

Tomorrow's Research Heritage



Overview

I.WHAT is Research Heritage?

II.The Data revolution

III. Information professions at the crossroads

IV.What can we do?

V.Conclusion



I. WHAT IS RESEARCH HERITAGE?



Research is about nature, mankind and knowledge



- „A natureza é o único livro que oferece grande conteúdo em todas as folhas.“
- „Die Natur ist das einzige Buch, das auf allen Blättern großen Gehalt bietet.“

Goethe

What is research? – Observing nature



What is research? – Collecting evidence



What is research? – Documenting

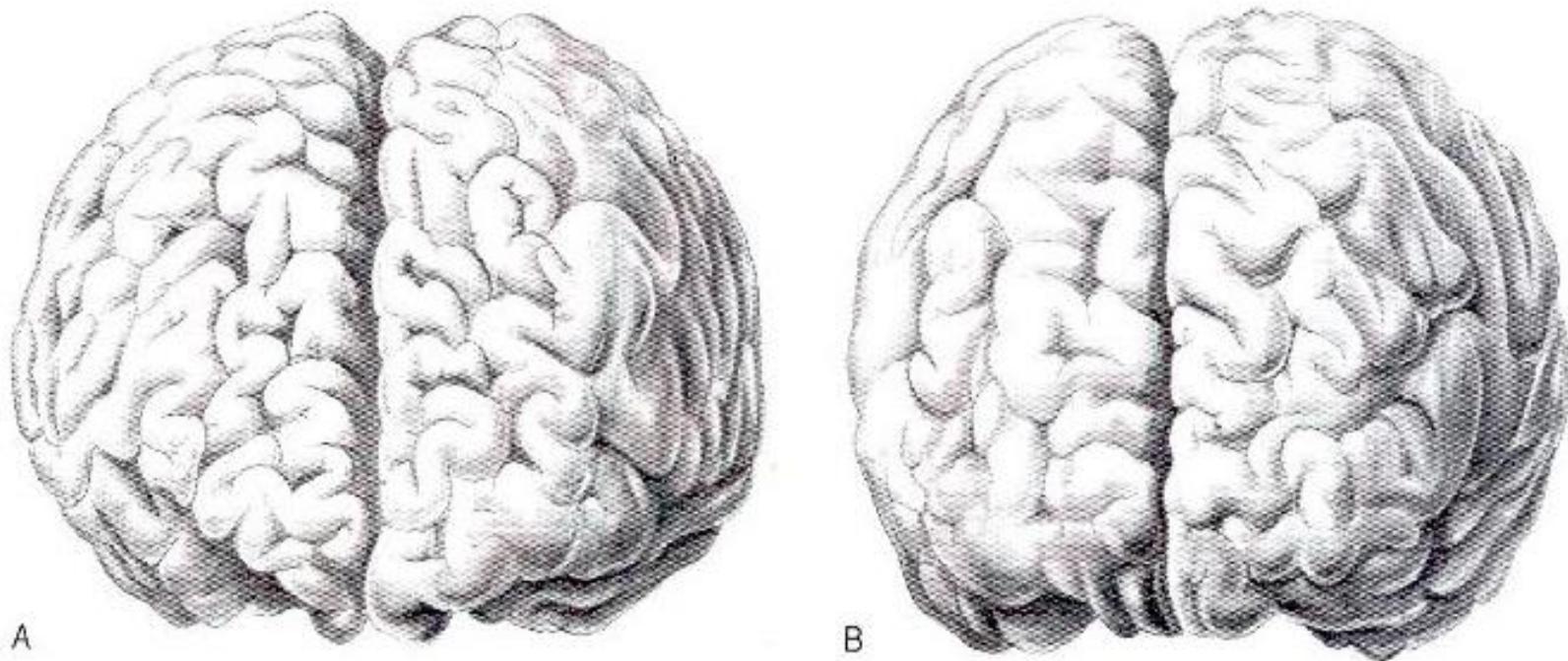


FIGURE 4-2. Reproduced from Wagner (1860), Table 3, showing the frontal lobe of the brain of Gauss (A) compared with that of a worker, age 57 (B). There is a difference, but part of it is explained by the "stenogyrencephalic" (numerous, narrow gyri) pattern in the former and the "eurygyrencephalic" (fewer but broader gyri) pattern in the latter. Both Retzius' types may occur in well-developed brains. (After Meyer, 1977.)

What is research? – Communication



What is research heritage? – Food for thought!

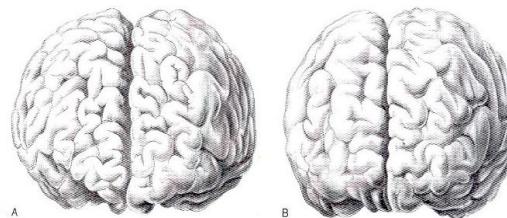


FIGURE 4.2. Reproduced from Wagner (1960), Table 3, showing the frontal lobe of the brain of Gauss (A) compared with that of a worker, age 57 (B). There is a difference, but part of it is explained by the "stomogyrecephalic" (numerous, narrow gyr) pattern in the former and the "eurygyrecephalic" (fewer but broader gyr) pattern in the latter. Both Retzius' types may occur in well-developed brains. (After Meyer, 1977.)

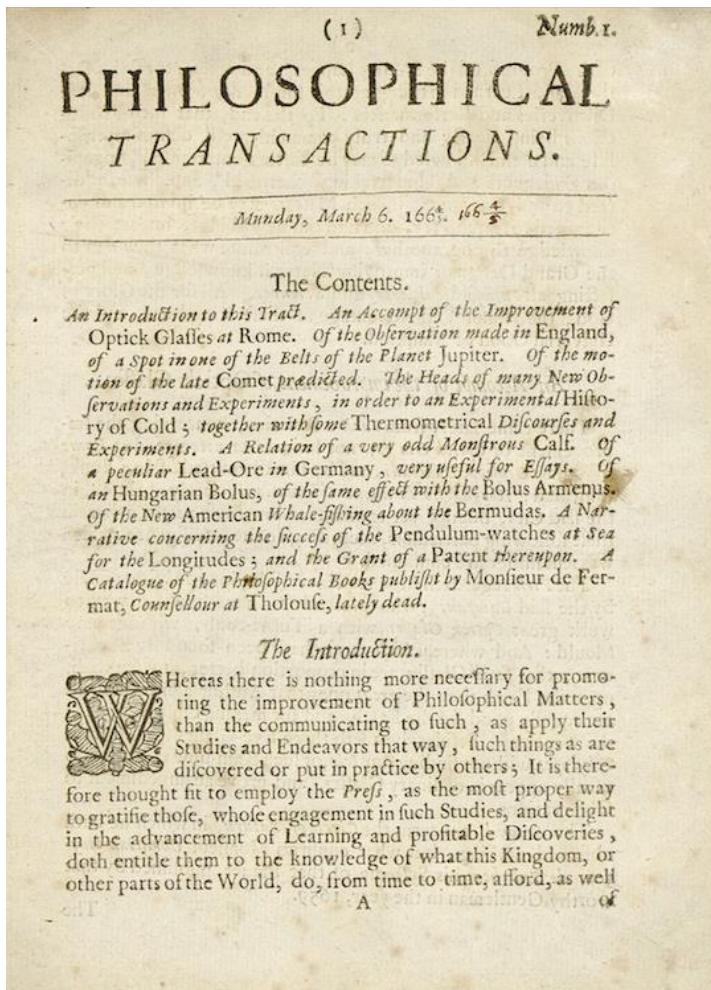
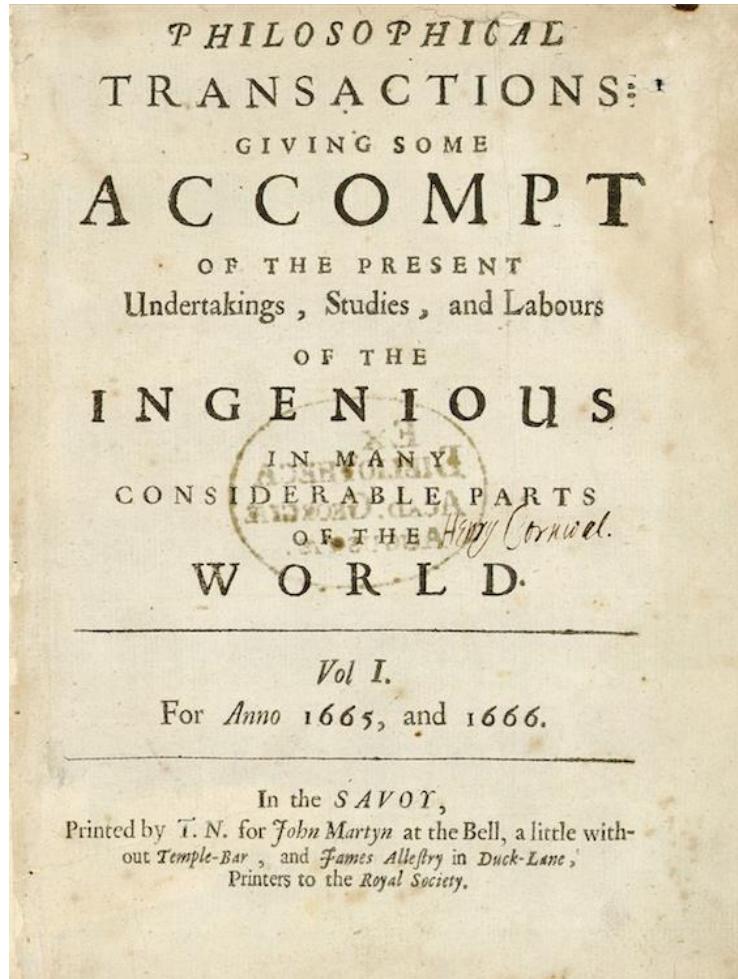


Reusing
Reproducing
Communicating

II. THE DATA REVOLUTION



The Separation of Libraries and Data through Labs



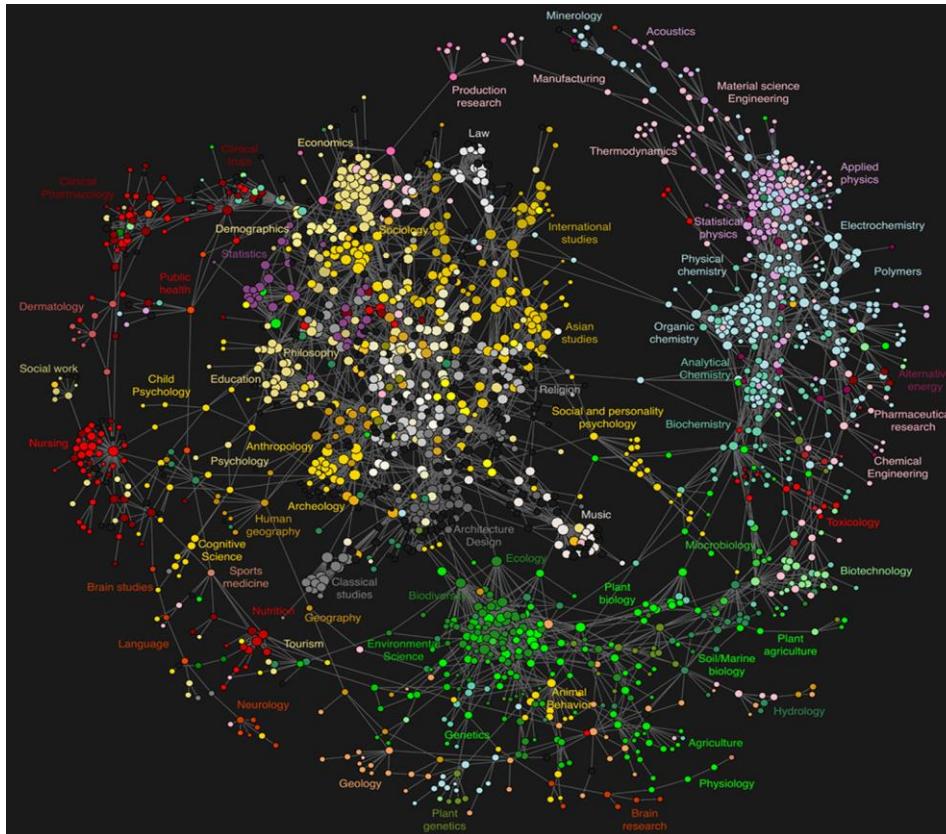
Literature is here to stay...



<http://www.flickr.com/photos/gorgmorg/9944210/>

It cannot be foreseen that literature will not be
at the heart of scholarship in the next decades.

...but new things come on top.



The world of knowledge has changed radically
– arriving at a universal encyclopaedia.

New types of users



<http://www.flickr.com/photos/derrypubliclibrary/3762251190>



<http://www.flickr.com/photos/fumi/2668956097/>

Library users are not only *readers* but *knowledge workers*.

New units of knowledge

The screenshot shows a search result for the species *Calliphora erythrocephala*. The main content is an abstract by Schlurmann M, Hauke J, published in the journal *Zoologisches Jahrbuch*. The abstract discusses motoneurons of the flight power muscles of the blowfly, mentioning cobalt coupling and dye coupling. A large black arrow points from the word 'cobalt' in the abstract to the ChEBI page on the right.

Abstract:
Schlurmann M, Hauke J. Motoneurons of the flight power muscles of the blowfly *Calliphora erythrocephala*: structures and mutual dye coupling. *Zoologisches Jahrbuch* 1998; 127: 171–185.
DOI: 10.1002/zjaa.2002
Abstract
The morphologies of the motoneurons of the flight power muscles (DLM, DV, DVM) were studied by means of cobalt backfills and intracellular recordings. The muscle fibers and the DVM 1 and the two fibers of the DVM 2 are innervated by five mesothoracic motoneurons, whereas the two fibers of the DVM 3 are innervated by two prothoracic motoneurons. In general, the motoneurons of each muscle have a common ventral soma cluster located in a characteristic position on the ipsilateral side of the thoracic ganglion, show similar dendritic arborizations in the mesothoracic wing neuropil, and have the same axon pathway. Only the soma of the common motoneuron of two dorsal fibers of the DLM is situated dorsally in the contralateral hemiganglion. The motoneurons of each muscle were found to be strongly dye coupled with each other, indicating that they are connected by gap junctions. In addition, the motoneurons of each muscle establish characteristic coupling patterns with the motoneurons of the other flight power muscles on both sides of the thorax and with two bilateral groups of local mesothoracic interneurons. The revealed coupling patterns are assumed to be of major relevance for the generation of the characteristic, rhythmic flight activity of the motoneurons described in previous studies.

Highlight Terms: Gene Ontology(3), Species(1), Chemicals(1)

Text Excerpt:
dinal and the three dorsoventral flight power muscles by means of cobalt backfills and intracellular acidic motoneurons supplying the four ventral

<http://www.ukpmc.co.uk>

The screenshot shows the ChEBI database entry for cobalt atom (CHEBI:27638). The page includes the ChEBI navigation bar, a search bar, and a breadcrumb trail: EBI > Databases > Small Molecules > ChEBI > Main. The main content area displays the ChEBI Name (cobalt atom), ChEBI ID (CHEBI:27638), and a star rating (★★★). It also shows secondary ChEBI IDs (CHEBI:3788, CHEBI:775236, CHEBI:23335) and options to see the structure as an image or applet, and to download it as a molfile. Below this, there are sections for InChI, InChIKey, SMILES, Formula, Net Charge, Mass, and ChEBI Ontology.

Main Automatic Xrefs

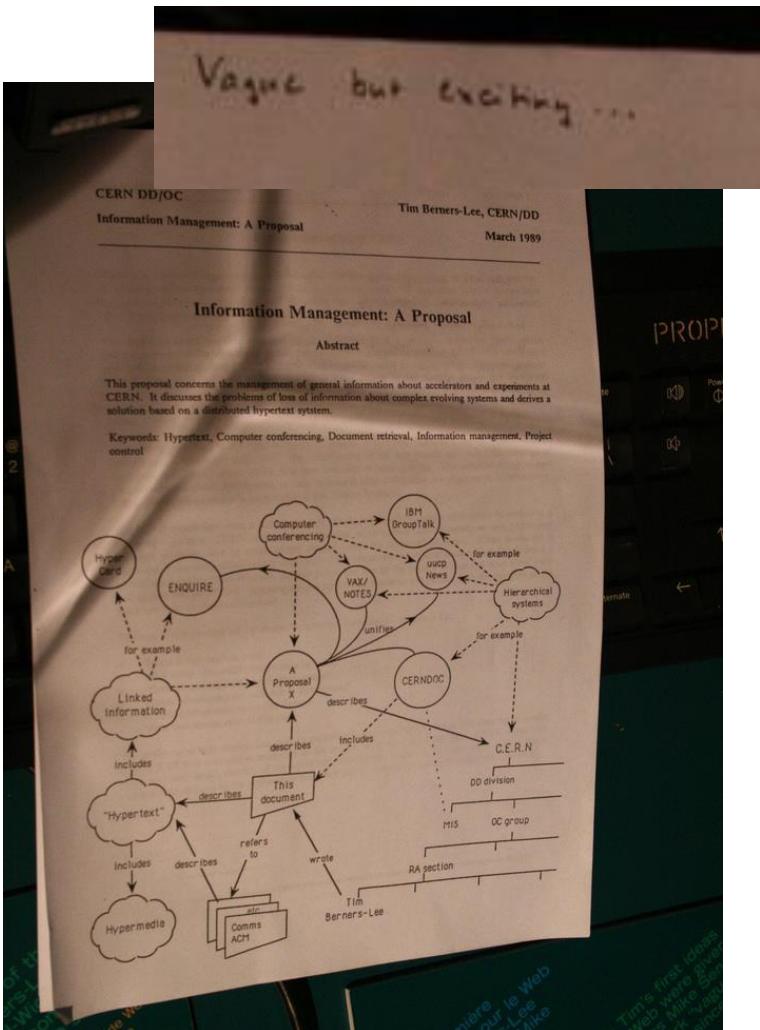
Cobalt atom (CHEBI:27638)

ChEBI Name cobalt atom
ChEBI ID CHEBI:27638
Stars ★★★ This entity has been manually annotated by the ChEBI Team
Secondary ChEBI IDs CHEBI:3788, CHEBI:775236, CHEBI:23335
See structure as: Image Applet
[Download Molfile](#)

InChI InChI=1S/Co
InChIKey InChIKey=GUTLYIVDDKVIGB-UHFFFAOYSA-N
SMILES [Co]
Formula Co
Net Charge 0
Mass 58.93320
ChEBI Ontology Tree view

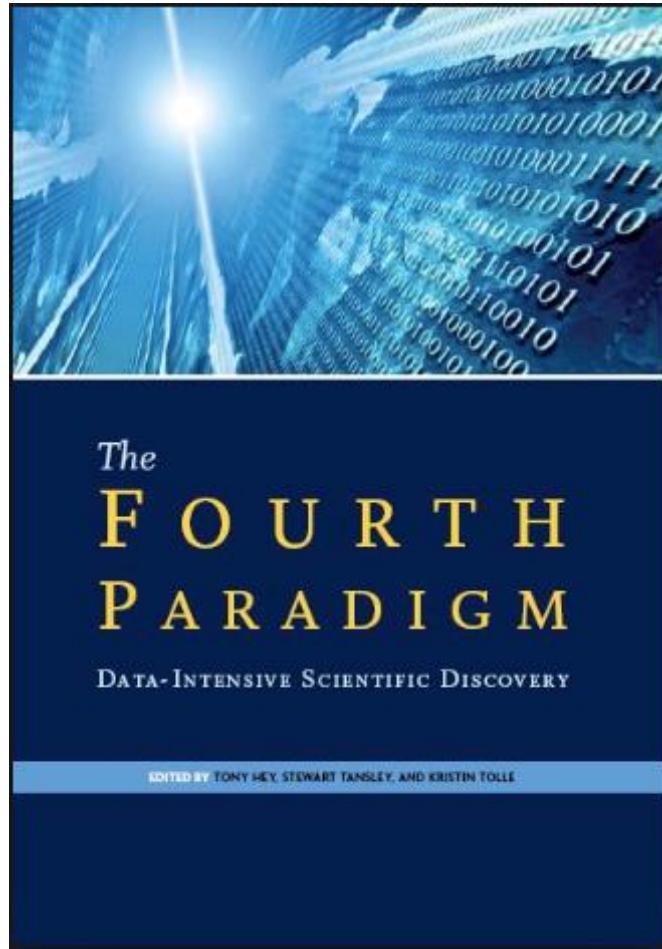
Enhanced publications are a continuum of textual resources and underlying data.

New technology



Complex knowledge resources can now be modelled and linked on the web – even for inferential computing.

Data at the heart of research

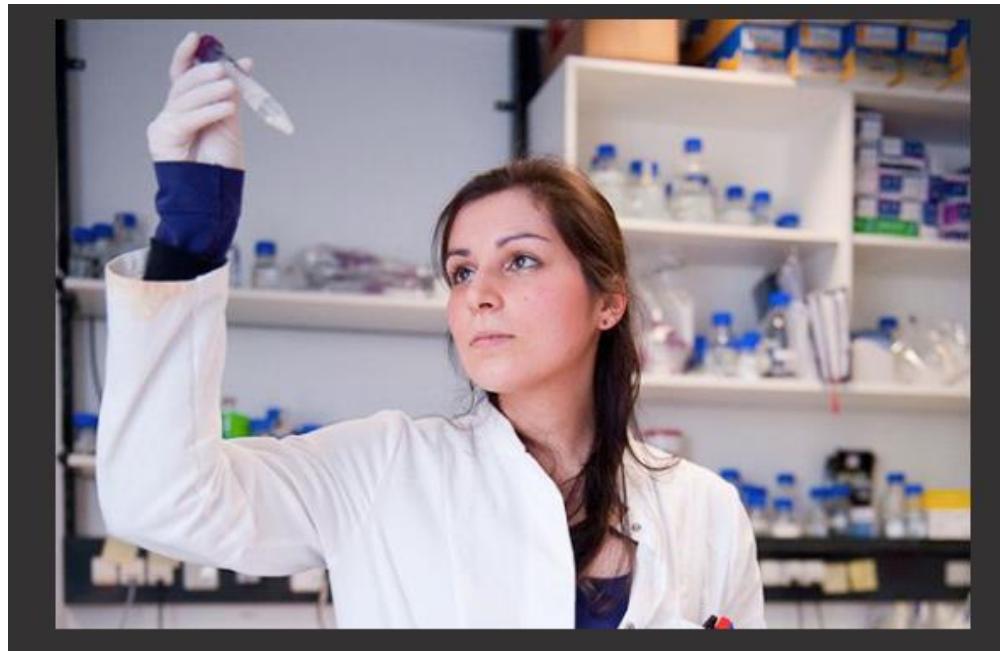


What changed? The atomisation of knowledge resources



Nucleic Acids Research

SCIENTIFIC DATA



© DAAD/Volker Lannert



re3data.org
REGISTRY OF RESEARCH DATA REPOSITORIES

What stayed? Research heritage is food for thought!

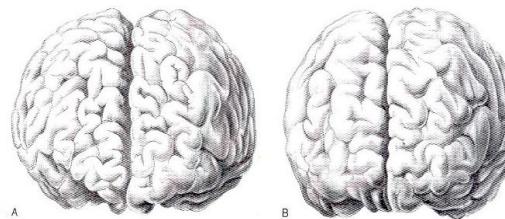
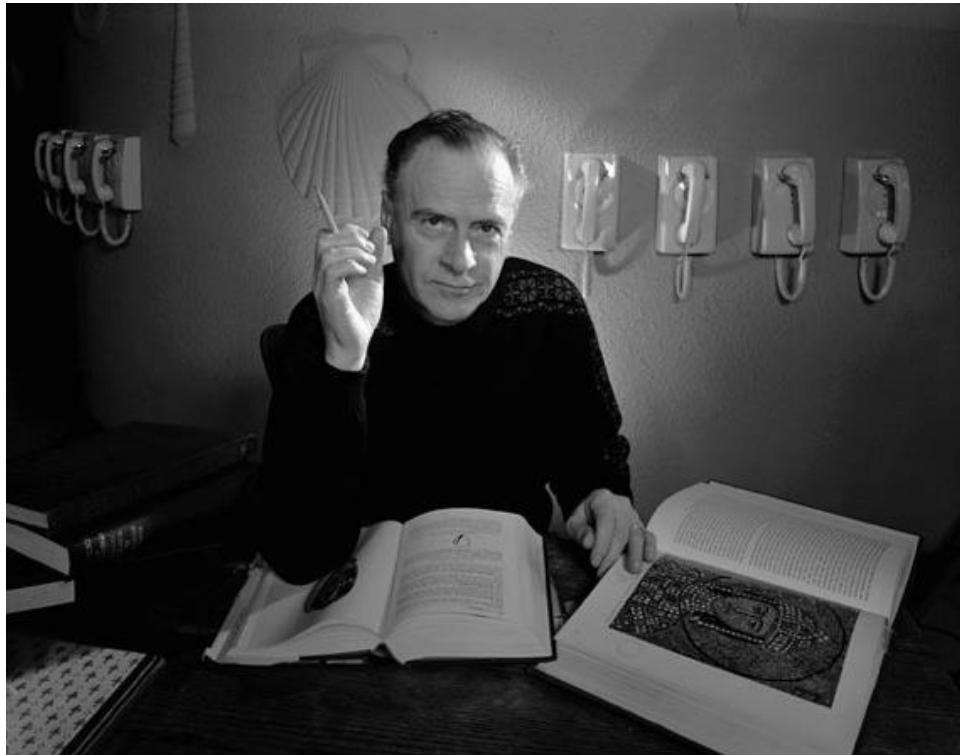


FIGURE 4.2. Reproduced from Wagner (1960), Table 3, showing the frontal lobe of the brain of Gauss (A) compared with that of a worker, age 57 (B). There is a difference, but part of it is explained by the "stomachiccephalic" (numerous, narrow gyr) pattern in the former and the "eurygyrencephalic" (fewer but broader gyr) pattern in the latter. Both Retzius' types may occur in well-developed brains. (After Meyer, 1977.)



McLuhan's *Sensorium*



www.theparisreview.org/.../2011/01/mcluhan.jpg

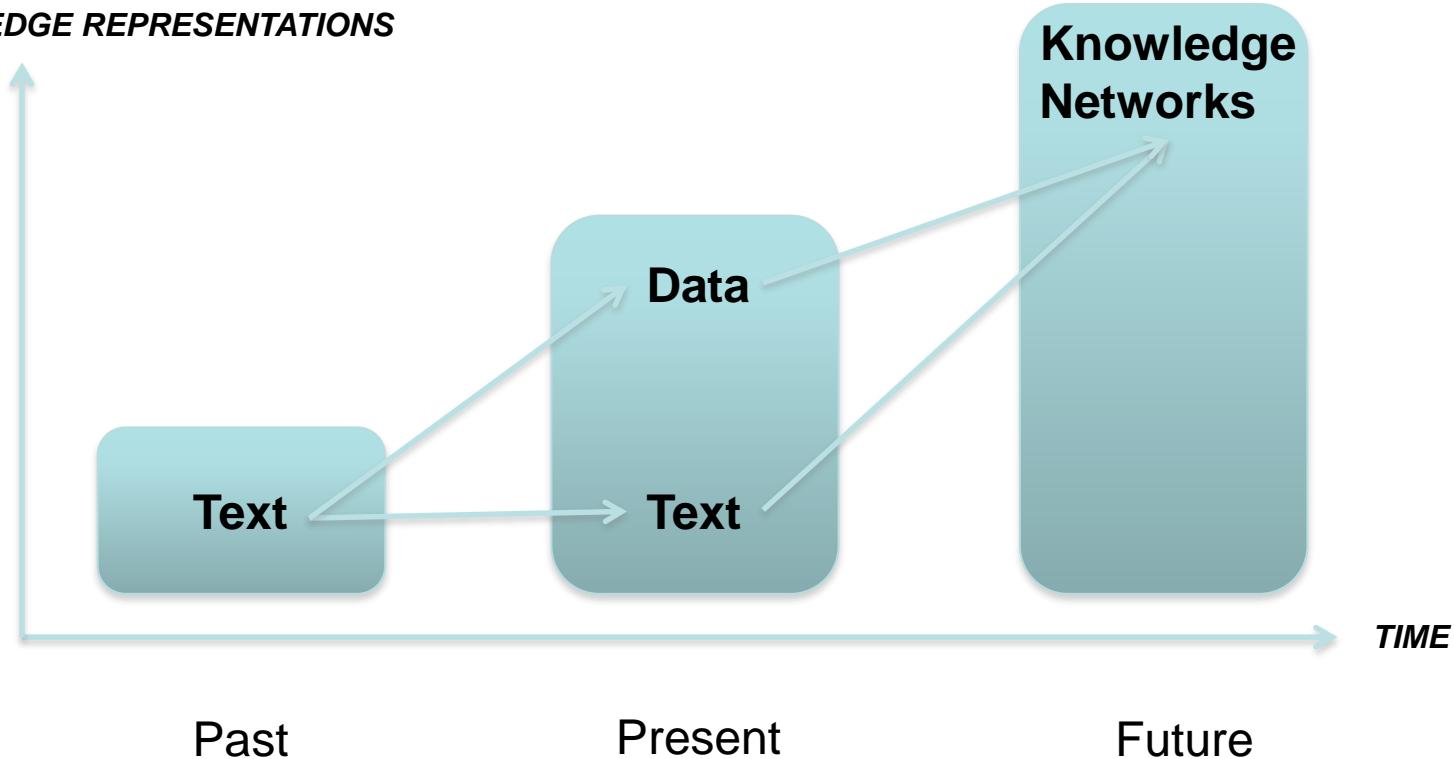
There is no principal difference between physical and digital knowledge resources ('media') – both are the extensions of human needs

III. Information professions at the crossroads



The future belongs to knowledge networks

*DIFFERENTIATION OF
KNOWLEDGE REPRESENTATIONS*



Information professions at the crossroads

- The future will bring even more complex knowledge networks
- Text is not the exclusive form of knowledge representation
- This challenge is too large to be mastered alone
- All information professions need to transform
- All information professionals need to transform together to create tomorrow's research heritage – otherwise a new profession might take over

IV. WHAT CAN WE DO?



Look at Libraries Practice



Ten recommendations for libraries to get started with research data management

Final report of the LIBER working group on E-Science / Research Data Management

Look at Archivists' Practice



BitCurator



GEORG-AUGUST-UNIVERSITÄT
GÖTTINGEN

Bodleian Electronic Archives and Manuscripts

Bodleian Libraries

UNIVERSITY OF OXFORD

Homepage

Website Catalogue (SOLO)

Search this site

ABOUT US COLLECTIONS BODLEIAN LIBRARIES' WEB ARCHIVE NEWS

Digital archives

Find out more about our digital holdings...

More...

1 2 3

mouse, Beechurst, in Love Lane, been three years old at the time etch of unkempt grass surrounded a garden. On re-visiting the h it was a very modest home, but t ity and security. Beyond our wal separated us from a terraced row y by miners from the surrounding use we used to play with the miner

Contact us Location

Contact us

For queries relating to born-digital archives email us at beam@bodleian.ox.ac.uk

! You can nominate a website for archiving with the Bodleian Libraries Web Archive [here](#).

[Anlass der Präsentation]

NIEDERSÄCHSISCHE STAATS- UND
UNIVERSITÄTSBIBLIOTHEK GÖTTINGEN

SUB

Look at University Policy



ADVICE PAPER
No.14 - DECEMBER 2013

LERO ROADMAP FOR RESEARCH DATA



GEORG-AUGUST-UNIVERSITÄT
GÖTTINGEN

NIEDERSÄCHSISCHE STAATS- UND
UNIVERSITÄTSBIBLIOTHEK GÖTTINGEN | SUB

Engage in Expert Conversations



Refer to Existing Repositories

re3data.org
REGISTRY OF RESEARCH DATA REPOSITORIES



UNIVERSITY EXAMPLE: BIELEFELD



GEORG-AUGUST-UNIVERSITÄT
GÖTTINGEN

NIEDERSÄCHSISCHE STAATS- UND
UNIVERSITÄTSBIBLIOTHEK GÖTTINGEN

SUB

RDM Principles

Grundsätze zu Forschungsdaten an der Universität Bielefeld

Forschende an der Universität Bielefeld sollen Forschungsdaten* nach folgenden Grundsätzen als wertvolles wissenschaftliches Werk behandeln:

- | Über den gesamten Forschungszyklus – von der Datengewinnung bis zur Publikation – sollen Forschungsdaten sorgfältig und nach hohen fachlich einschlägigen Standards behandelt und dokumentiert werden.
- | Ein „Data Management Plan“ und fachspezifische Richtlinien** für Einrichtungen und Projekte soll durch die jeweils verantwortliche Leitung bereitgestellt werden – vor allem in jedem neuen, Daten-intensiven Drittmittelantrag.
- | Das Forschungsdaten-Management in Einrichtungen und Projekten soll auf eine möglichst breite und langfristige Nutzung in Forschung, Anwendung und Öffentlichkeit ausgerichtet sein, wobei Verwertungsinteressen, der Schutz persönlicher Daten und Verpflichtungen gegenüber Dritten ausgewogen berücksichtigt werden.
- | Zur nachhaltigen Verankerung und Entwicklung eines qualitätsvollen Forschungsdaten-Managements soll die fachspezifische Methodenausbildung sowie die Vermittlung von Prinzipien guter wissenschaftlicher Praxis in Lehre und Weiterbildung angemessen thematisiert werden.

**Forschungsdaten stellen im weitesten Sinne Primärdaten, Sekundäranalysen, Visualisierungen, Modelle, Analysewerkzeuge, Objektsammlungen oder Produkte dar, die während des wissenschaftlichen Arbeitsprozesses erzeugt und benutzt werden.*

Open Research

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Research for Cognitive Interaction

Projects

3D Indoor Scenes Database

Articulated Scene Model

The software implements a state-of-the-art algorithm for three dimensional scene segmentation. The algorithm intends to build up a robust static background model of the scene and extracts moveable and highly dynamic objects in the foreground. For system integration the package also includes application nodes for middleware connection and grabbing/visualization purposes....

BielefeldTypeLibrary

BTL - The Bielefeld Type Library (BTL)

The Bielefeld Type Library (BTL) is a collection of XML-based data descriptions that are exchanged between components (e.g. Icewing) or systems (e.g. BIRON/ToBI). It provides functionality for parsing/creating data objects and is currently available in C++/Java. For more detailed info please refer to the wiki....

Bonsai

Bielefeld Sensor and Actuator Interface

BonSAI is a robot behavior abstraction layer written in Java. It aims to provide a simple interface to various functions of a robotic system and can define behaviors and skills according to these functions....



CITEC Gentoo Portage Overlay

This is a repository of gentoo ebuilds mostly of software packages developed within the University of Bielefeld (CITEC/CoRLab) but also of open source software from third parties. You may use this overlay, please do not hesitate to file bugs. Be aware to use this overlay at your own risk.

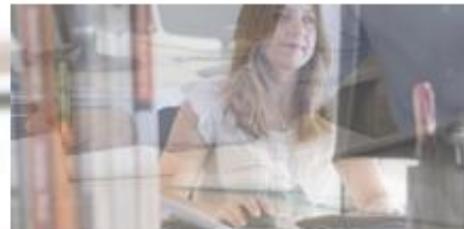
emblued

Emblued is a multi-threaded Python library for building and running distributed applications. It features a clean API, a simple configuration system, and a flexible architecture.

Projects

View closed projects

Apply



Uni from A to Z



Search

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- Friedhoff, Stefan, Meier zu Verl, Christian, Pietsch, Christian, Meyer, Christian, Vompras, Johanna, & Liebig, Stefan (2013): *Social Research Data: Documentation, Management, and Technical Implementation within the SFB 882*. (SFB 882 Working Paper Series 16). DFG Research Center (SFB) 882 From Heterogeneities to Inequalities, Bielefeld.

[PUB](#) | [PDF](#) | [URL](#)

- Friedhoff, Stefan, Meier zu Verl, Christian, Pietsch, Christian, Meyer, Christian, Vompras, Johanna, & Liebig, Stefan (2013): *Replicability and Comprehensibility of Social Research and its Technical Implementation*. (RatSWD Working Paper Series 219). SCIVERO Press, Berlin.

[PUB](#) | [URL](#)

- Meier zu Verl, Christian (2013): Der praktische Charakter wissenschaftlicher Theorien. Bericht von der GWTF-Jahrestagung. *Technikfolgenabschätzung - Theorie und Praxis*, 22(1), 106–108

[PUB](#) | [URL](#)

- Kramer, Stefan, Leahy, Amber, Southall, Humphrey, Vompras, Johanna, & Wackerow, Joachim (2012): *Using RDF to Describe and Link Social Science Data to Related Resources on the Web*. (German Council for

News

- Besuch aus New York: Prof. Dr. Dalton Conley zu Gast im SFB 882
17.06.2013

- Neue Gastwissenschaftlerin im SFB 882: Prof. Dr. Elke Winter, University of Ottawa
10.06.2013

- Vortrag von Prof. Dr. Hans-Ulrich Wehler zum Thema "Soziale Ungleichheit in Deutschland"
18.04.2013

[all news](#)**Recent Publications**

- Bilecen, Basak (2013): *Analyzing Informal Social Protection Across Borders: Synthesizing Social Network Analysis with Qualitative Interviews*

- Schunck, Reinhard (2013):

Inhalte
Willkommen
Verknüpfte Personen-Betriebsdaten im Anschluss an den ALLBUS 2008 (Studien-ID: allbus)
Suchergebnisse

Studien-Navigation

- Verknüpfte Personen-Betriebsdaten im Anschluss an den ALLBUS 2008
- ALLBUS Betriebsbefragung 2009
- Beschäftigungsverhältnisse als sozialer Tausch
 - BEATA Betriebsfallstudie
 - BEATA Beschäftigten-Befragung
 - BEATA Partner und Partnerinnen-Befragung
- Betrieb und Beschäftigung im Wandel: Betriebliche Beschäftigung:
 - SFB580-B2 Betriebspanel Welle 1
 - SFB580-B2 Betriebspanel Welle 2
 - SFB580-B2 Betriebspanel Welle 3
- Entwicklung und Validierung eines Diagnosewerkzeugs zur Erfassung von Arbeitsmarktprozessen
 - InnoKenn Experteninterviews
 - InnoKenn Fallstudien
 - InnoKenn Workshops
- Demografischer Wandel und der Arbeitsmarkt des öffentlichen Sektors
 - SFB580-B8 Intermediäre
 - SFB580-B8 kommunaler Vertreter
 - SFB580-B8 schulische Entscheidungsträger
- A balanced approach to understanding the shaping of human resources
- Abhängige Selbständigkeit in der Versicherungswirtschaft - Neue Erhebung
- AEVO Betriebs- und Kammerbefragung 2007
- Affective Complementarity in Service Encounters
- Aging Workforce Management in der Automobilindustrie. Definitionen und Konsequenzen

Kurzbeschreibung

Der inhaltliche Fokus der Betriebsbefragung lag auf Sozialer Ungleichheit innerhalb von Betrieben. Es wurden Allgemeine Betriebsstrukturen, Marktposition des Betriebs, Mitbestimmung, Personalstruktur, Peripherie, Qualifikationsgruppen, Entlohnung, Arbeitsbedingungen sowie methodische Fragen und Informationssammlungen untersucht.

Untersuchungsgegenstand

Betriebe

Sektor

Öffentlich und privat

Branchen

Keine Branchenauswahl

Untersuchungsgebiet

Deutschland

Durchführung

Vorbereitende Maßnahmen

Dem Projekt vorgeschaltet war eine Pilotstudie im Rahmen einer rund 1000 Befragten umfassende Panels (SOEP) 2007. Darin wurden aktuell erwerbstätige und arbeitslos gemeldete Personen nach ihrer Betriebsstätte gefragt. Die angegebenen Adressen wurden bereinigt, so dass im Anschluss die Befragung durchgeführt werden konnte.

Sampling

Auswahlverfahren

Ausgangspunkt waren die Befragten des ALLBUS 2008, die zum Zeitpunkt der Befragung in einem Betrieb arbeiteten. Insgesamt waren dies 1.101 Personen. Davon machten 943 Personen einen Betrieb aus. Die genannten Adressen wurden anschließend in einer Recherche überprüft. 719 Adressen konnten kontaktiert werden. In 194 Fällen konnte schließlich ein Interview realisiert werden. Diese Befragten waren in 137 Betrieben tätig. Es handelte sich um Betriebe, in denen zwei Beschäftigte an der ALLBUS Personenbefragung teilgenommen haben. Personalverantwortlicher oder Betriebsleiter wurde ebenfalls befragt.

Maßnahmen zur Erhöhung der Response

Es wurden gezielt Interviewer eingesetzt, die eine langjährige Erfahrung mit Betriebsstudien haben.

Ebene	Anzahl Einheiten	Anzahl Personen pro Ebene (min.)	Anzahl Personen pro Ebene (max.)	Anteil erh. Mitglieder/Betreiber (min.)	Anteil erh. Mitglieder/Betreiber (max.)
Betriebe	194				

RDM Resolution

Resolution

Resolution on Research Data Management

Bielefeld University is firmly committed to supporting its academics in implementing the '[Principles and guidelines on handling research data at Bielefeld University](#)' from 19 July 2011 to promote a quality-assuring research data management.

1. The Rektorat requests applicants to take advantage of the university's advisory services – above all during the preparatory stage of any funding proposal requiring a data management plan (e.g. for the German Research Foundation, DFG)
2. The Rektorat encourages academics to publish their research data through a registered research data archive within their discipline, or, if this is not available, through the research data repository of Bielefeld University. Publication should take the interests of persons and companies into account and be based on binding licensing conditions.

To fulfil **Point 1**, the [Coordination Centre](#) for Research Data at the Bielefeld University Library offers comprehensive advisory services on data management planning and continuous data documentation.

In line with **Point 2**, Bielefeld University Library supports faculties and academia to interlink existing data services with the worldwide network of data archives. At the same time, the institutional repository [PUB – Publikationen an der Universität Bielefeld](#) offers services for the publication of research data. Directories such as the DFG-funded "[Registry of Research Data Repositories](#)" also list appropriate locations for depositing data.

Institutional Repository

The screenshot shows the homepage of the PUB institutional repository. At the top, there's a green header bar with the text "Universität Bielefeld" and "PUB – Publications at Bielefeld University". Below this is a large green banner with the word "PUB" in white. The main content area features a photograph of a person's hands typing on a laptop keyboard. To the right of the photo is a smaller image of a modern glass and steel building. Below the photo are links for "University| International | Information for" and a search icon, followed by "University from A-Z". The navigation menu includes "Home", "Publications", "Data Publications", "Authors", "PUB Theses", "About PUB", and a "Deutsch" link. A large list of statistics is displayed, with "22 Data Publications" highlighted by a red rectangle. To the right, there are sections for "Open Access at Bielefeld University" (with a green padlock icon), "Research Data Management" (with a blue flask icon), and "Support Publication Services" (with contact information for Susanne Riedel). A large "PUB" logo is centered at the bottom.

PUB – Publications at Bielefeld University

University| International | Information for University from A-Z

Home Publications Data Publications Authors PUB Theses About PUB Deutsch

+ Add your publications

PUB – The Publication Server at Bielefeld University

Search UniBi Publications Go!

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✓ 2522 Individual Author Pages

✓ 22 Data Publications

✓ 7298 Open Access Publications

✓ 1471 Theses

Open Access at Bielefeld University

Research Data Management

Support Publication Services

Susanne Riedel
Phone: 0521/106-4058
publikationsdienste.ub
@uni-bielefeld.de

Institutional Repository



22 Data Publications

2014 | Research Data | PUB-ID: 2659774
LEEP-B3
Diewald M, Schunck R, Abendroth A, Melzer SM, Reimann M, Pausch S (2014)
SFB 882. doi:[10.4119/unibi/sfb882.2014.12](https://doi.org/10.4119/unibi/sfb882.2014.12)
[PUB](#) | [DOI](#)

2014 | Research Data | PUB-ID: 2659776
Arbeitsorganisationen und väterliche Lebensführung
Beaufays S, Reimer T (2014)
SFB 882. doi:[10.4119/unibi/sfb882.2014.13](https://doi.org/10.4119/unibi/sfb882.2014.13)
[PUB](#) | [DOI](#)

2014 | Research Data | PUB-ID: 2659766
Entstehung und Entwicklung devianten und delinquenter Verhaltens
Reinecke J, Stemmler M, Pöge A, Wallner S, Meinert J, Schepers D, Sünkel Z, Weiss M, Wittenberg J, Kayed N (2014)
SFB 882. doi:[10.4119/unibi/sfb882.2014.11](https://doi.org/10.4119/unibi/sfb882.2014.11)
[PUB](#) | [DOI](#)

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Institutional Repository

Eyetracking-Experiment zu situativen Einflüssen auf Gerechtigkeitsurteile

Friedhoff S, Liebig S, May M, Sauer C, Schneider S, Valet P (2014)

SFB 882. doi:10.4119/unibi/sfb882.2014.8

DOI [10.4119/unibi/sfb882.2014.8](https://doi.org/10.4119/unibi/sfb882.2014.8)

Research Data

[Mark](#)

Details

Authors

[Friedhoff, Stefan](#)^{UniBi} ; [Liebig, Stefan](#)^{UniBi} ; [May, Melke](#)^{UniBi} ; [Sauer, Carsten](#)^{UniBi} ; [Schneider, Simone](#)^{UniBi} ; [Valet, Peter](#)^{UniBi}

Department

SFB 882 Von Heterogenitäten zu Ungleichheiten
SFB 882 Teilprojekt A6

Abstract:

Ziel des Experiments war es die Aufmerksamkeit der Befragten bei der Beantwortung von Vignetten zum Thema Einkommengerechtigkeit unter bestimmten Rahmenbedingungen zu verfolgen. Die Experimentellen Bedingungen waren (1) Bezahlung vor dem Experiment / Bezahlung nach dem Experiment. (2) Kooperatives Priming (Scrambled Sentence Test)/Neutrales Priming. Die Befragten müssen im Vignettenmodul das Einkommen

Export

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JOURNAL EXAMPLE: NATURE



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UNIVERSITÄTSBIBLIOTHEK GÖTTINGEN | SUB

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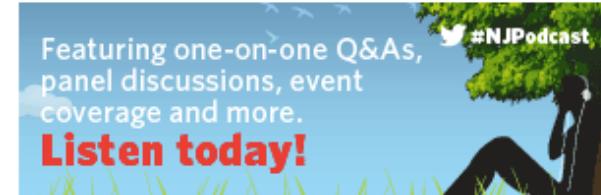
Data-access practices strengthened

19 November 2014

[PDF](#)[Rights & Permissions](#)

In our continued drive for reproducibility, *Nature* and the Nature research journals are strengthening our editorial links with the journal *Scientific Data* and enhancing our data-availability practices. We believe that this initiative will improve support for authors looking for appropriate public repositories for their research data, and will increase the availability of information needed for the reuse and validation of those data.

In 2013, Nature journals introduced new editorial measures to promote reproducibility, and we continue to evaluate their impact and refine our policies. Our newly strengthened data-availability practices (go.nature.com/o5ykhe) reflect our preference that data be deposited in public repositories, and encourage researchers to expand on work published in the Nature journals by publishing further information in *Scientific Data*.

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3. [Ornithology: Fowl domination](#)
Nature | 26 November 2014
4. [Climate science: A climate trance](#)
Nature | 26 November 2014
5. [Military science: Scientific spoils of war](#)
Nature | 26 November 2014

JOURNAL EXAMPLE: SCIENTIFIC DATA



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SCIENTIFIC DATA



About *Scientific Data*

Scientific Data is an open-access, peer-reviewed publication for descriptions of scientifically valuable datasets. Our primary article-type, the **Data Descriptor**, is designed to make your data more discoverable, interpretable and reusable.

Selecting a repository

Although *Scientific Data* mandates the release of the datasets that accompany our manuscripts, we do not ourselves host data. Instead, we encourage submission of datasets to community-recognized data repositories where possible, and recommend deposition in [figshare](#) or the [Dryad Digital Repository](#) when no community resource is available or (at least temporarily) if the most appropriate repository does not support confidential peer-review. For more information on this policy please see below, and our [related blog post](#).

► Please see our list of recommended data repositories

Authors often present more than one kind of data in a Data Descriptor. As our articles link directly to each data record, publishing with us can facilitate the linking together of disparate types of data, and in such cases we recommend that each dataset be archived in the resource to which it is best suited. For example, raw and derived gene-expression data might best be deposited in ArrayExpress or GEO; however, the results of a principal component analysis, control qPCRs or blots, or associated phenotypic assays could be stored in, e.g., [figshare](#) or the [Dryad Digital Repository](#).

[View data repositories](#)

- Life sciences:
 - nucleic acid sequence; protein sequence; molecular & supramolecular structure; neuroscience; omics; taxonomy & species diversity; life-science community resources
- Chemistry & chemical biology
- Environmental & geoscience
- Physics, astrophysics & astronomy
- Social sciences
- General science

Life sciences

Nucleic acid sequence

Sequence information should be deposited following the [MiS guidelines](#).

Simple genetic polymorphisms or structural variations should be submitted to dbSNP or dbVar (please note that these repositories cannot accept sensitive data derived from human subjects); the NCBI Trace Archive may be used for capillary electrophoresis data, while SRA accepts NGS data only.

[DNA DataBank of Japan \(DDBJ\)](#)

[view BioSharing entry](#)

[EMBL Nucleotide Sequence Database \(ENA\)](#)

[view BioSharing entry](#)



JOURNAL EXAMPLE: F1000 RESEARCH



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General Terms

7. Data availability

All articles in *F1000Research* that report original results should include the source data underlying the results, together with details of any software used to process the results. It is essential that others can see the source data in order to be able to replicate the study and analyse the data, as well as in some circumstances, reuse it. Failure to provide the source data for publication without good reason will result in the article being rejected. For detailed information about the type of data authors need to include when publishing an article in *F1000Research*, where the data can be stored, and how they should be presented see our [Data Preparation](#) guidelines.

We recognize that there may be cases where openly sharing data may not be feasible (because of ethical or security considerations, or data protection issues). If you think that this applies to your article, please let the [editorial team](#) know at the submission stage, as we have policies in place to allow the publication of papers associated with such data, whilst maintaining the appropriate level of security.

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Institutional Repositories

F1000Research can accept papers with the underlying data being hosted by an approved institutional data repository, such as [Edinburgh DataShare](#). For other institutional repositories, please [contact us](#)

Hosting

4. Data Hosting

Data must be hosted by a stable and recognised open repository. Using such a repository ensures that your dataset continues to be available in a useable form in the future.

If there is a suitable subject-specific repository for your data, please deposit them there and include the Accession Number(s) or other Identifiers and database details in your manuscript. For some data types, such as genetic sequences and protein structures, it is essential that the data are deposited in GenBank and Protein Data Bank, respectively. For X-ray crystal structures, please also submit your validation reports. If there is no obvious subject-specific repository for your data, [we will be happy to advise](#) on suitable options.

For all other data, prepare the files according to the guidelines above and then submit to us along with your manuscript. We will need to know which file types you have and the approximate total size of your datasets. We will then arrange with you the best way to transfer the data to us. We will review and deposit the data on your behalf in the most suitable stable data repository. Please **do not** directly submit your data to an unstructured repository (e.g. figShare), as we have arrangements with several repositories that allow us to select the most suitable one for your data. This enables us to properly crosslink your data with the article and also allows readers to have the benefit of previewing your data within your article (for an example, see the data files in <http://f1000research.com/articles/1-3/v1>).

4.1 Non-exhaustive list of *F1000Research*-approved repositories

Below is a list of repositories that have already been approved for hosting data alongside an *F1000Research* article. If you are an author who wishes to use a repository not already on this list, or you manage a repository that you would like included on the list, please [contact us](#).

Please include the name of the repository used at the end of the manuscript, along with details indicated in the 'What to add to manuscript' column.

Call for Papers: IFLA Journal special issue on Research Data Services

Submission Deadline: 16 May 2016

Libraries and archives around the world are applying the principles of library and archival sciences to address challenges and provide new services related to research data management. Librarians are helping researchers address needs throughout the research data lifecycle, for example, by conducting assessment and outreach, consulting on data management plans and metadata, incorporating data into information literacy instruction and collection management, and providing data publication and preservation services.

IFLA Journal invites papers for a special issue focused on research data services and libraries across all continents. The issue will be published in October 2016 as Volume 42:3. In particular, the main goal of the special issue is to gather the latest theory, research, and state-of-the-art practices from libraries that are informing and innovating effective data services.

Each issue of IFLA Journal is made available Open Access upon publication on [IFLA's website](#). Authors are also encouraged to make the accepted version of their manuscripts available in their personal or institutional repositories.



Guest Editors:

Wolfram Horstmann

Director

Göttingen State and University Library

Michael Witt

Head, Distributed Data Curation Center
Purdue University Libraries

V. CONCLUSION



Summary

- Research is about obervations of nature, collecting and documenting evidence, and communication
- Research heritage is food for thought in communication and reproducibility
- Text and data are currently separated and need to be brought together to build an integrated corpus for knowledge networks, i.e. research heritage
- Information professions need to transform together to tackle the challenge
- Librarians, archivists and documentalists should form data specialists, engage in ongoing activities and support data curation

Tomorrow's Research Heritage integrates nature & books



- „A natureza é o único livro que oferece grande conteúdo em todas as folhas.“
- „Die Natur ist das einzige Buch, das auf allen Blättern großen Gehalt bietet.“

Goethe

Thank you for your attention

