

**Moving Research Forward  
With Persistent Identifiers  
and Services**



Patricia Cruse,  
Executive Director, DataCite  
July 12, 2016

# Outline

- What is DataCite
- The value and benefits
- Core services to support data sharing
- Integration and bringing it together

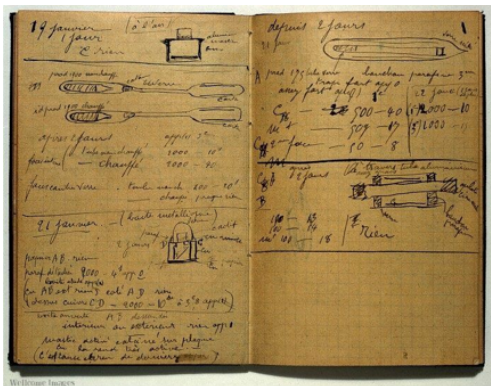
# The Problem

Data form the foundation of research

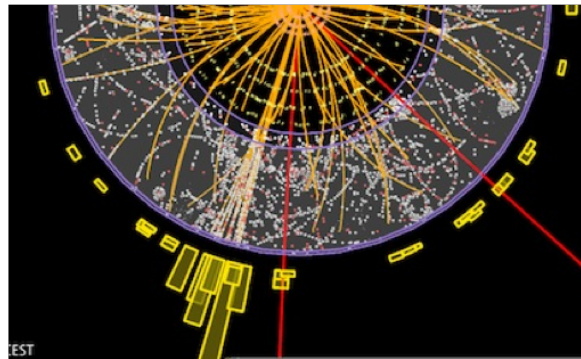
-- yet, data are treated as second class citizens

We need reliable and unambiguous access to data!

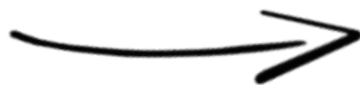
- attribution
- collaboration and reuse
- reproducibility
- faster (and efficient) progress
- feed future researchers



Curie Notebook



ATLAS Experiment



# DataCite's approach

## 1. Provide **technical infrastructure**:

- Create DOIs for research data
- Build and adopt services that promote data sharing
- Integrate with other community services



## 2. Provide **community infrastructure**:

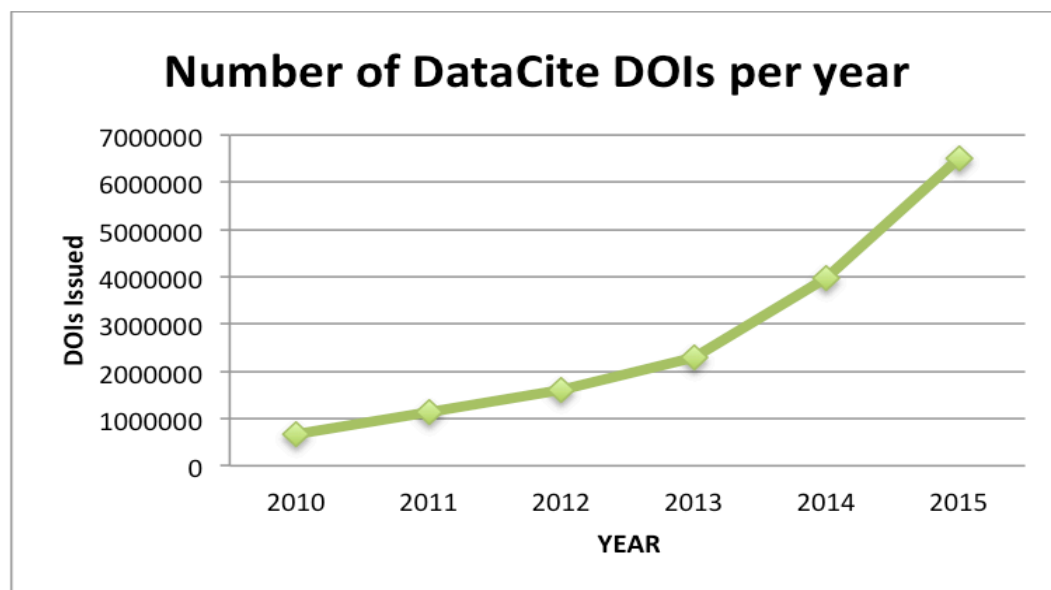
- Advocate & communicate about the importance of data sharing





# DataCite snapshot

- Not-for-profit global initiative
- Community driven
- Discipline agnostic
- 30 members worldwide
- > 680 data centers
- > 7,100,000 DOIs created



# The centrality of a DOI

DOI = Digital Object Identifier

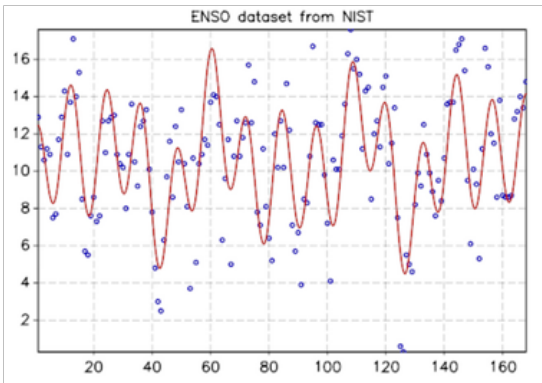
an alphanumeric string created to:

- uniquely *identify/name* digital content
- serve as a *stable, persistent link* to that content's location on the web



# Down in the weeds

1. Take a dataset



2. Describe it

Title
Authors
Year
Description
And others...

3. Assign a DOI



10.1234/exampledata

4. Reuse and reference!

ATLAS Collaboration, "Data from Figure 7 from: Measurements of Higgs boson production and couplings in diboson final states with the ATLAS detector at the LHC:  $H \rightarrow \gamma\gamma$ ,"  
<http://doi.org/10.7484/INSPIREHEP.DATA.A78C.HK44>



Unique



Persistent

5. Enjoy the benefits

Findability

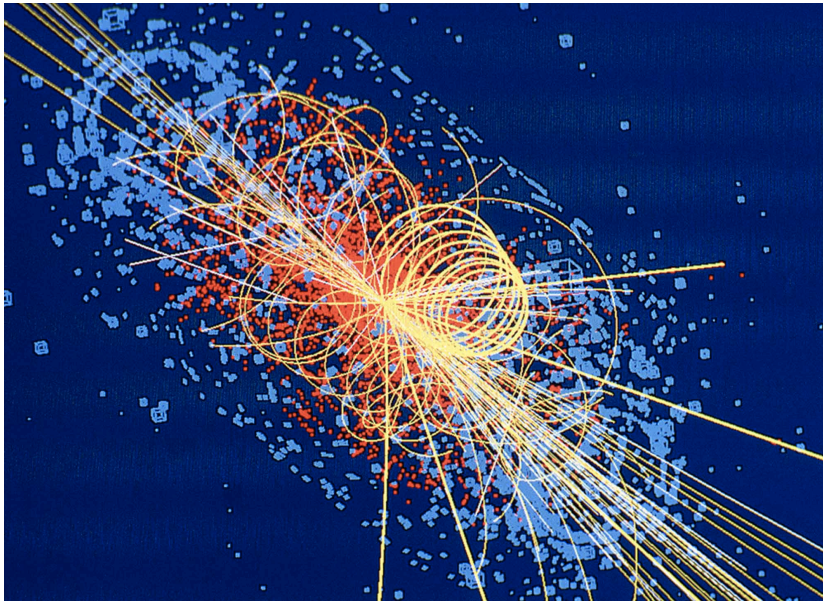
Track citations

Reusability

Measure impact

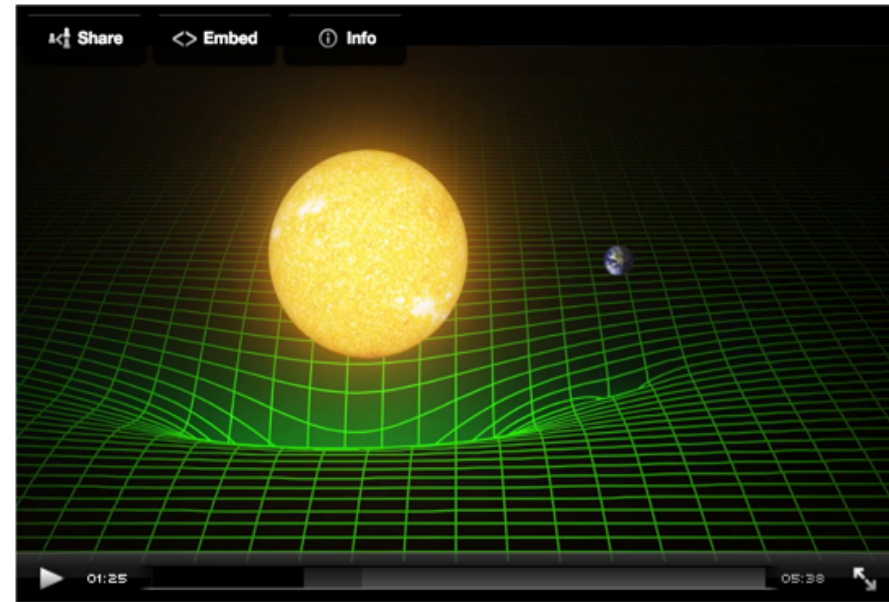
# Good things – DataCite DOIs

## Higgs boson - CERN



<http://doi.org/10.7484/INSPIREHEP.DATA.26B4.TY5F>  
<http://doi.org/10.7484/INSPIREHEP.DATA.RF5P.6M3K>  
<http://doi.org/10.7484/INSPIREHEP.DATA.A78C.HK44>

## Gravitational Waves - LIGO



<http://doi.org/10.7935/K5MW2F23>



# **DATA CITE SERVICES**

# Search Service

energy carrier



841 Results

## R245fa Adsorption on MIL-101

Pete McGrail

Numeric Data published 2013 via DOE Geothermal Data Repository; Pacific Northwest National Laboratory (PNNL), Richland, WA (United States)

Adsorption isotherms for R245fa on metal organic heat carrier candidate MIL-101

<http://doi.org/10.15121/1148803>



Add to ORCID record

## Hot Carrier Solar Cell Absorbers

G. Conibeer, R. Patterson, P. Aliberti, L. Huang, J.-F. Guillemoles, D. König ... & M. Green

Article published 2009 via WIP-Munich

24th European Photovoltaic Solar Energy Conference, 21-25 September 2009, Hamburg, Germany; 178-186

<http://doi.org/10.4229/24THEUPVSEC2009-1BO.8.3>

Cite



Add to ORCID record

## Microscopic observations and representative energy-dispersive X-ray spectra of electron-dense particles of Sm777 cells grown in ten fold-diluted TSB medium solidified with 15 g

Jerome Rose Delphine Pagès

Work published 2011 via Figshare

<http://doi.org/10.6084/M9.FIGSHARE.69449>

Cite



Add to ORCID record

## Hot Carrier Solar Cell Absorbers

G. Conibeer, R. Patterson, L. Huang, J.F. Guillemoles, D. König, S. Shrestha & M.A. Green

Article published 2008 via WIP-Munich

### Resource type

<input type="checkbox"/> Text	772
<input type="checkbox"/> Dataset	42
<input type="checkbox"/> Software	3
<input type="checkbox"/> Collection	2

### Publication year

<input type="checkbox"/> 2010	127
<input type="checkbox"/> 2013	111
<input type="checkbox"/> 2009	98
<input type="checkbox"/> 2012	96
<input type="checkbox"/> 2011	91
<input type="checkbox"/> 2015	90
<input type="checkbox"/> 2008	86
<input type="checkbox"/> 2014	76
<input checked="" type="checkbox"/> 2007	9
<input type="checkbox"/> 2006	8

### Data center

<input type="checkbox"/> WIP - Renewable Energies	623
<input type="checkbox"/> EPFL Infoscience	40
<input type="checkbox"/> University of British Columbia	37
<input type="checkbox"/> Technische Universität Berlin - Universitätsbibliothek	32
<input type="checkbox"/> ETA-Florence Renewable Energies	17
<input type="checkbox"/> Bern Open Repository and Information System (BORIS)	11
<input type="checkbox"/> Columbia University	

# Search Service: promote sharing

energy carrier



841 Results

## R245fa Adsorption on MIL-101

Pete McGrail

Numeric Data published 2013 via DOE Geothermal Data Repository; Pacific Northwest National Laboratory (PNNL), Richland, WA (United States)

Adsorption isotherms for R245fa on metal-organic heat carrier candidate MIL-101

<http://doi.org/10.15121/1148803> Cite Add to ORCID record

## Hot Carrier Solar Cell Absorbers

### R245fa Adsorption on MIL-101

BibTeX RIS APA Harvard IEEE MLA Vancouver Chicago

```
@data{f2c05973-1bb2-45de-9fea-e6772370bef7,  
  doi = {10.15121/1148803},  
  url = {http://dx.doi.org/10.15121/1148803},  
  author = {McGrail, Pete; },  
  publisher = {DOE Geothermal Data Repository; Pacific Northwest National Laboratory},  
  title = {R245fa Adsorption on MIL-101},  
  year = {2013}  
}
```

## Hot Carrier Solar Cell Absorbers

G. Conibeer, R. Patterson, L. Huang, J.F. Guillemoles, D. König, S. Shrestha & M.A. Green

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<input type="checkbox"/> ETA-Florence Renewable Energies	17
<input type="checkbox"/> Bern Open Repository and Information System (BORIS)	11
<input type="checkbox"/> Columbia University	



# DataCite DOIs and Data Centers

The screenshot displays the DataCite Search interface. At the top left is the DataCite Search logo. The top navigation bar includes links for Works, Contributors, Data Centers, Members, Sources, and a Sign in button. The main content area is titled "Harvard Dataverse" and shows the identifier "cdl.datavers". Below this is a search bar with the text "Search for work" and a "Search" button. The results section shows "1,828 Works". Three results are visible, each with a title, a subtitle, a DOI link, and a "Cite" button. The right sidebar contains filters for "Member CDL", "Resource Types" (Text: 1,822, Dataset: 6), and "Publication Year" (2014: 1,828).

**DataCite Search** Works Contributors Data Centers Members Sources Sign in

**Harvard Dataverse**

cdl.datavers

Search for work Search

1,828 Works

**Replication data for: Media Freedom and the Institutional Underpinnings of Political Knowledge**  
Report published 2014 via Harvard Dataverse

<http://doi.org/10.7910/DVN/24122> Cite

**Gone with the Wind: Federalism and the Strategic Location of Air Polluters**  
Report published 2014 via Harvard Dataverse

<http://doi.org/10.7910/DVN/26905> Cite

**Replication data for: Analyzing Manifestos in their Electoral Context: A New Approach Applied to Austria, 2002â 2008**  
Report published 2014 via Harvard Dataverse

<http://doi.org/10.7910/DVN/27864> Cite

**Replication data for: Citizens or Clients? Evidence on Opportunistic Voting from a Natural Experiment in Greece**  
Konstantinos Matakos  
Report published 2014 via Harvard Dataverse

<http://doi.org/10.7910/DVN/27809> Cite

**Member CDL**

**Resource Types**

Text 1,822

Dataset 6

**Publication Year**

2014 1,828



# Service: creating downstream impact

- Query & retrieve metadata (7 million plus records) via Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH)
- Different metadata formats available
- Service is open and free!
  - Thomson Reuters (Data Citation Index)
  - Elsevier (Exlibris)
  - Center for Open Science (SHARE)



# **SERVICE INTEGRATION**

# Service integration: it is important

- So many tools and choices (so little time).
- Overwhelming, but what rises to the top?
- Connecting services in order to:
  - make it easier
  - integrate with related content to provide a fuller picture
  - provide impact

# Building bridges





Technical and **H**uman  
infrastructure  
for **O**pen **R**esearch

Our goal is to ensure that every researcher, at any phase of their career, or at any institution, will have seamless access to Persistent Identifiers (PIDs) for their research artifacts and their work will be uniquely attributed to them



# THOR Project

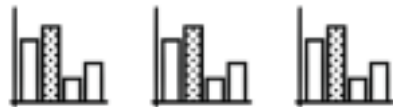


establish seamless integration between articles, data, and researchers

- EU funded
- 30-months
- Partners
  - DataCite
  - ORCID
  - Repositories (Dryad, Pangea)
  - CERN
  - EBI
  - plus
- PIDs for datasets:  
DataCite DOIs
- PID's for researchers:  
ORCID IDs
- So it is possible to:
  - grant credit to authors (through citation)
  - support reproducible research (through citation)
  - build new interoperable services



# Bridges across data life-cycle



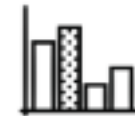
Subsets of Data  
Multiple Versions  
Dynamic Data

Linking data with data



[http://orcid.org/  
0000-0002-4695-7874](http://orcid.org/0000-0002-4695-7874)

Who?  
When?  
Where?  
↔

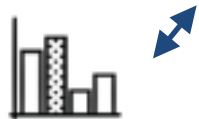


[http://doi.org/10.5281/  
ZENODO.30800](http://doi.org/10.5281/ZENODO.30800)

Linking data with contributors



<http://doi.org/10.5281/ZENODO.30799>



<http://doi.org/10.5281/ZENODO.30800>

Linking data with articles



?



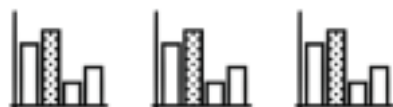
[http://orcid.org/  
0000-0002-4695-7874](http://orcid.org/0000-0002-4695-7874)



[http://doi.org/10.13039/  
501100000780](http://doi.org/10.13039/501100000780)

Linking data with institutions/funders

# Linking Data with Data



Subsets of Data  
Multiple Versions  
Dynamic Data

## Challenges

How to properly cite data

The relationships between data:

- multiple versions of the same dataset
- subsets of larger datasets or heterogenous collections
- dynamic data



# Linking Data with Data

## **Data Citation Principles**

1. Importance
- 2. Credit and Attribution**
3. Evidence
4. Unique Identification
5. Access
6. Persistence
- 7. Specificity and Verifiability**
- 8. Interoperability and Flexibility**

<https://www.force11.org/group/joint-declaration-data-citation-principles-final>



# Linking data to data example

Dataset

No. of relations

References, supplements

**Carbon export fluxes and export efficiency in the central Arctic during the record sea-ice minimum in 2012: A joint<sup>234</sup>Th/<sup>238</sup>U and<sup>210</sup>Po/<sup>210</sup>Pb study**  
Journal article published June 2016

DataCite (Crossref) 4

<http://doi.org/10.1002/2016JC011816> Cite

Publisher  
Wiley-Blackwell

Share on



**Relations 4**

**Particulate Th concentration**  
Montserrat Roca-Marti  
Work published 2016

References <http://doi.org/10.1002/2016JC011816>

**Total (dissolved) during POLARIS**  
Montserrat Roca-Marti  
Work published 2016

References <http://doi.org/10.1002/2016JC011816>

**Total (dissolved) during POLARIS**  
Montserrat Roca-Marti, Viena Puigcorb , Ingrid Stimac, Michiel M Loeff & Pere Masqu   
Work published 2016 via PANGAEA - Data Publisher for Earth & Environmental Science

References <http://doi.org/10.1002/2016JC011816>

<http://doi.org/10.1594/PANGAEA.858788> Cite

Relation Types	
<input type="checkbox"/> Is referenced by	37,503
<input type="checkbox"/> Is supplemented by	33,100
<input type="checkbox"/> Is source of	1,464
<input type="checkbox"/> Is new version of	1,070
<input type="checkbox"/> Is original form of	1,058
<input type="checkbox"/> References	949
<input type="checkbox"/> Is reviewed by	903
<input type="checkbox"/> Documents	497
<input type="checkbox"/> Cites	184
<input type="checkbox"/> Is cited by	151
<input type="checkbox"/> Is derived from	58
<input type="checkbox"/> Compiles	10
<input type="checkbox"/> Is part of	7
<input type="checkbox"/> Is previous version of	6
<input type="checkbox"/> Is supplement to	4
<input type="checkbox"/> Has part	4
<input type="checkbox"/> Is identical to	1

Sources

<input type="checkbox"/> DataCite (Crossref)	4
--	---

Relation Types

<input type="checkbox"/> References	3
<input type="checkbox"/> Is supplement to	1

# Linking data parts using metadata

dataset

no. of relations

related parts

search.datacite.org/works/10.1594/PANGAEA.611088

DataCite Search

Works Contributors Data Centers Members Sources Sign in

**Climatological observations from ship logbooks between 1750 and 1854 (release 2.1)**  
Phil D Jones, Dennis A Wheeler, Gunther P Können, Frits B Koek, Maria del Rosario Prieto & Ricardo Garcia-Herrera  
Collection of datasets published 2007 via PANGAEA - Data Publisher for Earth & Environmental Science  
The Climatological Database for the World's Oceans: 1750-1854 (CLIMOC) project, which concluded in 2004, abstracted more than 280,000 daily weather observations from ships' logbooks from British, Dutch, French, and Spanish naval vessels engaged in imperial business in the eighteenth and nineteenth centuries. These data, now compiled into a database, provide valuable information for the reconstruction of oceanic wind field patterns for this key period that precedes the time in which anthropogenic influences on climate became...

DataCite (RelatedIdentifier) 4,774

http://doi.org/10.1594/PANGAEA.611088 Cite

Relations 4,778

**Meteorological observations during JASON cruise from St. Eustacius to Hellevoetsluis started at 1780-07-07**  
Ricardo Garcia-Herrera, Gunther P Können, Dennis A Wheeler, Maria del Rosario Prieto, Phil D Jones & Frits B Koek  
Work published 2010 via PANGAEA - Data Publisher for Earth & Environmental Science

Is part of http://doi.org/10.1594/PANGAEA.611088 DataCite (RelatedIdentifier)

http://doi.org/10.1594/PANGAEA.749581 Cite

**Meteorological observations during PRINCIPE cruise from La Coruña to La Habana started at 1778-06-06**  
Ricardo Garcia-Herrera, Gunther P Können, Dennis A Wheeler, Maria del Rosario Prieto, Phil D Jones & Frits B Koek  
Work published 2010 via PANGAEA - Data Publisher for Earth & Environmental Science

Is part of http://doi.org/10.1594/PANGAEA.611088 DataCite (RelatedIdentifier)

**Data Center**  
PANGAEA - Publishing Network for Geoscientific and Environmental Data

**Member**  
German National Library of Science and Technology

**Share on**  
Twitter Facebook

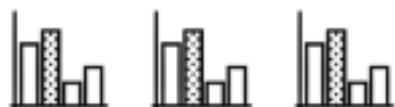
**Sources**

<input type="checkbox"/> DataCite (RelatedIdentifier)	4,775
<input type="checkbox"/> DataCite (Crossref)	3

**Relation Types**

<input type="checkbox"/> Is part of	4,775
<input type="checkbox"/> Is referenced by	3

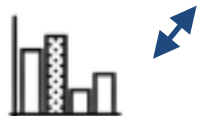
# Linking Data with Articles



Subsets of Data  
Multiple Versions  
Dynamic Data



<http://doi.org/10.5281/ZENODO.30799>



<http://doi.org/10.5281/ZENODO.30800>

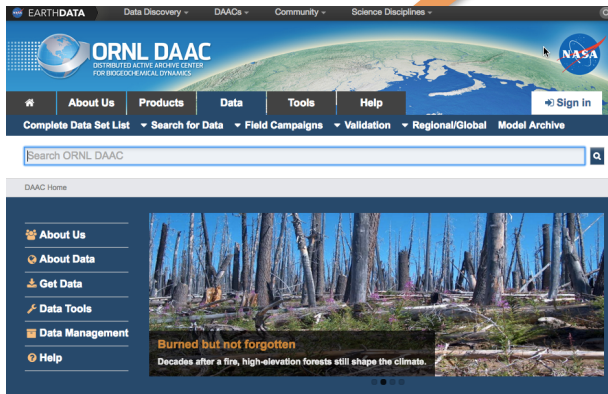
## Challenges

Data underlying the findings described in a manuscript are **not always fully available**

Data underlying the findings described in a manuscript made available, but hidden in supplementary information and **not easily findable**

Data underlying the findings described in a manuscript made available, but **not properly linked** to/from article

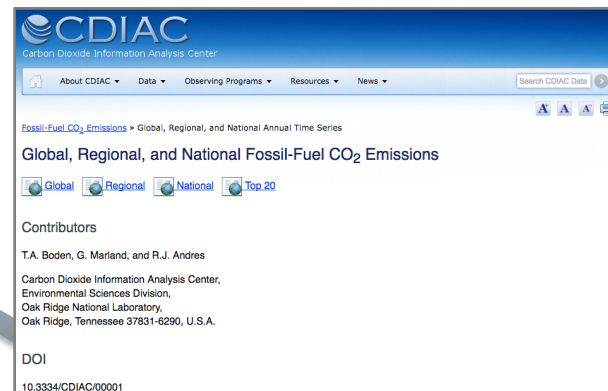
# Wouldn't it be nice if...



Data publisher is automatically informed

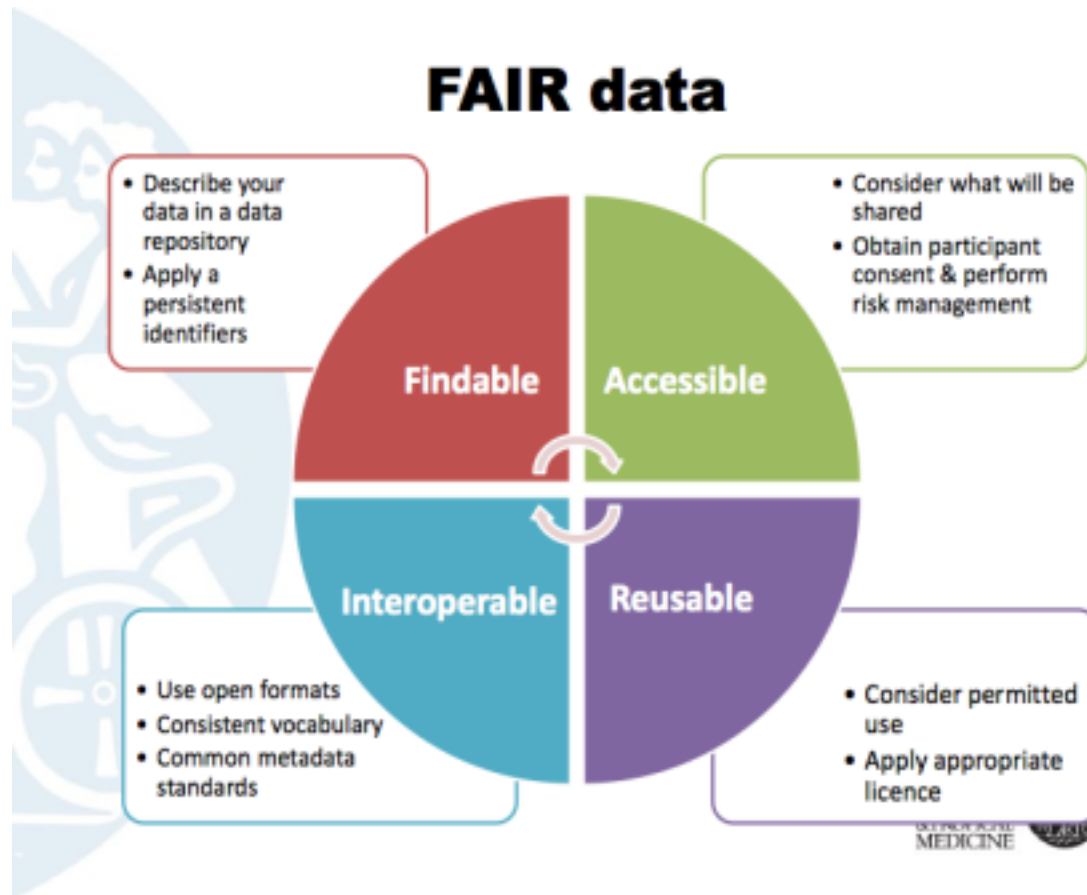


when journal articles cite



one of their datasets

# Linking Data with Articles: Follow FAIR Data Principles



From: <http://slideshare.net/lshfm/preparing-data-for-sharing-the-fair-principles>

# Linking Data with Articles

## **DataCite Event Data** (<https://eventdata.datacite.org>)

Collect, aggregate and make available article/data links from DataCite metadata and other sources

## **Crossref Event Data** (<https://api.eventdata.crossref.org>)

Collect and make available article/data links from Crossref metadata and other sources

# Example 1: Five datasets from Cambridge Crystallographic Data Centre linked to the same article

Journal article

The screenshot shows the DataCite Search interface. At the top, the logo 'DataCite Search' is on the left, and navigation links 'Works', 'Contributors', 'Data Centers', 'Members', 'Sources', and a 'Sign in' button are on the right. The main content area features a journal article entry with the title 'Temperature-Induced Syntheses, Iodine Elimination, Enantiomers Resolution, and Single-Crystal-to-Single-Crystal Transformation of Imidazole-Co(II) Coordination Polymers with Amino-isophthalic Acid as Co-Ligand'. Below the title, it says 'Journal article published June 9, 2016'. To the right of the article, the publisher 'American Chemical Society (ACS)' is circled in red. Below the article, there is a 'Relations' section with a '5' icon. This section lists three related datasets from the Cambridge Crystallographic Data Centre (CCDC): 'CCDC 1414538: Experimental Crystal Structure Determination', 'CCDC 1059747: Experimental Crystal Structure Determination', and 'CCDC 1484151: Experimental Crystal Structure Determination'. Each dataset entry includes the authors' names, the publication year, and a link to the dataset. On the right side of the page, there are social media sharing icons for Twitter and Facebook, and a 'Sources' section listing 'DataCite (Crossref)' with a count of 5. Below that, a 'Relation Types' section lists 'Is supplement to' with a count of 5.

**DataCite Search** Works Contributors Data Centers Members Sources - Sign in

**Temperature-Induced Syntheses, Iodine Elimination, Enantiomers Resolution, and Single-Crystal-to-Single-Crystal Transformation of Imidazole-Co(II) Coordination Polymers with Amino-isophthalic Acid as Co-Ligand**  
Journal article published June 9, 2016

Publisher  
American Chemical Society (ACS)

Share on  
Twitter Facebook

Relations 5

**CCDC 1414538: Experimental Crystal Structure Determination**  
Hui-Fang Zhou, Tian He, Ke-Fen Yue, Yong-Liang Liu, Chun-Sheng Zhou, Ni Yan & Yao-Yu Wang  
Work published 2016 via Cambridge Crystallographic Data Centre

Is supplement to <http://doi.org/10.1021/ACS.CGD.6B00527> DataCite (Crossref)

<http://doi.org/10.5517/CCDC.CSD.CC1JGY86> Cite

**CCDC 1059747: Experimental Crystal Structure Determination**  
Hui-Fang Zhou, Tian He, Ke-Fen Yue, Yong-Liang Liu, Chun-Sheng Zhou, Ni Yan & Yao-Yu Wang  
Work published 2016 via Cambridge Crystallographic Data Centre

Is supplement to <http://doi.org/10.1021/ACS.CGD.6B00527> DataCite (Crossref)

<http://doi.org/10.5517/CCDC.CSD.CC14KRDV> Cite

**CCDC 1484151: Experimental Crystal Structure Determination**  
Hui-Fang Zhou, Tian He, Ke-Fen Yue, Yong-Liang Liu, Chun-Sheng Zhou, Ni Yan & Yao-Yu Wang  
Work published 2016 via Cambridge Crystallographic Data Centre

Sources

DataCite (Crossref) 5

Relation Types

Is supplement to 5

Related data



# Example 2: Software library described in Journal of Open Source Software

Journal article

Software Library

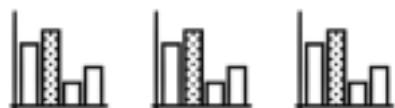
The screenshot shows the DataCite Search interface. At the top, the logo "DataCite Search" is on the left, and navigation links "Works", "Contributors", "Data Centers", "Members", "Sources", and a "Sign in" button are on the right. The main content area is divided into two sections. The first section, titled "Journal article", features a red bracket on the left. It contains the following information: the title "Armadillo: a template-based C++ library for linear algebra" in blue, the authors "Conrad Sanderson & Ryan Curtin", and the text "Journal article published June 10, 2016 via JOSS". Below this is a "DataCite (Crossref)" link with a "1" in a circle, and a "Cite" button with a URL: <http://doi.org/10.21105/JOSS.00026>. The second section, titled "Software Library", also has a red bracket on the left. It is preceded by a "Relations 1" header. It contains the title "Armadillo C++ Linear Algebra Library" in blue, the author "Conrad Sanderson", and the text "Work published 2016 via Zenodo". Below this is an "Is cited by" link with a URL: <http://doi.org/10.21105/JOSS.00026> and a "DataCite (Crossref)" label. At the bottom of this section is another "Cite" button with a URL: <http://doi.org/10.5281/ZENODO.55251>. On the right side of the interface, there are sections for "Publisher" (The Open Journal), "Share on" (with Twitter and Facebook icons), "Sources" (with a checkbox for "DataCite (Crossref)" and a count of "1"), and "Relation Types" (with a checkbox for "Is cited by" and a count of "1").

# Example 3: PLOS articles linked with at least one DataCite DOI

publisher  
no. of works  
related content

The screenshot shows the DataCite Search interface. At the top, the 'DataCite Search' logo is on the left, and navigation links for 'Works', 'Contributors', 'Data Centers', 'Members', 'Sources', and a 'Sign in' button are on the right. The main content area displays search results for the 'Public Library of Science (PLOS)'. A summary box shows '340' items and '542 Works'. Below this, three individual article entries are listed, each with a title, authors, and a 'DataCite (Crossref)' link. The first article is 'Seasonality and Locality Affect the Diversity of Anopheles gambiae and Anopheles coluzzii Midgut Microbiota from Ghana'. The second is 'Genetic Diversification and Dispersal of Taro (Colocasia esculenta (L.) Schott)'. The third is 'Mosquito Saliva Increases Endothelial Permeability in the Skin, Immune Cell Migration, and Dengue Pathogenesis during Antibody-Dependent Enhancement'. On the right side, there are three sections: 'Registration Agency' (Crossref), 'Sources' (DataCite (Crossref) 478, DataCite (RelatedIdentifier) 9), and 'Relation Types' (Is referenced by 277, References 244, Is original form of 119, Is supplemented by 104, Is previous version of 6, Cites 4, Is new version of 4, Documents 1, Is source of 1).

# Linking Data and Contributors

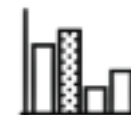


Subsets of Data  
Multiple Versions  
Dynamic Data



[http://orcid.org/  
0000-0002-4695-7874](http://orcid.org/0000-0002-4695-7874)

Who?  
When?  
Where?  
↔



[http://doi.org/10.5281/  
ZENODO.30800](http://doi.org/10.5281/ZENODO.30800)



<http://doi.org/10.5281/ZENODO.30799>



<http://doi.org/10.5281/ZENODO.30800>

# Seamless integration with ORCID



**Researchers:** (1) use ORCID iD when submitting dataset (2) authorize DataCite to update your ORCID record.

**Data centers:** (1) collect ORCID identifiers during submission (2) embed iD in the work and include the iD when submitting to DataCite.

**DataCite:** Upon receipt of data from a data center with a valid identifier, DataCite automatically pushes information to the researcher's ORCID record.

# Linking Data and Contributors

## ORCID/DataCite Search and Link

### Wie kann die Bibliothek die Sichtbarkeit ihrer Wissenschaftler erhöhen?

Martin Fenner

Report published 2012 via German Medical Science GMS Publishing House

Mit der Einführung elektronischer bibliographischer Datenbanken und der Umstellung auf elektronisches Publizieren hat sich der Stellenwert der Bibliothek für den einzelnen Wissenschaftler deutlich geändert. Während vor 20 Jahren die Recherche und der Erhalt von Volltexten praktisch[for full text, please go to the a.m. URL]

<http://doi.org/10.3205/12AGMB03> Cite  In your ORCID record

### Die Bedeutung der Tellfigur im 17. und frühen 18. Jahrhundert

Martin Fenner

Work published 1973 via Historischer Verein der Fünf Orte Luzern, Uri, Schwyz, Unterwalden und Zug

<http://doi.org/10.5169/SEALS-118645> Cite  Add to ORCID record

### DataCite/ORCID Integration

Martin Fenner

Report published 2015 via Zenodo

DataCite Profiles and ORCID Auto-Update webinar



#### Add work to ORCID

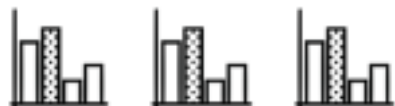
Are you sure you want to add this work to your ORCID record?

Cancel

Ok

<http://doi.org/10.5281/ZENODO34673> Cite  In your ORCID record

# Linking data to funder information and organizations

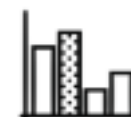


Subsets of Data  
Multiple Versions  
Dynamic Data



[http://orcid.org/  
0000-0002-4695-7874](http://orcid.org/0000-0002-4695-7874)

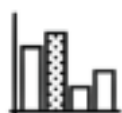
Who?  
When?  
Where?  
↔



[http://doi.org/10.5281/  
ZENODO.30800](http://doi.org/10.5281/ZENODO.30800)



<http://doi.org/10.5281/ZENODO.30799>



<http://doi.org/10.5281/ZENODO.30800>



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[http://orcid.org/  
0000-0002-4695-7874](http://orcid.org/0000-0002-4695-7874)



654039I



[http://doi.org/10.13039/  
501100000780](http://doi.org/10.13039/501100000780)

# Linking data to funding

## Funding Info in DataCite Schema 4.0

- Addition of a new property FundingReference
- New subproperties funderName, funderIdentifier, funderIdentifierType, awardNumber, awardURI, awardTitle
- Use of Open Funder Registry ID recommended, but not required
- Aligned with Crossref metadata for funding information

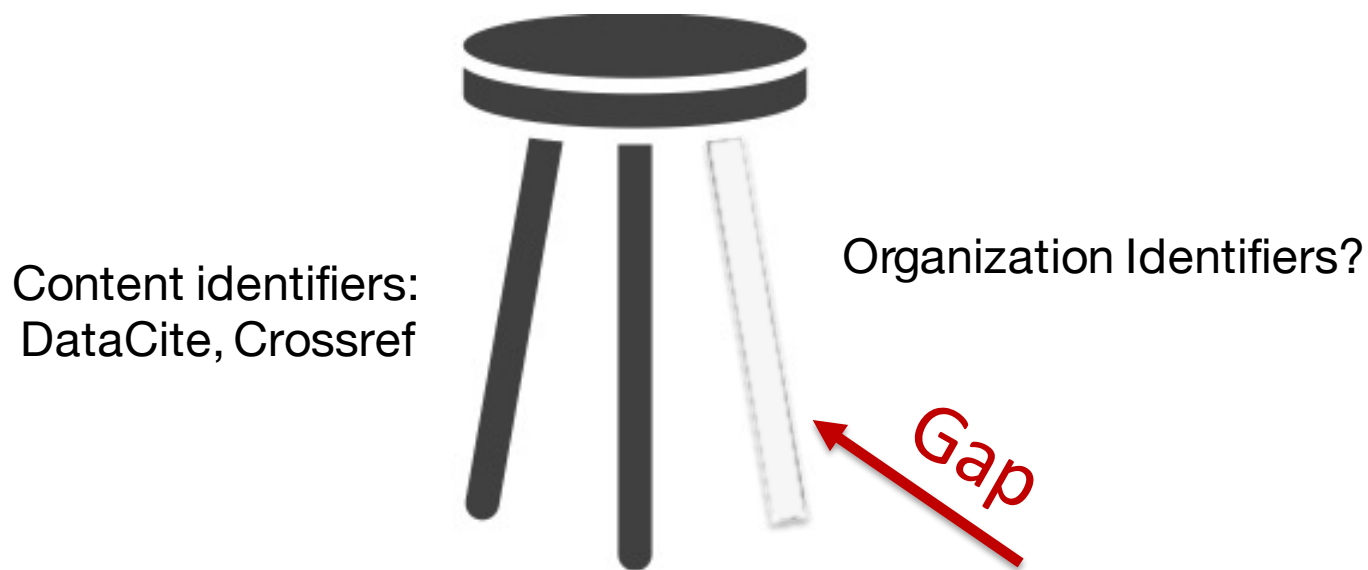
<http://schema.labs.datacite.org/meta/kernel-4.0/>

Launch to production September 2016



# Linking data to organization identifiers

there is a well documented need for a comprehensive, open, and accessible organization identifier infrastructure

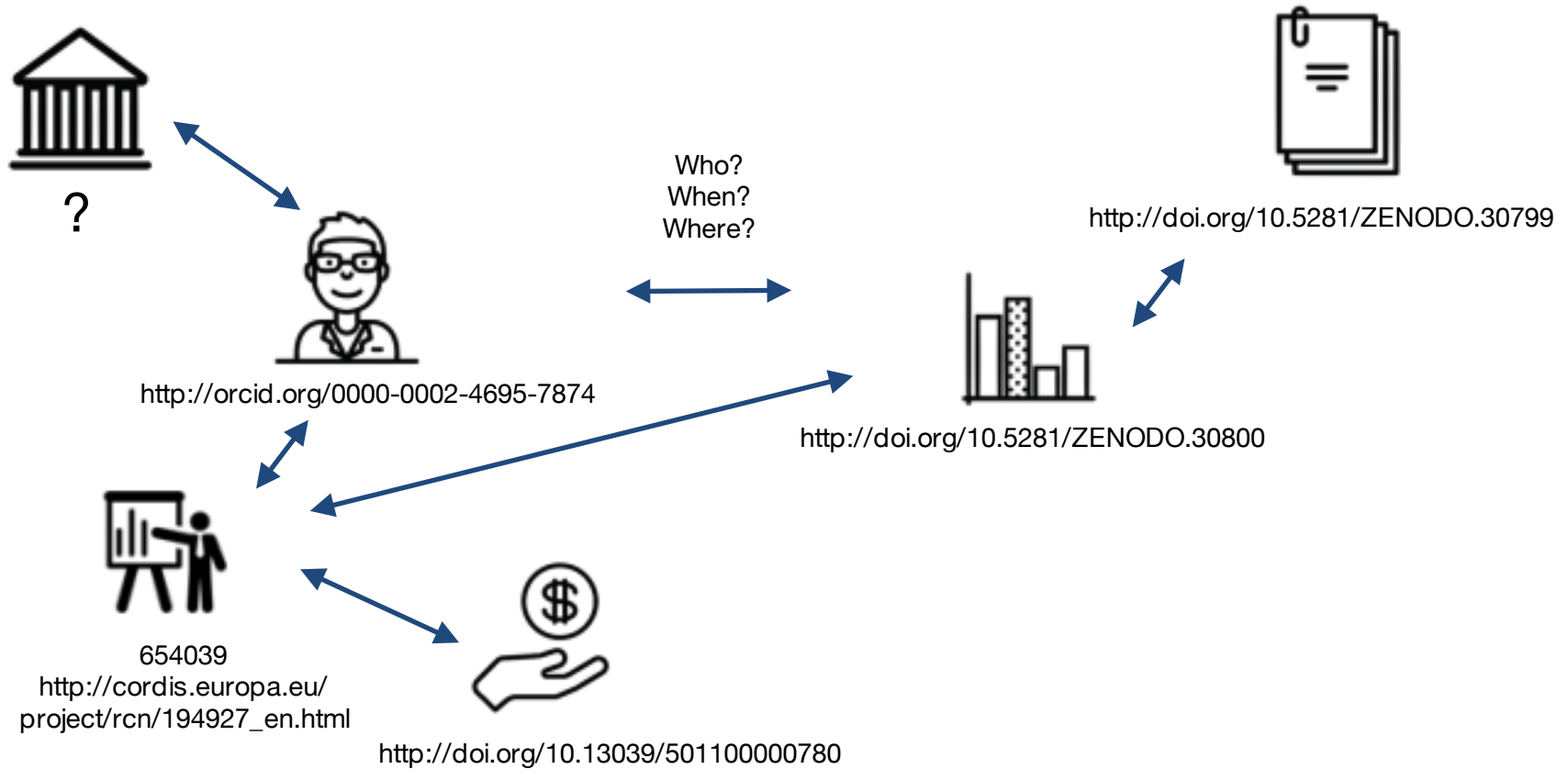


Contributor identifiers:  
ORCID





# Seamless integration across the research lifecycle





# **DATA CITE ADVOCACY & OUTREACH**

# Advocacy & Communication:

- Adapting messages for different audiences:
  - Data centers, researchers, developers, librarians, publishers, funders
  - [blog.datacite.org](https://blog.datacite.org)
  - Training events, conferences, workshops, webinars
  - Knowledge Hub: <https://project-thor.readme.io>



# Community input



# In sum: working to further data sharing

## **1. Researchers:**

find, identify, and cite research data and other research objects with confidence

## **3. Journal Publishers:**

enable research articles to be linked to the underlying data/objects

## **2. Data centers:**

provide persistent identifiers for datasets, workflows and best practices for data sharing and citation

## **4. Funders:**

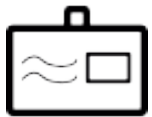
help to track the impact of research funding

# Through technology & communication

DataCite develops and supports methods to...



locate



identify



cite

research data in order to:



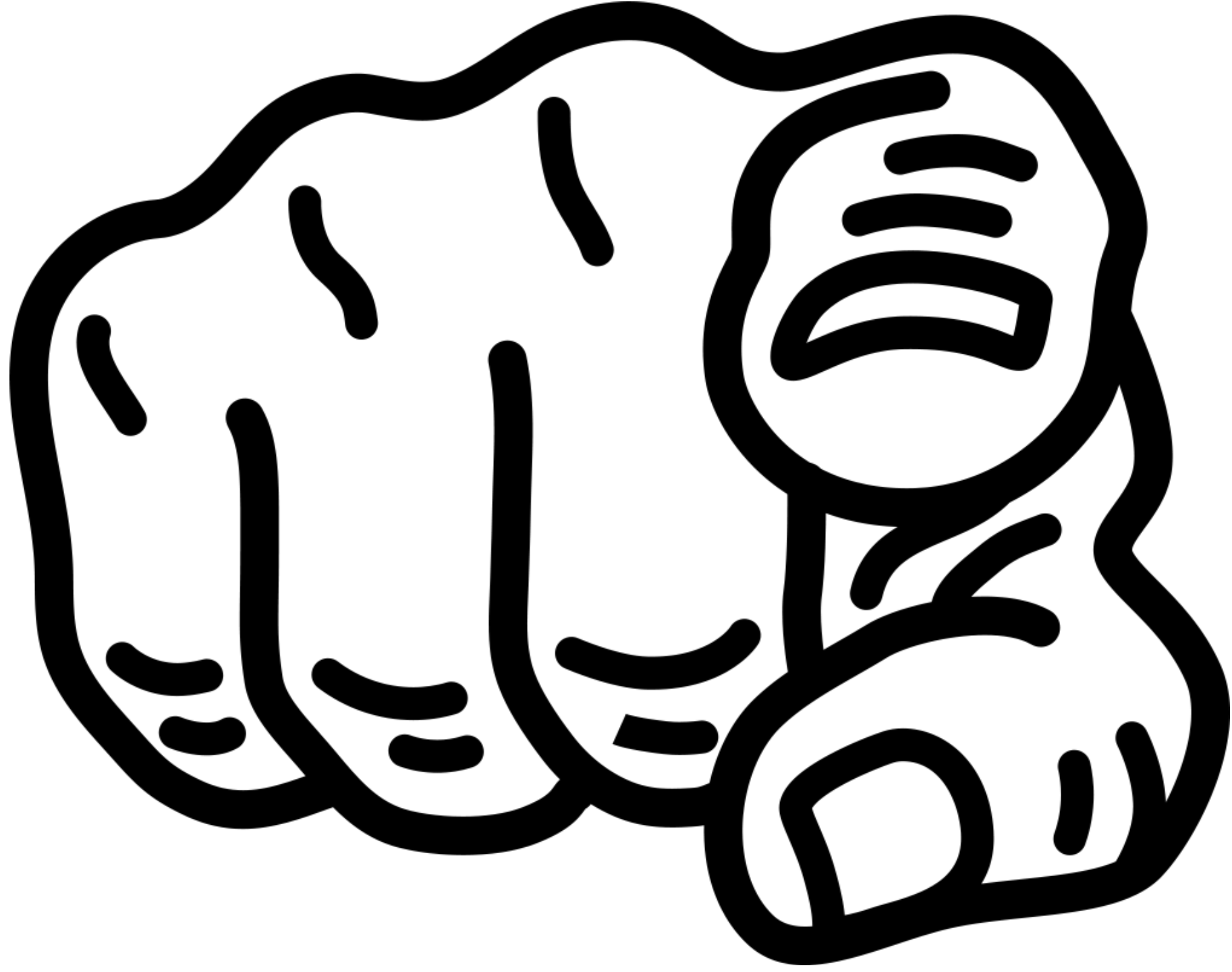
establish easier access



increase acceptance



foster reuse





# Thank you!

[patricia.cruse@datacite.org](mailto:patricia.cruse@datacite.org)

datacite.org

Twitter: @datacite



# One last thing...

# **PID**apalooza

Reykjavik, Nov 2016

Open identifiers deserve their own festival

**November 9-10**

[pidapalooza.org](http://pidapalooza.org)



University of California

**CDL**  
California Digital Library

ORCID



**DataCite**  
FIND, ACCESS, AND REUSE DATA