Research Data Alliance (RDA) ve DataCite

Berkin Malkoç
İTÜ

Neden Araştırma Verisi?

Tekrarlanabilirlik (reproducibility) sorunu

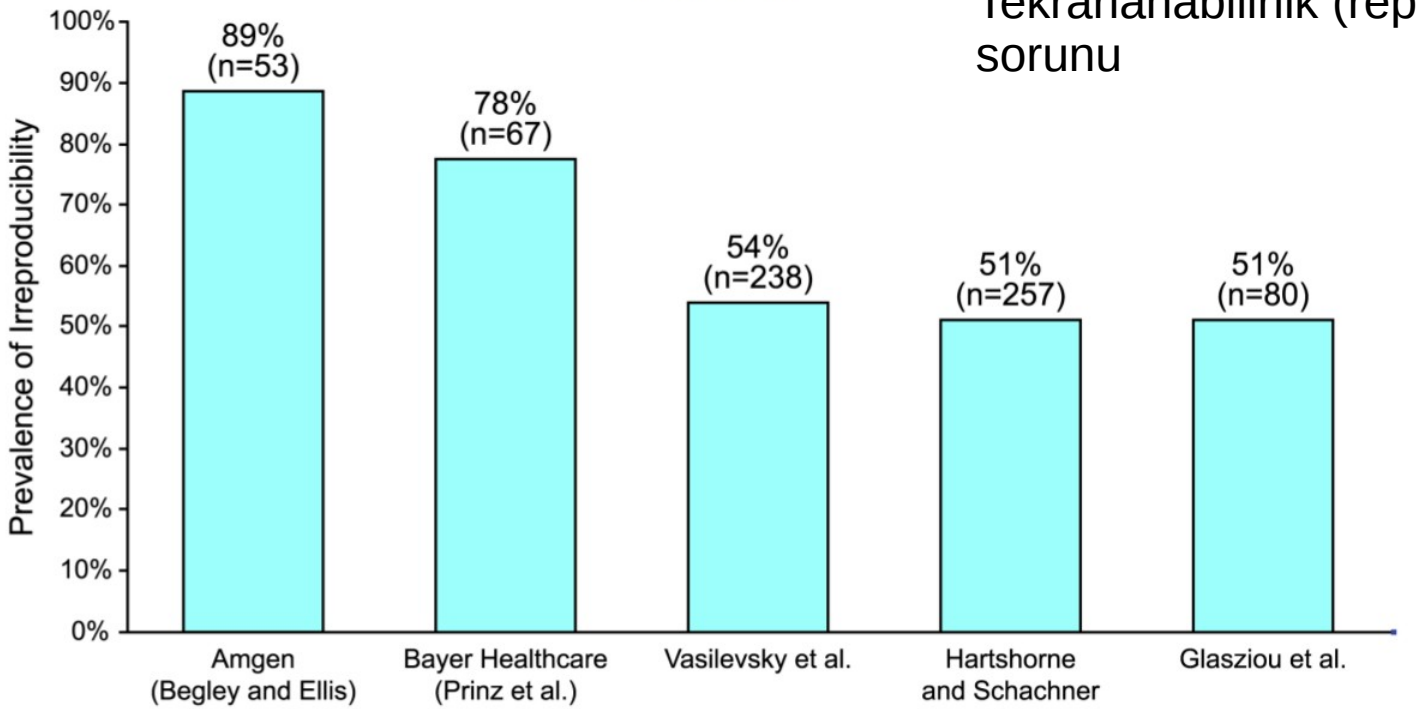
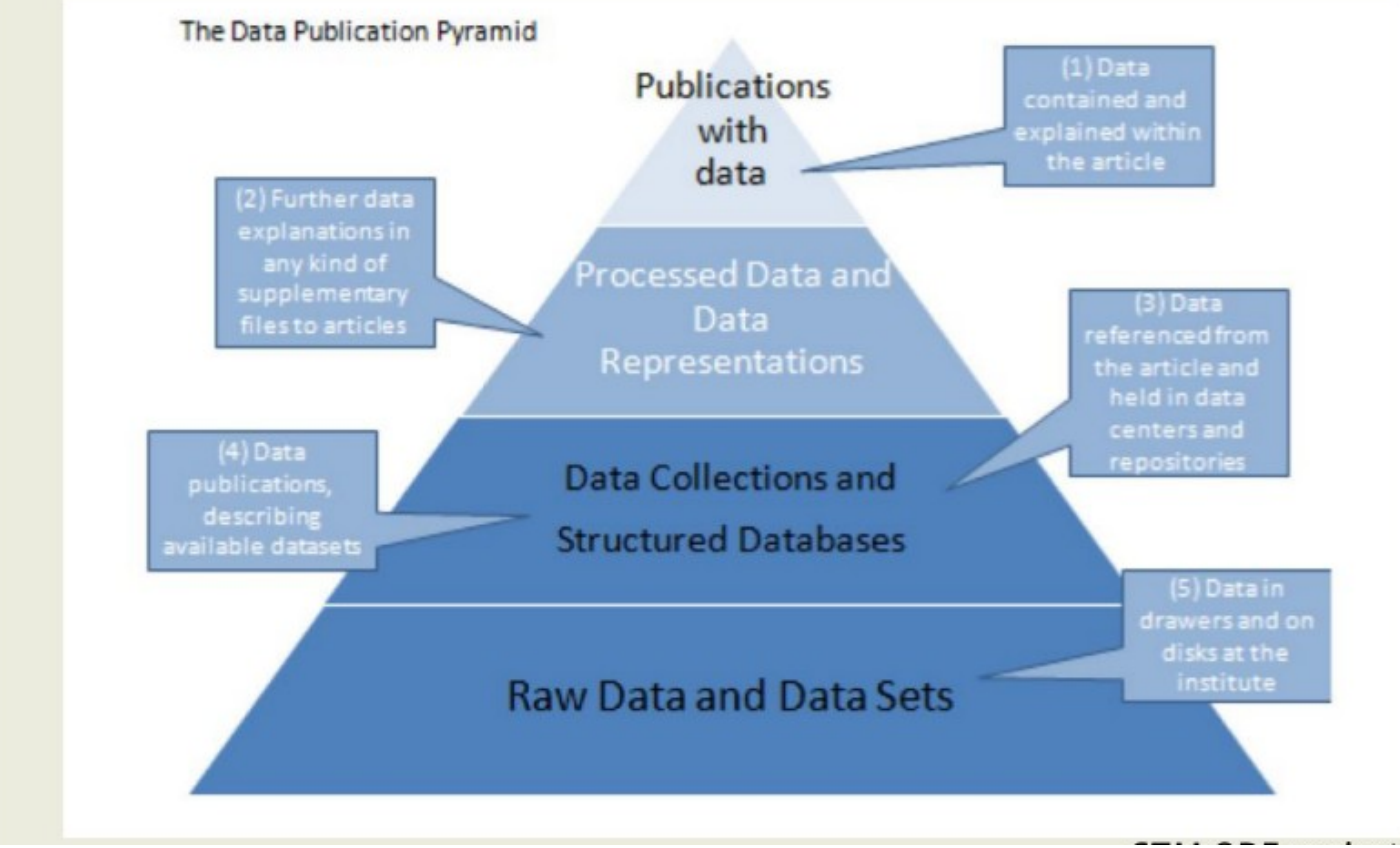


Fig 1. Studies reporting the prevalence of irreproducibility. Source: Begley and Ellis [6], Prinz et al. [7], Vasilevsky [8], Hartshorne and Schachner [5], and Glasziou et al. [9].

doi:10.1371/journal.pbio.1002165.g001

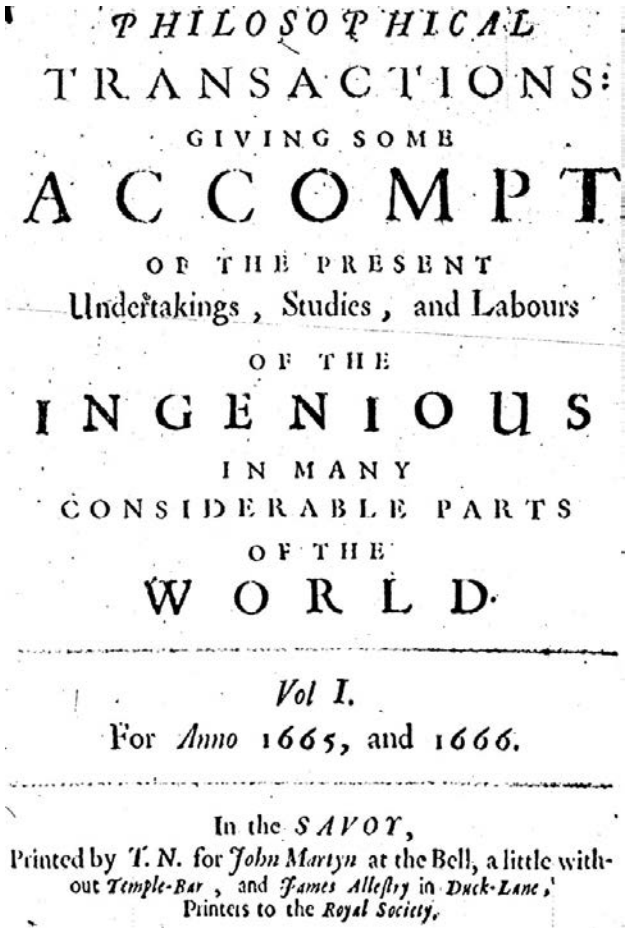
Kaynak: "The Economics of Reproducibility in Preclinical Research", PloS; doi:10.1371/journal.pbio.1002165

Neden Araştırma Verisi?



Kaynak: http://wiki.datadryad.org/wg/dryad/images/b/b2/2013May_DRYAD-intro_Michener.pdf

Ortam Değişimi: Kağıttan Dijitale



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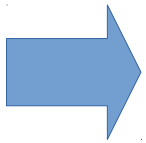
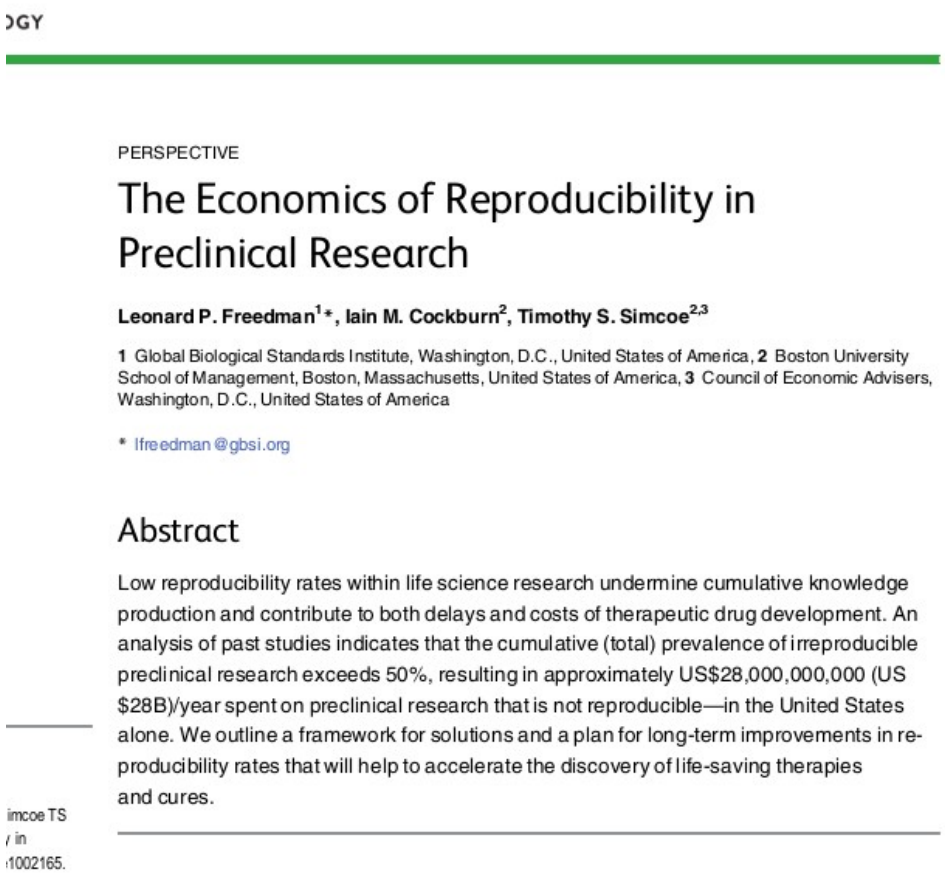




OGY

PERSPECTIVE

The Economics of Reproducibility in Preclinical Research

Leonard P. Freedman[1]*, Iain M. Cockburn[2], Timothy S. Simcoe[2,3]

1 Global Biological Standards Institute, Washington, D.C., United States of America, **2** Boston University School of Management, Boston, Massachusetts, United States of America, **3** Council of Economic Advisers, Washington, D.C., United States of America

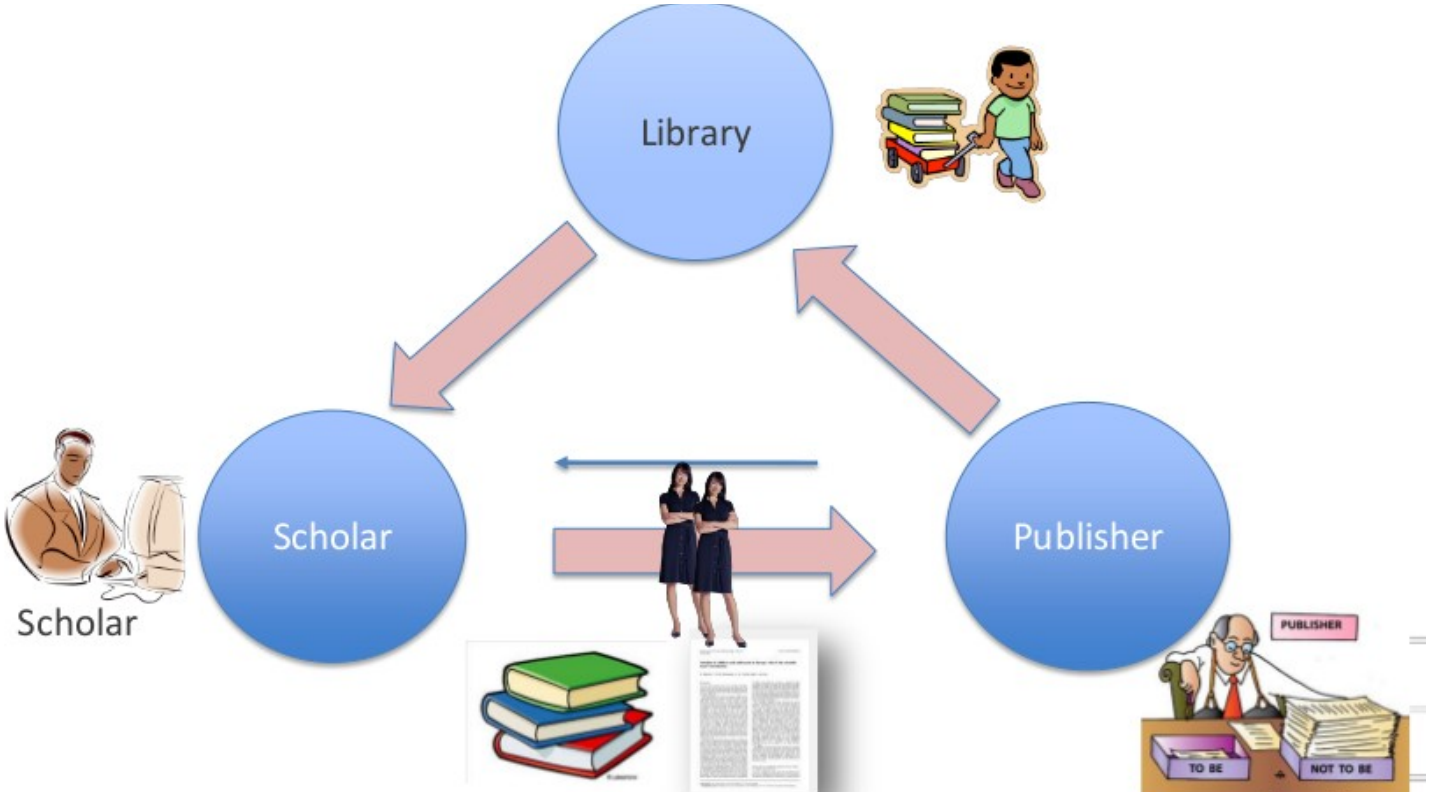
* lfreedman@gbsi.org

Abstract

Low reproducibility rates within life science research undermine cumulative knowledge production and contribute to both delays and costs of therapeutic drug development. An analysis of past studies indicates that the cumulative (total) prevalence of irreproducible preclinical research exceeds 50%, resulting in approximately US$28,000,000,000 (US $28B)/year spent on preclinical research that is not reproducible—in the United States alone. We outline a framework for solutions and a plan for long-term improvements in reproducibility rates that will help to accelerate the discovery of life-saving therapies and cures.

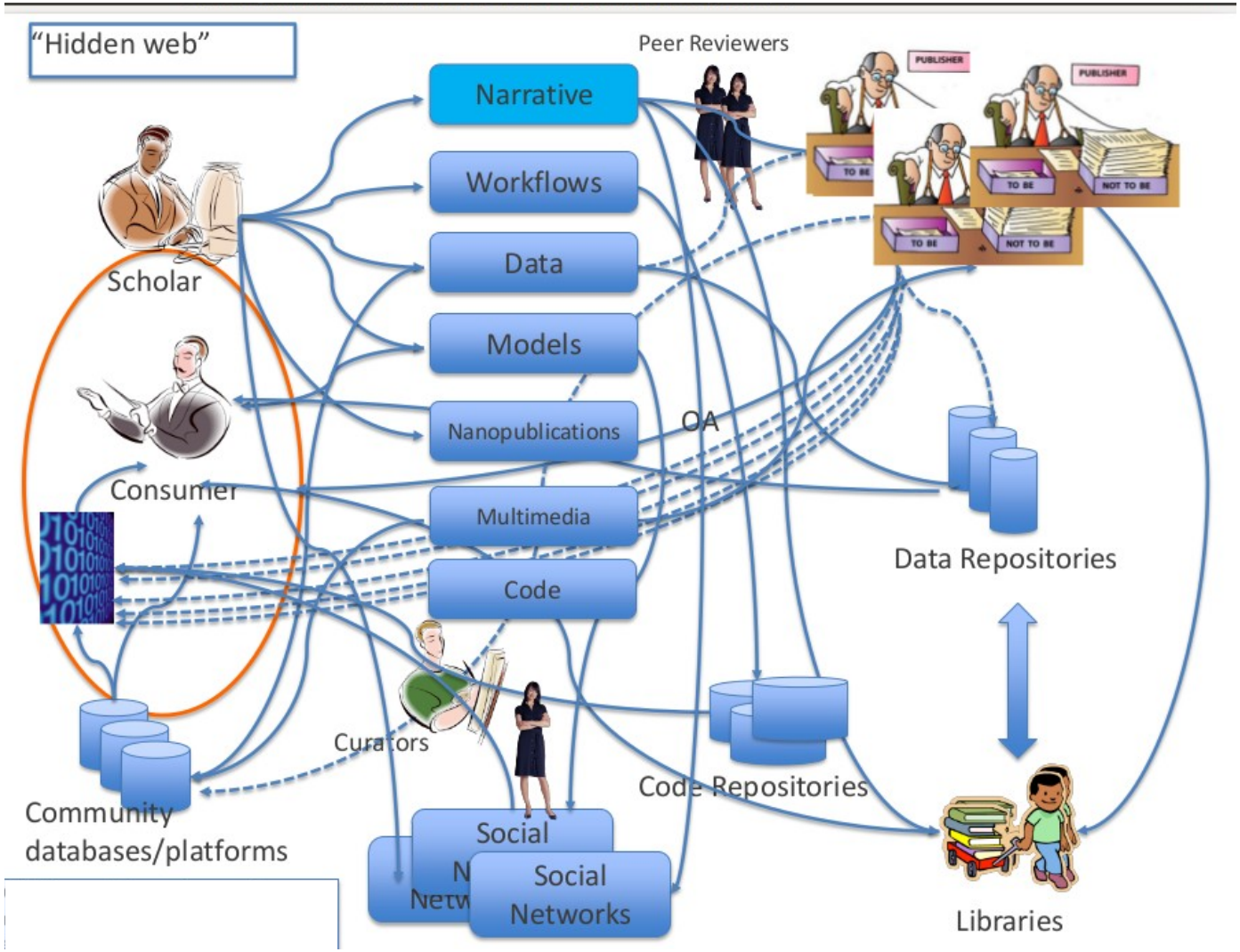
imcoe TS
/ in
1002165.

Ortam Değişimi: Kağıttan Dijitale



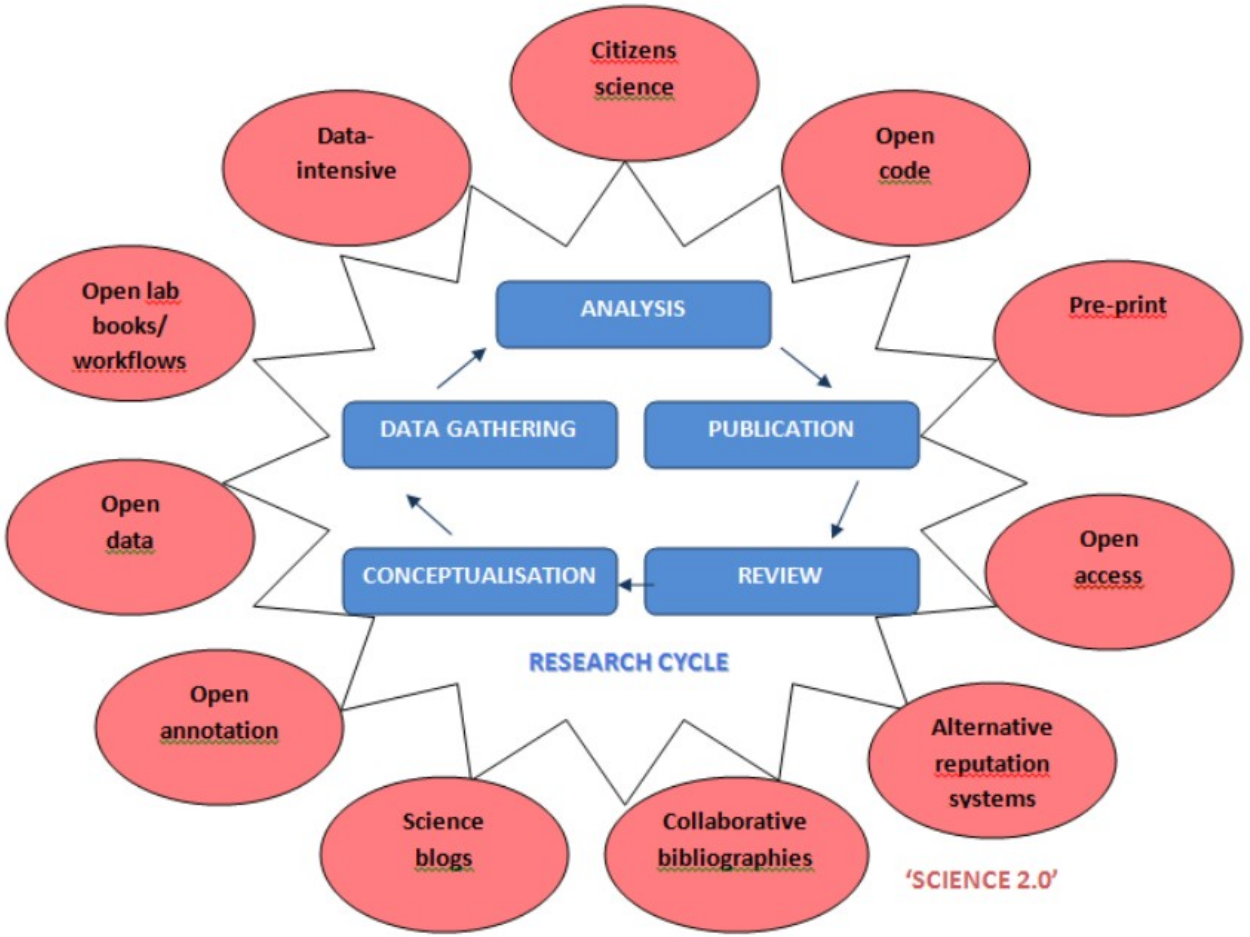
Kaynak: FORCE11.org: Future of research communications and e-scholarship

Ortam Değişimi: Kağıttan Dijitale



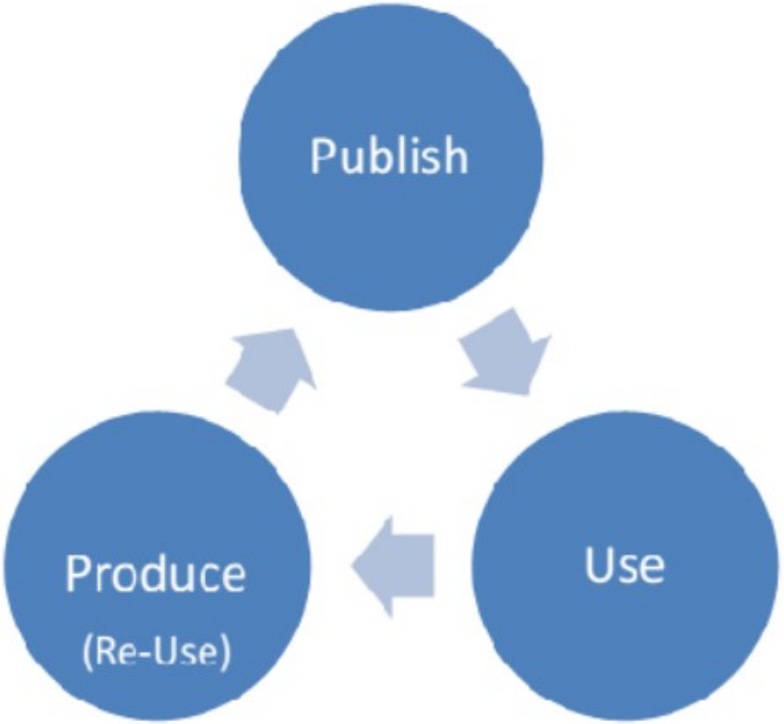
Kaynak: FORCE11.org: Future of research communications and e-scholarship

Bilim 2.0

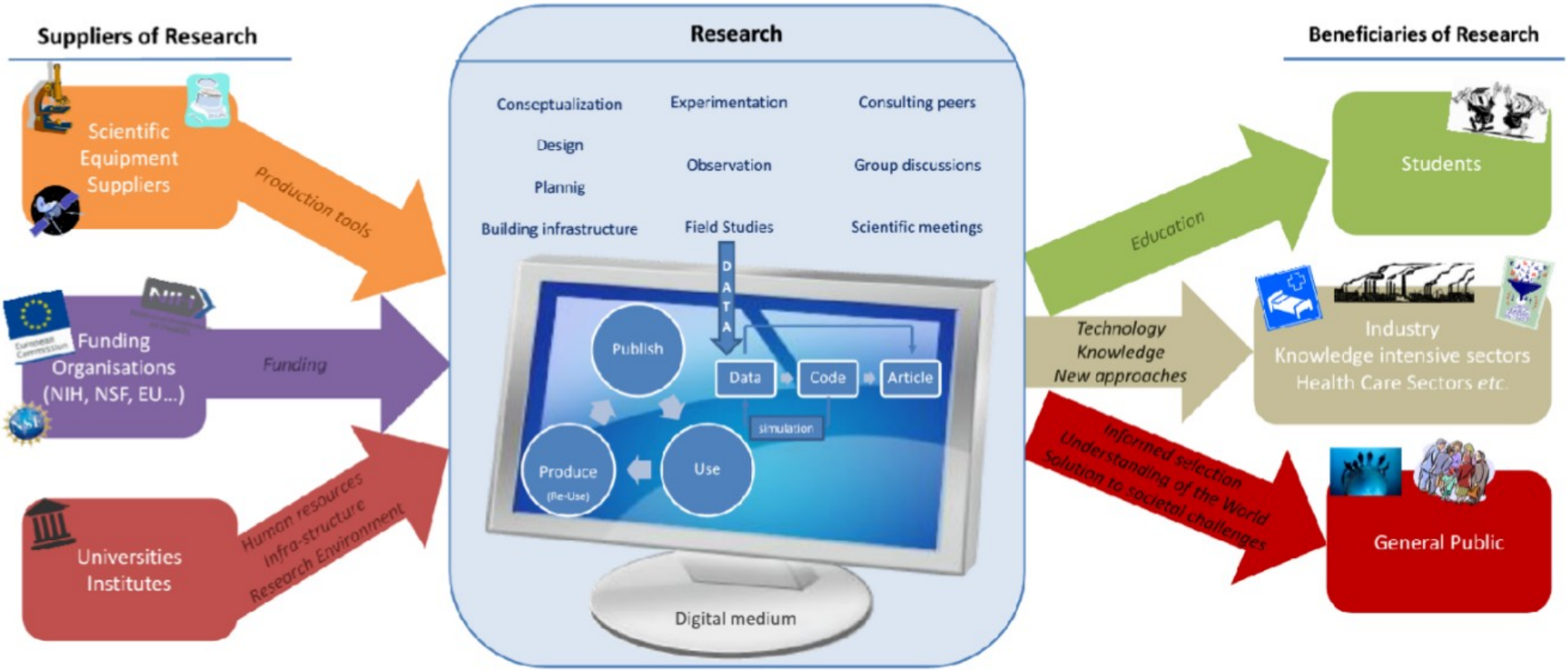


Kaynak: Avrupa Komisyonu - PUBLIC CONSULTATION 'SCIENCE 2.0': SCIENCE IN TRANSITION

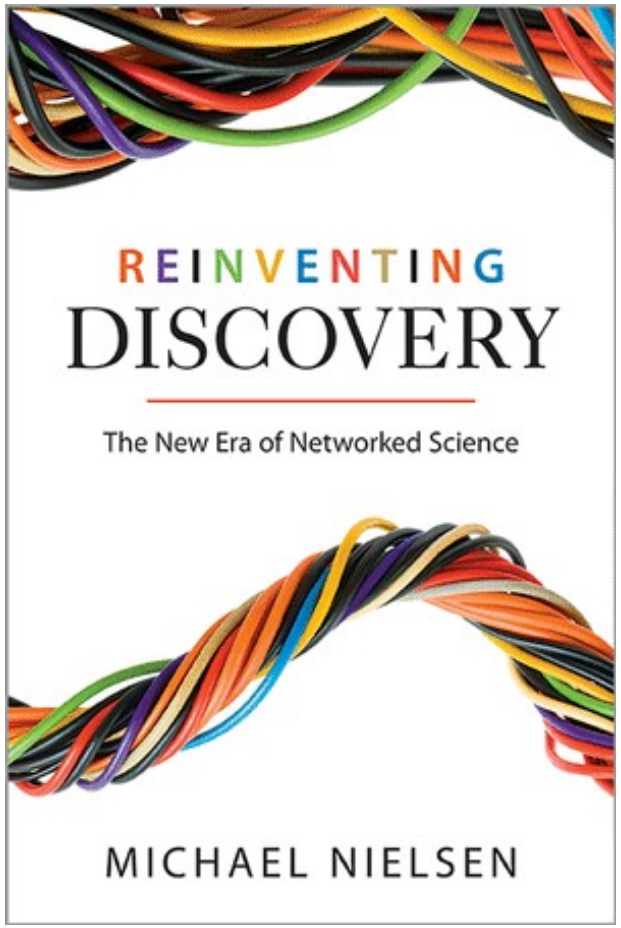
Araştırma Döngüsü



Bilim Değer Zinciri ve Dijitale Geçiş



Neden RDA ve DataCite



“Kolektif Dönüşüm Problemi”

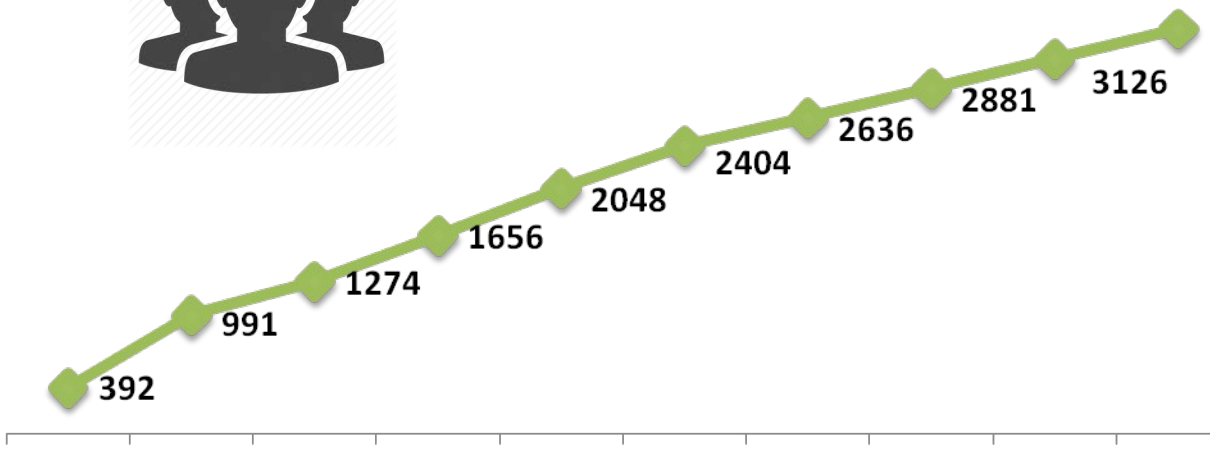
Science Citation Index

RDA - “3N1K”

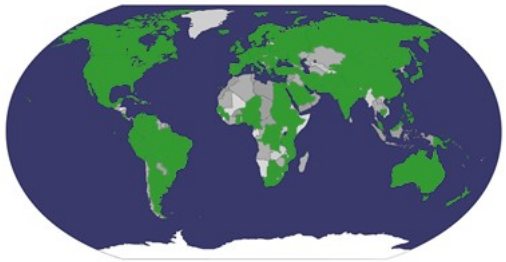
“RDA is building the social and technical bridges that enable open sharing of data to achieve its vision of researchers and innovators openly sharing data across technologies, disciplines, and countries to address the grand challenges of society.”

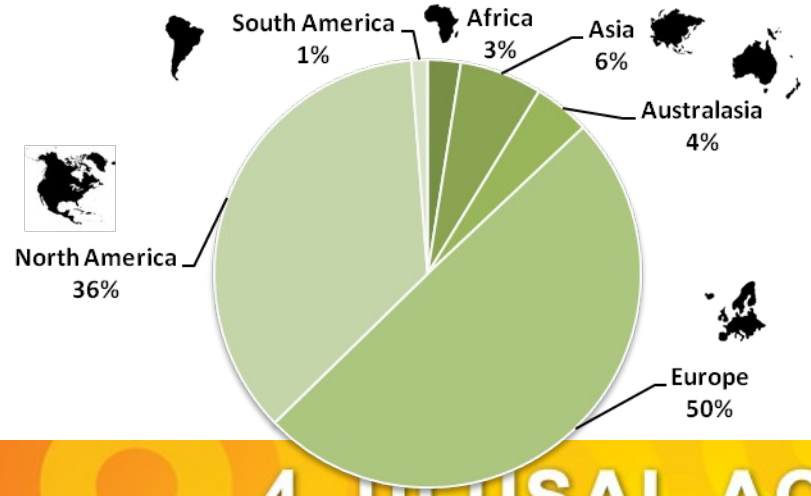
RDA – KİM?

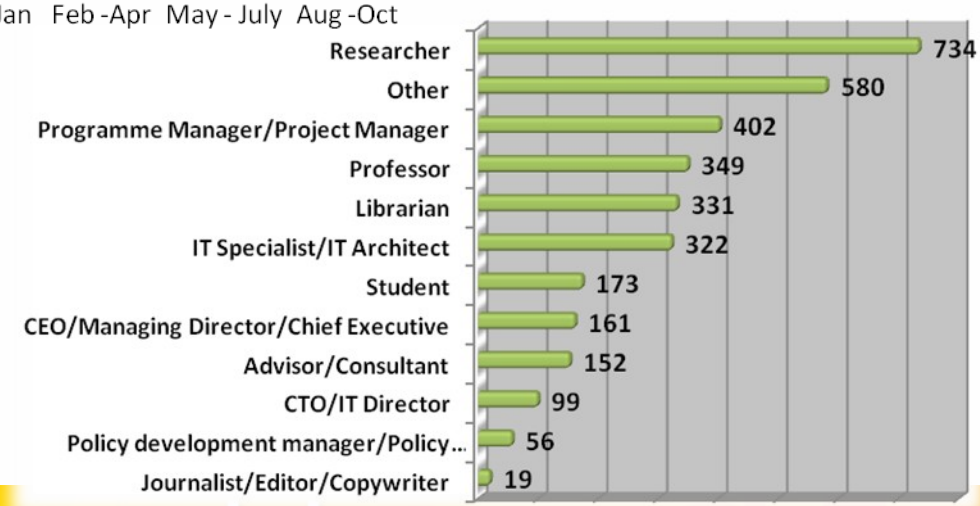
Total RDA Community Members: 3378



from 104 countries







RDA – KİM?

RESEARCH DATA ALLIANCE

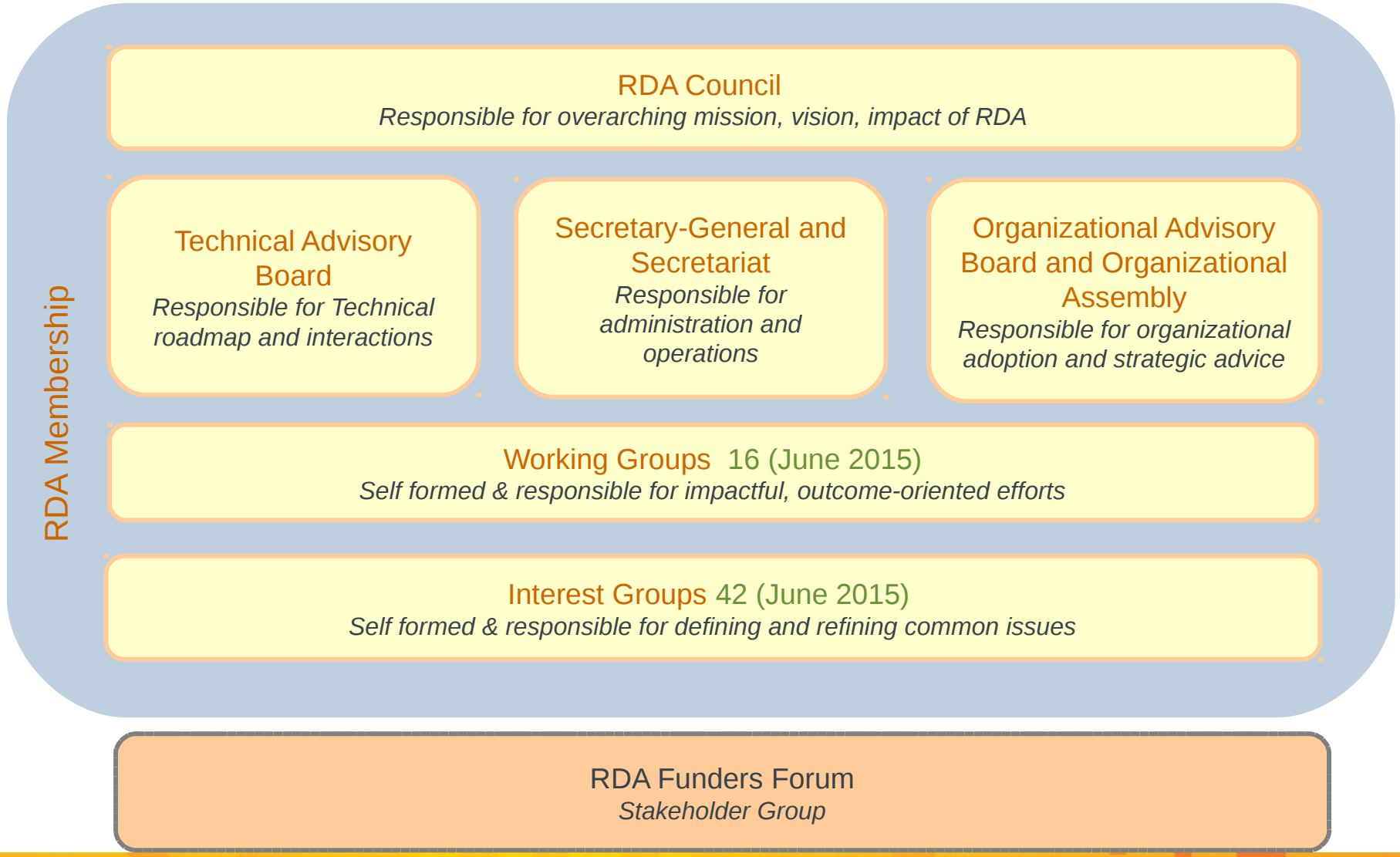
RDA Organisational Members

RDA Affiliate Members

RDA – Ne Zaman?

RDA Launch / First Plenary	RDA Second Plenary	RDA Third Plenary	RDA Fourth Plenary	RDA Fifth Plenary
March 2013	*September 2014*	*March 2014*	*September 2014*	*March 2015*
Gothenburg, Sweden	Washington, DC, USA	Dublin, Ireland	Amsterdam, Netherlands	San Diego, CA, USA
240 participants	380 participants from 22 countries	497 Participants from 32 countries	550 Participants from 40 countries	383 Participants from 30 countries
First Working Groups and Interest Groups	First "neutral space" community meeting (Data Citation Summit)	First Organizational Assembly	1st RDA Deliverables presented	2nd RDA Deliverables presented
	First Organizational Partner Meet-up	6 co-located events	Organizational Assembly and first OAB / Council meeting	Organizational Assembly / Council meetings
	First BOFs	14 BOF, 12 Working Groups, 22 Interest Groups	10 co-located events	1st Adoption Day & Large scale data projects meeting
			11 BOF, 14 Working Groups, 36 Interest Groups	10 BOF, 10 Working Groups, 20 Interest Groups; 10 joint Sessions; 4 thematic Plenary Sessions

RDA – Nasıl?


RDA Membership
RDA Council
Responsible for overarching mission, vision, impact of RDA
Technical Advisory Board
Responsible for Technical roadmap and interactions
Secretary-General and Secretariat
Responsible for administration and operations
Organizational Advisory Board and Organizational Assembly
Responsible for organizational adoption and strategic advice
Working Groups 16 (June 2015)
Self formed & responsible for impactful, outcome-oriented efforts
Interest Groups 42 (June 2015)
Self formed & responsible for defining and refining common issues
RDA Funders Forum
Stakeholder Group

RDA – Ne?

Domain Science - focused

- Toxicogenomics Interoperability IG
- Structural Biology IG
- Biodiversity Data Integration IG
- Agricultural Data Interoperability IG
- **Wheat Data Interoperability WG**
- Digital Practices in History and Ethnography IG
- Geospatial IG
- Marine Data Harmonization IG
- Metabolomics IG
- RDA/CODATA Materials Data Infrastructure and Interoperability IG
- Research Data Needs of the Photon and Neutron Science Community IG
- Defining Urban Data Exchange for Science IG
- **The BioSharing Registry: Connecting data policies, standards and databases in the life sciences WG**
- Urban Quality of Life Indicators IG

Community Needs - focused

- Community Capability Model IG
- Engagement IG
- RDA/CODATA Summer Schools in Data Science and Cloud Computing in the Developing World IG
- Development of Cloud Computing Capacity and Education in Developing World Research IG
- Data for Development IG
- Education and Training on handling of research data IG

RDA – Ne?

Reference and Sharing - focused

- **Data Citation WG**
- **Standardization of Data Cat. and Codes WG**
- RDA/CODATA Legal Interoperability IG
- Reproducibility IG
- **Data Description Registry Interoperability Working Group**
- **RDA / WDS Publishing Data Bibliometrics WG**

Data Stewardship and Services - focused

- Research Data Provenance IG
- Preservation e-infrastructure IG
- **RDA / WDS Publishing Data Services WG**
- **RDA / WDS Publishing Data Workflows WG**
- Long-tail of Research Data IG
- RDA/WDS Publishing Data IG
- **RDA/WDS Repository Audit and Certification**
- **DSA-WDS Partnership WG**
- Domain Repositories Interest Group
- Brokering Interest Group
- ELIXIR Bridging Force IG
- Libraries for Research Data IG*RDA / WDS Certification of Digital Repositories IG
- RDA / WDS Publishing Data Cost Recovery for Data Centres IG

Base Infrastructure - focused

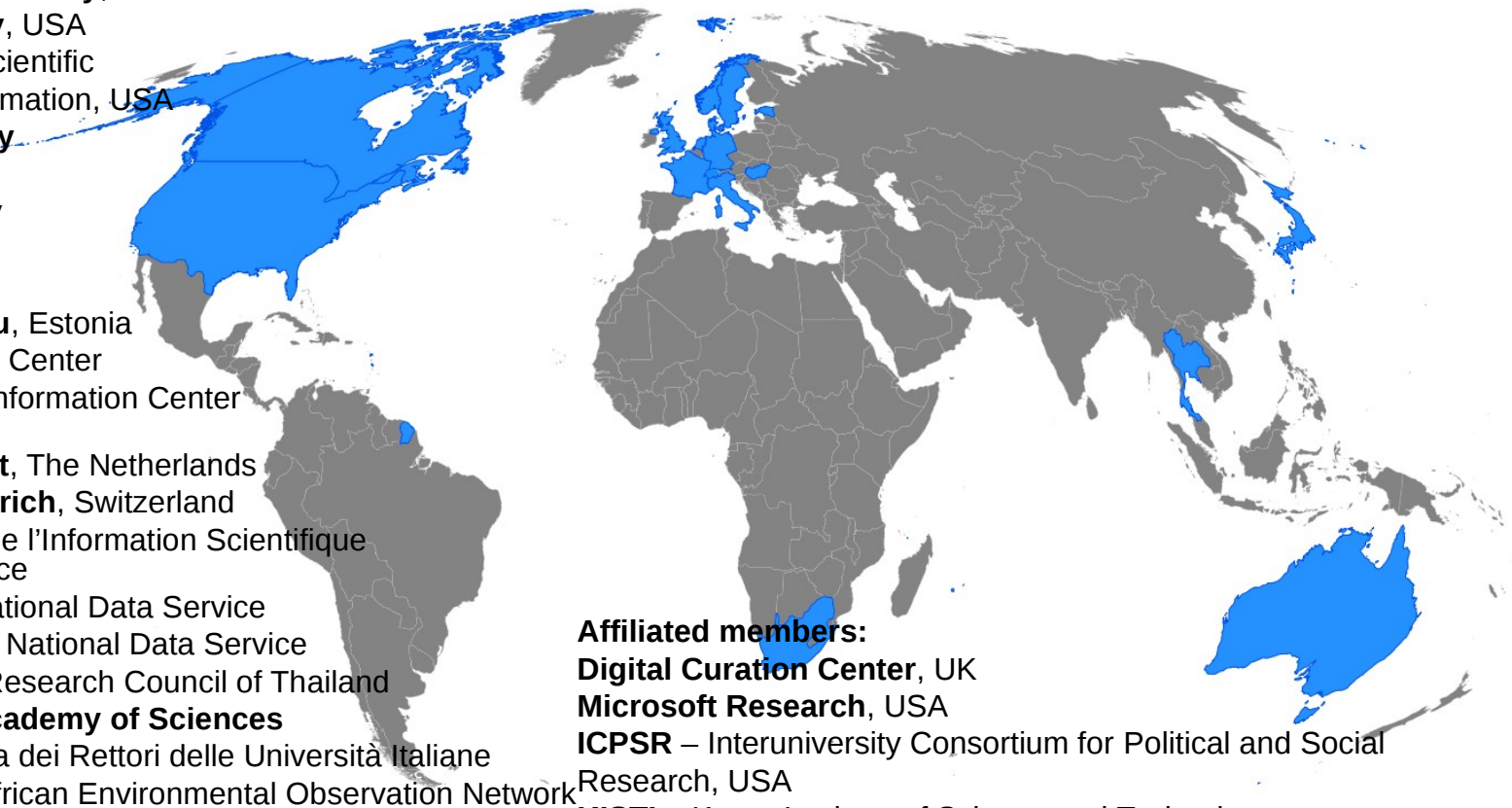
- **Data Foundation and Terminology WG**
- **Metadata Standards Directory WG**
- **Practical Policy WG**
- **PID Information Types WG**
- **Data Type Registries WG**
- Data in Context IG
- Big Data Analytics IG
- **Brokering Governance WG**
- Federated Identity Management IG
- Metadata IG
- PID Interest Group
- Service Management IG
- Data Fabric IG

DataCite - “3N1K”

“Supporting research by helping people find, share, use, and cite data”

DataCite – Kim?

CISTI – Canada Institute for Scientific and Technical Information
California Digital Library, USA
Purdue University, USA
OSTI – Office of Scientific and Technical Information, USA
The British Library
TIB, Germany
ZB MED, Germany
ZBW, Germany
GESIS, Germany
University of Tartu, Estonia
JaLC – Japan Link Center
DTIC – Technical Information Center of Denmark
Library of TU Delft, The Netherlands
Library of ETH Zürich, Switzerland
INIST – L'Institut de l'Information Scientifique et Technique, France
SND – Swedish National Data Service
ANDS – Australian National Data Service
NRCT – National Research Council of Thailand
The Hungarian Academy of Sciences
CRUI – Conferenza dei Rettori delle Università Italiane
SAEON – South African Environmental Observation Network
CERN – European Organization for Nuclear Research
BIBSYS – Library System, Norway



Affiliated members:
Digital Curation Center, UK
Microsoft Research, USA
ICPSR – Interuniversity Consortium for Political and Social Research, USA
KISTI – Korea Institute of Science and Technology Information
BGI – Bejiing Genomic Institute, China
IEEE, USA
Harvard University Library, USA
GWDG, Germany

DataCite – Kim?

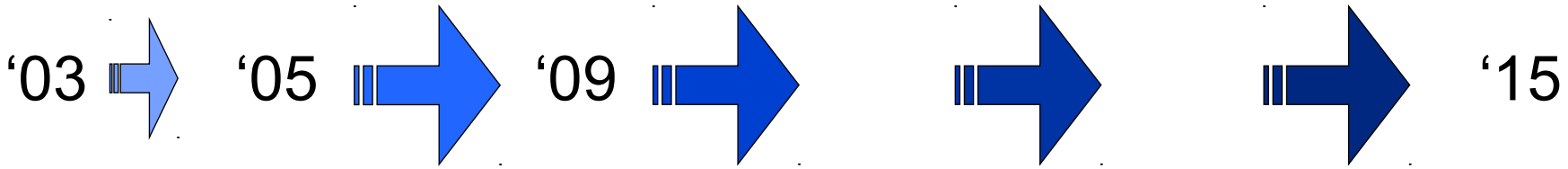
All around the world

DataCite – Kim?

Our structure

- DataCite has 24 members and 8 affiliate members

DataCite – Ne Zaman?



DFG-funded project with German World Data Centres

TIB allocates the first DOIs for data sets

Paris Memorandum.

DataCite is founded in London. Seven members.

Sturdy technical infrastructure.

Annual Meetings:

Hannover 2010
Berkeley 2011
Copenhagen 2012
Washington 2013
Nancy 2014
Paris 2015

25 members

8 associated members

19 countries

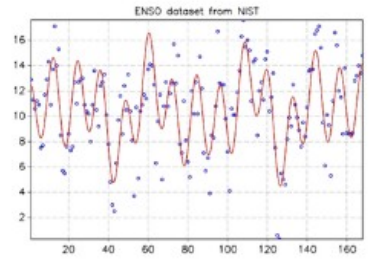
Over 5 million DOI names

DataCite – Nasıl?

Using DOIs

DataCite
FIND, ACCESS, AND REUSE DATA

1. Take a dataset



2. Describe it

- Title
- Authors
- Year
- Description
- And others…

3. Assign a DOI

doi®

10.1234/exampledata

4. Reuse and reference!

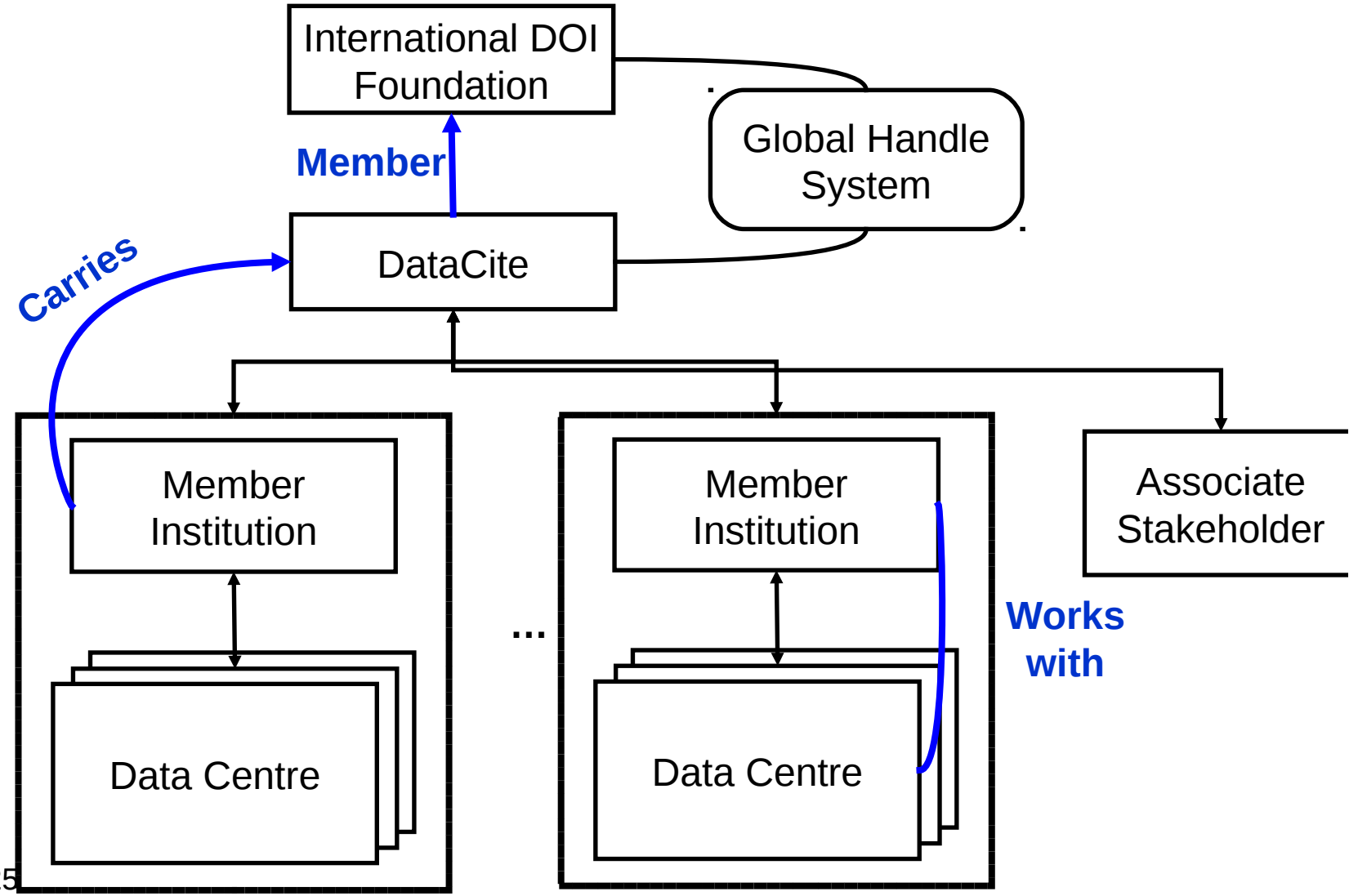
ATLAS Collaboration, "Data from Figure 7 from: Measurements of Higgs boson production and couplings in diboson final states with the ATLAS detector at the LHC: $H \to \gamma\gamma$," http://doi.org/10.7484/INSPIREHEP.DATA.A78C.HK44

☑ Unique ☑ Persistent

5. Enjoy the benefits

Findability	Track citations
Reusability	Measure impact

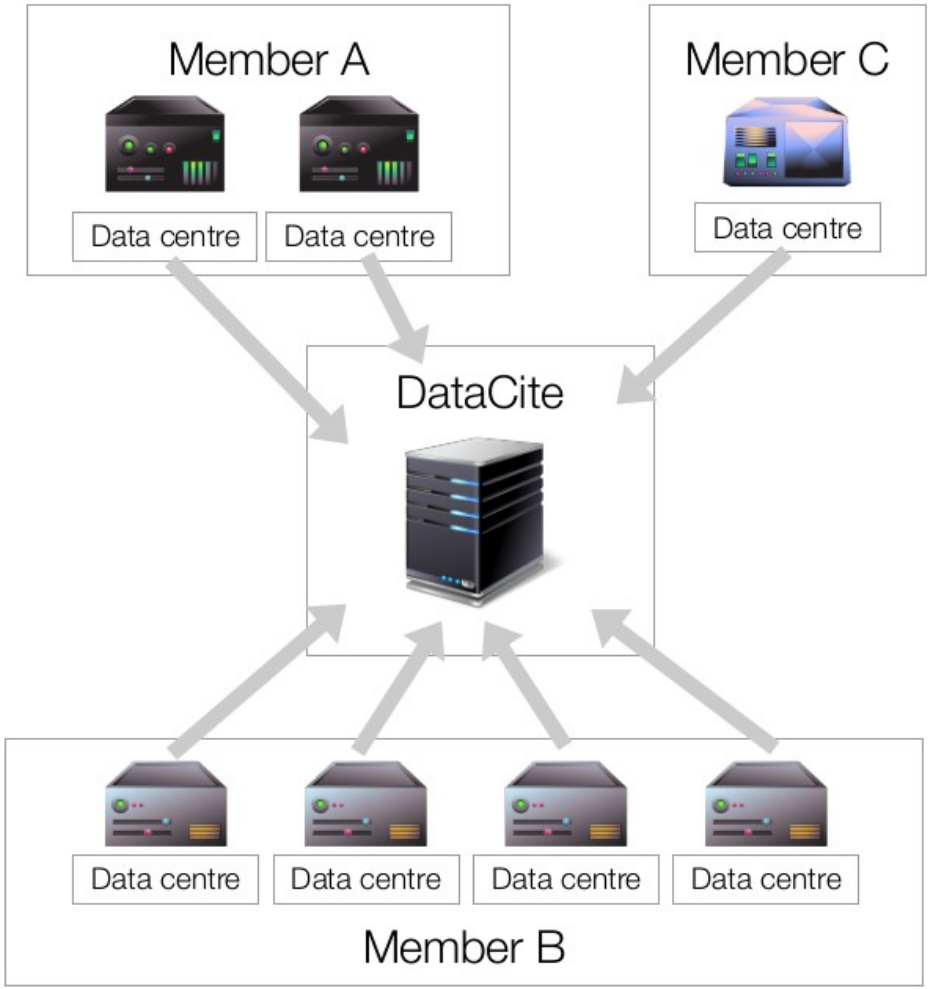
DataCite – Nasıl?



DataCite – Nasıl?

Technical infrastructure

- DataCite serves all the data centres using a centralised infrastructure
- Same end-point for all of them
- Becoming a member does not require to set up any technical infrastructure



DataCite – Nasıl?

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Deep Sea Research Part I: Oceanographic Research Papers
Volume 56, Issue 1, January 2009, Pages 107-124

Font Size:

Article | Figures/Tables | References | PDF (1903 K)

Thumbnails | Full-Size Images

doi:10.1016/j.dsr.2008.08.009
Cite or Link Using DOI

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Seasonal and interannual variability of the planktic foraminiferal flux in the vicinity of the Azores Current

David Storz[a, 1], Hartmut Schulz[a], Joanna J. Waniek[b], Detlef E. Schulz-Bull[b] and Michal Kučera[a]

[a]Institute for Geosciences, Sigwartstraße 10, D-72076 Tübingen, Germany

[b]Leibniz Institute for Baltic Sea Research Warnemünde, Seestraße 15, D-18119 Rostock, Germany

Received 16 April 2007; revised 14 August 2008; accepted 21 August 2008. Available online 24 September 2008.

Abstract

Planktic foraminiferal (PF) flux and faunal composition from three sediment trap time series of 2002–2004 in the northeastern Atlantic show pronounced year-to-year variations despite similar sea surface temperature (SST). The averaged fauna of the in 2002/2003 is dominated by the species *Globigerinita glutinata*, whereas in 2003/2004 the averaged fauna is dominated by *Globigerinoides ruber*. We show that PF species respond primarily to productivity, triggered by the seasonal dynamics of vertical stratification of the upper water column. Multivariate statistical analysis reveals three distinct species groups, linked to bulk particle flux, to chlorophyll concentrations and to summer/fall oligotrophy with high SST and stratification. We speculate that the distinct nutrition strategies of strictly asymbiontic, facultatively symbiontic, and symbiontic species may play a key role in explaining their abundances and temporal succession. Advection of water masses within the Azores Current and species expatriation result in a highly diverse PF assemblage. The Azores Frontal Zone may have influenced the trap site in 2002, indicated by subsurface water cooling, by highest PF flux and high flux of the deep-dwelling species *Globorotalia scitula*. Similarity analyses with core top samples from the global ocean including 746 sites from the Atlantic suggest that the trap faunas have only poor analogs in the surface sediments. These differences have to be taken into account when estimating past oceanic properties from sediment PF data in the eastern subtropical North Atlantic.

Keywords: Eastern North Atlantic; Planktic foraminifers; Sediment trap; Azores Current; Particle flux; Species ecology

Article Outline

1. Introduction
2. Hydrography and ecology of the study area
   2.1. Oceanography
   2.2. Mixed-layer depth and primary production
   2.3. Mesoscale variability of the AC/AFZ system
3. Material and methods
   3.1. Sediment traps

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1

Table A a,b: Trap L1/K276-22 (2000 m). (a) Relative contributions of the 28 planktic foraminiferal species or species varieties and
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DataCite – Nasıl? (metadata)

Metadata

- A metadata schema is a list of core metadata properties chosen for the accurate and consistent identification of a resource.

Mandatory	Recommended	Optional
Identifier	Subject	Language
Creator	Contributor	Alternate ID
Title	Date	Size
Publisher	Resource Type	Format
Publication year	Related identifier	Version
	Description	Rights
	GeoLocation	

https://schema.datacite.org

XML
Current version 3.1

DataCite – Nasıl? (kullanıcı)

WHAT CAN DATACITE DO FOR YOU?

CITE YOUR DATA

Data citation is fundamental as it enables easy reuse and verification of data, making it possible to track and quantify the impact of data. Citation creates a...

FORMAT YOUR CITATION

Use the DOI Citation Formatter, a service created in collaboration with CrossRef, to format your citation, ensuring you adopt the correct format for your needs...

FIND A REPOSITORY

DataCite supports all researchers looking to deposit and/or find data, in collaboration with re3data.org.

FIND A DATASET

DataCite Metadata Search is a service that allows people to search for datasets registered with DataCite, via the metadata associated with the datasets.

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Teşekkürler:

Mark Parsons, RDA

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Laura Rueda, DataCite