Data Repositories: The Answer that Actually Came with a Question

Lisa Johnston

*University of Minnesota - Twin Cities*

---

**Let us know how access to this document benefits you.**

Follow this and additional works at: [https://escholarship.umassmed.edu/escience_symposium](https://escholarship.umassmed.edu/escience_symposium)

Part of the **Scholarly Communication Commons**

**Repository Citation**

Johnston L. (2016). Data Repositories: The Answer that Actually Came with a Question. University of Massachusetts and New England Area Librarian e-Science Symposium. [https://doi.org/10.13028/m22a-h336](https://doi.org/10.13028/m22a-h336). Retrieved from [https://escholarship.umassmed.edu/escience_symposium/2016/program/5](https://escholarship.umassmed.edu/escience_symposium/2016/program/5)

**Creative Commons License**

This work is licensed under a [Creative Commons Attribution-Noncommercial-Share Alike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/). This material is brought to you by eScholarship@UMassChan. It has been accepted for inclusion in University of Massachusetts and New England Area Librarian e-Science Symposium by an authorized administrator of eScholarship@UMassChan. For more information, please contact Lisa.Palmer@umassmed.edu.
Data Repositories
The answer that actually came with a question

Lisa Johnston
Research Data Management/Curation Lead,
University of Minnesota
What are data repositories?

“A repository (also referred to as a data repository or digital data repository) is a **searchable** and **queryable** interfacing entity that is able to store, manage, maintain and curate Data/Digital Objects. A repository is a **managed** location (destination, directory or ‘bucket’) where digital data objects are registered, permanently stored, made **accessible** and **retrievable**, and curated. Repositories preserve, manage, and provide access to many types of digital material in a variety of formats. Materials in online repositories are **curated** to enable search, discovery, and reuse. There must be sufficient control for the digital material to be authentic, reliable, accessible and usable on a continuing basis. (p3, footnote 2).”
Why are data repositories useful?

- Governments have open data initiatives
  - Democratize research results
  - Release the potential of valuable/$$ data

- Federal/private funders increasingly require data sharing
  - Public access
  - Return on $$ investment ⇒ do new research

- Journals have data sharing policies
  - Increase transparency
  - Facilitate reproducibility

- Researcher/disciplinary culture shift in digital age
  - Ease of sharing ⇒ greater potential for reuse
  - Citation impact, reputation building
What kinds of data repositories exist?

Disciplinary Data Repositories

And 1516 more listings at http://www.re3data.org/
What kinds of data repositories exist?

General Data Repositories

- figshare: credit for all your research
- Zenodo: Research. Shared.
- Mendeley Data Beta
- Dataverse Project
- Open Science Framework
- http://openICPSR.org
What kinds of data repositories exist?

Institutional Data Repositories

- **Dataverse**
- Digital Commons
- DSpace
- EPrints
- Fedora
- HubZero
- Hydra
- Islandora
What kinds of data repositories exist?

Institutional Data Repositories

Running...
- Dataverse
- **Digital Commons**
- DSpace
- EPrints
- Fedora
- HubZero
- Hydra
- Islandora
What kinds of data repositories exist?

Institutional Data Repositories

Running...
- Dataverse
- Digital Commons
- DSpace
- EPrints
- Fedora
- HubZero
- Hydra
- Islandora
What kinds of data repositories exist?

Institutional Data Repositories

Running...
- Dataverse
- Digital Commons
- DSpace
- EPrints
- Fedora
- HubZero
- Hydra
- Islandora
What kinds of data repositories exist?

Institutional Data Repositories

Running...
- Dataverse
- Digital Commons
- DSpace
- EPrints
- Fedora
- HubZero
- Hydra
- Islandora
What kinds of data repositories exist?

Institutional Data Repositories

Running...

- Dataverse
- Digital Commons
- DSpace
- EPrints
- Fedora
- HubZero
- Hydra
- Islandora
What kinds of data repositories exist?

Institutional Data Repositories

Running...
- Dataverse
- Digital Commons
- DSpace
- EPrints
- Fedora
- HubZero
- Hydra
- Islandora
What kinds of data repositories exist?

Institutional Data Repositories

- Dataverse
- Digital Commons
- DSpace
- EPrints
- Fedora
- HubZero
- Hydra
- Islandora
How do I build an institutional data repository?

Blueprint for Institutional Data Repositories

Nancy McGovern’s Three-Legged Stool of building an organization's digital preservation program…

- technological infrastructure
- organizational infrastructure
- resources framework

Citation: http://www.iassistdata.org/downloads/2006/f2_mcgovern.pdf
How do I build an institutional data repository?

Blueprint for Institutional Data Repositories

Lisa’s three-legged stool for building a data repository (basically the same…)

- technological infrastructure
- organizational infrastructure
- resources framework

Image: https://placeshakers.files.wordpress.com/2010/08/stool-parody.jpg
DRUM
http://z.umn.edu/drum

Launched Nov 2014
Available to U of M researchers and provides:

- Open access
- Curation services
- Permanent identifiers (DOI)
- Flexible Licenses
- File download analytics
- Preservation
How do I build my institutional data repositories?

Organizational Infrastructure

- Libraries DM+C Initiative 2014-2015 with dedicated resources and a 19-person team
  - Business model
  - Policies
  - Services
- Existing libraries digital preservation framework
- Campus: New research data management policy
- Marketing: Official launch in March 2015

Citation: “The Supporting Documentation for Implementing the Data Repository for the University of Minnesota (DRUM): A Business Model, Functional Requirements, and Metadata Schema” at http://hdl.handle.net/11299/171761.
How do I build my institutional data repositories?

Organizational Infrastructure

- Libraries DM+C Initiative 2014-2015 with dedicated resources and a 19-person team
  - Business model
  - Policies
  - Services
- Existing libraries digital preservation framework
- Campus: New research data management policy
- Marketing: Official launch in March 2015

Citation: “The Supporting Documentation for Implementing the Data Repository for the University of Minnesota (DRUM): A Business Model, Functional Requirements, and Metadata Schema” at http://hdl.handle.net/11299/171761.
How do I build my institutional data repositories?

Organizational Infrastructure

- Libraries DM+C Initiative 2014-2015 with dedicated resources and a 19-person team
  - Business model
  - Policies
  - Services

- Existing libraries digital preservation framework

- Campus: New research data management policy

- Marketing: Official launch in March 2015

Citation: “The Supporting Documentation for Implementing the Data Repository for the University of Minnesota (DRUM): A Business Model, Functional Requirements, and Metadata Schema” at http://hdl.handle.net/11299/171761.
How do I build my institutional data repositories?

Organizational Infrastructure

- Libraries DM+C Initiative 2014-2015 with dedicated resources and a 19-person team
  - Business model
  - Policies
  - Services
- Existing libraries digital preservation framework
- Campus: New research data management policy
- Marketing: Official launch in March 2015

Citation: https://www.lib.umn.edu/dp/digital-preservation-framework
How do I build my institutional data repositories?

Organizational Infrastructure

- Libraries DM+C Initiative 2014-2015 with dedicated resources and a 19-person team
  - Business model
  - Policies
  - Services

- Existing libraries digital preservation framework

- Campus: New research data management policy

- Marketing: Official launch in March 2015

Citation: https://policy.umn.edu/research/researchdata
How do I build my institutional data repositories?

Organizational Infrastructure

- Libraries DM+C Initiative 2014-2015 with dedicated resources and a 19-person team
  - Business model
  - Policies
  - Services
- Existing libraries digital preservation framework
- Campus: New research data management policy
- Marketing: Official launch in March 2015
Case Study: Building the Data Repo for the U of M

Technical Infrastructure

- DRUM part of existing IR (DSpace):
  - Metadata schema
  - Collection home page
  - Record view

- Meet federal funding requirements

- Curation procedures
  - Sensitive Data
  - Readme Template
  - Transform File Formats

IR: https://conservancy.umn.edu/
Case Study: Building the Data Repo for the U of M

Technical Infrastructure

- DRUM part of existing IR (DSpace):
  - Metadata schema
  - Collection home page
  - Record view

- Meet federal funding requirements

- Curation procedures
  - Sensitive Data
  - Readme Template
  - Transform File Formats

Case Study: Building the Data Repo for the U of M

Technical Infrastructure

- DRUM part of existing IR (DSpace):
  - Metadata schema
  - Collection home page
  - Record view

- Meet federal funding requirements

- Curation procedures
  - Sensitive Data
  - Readme Template
  - Transform File Formats

Case Study: Building the Data Repo for the U of M

Technical Infrastructure

- DRUM part of existing IR (DSpace):
  - Metadata schema
  - Collection home page
  - Record view

- Meet federal funding requirements

- Curation procedures
  - Sensitive Data
  - Readme Template
  - Transform File Formats

Case Study: Building the Data Repo for the U of M

Technical Infrastructure

- DRUM part of existing IR (DSpace):
  - Metadata schema
  - Collection home page
  - Record view

- Meet federal funding requirements

- Curation procedures
  - Sensitive Data
  - Readme Template
  - Transform File Formats

IR: https://conservancy.umn.edu/
Case Study: Building the Data Repo for the U of M

Technical Infrastructure

- DRUM part of existing IR (DSpace):
  - Metadata schema
  - Collection home page
  - Record view

- Meet federal funding requirements

- Curation procedures
  - Sensitive Data
  - Readme Template
  - Transform File Formats

Submission under curatorial review

IR: https://conservancy.umn.edu/
Case Study: Building the Data Repo for the U of M

Technical Infrastructure

- DRUM part of existing IR (DSpace):
  - Metadata schema
  - Collection home page
  - Record view

- Meet federal funding requirements

- Curation procedures
  - Sensitive Data
  - Readme Template
  - Transform File Formats

Handout: https://www.lib.umn.edu/datamanagement/sensitive
Case Study: Building the Data Repo for the U of M

Technical Infrastructure

- DRUM part of existing IR (DSpace):
  - Metadata schema
  - Collection home page
  - Record view

- Meet federal funding requirements

- Curation procedures
  - Sensitive Data
  - Readme Template
  - Transform File Formats

This readme.txt file was generated on <YYYYMMDD> by <Name>

GENERAL INFORMATION

1. Title of Dataset:
2. File Information:
   A. Filename:
   B. Short description:
   C. Filename:
   D. Short description
   E. Filename:
   F. Short description:
   G. If data set includes multiple files related to one another, include relationship here:

3. Principal Investigator Contact Information
   A. Name:
   B. Institution:
   C. Address:
   D. Email:

4. Associate or Co-investigator Contact Information
   A. Name:
   B. Institution:
   C. Address:
   D. Email:

Download: z.umn.edu/readme
Case Study: Building the Data Repo for the U of M

Technical Infrastructure

● DRUM part of existing IR (DSpace):
  ○ Metadata schema
  ○ Collection home page
  ○ Record view

● Meet federal funding requirements

● Curation procedures
  ○ Sensitive Data
  ○ Readme Template
  ○ Transform File Formats

Download: Excel Archival Tool Software (Github download) http://z.umn.edu/exceltool
Case Study: Building the Data Repo for the U of M

Resources Infrastructure

- Funding for DataCite DOIs
- Staffing Model
- Training for new curation staff
Case Study: Building the Data Repo for the U of M

Resources Infrastructure

- Funding for DataCite DOIs
- Staffing Model
- Training for new curation staff

Drum Curation Team

Case Study: Building the Data Repo for the U of M

Resources Infrastructure

- Funding for DataCite DOIs
- Staffing Model
- Training for new curation staff
Conclusions

- Greater exposure of library services on campus
- Data repositories open up new conversations and opportunities (e.g., big data, campus networks, policies)
- Rewarding work to partner with researchers to publish their data sets.
Thanks and Questions

Keep building those stools...