Data Management

Data Management Guide

Writing a data plan

Why do I need a data management plan?

- Duke policies related to data management, sharing, and retention
- Funding agency policies related to data management, sharing, and retention
- **Details on the NSF data management plan requirements**

Sample plans/templates

- **Duke-specific guidance on writing a data plan for NSF** (PDF document)
- DMPTool - data management planning toolkit from the California Digital Library
- ICPSR Sample Data Management Plan

Managing your data

- The data management process - thinking it through from beginning to end of your project life-cycle
- Storage and backup - please ask your IT provider to contact askdata@duke.edu to discuss how to include appropriate data management practices into planning for data storage and backup.
- Metadata - describing your data to facilitate later use
- Data archiving and preservation - making sure your data is around for a long time

Sharing your data

- Data repositories - places to deposit and share your data
- Licensing and intellectual property - how may others use your data?
- Data citation - getting credit for what you've shared, and giving credit to others for what you've used

Get help at Duke

This web site will help get you started with information on effective management of data you are creating through your research, including developing a data management plan for your grant or project proposal, archiving data at the end of your project, and sharing data with other researchers as appropriate.

If you're a member of the Duke community, **Library Data and GIS Services** is available to help you with your data management planning. Contact askdata@duke.edu or see our walk-in consulting schedule. We can advise you and connect you with others who may be able to provide the support you need to execute your data management plans.

Other sources of help at Duke related to data management are also available.

Data management guidance elsewhere

Some sources of guidance on data management from other universities:

- University of Wisconsin-Madison Research Data Services
- University of Virginia Scientific Data Consulting Group
- MIT Data Management and Publishing
- ICPSR Guidelines for Effective Data Management Plans
- Online course on data management from the EDINA National Academic Data Centre in the UK

Why manage and share your data?

Funding Agency Requirements

Many funding agencies require data management plans for different reasons. Tailor your plan to the goals and requirements of the funding agency. Funders typically ask how you will:

- Protect confidentiality, consent, and safety of research subjects
- Promote data sharing and transparency
- Supports efforts to verify and replicate research findings

Transparency and Replication of Research Findings

- Replication relies on clear documentation of data and changes used in analyses
- Reuse of data for new applications is common in most disciplines
- Requests for data may follow from publication of results, and advance preparation simplifies the response process

Data Preservation and Annotation

- Documentation of data items and structure **at the time of compilation** reduces the time needed to understand data organization and contents should the data be needed in future
- **Duke requires** the retention of research data and pertinent notes for at least 5 years after **completion** of a project
- Early attention to data documentation and preservation plans reduces the effort required to transition to permanent storage
- Changes in research staff impact the progression of a research project to a lesser extent with clear documentation and planning
- Preservation in a data repository provides an additional backup for your research data

Citations and Recognition

- Data repositories provide another route to the discovery of your research and can increase the visibility of your work, especially when used widely

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Research Data Management
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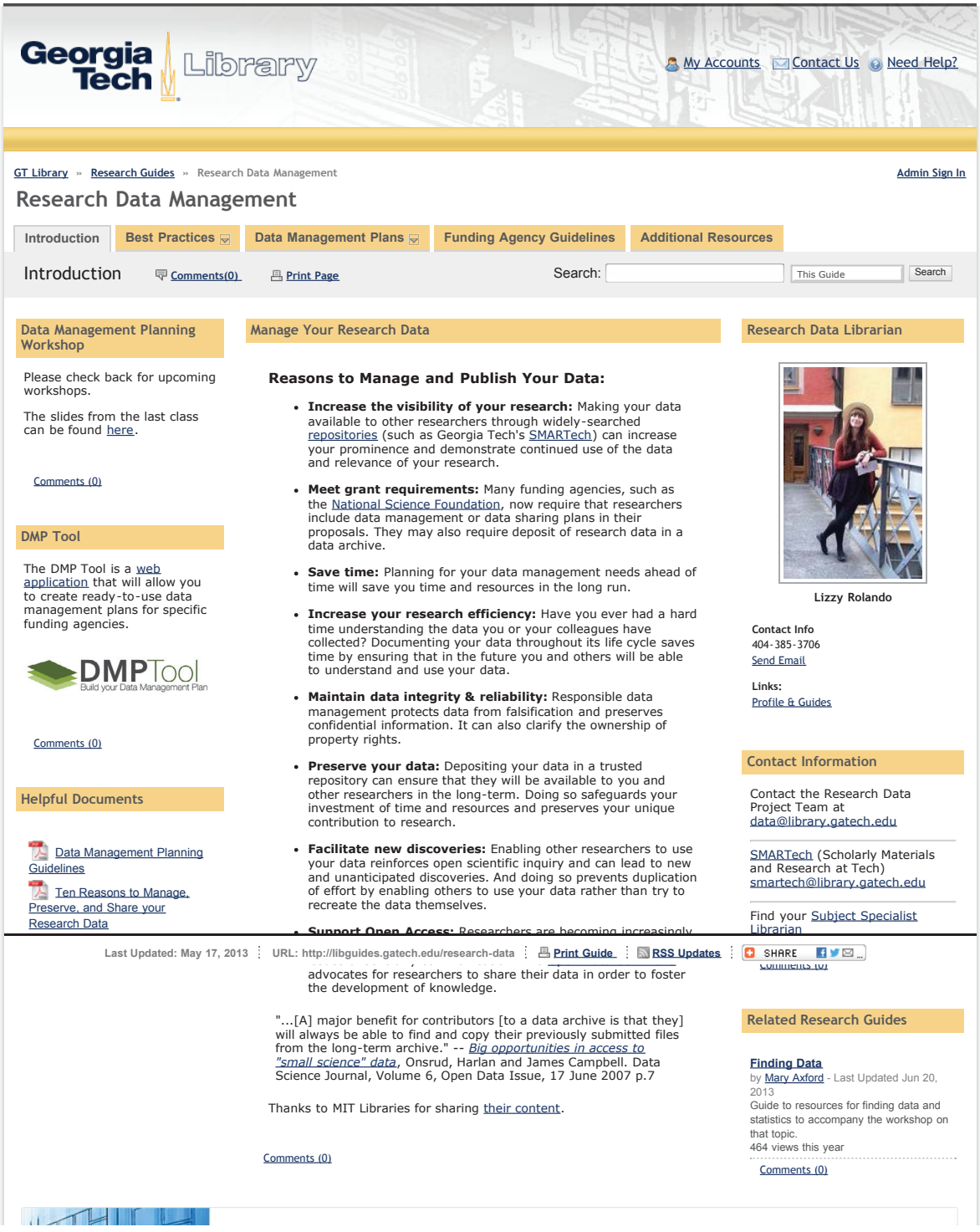

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Research Data Management

Introduction | Best Practices | Data Management Plans | Funding Agency Guidelines | Additional Resources

Introduction

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Data Management Planning Workshop

Please check back for upcoming workshops.

The slides from the last class can be found here.

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DMP Tool

The DMP Tool is a web application that will allow you to create ready-to-use data management plans for specific funding agencies.

DMPTool
Build your Data Management Plan

Comments (0)

Helpful Documents

Data Management Planning Guidelines

Ten Reasons to Manage, Preserve, and Share your Research Data

Manage Your Research Data

Reasons to Manage and Publish Your Data:

- **Increase the visibility of your research:** Making your data available to other researchers through widely-searched repositories (such as Georgia Tech's SMARTech) can increase your prominence and demonstrate continued use of the data and relevance of your research.
- **Meet grant requirements:** Many funding agencies, such as the National Science Foundation, now require that researchers include data management or data sharing plans in their proposals. They may also require deposit of research data in a data archive.
- **Save time:** Planning for your data management needs ahead of time will save you time and resources in the long run.
- **Increase your research efficiency:** Have you ever had a hard time understanding the data you or your colleagues have collected? Documenting your data throughout its life cycle saves time by ensuring that in the future you and others will be able to understand and use your data.
- **Maintain data integrity & reliability:** Responsible data management protects data from falsification and preserves confidential information. It can also clarify the ownership of property rights.
- **Preserve your data:** Depositing your data in a trusted repository can ensure that they will be available to you and other researchers in the long-term. Doing so safeguards your investment of time and resources and preserves your unique contribution to research.
- **Facilitate new discoveries:** Enabling other researchers to use your data reinforces open scientific inquiry and can lead to new and unanticipated discoveries. And doing so prevents duplication of effort by enabling others to use your data rather than try to recreate the data themselves.
- **Support Open Access:** Researchers are becoming increasingly advocates for researchers to share their data in order to foster the development of knowledge.

"...[A] major benefit for contributors [to a data archive is that they] will always be able to find and copy their previously submitted files from the long-term archive." -- *Big opportunities in access to "small science" data*, Onsrud, Harlan and James Campbell. Data Science Journal, Volume 6, Open Data Issue, 17 June 2007 p.7

Thanks to MIT Libraries for sharing their content.

Comments (0)

Research Data Librarian

Lizzy Rolando

Contact Info
404-385-3706
Send Email

Links:
Profile & Guides

Contact Information

Contact the Research Data Project Team at data@library.gatech.edu

SMARTech (Scholarly Materials and Research at Tech) smartech@library.gatech.edu

Find your Subject Specialist Librarian

Related Research Guides

Finding Data
by Mary Axford - Last Updated Jun 20, 2013
Guide to resources for finding data and statistics to accompany the workshop on that topic.
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Last Updated: May 17, 2013 | URL: http://libguides.gatech.edu/research-data | Print Guide | RSS Updates | SHARE

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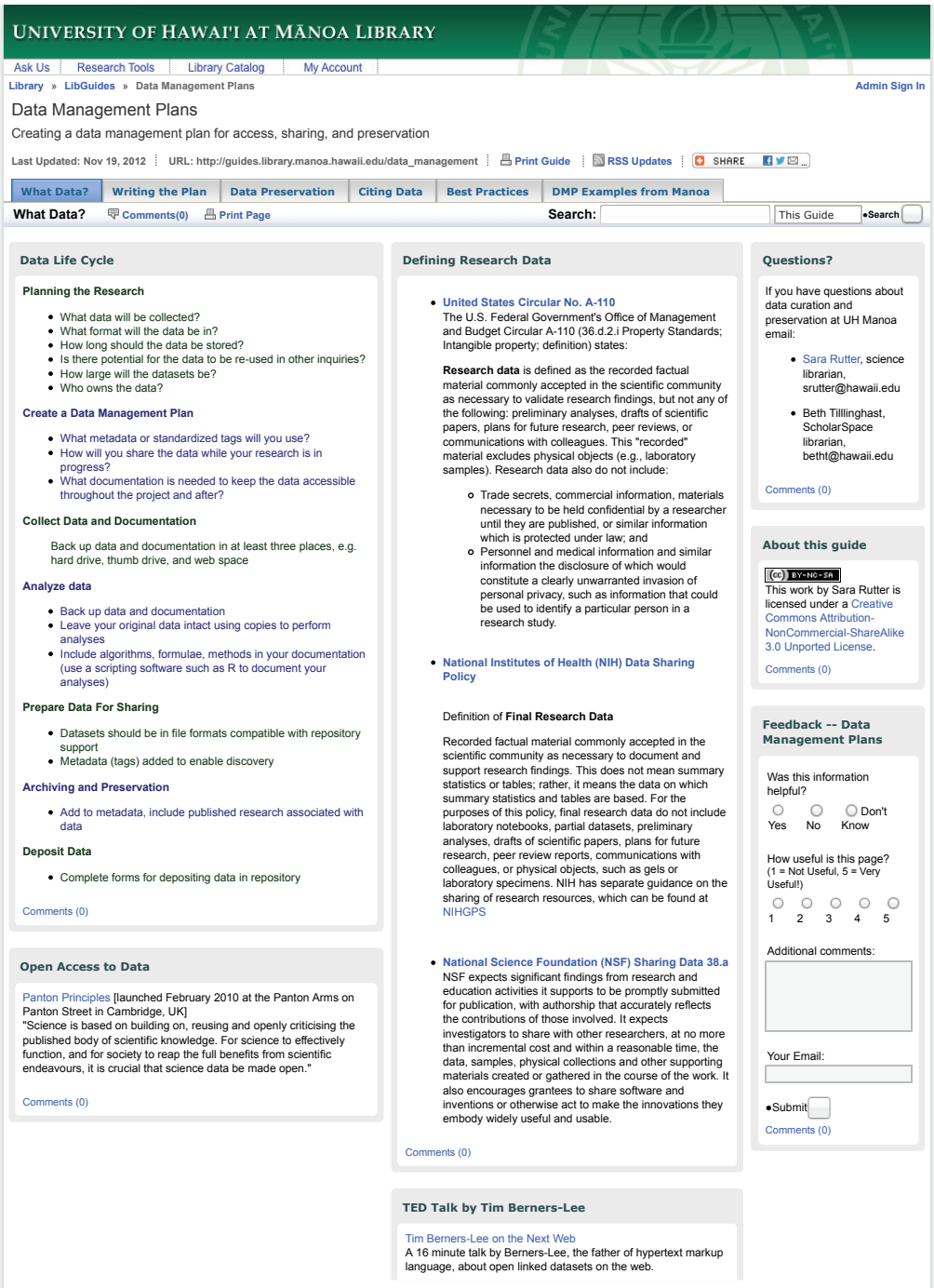

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Data Management Plans

Creating a data management plan for access, sharing, and preservation

Last Updated: Nov 19, 2012 | URL: http://guides.library.manoa.hawaii.edu/data_management | Print Guide | RSS Updates | SHARE

What Data? | Writing the Plan | Data Preservation | Citing Data | Best Practices | DMP Examples from Manoa

What Data? Comments(0) Print Page — Search: This Guide •Search

Data Life Cycle

Planning the Research

- What data will be collected?
- What format will the data be in?
- How long should the data be stored?
- Is there potential for the data to be re-used in other inquiries?
- How large will the datasets be?
- Who owns the data?

Create a Data Management Plan

- What metadata or standardized tags will you use?
- How will you share the data while your research is in progress?
- What documentation is needed to keep the data accessible throughout the project and after?

Collect Data and Documentation

Back up data and documentation in at least three places, e.g. hard drive, thumb drive, and web space

Analyze data

- Back up data and documentation
- Leave your original data intact using copies to perform analyses
- Include algorithms, formulae, methods in your documentation (use a scripting software such as R to document your analyses)

Prepare Data For Sharing

- Datasets should be in file formats compatible with repository support
- Metadata (tags) added to enable discovery

Archiving and Preservation

- Add to metadata, include published research associated with data

Deposit Data

- Complete forms for depositing data in repository

Comments (0)

Open Access to Data

Panton Principles [launched February 2010 at the Panton Arms on Panton Street in Cambridge, UK]
"Science is based on building on, reusing and openly criticising the published body of scientific knowledge. For science to effectively function, and for society to reap the full benefits from scientific endeavours, it is crucial that science data be made open."

Comments (0)

Defining Research Data

- **United States Circular No. A-110**
  The U.S. Federal Government's Office of Management and Budget Circular A-110 (36.d.2.i Property Standards; Intangible property; definition) states:

  Research data is defined as the recorded factual material commonly accepted in the scientific community as necessary to validate research findings, but not any of the following: preliminary analyses, drafts of scientific papers, plans for future research, peer reviews, or communications with colleagues. This "recorded" material excludes physical objects (e.g., laboratory samples). Research data also do not include:

  - Trade secrets, commercial information, materials necessary to be held confidential by a researcher until they are published, or similar information which is protected under law; and
  - Personnel and medical information and similar information the disclosure of which would constitute a clearly unwarranted invasion of personal privacy, such as information that could be used to identify a particular person in a research study.

- **National Institutes of Health (NIH) Data Sharing Policy**

  Definition of **Final Research Data**

  Recorded factual material commonly accepted in the scientific community as necessary to document and support research findings. This does not mean summary statistics or tables; rather, it means the data on which summary statistics and tables are based. For the purposes of this policy, final research data do not include laboratory notebooks, partial datasets, preliminary analyses, drafts of scientific papers, plans for future research, peer review reports, communications with colleagues, or physical objects, such as gels or laboratory specimens. NIH has separate guidance on the sharing of research resources, which can be found at NIHGPS

- **National Science Foundation (NSF) Sharing Data 38.a**
  NSF expects significant findings from research and education activities it supports to be promptly submitted for publication, with authorship that accurately reflects the contributions of those involved. It expects investigators to share with other researchers, at no more than incremental cost and within a reasonable time, the data, samples, physical collections and other supporting materials created or gathered in the course of the work. It also encourages grantees to share software and inventions or otherwise act to make the innovations they embody widely useful and usable.

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TED Talk by Tim Berners-Lee

Tim Berners-Lee on the Next Web
A 16 minute talk by Berners-Lee, the father of hypertext markup language, about open linked datasets on the web.

Questions?

If you have questions about data curation and preservation at UH Manoa email:

- Sara Rutter, science librarian, srutter@hawaii.edu
- Beth Tillinghast, ScholarSpace librarian, betht@hawaii.edu

Comments (0)

About this guide

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Feedback -- Data Management Plans

Was this information helpful?
Yes No Don't Know

How useful is this page?
(1 = Not Useful, 5 = Very Useful!)
1 2 3 4 5

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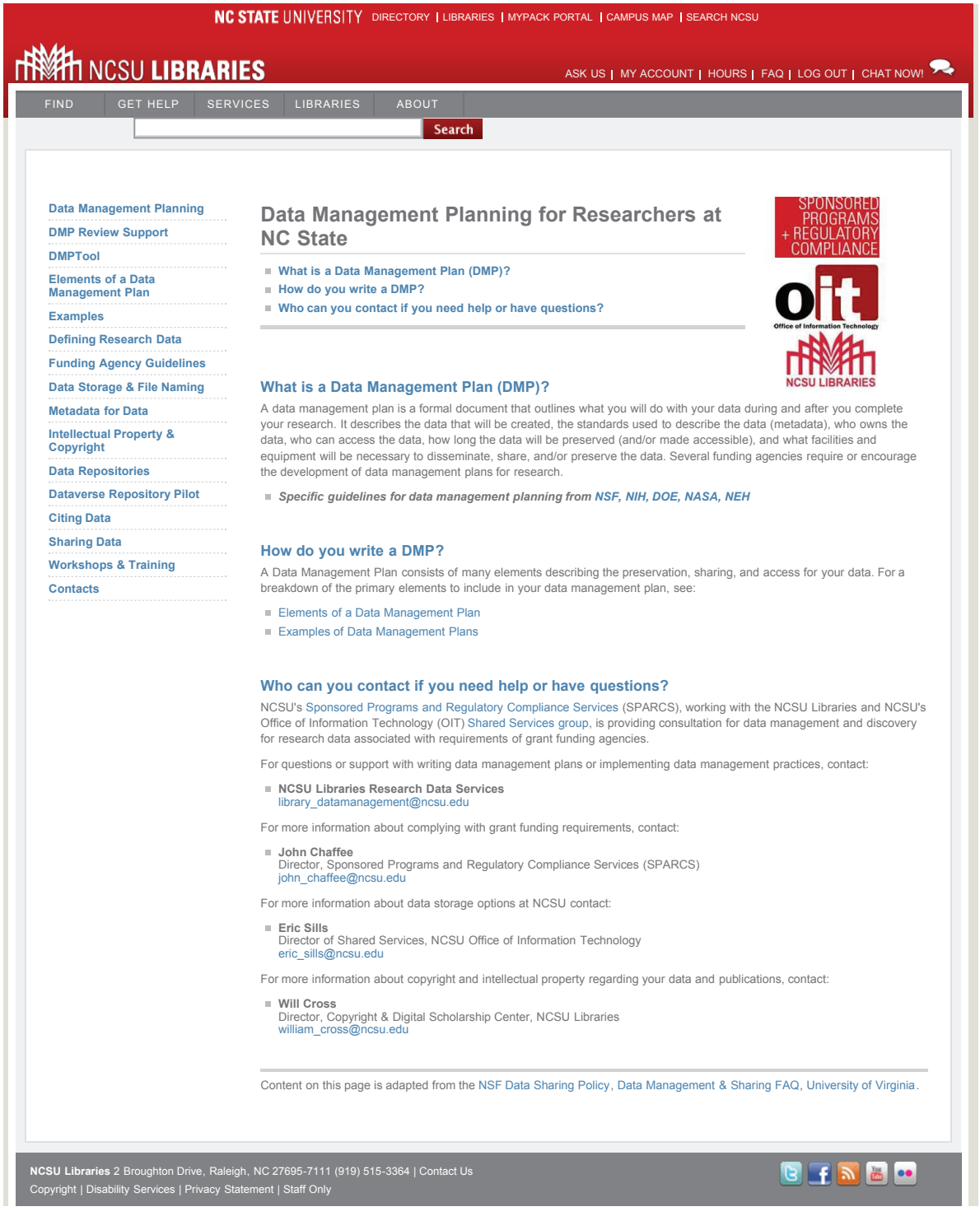
Data Management Planning for Researchers at NC State
http://www.lib.ncsu.edu/guides/datamanagement



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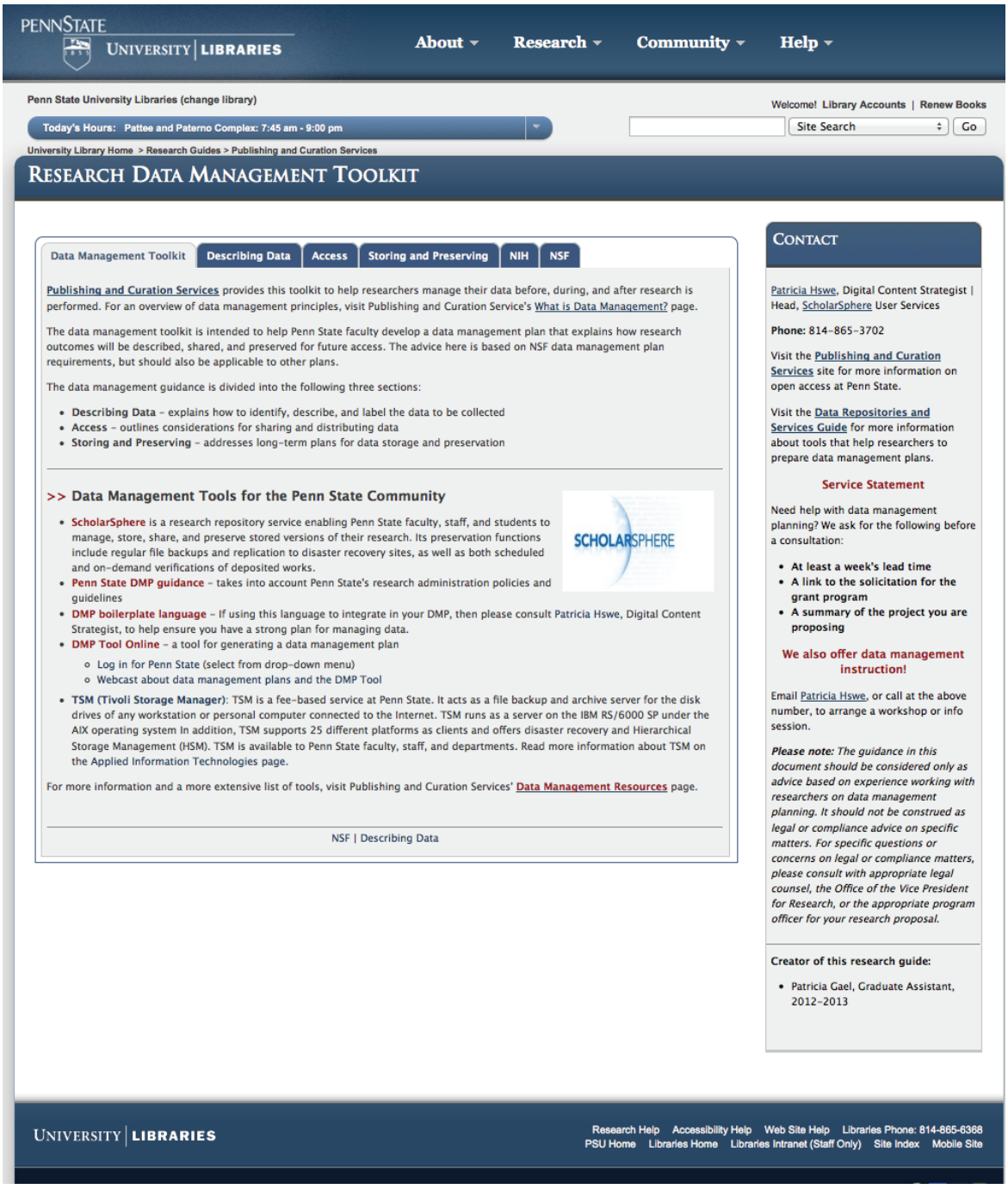
Research Data Management Toolkit
http://www.libraries.psu.edu/psul/researchguides/pubcur/datatoolkit.html



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RESEARCH DATA MANAGEMENT TOOLKIT

Data Management Toolkit | Describing Data | Access | Storing and Preserving | NIH | NSF

Publishing and Curation Services provides this toolkit to help researchers manage their data before, during, and after research is performed. For an overview of data management principles, visit Publishing and Curation Service's What is Data Management? page.

The data management toolkit is intended to help Penn State faculty develop a data management plan that explains how research outcomes will be described, shared, and preserved for future access. The advice here is based on NSF data management plan requirements, but should also be applicable to other plans.

The data management guidance is divided into the following three sections:

- **Describing Data** – explains how to identify, describe, and label the data to be collected
- **Access** – outlines considerations for sharing and distributing data
- **Storing and Preserving** – addresses long-term plans for data storage and preservation

>> Data Management Tools for the Penn State Community

- **ScholarSphere** is a research repository service enabling Penn State faculty, staff, and students to manage, store, share, and preserve stored versions of their research. Its preservation functions include regular file backups and replication to disaster recovery sites, as well as both scheduled and on-demand verifications of deposited works.
- **Penn State DMP guidance** – takes into account Penn State's research administration policies and guidelines
- **DMP boilerplate language** – If using this language to integrate in your DMP, then please consult Patricia Hswe, Digital Content Strategist, to help ensure you have a strong plan for managing data.
- **DMP Tool Online** – a tool for generating a data management plan
  - Log in for Penn State (select from drop-down menu)
  - Webcast about data management plans and the DMP Tool
- **TSM (Tivoli Storage Manager)**: TSM is a fee-based service at Penn State. It acts as a file backup and archive server for the disk drives of any workstation or personal computer connected to the Internet. TSM runs as a server on the IBM RS/6000 SP under the AIX operating system In addition, TSM supports 25 different platforms as clients and offers disaster recovery and Hierarchical Storage Management (HSM). TSM is available to Penn State faculty, staff, and departments. Read more information about TSM on the Applied Information Technologies page.

For more information and a more extensive list of tools, visit Publishing and Curation Services' Data Management Resources page.

NSF | Describing Data

CONTACT

Patricia Hswe, Digital Content Strategist | Head, ScholarSphere User Services

Phone: 814-865-3702

Visit the Publishing and Curation Services site for more information on open access at Penn State.

Visit the Data Repositories and Services Guide for more information about tools that help researchers to prepare data management plans.

Service Statement

Need help with data management planning? We ask for the following before a consultation:

- **At least a week's lead time**
- **A link to the solicitation for the grant program**
- **A summary of the project you are proposing**

We also offer data management instruction!

Email Patricia Hswe, or call at the above number, to arrange a workshop or info session.

Please note: *The guidance in this document should be considered only as advice based on experience working with researchers on data management planning. It should not be construed as legal or compliance advice on specific matters. For specific questions or concerns on legal or compliance matters, please consult with appropriate legal counsel, the Office of the Vice President for Research, or the appropriate program officer for your research proposal.*

Creator of this research guide:

- Patricia Gael, Graduate Assistant, 2012-2013

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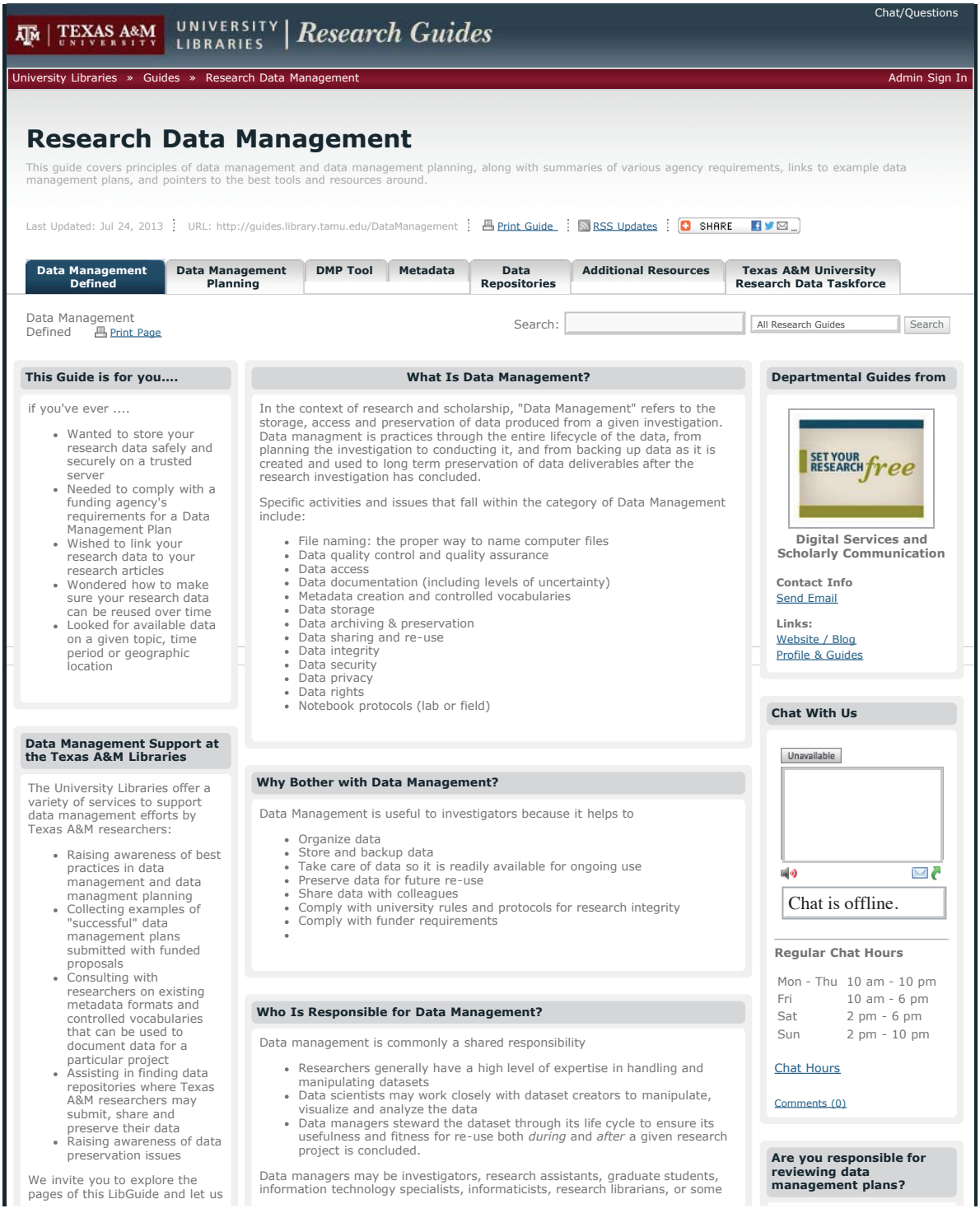

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Research Data Management

This guide covers principles of data management and data management planning, along with summaries of various agency requirements, links to example data management plans, and pointers to the best tools and resources around.

Last Updated: Jul 24, 2013 | URL: http://guides.library.tamu.edu/DataManagement | Print Guide | RSS Updates | SHARE

Data Management Defined | Data Management Planning | DMP Tool | Metadata | Data Repositories | Additional Resources | Texas A&M University Research Data Taskforce

Data Management Defined Print Page

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This Guide is for you....

if you've ever ....

- Wanted to store your research data safely and securely on a trusted server
- Needed to comply with a funding agency's requirements for a Data Management Plan
- Wished to link your research data to your research articles
- Wondered how to make sure your research data can be reused over time
- Looked for available data on a given topic, time period or geographic location

Data Management Support at the Texas A&M Libraries

The University Libraries offer a variety of services to support data management efforts by Texas A&M researchers:

- Raising awareness of best practices in data management and data managment planning
- Collecting examples of "successful" data management plans submitted with funded proposals
- Consulting with researchers on existing metadata formats and controlled vocabularies that can be used to document data for a particular project
- Assisting in finding data repositories where Texas A&M researchers may submit, share and preserve their data
- Raising awareness of data preservation issues

We invite you to explore the pages of this LibGuide and let us

What Is Data Management?

In the context of research and scholarship, "Data Management" refers to the storage, access and preservation of data produced from a given investigation. Data managment is practices through the entire lifecycle of the data, from planning the investigation to conducting it, and from backing up data as it is created and used to long term preservation of data deliverables after the research investigation has concluded.

Specific activities and issues that fall within the category of Data Management include:

- File naming: the proper way to name computer files
- Data quality control and quality assurance
- Data access
- Data documentation (including levels of uncertainty)
- Metadata creation and controlled vocabularies
- Data storage
- Data archiving & preservation
- Data sharing and re-use
- Data integrity
- Data security
- Data privacy
- Data rights
- Notebook protocols (lab or field)

Why Bother with Data Management?

Data Management is useful to investigators because it helps to

- Organize data
- Store and backup data
- Take care of data so it is readily available for ongoing use
- Preserve data for future re-use
- Share data with colleagues
- Comply with university rules and protocols for research integrity
- Comply with funder requirements
-

Who Is Responsible for Data Management?

Data management is commonly a shared responsibility

- Researchers generally have a high level of expertise in handling and manipulating datasets
- Data scientists may work closely with dataset creators to manipulate, visualize and analyze the data
- Data managers steward the dataset through its life cycle to ensure its usefulness and fitness for re-use both *during* and *after* a given research project is concluded.

Data managers may be investigators, research assistants, graduate students, information technology specialists, informaticists, research librarians, or some

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Chat Hours

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Are you responsible for reviewing data management plans?

know how we can help you with your data management needs. For additional information, consultation, or referrals, please contact us at digital@library.tamu.edu.

combination of these professionals.

For information and news about Research Data Management at Texas &M, consult the tab "Research Data Taskforce" above.

Data Sharing Snafu in Three Short Acts (or, Why Data Management Matters)

Comments (0)

if you are responsible for reviewing grant proposals and their data management plans, you may find the following guide very helpful. It was created by the Data Management Services at Johns Hopkins University.

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http://dmp.data.jhu.edu/assistance/grant-reviewers-worksheet-for-data-management-plans/

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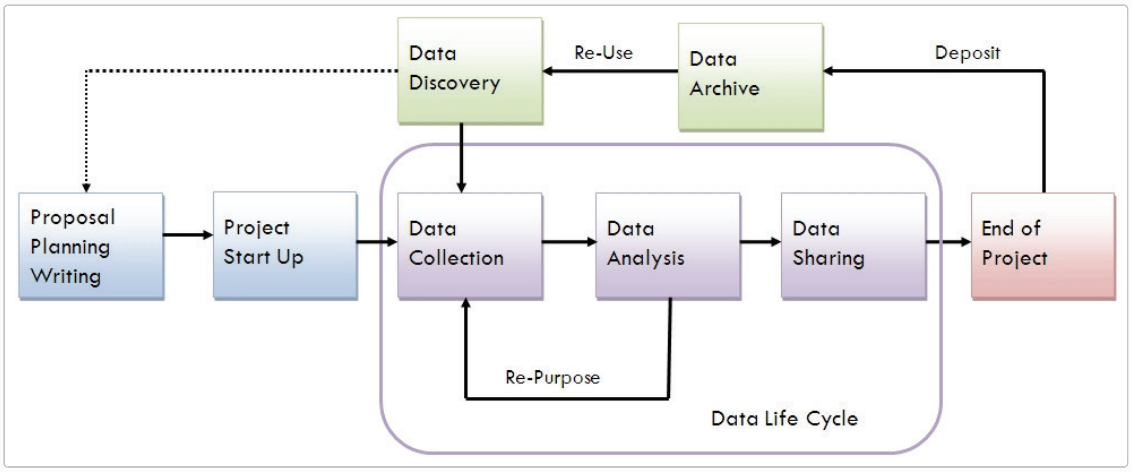
Making Data Management Easier

Libraries have been managing information for 4,000 years. Today, your libraries are evolving and building expertise to continue this tradition so that they can help you preserve research data of the past, present, and future.

The Data Management Consulting Group is ready to consult with you on your entire data life cycle, helping you to make the right decisions, so that your scientific research data will continue to be available when you and others need it in the future. Contact us now to start a conversation about your research.

Research Life Cycle



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Hands-on Data Management Plan Workshop for Engineering

Hands-on Data Management Plan Workshop for Social Science Research

Funding available to publish in Open Access journals

- Why Manage Your Data?
- Data Management Plan Support
- Data Management Plan Components
- Research and Development Initiatives
- Data Management Training Sessions
- Calendar of Events

For more information:

Contact us:

Andrew Sallans, Head of Strategic Data Initiatives
Sherry Lake, Senior Data Consultant
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