Open-Access-Statistik

Open Access Repositories & Interoperable Usage Statistics: Current Developments in Germany and Europe

International Seminar on Standardization of IR Usage Statistics:
How we count the access to institutional repositories

National Institute of Informatics, Tokyo
January 11, 2011

Initiated by:

DINI DEUTSCHE INITIATIVE FÜR NETZWERKINFORMATION E.V.

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Overview

- IR development in Europe and Germany
- Impact measures
  - Citation vs. Usage
- Usage Metrics: Standards?
- Open Access Statistics (OAS)
  - Aims
  - Technical infrastructure
  - Results & outlook
  - Repository usage statistics: The European perspective

IR development in Europe and Germany

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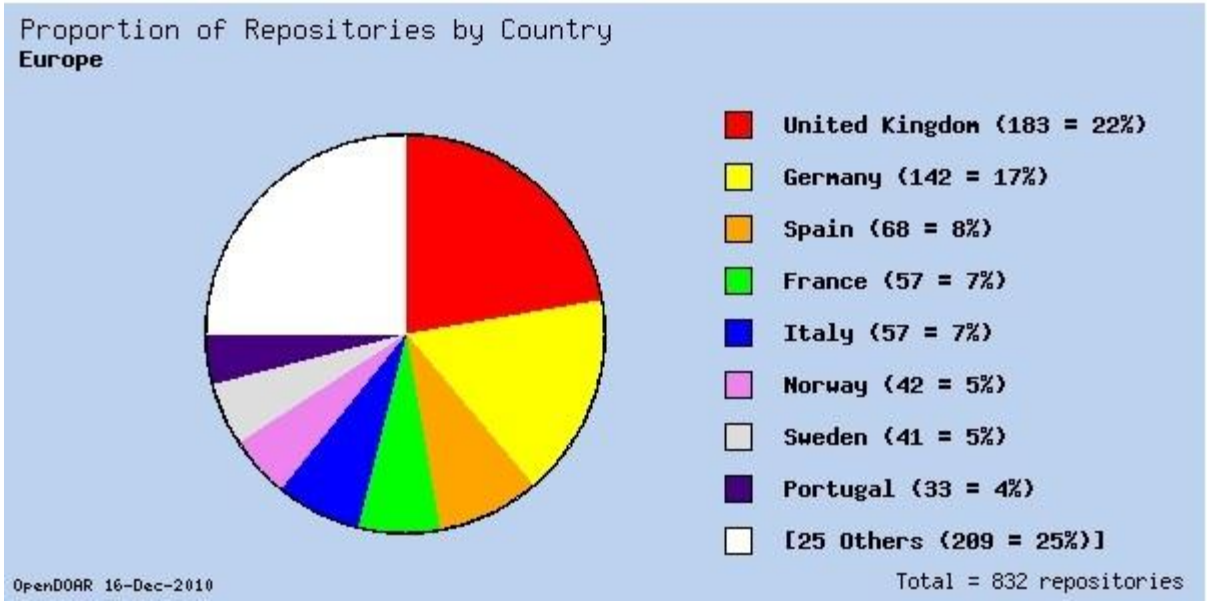
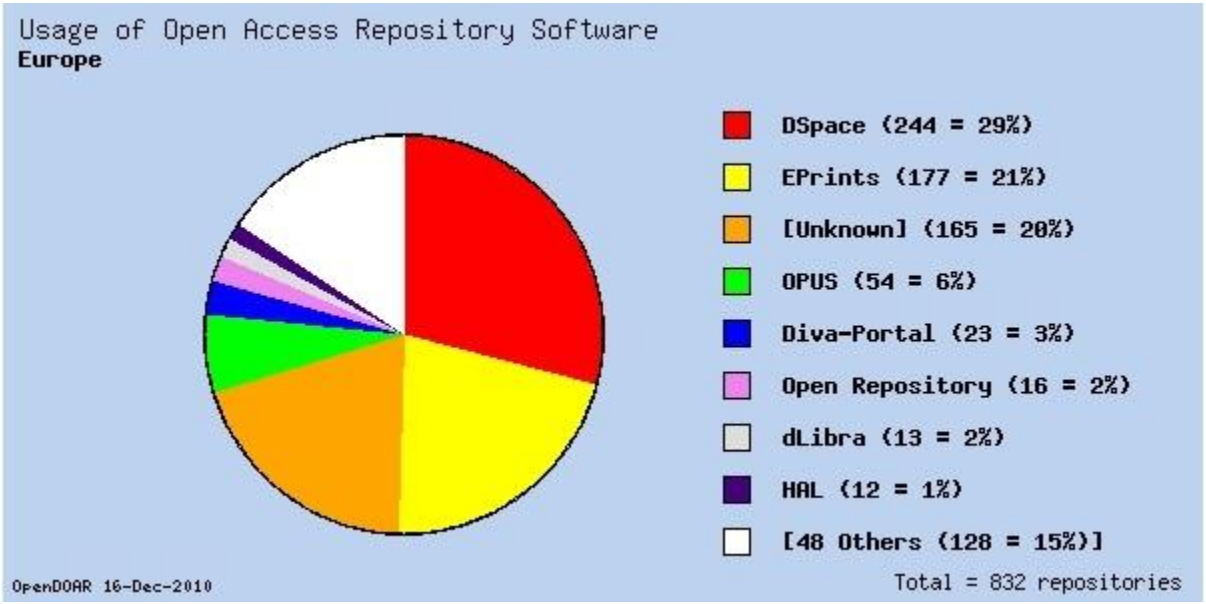
IR development in Europe and Germany



taken from www.opendoar.org

IR development in Europe and Germany



taken from www.opendoar.org

IR development in Europe and Germany

UK

EPprints	44%
DSpace	19%
proprietary tools	16%
Open Repository	5%

France

proprietary tools	47%
HAL	19%
EPrints	18%
DSpace	11%

Germany

OPUS	38%
proprietary tools	25%
EPrints	11%
DSpace	5%

Italy

EPrints	51%
DSpace	32%
proprietary tools	12%

Spain

DSpace	59%
proprietary tools	25%
DigiBib	10%
EPrints	6%

Netherlands

proprietary tools	39%
DSpace	22%
EPrints	9%

taken from www.opendoar.org

IR development in Europe and Germany

- Heterogeneous software landscape with some “local heroes”
- Creating incentives (metrics, scientific capital)
- European repository community takes strong efforts in interlinking and integration of repositories

  … both on the technical and the service layer (DRIVER, COAR) and at the level of funding agencies (Knowledge Exchange)
- Integration into

  … academic workflows (SWORD, SONEX)

  … academic and administrative information systems (current research information systems, project databases)

  … Social Networks (ResearchGate, Mendeley, …)

  … do repositories really need an user interface?

IR development in Germany

- 200+ institutional and disciplinary repositories
  - Various repository platforms operational
  - Large differences in design, size of collections, and coverage
  - Heterogenous types of content

- Enhancement of content visibility on a national and international level by various means
  - Widespread implementation of OAI-PMH, but still deficits in standardization and data harmonization
  - Prominent repository registries, repository collaborations, search engines

Registry of Open Access Repositories (ROAR)

OpenDOAR

COAR Confederation of Open Access Repositories

DINI Bibliotheken Medienzentren Rechenzentren Wissenschaft

Netzwerk von Open-Access-Repositorien

Google scholar beta

BASE Bielefeld Academic Search Engine

driver Digital Repository Infrastructure Vision for European Research

OAlster ...find the pearls

IR development in Germany

- Open-Access-Network
  German research institutions interlink their Open Access repositories and create an overarching collection of publications through the information infrastructure of OA Network
  http://www.dini.de/projekte/oa-netzwerk/

- Standardization and stimulation of IR development
  DINI Certificate for document and publication services
  DINI = German Initiative for networked information
  http://www.dini.de/english/dini-certificate/

Impact Measures

Impact measures: relevance

Individual level: *publish or perish*

- If you do not publish you do not have any scientific capital, reputation or impact
- Without any impact, you won't make your career

Organisational level: evaluation

- Evaluation results determine prospective resources of institutes *and* the future main research
- Criteria: number of doctoral candidates, amount of third party funds, publications

From publications to impact

- Scientific reputation (or scientific capital) is derived from publication impact

- Impact is calculated mostly by citation measures
  - Journal impact factor (JIF)
  - Hirsch-index (h-index)

  Especially within the STM domain

Citation impact: calculation

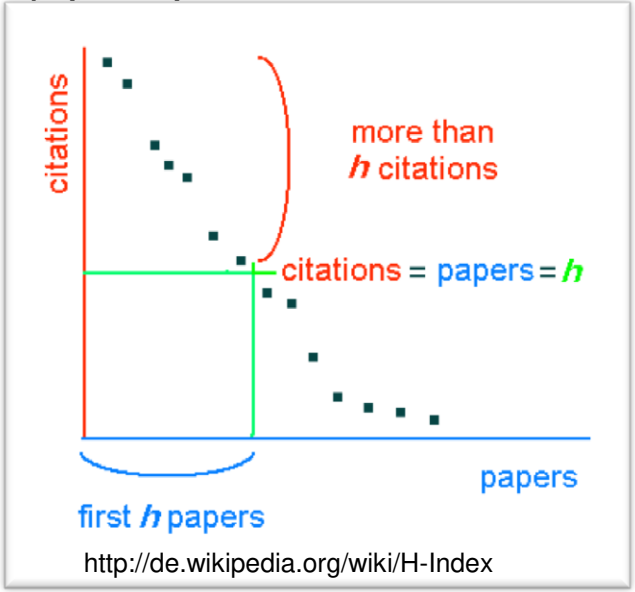
JIF

In year X, the impact factor of a journal Y is the average number of citations to articles that were published in Y during the two years preceding X

Garfield: *„We never predicted that people would turn this into an evaluation tool for giving out grants and funding.“* From: Richard Monastersky (2005), The Number That's Devouring Science *The Chronicle of Higher Education*

H-index

A scientist has index h if h of N papers have at least h citations each, and the other (N − h) papers have less than h citations each



Citation impact: some critique

- Restricted scope, exclusion of many publication types
- Based exclusively on journal citation report / web of science
- Language bias: items in English language are overrepresented within the database, so they reach higher citation scores
- JIF focuses on journals: few articles evoke most citations
- JIF discriminates disciplines with lifecycles of scientific information > 2 years

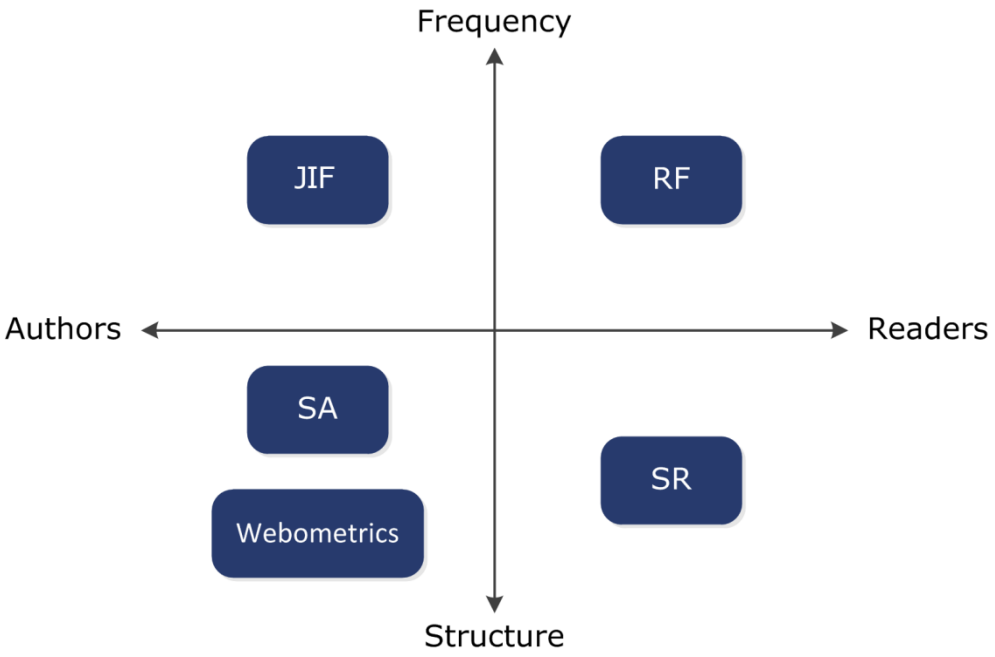
→ Mixture of quality and popularity

Impact measures: a categorization

- Citation based measures
  - Author-centred
  - Delayed measurement: at first in the following generation of publications
  - Impact of a separate object is mostly not described

- Usage based measures
  - Reader-centred
  - Measuring: on-the-fly and consecutive
  - Impact of a separate object can be described
  - Automated measurement is possible

Impact measures: a categorisation, pt. II



JIF = Journal Impact Factor

RF = Reading Factor

SA = Structure Author

- **based on networks built by authors and their activities, e.g. Google PageRank, citation graphs, webometrics**

SR = Structure Reader

- **based on document usage and its contextual information, e.g. recommenders, download graphs**

Bollen, J. et al. (2005): *Toward alternative metrics of journal impact: A comparison of download and citation data*. In: Information Processing and Management 41(6): S. 1419-1440.
Preprint Online: http://arxiv.org/abs/cs.DL/0503007

Usage Metrics: Standards?

Usage based impact: standardisation?

- COUNTER — Counting Online Usage of NeTworked Electronic Resources
  http://www.projectcounter.org
- LogEc
  http://logec.repec.org/
- IFABC
  http://www.ifabc.org/

Usage based impact: standardisation?

- The models mentioned differ in many aspects
  - Detection and elimination of non-human access (robots, automatic harvesting)
  - Definition of double click intervals
  - …
- General problems
  - Ignorance of context information
  - Detection of duplicate users
  - Detection of duplicate information items
  - Ignorance of philosophical questions like: “What degree of similarity makes two files the same document?”

Alternative impact measures: conclusion

- Alternative impact measures are possible
- But: very little standardisation
- Promising, but complex examples/models like MESUR http://www.mesur.org
- Requirement: sophisticated infrastructure to generate and exchange interoperable usage information within a network of several different servers

Project:
Open Access Statistics

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Open Access Statistics (OAS)

- 07/2008 – 02/2010
- Project partners

Universität Stuttgart

HUMBOLDT-UNIVERSITÄT ZU BERLIN

NIEDERSÄCHSISCHE STAATS- UND UNIVERSITÄTSBIBLIOTHEK GÖTTINGEN

SAARLÄNDISCHE UNIVERSITÄTS-UND LANDESBIBLIOTHEK

Initiated by:

DINI – Medienzentren, Bibliotheken, Rechenzentren, Wissenschaft – DEUTSCHE INITIATIVE FÜR NETZWERKINFORMATION E.V.

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http://www.dini.de/projekte/oa-statistik/english/

OAS: Aims

- A common standard to exchange usage date between different services
- An infrastructure to collect, process and exchange usage information between different services
- Usage information should be processed according to the standards of COUNTER, LogEc and IFABC
- Additional service for repositories
- Implementation guidelines

OAS: Associated projects

- Open Access Statistics

- DOARC
  (Distributed Open Access Reference and Citation Services)

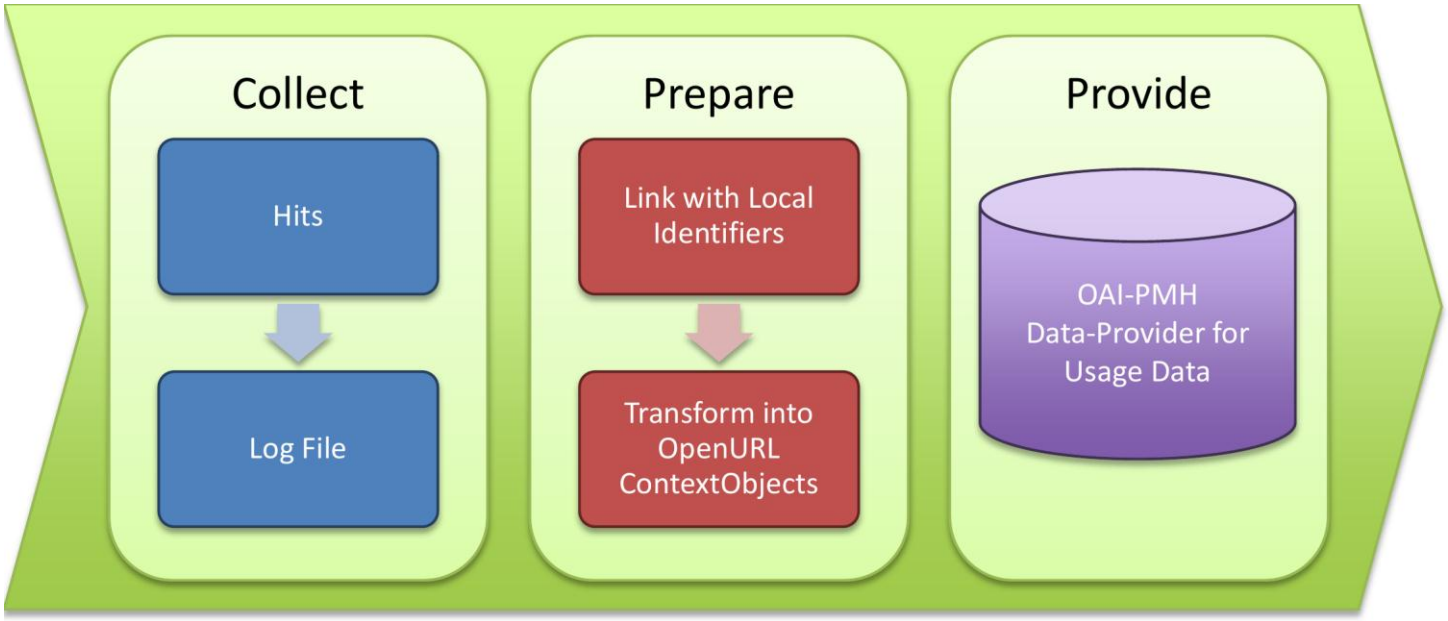
- Open Access Network

Technical Infrastructure

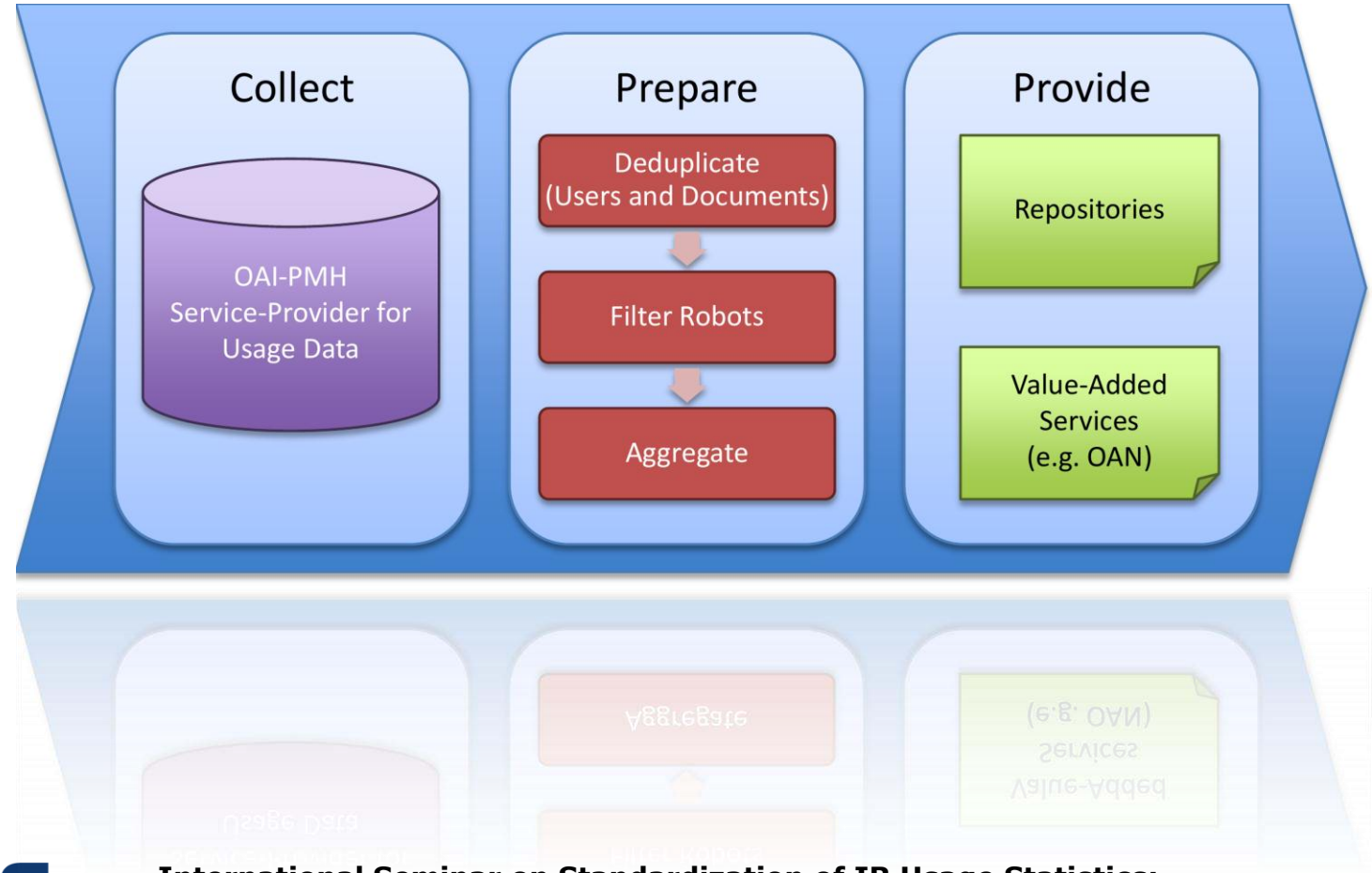
OAS: Background

- Data pools at partner institutions
- Aggregation of usage events in a central service provider
- Services provided by the central service provider
- Usage data will be retransferred

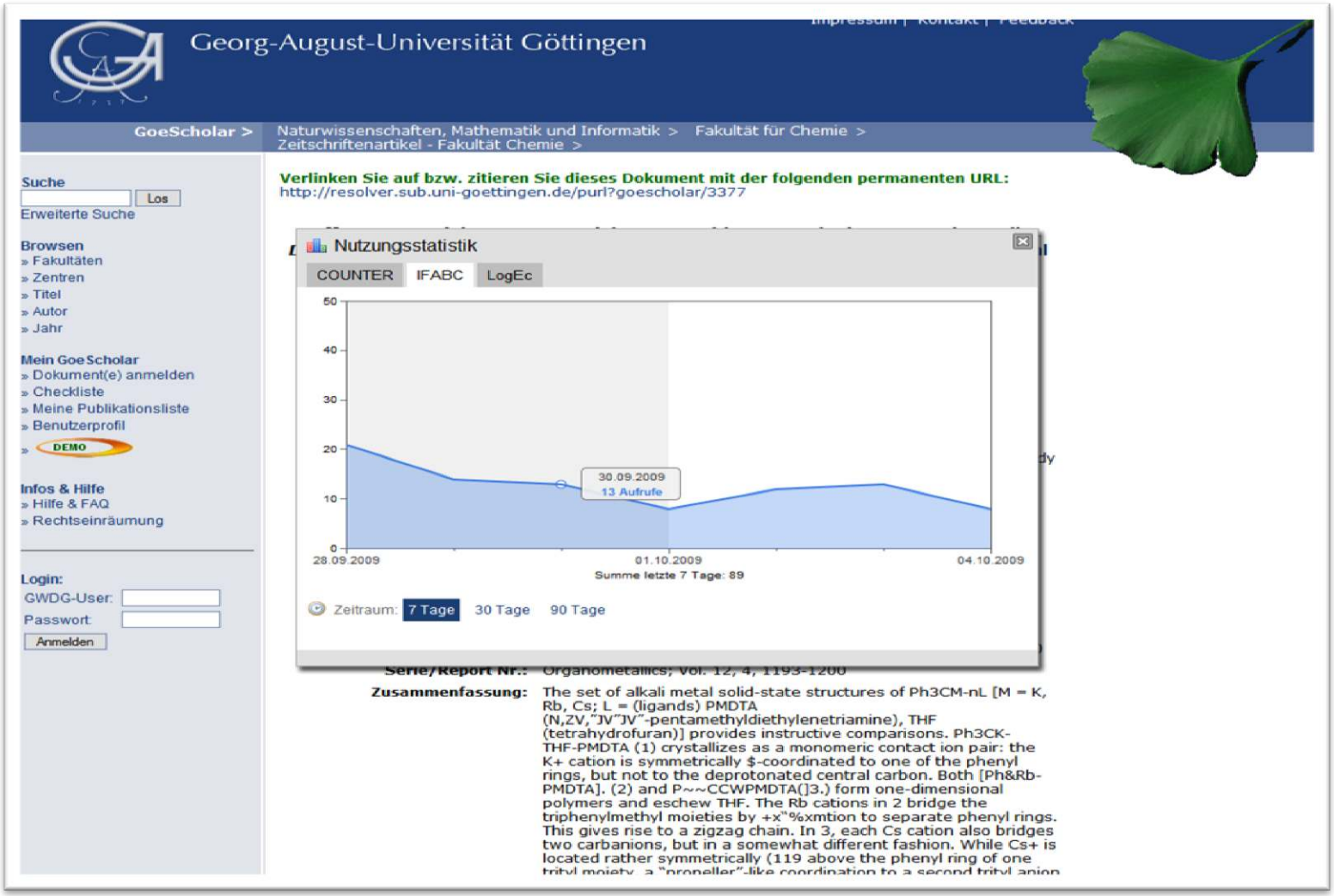
OAS: Data provider



OAS: Service provider



OAS: Repository integration



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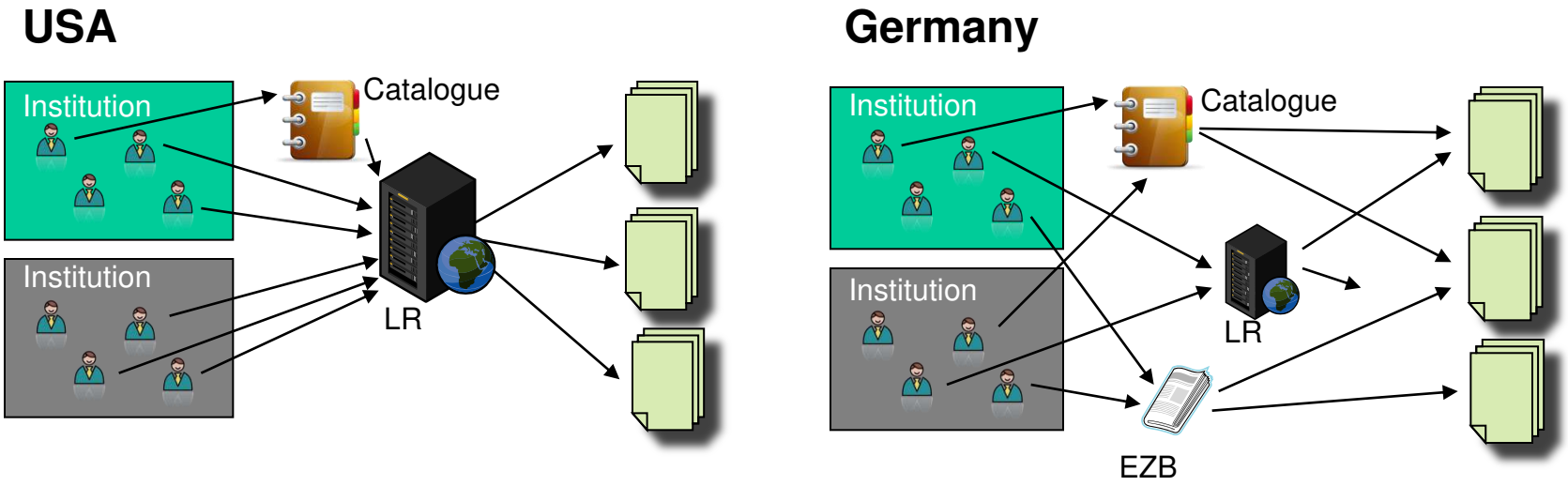
Results and Outlook

OAS: Lessons Learned

The requirement for a central clearing house

A lot of unnecessary data (OpenURL CO)
→ increase of the data size by factor ~10

Different situation with Linkresolver data



OAS: Results

Infrastructure for exchange usage statistics

Modules for OPUS- and DSpace-based repositories, other products can be configured easily
(http://www.dini.de/projekte/oa-statistik/english/software/)

Specification of the data format and exchange
(http://www.dini.de/fileadmin/oa-statistik/projektergebnisse/Specification_V5.pdf)

Online demo
(http://oa-statistik.sub.uni-goettingen.de/statsdemo)

Website with further information
(http://www.dini.de/projekte/oa-statistik/english/)

OAS: Further plans → OAS 2

Aims for a possible second funding:

- Clarification of privacy issues
- Opening the OAS infrastructure to offer standardized usage statistics
- Evaluation of metrics
  a) based on the pure frequency of usage
  b) more sophisticated approaches
- Cooperation for international comparable usage statistics
- Offer a suitable service infrastructure

OAS: International cooperations

- SURFSure Statistics on Usage of Repositories, NL
- PIRUS Publisher and Institutional Repository Statistics, UK
- Knowledge Exchange Usage Statistics Group

  Denmark's Electronic Research Library (DEFF)
  German Research Foundation (DFG)
  Joint Information Systems Committee (JISC) UK
  SURFfoundation, Netherlands

- Common sense!
  Exchange format: OpenUrl ContextObjects
  Transfer via OAI-PMH
  Infrastructure based on a data provider – service provider system
  Normalization: Robots-Detection

- COUNTER, NEEO, PEER, OAPEN …

Thanks for your attention!

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