



9 September 2010

*Extending our Reach: Librarians as Research Partners in the
Emerging Digital Data Framework*

Jake Carlson, Data Research Scientist, Purdue University Libraries



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Research Partners in the Emerging
Digital Data Framework**

Jake Carlson

Data Research Scientist

Purdue University Libraries & D2C2

**Transportation Librarians
Roundtable**

Content



1. Data Curation and the Role of Libraries.
2. The Work of the Purdue Libraries and D2C2
3. My Work as a Data Research Scientist
4. What's coming next?

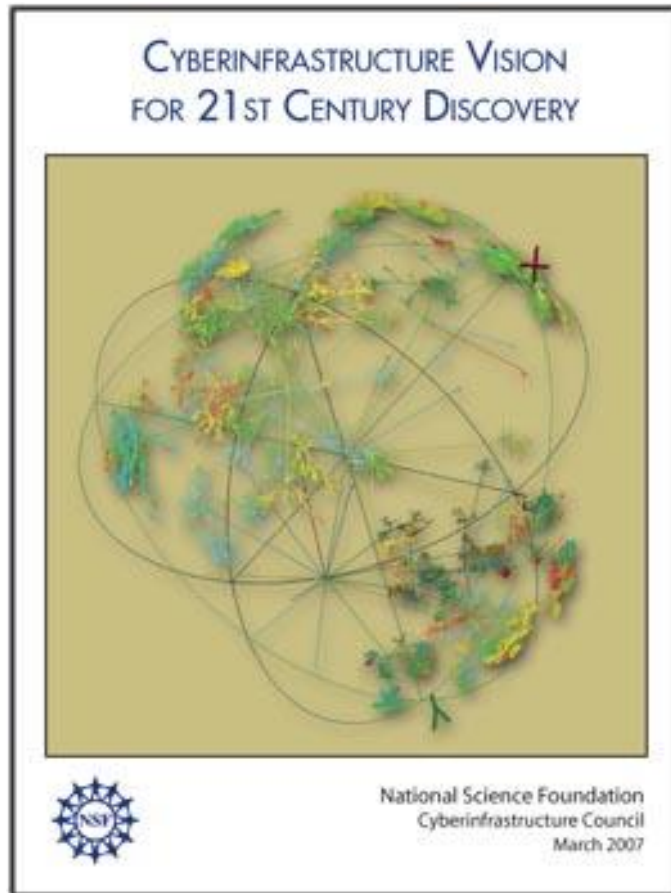
The Problem

- Research is becoming more data driven.
- Increasingly, data has research value beyond the project it was generated for.
- Data Deluge – the amount of data being produced is increasing exponentially, and the systems, tools and infrastructures to organize, manage, disseminate and preserve data have not kept pace.

Defining Data Curation

- “Data Curation is the activity of managing and promoting the use of data, starting from the point of creation, to ensure its fitness for contemporary purposes and availability for discovery and re-use.” P. Lord, et al.
- “Data curation [is] the value-added activities and features that stewards of digital content engage in to make digital content meaningful or useful.” N. McGovern

A Vision

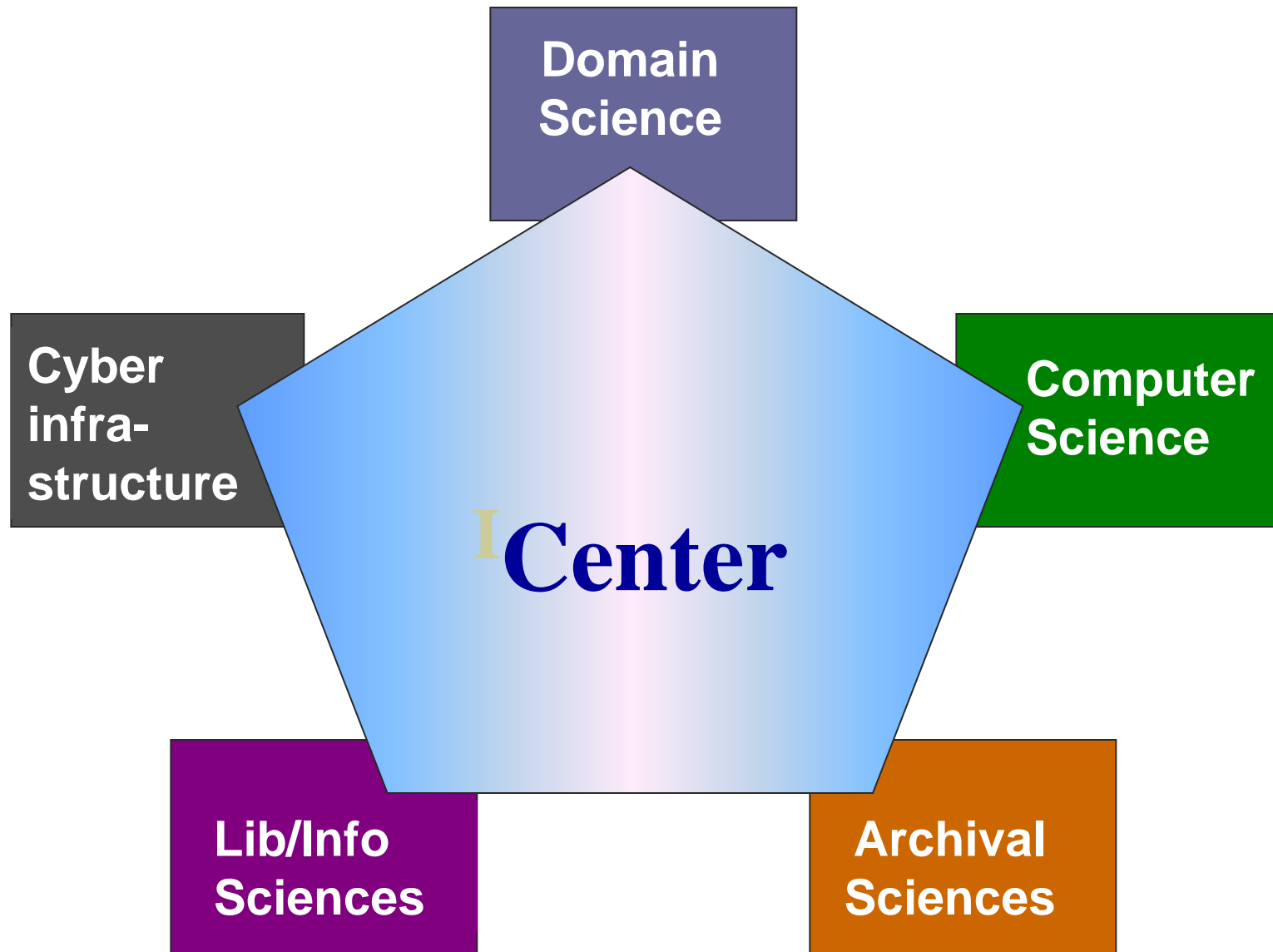


“...science and engineering data are routinely deposited in well-documented form, are regularly and easily consulted and analyzed by specialists and non-specialists alike, are openly accessible while suitably protected, and are reliably preserved...”

Roles for Libraries

“What role do the research and academic libraries envision for themselves and do scientists envision for librarians in a digital data framework...?”

- To Stand the Test of Time...(2006) ARL. p.24



Purdue Libraries

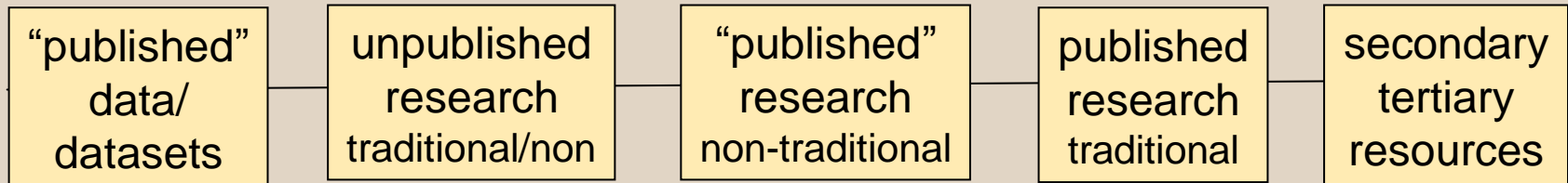


Jim Mullins
Dean of the Libraries

- 2004 initiative for Libraries to collaborate with faculty across campus—apply library science knowledge and expertise to research problems: **manage, organize, describe, disseminate, preserve information.**
- Particular emphasis on addressing data curation issues.



Research traditionally moves in this direction



Library service traditionally moves in this direction

analyzed data/datasets

processed data/datasets

"raw" data/datasets

Given the changing nature of research and scholarly communication (i.e., e-research), how do librarians change to adapt to new ideas regarding what they collect to support research & education and how they provide access to it?

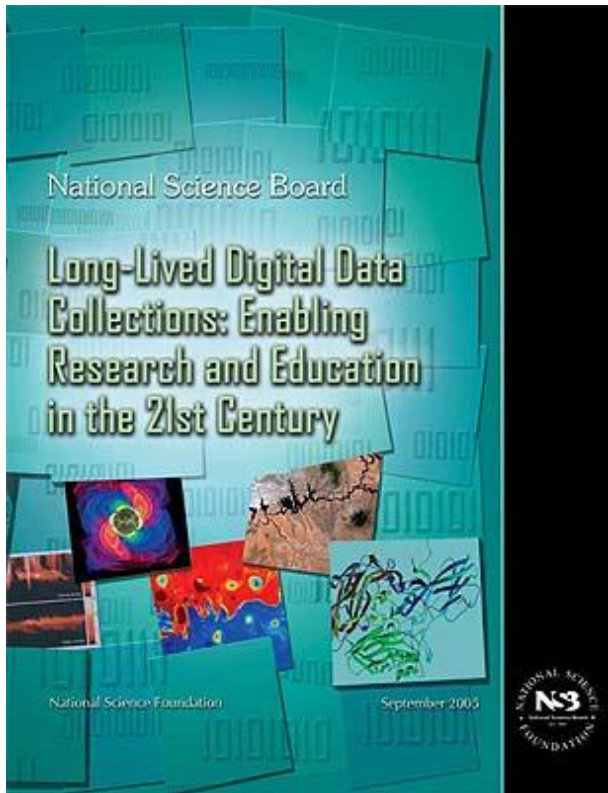
Modified from: Brandt, D.S. "Scholarly Communication" (in *To Stand the Test of Time: Long-Term Stewardship of Digital Data Sets in Science and Engineering.: Final Report of Workshop New Collaborative Relationships: Academic Libraries in the Digital Data Universe*. ARL, Washington, DC, September 2006.)

The D2C2



- Libraries sponsored research center.
- Established in 2006 to focus on issues associated with curating data sets for present and future research use.
- Working in partnership with domain scientists and IT personnel to address the real world data needs of a research community.

The Data Research Scientist



- Help the Libraries move research strategically forward.
- Help ramp up interaction with research faculty on campus.
- Leverage interdisciplinary research collaborations.
- Address the social, cultural and organizational aspects of data curation.

My Background



- Earned my MLS in 1998.
- Formerly a Subject Librarian for the Social Sciences at a Liberal Arts Institution.
- Skills and experience are mostly those of a “traditional” librarian. Minimal technology background and expertise.

Interacting with Researchers

- Building Connections & Relationships:
 - Investigate
 - Interrogate
 - Invest
- Common Barriers to Data Curation:
 - Motivation
 - Mechanisms
 - Money

Project Types

- Building Capacity
- Addressing Researcher Needs
- Partnerships in Research Projects

Building Capacity



Access. Knowledge. Success.



- **Data Curation Profiles:**
A tool for librarians and others to gather information on researcher needs for their data and to inform curation services.

DCP Sections

- Information about the Data and its Context
 - Overview of the Research
 - Focus
 - Intended Audience
 - Funding
 - Data Kinds and Stages
 - Data Narrative (data lifecycle)
 - Target Data for Sharing
 - Use/re-use Value
 - Contextual Narrative

Data Table – Traffic Flow

Data Stage	Output	Typical File Size	Format	Other / Notes
Primary Data				
Raw	Sensor data	100k in 1 file per day	proprietary to the sensor	FTP downloads are mostly automated.
Processing Stage 1	Sensor data – open/accessible format	Roughly 6kb	.csv / .xls	Data are formatted into .csv before being reformatted into a mySQL database.
Processed	Data vectors	800 records per intersection per day.	SQL / .xls	Data are extracted from the mySQL database for analysis purposes.
Analyzed	charts/Graphs		.xls / .emf	charts and graphs used for interpretation.
Published	charts/graphs		.ppt	Data are presented via power point.
Augmentative Data				
Image	Stills taken from video		.gif / .jpg / .ppt	Images generated from video.

DCP Sections

- Information about Needs

- Intellectual Property
- Organization and Description of Data
- Ingest
- Access
- Discovery
- Tools
- Interoperability
- Measuring Impact
- Data Management
- Preservation

<http://datacurationprofiles.org>

Addressing Researcher's Needs



Summer Camp 2010

CAMP CALCIUM 11



6 weeks of Camp between June-August 2010

Camp Calcium is:

- For **GIRLS 12-14** and **BOYS 13-15** of Mexican-American Descent
- A research project. You will learn how much calcium is needed for building strong bones
- 6 weeks! You will live on Purdue campus for two 3-week periods.
- FUN! You will participate in many activities including sports, science classes, nutrition classes, arts and crafts, field trips
- FREE ROOM and BOARD. Registration fee of \$100. You will be paid for participation in our research project.



For more information and an application packet contact:

Berdine Martin
700 W. State St.
Purdue University

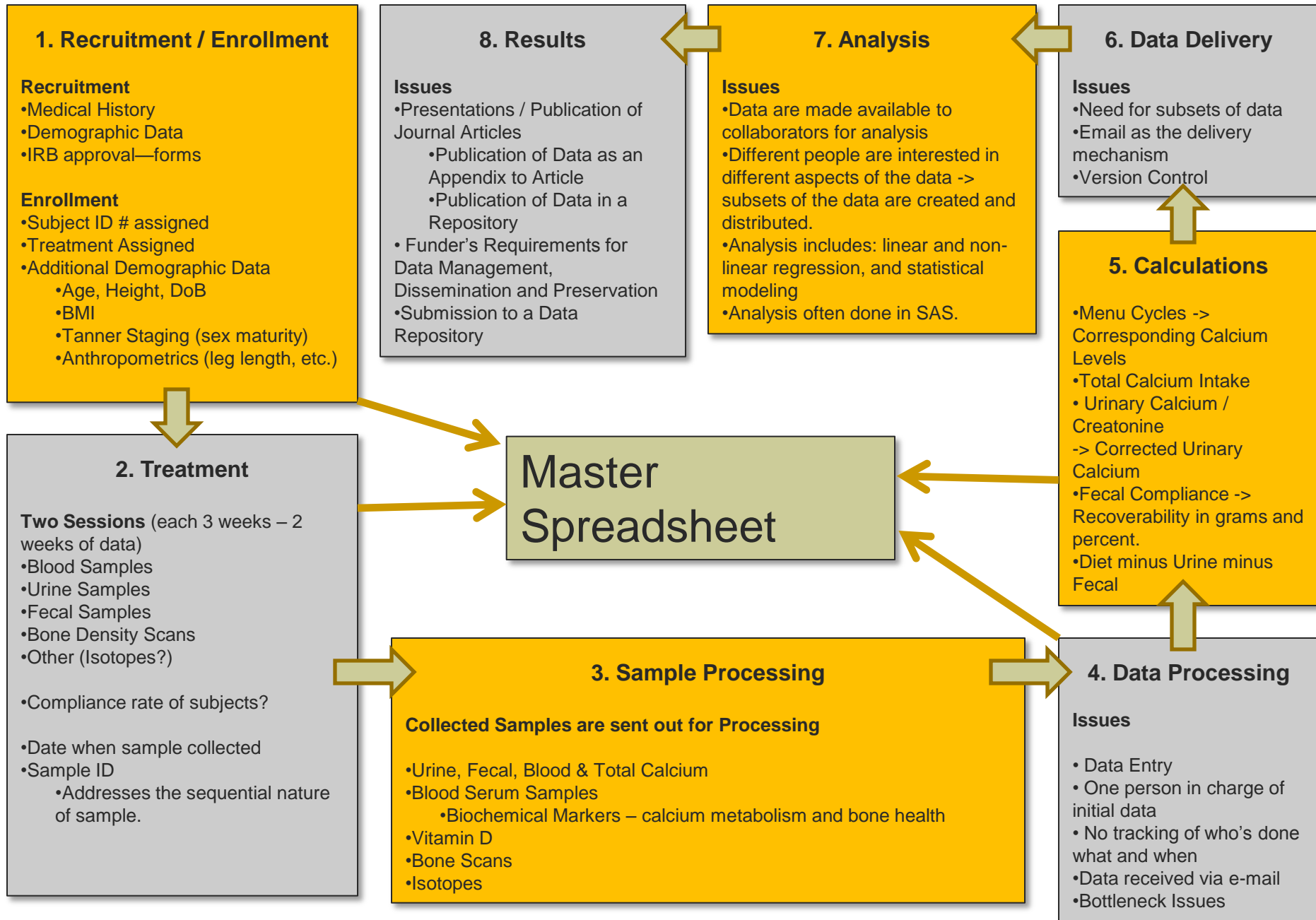
W. Lafayette, IN 47907-2059
1-800-830-0175 or 765-494-6559

bmartin1@purdue.edu

www.cfs.purdue.edu/fn/campcalcium



Camp Calcium – Current Data Workflow



Data Management System

Home

Web File Manager

[settings...][more help...]

uploadedFiles

- uploadedFiles

/ uploadedFiles / CC_Project_Directory / CC9_Folders / CC9_BaseAnthro

Name	Modified	Size	Owner
CC9_BaseAnthro_AnthroCamp9_20090928.xlsx	05/12/10 14:01	13 KB	jake
CC9_BaseAnthro_AnthroCamp9_20090928_0.xlsx	05/22/10 12:32	13 KB	libTest
CC9_BaseAnthro_AnthroCamp9_20090928_0_0.xlsx	05/23/10 14:02	13 KB	libTest
CC9_BaseAnthro_AnthroCamp9_20090928_1.xlsx	05/23/10 15:30	13 KB	jake

File Upload

Uploaded file will be saved to the current directory.

Upload Success

Upload file:

Metadata

Home

Web File Manager

[settings...][more help...]

uploadedFiles

uploadedFiles

Name	Modified	Size	Owner
CC9_BaseAnthro_AnthroCamp9_20090928_vlsy...	05/12/10 14:01	13 KB	jake
CC9_BaseAnthro_AnthroCa	2/10 12:32	13 KB	libTest
CC9_BaseAnthro_AnthroCa	3/10 14:02	13 KB	libTest
CC9_BaseAnthro_AnthroCa	3/10 15:30	13 KB	jake

File Upload

Uploaded file will be saved to the current directory.

Upload Success

Upload file:

- Delete File
- Rename File
- File meta data
- View file
- Download as file
- Download metadata (non-DublinCore)
- Download metadata (DublinCore)
- Remove file from database
- File permissions
- Paste link in editor window
- Copy link to clipboard

Metadata Fields

The screenshot displays a 'Web File Manager' interface. On the left, there is a 'File Upload' section with a success message 'Upload Success' and an 'Upload file:' field with a 'Browse...' button and an 'Upload' button. The main area shows a directory listing with files named 'CC9_BaseA...'. A 'Metadata' popup window is open, displaying the following fields:

Metadata	
identifier:	120
uid:	4
submitted by:	jake
title:	CC9_BaseAnthro_AnthroCamp9_20090928.xlsx
author:	<input type="text" value="Derik Brooks"/>
authority:	<input type="text" value="Berdine Martin"/>
date of upload:	May 12, 2010, 2:01 pm
date of sample:	<input type="text"/>
date of analysis:	<input type="text"/>
type:	<input type="text" value="Data"/>
format:	<input type="text" value="Ms Excel"/>
description:	<input type="text" value="Antropometric Data for all subjects from Camp Calcium 9"/>
data stage:	<input type="text" value="Merged"/>

Below the metadata popup, a 'Description' tooltip is visible with the text: 'An account of the resource - what information does this file contain?'. On the right side of the interface, there is an 'Owner' table listing users: jake, libTest, libTest, and jake.

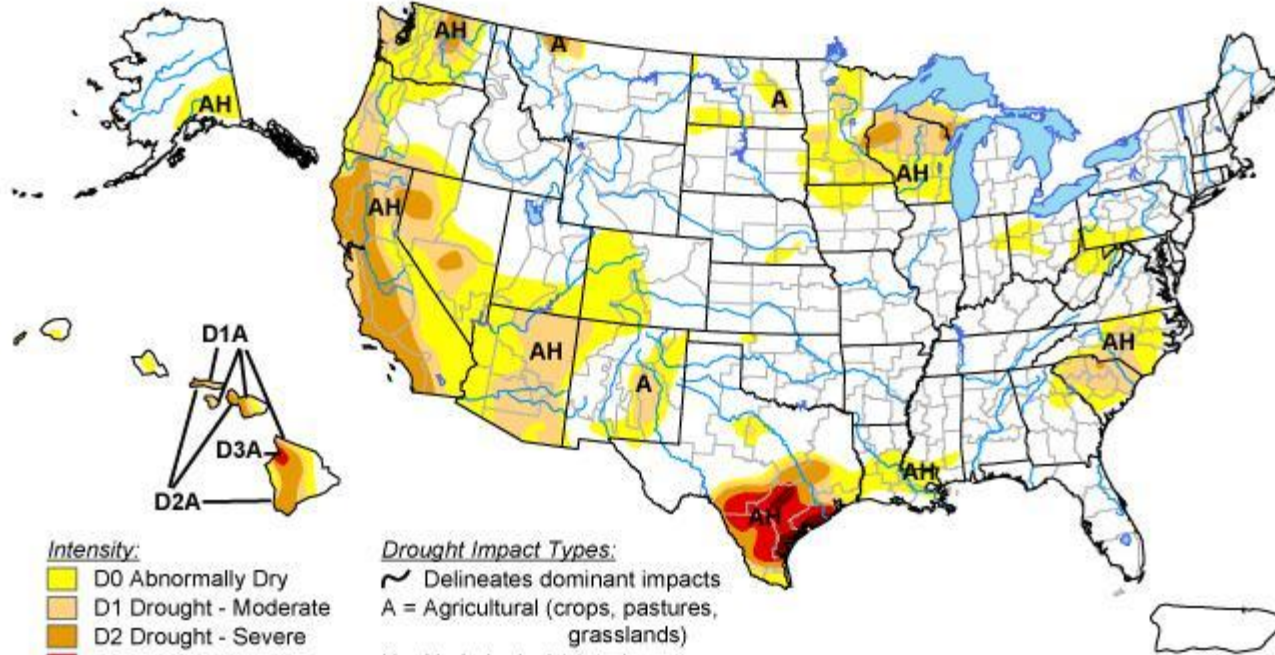
Research Partnerships

- The DRought Information Network (DRInet): Develop a regional scale information web portal and tools for collecting, synthesizing, analyzing and disseminating datasets relating to drought.



U.S. Drought Monitor

U.S. Drought Monitor September 15, 2009
Valid 8 a.m. EDT



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types:

- Delineates dominant impacts
- A = Agricultural (crops, pastures, grasslands)
- H = Hydrological (water)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://drought.unl.edu/dm>

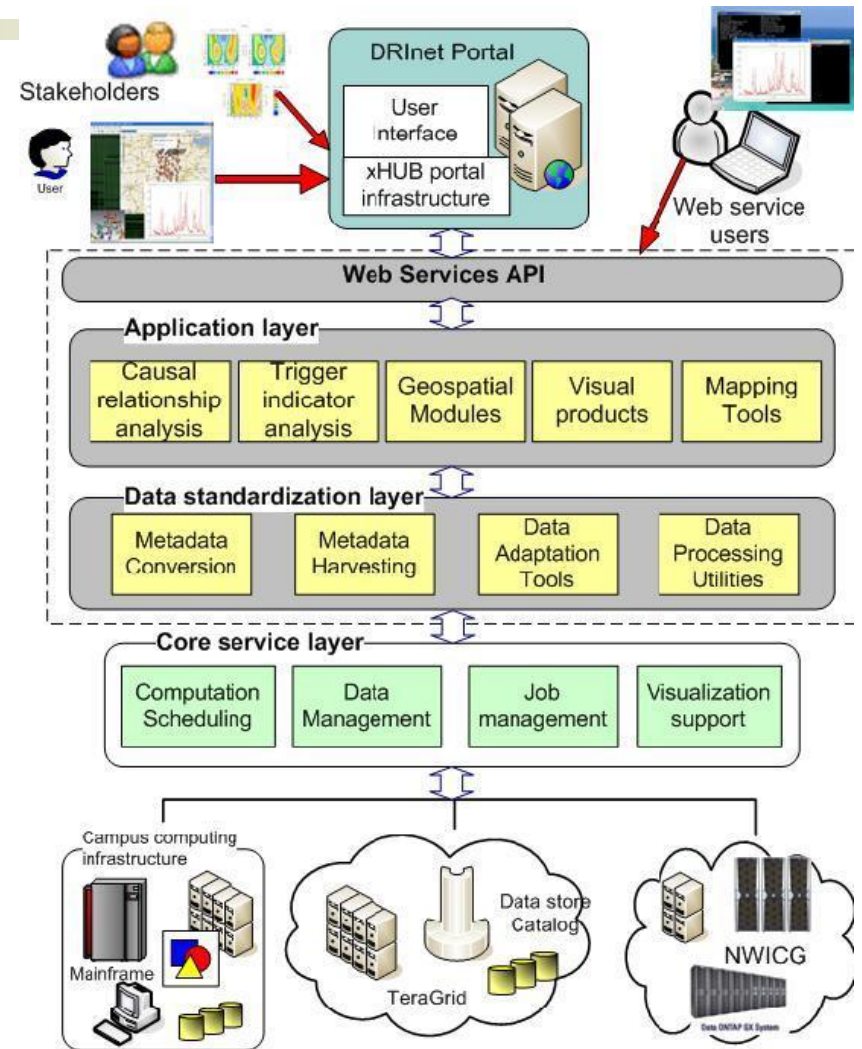


Released Thursday, September 17, 2009
Author: Anthony Artusa, CPC/NCEP/NWS/NOAA

driNET

Role of the Libraries:

- ❖ Assist in the identification of metadata standards that will meet user needs.
- ❖ Develop discovery and navigation metadata for the portal.
- ❖ Assist in the development and testing of tools to automate the metadata creation process.
- ❖ Aid in the development and deployment of an interoperability standard (OAI-PMH) to facilitate the dissemination of data.



drINET

drINET DROUGHT RESEARCH INITIATIVE NETWORK

Search

Jake R. Carlson (jrcarlo) Logout My Account

Home My HUB Data Resources Members Support Student Projects About Help

Georgia...

Welcome

DRINET is a research environment for collecting and disseminating local to regional scale drought information. Sign up here to publish models and tools, datasets, training and educational materials to share with stakeholders who will benefit from comprehensive evaluation of causal factors of droughts.

Research

- Drought Knowledge
- Impact on Water Quality
- Data Management
- Visualization

Tools

- HMM-based Drought Index Viewer
- JDI-Precipitation-Viewer
- Water Deficit Viewer

Data

- St. Joseph Water Quality Data
- St. Joseph Watershed data
- Indiana Precipitation Data
- Precipitation and Temperature Average
- St. Joseph Stream Flow Data

Student Projects

- Drought Visualization

Resources

- Downloads
- Online Presentations
- Publications
- Workshops
- Wiki

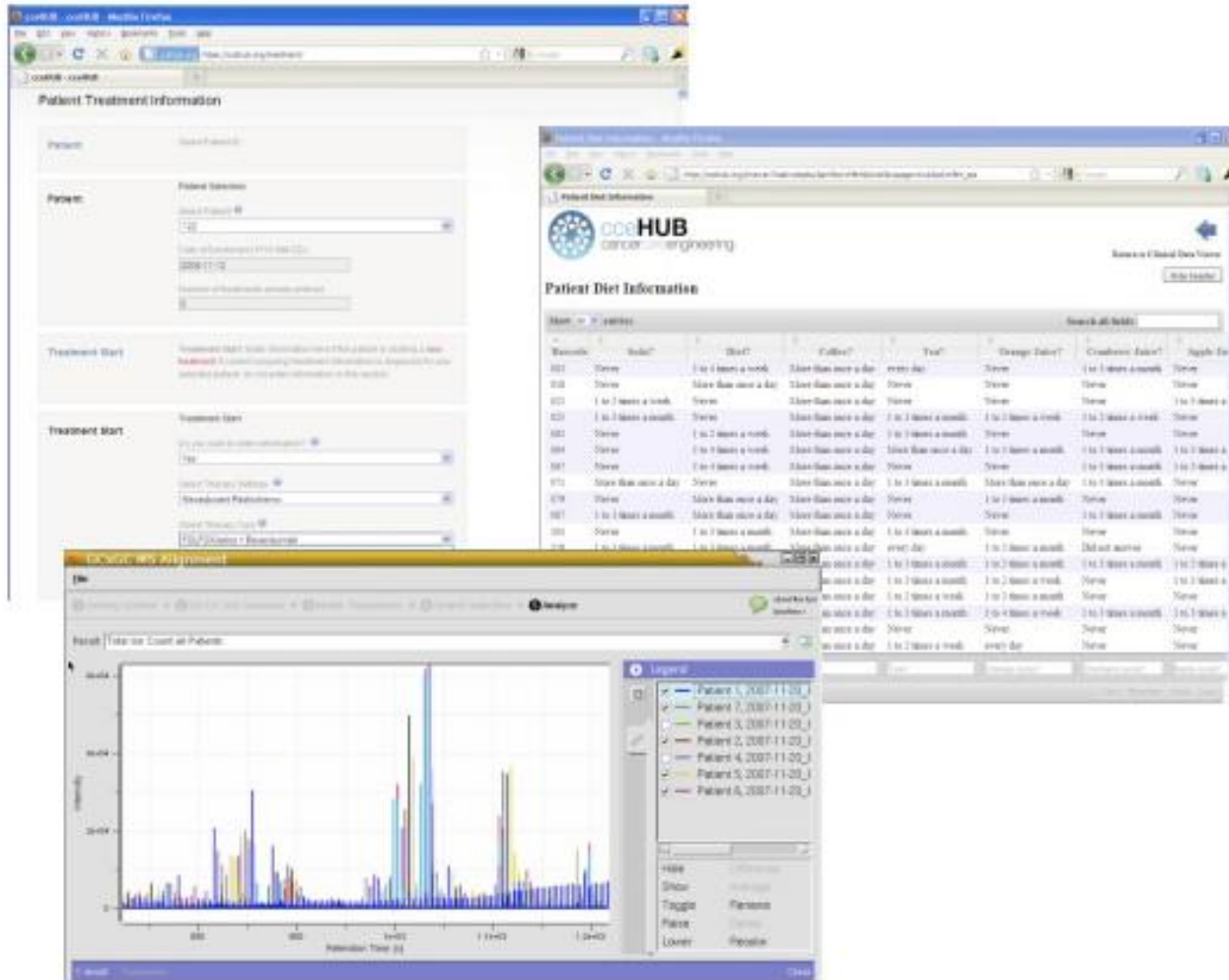
Contribute

- Contribute Content
Upload your own materials
- Give us Feedback
Success story? Suggestions?
- Take a Poll
- Contact Us
How to get ahold of us

What's Coming: Increased Interest / Oversight

- OVPR's Research Retention Policies and Practices
 - H. R. 5116 – “America COMPETES Reauthorization Act of 2010” (April 22, 2010)
- (b) Establishment.—The Director of the Office of Science and Technology Policy shall establish a working group under the National Science and Technology Council with the responsibility to coordinate Federal science agency policies related to the dissemination and long-term stewardship of the results of unclassified research, including digital data and peer-reviewed scholarly publications, supported wholly or in part by funding from the Federal science agencies.

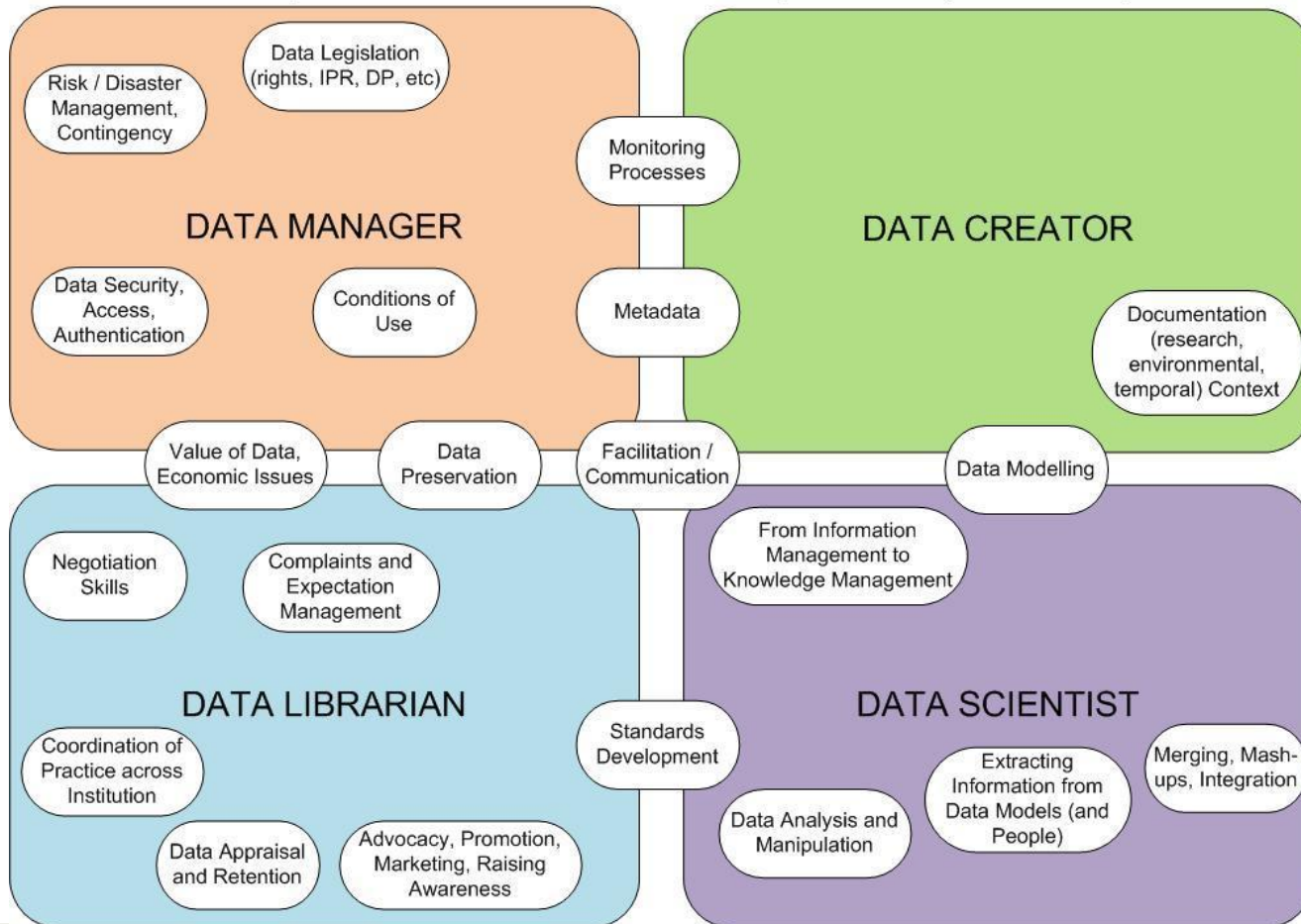
What's Coming: Data Repositories



What's Coming: Skills / Roles

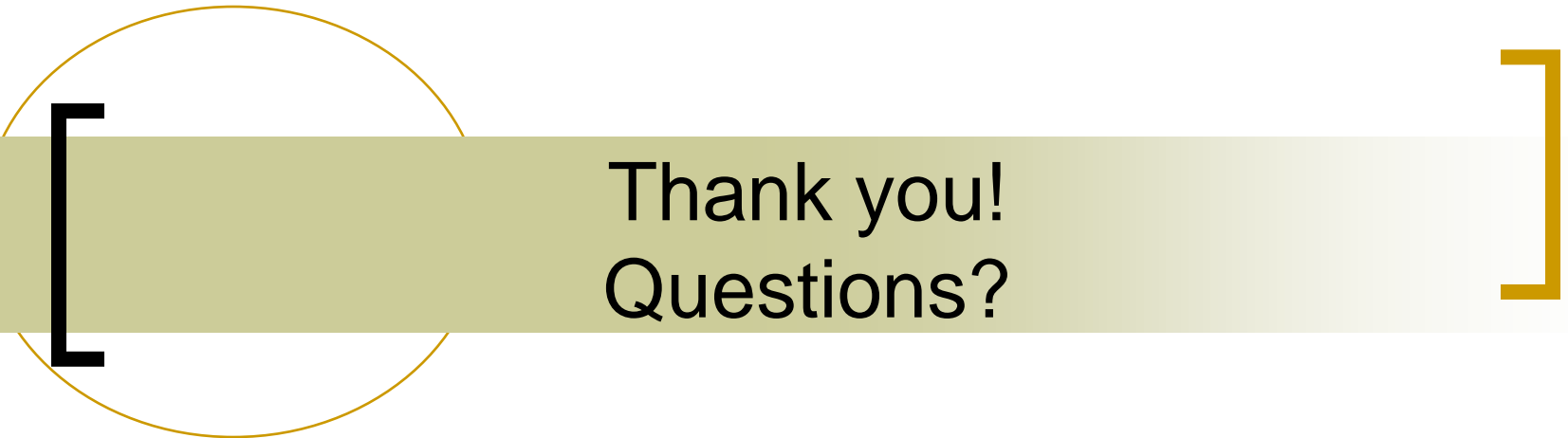
CORE SKILLS FOR DATA MANAGEMENT

A follow-up from the second DCC Research Data Management Forum (November 2008)



Research Data Management Forum: RDMF2: Core Skills Diagram

<http://data-forum.blogspot.com/2008/12/rdmf2-core-skills-diagram.html>



Thank you!
Questions?

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