The Dataverse Network

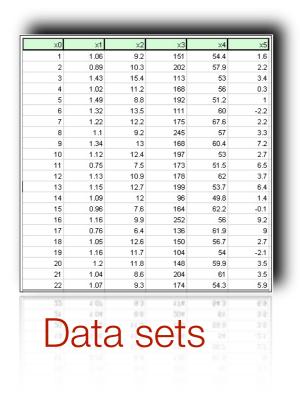
An open-source Application for Sharing, Discovering and Preserving Data

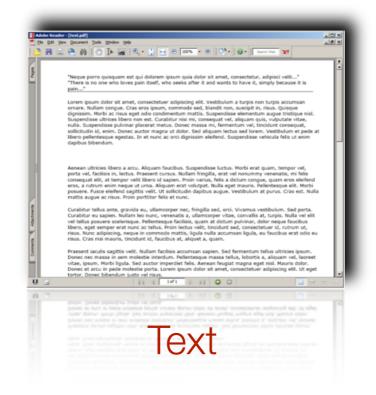
Mercè Crosas, Ph.D.

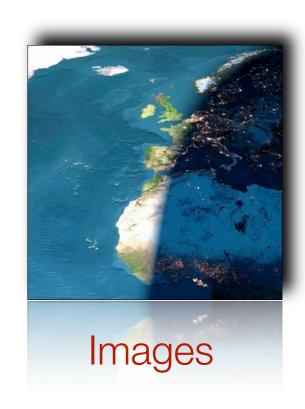
Director of Product Development
IQSS, Harvard University



Problems with traditional ways to store research data







Keep it in my laptop



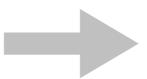
Hard to share, not safe

Send it to an archive



Author doesn't get enough credit

Post it in my web site

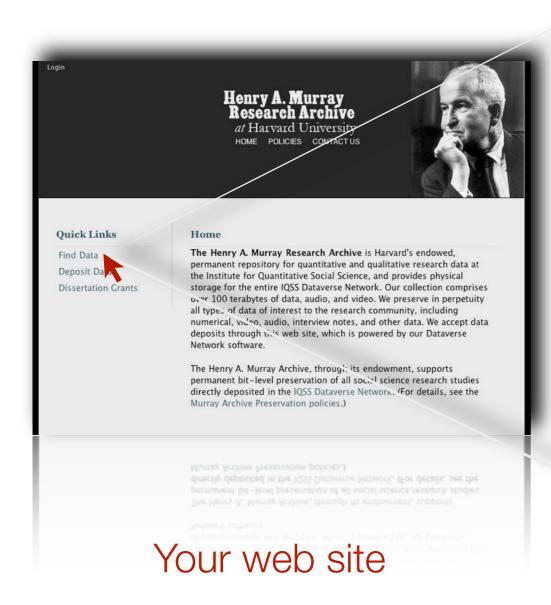


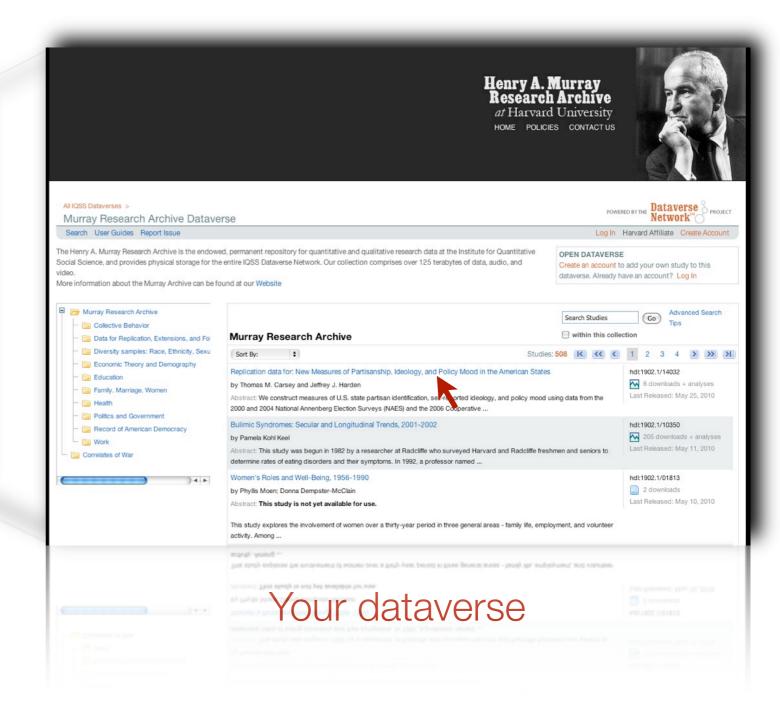
No professional archiving services (backups, recovering, cataloging, preservation, etc)

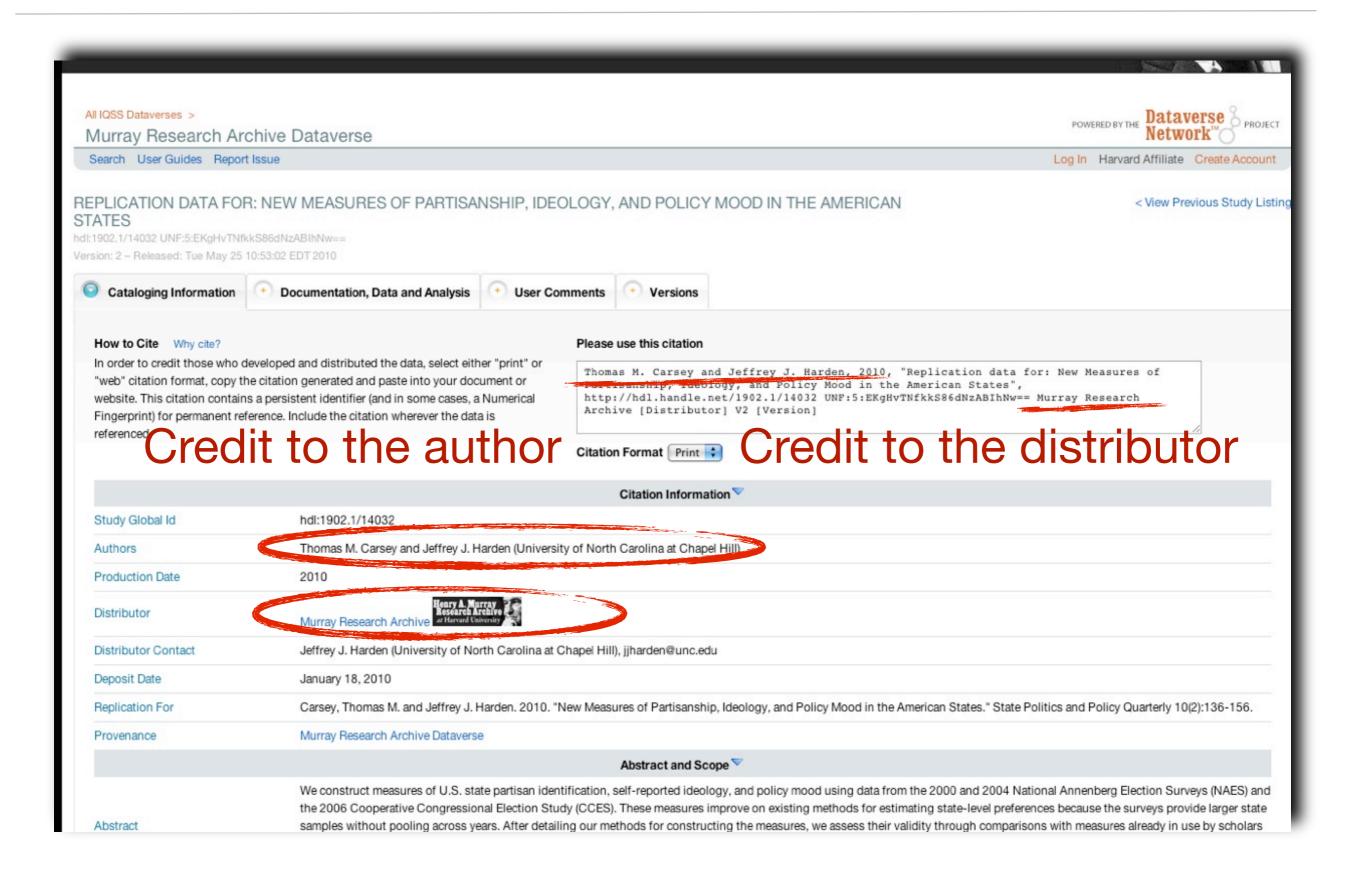
Solving the problems through technology

We've developed a system that:

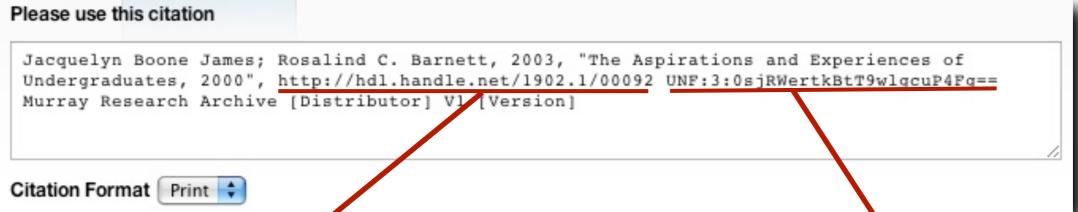
- Gives ownership and recognition to author, distributor and publisher
- Generates a persistent data citation
- Converts data sets to a preservable and verifiable format
- To Distributes data to the public, but also supports restricted access
- Indexes all metadata for quick data discovery
- Supports subsetting and analysis for (some) data files
- Makes it easy to use and maintain
- Provides you legal protection
- Inter-operates with other systems using standards











A persistent identifier and url which never changes (hdl:1902.2/7768): http://handle.net/1902.2/7768

Universal Numerical Fingerprint to verify data set:

UNF:3:upor0mnBeXa9fujUkPqNNA==

Convert Data to a Preservable and Verifiable Format

Metadata and Format Information

/	1	4	4	21		121
	1	2	2	91		212
	1	9	2	72		104
	0	2	2	2		321
	1	6	2	12		204
	1	9	4	52		311
	0	3	2	23		92
	0	2	5	91		212
	0	5	8	91		91
	1	9	1	72		104
	:	:	:	:	٠	:
	1	2	2	91		212
•						•

- 1. Extract variable name, description and summary statistics
- 2. Convert data set to a preservation format, independent of the software package
- 3. Apply a cryptographic algorithm to canonical format
- 4. Get alphanumeric string based on semantic contents of the digital object:
 - uniquely summarizes the contents,
 - but does not convey its information

UNF:5:EKgHvTNfkkS86dNzABlhNw==

Change content



Changes UNF

Change format

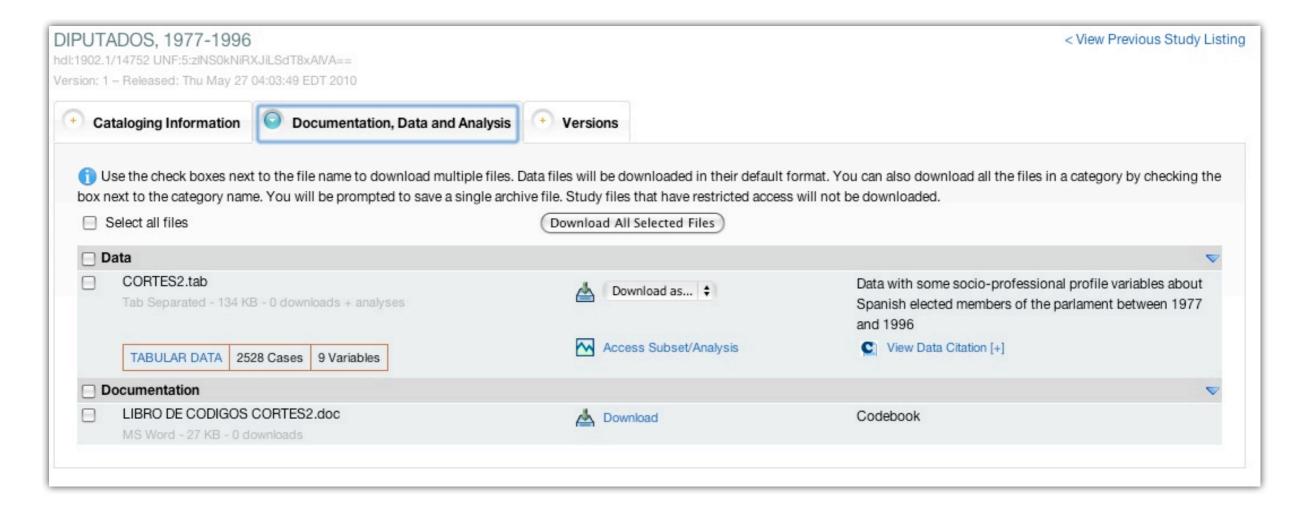


Doesn't change UNF



Distributes to the public, but also supports restricted access

Studies and files can be completely public ...

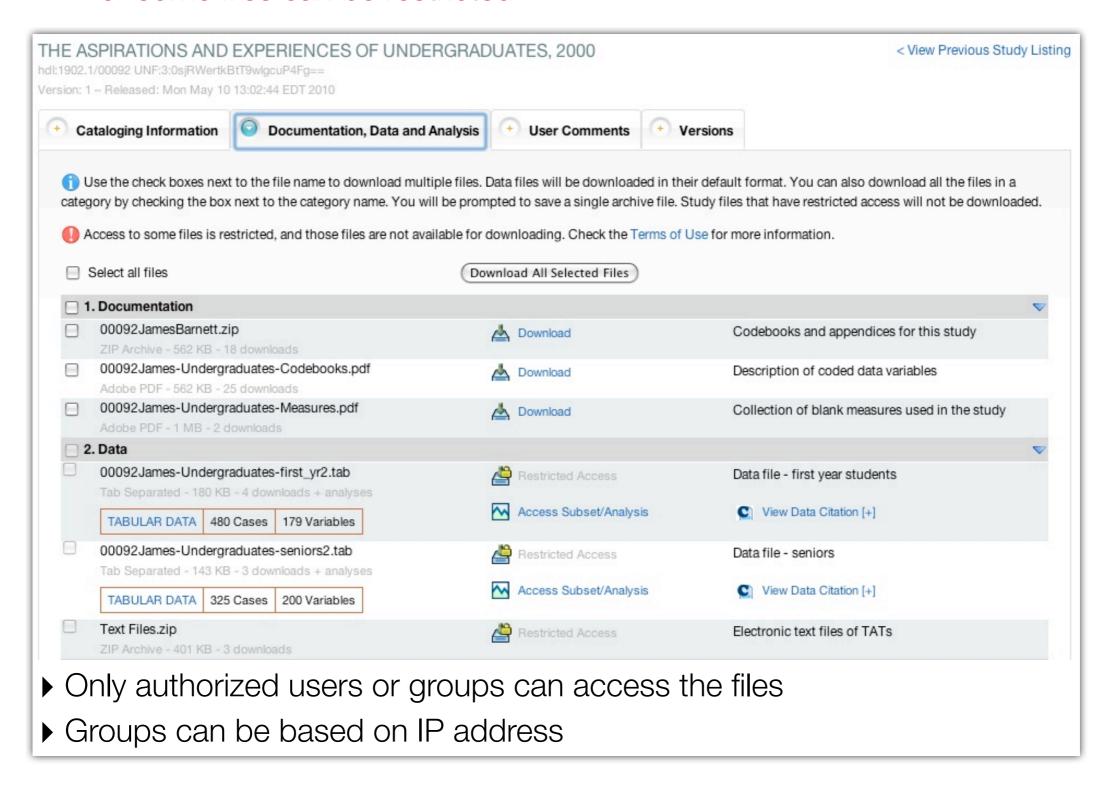


Everybody can explore the cataloging information (metadata), download data and documentation files, and subset and analyze data if available.



Distributes to the public, but also supports restricted access

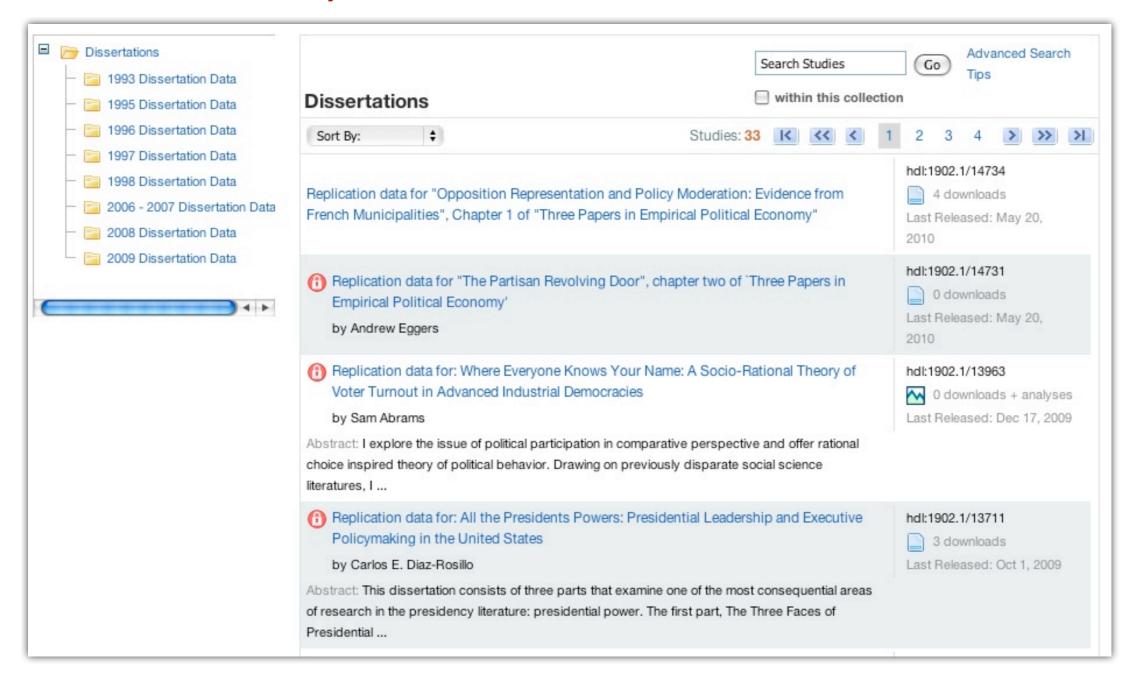
... or some files can be restricted ...





Distributes to the public, but also supports restricted access

... or the entire study can be restricted.



Restricted studies can be searched but user cannot access the study page unless has the right permissions

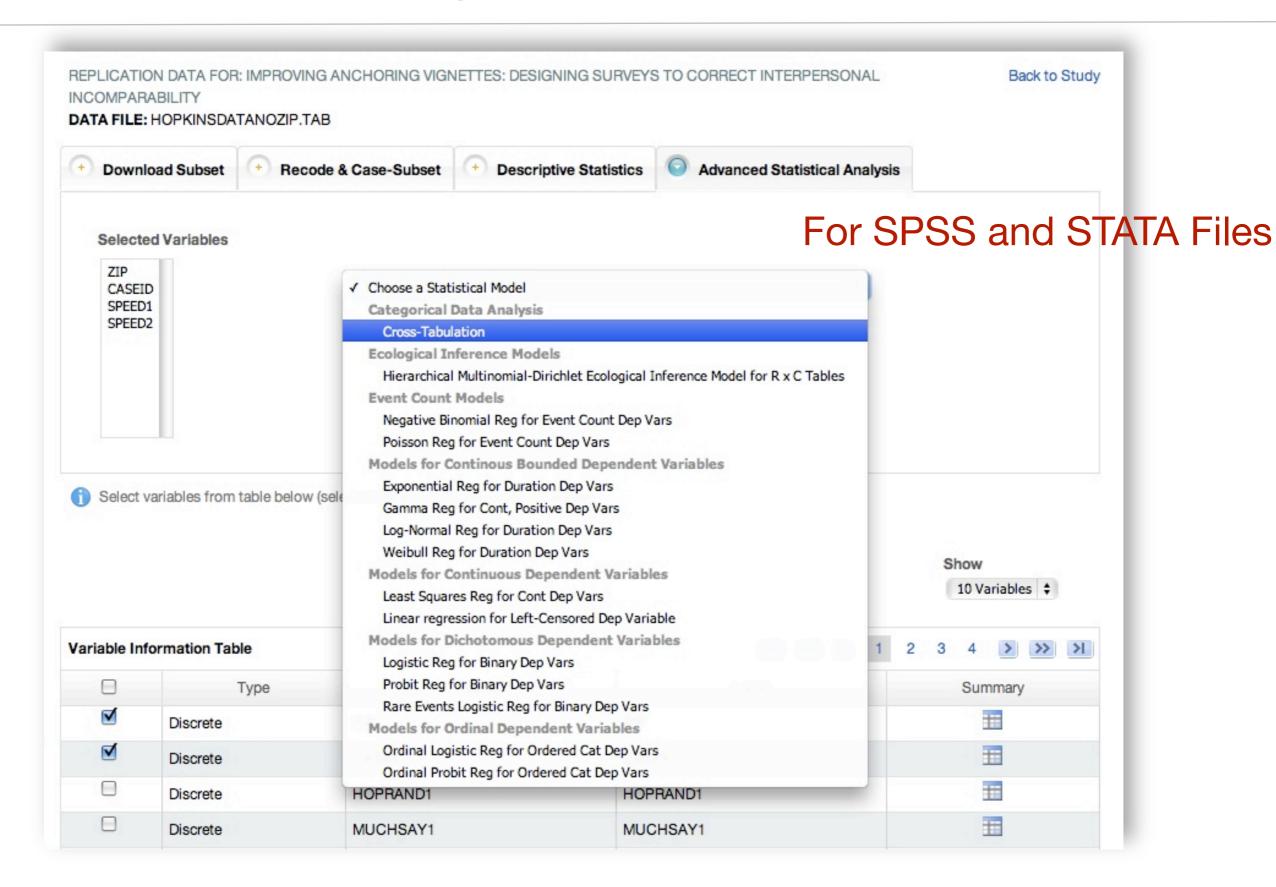
Quick and advanced search of all metadata fields:

- Title
- Authors
- Distributors
- Abstract
- keywords
- Years
- Geographic information
- Data collection
- Terms of use
- Variable labels
- Variable descriptions

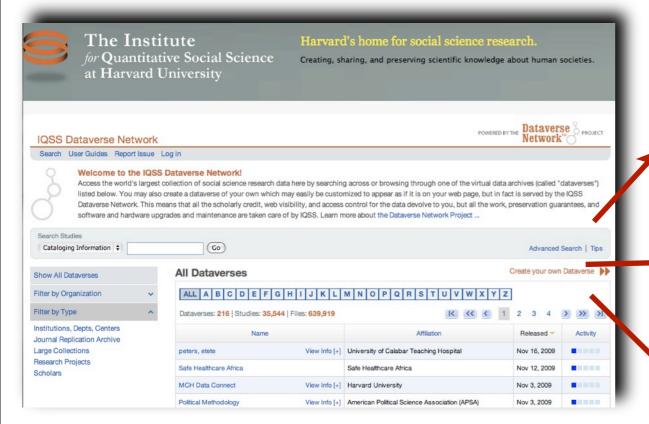
Uses Lucene index server as the search engine.



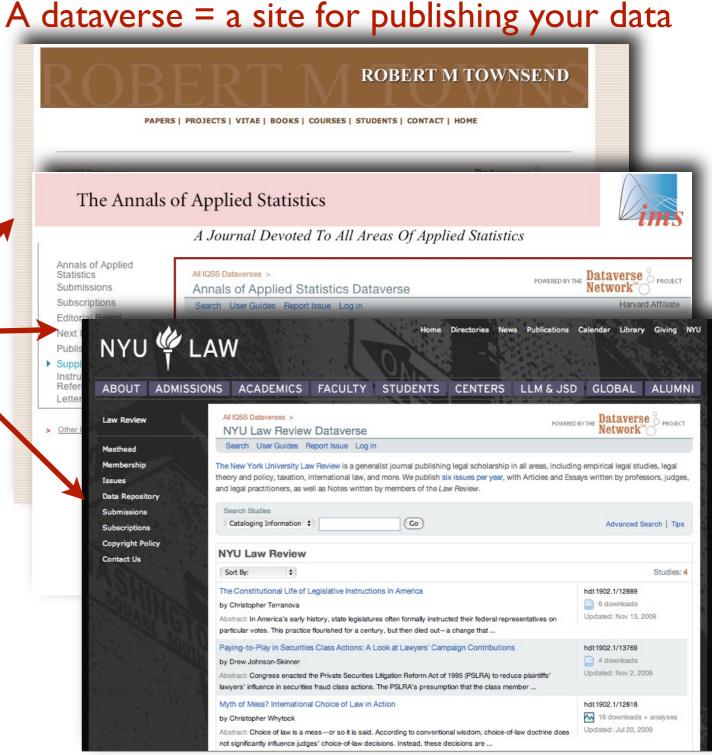
Supports subsetting and analysis for (some) data files

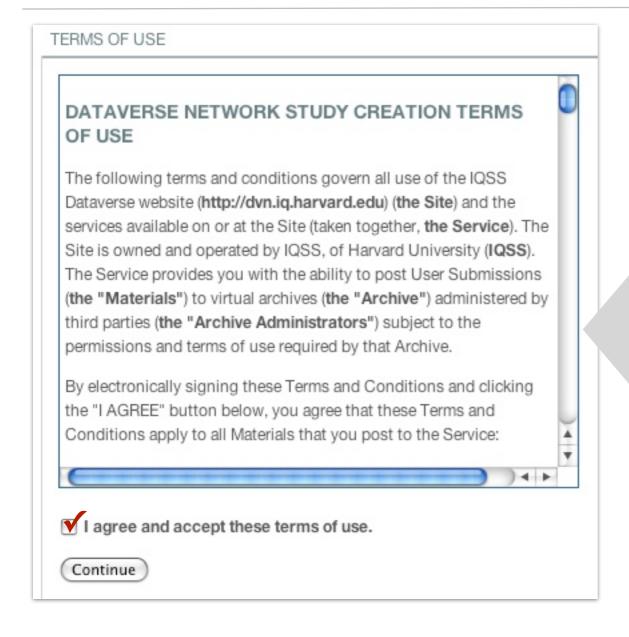






- A Dataverse Network holds multiple dataverses
- Each dataverse can be created in two clicks and customized as you want
- Your dataverse may include your data or links to data from other dataverses





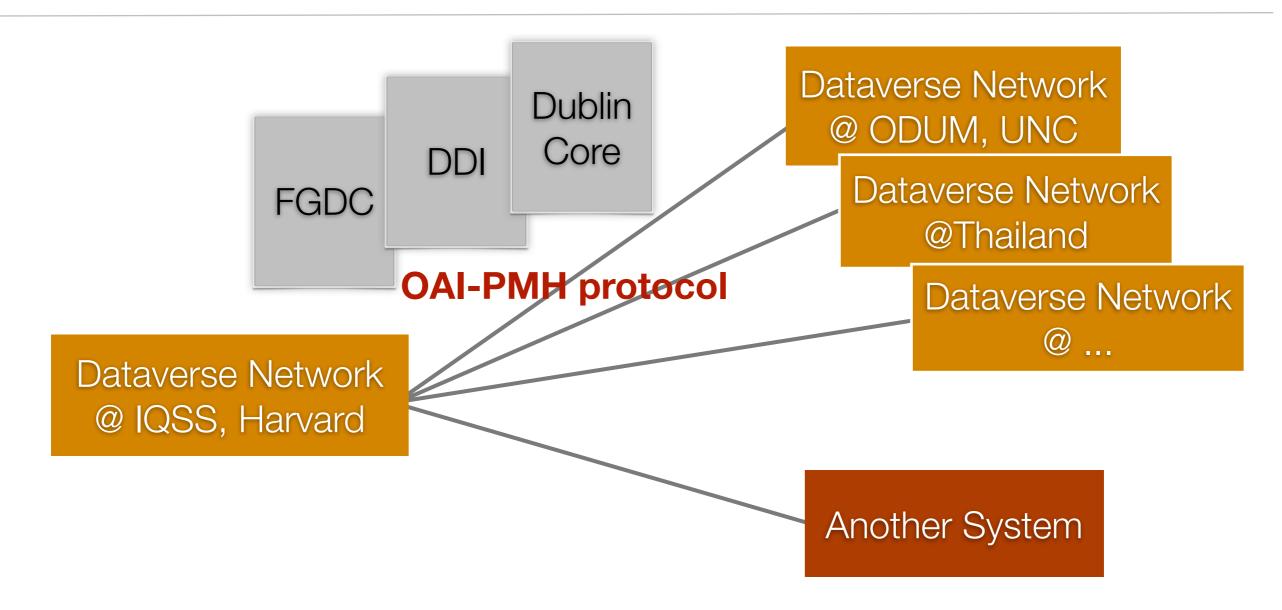
Agreement for Data Deposit

. . .

- ✓ If human subjects were studied in the collection of the Materials, you collected the Materials with IRB approval;
- ✓ The Materials do not contain high-risk confidential information such as social security numbers; credit card numbers; medical record numbers; health plan numbers; other account numbers; certificate/license numbers; or biometric identifiers (fingerprints, retina, voice print, DNA etc.).

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- The terms of Use in the Harvard Dataverse Network are betted by lawyers from the Harvard's Office of the General Counsel
- You can customize the terms of use data deposit and data downloads in your dataverse or entire Dataverse Network



- Study and variable metadata is exported into XML (Dublin Core, Data Descriptive Initiative - DDI, and others) and MARC.
- Supports OAI-PMH, z39.50, LOCKKS
- Plan to add RDF support in the future

New Functionality

- Versioning: Never lose previous versions of studies
- Deaccessioning: Never lose track of previous holding
- Open access options: Enable contributors to collaboratively edit
- User comments: Collect user comments about data
- UNF 5.0: Advanced semantic fingerprints for your data
- Social Network Data: Deposit, format, analyze, and preserve social networks
- LOCKSS compatibility: Automatic replication for preservation

Thanks!

Next...

We invite you to participate in a workshop on **Data Publication and Citation Principles** at IQSS, Harvard

University

Organizers: Micah Altman and Mercè Crosas

Contact me at <u>mcrosas@hmdc.harvard.edu</u> if you are interested.

http://thedata.org (The project site)

http://dvn.iq.harvard.edu (The Dataverse Network at Harvard)

Acknowledgements:

Gary King, Micah Altman, Gustavo Durand, Ellen Kraffmiller, Kevin Condon, Bob Treacy, Leonid Andrev, Michael Heppler, Steve Kraffmiller