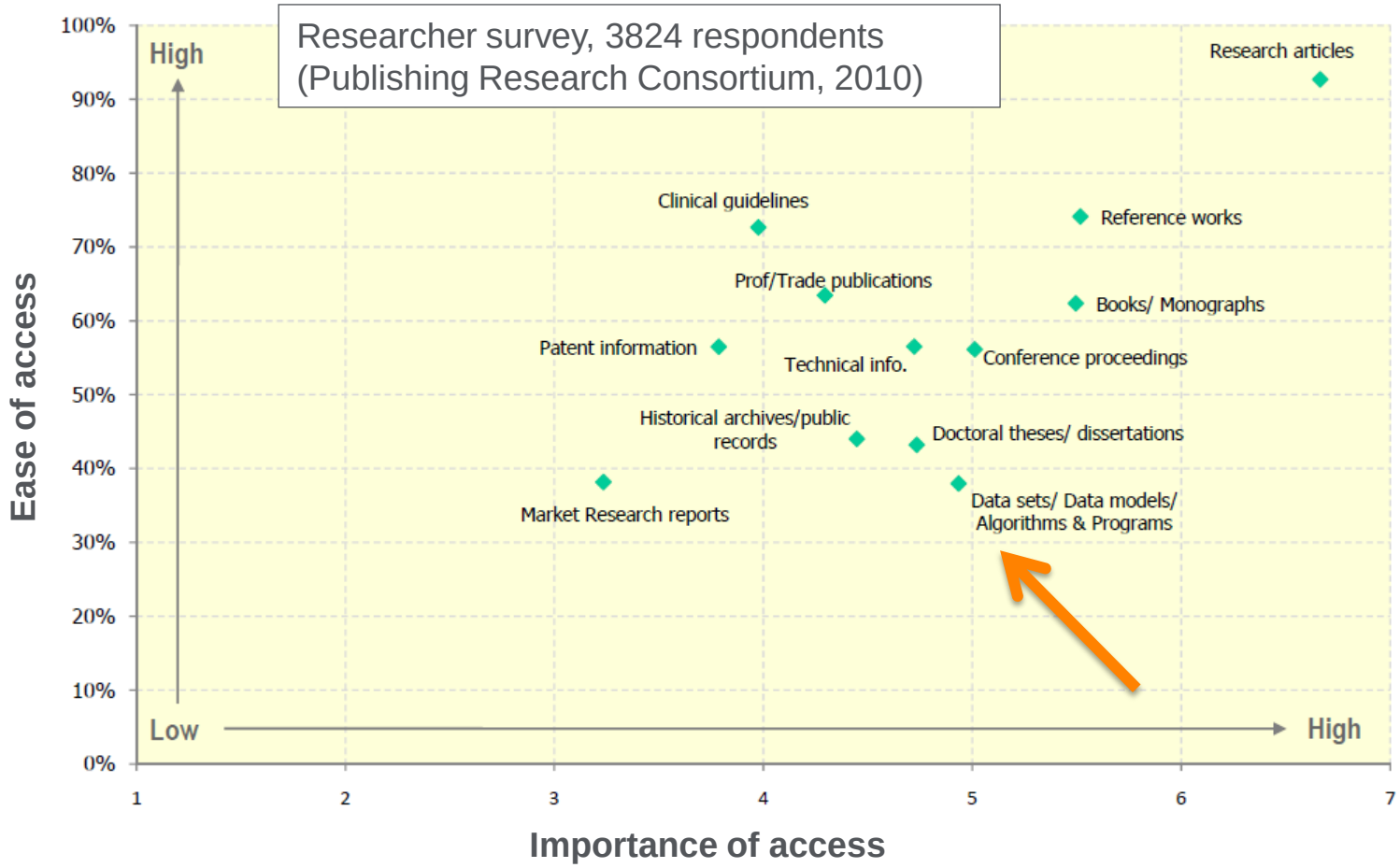
Linking data and publications – the past, present, and future

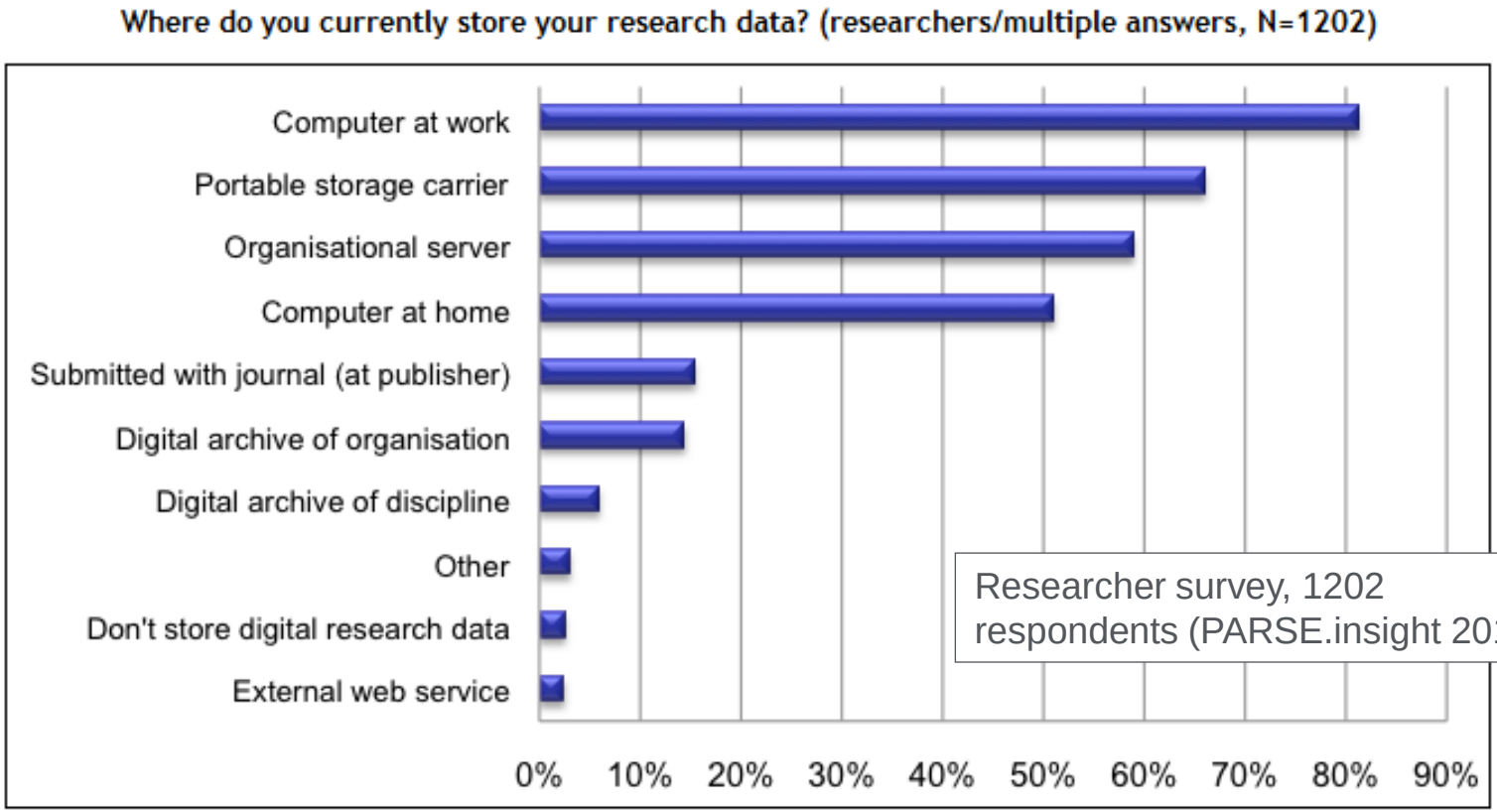
Dr. Hylke Koers, Head of Content Innovation, Elsevier

STM Innovations Seminar, 3 Dec 2014

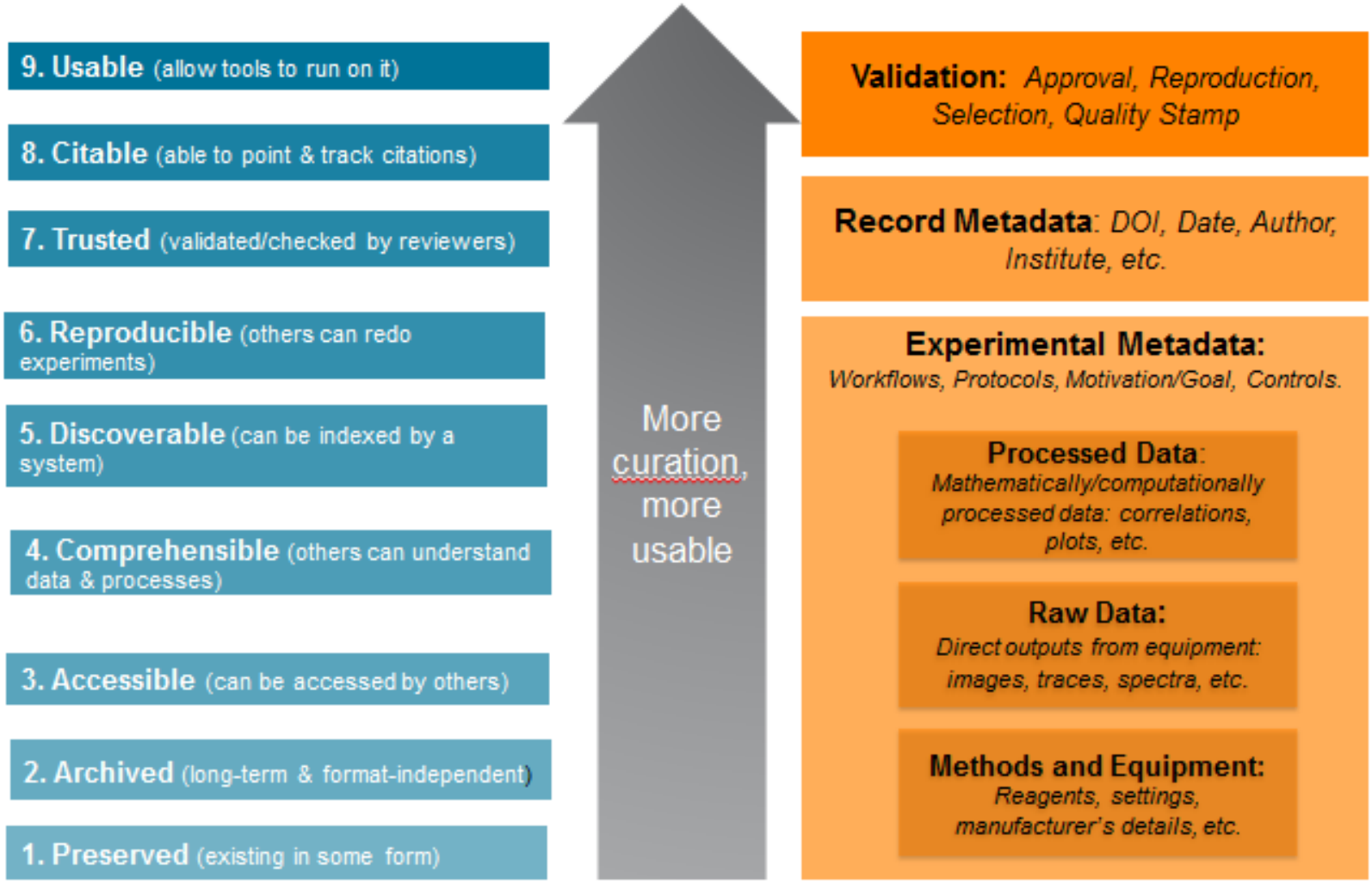
The issue: data is important, but hard to access



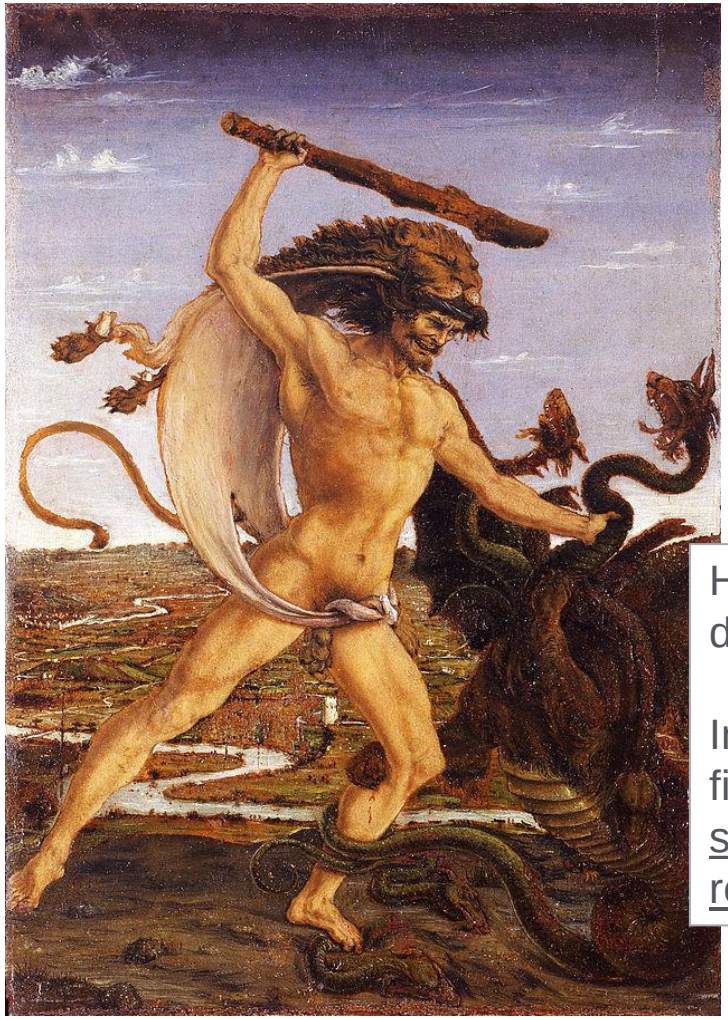
That should not be a surprise, as data is often left in the proverbial drawer.



And when you find it, you still have to make sense of it!



So... there's a lot of work ahead!



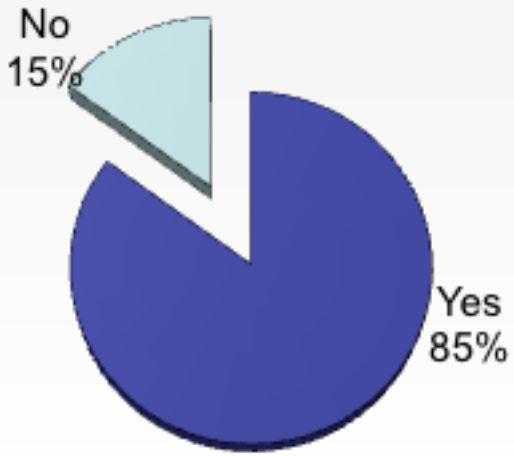
Hercules and the Hydra (ca. 1475) by Antonio del Pollaiuolo.

Incidentally, slaying a Hydra is a lot of work but a finite task – see http://www.quora.com/What-are-some-of-the-most-counterintuitive-mathematical-results

Linking articles and data adds value

- Increase visibility, discoverability, and usage of both articles & data
- Provide context, avoid misinterpretation and incorrect usage
- Ensure long-term availability of useful content and context
- Coordinate submission process / deposit mechanism

Question: Do you think it is useful to link underlying research data with formal literature?



Researcher survey, 1202 respondents (PARSE.insight 2010)

But it needs to be done right, and hard-coded URL's is not the way to go.

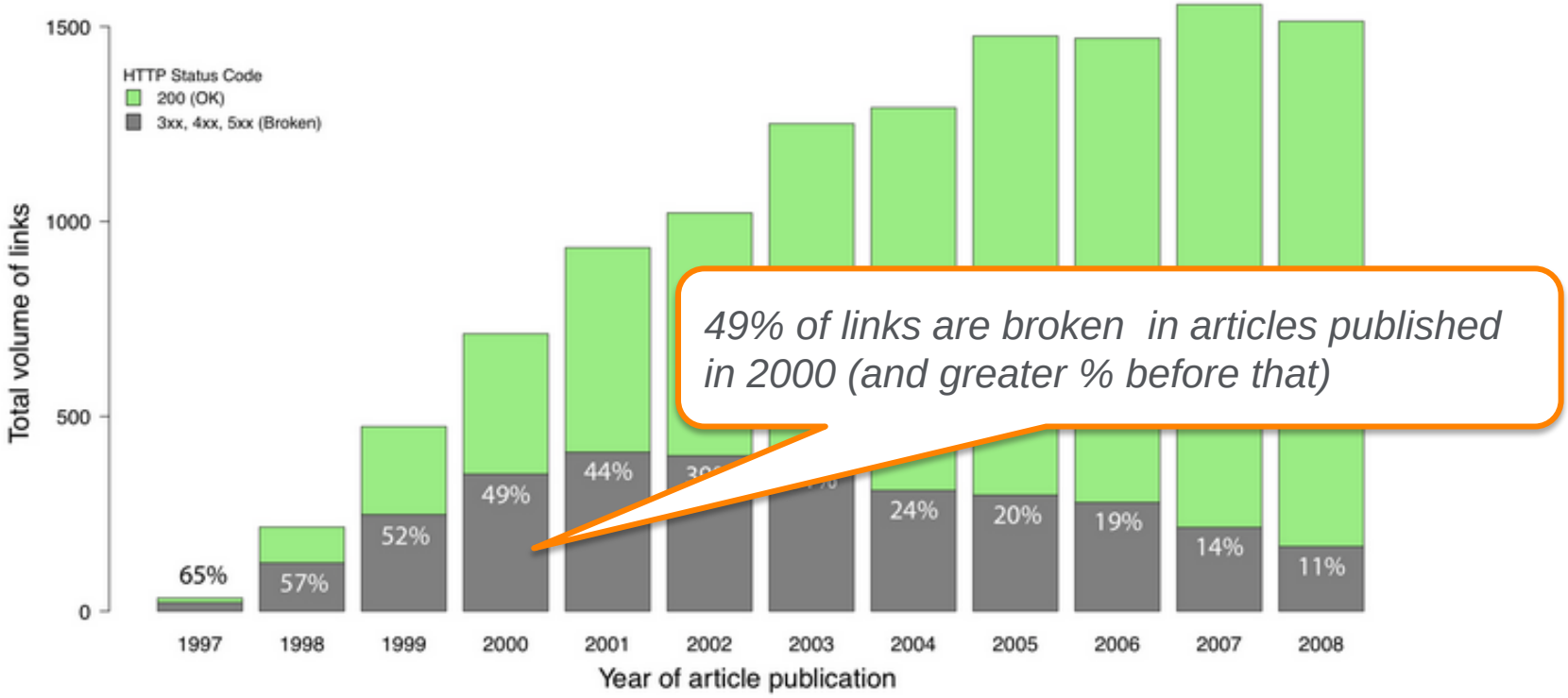


Fig. 2. Volume of potential data links in astronomy publications. Total volume of external links in all articles published between 1997 and 2008 in the four main astronomy journals, color coded by HTTP status code. Green bars represent accessible links (200), grey bars represent broken links.

From Pepe et al., *"How do astronomers share data? Reliability and persistence of datasets linked in AAS publications and a qualitative study of data practices among US astronomers."* https://authorea.com/users/3/articles/288/_show_article

Linking data and publications – ~~the past~~, present, and future

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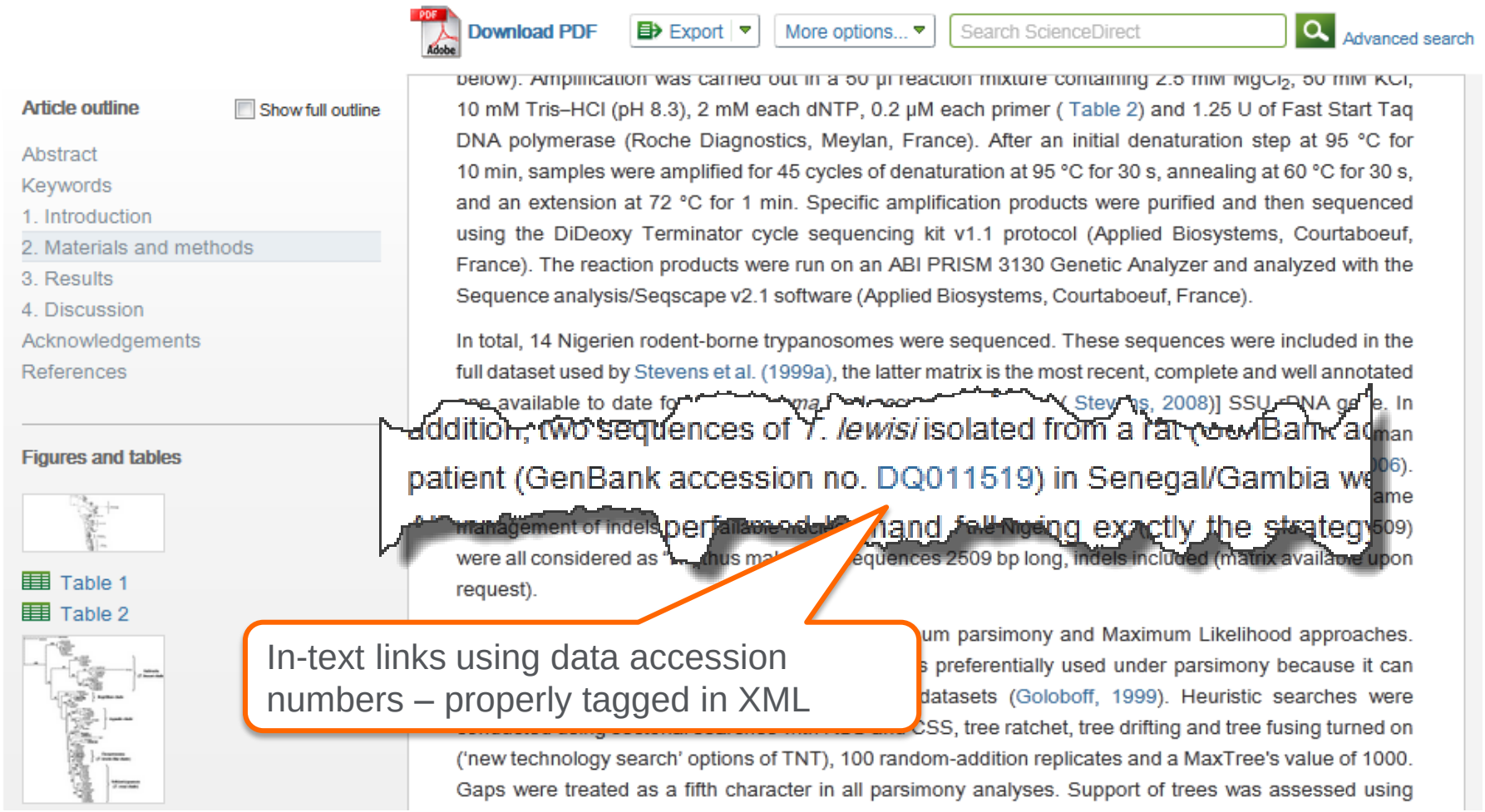
Data-linking at Elsevier

- Extensive program to set up links between articles on ScienceDirect and relevant data repositories
- Close to 50 databases linked, including some of the leading domain-specific data repositories
- Links are bi-directional where possible
- Links are always specific to data relevant for the article
- See http://www.elsevier.com/databaselinking

Linking articles and data through accession numbers



Linking articles and data through data banners

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Article outline

Abstract
Keywords
Acknowledgment
References

Figures and tables

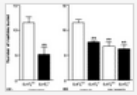
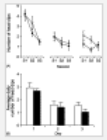


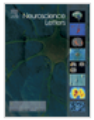
Table 1



ELSEVIER

Neuroscience Letters

Volume 414, Issue 3, 13 March 2007, Pages 247–251



The 5-HT$_7$ receptor influences stereotypic behavior in a model of obsessive-compulsive disorder

Peter B. Hedlund, J. Gregor Sutcliffe

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doi:10.1016/j.neulet.2006.12.054

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Abstract

The 5-HT$_7$ receptor has been suggested as a new putative target for the treatment of neuropsychiatric disorders, especially depression. This hypothesis is based on the finding that antidepressant drugs have relatively high affinity for the 5-HT$_7$ receptor, and that inactivation or blockade of the receptor leads to an antidepressant-like profile in behavioral models and sleep parameters. Obsessive-compulsive disorder is also believed to involve the serotonergic system and is treated using antidepressants, thus it is of interest to study the possible role of the 5-HT$_7$ receptor in this disorder. We have evaluated the effect of inactivation or

Recommended articles

Citing articles (28)

Related book content

Data for this Article

MGI Mouse Genome Informatics
Genes, expression, function, phenotypes for mice

RGD Rat Genome Database
Genomic information on rats

Linking articles and data through data banners

And beyond linking, there's data integration and visualization

Marine Geology
Volume 204, Issues 1–2, 28 February 2004, Pages 43–57

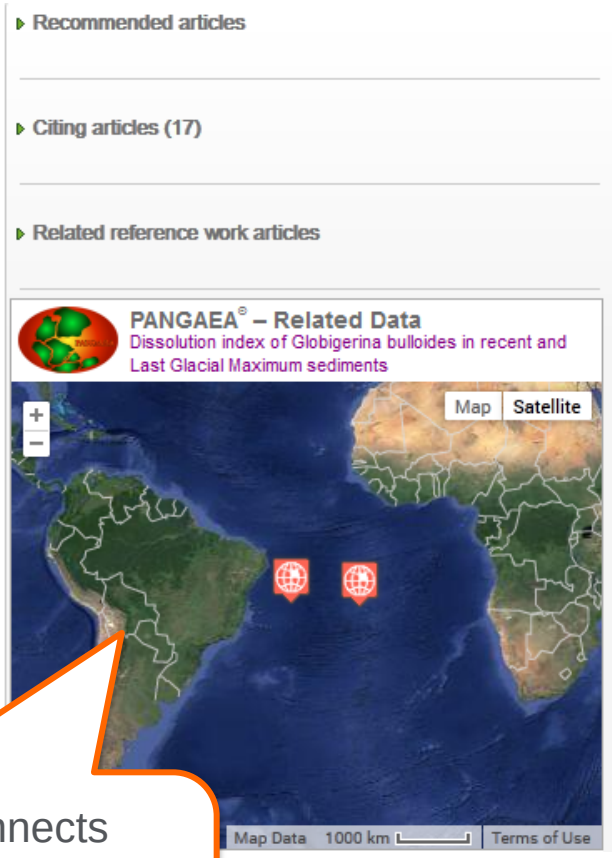
Calcium carbonate corrosiveness in the South Atlantic during the Last Glacial M…um as inferred from changes in the preservation of …ater circulation

Get rights and content

Authors have uploaded data to PANGAEA, submitted article for publication to Marine Geology journal

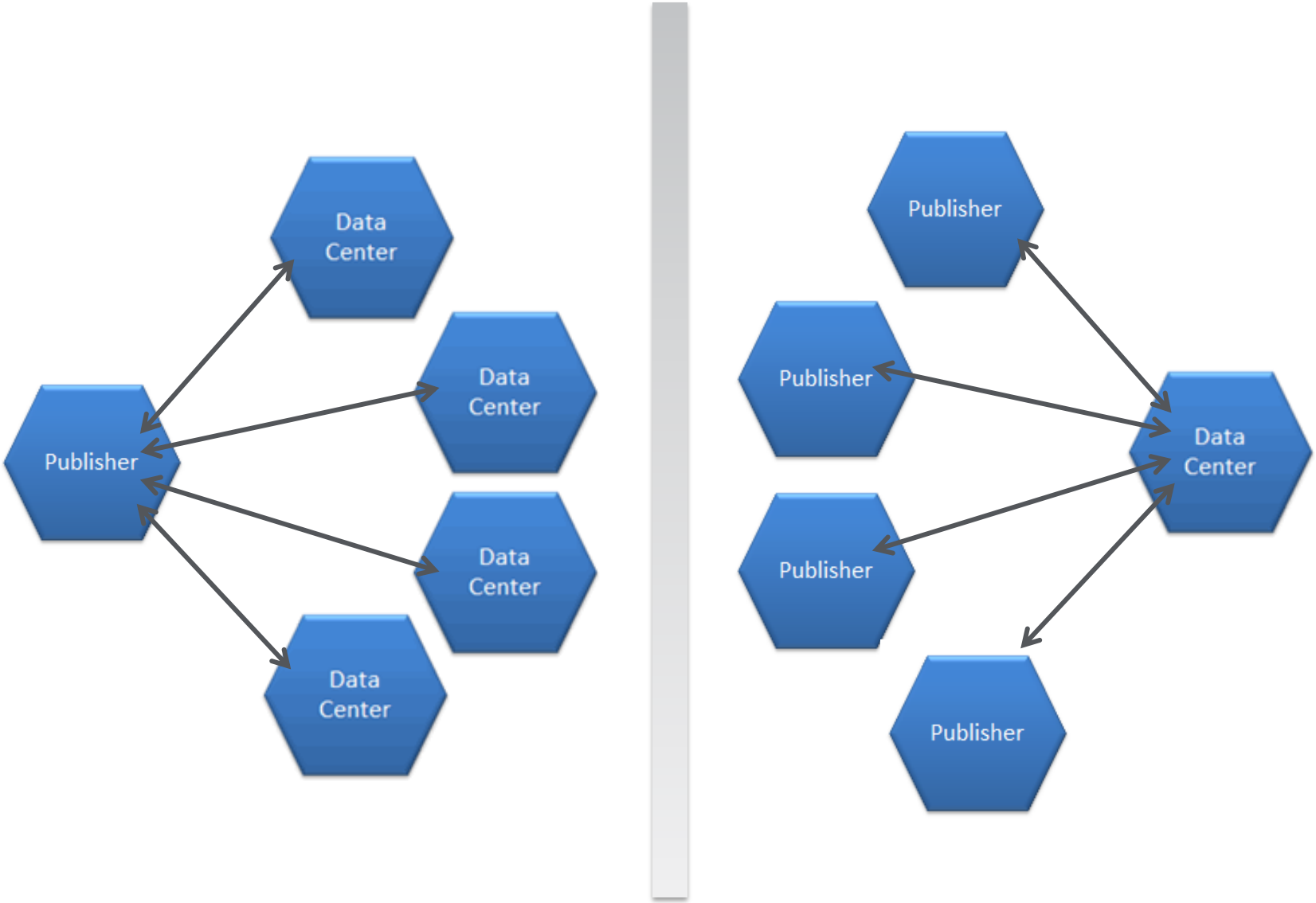
Abstract

The modern Atlantic Ocean, dominated by the interactions of North Atlantic Deep Water (NADW) and Antarctic Bottom Water (AABW), plays a key role in redistributing heat from the Southern to the North… Hemisphere. In order to reconstruct the evolution of the re… NADW/AABW transition, reflected by the calcite lysocli…



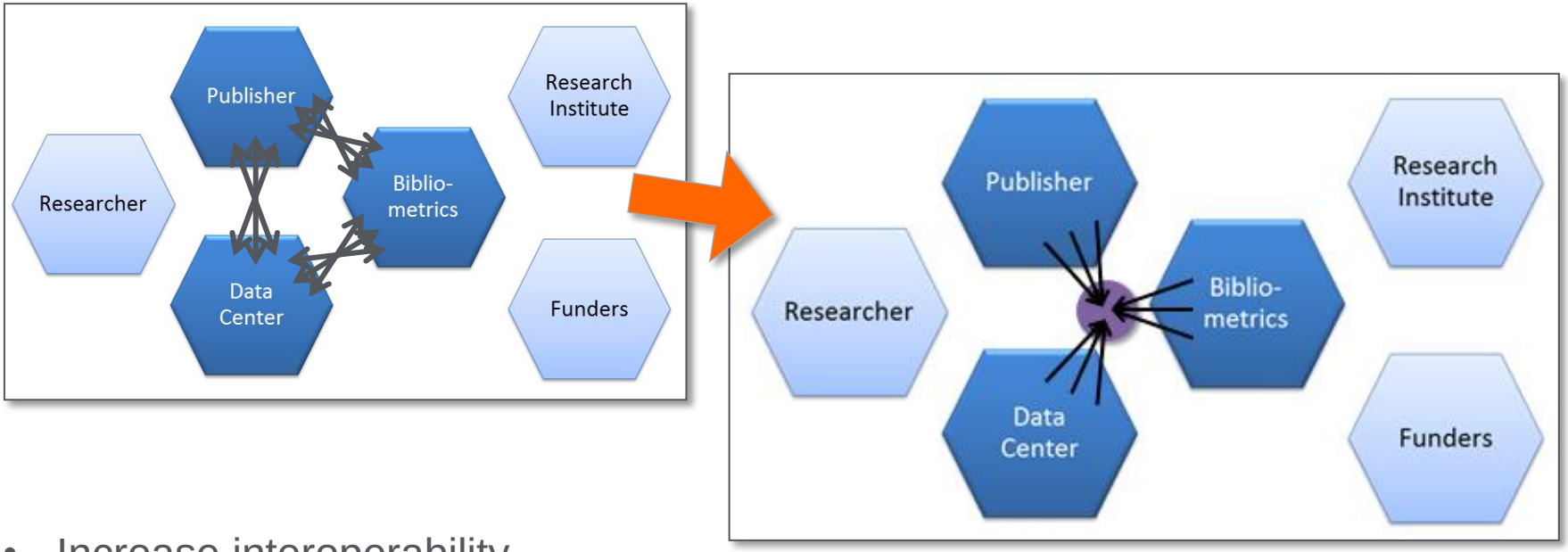
Data visualization tool connects articles and data – pulling in data from PANGAEA for this article and showing to the reader

Linking articles and data is great, but all those bilateral relations don't scale



Introducing the joint ICSU-WDS / RDA Working Group "Data Publication Services"

The challenge in today's data publishing landscape: how do we move from a plethora of bilateral arrangements to a **one-for-all service model ?**



- Increase interoperability
- Decrease systemic inefficiencies
- Power new tools and functionalities to the benefit of researchers

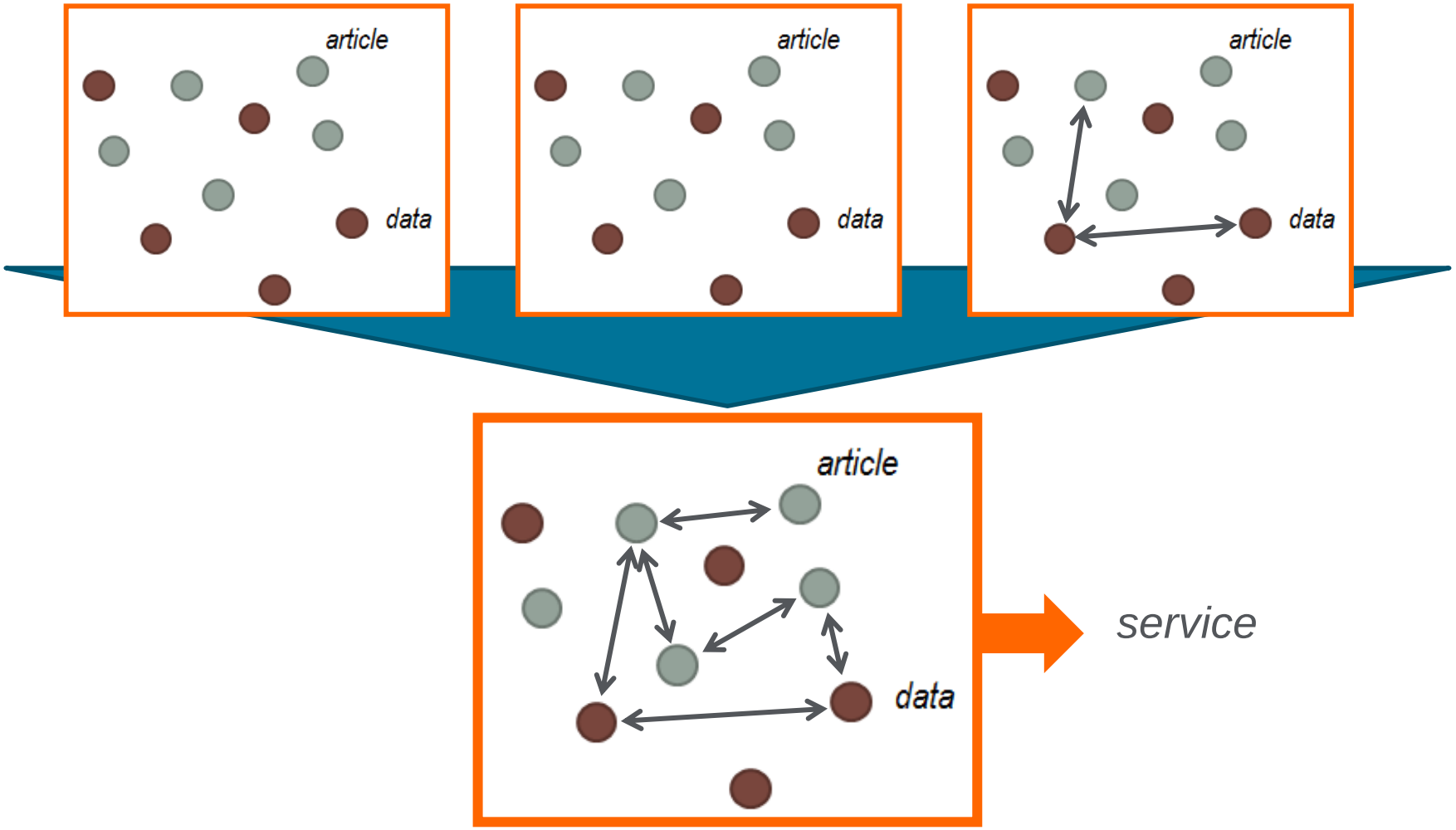
The WG aims to develop a universal article-data cross-referencing service (and then some)

- Address processes, workflows, and solutions that currently exist between individual parties within the data publication landscape, and investigate how these can be lifted to one-for-all service to:

- Primary Focus: universal article – data cross-referencing service
  - Given article A, what relevant data D exists – and vice versa
  - Additional metadata about the nature of the relationship, e.g. supplementary data, related data, etc.
  - Additional metadata for article and/or data set

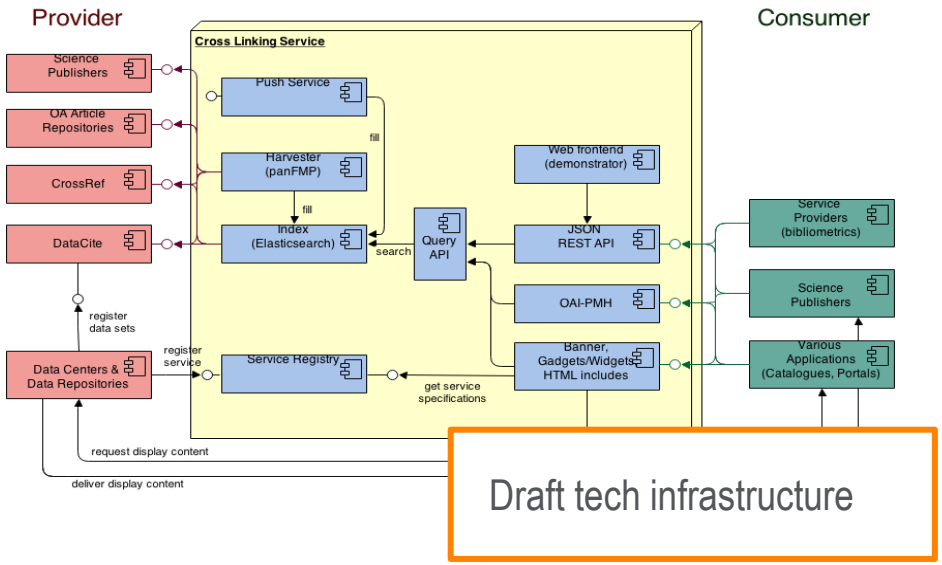
See full case statement at
https://rd-alliance.org/internal-groups/rdawds-publishing-data-ig.html

It's all about connecting the dots



With links contributed by data repositories, publishers, infrastructure provides, and other key players

- *3TU .Datacentrum*
- *Australian National Data Service (ANDS)*
- *Cambridge Crystallographic Data Center (CCDC)*
- *CrossRef*
- *DataCite*
- *Elsevier*
- *Europe PubMed Central*
- *OpenAire*
- *PANGAEA*
- *Thomson Reuters*
- *….*



Working group status

- Build a wide consortium with different stakeholder groups
- Guiding principles ratified
- Accumulating test corpus – ongoing
- Draft tech infrastructure – now in planning & resourcing phase
- Outreach, webinars, contact with other groups – ongoing

Next milestone: Research Data Plenary 5 in San Diego (March 2015)

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