Research data citation and versioning practices

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Overview

Recommended practices

- Researcher/data author
- Repository/publisher/data provider
- Literature publisher/funding organization

Versioning practices

- Questions
- Study results
- Takeaways

The Data Citation Index

- **Data repositories evaluated for inclusion based on factors such as persistence, evidence of reuse, editorial content**
- **Collaboration on metadata handling with data repository partners**
- **Links from data to research literature**

Force, M et al. J Comput Aided Mol Des (2014) 28: 1043. doi:10.1007/s10822-014-9768-5

Launched October 2012

~ 6 million data records

Repository/Source: Comprises data studies and/or data sets. Stores and provides access to the raw data.
Data Study: Descriptions of studies or experiments with associated data which have been used in the data study. Includes serial or longitudinal studies over time.
Data Set: A single or coherent set of data or a data file provided by the repository, as part of a collection, data study or experiment.


REUTERS / Juan Carlos Ulate

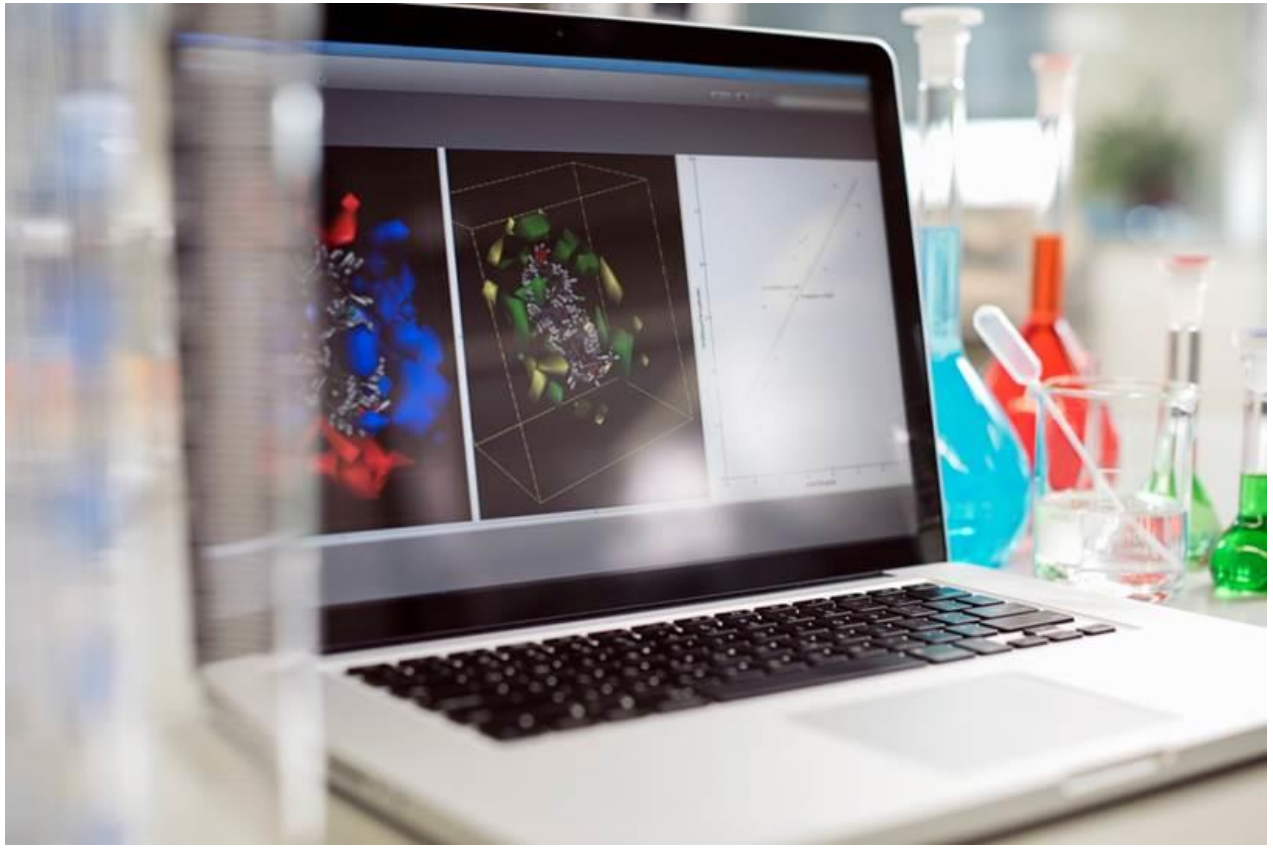
Recommended practices to promote data citation and tracking

White paper available at:
http://wokinfo.com/publisher_relations/data/

Researcher/data author

Recommended practices

- Treat data equally with other citable research output
- Deposit data in an established data repository committed to long term preservation
- Practice detailed, formal data citation in data and publications



Researcher/data author

Recommended practices

- Provide required metadata to enable citation and discovery

  - Allows creation of a data citation using DataCite guidelines
  - Compliance with DataCite metadata schema
  - Allows matching of data citations encountered to known data records

- Unique ID in repository
- Date provided
- Author
- Repository
- URL/DOI
- Title
- Year Published
- Version

Repository/data publisher/data provider

Recommended practices

- Curate and validate metadata for completeness, accuracy, and consistency
- Issue permanent IDs for data objects
- Provide unique landing pages for data objects

Repository/data publisher/data provider

Recommended practices

- Maintain detailed update information
- Indicate data resource type in metadata
- Ensure clear attribution for data objects
- Provide metadata harvesting facility
- Establish, document, implement, and maintain policies on dataset versioning
- Document repository mission and policies for inclusion

Literature publisher/funding organization

Recommended practices

- Establish clear data management plan policies and guidelines for data deposition
- Develop formal data citation policies and clear guidance for authors on data citation formats
- Enforce requirements for data deposition and citation
- Establish metadata criteria for persistent and unique identification of cited data

Versioning practices in the Data Citation Index

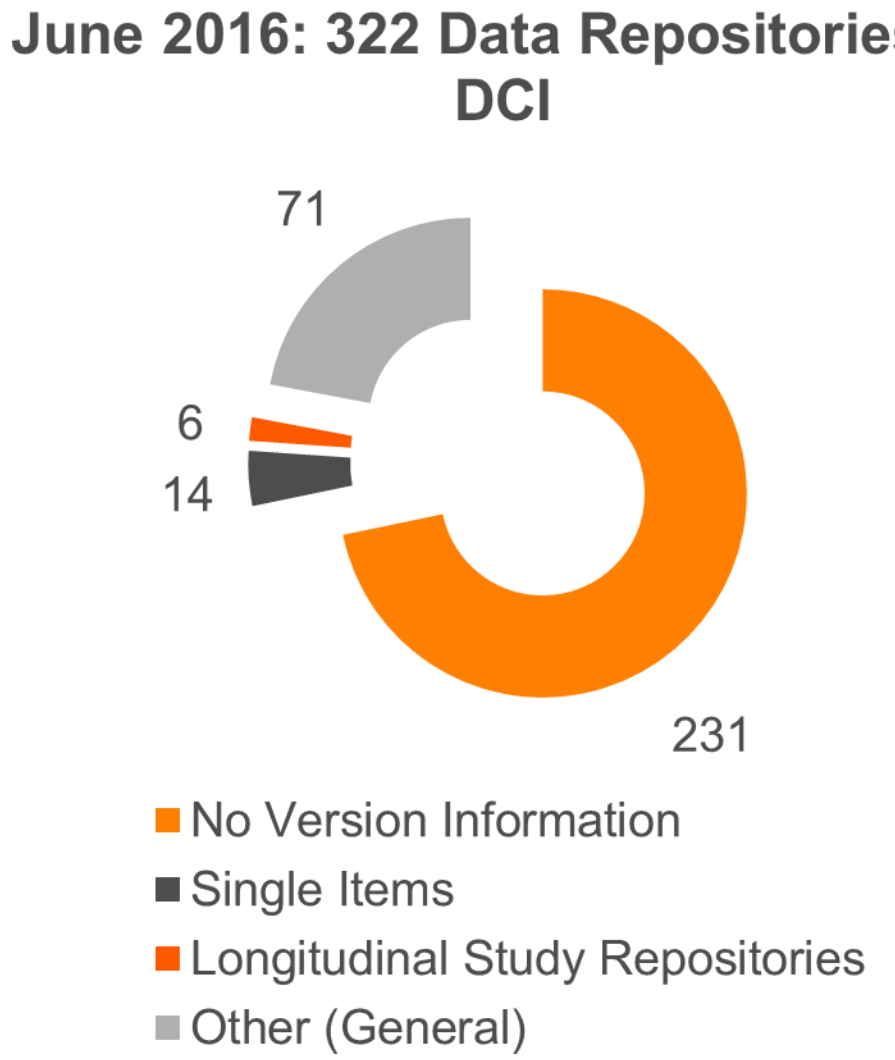
DCI Versioning Study

- **72% of all data repositories in DCI were found to have no version information for datasets**

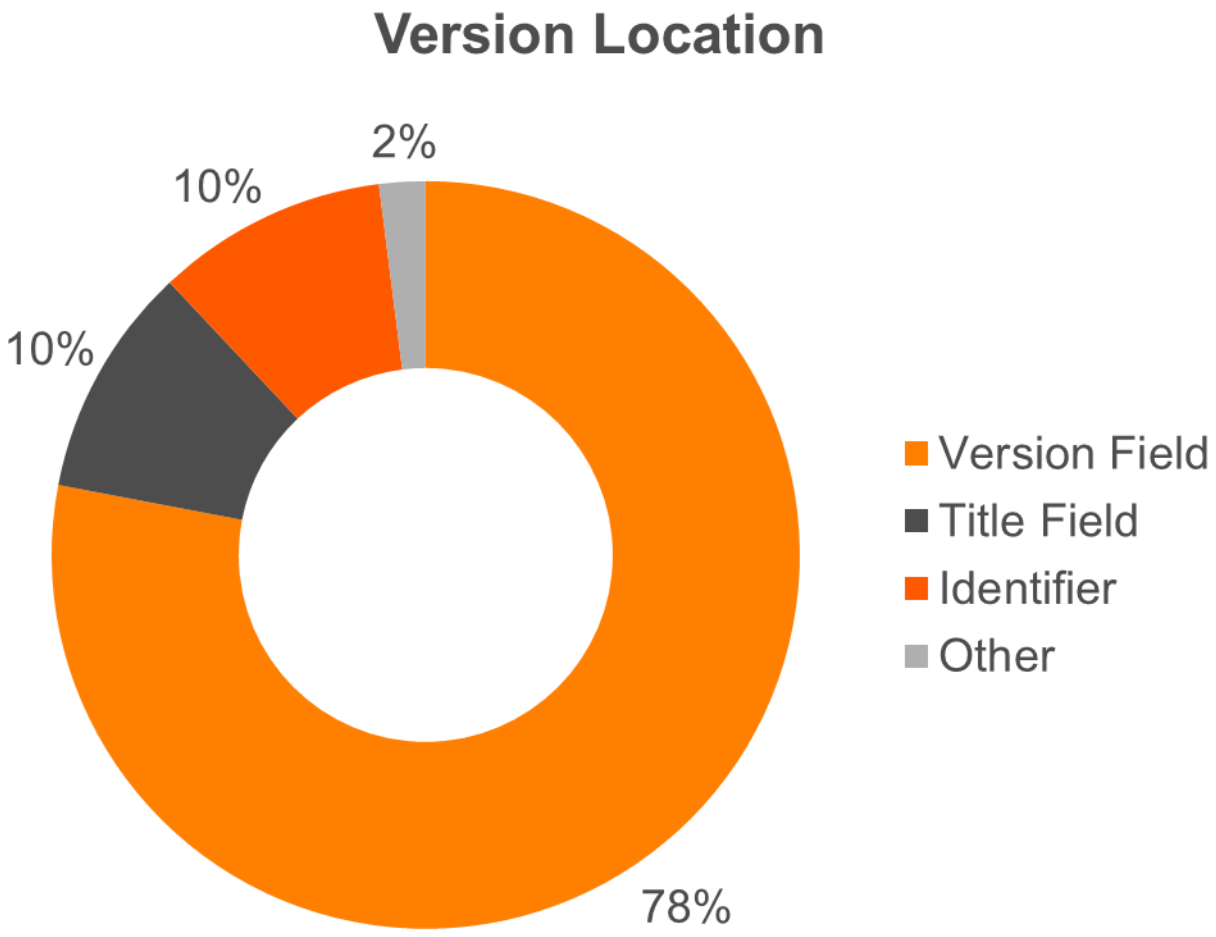
- **From the 28% with version information, single item and longitudinal study subgroups with similar versioning practices were identified**

Questions:

- **Where is version information found in the metadata?**
- **DOIs/URLs for each version?**
- **Are versions cited?**
- **Does the recommended citation include version?**
- **Landing page for each version?**
- **Does the repository retain older versions of the dataset?**



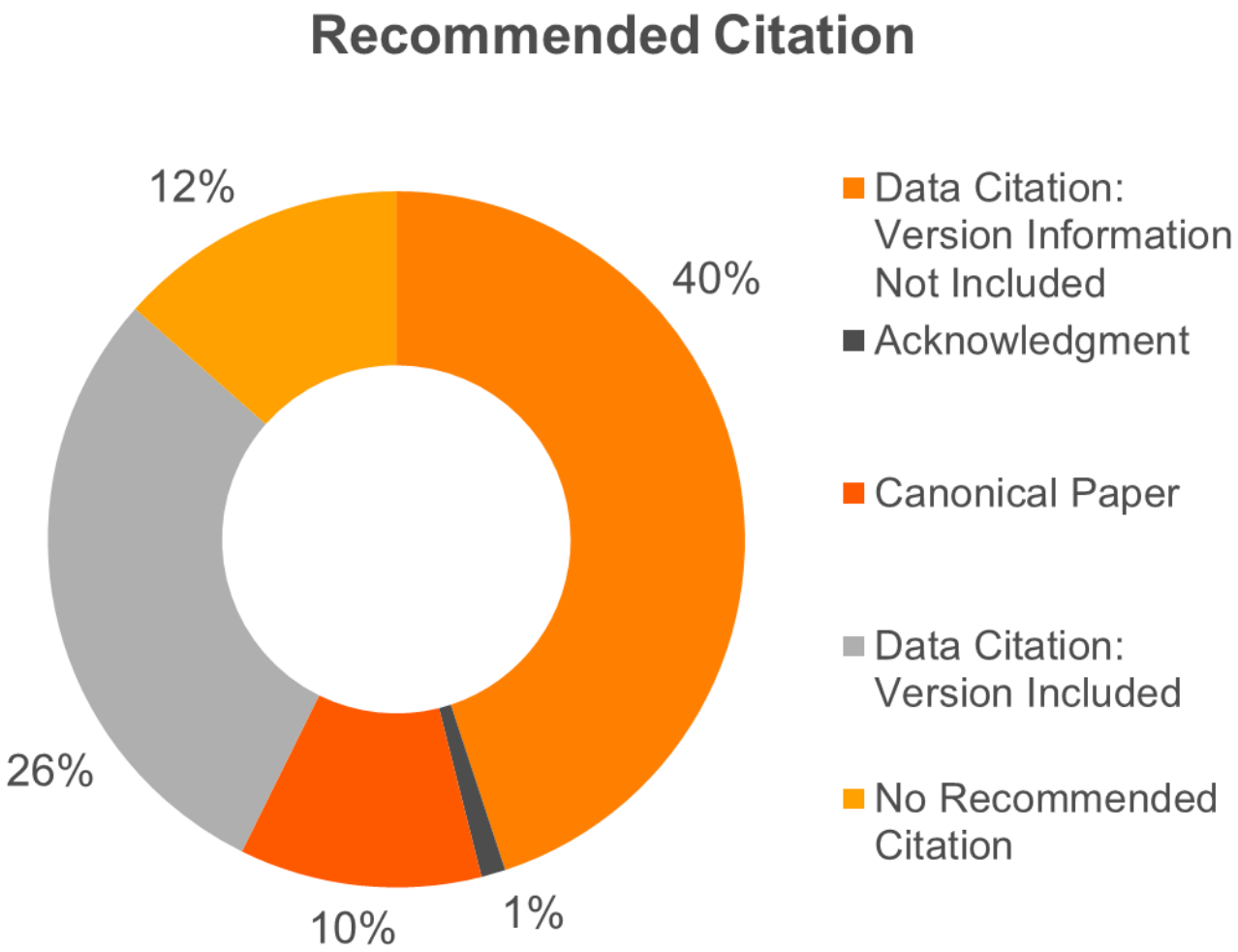
Where is version information found?



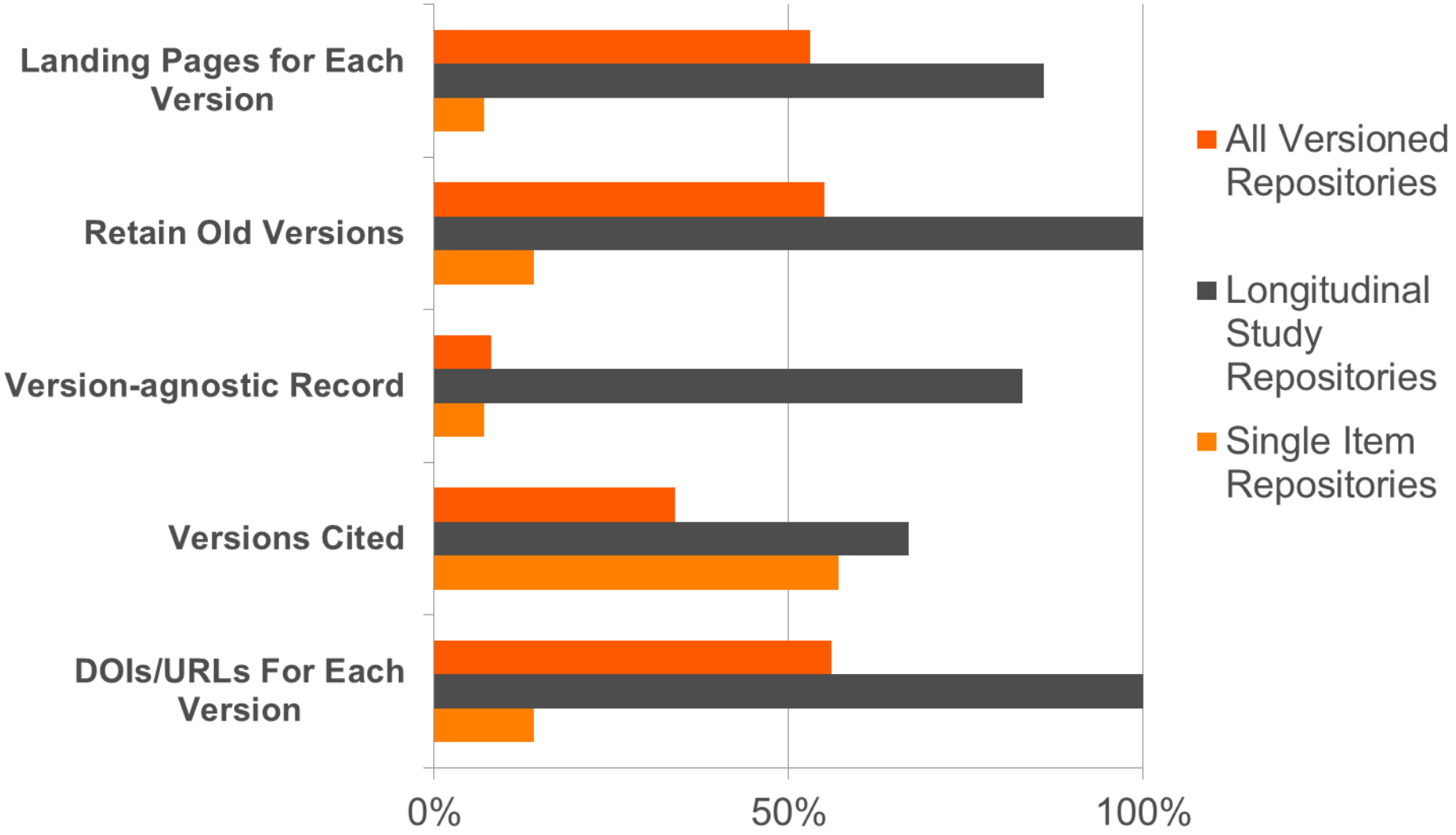
- **A significant amount of version information is not readily available through a dedicated metadata tag**
- **Version information may be concatenated with dataset title, or may be found in the dataset identifier (accession number, DOI, etc)**

Versions in citations?

- **Only 26% of repositories which employ versioning include version in a recommended data citation**
- **Versions are included in formal data citations for a greater share of these repositories**

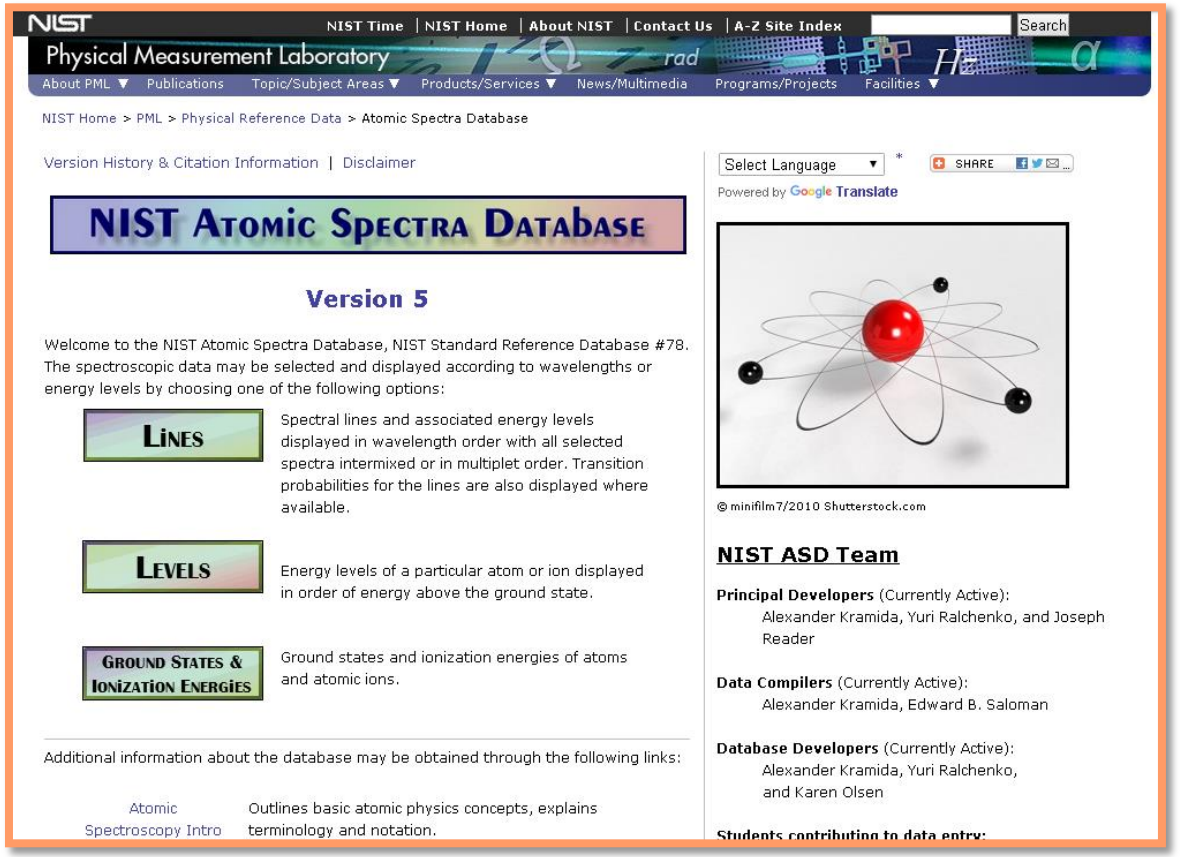


Versioning practices by data repository sub-group



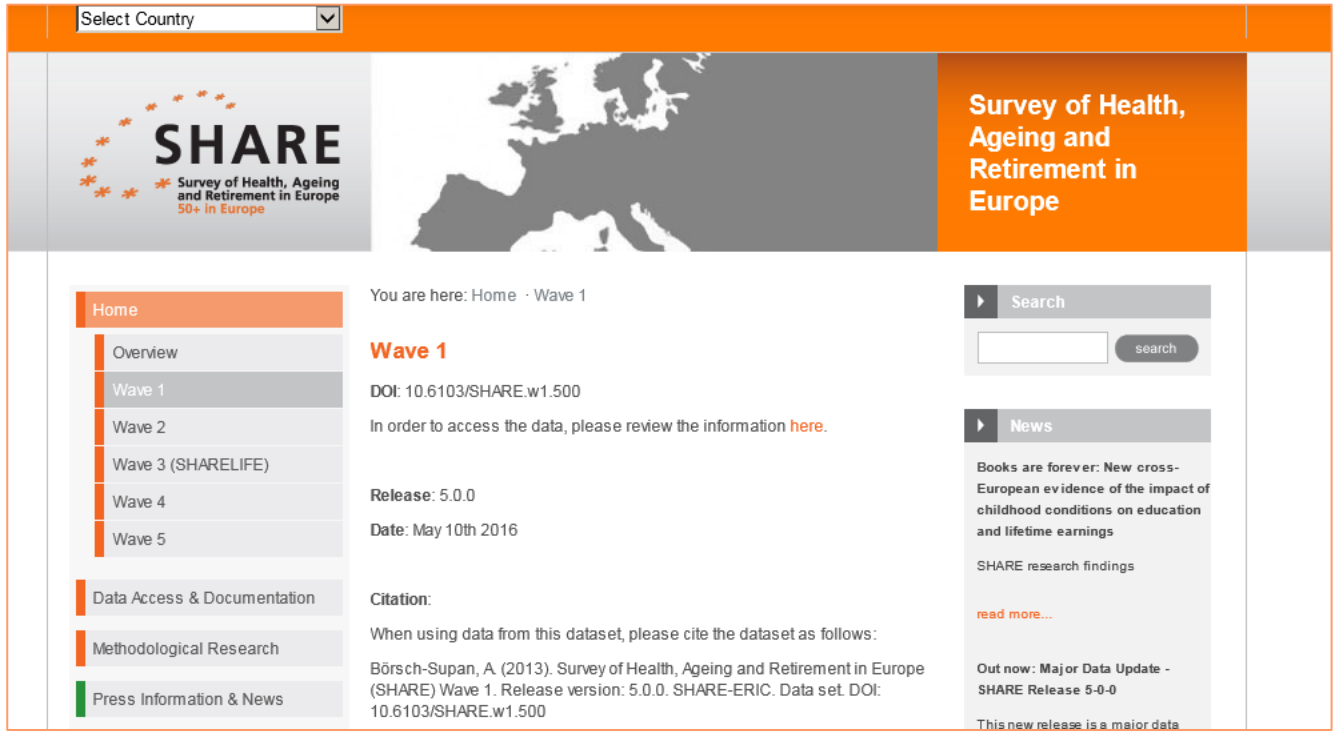
Subgroup: single items

- **DOIs/URLs for each version in 14% of cases**
- **93% do not have a version-agnostic record or landing pages for each version**
- **86% do not retain older versions**
- **For all single items with a recommended data citation, version is included**



Subgroup: longitudinal study repositories

- **67% have version information in title field**
- **100% retain old versions and have DOIs/URLs for each version**
- **83% have version-agnostic record (in this case, the repository record)**
- **86% have landing pages for each version**



Takeaways

- **For 19% of repositories which employ versioning, some results were inconclusive, due to all dataset versions being listed as ‘1.0’**
- **Repository policies with respect to versioning are not displayed on database websites**
- **Metadata vs. data versioning is generally unclear/difficult to determine**
- **Versioning practices may vary significantly even within the datasets of a single data repository**
- **While versioning practices are being adopted by repositories in the interest of correct citation and reproducibility, little or no guidance exists regarding best practice at a cross-disciplinary or discipline-specific level**

Questions/Comments

"Technical mechanisms for citation are only surface characteristics of the knowledge structures in which they are embedded"

- Christine Borgman
Big Data, Little Data, No Data: Scholarship in the Networked World (2015)