Digital Commons - Heartland User Group + IR Day

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Data Management

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Research Data Management

IR Day - 2017
Havener Center

Introduction

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This is The Grand Duchess Anastasia Nikolaeva Romanova

She consents to "Ana" as a shortened form of her name.

She researches human behavior. Her current research interest involves how to properly motivate (manipulate) humans to provide food on demand.

She is a great believer in research data management and has endorsed this presentation.
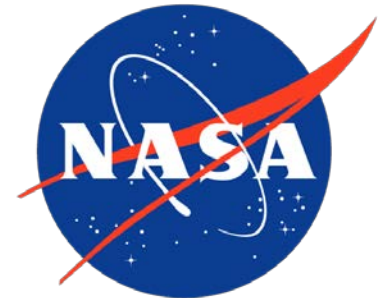
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Questions this presentation will address

1. Why are we talking about this?

2. What is research data?

3. What is data management?

4. Why do data management planning?

5. What are the benefits of data management?

6. What are the components of a good data management plan?

7. What should be considered when preparing a data management plan?

8. What is our research data management strategy here at Missouri S&T?

9. What are the benefits for the faculty?

Why are we talking about this?

- In February 2013 the White House's Office of Science and Technology Policy issued a policy memorandum to expand access to results of federally funded research data.

- Targeting Federal agencies with more than $100M in Research and Development expenditures.

- Requiring agencies to:

    - Develop plans to make the published results of federally funded research freely available to the public within one year of publication.

    - Enable researchers to better account for and manage the digital data resulting from federally funded scientific research.

- A major component of these plans is the requirement that researchers provide a

Why are we talking about this?

- Develop plans to <u>make the published results of federally funded research freely available to the public</u> within one year of publication.

  - We can do this in our Institutional Repositories

- Enable researchers <u>to better account for and manage the digital data</u> resulting from federally funded scientific research.

  - We can do this in our Institutional Repositories

  - We can also provide advice and consultation to our faculty

- A major component of these plans is the requirement that researchers <u>provide a data management plan</u> as part of a grant application.
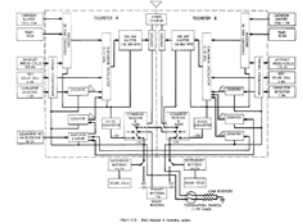
What is research data?

Any systematic collection of information that is used by researchers for analysis.
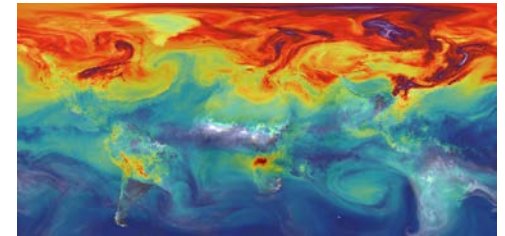
What is research data?

Observational data: data captured in real-time, usually irreplaceable. (Examples: Sensor data, telemetry, survey data, sample data, neuroimages)
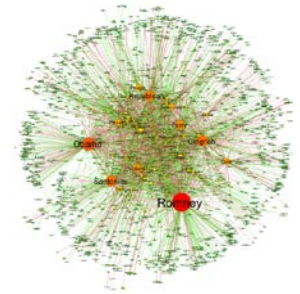

Experimental data: data from lab equipment, often reproducible, but can be expensive to replace. (Examples: gene sequences, chromatograms, toroidal magnetic field data)

Simulation data: data generated from test models where model and metadata (inputs) are more important than output data. (Examples: climate models, economic models)

What is research data?

Derived or compiled data: data that is reproducible. (Examples: text and data mining, compiled database, 3D models, data gathered from public documents)

Other: Can also includes video, sound, or text data, as long as it is used for systematic analysis. (Examples: a collection of video interviews use to gather and identify responses, audio interviews, written documents)

What is data management?

All of the activities necessary to make research data discoverable, accessible and understandable today, tomorrow, and well into the future.

What is data management?
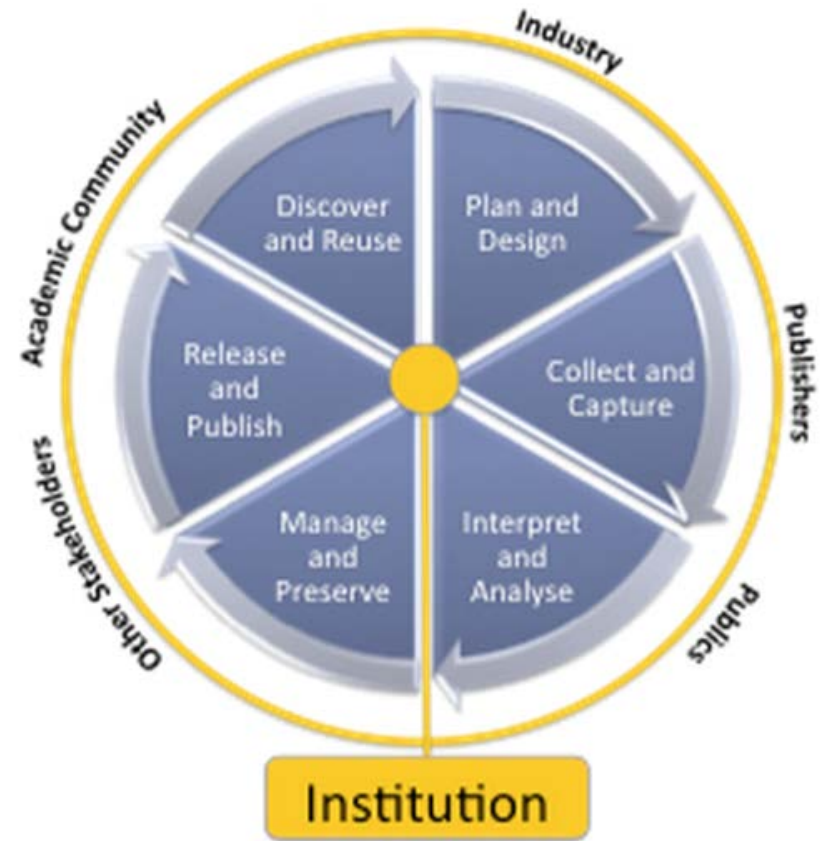
Data Management:

- Ensures the safety of content. (data protection, ethics, morality, etc.)

- Describes the data. (via metadata)

- Records the history of the data. (provenance)

- Provides or enables appropriate access at the right time, or restricting access, as appropriate.

- Enables the transferring of custody or the destruction of the data at some point in the future

What is data management?

Data Management
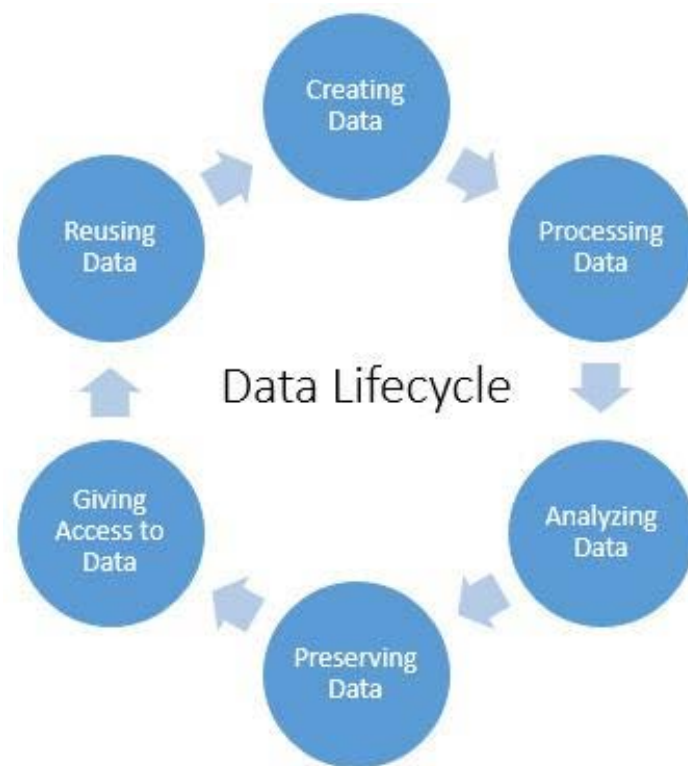Incorporates Fundamental
Practices:

- File Organization
- Data Documentation
- Reliable Backups

What is data management?

Data Management Occurs
Through the Life of the Data:

- Digital Sustainability
- Scholarly Communications
- Data Publishing
- Research Impact

Data Lifecycle: Creating Data → Processing Data → Analyzing Data → Preserving Data → Giving Access to Data → Reusing Data

What are the benefits of data management?

Research Can Be:

- Replicated and verified.
- Preserved for future use.
- Linked with other related research.
- Shared and reused.

Why do data management planning?

- Identify end goals and practical steps

- Anticipate problems and reduce their likelihood

- Recognize support needs

- Identify resource needs

- Communicate clear objectives

- Demonstrate your responsibility

- Meet sponsorship obligations

- Ensure access to the data

- Preserve the data for future needs

What are the benefits of data management?

- Meet funding requirements.

- Increase visibility of research.

- Save time and effort.

- Avoid data loss.

- Deal with an ever-increasing amount of data.

What are the components of a good data management plan?

- File Organization Practices

- Documentation Practices

- Backup Practices

- Data Sharing and Access Practices

- Plans/Policies for Data Re-Use, Re-Distribution and Production of Derivatives

- Plans/Policies for Providing Access

- Plans/Policies for Preservation

What should be considered when preparing a data management plan?

1. What is the expected lifespan of the data?

2. Besides the researcher(s) on the project, who else should be given access to the data? When should they have access?

3. Does the dataset include any sensitive information? If so, how will it be managed?

4. Who owns or controls the research data? Does ownership or control change at any time?

5. Should any access or use restrictions be placed on the data?

6. How is the data stored and preserved?

What should be considered when preparing a data management plan?

7. How might the data be used, reused, and repurposed?

8. How is the data described and organized?

9. Who are the expected and potential audiences for the data?

10. What publications or discoveries might result from the data?

11. How should the data be made accessible?

What is our research data management strategy?

Our Strategy is Service

- This is not about acquiring content for the repository.

- It is about providing our faculty with useful and needed services which provide recognizable benefits.

- The repository is simply one of many tools we use to provide service.

What is our research data management strategy?

Our Strategy is Service

- Our Services

  - Advice and Consultation
    - Data management principles and best practices
    - Metadata creation/customization
    - Writing a data management plan

  - Access and Preservation
    - Global visibility and discoverability
    - Professional curation
    - Authorization and access control
    - Unlimited secure storage at no cost
    - Backups and quarterly archives

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What is our research data management strategy?

Our Strategy is Service

- Service Delivery

  - One-on-one consultations
  - Workshops
  - Engagement with research centers
  - Engagement with the Office of Sponsored Programs
  - Engagement with the Office of Graduate Studies
  - Engagement with first year faculty
  - Library Guide on Research Data Management
  - Participant in DMPTool
  - Publications

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What are the benefits for the faculty?

Our Strategy is Service

- Measurable Benefits

    - Readership metrics
        - Downloads
        - Views
    - Increased collaboration
    - Increased data citation impact
    - Meeting funder mandates

- Other benefits
    - Promotion of research
    - Preservation of legacy

DMPTool
Build your Data Management Plan

https://dmptool.org/

- Create, review, and share data management plans that meet institutional and funder requirements.

- Free and open to anyone.

- Customized to our Institution.

- Guides you through the process of creating a data management plan to meet funder requirements.

- Provides links to funder information, suggested answers, and data management resources.

Scholars' Mine

Visit: http://scholarsmine.mst.edu
Click on: Guide to Research Data Management

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Questions?