

Realities of Academic Data Sharing (RADS) Initiative Public Access Data Management and Sharing (DMS) Activities, v3

The RADS Initiative public access DMS activities describe what researchers and administrators at institutions that support research data sharing may need to consider when managing and sharing data to comply with funder or other data sharing and public access policies. Given that every research project is different and data sharing requirements will vary, the lists below are not exhaustive. Additionally, the following must be taken into account when utilizing the RADS DMS activities:

- Broad research or grant project management activities, such as risk assessment or monitoring, are not called out explicitly, as these are not specific to data sharing, but to project management as a whole.
- Activities can recur within a research project and are typically listed at the point when they should first be considered (for example, intellectual property and ethical considerations are addressed in the Planning and Making Data Broadly Available phases, but not Closeout).
 - An exception to this is the repetition of education and training at every DMS phase, as education and training may differ significantly at each phase.
- The use of “repositories” below is inclusive of all types of data repositories (institutional, generalist, data, and disciplinary).
- The use of “public access” includes data sharing in which metadata are publicly accessible, where access to data may be open, restricted, or controlled.
- For the purposes of data sharing, research outputs that would be described in a data management plan (DMP) or data management and sharing plan (DMSP) (or other similar plan) are considered “data” broadly defined. This includes code and software, which may be treated similarly to one another and are considered here in terms of sharing only (for example, curating for sharing, running code to ensure reproducibility, but not fully fledged reproducibility checking).
 - Similarly, data-adjacent outputs such as workflows, virtual machines, or operational activities can

also be considered when using the RADS DMS activities, recognizing that specialized platforms, such as [Code Ocean](#) or [Binder](#), may be required.

- Many repositories provide environments for data sharing *and* data preservation, yet our DMS activities make a distinction between sharing (“Making Data Broadly Available”) and preservation and retention activities (“Data Retention, Including Preservation, Archive, and Long-Term Access”), because not all repositories provide both environments, and preservation requirements may not satisfy sharing policy requirements or vice versa.
- The authors emphasize the use of persistent identifiers (PIDs) to find and connect data, authors, funders, and institutions as essential metadata elements for public access.

DMS Phase	Researcher/Research Team DMS Activity	Administrator/Research Support DMS Activity
Planning, Design, and Start Up of Projects	Preparing data management plans (DMPs) or data management and sharing plans (DMSPs), which includes determining who has responsibility for various research data related activities, and communicating these plans to the research team	Consulting on or preparing data management plans (DMPs) or data management and sharing plans (DMSPs), including considerations for ethical and privacy-related practices
	Identifying data management and sharing costs to be included in grant budgets	Consulting on data management and sharing costs and expenses to be included in grant budgets
	Preparing institutional review board (IRB) protocols and informed consent language for data sharing	Reviewing of institutional review board (IRB) protocols and informed consent language for data sharing
	Determining storage solutions for active research data	Developing, building, providing, or recommending storage solutions for active research data
	Selecting an appropriate repository (or repositories) for making research data broadly available	Developing, building, providing, or recommending appropriate repository (or repositories) for making research data broadly available (this includes advising on, managing, hosting, running, or otherwise facilitating access to a repository)
	Evaluating data security needs	Assessing data security needs and recommending/providing solutions

DMS Phase	Researcher/Research Team DMS Activity	Administrator/Research Support DMS Activity
	Determining intellectual property and copyright considerations	Supporting intellectual property and copyright considerations
	Assessing and checking for compliance with existing policies and/or federal requirements (for example, Health Insurance Portability and Accountability Act [HIPAA], Family Educational Rights and Privacy Act [FERPA], data use agreements [DUAs], materials transfer agreements, etc.)	Checking for compliance with existing policies and/or federal requirements (for example, Health Insurance Portability and Accountability Act [HIPAA], Family Educational Rights and Privacy Act [FERPA], data use agreements [DUAs], materials transfer agreements, etc.)
	Reviewing disciplinary, funder, and institutional standards, and/or good practices for handling, collecting, documenting, and sharing data	Referring to disciplinary, funder, and institutional standards, and/or good practices for handling, collecting, documenting, and sharing data
	Engaging or participating in training or education pertaining to data sharing	Developing or creating training or educational materials for data sharing; implementing data sharing training
Data Collection, Storage, and Management	Developing documentation of data (for example, data dictionary, protocols), including version control documentation	Developing or advising on data documentation (for example, data dictionary, protocols), including version control documentation
	Creating or reviewing established quality-control mechanisms or procedures	Creating or reviewing established quality-control mechanisms or procedures

DMS Phase	Researcher/Research Team DMS Activity	Administrator/Research Support DMS Activity
	Evaluating data-analysis tools and processes to support sharing and reproducibility	Evaluating or recommending data-analysis tools and processes to support sharing and reproducibility
	Managing active data throughout the project (for example, storage, security, backup, lab notebooks, including considerations for managing and storing large or specialized datasets)	Supporting or providing for the management of active data throughout project (for example, storage, security, backup, lab notebooks, including considerations for managing and storing large or specialized datasets)
	Engaging or participating in training or education pertaining to data sharing	Developing or creating training or educational materials for data sharing; implementing data sharing training
Making Data Broadly Available	Determining what data to share or host, including addressing proper levels of access and security	Consulting on what data to share or host, including addressing proper levels of access and security
	Making decisions about where to share or make data available, and how long it should be available	Consulting on, providing and/or hosting repositories for making data available

DMS Phase	Researcher/Research Team DMS Activity	Administrator/Research Support DMS Activity
	Preparing data for sharing (for example, de-identification, checking for privacy/personally identifiable information [PII]/protected health information [PHI], considering ethical impacts, data selection, data curation*, data cleaning, validation, reproducibility checking, and quality control)	Preparing or consulting on preparing data for sharing (for example, de-identification, checking for privacy/personally identifiable information [PII]/protected health information [PHI], considering ethical impacts, data selection, data curation*, data cleaning, validation, reproducibility checking, and quality control)
	Submitting data into a data sharing platform/repository, including considerations for sharing, and moving large or specialized datasets, both on local and high performance computing (HPC) resources	Submitting or supporting submission of data into a data sharing platform/repository, including considerations for sharing and moving large or specialized datasets, both on local and high performance computing (HPC) resources
	Creating documentation for research data (for example, structured metadata, README files)	Creating or reviewing documentation for research data (for example, supporting development of structured metadata and README files)
	Selecting or applying licenses to data and software/code	Consulting, selecting, or applying licenses to data and software/code
	Transforming data file formats to be more open or accessible	Recommending or transforming data file formats to be open or more accessible

DMS Phase	Researcher/Research Team DMS Activity	Administrator/Research Support DMS Activity
	Creating or ensuring use of persistent identifiers (PIDs) (for example, digital object identifiers [DOIs], ORCIDs, RORs, etc.)	Creating, recommending and/or ensuring use of persistent identifiers (PIDs) (for example, digital object identifiers [DOIs], ORCIDs, RORs, etc.)
	Developing or checking for compliance with DUAs or material transfer agreements	Developing or checking for compliance with DUAs or material transfer agreements
	Engaging or participating in training or education pertaining to data sharing	Developing or creating training or educational materials for data sharing; implementing data sharing training
Data Retention, Including Preservation, Archive, and Long-Term Access	Migrating files to new formats or across systems as needed	Consulting on or migrating files to new formats or across systems as needed
	Monitoring integrity of preserved data	Monitoring integrity of preserved data
	Making decisions about de-accessioning and removal of research data	Making decisions about de-accessioning and removal of research data
	Ensuring data security when appropriate (for example, PHI/HIPAA, export controls, Federal Information Security Management Act [FISMA], student data, and intellectual property)	Ensuring data security when appropriate (for example, PHI/HIPAA, export controls, Federal Information Security Management Act [FISMA], student data, and intellectual property)

DMS Phase	Researcher/Research Team DMS Activity	Administrator/Research Support DMS Activity
	Engaging or participating in training or education pertaining to data sharing	Developing or creating training or educational materials for data sharing; implementing data sharing training
Project Closeout and Compliance	Ensuring funding agency, institutional, and/or publisher requirements for data sharing and retention have been met	Ensuring funding agency, institutional, and/or publisher requirements for data sharing and retention have been met
	Completing interim and final research project reports, such as funder and/or institutional reporting requirements to ensure future funding	Providing compliance support around research project reports and project closeout
	Engaging or participating in training or education pertaining to data sharing	Developing or creating training or educational materials for data sharing; implementing data sharing training

* Data curation activities may include specific tasks or actions not described in this activities list; see the Data Curation Network's list of [Data Curation Activities](#) for more information.

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