

Managing Research Data in SharePoint Libraries

Northwestern IT Research Computing & Data Services

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Northwestern

Goals



Explore SharePoint
Data Management
Features



Take a deeper dive into
SharePoint Document
Libraries



Compare user-centric
vs. data-centric
permission strategies



Apply best practices
for managing research
data

Why Data Management Matters



Drowning in data? Organize it so you can find and update it fast.



Need to control who sees what in your team files?

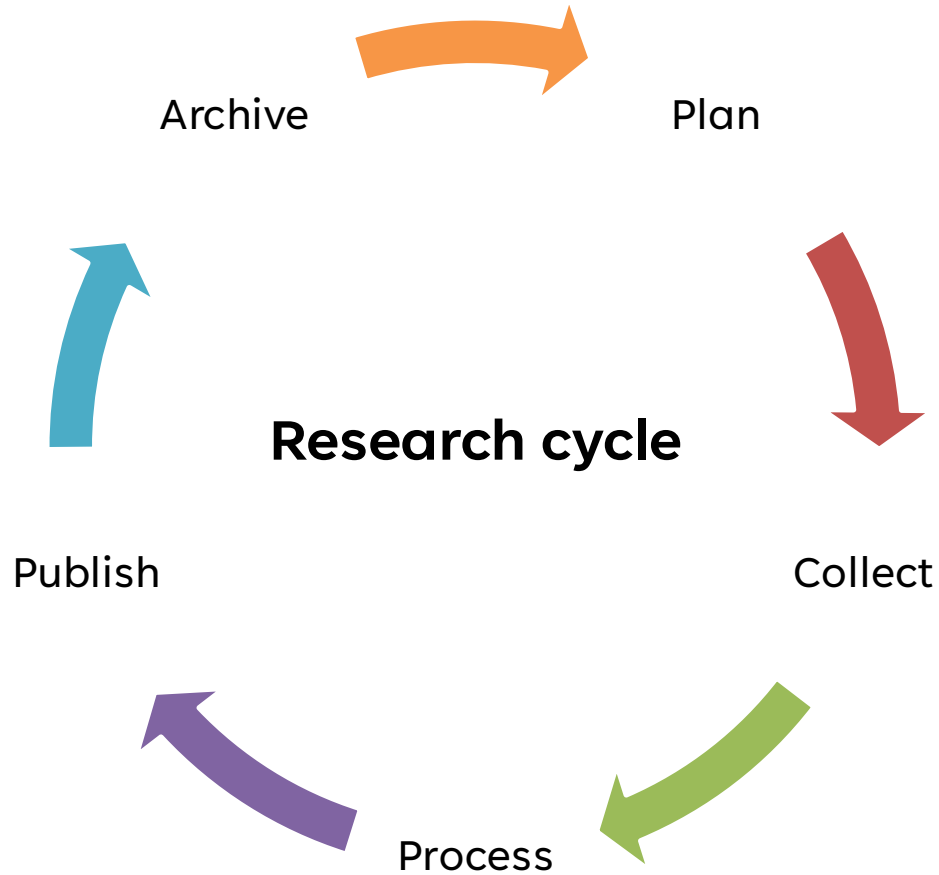


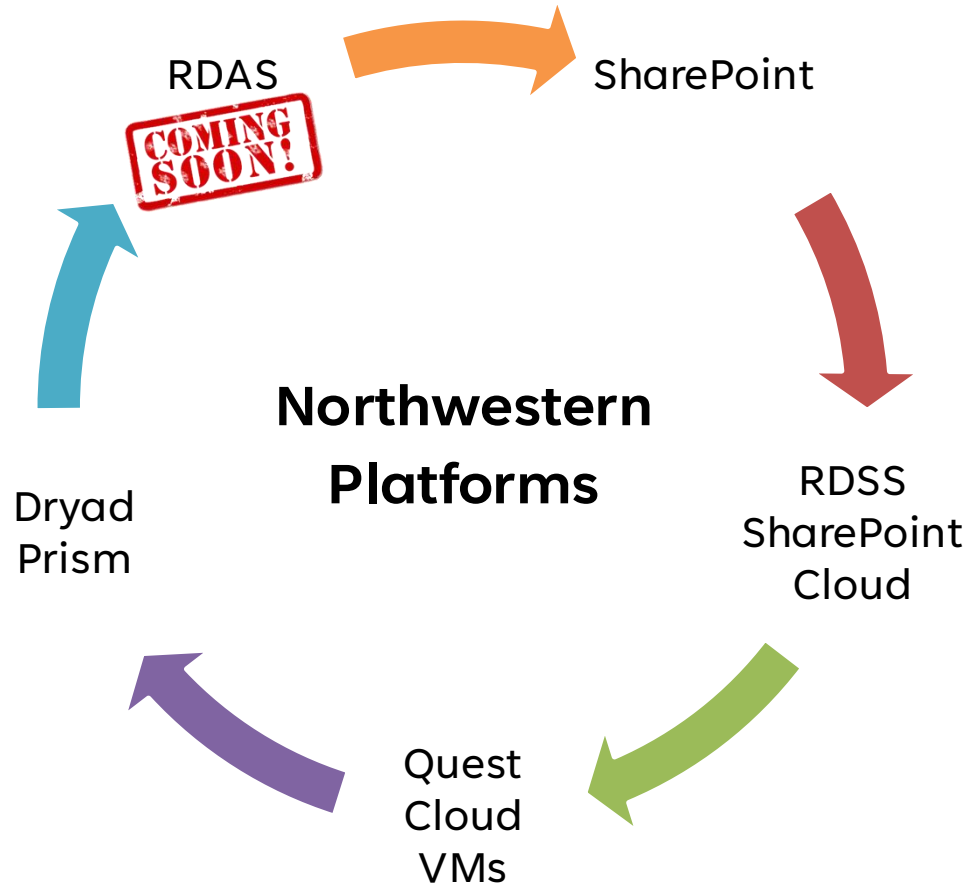
Handling sensitive data? Set smart boundaries with granular organization.

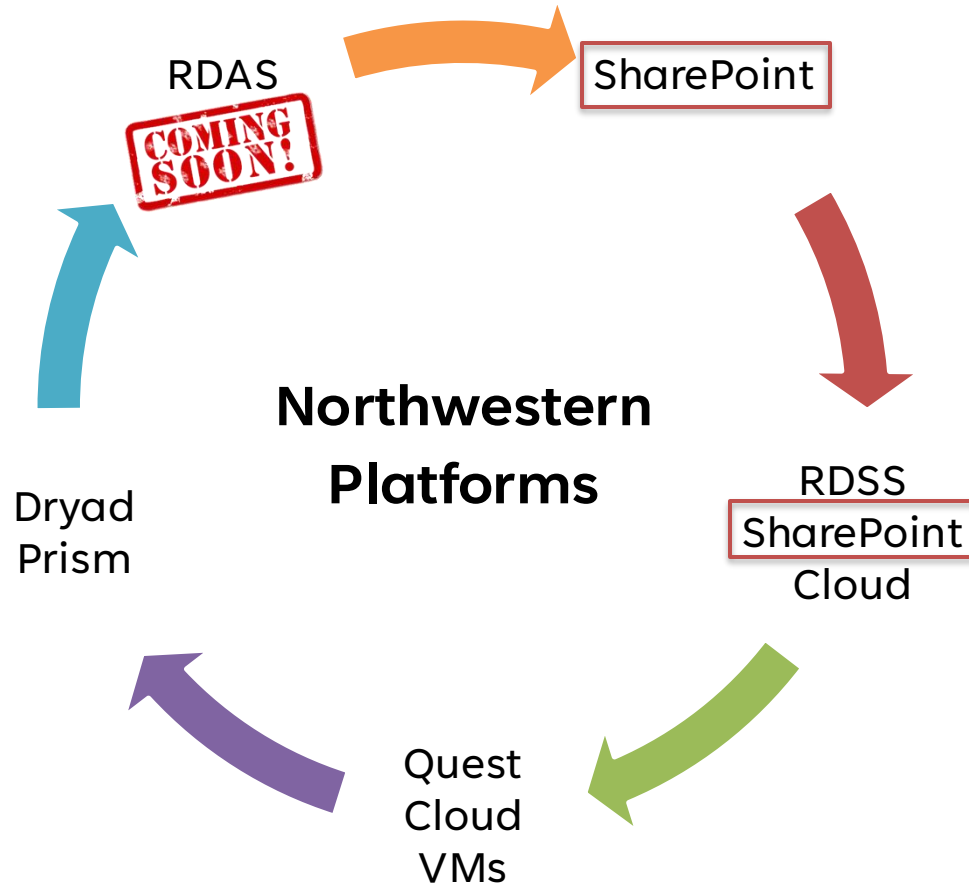


Sharing data outside Northwestern? Keep it limited and secure!

Research at Northwestern



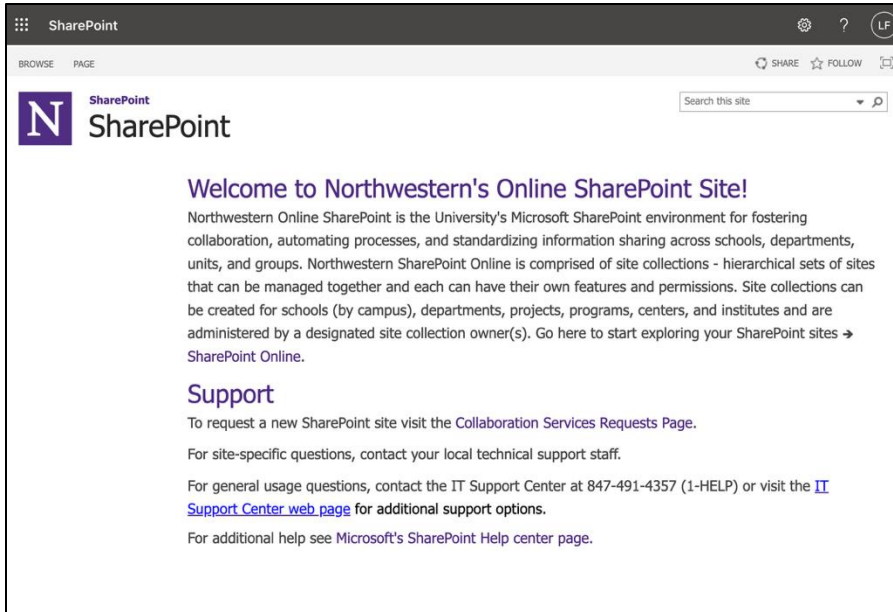




SharePoint

SharePoint is an online content and document management tool available for students, faculty, and staff to create websites and manage file libraries.

SharePoint at Northwestern



Available to

- Faculty
- Staff
- Students*

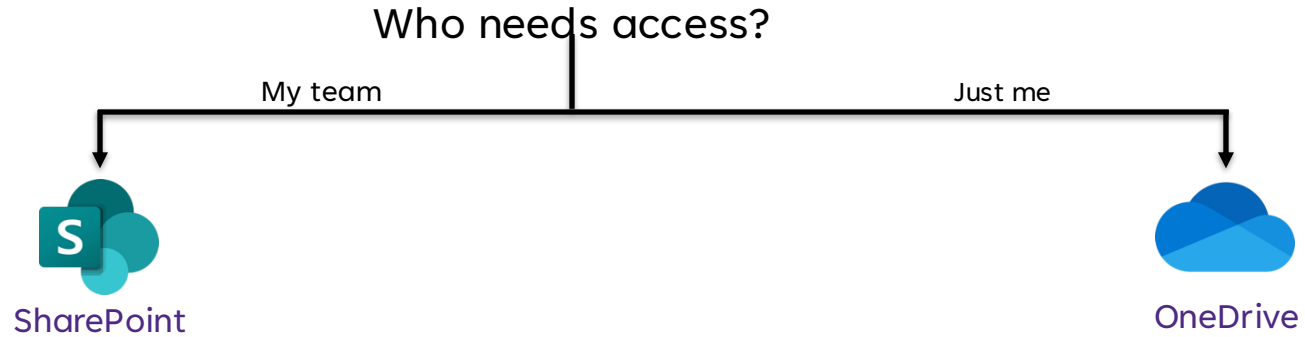
Features

- 25 TB of storage*
- 250 GB individual file size limit
- Access files from Windows, Mac, Android, iOS
- Version Control
- File Encryption and Data Loss Prevention

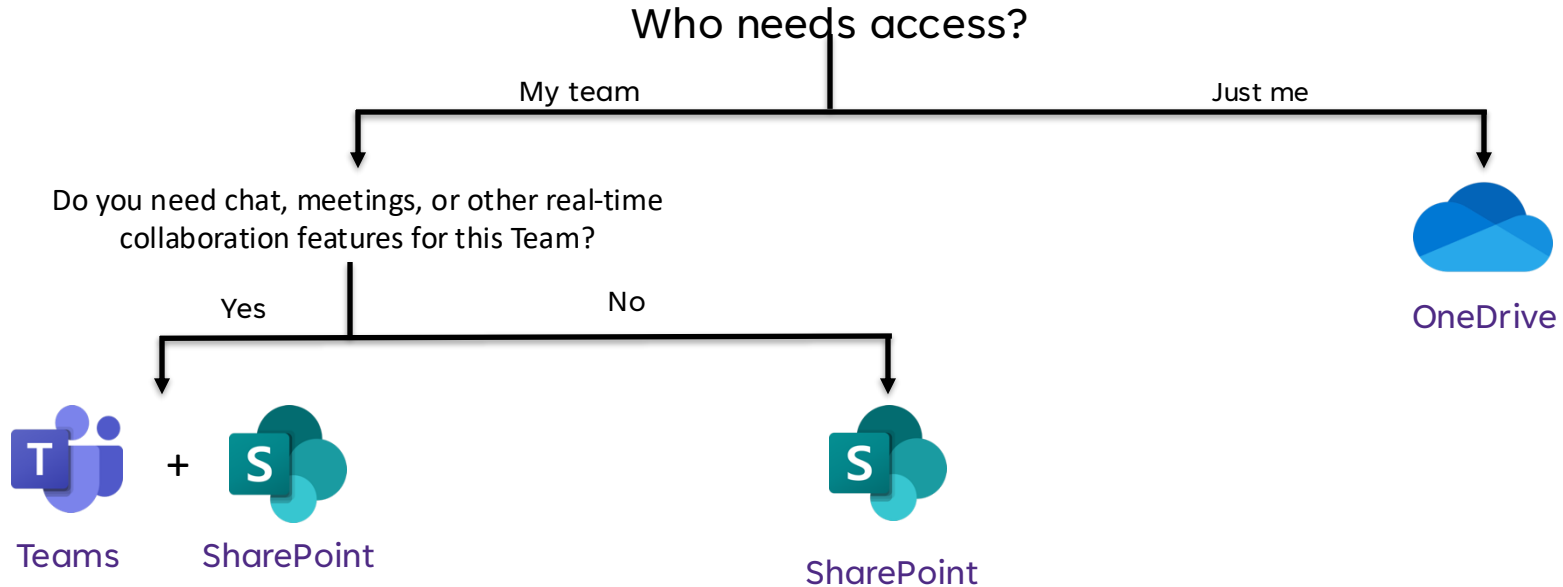
Access

- File sharing with other members of the University
- External File Sharing
- Offline Access

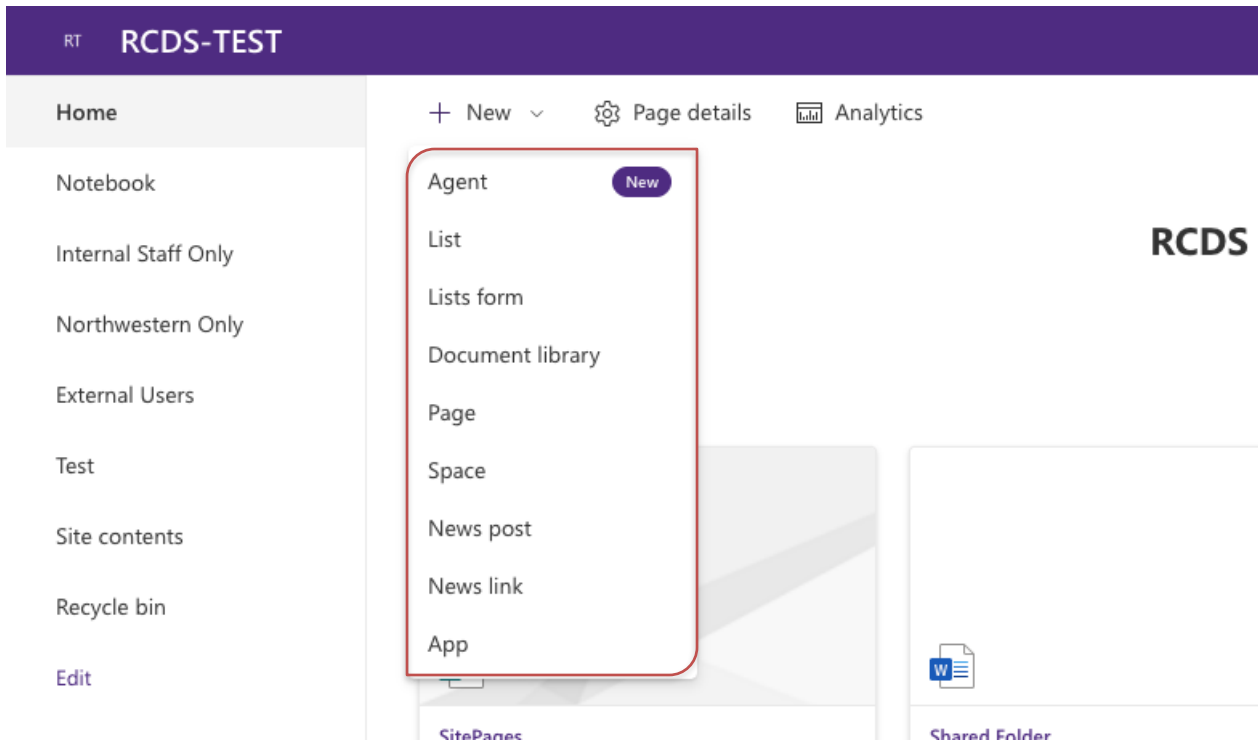
OneDrive vs SharePoint



OneDrive vs SharePoint



Site Components



A SharePoint Site comes with many different **Components**

- **Site itself**
 - Overall site and all its components
- **Document Libraries**
 - Store and Manage Files
 - E.g., Word, PDF, etc.
- **Lists**
 - Store Structured Data
 - E.g., tasks, contact lists, issue tracking, etc.
- **Pages**
 - Site Pages
 - E.g., Home, About the site, team page, etc.

SHAREPOINT IN RESEARCH

Research Scenario

A research lab at Northwestern has multiple members (faculty, graduate students, data analysts, and external collaborators) who access and manage various documents, such as:

- **Protocols**
- **Datasets**
- **Meeting notes**
- **Reports**

Each group has different responsibilities and requires **different access levels** to project materials. Without a clear structure, this can lead to data mismanagement, accidental edits or deletions, and potential exposure of sensitive information. To support efficient and secure collaboration, the research group needs a system that enforces clear access boundaries while enabling seamless document sharing.

Research Scenario

Key Requirements

ORGANIZE research files in a structured, centralized location

ASSIGN role-based access aligned with team responsibilities

APPLY permissions based on the principle of least privilege

SECURE external access to select documents without compromising internal data

TRACK version history and changes to critical files

METADATA and folder structures will help support efficient search and retrieval

ALLOW only authorized users to modify, share, or delete documents

SharePoint Document Library

Document Library

PowerAutomate Documents

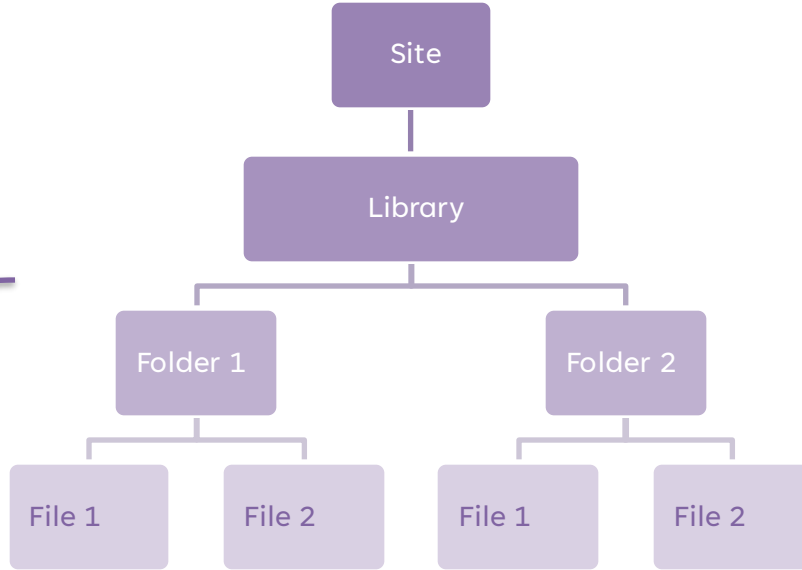
Name	Created	Modified	Created By
Data Collection	2 minutes ago	2 minutes ago	Llewellyn Fernandes
Grant Proposals	3 minutes ago	3 minutes ago	Llewellyn Fernandes
NIH Correspondence	2 minutes ago	2 minutes ago	Llewellyn Fernandes
Results and Findings	About a minute ago	About a minute ago	Llewellyn Fernandes

Standard SharePoint Document Library

- Central space to store and manage files
- Looks and operates similarly to a Windows Explorer/Finder
- Supports metadata, versioning, and co-authoring
- **Menu Items**
- **Metadata Tags**
 - Relevant Dates
 - File/Folder Creator Info

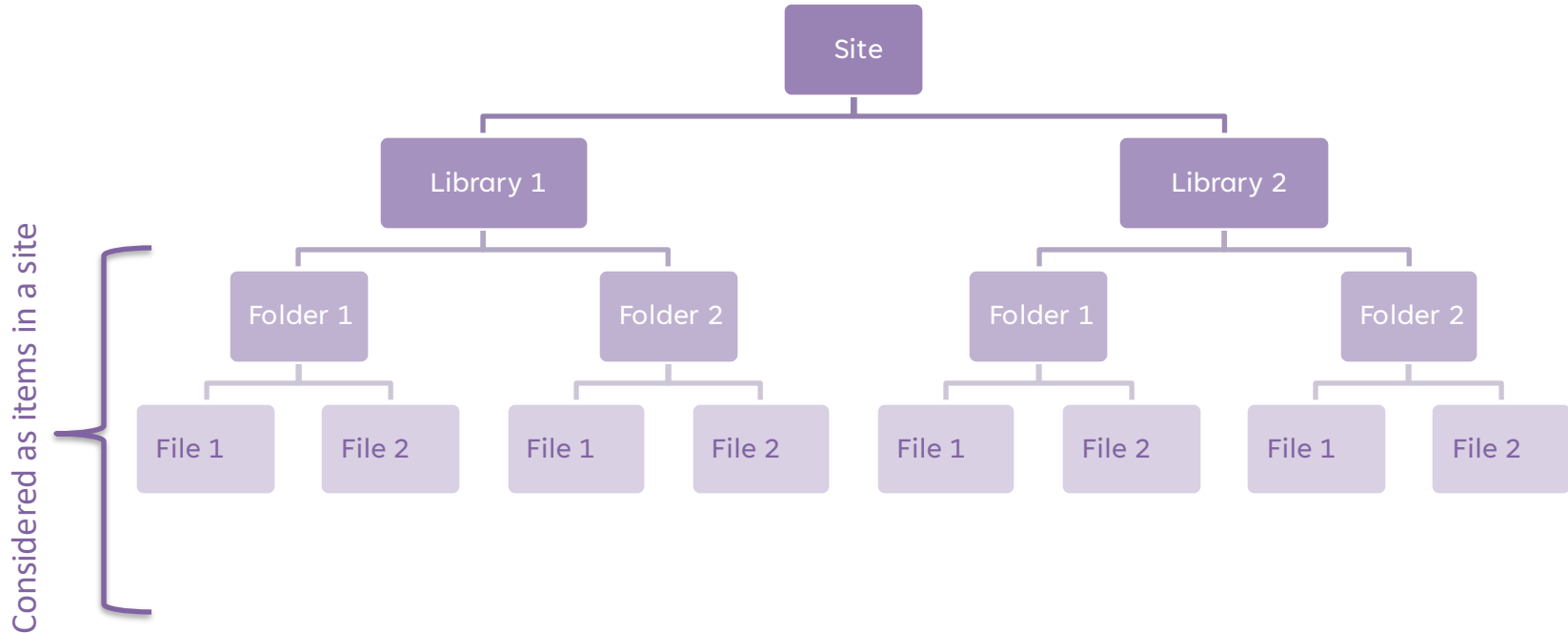
Hierarchy of a SharePoint Site

Considered as items in a site



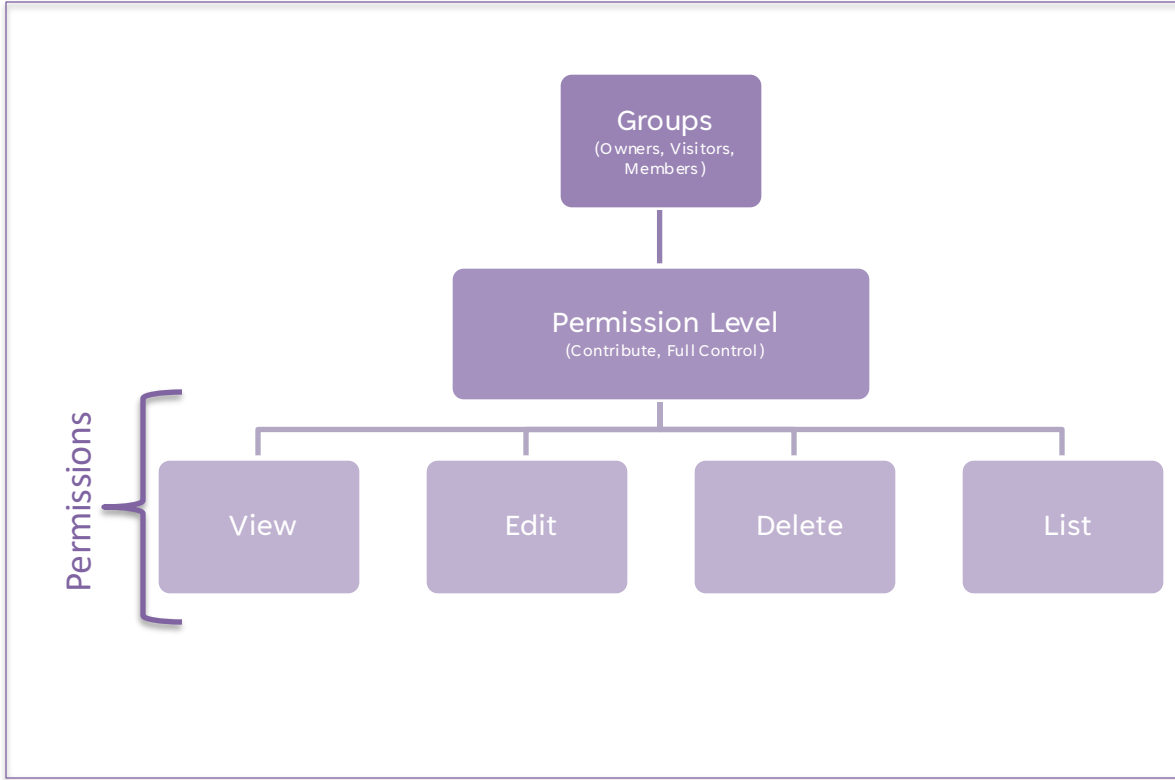
- By default, libraries, folders, and files will inherit permissions from the site
- Permissions are inherited downwards
- You can stop inheriting permissions at a library level, applying it to the items within
- You need to be a site owner to access any of these features

Scaling a SharePoint Site



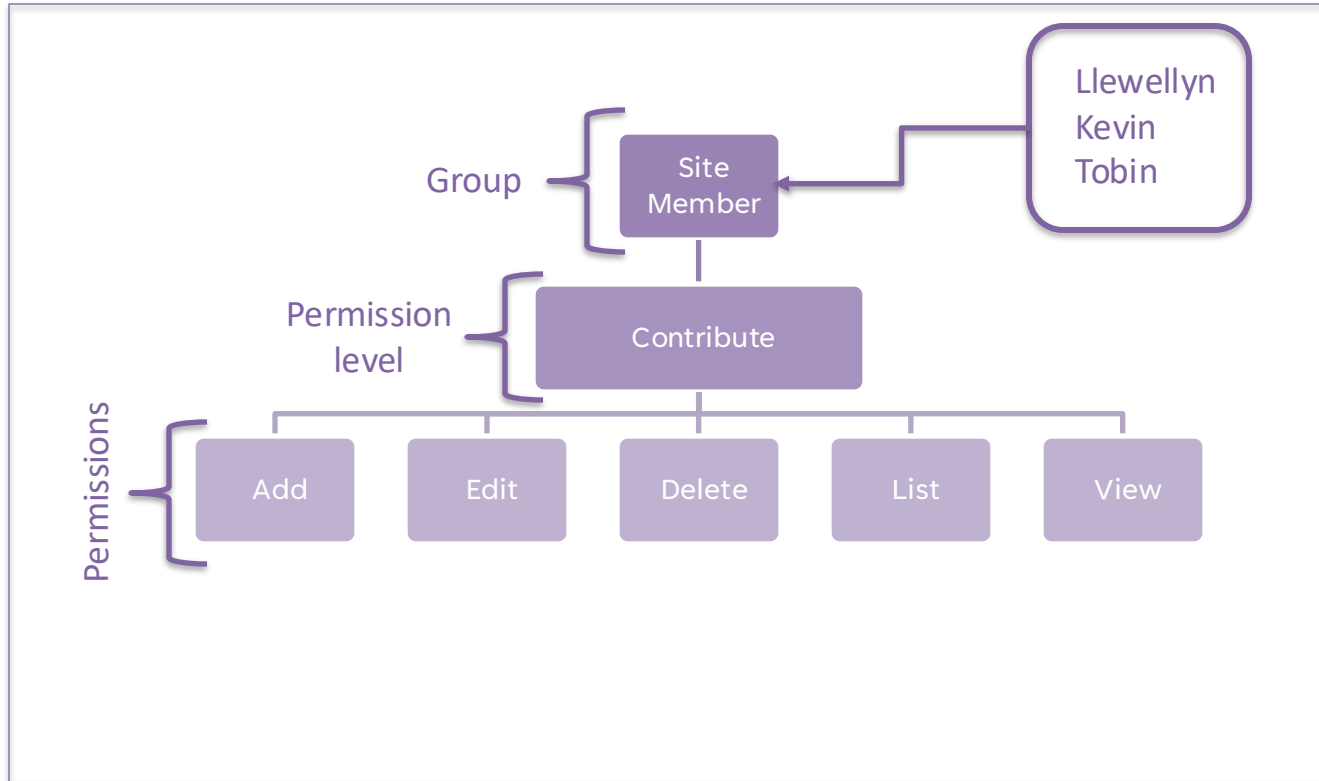
Permissions & Groups

Permission Hierarchy



- Permissions are assigned to Groups:
 - **Site Owner**
 - **Site Members**
 - **Site Visitors**
- Permission Levels:
 - **Read** - View Only
 - **Contribute** – Add/Edit/Delete items (but not library settings)
 - **Edit** – Includes Contribute + manage library content
 - **Full Control** – Complete admin rights, including managing permissions

Permission Hierarchy



Default Groups

Site Owners

PI, Core Facility Manager, Graduate Student Advisor

Data Manager, Administrator

Site Members

Postdocs, PhD, Graduate Students

Site Visitors

External Collaborators

Default Permission Levels


Full Control (Manage settings and permissions)

Contribute and Edit



Read (Can view items, but cannot download)

NOT
ENOUGH?

Custom Permissions

 EDIT LINKS **Site Owner Only**

Permissions ▸ Permission Levels ⓘ

 Add a Permission Level |  Delete Selected Permission Levels

Permission Level	Permissions
<input type="checkbox"/> Full Control	Has full control.
<input type="checkbox"/> Design	Can view, add, update,
<input type="checkbox"/> Edit	Can add, edit and delete
<input type="checkbox"/> Contribute	Can view, add, update,
<input type="checkbox"/> Read	Can view pages and list
<input type="checkbox"/> View Only	Can view pages, list item
<input type="checkbox"/> Records Center Web Service Submitters	Submit content to this s

Site Owners can create custom permission levels to tailor access controls to their specific needs.

- Northwestern SharePoint offers ~33 permissions that can be applied to a level
- These permissions are categorized across site components (pages, lists, libraries)
- Libraries and Lists have permissions that overlap.

Data Management in SharePoint

Making it work for you

	User-Centric	Data-Centric
Focus	Who needs access?	What kind of data?
Setup	Organize around team members	Organize around data types/sensitivity
Purpose	Have small, stable teams. Most data is shareable across team members	Data sensitivity varies Regulatory compliance is critical Frequent turnover or cross-team access
Pros	Easier Onboarding	Stronger data control
Challenges	Risk of over-sharing	More complex to set up

Principle of Least Privilege

Only give users the **minimum level of access** they need to perform their tasks

Why it matters in SharePoint:

- **Reduces** the **risk** of over-sharing
- Simplifies **auditing** and **compliance**
- Encourages **clear role definitions** and access boundaries

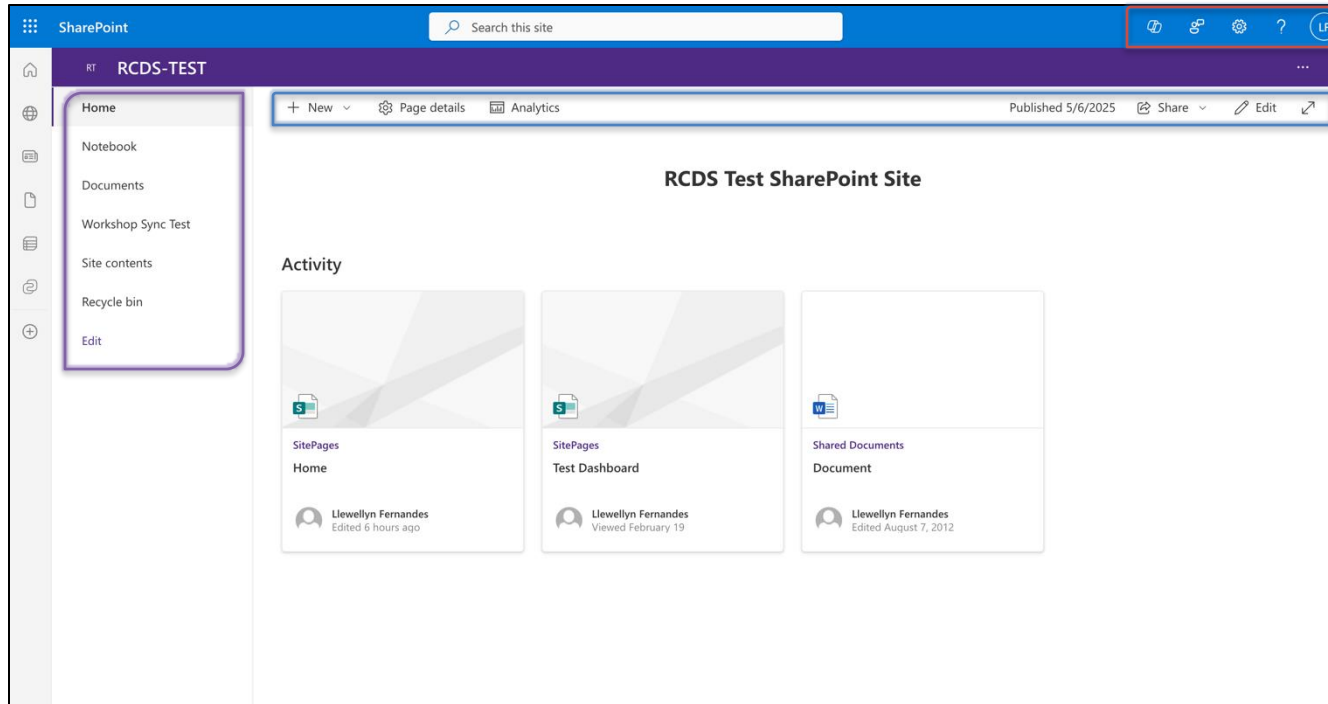
How to apply it:

- Use **groups**, not individuals, to assign permissions
- Assign **Read**, not Edit, unless necessary
- Break inheritance **only when needed**
- Avoid **over-customization**
- Regularly **review permissions** and remove outdated access
- Avoid giving Full Control unless someone is an actual admin

Workflows

Fun Stuff!

Important Nomenclature



SharePoint Document Library

Quick Launch (Navigation Panel)

- Home
- Document Libraries (Documents, Workshop Sync Test)
- Recycle Bin
- Edit

Site Header

- Account/Profile Button
- Settings (gear icon)
- Copilot icon (ignore that)
- Help (question mark icon)

Command Bar

- + New (Page-based options)
- Edit
- Share

Scenario 1: Shared Team Workspace

Goal: Introduce Document Libraries and group-based permissions

Scenario: A research team working on a funded project needs a central place to store meeting notes, drafts, and project documents.

Highlight:

- Everyone gets **Edit**, but only within the team group
- No external users or unnecessary access at this stage

Design:

Research Project (Document Library)



Site Owners

Site Members

Scenario 2: Segmented Access with distributed workflows

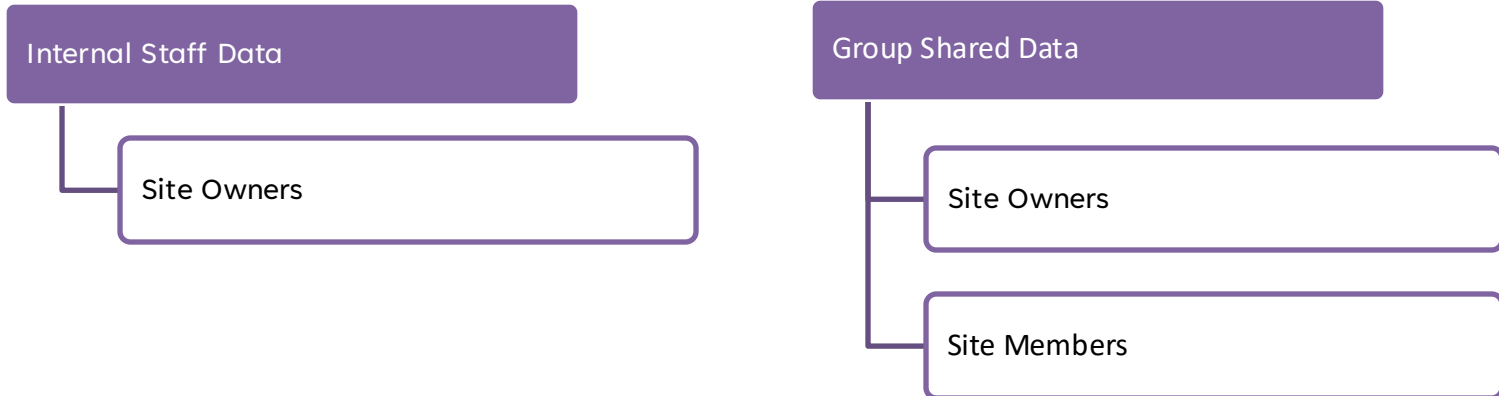
Goal: Introduce permission inheritance and breaking it.

Scenario: Proposal drafts must be reviewed by the PI and grant manager only, not visible to the broader research team.

Highlight:

- The broader team is excluded from the proposal drafts
- Only PIs and Grants staff have **Contribute** access
- **No Full Control** unless administrative need

Design:



Scenario 3: Internal and External Collaboration Library

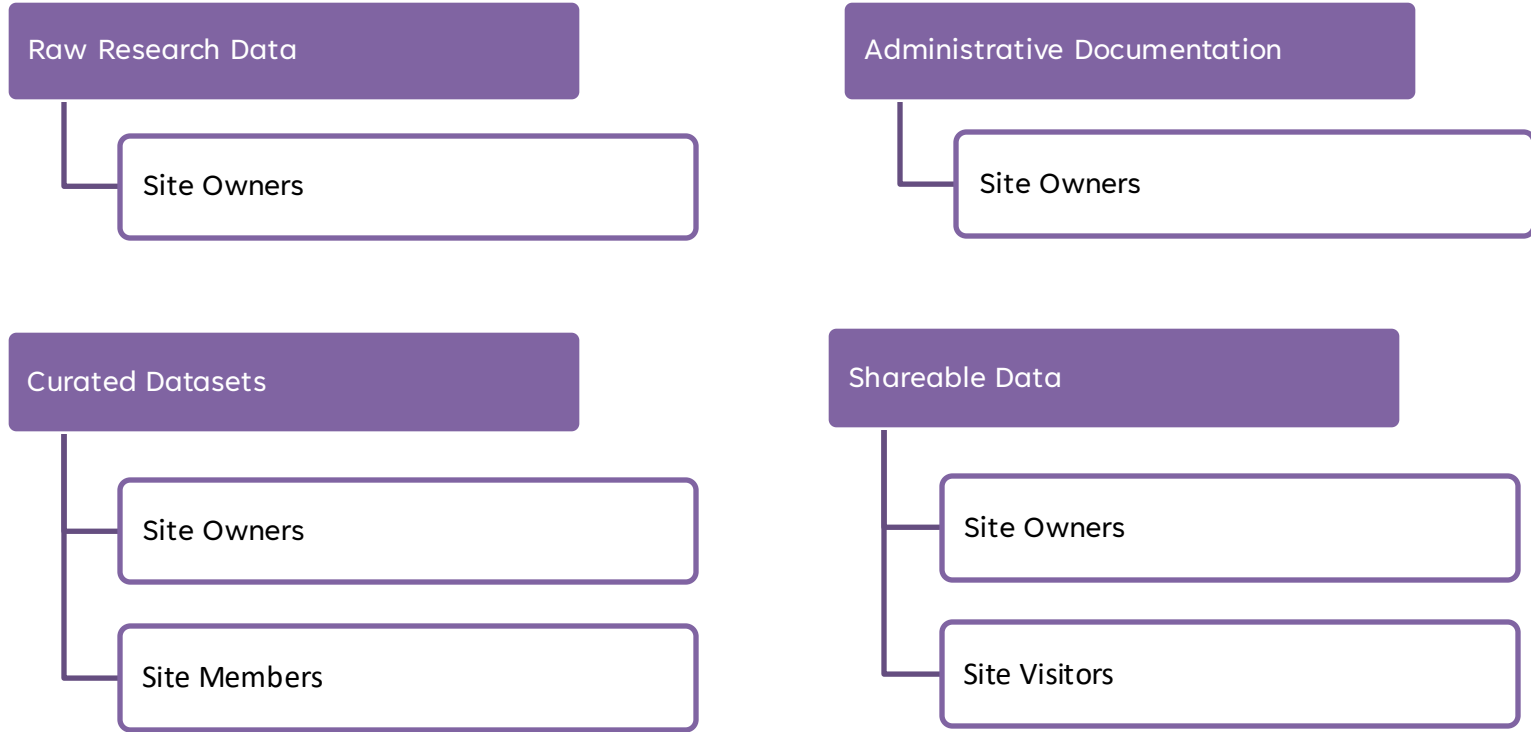
Goal: Handle secure internal and external sharing.

Scenario: External collaborators from a partner university need access to curated datasets and reports.

Highlight:


- Guests get read/read-only, no editing permissions
- Separate library setup to prevent accidental exposure of internal files






Scenario 3: Design



Final Notes

Leveraging Metadata

Documents 

	Name ▾	File Size ▾	Created ▾	Created By ▾	Modified ▾	Owner ▾	Data Level ▾	Team ▾	Status ▾
	Data Collection	2 items	October 2, 2023	Kevin Luu	Tuesday at 3:53 PM	Llewellyn Fernandes Tobin Magle	Level 1 Level 3	Data Science	New
	Grant Proposals	5 items	September 28, 2023	Kevin Luu	Tuesday at 3:53 PM	Kristin Anne McLean	Level 1	Grants and Compliance Project Management	New
	NIH Correspondence	2 items	October 3, 2023	Kevin Luu	Tuesday at 3:53 PM	Brian Jeffery Roland	Level 2	Grants and Compliance Project Management Data Science Community Engagement	New
	Results and Findings	4 items	Monday at 3:21 PM	Llewellyn Fernandes	Tuesday at 3:53 PM	Kevin Luu	Level 2	Project Management Data Science	New

- SharePoint Document Libraries offer advanced metadata tagging.
- Custom Metadata Tags identifying responsibility and ownership
- Status updates along with priorities
- Data Levels for controlled access

Final Notes: Key Takeaways

1. Understand Your Data

- Classify content by sensitivity and purpose before assigning access.

2. Use SharePoint Features Intentionally

- Leverage libraries, folders, lists, and metadata to organize and control access.

3. Favor Group-Based Permissions

- Always assign access through **permission groups**, not individuals; it's scalable and secure.

4. Apply the Principle of Least Privilege

- Give users the **minimum access they need** for their role, nothing more.

5. Break Inheritance Sparingly

- Use unique permissions only when necessary to avoid complexity and confusion.

6. Support the Workflow, Not Just the Storage

- Align libraries and permissions with how research is actually conducted; requests, reviews, approvals, and collaboration.

7. Review and Audit Regularly

- Permissions should **evolve with the team and the project**, and schedule periodic reviews.

The background is a solid purple color. There are three light purple geometric shapes: a parallelogram in the top right corner, a trapezoid in the bottom left corner, and a parallelogram in the middle right area.

Do reach out!

Reach out!

FIND WHAT YOU NEED



PLANNING

- [Writing a Data Management Plan](#)
- [Protecting the Sensitive Information in My Data](#)



DATA COLLECTION AND STORAGE

- [Choosing Appropriate Storage](#)
- [Documenting Your Research](#)
- [Transferring Data to or from Northwestern](#)
- [Sharing Data with an External Collaborator](#)



DATA SHARING AND ARCHIVING

- [Making Your Data Reusable](#)
- [Sharing Data Publicly](#)
- [Archiving Data When a Project is Done](#)



SUPPORT AND RESOURCES

- [Talk to a Data Management Expert](#)
- [Northwestern Research Data Management Resources](#)
- [External Research Data Management Resources](#)

[Research Data Management Website](#)

Office Hours: Every Monday
3 p.m. – 4 p.m.
Mudd Library,
Office space
opposite the GIS Lab

Emails:
researchdata@northwestern.edu

[Consultation Calls](#)