Open Access Statistics:
An Examination how to Generate Interoperable Usage Information from Distributed Open Access Services

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Overview

- Impact measures:
  - relevance
  - a categorisation
- Usage-based impact measures: standardisation?
- Project: Open Access Statistics
  - Aims
  - Technical infrastructure
  - Results
  - Outlook

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Impact Measures

„The ‚impact factor' is the most commonly used assessment aid for deciding which journals should receive a scholarly submission or attention from research readership. It is also an often misunderstood tool."
Dong et al. 2005

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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  - If you do not publish you do not have any scientific capital, reputation or impact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

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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

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Citation impact: calculation

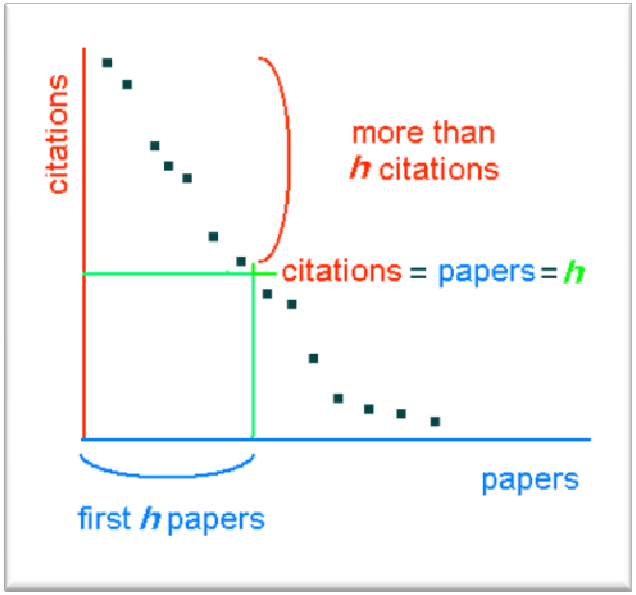
JIF

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



http://de.wikipedia.org/wiki/H-Index

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Citation impact: critical points

- 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

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Impact measures: a categorisation

- 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

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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

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Standards

„An important issue, however, was the lack of standards on how to produce and report the usage data in a way that could be compared"
Baker et al. 2008

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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/

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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?”

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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

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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 – DEUTSCHE INITIATIVE FÜR NETZWERKINFORMATION E.V.

Funded by:

DFG

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

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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

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OAS: Associated projects

- Open Access Statistics

- DOARC
  (Distributed Open Access Reference and Citation Services)

- Open Access Network

Technical Infrastructure

„Collecting, processing, and interpreting usage data is a challenge for libraries, big and small"
Manoff et al. 2006

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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

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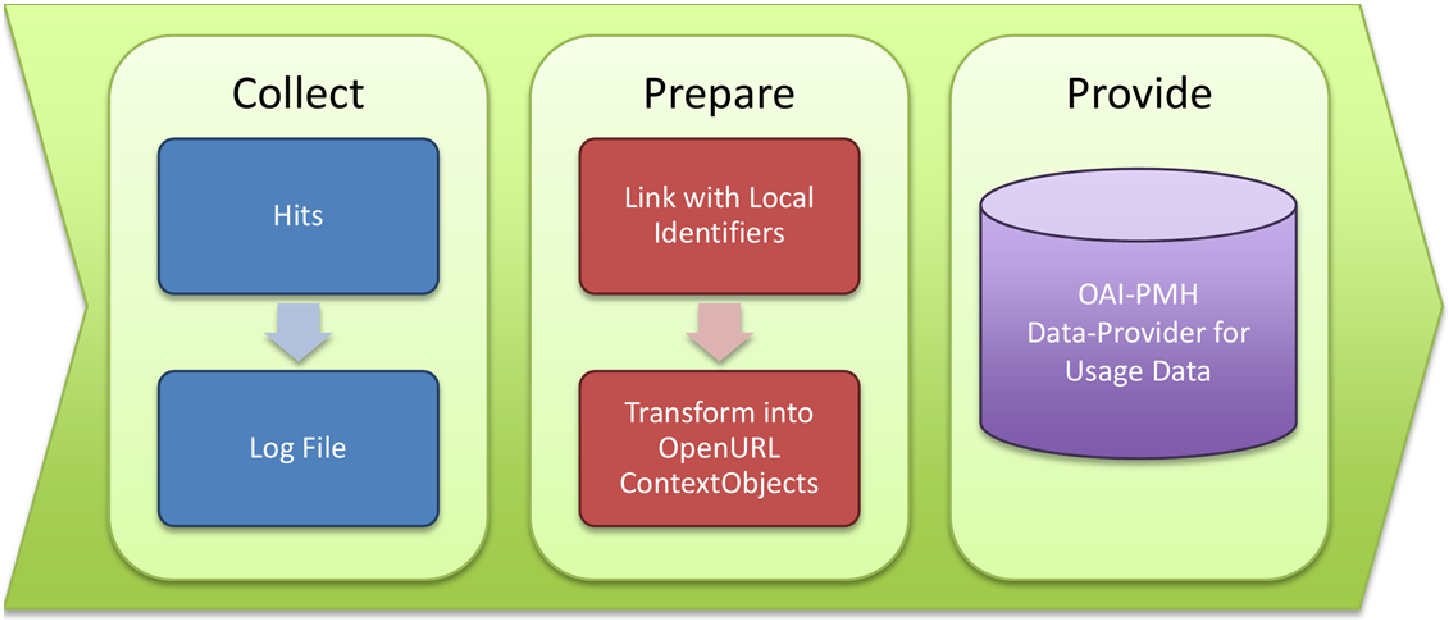
OAS: Data provider



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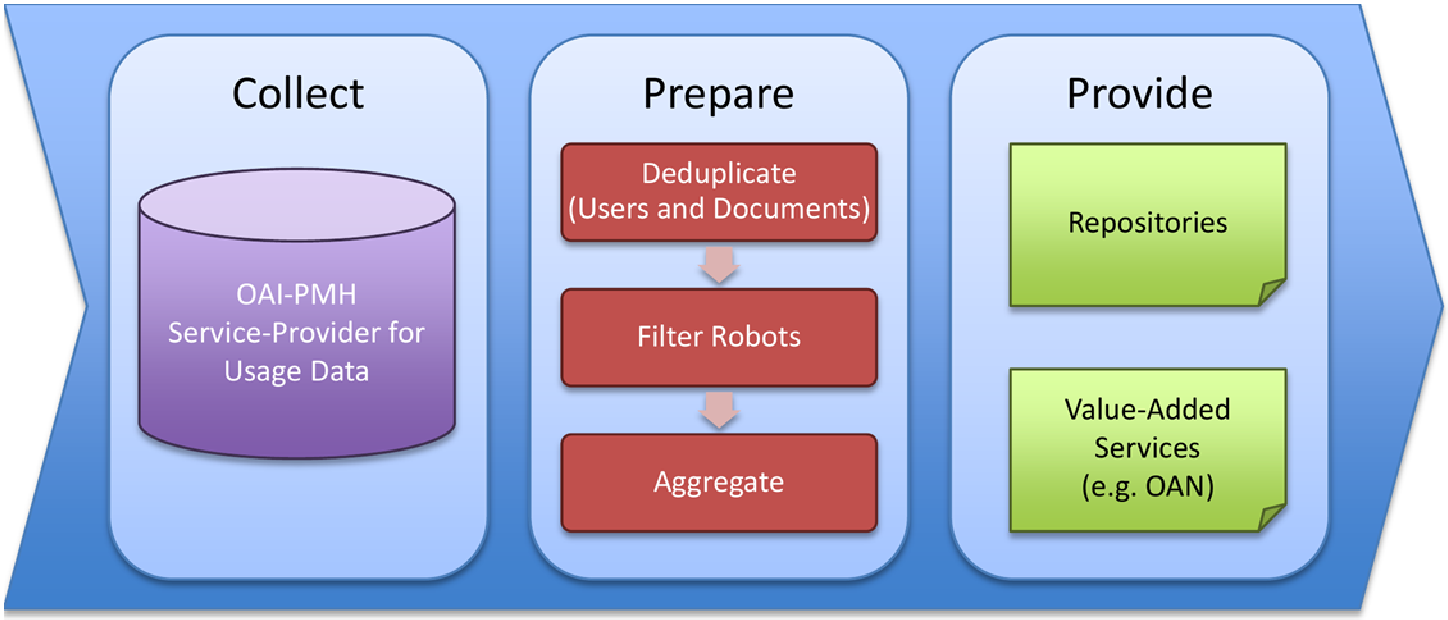
OAS: Service provider



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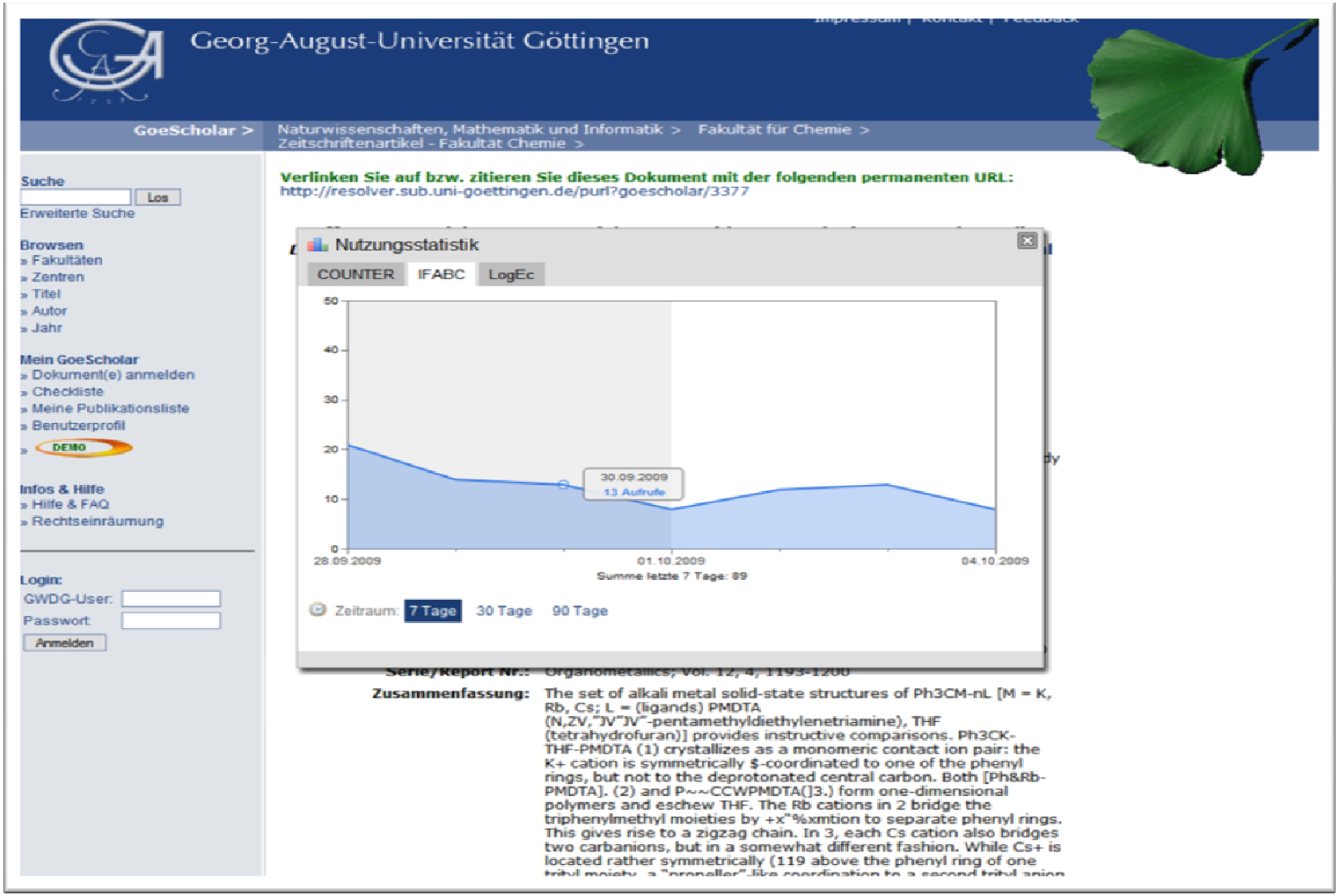
OAS: Repository integration



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Results and Outlook

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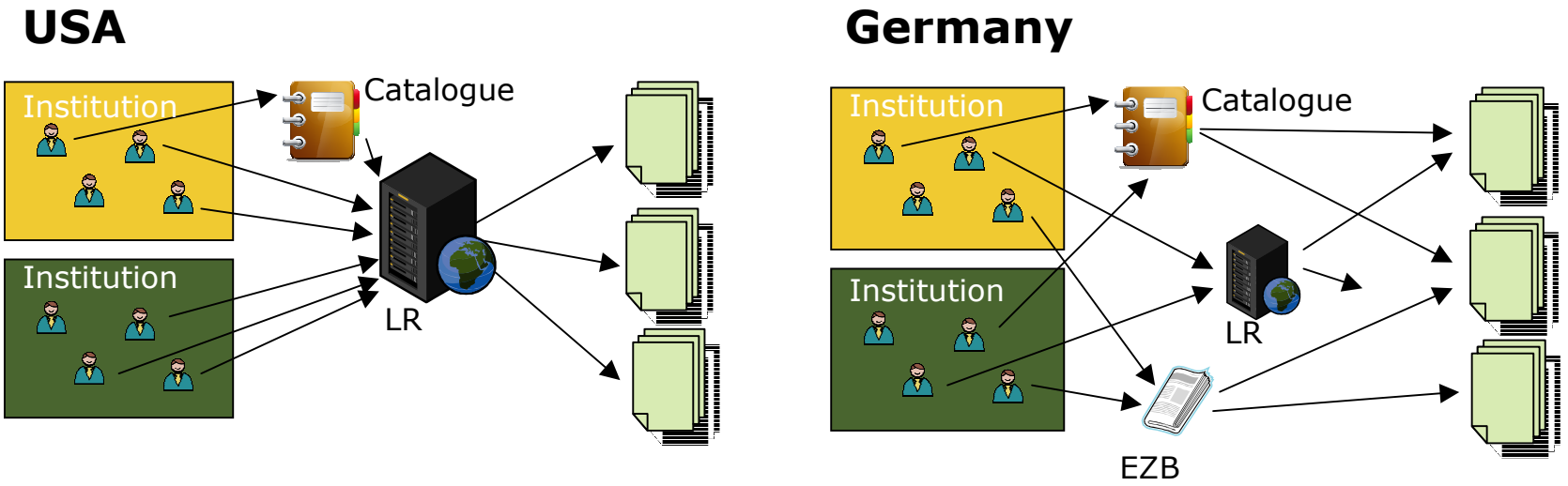
OAS: Lessons Learned

- 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



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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
- Online demo (http://oa-statistik.sub.uni-goettingen.de/statsdemo)
- Website with further information (http://www.dini.de/projekte/oa-statistik/english/)

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OAS: Further plans → OAS 2

Aims for a possible second funding:

- Opening the OAS infrastructure to offer standardised usage statistics
- Evaluation of metrics more sophisticated than the calculation of pure usage frequencies
- Cooperation for international comparable usage statistics
- Offer a suitable service infrastructure

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OAS: International cooperation

- SURFSure
- COUNTER
- PIRUS
- Knowledge Exchange – Usage Statistics Group
- NEEO
- PEER
- OAPEN

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Thanks for your attention!

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