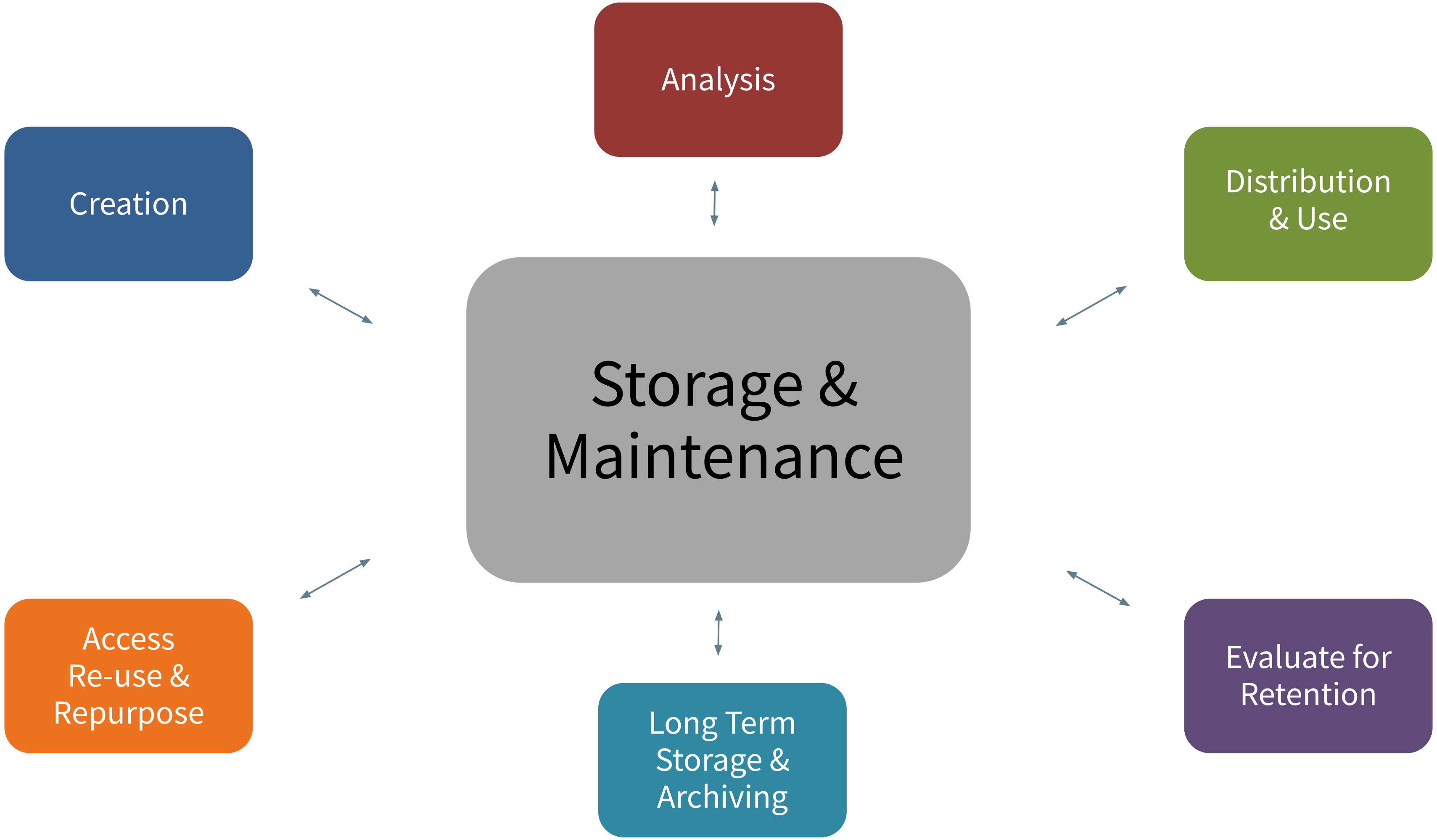
Storage & Maintenance

Access Re-use & Repurpose

Evaluate for Retention

Long Term Storage & Archiving

Storage affects the whole cycle



Why Manage Data?

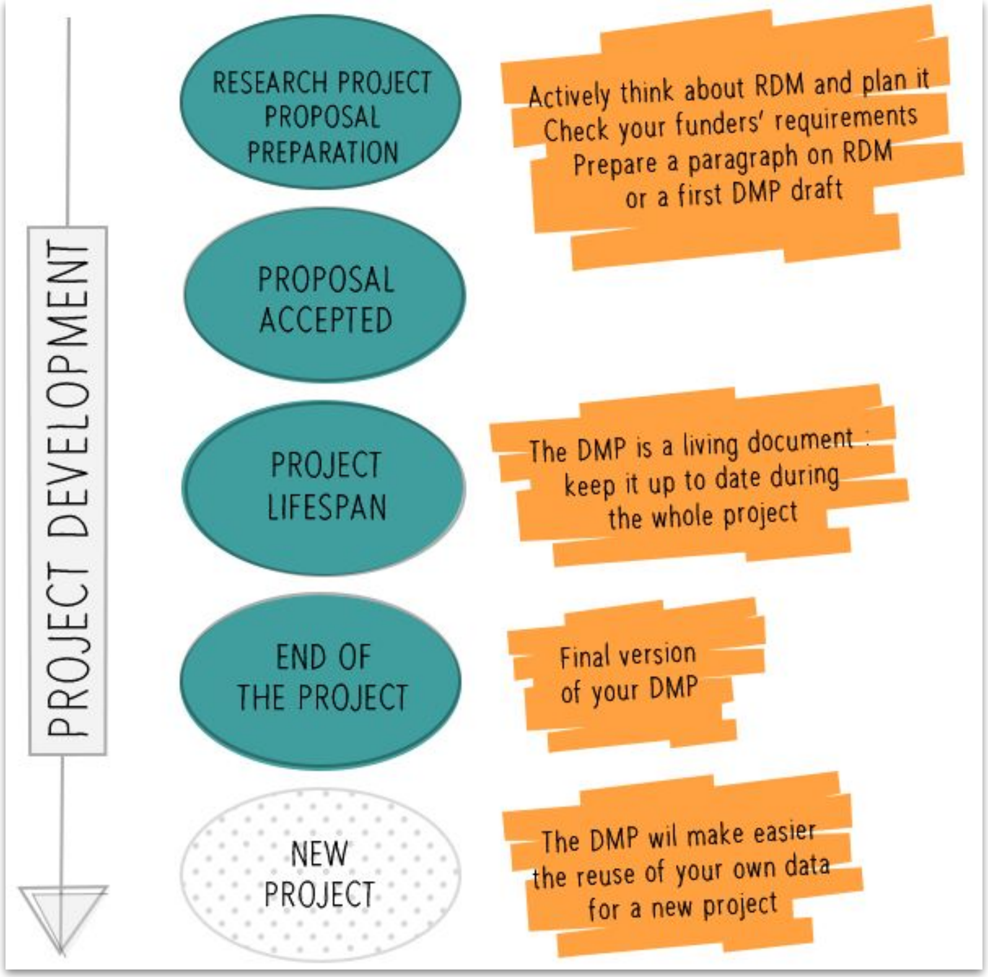
- Easier to analyze organized, documented data
- Avoid accusations of fraud & misconduct
- Don’t lose data
- Find data more easily
- Get credit for your data
- Don’t drown in irrelevant data

Data Sharing and Management Snafu in 3 Short Acts

https://datamanagement.hms.harvard.edu/biomedical-data-management-planning

Data Management Plan

A data management plan (DMP) is a written document that describes the data you expect to acquire or generate during the course of a research project, how you will manage, describe, analyze, and store those data, and what mechanisms you will use at the end of your project to share and preserve your data.


PROJECT DEVELOPMENT
RESEARCH PROJECT PROPOSAL PREPARATION
Actively think about RDM and plan it
Check your funders' requirements
Prepare a paragraph on RDM or a first DMP draft
PROPOSAL ACCEPTED
PROJECT LIFESPAN
The DMP is a living document : keep it up to date during the whole project
END OF THE PROJECT
Final version of your DMP
NEW PROJECT
The DMP wil make easier the reuse of your own data for a new project

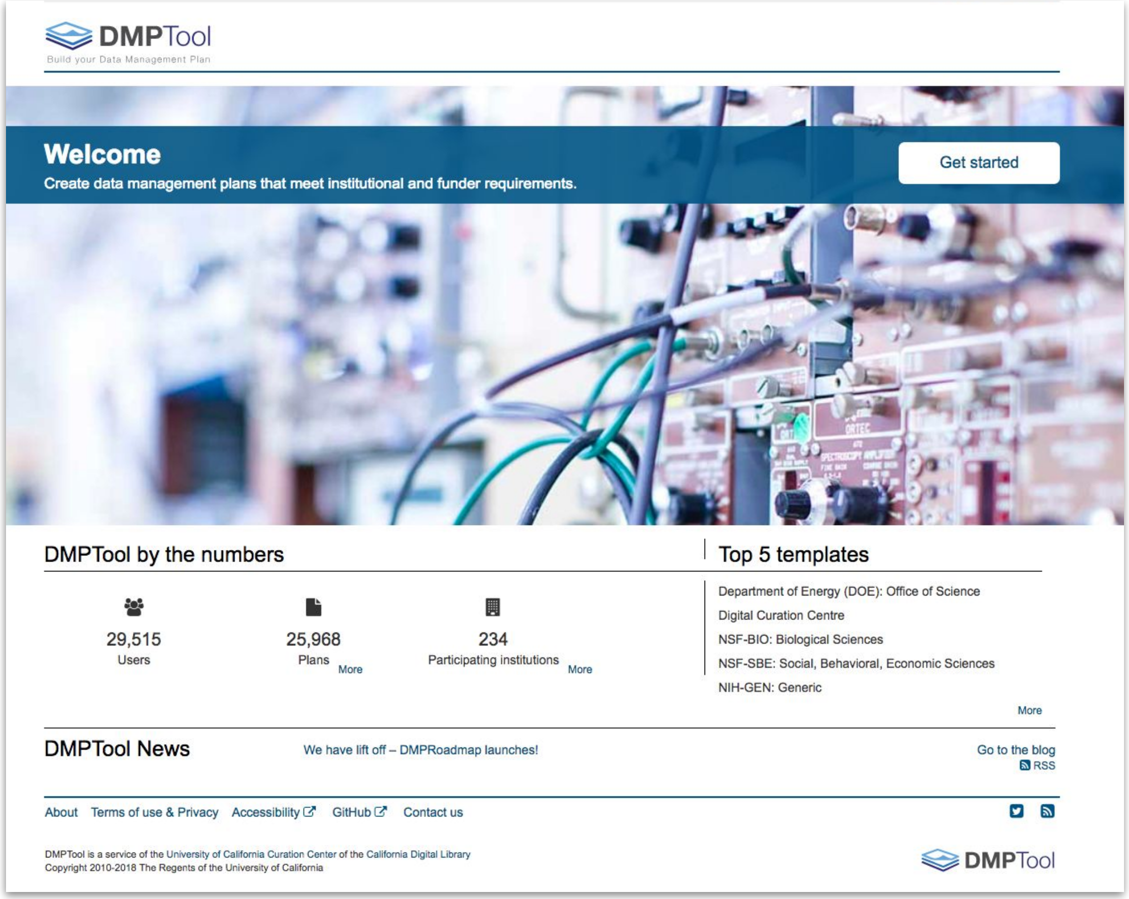
https://researchdata.epfl.ch/plan-fund/dmp

https://datamanagement.hms.harvard.edu/biomedical-data-management-planning-0

DMPTool

The DMPTool is an online tool that includes data management plan templates for many of the large funding agencies that require them.

Harvard is an affiliated partner institution. You can login as a user from your institution with your HarvardKey. By being affiliated Harvard, you will be presented with institution-specific guidance to help you complete your plan.



DMPTool
Build your Data Management Plan

Welcome

Create data management plans that meet institutional and funder requirements.

Get started

DMPTool by the numbers

29,515 Users

25,968 Plans More

234 Participating institutions More

Top 5 templates

- Department of Energy (DOE): Office of Science
- Digital Curation Centre
- NSF-BIO: Biological Sciences
- NSF-SBE: Social, Behavioral, Economic Sciences
- NIH-GEN: Generic

More

DMPTool News

We have lift off – DMPRoadmap launches!

Go to the blog
RSS

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DMPTool is a service of the University of California Curation Center of the California Digital Library
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DMPTool

https://dmptool.org

https://datamanagement.hms.harvard.edu/biomedical-data-management-planning-0

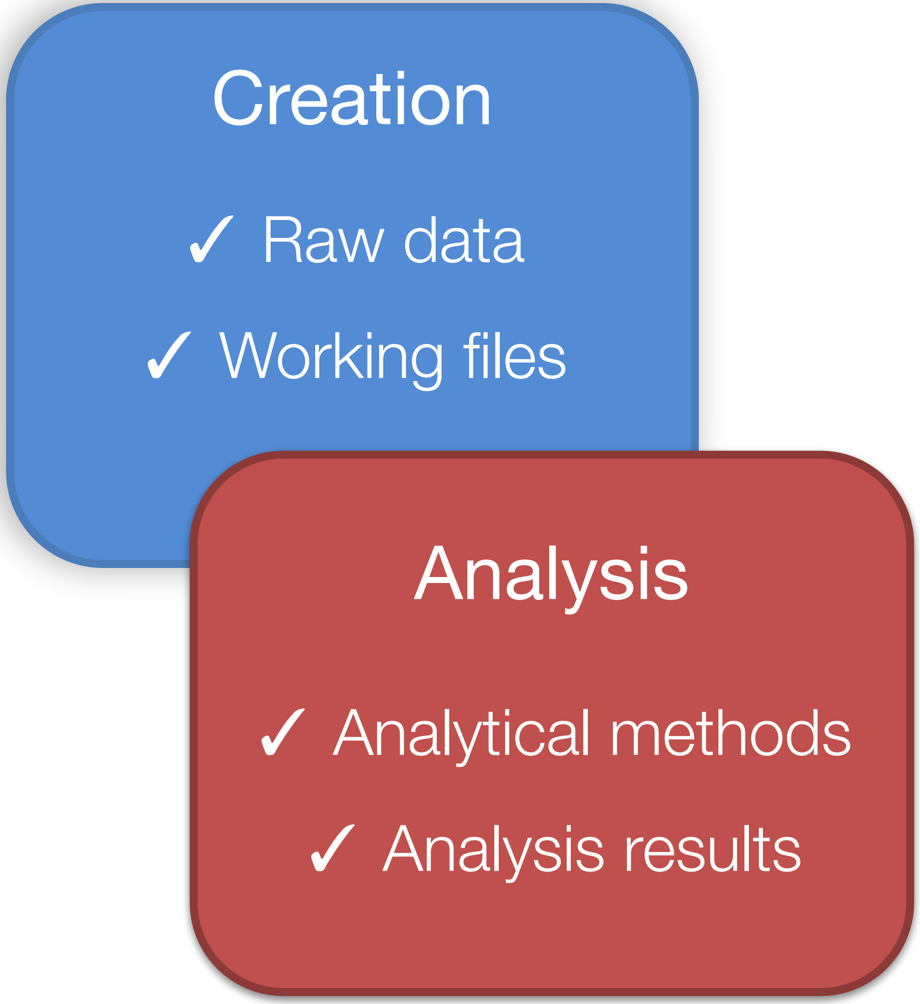
Data

Raw data: What is being measured or observed? This is the data that is being generated during the research project.

Processed data: How can the raw data be made useful- able to be manipulated?

Analyzed data: What does the data tell us? Is it significant? How so?

Finalized/Published data: How does the data support your research question?



Creation

✓ Raw data

✓ Working files

Analysis

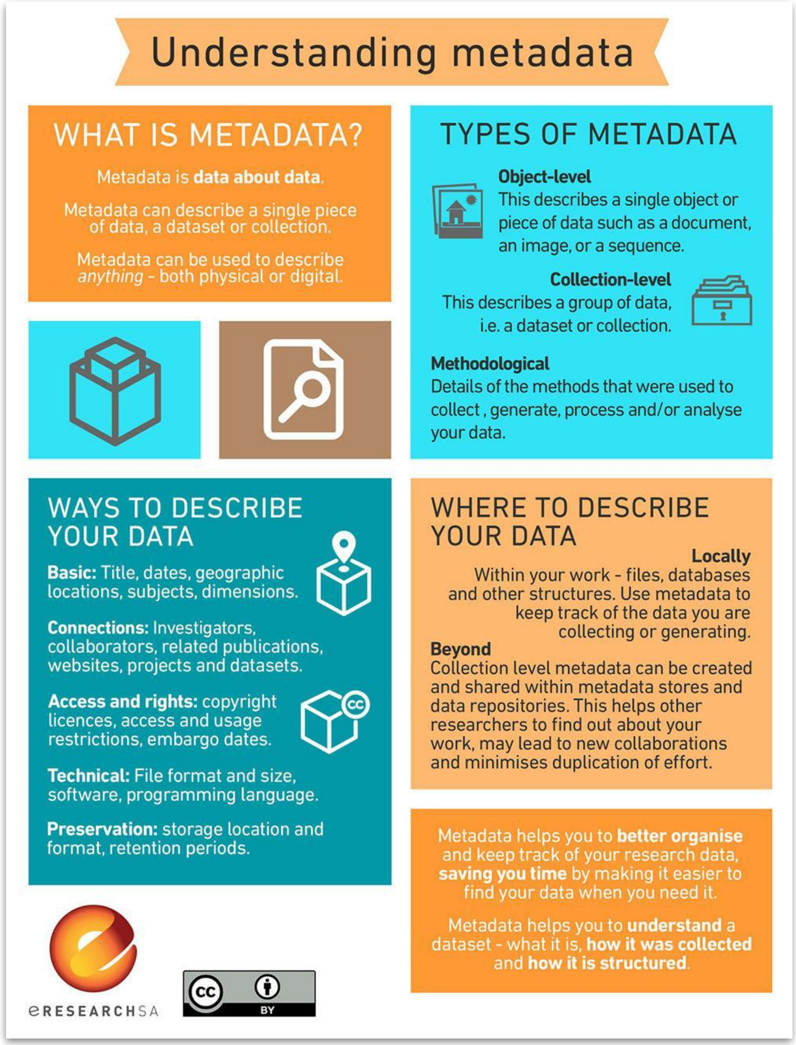
✓ Analytical methods

✓ Analysis results

https://datamanagement.hms.harvard.edu/metadata-overview

Metadata

"Good metadata is standardized, consistent and interoperable, and facilitates discovery, preservation and archiving of data."



Understanding metadata

WHAT IS METADATA?

Metadata is **data about data**.

Metadata can describe a single piece of data, a dataset or collection.

Metadata can be used to describe *anything* - both physical or digital.

TYPES OF METADATA

Object-level
This describes a single object or piece of data such as a document, an image, or a sequence.

Collection-level
This describes a group of data, i.e. a dataset or collection.

Methodological
Details of the methods that were used to collect , generate, process and/or analyse your data.

WAYS TO DESCRIBE YOUR DATA

Basic: Title, dates, geographic locations, subjects, dimensions.

Connections: Investigators, collaborators, related publications, websites, projects and datasets.

Access and rights: copyright licences, access and usage restrictions, embargo dates.

Technical: File format and size, software, programming language.

Preservation: storage location and format, retention periods.

WHERE TO DESCRIBE YOUR DATA

Locally
Within your work - files, databases and other structures. Use metadata to keep track of the data you are collecting or generating.

Beyond
Collection level metadata can be created and shared within metadata stores and data repositories. This helps other researchers to find out about your work, may lead to new collaborations and minimises duplication of effort.

Metadata helps you to **better organise** and keep track of your research data, **saving you time** by making it easier to find your data when you need it.

Metadata helps you to **understand** a dataset - what it is, **how it was collected** and **how it is structured**.

eRESEARCHSA

CC BY

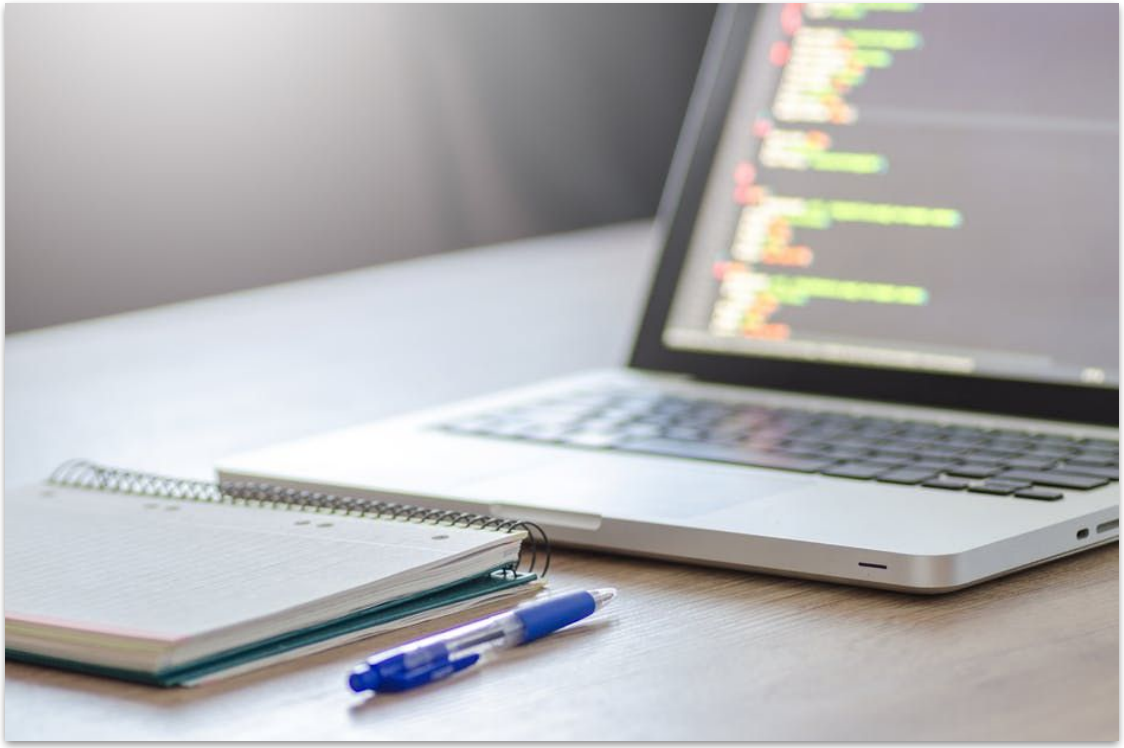
https://www.ersa.edu.au/understanding-metadata

https://datamanagement.hms.harvard.edu/metadata-overview

On-Your-Own Exercise

Documentation

For your most common data type, make a list of the most important information to record for each dataset.



File Conventions

Versioning

- For analyzed data use version numbers
- Save files often to a new version
- Label the final version FINAL
- For code, consider GIT or SVN

Organization

- Any system is better than none
- One project, one folder
- Separate folders for data or project stages
- Date-based folders (pairs well with lab notebook)

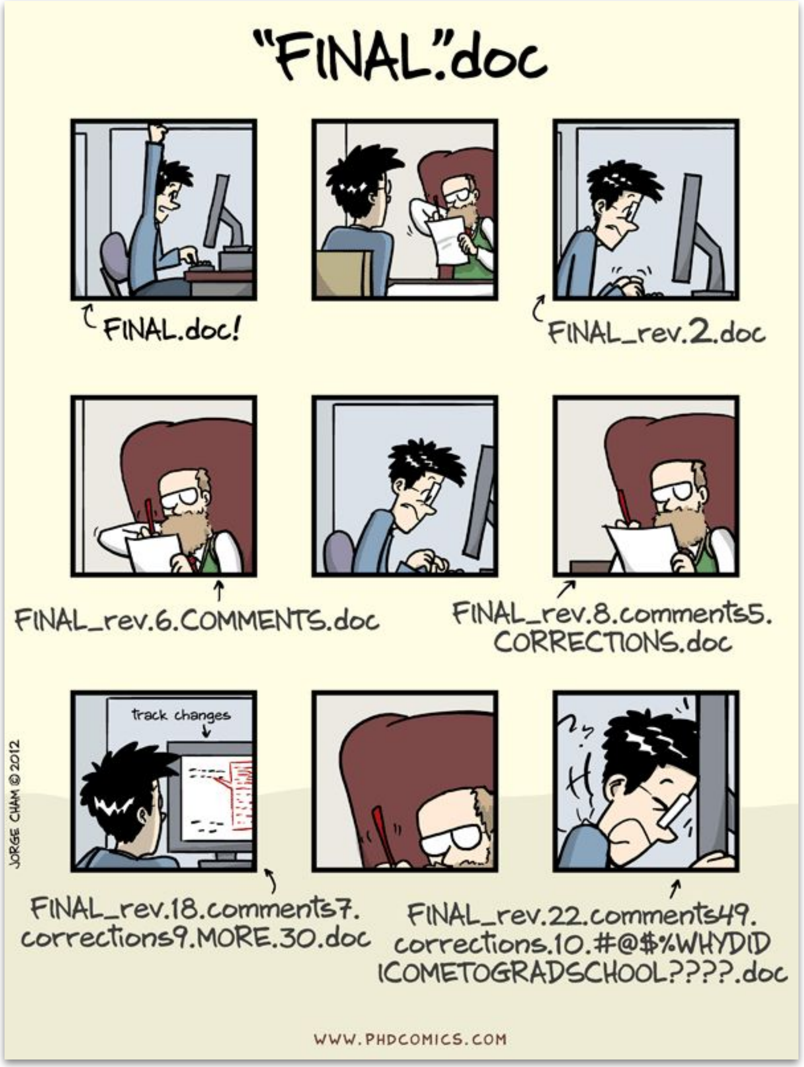
https://datamanagement.hms.harvard.edu/versioning-1 | https://datamanagement.hms.harvard.edu/directory-structure

File Conventions

Files with naming conventions:

20161104_ProjectA_Ex1Test1_SmithE_v1.xlsx

20180204-ProjectA-Report-SmithE-v5-FINAL.docx


"FINAL".doc
FINAL.doc!
FINAL_rev.2.doc
FINAL_rev.6.COMMENTS.doc
FINAL_rev.8.comments5.CORRECTIONS.doc
track changes
FINAL_rev.18.comments7.corrections9.MORE.30.doc
FINAL_rev.22.comments49.corrections.10.#@$%WHYDID ICOMETOGRADSCHOOL????.doc
JORGE CHAM © 2012
WWW.PHDCOMICS.COM

http://phdcomics.com/comics/archive.php?comicid=1531

https://datamanagement.hms.harvard.edu/file-naming-conventions

Document Your Conventions

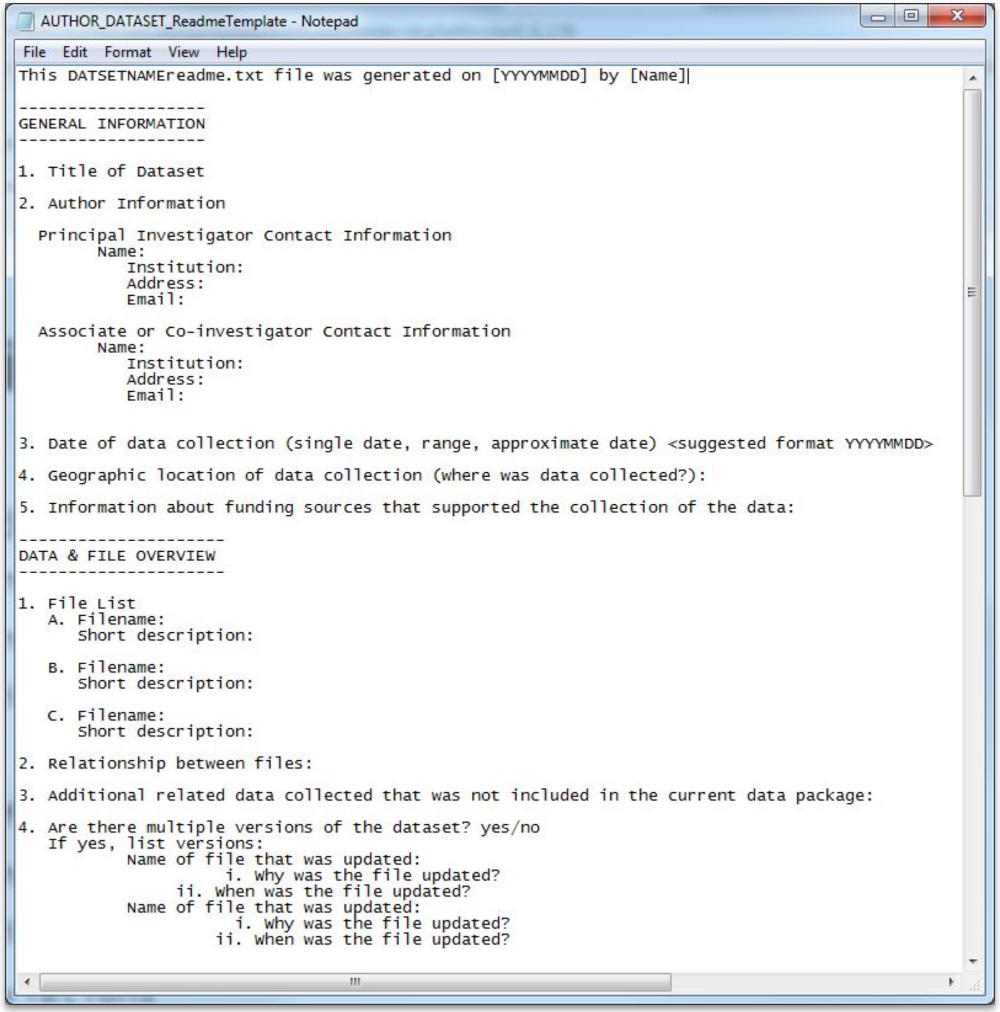
No point to have a system without documentation!

- README.txt (use .txt over .doc because it’s more durable)
- Front cover of research notebook
- A printout by the computer

README File

- Basic project information
- Title, Contributions, Grant Info
- Contact information
- All locations of where data live, including backups
- Useful information about the files and how they are organized
- Explain file naming conventions and abbreviations

https://datamanagement.hms.harvard.edu/readme-files


AUTHOR_DATASET_ReadmeTemplate - Notepad
File Edit Format View Help

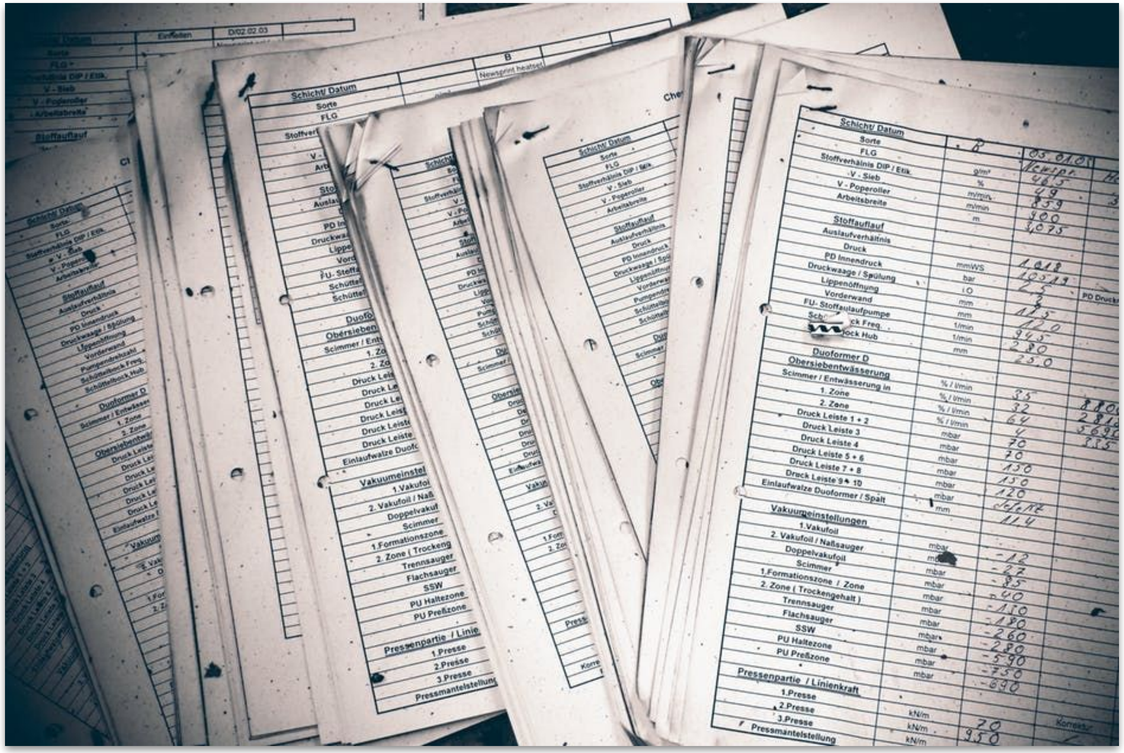
```
This DATSETNAMEreadme.txt file was generated on [YYYYMMDD] by [Name]

-------------------
GENERAL INFORMATION
-------------------

1. Title of Dataset

2. Author Information

  Principal Investigator Contact Information
        Name:
           Institution:
           Address:
           Email:

  Associate or Co-investigator Contact Information
        Name:
           Institution:
           Address:
           Email:


3. Date of data collection (single date, range, approximate date) <suggested format YYYYMMDD>

4. Geographic location of data collection (where was data collected?):

5. Information about funding sources that supported the collection of the data:

---------------------
DATA & FILE OVERVIEW
---------------------

1. File List
   A. Filename:
      Short description:

   B. Filename:
      Short description:

   C. Filename:
      Short description:

2. Relationship between files:

3. Additional related data collected that was not included in the current data package:

4. Are there multiple versions of the dataset? yes/no
   If yes, list versions:
           Name of file that was updated:
                     i. Why was the file updated?
                ii. When was the file updated?
           Name of file that was updated:
                      i. Why was the file updated?
                     ii. When was the file updated?
```

Example Template: http://data.research.cornell.edu/content/readme

On-Your-Own Exercise

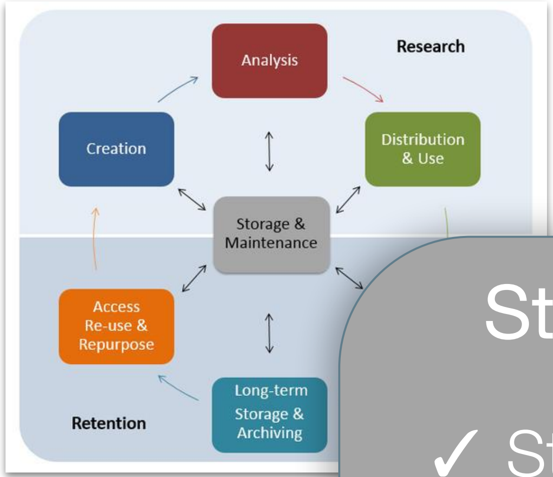
Conventions

Develop a file naming convention for your most common data type.



Storage

Storage, backup, and security are interrelated



Storage & Maintenance

- ✓ Store on appropriate tier, with proper security
- ✓ Store locally on servers or in the cloud
- ✓ Plan to maintain system

https://datamanagement.hms.harvard.edu/storage-overview

Security

Access

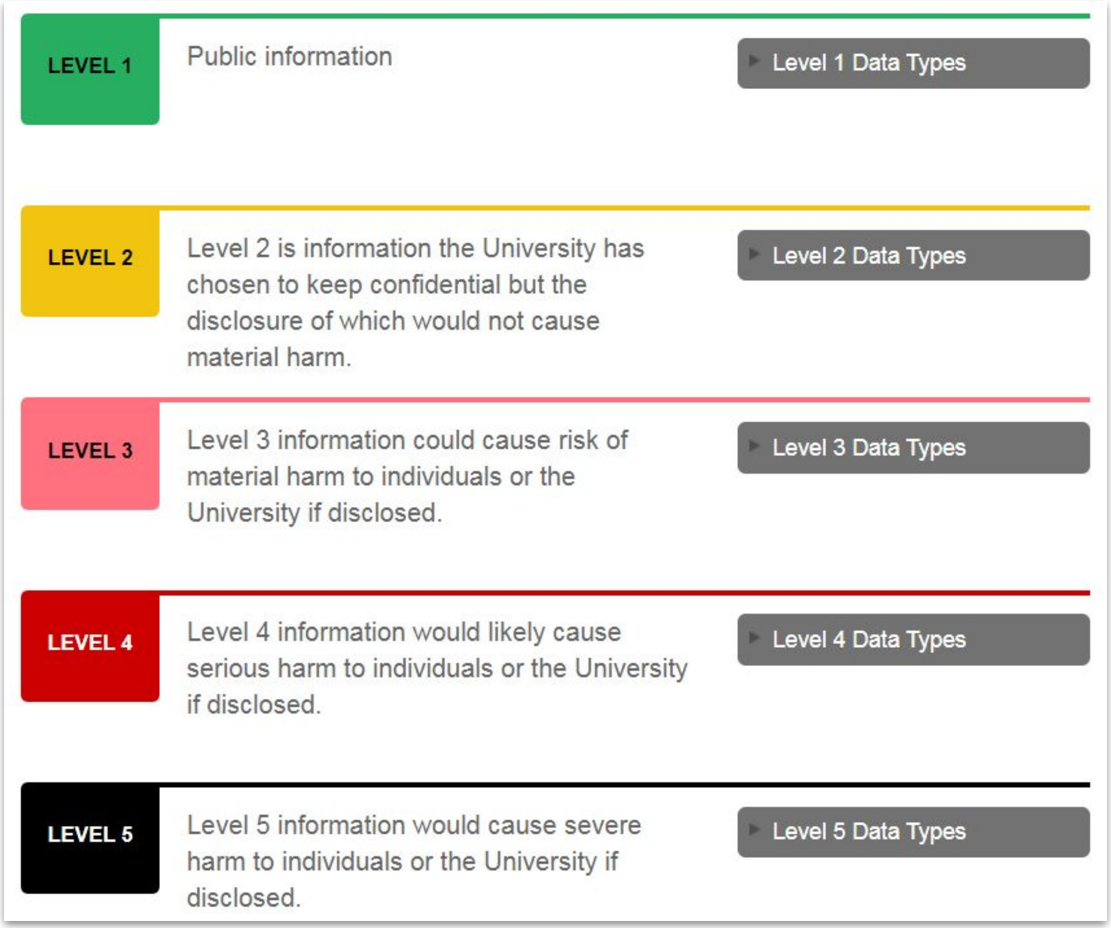
Limiting the availability of your data

Systems

Protecting your hardware and software

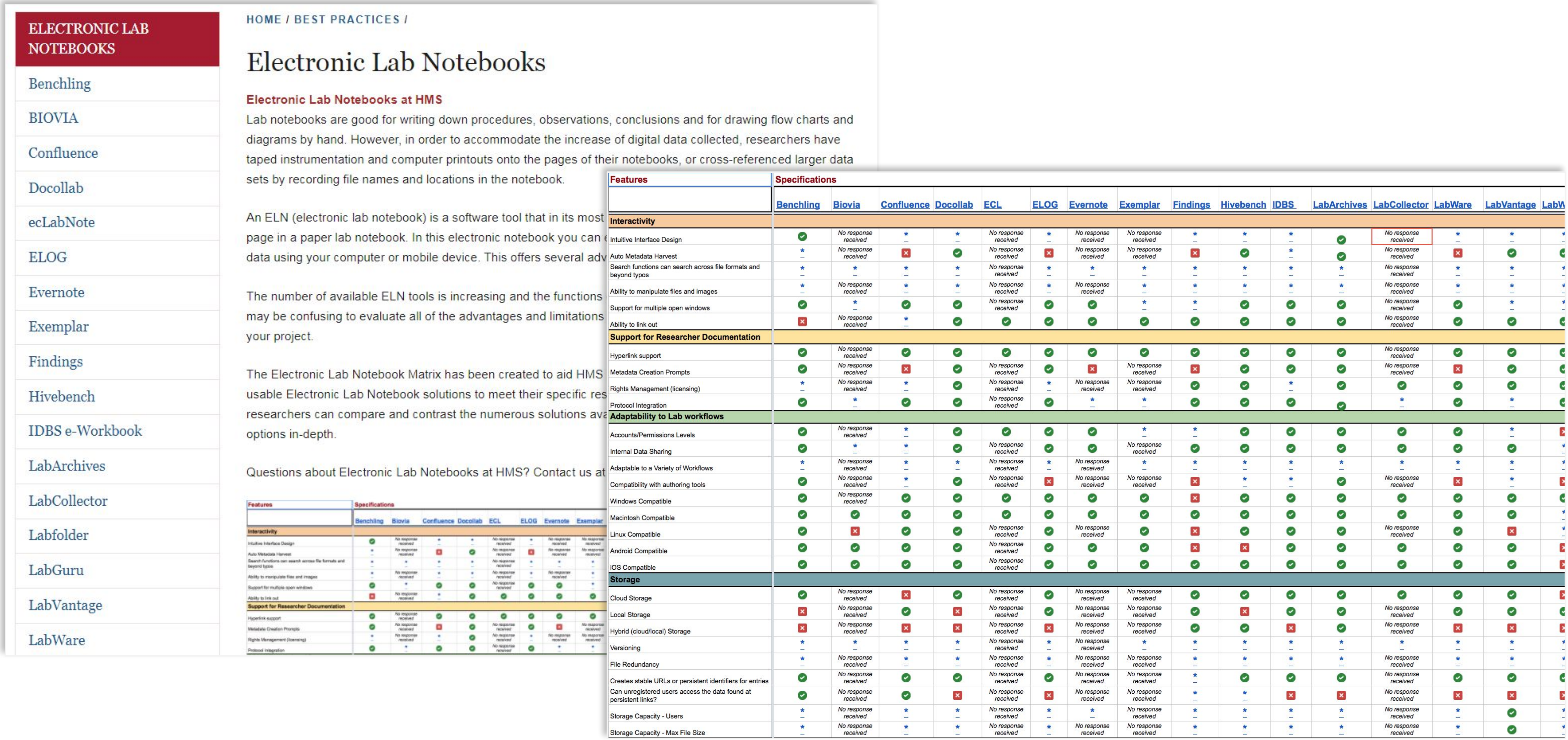
Data Integrity

Ensure that your data is not manipulated in an unauthorized way



LEVEL 1	Public information	▸ Level 1 Data Types
LEVEL 2	Level 2 is information the University has chosen to keep confidential but the disclosure of which would not cause material harm.	▸ Level 2 Data Types
LEVEL 3	Level 3 information could cause risk of material harm to individuals or the University if disclosed.	▸ Level 3 Data Types
LEVEL 4	Level 4 information would likely cause serious harm to individuals or the University if disclosed.	▸ Level 4 Data Types
LEVEL 5	Level 5 information would cause severe harm to individuals or the University if disclosed.	▸ Level 5 Data Types

https://datamanagement.hms.harvard.edu/security-access



ELECTRONIC LAB NOTEBOOKS

- Benchling
- BIOVIA
- Confluence
- Docollab
- ecLabNote
- ELOG
- Evernote
- Exemplar
- Findings
- Hivebench
- IDBS e-Workbook
- LabArchives
- LabCollector
- Labfolder
- LabGuru
- LabVantage
- LabWare

HOME / BEST PRACTICES /

Electronic Lab Notebooks

Electronic Lab Notebooks at HMS

Lab notebooks are good for writing down procedures, observations, conclusions and for drawing flow charts and diagrams by hand. However, in order to accommodate the increase of digital data collected, researchers have taped instrumentation and computer printouts onto the pages of their notebooks, or cross-referenced larger data sets by recording file names and locations in the notebook.

An ELN (electronic lab notebook) is a software tool that in its most
page in a paper lab notebook. In this electronic notebook you can e
data using your computer or mobile device. This offers several adv

The number of available ELN tools is increasing and the functions
may be confusing to evaluate all of the advantages and limitations
your project.

The Electronic Lab Notebook Matrix has been created to aid HMS
usable Electronic Lab Notebook solutions to meet their specific res
researchers can compare and contrast the numerous solutions ava
options in-depth.

Questions about Electronic Lab Notebooks at HMS? Contact us at

Features	Specifications														
	Benchling	Biovia	Confluence	Docollab	ECL	ELOG	Evernote	Exemplar	Findings	Hivebench	IDBS	LabArchives	LabCollector	LabWare	LabVantage	LabW
Interactivity																
Intuitive Interface Design	✓	No response received	*	*	No response received	*	No response received	No response received	*	*	*	✓	No response received	*	*	*
Auto Metadata Harvest	*	No response received	☒	✓	No response received	☒	No response received	No response received	☒	✓	*	✓	No response received	☒	✓	✓
Search functions can search across file formats and beyond typos	*	*	*	*	No response received	*	*	*	*	*	*	*	No response received	*	*	*
Ability to manipulate files and images	*	No response received	*	*	No response received	*	No response received	*	*	*	*	*	No response received	*	*	*
Support for multiple open windows	✓	*	✓	✓	No response received	✓	✓	*	*	✓	✓	✓	No response received	✓	*	*
Ability to link out	☒	No response received	*	✓	✓	✓	✓	✓	✓	✓	✓	✓	No response received	✓	✓	✓
Support for Researcher Documentation																
Hyperlink support	✓	No response received	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	No response received	✓	✓	✓
Metadata Creation Prompts	✓	No response received	☒	✓	No response received	✓	☒	No response received	☒	✓	✓	✓	No response received	☒	✓	✓
Rights Management (licensing)	*	No response received	*	✓	No response received	*	No response received	No response received	✓	✓	*	✓	✓	✓	✓	✓
Protocol Integration	✓	*	✓	✓	No response received	✓	*	*	✓	✓	✓	✓	*	✓	*	✓
Adaptability to Lab workflows																
Accounts/Permissions Levels	✓	No response received	*	✓	✓	✓	✓	*	*	✓	✓	✓	✓	✓	*	☒
Internal Data Sharing	✓	*	*	✓	No response received	✓	✓	No response received	✓	✓	✓	✓	✓	✓	✓	*
Adaptable to a Variety of Workflows	*	No response received	*	*	No response received	*	No response received	*	*	*	*	*	*	*	*	*
Compatibility with authoring tools	✓	No response received	*	✓	No response received	☒	No response received	No response received	☒	*	*	✓	No response received	☒	*	☒
Windows Compatible	✓	No response received	✓	✓	✓	✓	✓	✓	☒	✓	✓	✓	✓	✓	✓	✓
Macintosh Compatible	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*
Linux Compatible	✓	☒	✓	✓	No response received	✓	No response received	✓	☒	✓	✓	✓	No response received	✓	☒	*
Android Compatible	✓	✓	✓	✓	No response received	✓	✓	✓	☒	☒	✓	✓	✓	✓	✓	☒
iOS Compatible	✓	✓	✓	✓	No response received	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	☒
Storage																
Cloud Storage	✓	No response received	☒	✓	No response received	✓	No response received	No response received	✓	✓	✓	✓	✓	✓	✓	☒
Local Storage	☒	No response received	✓	☒	No response received	✓	No response received	No response received	✓	☒	✓	✓	No response received	✓	✓	✓
Hybrid (cloud/local) Storage	☒	No response received	☒	☒	No response received	☒	No response received	No response received	✓	✓	☒	✓	No response received	☒	☒	☒
Versioning	*	*	*	*	No response received	*	No response received	*	*	*	*	*	*	*	*	*
File Redundancy	*	No response received	*	*	No response received	*	No response received	No response received	*	*	*	*	No response received	*	*	*
Creates stable URLs or persistent identifiers for entries	✓	No response received	✓	✓	No response received	✓	No response received	No response received	*	✓	✓	✓	No response received	✓	✓	✓
Can unregistered users access the data found at persistent links?	✓	No response received	✓	☒	No response received	☒	No response received	No response received	*	*	☒	☒	No response received	☒	☒	☒
Storage Capacity - Users	*	No response received	*	*	No response received	*	*	No response received	*	*	*	*	No response received	*	✓	*
Storage Capacity - Max File Size	*	No response received	*	*	No response received	*	No response received	No response received	*	*	*	*	No response received	*	✓	*

Electronic Lab Notebook Matrix

https://datamanagement.hms.harvard.edu/electronic-lab-notebooks

On-Your-Own Exercise

Storage

1. Conduct a quick inventory of your data:

   - *What datasets do you have?*
   - *How big are they?*

2. Inventory where your files are currently stored, including backups:

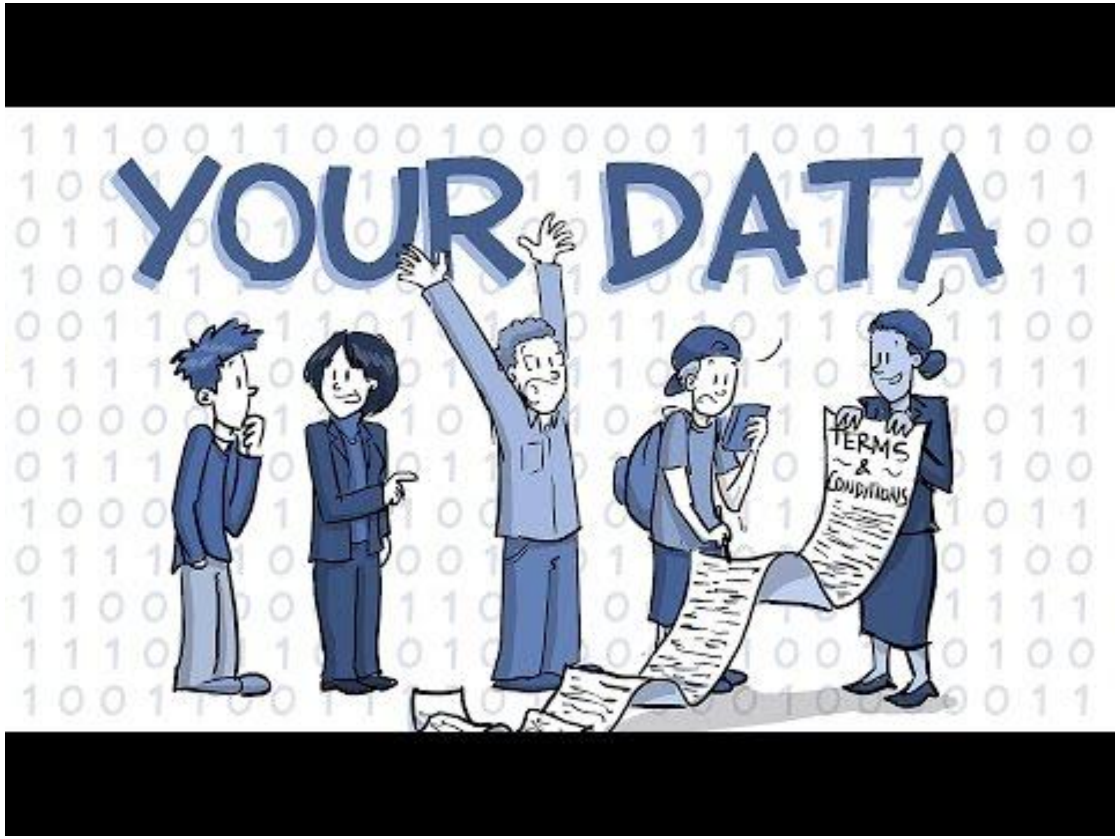
   - *How safe are your data?*

3. Do you have any PHI or HRCI data?

   - *What do you need to ensure their security?*

Ownership

Do you know who owns your data or the dataset you are using?



Who owns your data? (Hint: It's not you)

Data Sharing

When establishing data sharing and access policies and provisions, consider *whom* you will share your data with, *how* it will be shared, and *when* in the research process you will share it.

Distribution & Use

✓ Share data with collaborators

✓ Annotate datasets & upload to public repositories

✓ Include in relevant publications & reports

https://datamanagement.hms.harvard.edu/data-sharing

Citation & Attribution

give credit
get credit
cite data

Acknowledgement of the use of someone else’s information or work is a long-accepted practice in scholarly communication.

The following elements are generally considered the core elements of a data citation:

- *Author/Creator(s): creators of the data; can be one or more people or organizations*
- *Title: title of the data set*
- *Version: exact version or edition of the data set used*
- *Publication Date: date when the data set was published or released*
- *Publisher/Archive: data center or repository that is archiving and distributing*
- *Identifier/Locator: URL or other linkable locator for the data; a persistent, permanent URL such as a DOI (Digital Object Identifier) or a handle is preferred*

FORCE11 Joint Declaration of Data Citation Principles: https://doi.org/10.25490/a97f-egyk

Unique Identifiers

Digital Object Identifier

Permanently assigned to an object to provide a resolvable persistent network link to current information about that object, including where the object, or information about it, can be found on the Internet

https://www.doi.org

Open Researcher and Contributor ID

Provides a persistent digital identifier that distinguishes you from every other researcher and supports automated linkages between you and your professional activities ensuring that your work is recognized

https://orcid.org

On-Your-Own Exercise
ORCiD

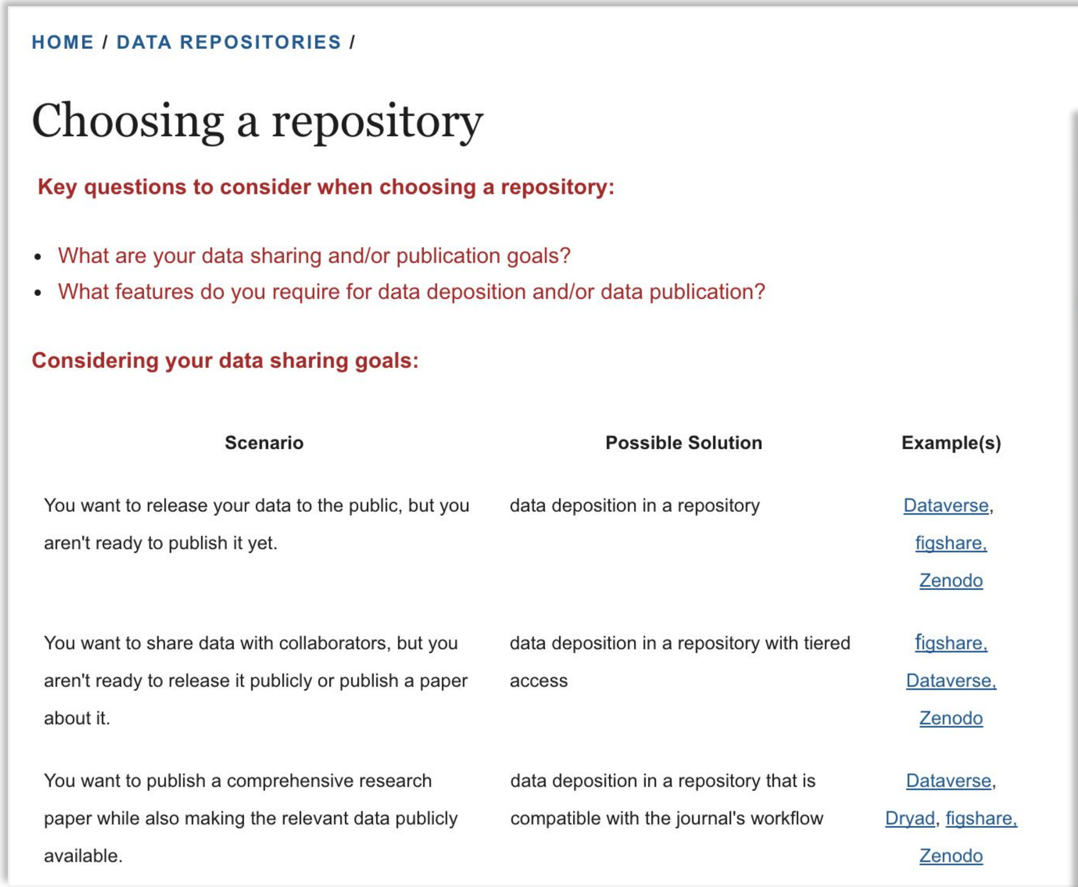
Don’t have an ORCID?

Create one now!

It’s free, easy and will last throughout your professional career!

https://orcid.org

H.K.
H.K.
U.S.
PhD
Assistant Professor
Marriage
Professor
Professor
Migration
Professor
Retired
iD
0000-1357-2468-0000



HOME / DATA REPOSITORIES /

Submit your questions and feedback!

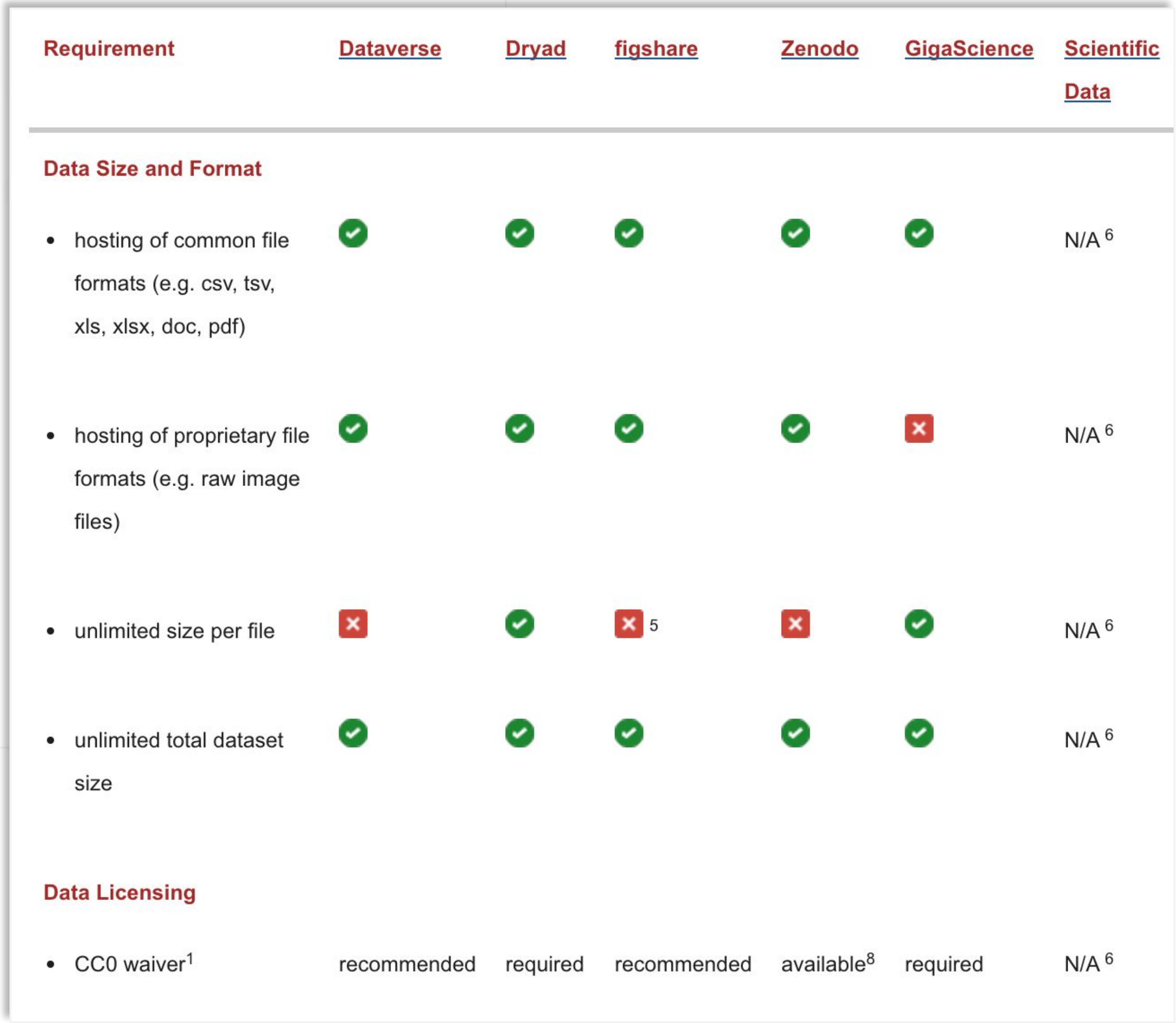
Choosing a repository

Key questions to consider when choosing a repository:

- What are your data sharing and/or publication goals?
- What features do you require for data deposition and/or data publication?

Considering your data sharing goals:

Scenario	Possible Solution	Example(s)
You want to release your data to the public, but you aren't ready to publish it yet.	data deposition in a repository	Dataverse, figshare, Zenodo
You want to share data with collaborators, but you aren't ready to release it publicly or publish a paper about it.	data deposition in a repository with tiered access	figshare, Dataverse, Zenodo
You want to publish a comprehensive research paper while also making the relevant data publicly available.	data deposition in a repository that is compatible with the journal's workflow	Dataverse, Dryad, figshare, Zenodo



Requirement	Dataverse	Dryad	figshare	Zenodo	GigaScience	Scientific Data
Data Size and Format						
• hosting of common file formats (e.g. csv, tsv, xls, xlsx, doc, pdf)	✓	✓	✓	✓	✓	N/A [6]
• hosting of proprietary file formats (e.g. raw image files)	✓	✓	✓	✓	✗	N/A [6]
• unlimited size per file	✗	✓	✗ [5]	✗	✓	N/A [6]
• unlimited total dataset size	✓	✓	✓	✓	✓	N/A [6]
Data Licensing						
• CC0 waiver[1]	recommended	required	recommended	available[8]	required	N/A [6]

Data Repository Comparison Matrix

https://datamanagement.hms.harvard.edu/overview-data-repositories

On-Your-Own Exercise

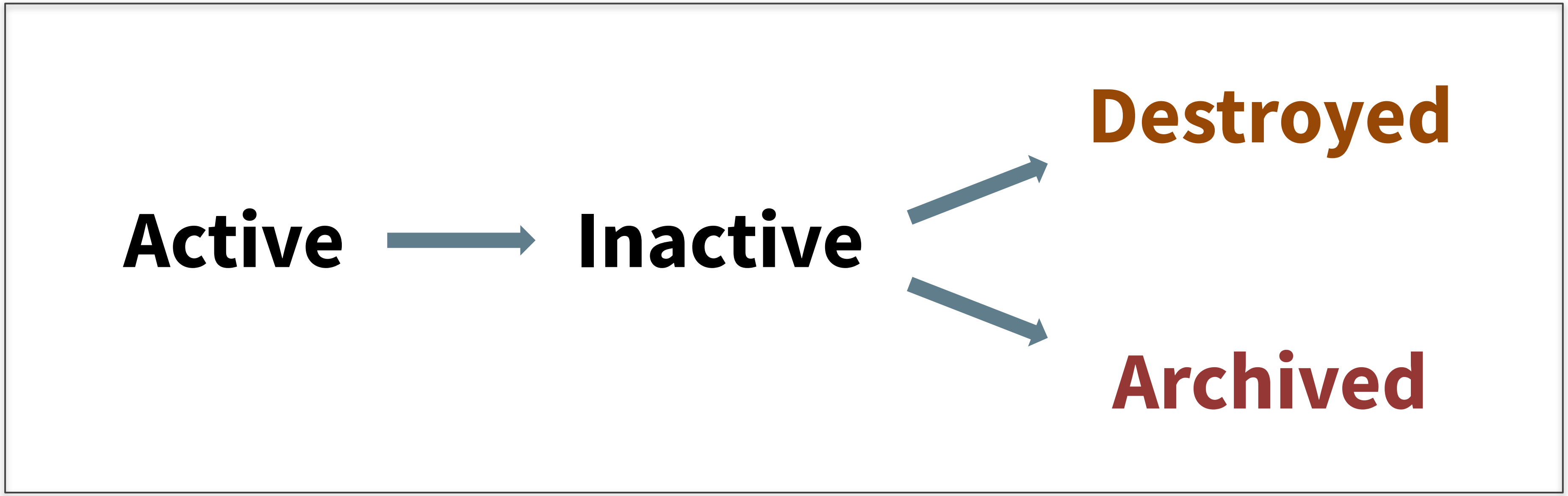
Repositories

Consider your grant funding or project goals:

- Are you required to deposit your data in a repository?
- What repository(ies) will work for your dataset?

Research Records

Four Types of Records



Active → Inactive → Destroyed / Archived

https://datamanagement.hms.harvard.edu/data-evaluation-appraisal

Retention

Data retention requirements are put in place by funding agencies and sponsoring institutions for a number of reasons:

- *promote the reuse of data within and across disciplines*
- *protect intellectual property rights*
- *make research findings available*
- *support open data initiatives*

Evaluate for Retention

✓ Identify and retain essential research records

✓ Organize and annotate appropriately

https://datamanagement.hms.harvard.edu/data-retention

Appraisal & Archiving

Appraisal process for evaluating research records and data:

- ***Inventory of the records****: volume, data types, formats, metadata, other relevant information*
- ***Interview about the project****: impact of the project, significance of the research or researcher, basic information about the grant*

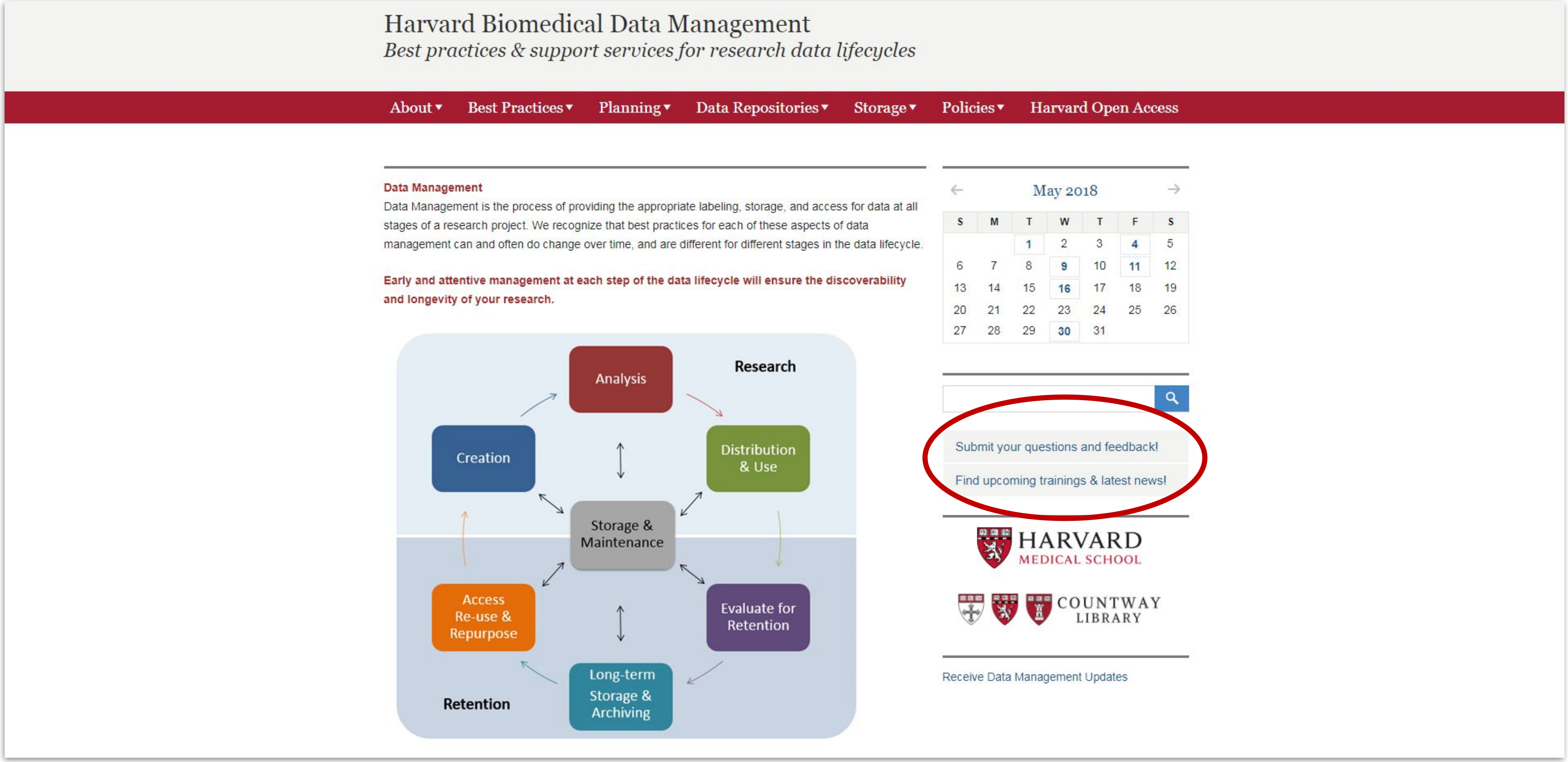
Long-term Storage & Archiving

✓ In compliance with HMS & federal policy

✓ As requested by investigators

https://datamanagement.hms.harvard.edu/data-evaluation-appraisal

Questions?



Harvard Biomedical Data Management

Best practices & support services for research data lifecycles

Data Management

Data Management is the process of providing the appropriate labeling, storage, and access for data at all stages of a research project. We recognize that best practices for each of these aspects of data management can and often do change over time, and are different for different stages in the data lifecycle.

Early and attentive management at each step of the data lifecycle will ensure the discoverability and longevity of your research.

May 2018

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

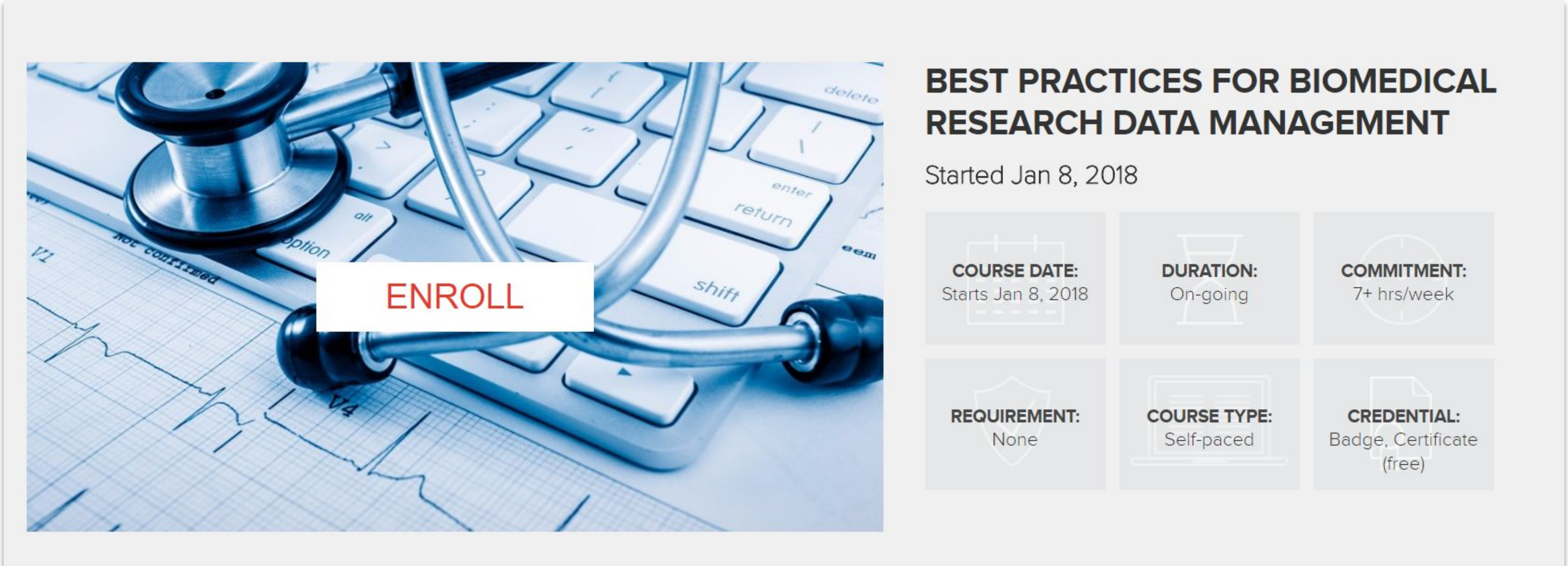
Submit your questions and feedback!

Find upcoming trainings & latest news!

HARVARD MEDICAL SCHOOL

COUNTWAY LIBRARY

Receive Data Management Updates



BEST PRACTICES FOR BIOMEDICAL RESEARCH DATA MANAGEMENT

Started Jan 8, 2018

COURSE DATE: Starts Jan 8, 2018	**DURATION:** On-going	**COMMITMENT:** 7+ hrs/week
REQUIREMENT: None	**COURSE TYPE:** Self-paced	**CREDENTIAL:** Badge, Certificate (free)

Open Online Course via Canvas

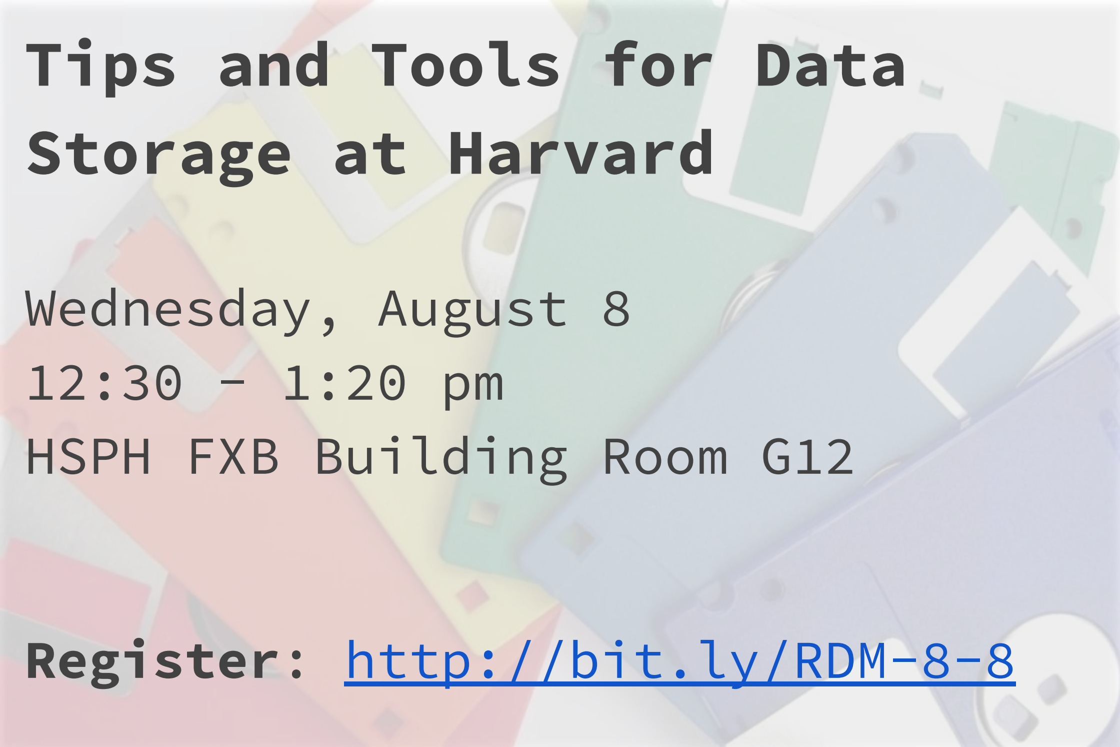
http://bit.ly/HMS-RDM-MOOC

Upcoming Seminars

Getting Started with Data Management Plans

Monday, July 23
12:30 - 1:20 pm
HSPH FXB Building Room G12

Register: http://bit.ly/RDM-7-23



Tips and Tools for Data Storage at Harvard

Wednesday, August 8
12:30 - 1:20 pm
HSPH FXB Building Room G12

Register: http://bit.ly/RDM-8-8 bit.ly/rdm-survey

Key Resources

Harvard Biomedical Data Management
http://datamanagement.hms.harvard.edu

Center for the History of Medicine | Archives and Records Management
https://www.countway.harvard.edu/chom/archives-and-records-management

Research Information Technology Solutions
http://rits.hms.harvard.edu

Office of the Vice Provost for Research | Research Data Security & Management
https://vpr.harvard.edu/pages/research-data-security-and-management

Harvard Catalyst | The Harvard Clinical and Translational Science Center
http://catalyst.harvard.edu

Office for Scholarly Communications
https://osc.hul.harvard.edu/policies