

# Attempts at Innovation in Scholarly Communication

Herbert Van de Sompel  
Los Alamos National Laboratory  
USA

<<http://public.lanl.gov/herbertv>>





Herbert swears  
he is going to do something  
meaningful with his life ...





Quite some pioneering activities:

- LAN
- CDROM LAN
- CDROM WAN
- CCB: Belgian Union Catalogue on CDROM
- SilverPlatter ERL
- Aleph 500
- MARC SGML

University of Ghent

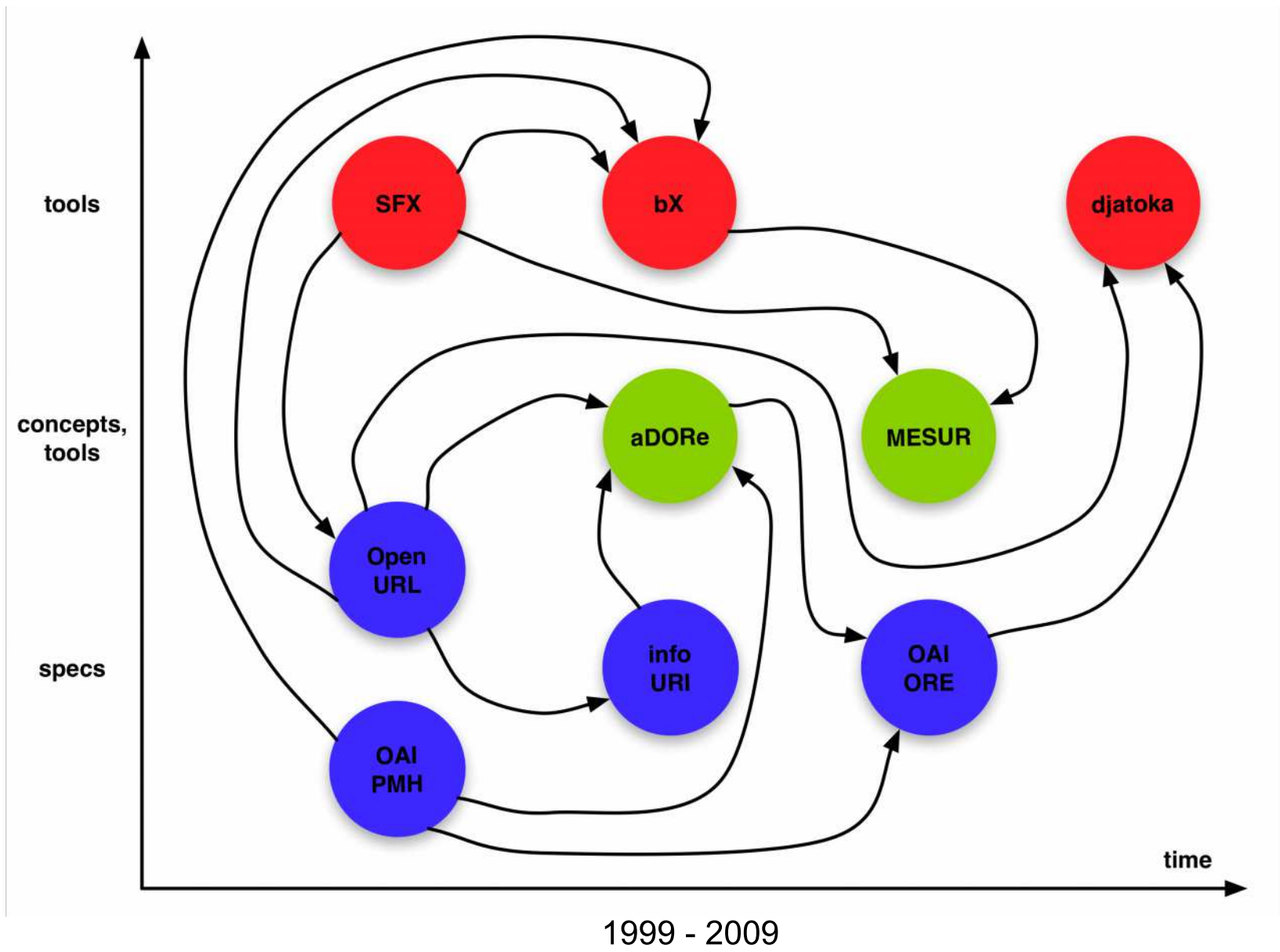
<http://lib.ugent.be>

1981 - 1999



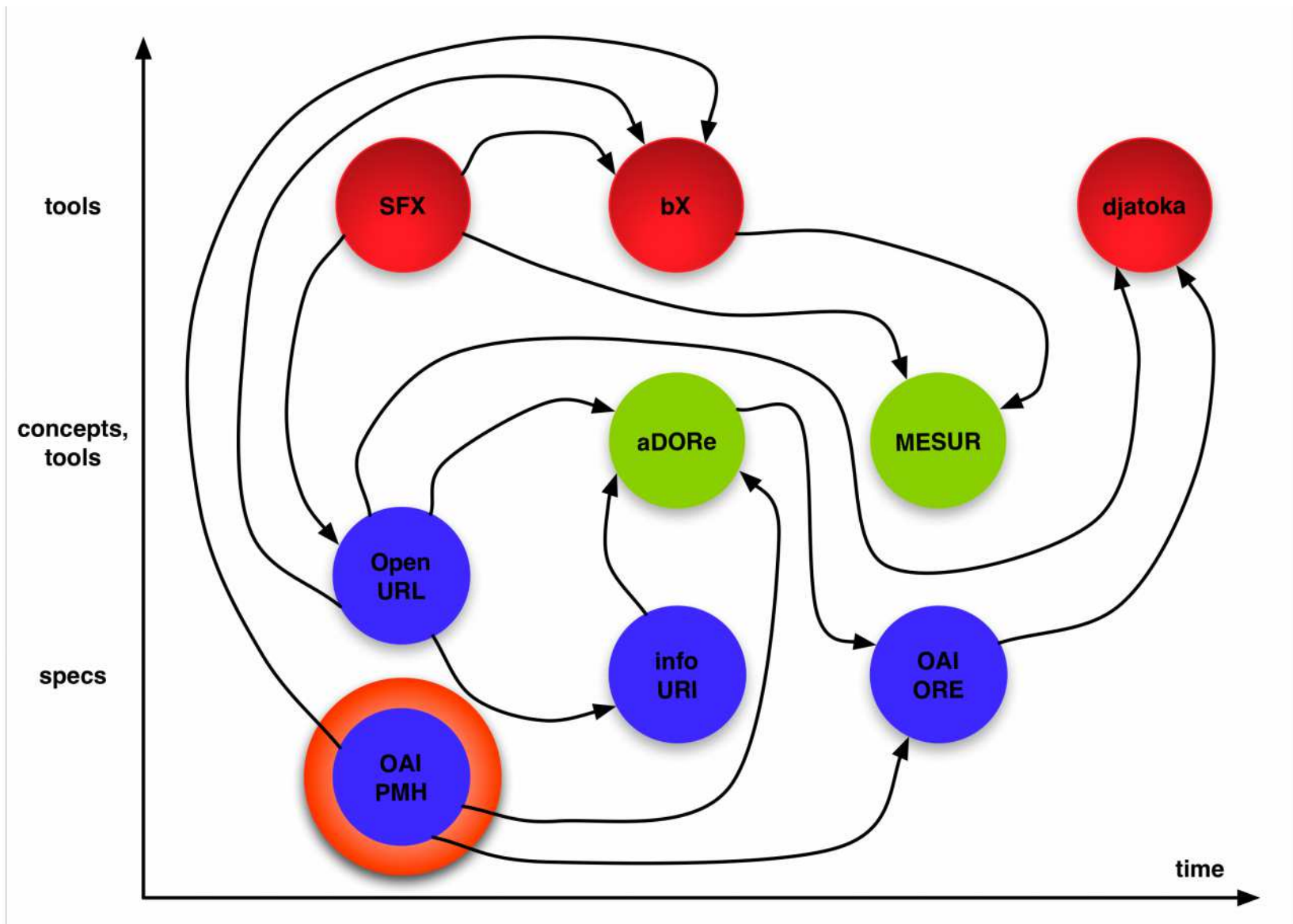
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Herbert Van de Sompel  
Inforum 2009, May 27 2009, Prague, Czech Republic





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CliffLynch  
OAI  
CarlLagoze  
PaulGinsparg  
preprintCommunication  
LANL  
metadataDiscovery  
ThomasKrichel  
SimeonWarner  
MichaelNelson  
UnionCatalogue  
RickLuce



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theory

## i2. the established journal system

accessibility

serials crisis

registration

no registration only

certification

awareness

delay & supressing of ideas

archiving

who does the digital archiving?

rewarding

stabilizer



December 1999



- deconstructed journal (Smith - 1993)
  - decoupling of registration and certification
  - institutions as collectors/distributors of their author's uncertified writings
- subversive proposal (Harnad - 1994)
  - author self-archiving



December 1999





- xxx e-print archive (Physics - 1991 - Los Alamos - Ginsparg)
- NCSTRL (Computer Science - Cornell U - Lagoze)
- CogPrints (Cognitive Sciences - Southampton U - Harnad)
- NDLTD (Theses - Virginia Tech - Fox)
- RePEc (Economy - Surrey U - Krichel)

high accessibility - registration - no certification

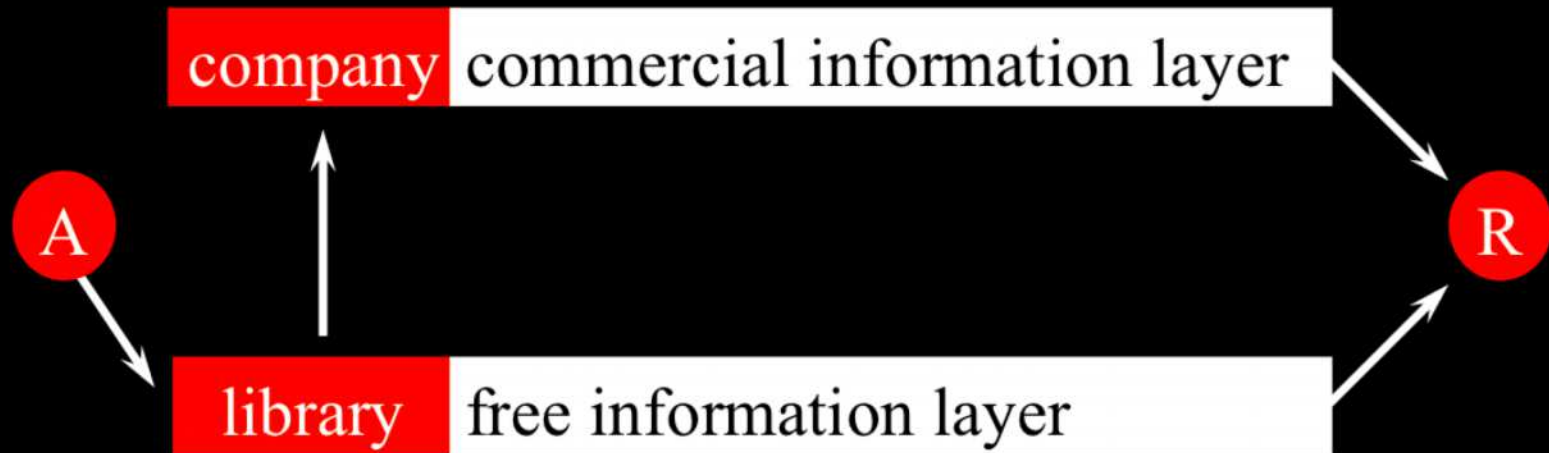


December 1999



theory

o2. another information chain



December 1999



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**practice** the Universal Preprint Service initiative

*The Universal Preprint Service initiative has been set up to create a forum to discuss and solve matters of interoperability between preprint solutions, as a way to promote their global acceptance.*

Paul Ginsparg, Rick Luce & Herbert Van de Sompel



<http://vole.lanl.gov/ups/>



December 1999



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results

open, harvestable archives

cross  
archive

cross  
archive

service  
providers

archive

archive

data  
providers

December 1999



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# harvesting requests

service provider  
harvester

\* from=a  
\* until=b  
\* set=klm

data provider  
repository

ListRecords \* metadataPrefix=dc

ListRecords / Time / Request  
REPEAT  
• Identifier  
• Datestamp  
• Metadata  
/REPEAT

r  
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herbert van de sompel

December 2000

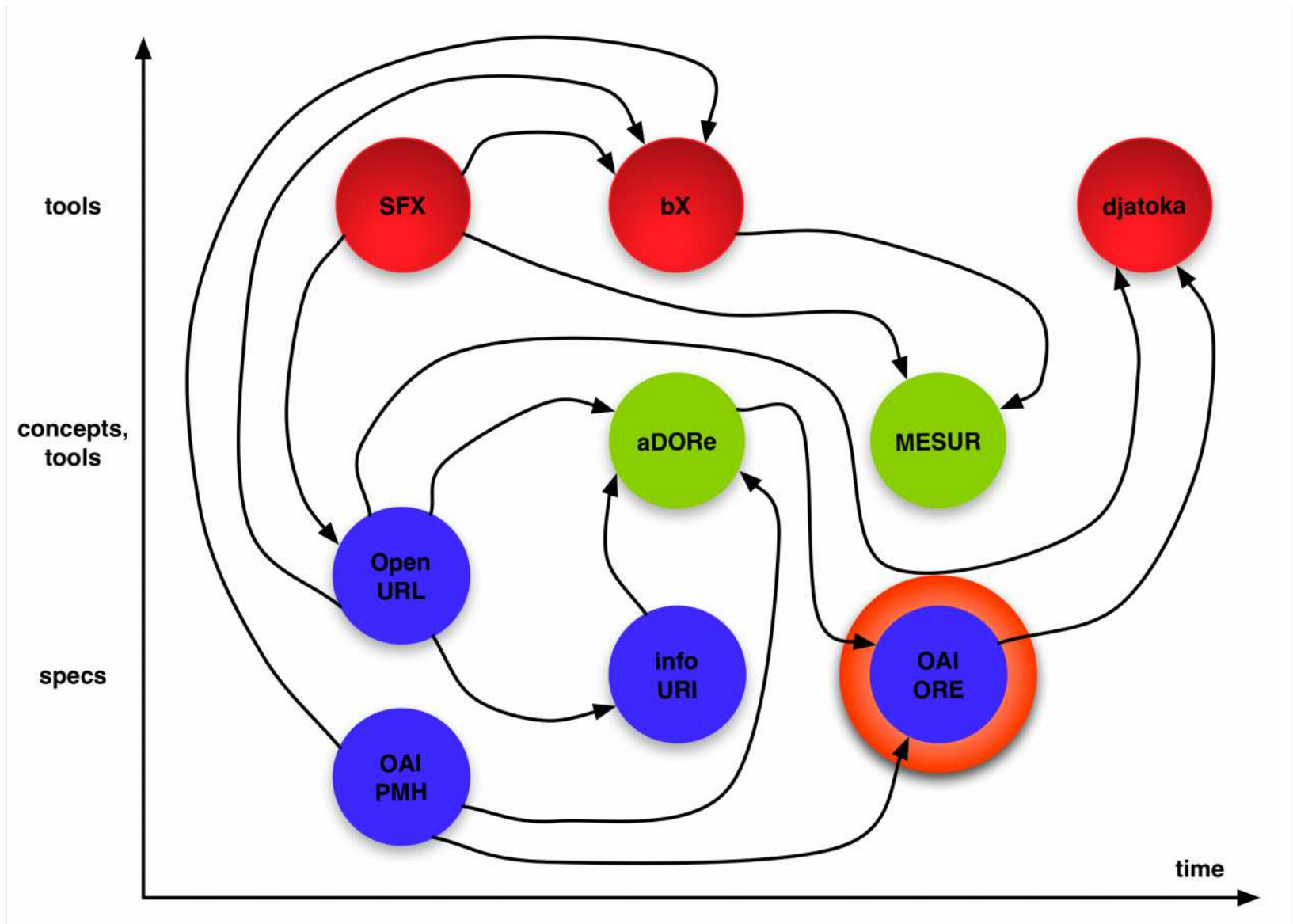


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OAI2LOD  
Workflow SOA  
database Syncing  
Atom  
Document Web metadata  
reuse Infrastructure  
SiteMap  
Open Access  
PMHitem  
REST  
DataWeb  
Content Everywhere  
Web Architecture  
Rs







ReUse  
Michael Nelson  
Web Architecture  
Scholarly Value Chains  
OAI Semantic Web  
Pete Johnston  
Linked Data  
Carl Lagoze  
Cliff Lynch  
Robert Sanderson  
Simeon Warner  
Pathways







## Value chains starting in repositories

- New knowledge is really being created when allowing for non-anticipated use of stuff.
- These repositories are *not* about creating *services for local users* (only)
- These repositories are *not* about creating *a service* (user interface) *for all users*
- These repositories are about *facilitating* the *use* of materials *in many contexts*
- *These repositories are the starting point of value chains*



Herbert Van de Sompel  
Olybris 2005, Monday April 18<sup>th</sup>, Kos, Greece



April 2005



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Inforum 2009, May 27 2009, Prague, Czech Republic



# OAI Object Re-Use and Exchange

## Core goal of OAI-ORE:

**Facilitate Use and Re-Use of Compound Information Objects (and of their component parts)**

**By enriching the web graph with boundary information.**



The OAI-ORE Effort: progress, challenges, synergies  
JCDL 2007, Vancouver, Canada, June 20th 2007  
Clifford Lynch, Savas Parastatidis, Neil Jacobs, Herbert Van de Sompel, Carl Lagoze



June 2007

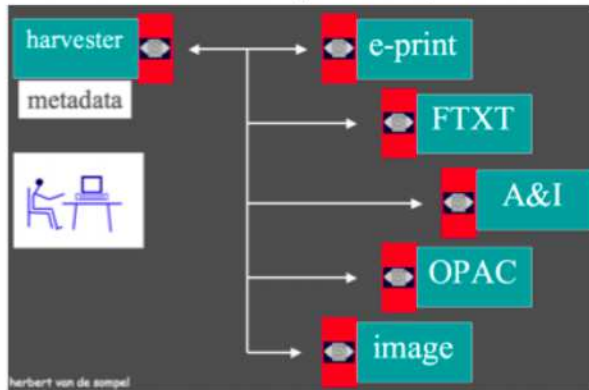


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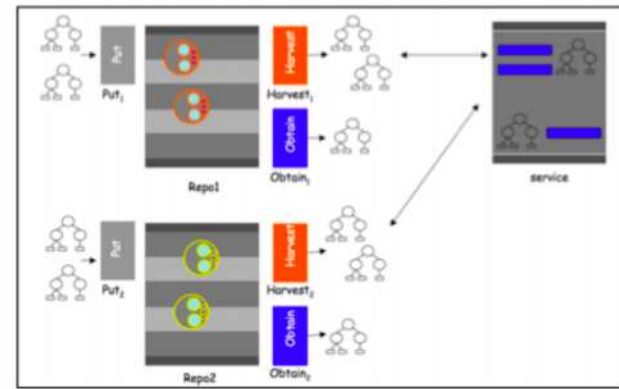


# OAI Object Reuse and Exchange: A Resource-Centric Approach

- Prior efforts had the repository as the center of the interoperability thinking:
  - Including OAI-PMH
  - Including initial OAI-ORE thinking cf. “Augmenting Interoperability across Scholarly Repositories”
- This approach does not vibe well with the Web:
  - The Web Architecture knows resources and URIs, not repositories
  - Requires special treatment by applications that dominate the Web.



Keep dreaming!



OAI Object Reuse & Exchange: Motivation and Context  
ORE Open Meeting, John Hopkins University, Baltimore, MD  
March 3rd 2008



March 2008

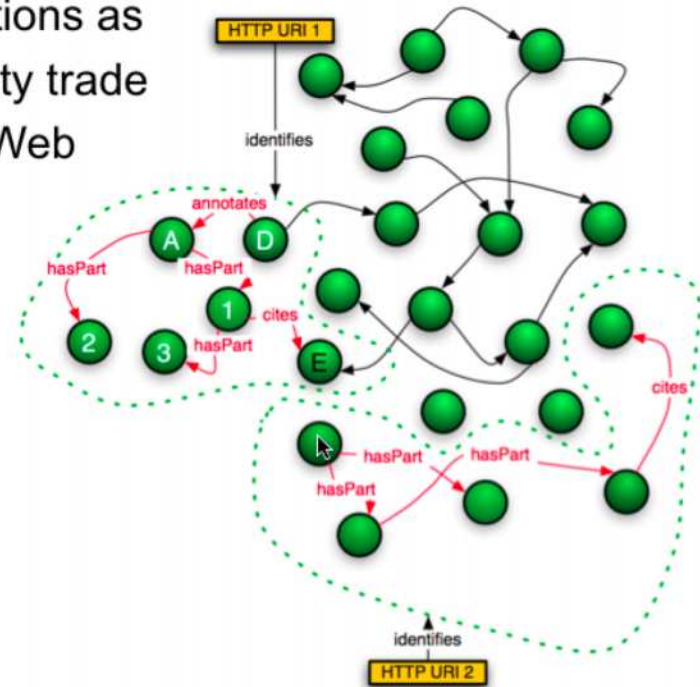


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# OAI Object Reuse and Exchange: A Resource-Centric Approach

- Fundamental shift in the chosen approach towards interoperability
- The Web Architecture as the platform for interoperability
- Resources, URIs, and representations as the tools of the ORE interoperability trade
- De-facto integration with existing Web applications
- Potential of adoption by other communities
- Potential of tools created by other communities
- ....



OAI Object Reuse & Exchange: Motivation and Context  
ORE Open Meeting, John Hopkins University, Baltimore, MD  
March 3rd 2008



March 2008



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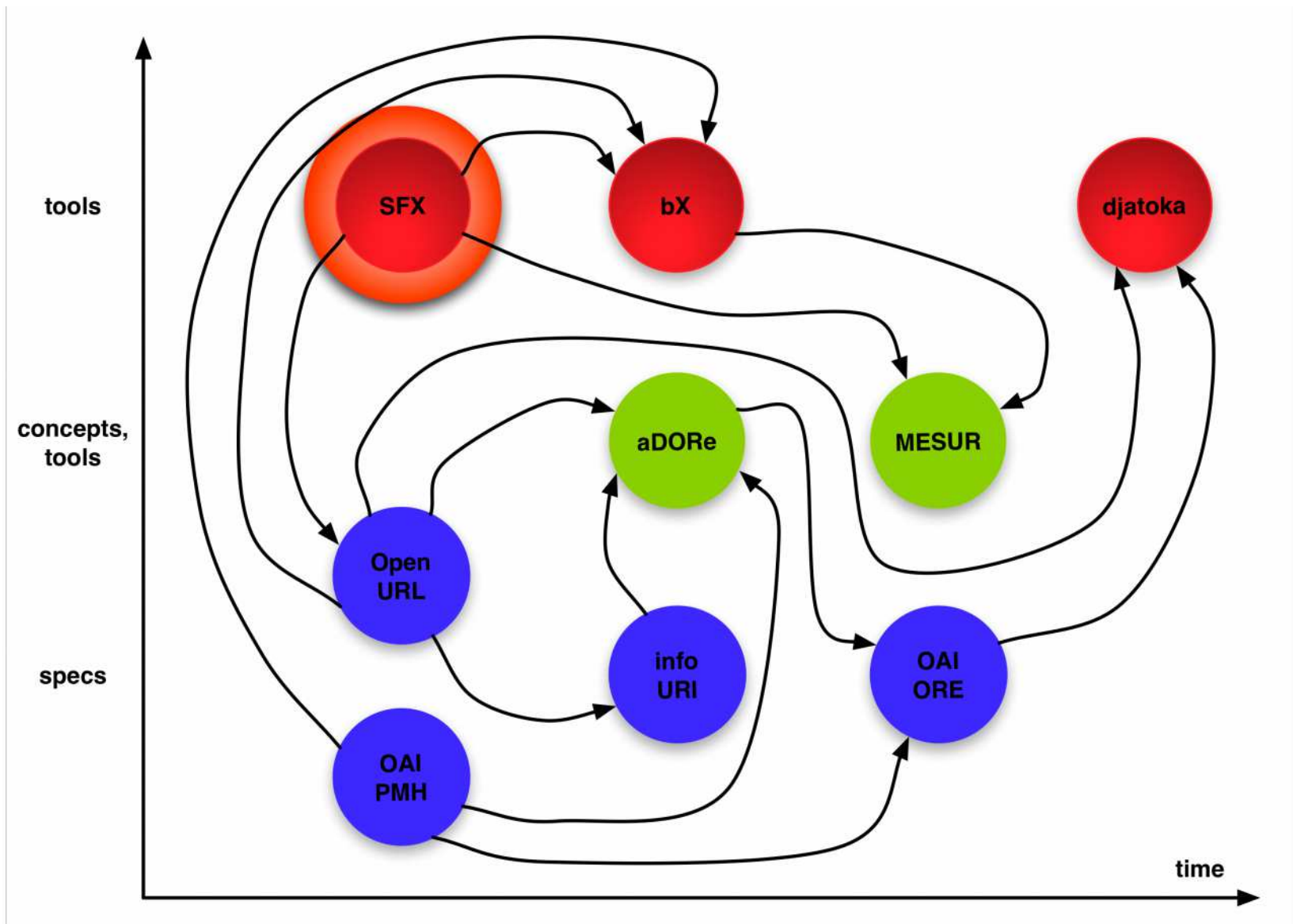


**APP**  
**advocacy**  
**communication**  
**W3C experiments**  
**adoption**  
**v1Specs**

**Web2.0 projects**

**SWORD**





appropriate Copy  
LIT Apresentation  
Wiley  
IOP  
ExLibris  
Tony Hammond  
Patrick Hochstenbach  
DOI  
Oren Beit Arie  
Lieve Rottiers  
LANL experiments  
Ghent University  
Jenny Walker  
APS



# specific reference linking problem

---

**given :**

the information in a citation to a  
journal article

**how :**

how does a user get to  
an appropriate copy of the article



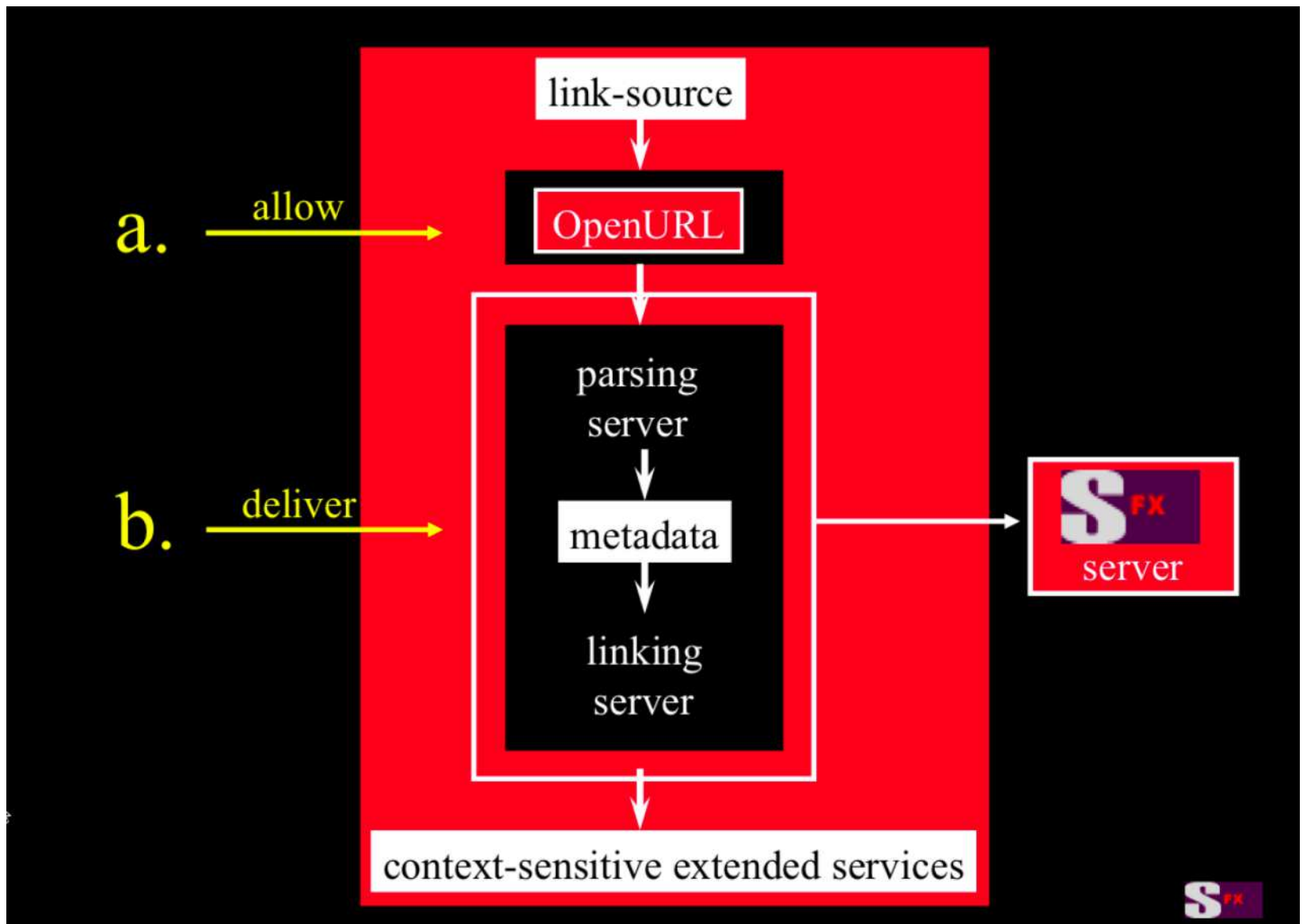
November 1999



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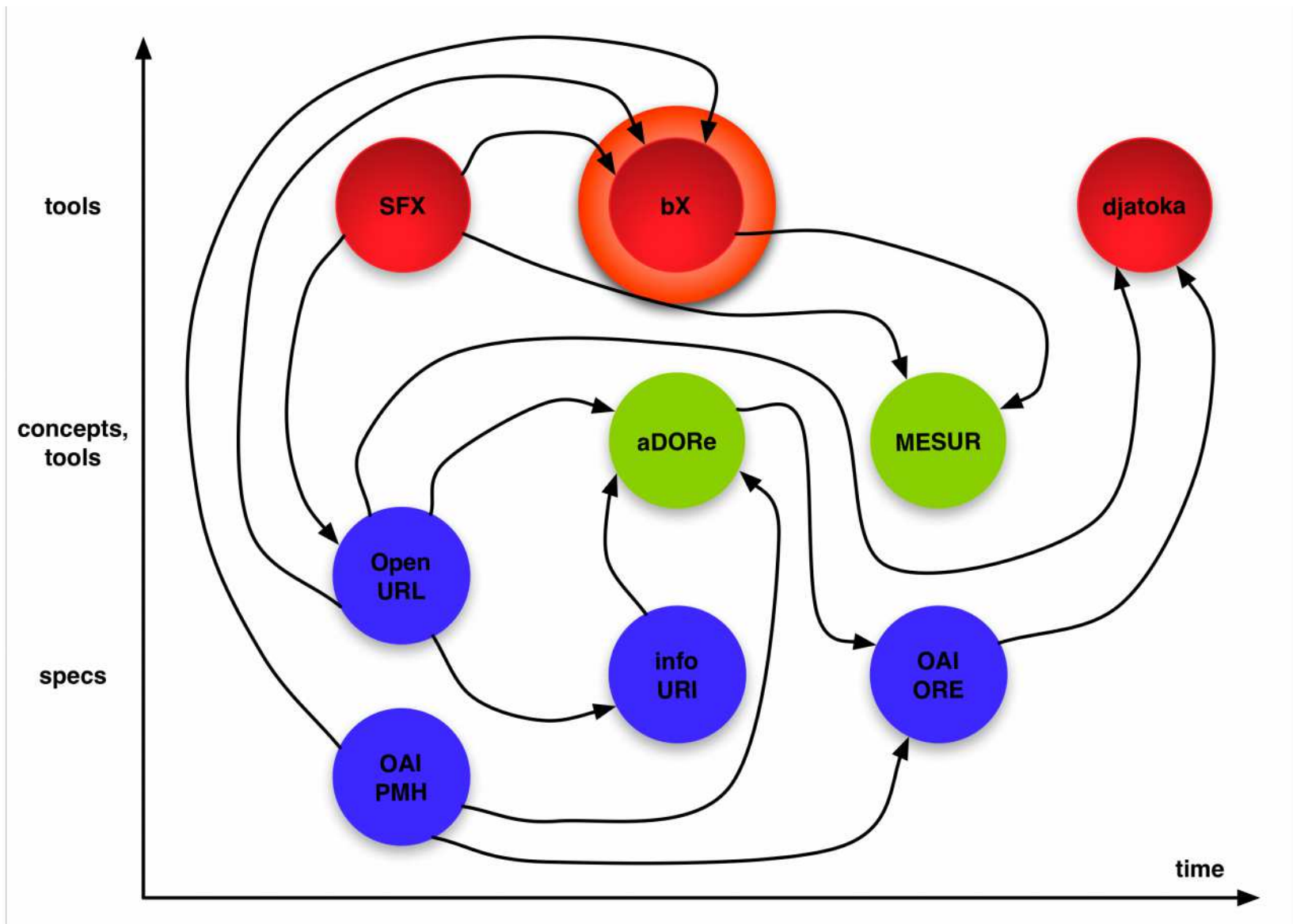


November 1999



openSpec  
commercialSoftware  
3.000.000  
openPapers  
vendorReluctance







Reference Linking in a Hybrid Library Environment Part 2: SFX, a Generic Linking Solution

http://www.dlib.org/dlib/april99/van\_de\_sompel/04van\_de\_sompel-pt2.html

- Since SFX intends to serve a bundle of links to the user for each link-source, a "just-in-case" approach, instantly feeding all links for each link-source, would inevitably lead to user interface problems.
- The explicit user action identifies records that the user considers relevant. The accumulation of such information -- in combination with search strategies -- can, in the long-term, lead to a database that supports a **recommendation system**.

SFX-linking approaches the problem of grabbing the link-source by introducing a clickable identifier, containing a small data record, for each link-source. The technique is identical for all systems involved. It is recognized that the implementation of this solution was simplified by the fact that the originating servers used in the experiments were under local control. Both providers of the local systems in Ghent -- [ExLibris](#) and [SilverPlatter](#) -- have enabled its straightforward realization. Still, the concept is quite generic, and could also be implemented with systems under remote control, to create a general purpose "just-in-time" linking solution.

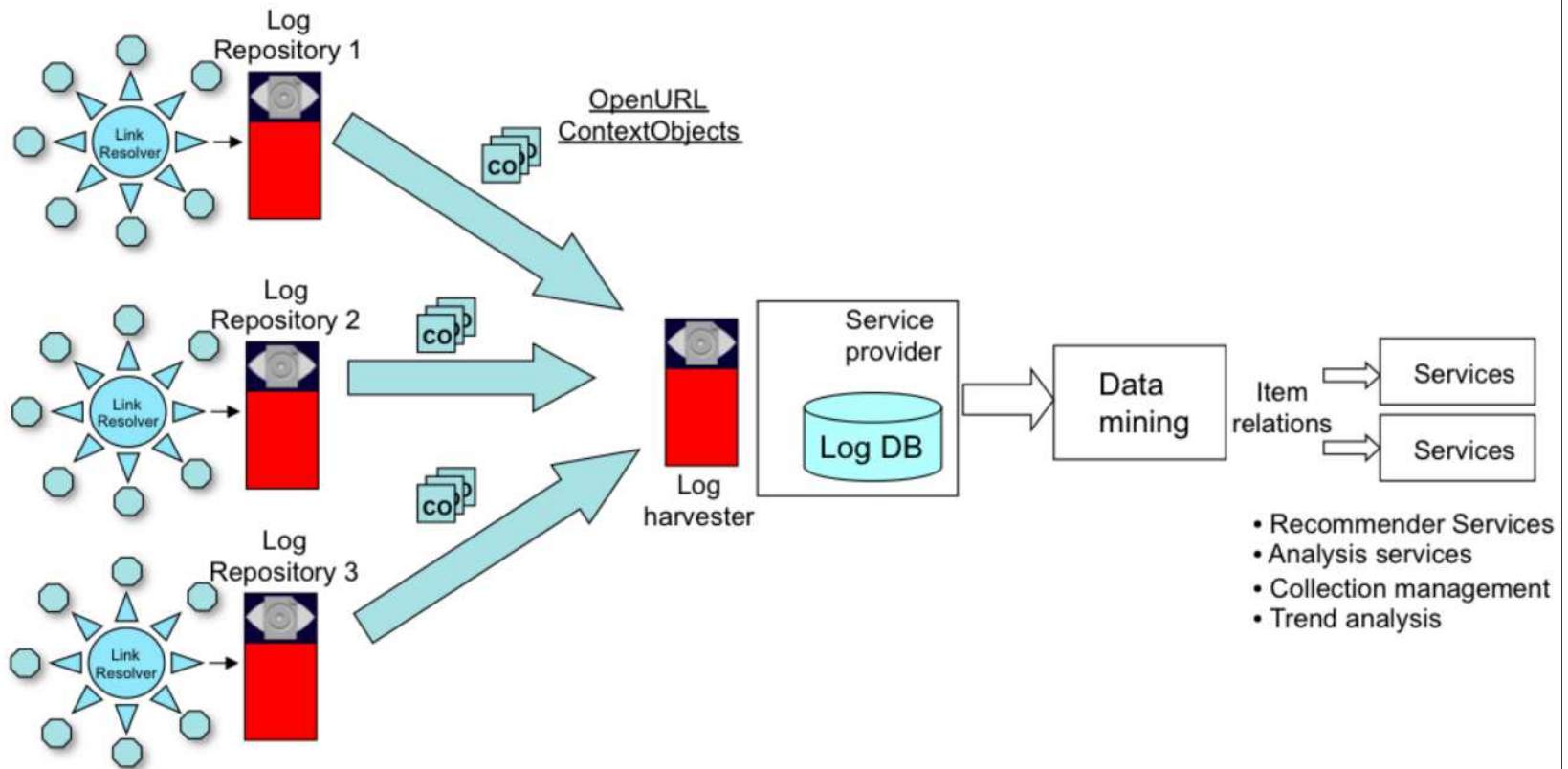
Done

DOI:10.1045/april99-van\_de\_sompel-pt2

April 1999



# bX project: analysis and services based on aggregated usage data



The bX Project: Federating and Mining Usage Logs from Linking Servers  
Johan Bollen, Oren Beit-Arie, Herbert Van de Sompel  
CNI Fall 2005, December 5<sup>th</sup> - 6<sup>th</sup> 2005, Phoenix, Arizona, USA



December 2005



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Scopus - Results: TITLE(cyberbullying in schools: a re...)

**SCOPUS** SFX Scopus Image Based Linking is logged in [Logout](#)

Search Sources Analytics My Alerts My List My Profile Help Scopus Labs

Quick Search  Go

Scopus: 1 More... (0) Web (1) Patents (0)

Your query: TITLE(cyberbullying in schools: a research in gender differences) [Edit](#) [Save](#) [Save as Alert](#) [RSS](#) [Search History](#)

**Refine Results** [Close](#)

Source Title	Author Name	Year	Document Type	Subject Area
<input type="checkbox"/> School Psychology International (1)	<input type="checkbox"/> Li, Q. (1)	<input type="checkbox"/> 2006 (1)	<input type="checkbox"/> Article (1)	<input type="checkbox"/> Psychology (1)

[Add categories](#) [Limit to](#) [Exclude](#)

**Results: 1** Search within results  Go

Output Citation tracker Add to list Download References Cited by Select:  All  Page 1 to 1

Document (sort by relevance)	Author(s)	Date	Source Title	Cited By
1. <input type="checkbox"/> Cyberbullying in schools: A research of gender differences <a href="#">Abstract + Refs</a> <a href="#">View at Publisher</a> <a href="#">Find-It!</a> <a href="#">Show Abstract</a>	<a href="#">Li, Q.</a>	2006	School Psychology International 27 (2), pp. 157-170	<a href="#">10</a>

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Display  results per page 1 to 1

Your query: TITLE(cyberbullying in schools: a research in gender differences) [Edit](#) [Save](#) [Save as Alert](#) [RSS](#) [Search History](#)

Local intranet 100%

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# bX Recommendations

## Users interested in this article






**Title:** Cyberbullying in Schools: A Research of Gender Differences.

**Source:** School psychology international [0143-0343] Li yr:2006 vol:27 iss:2 pg:157 -170

## Also expressed in these articles

Users interested in this article also expressed an interest in the following:

bX BETA

- 1. Patchin, Justin W. [Bullies Move beyond the Schoolyard: A Preliminary Look at Cyberbullying.](#) Youth violence and juvenile justice. 4.2 (2006): 148-169.  
- 2. Kowalski, Robin M. Electronic bullying among middle school students. Journal of adolescent health. 41.6,Suppl (2008): 22-30. 
- 3. Strom, Paris S. S. [Cyberbullying by Adolescents: A Preliminary Assessment.](#) The Educational forum. 70.1 (2005): 21-36.  

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http://sfx-demo.exlibrisgroup.com:3210/?genre=article&date=2006&issn=0143-0343&atitle=Cyberbull - Windows Internet Explorer

**ExLibris** The bridge to knowledge

ExLibris SFX Language: English

**Title:** Cyberbullying in Schools: A Research of Gender Differences.  
**Source:** School psychology international [0143-0343] Li yr:2006 vol:27 iss:2 pg:157 -170

**Full Text**

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- Full text available via Highwire Press Journals

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- Holdings in my library catalogue

Users interested in this article also expressed an interest in the following: bx BETA

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2. Kowalski, Robin M. Electronic bullying among middle school students. Journal of adolescent health. 41.6,Suppl (2008): 22-30. 📄 🔍
3. Strom, Paris S. S. [Cyberbullying by Adolescents: A Preliminary Assessment](#). The Educational forum. 70.1 (2005): 21-36. 📄 🔍

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<input type="checkbox"/>	2. Kowalski, Robin M. Electronic bullying among middle school students. Journal of adolescent health. 41.6,Suppl (2008): 22-30.		
<input type="checkbox"/>	3. Strom, Paris S. S. <a href="#">Cyberbullying by Adolescents: A Preliminary Assessment</a> . The Educational forum. 70.1 (2005): 21-36.		
<input type="checkbox"/>	4. Li, Qing. <a href="#">New bottle but old wine: A research of cyberbullying in schools</a> . Computers in human behavior. 23.4 (2007): 1777-1791.		
<input type="checkbox"/>	5. Shariff, Shaheen. Cyber-Dilemmas in the New Millennium: School Obligations to Provide Student Safety in a Virtual School Environment. The McGill journal of education. 40.3 (2005): 467-487.		
<input type="checkbox"/>	6. Keith, Susan;. Cyber-Bullying: Creating a Culture of Respect in a Cyber World. Reclaiming children and youth. 13.4 (2005): 224-228.		
<input type="checkbox"/>	7. Mason, Kimberly L. <a href="#">Cyberbullying: A preliminary assessment for school personnel</a> . Psychology in the schools. 45.4 (2008): 323-348.		
<input type="checkbox"/>	8. Raskauskas, Juliana. <a href="#">Involvement in traditional and electronic bullying among adolescents</a> . Developmental psychology. 43.3 (2007): 564-575.		
<input type="checkbox"/>	9. Willard, Nancy E. The authority and responsibility of school officials in responding to cyberbullying. Journal of adolescent health. 41.6,Suppl (2008): 64-.		
<input type="checkbox"/>	10. Chibbaro, Julia S. School Counselors and the Cyberbully: Interventions and Implications. Professional school counseling. 11.1 (2007): 65-8.		

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ExLibris SFX Language: English

**Title:** Equity in the finance of health care: Some international comparisons  
**Source:** Journal of Health Economics [0167-6296] yr:1992 vol:11 iss:4 pg:361 -411

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Users interested in this article also expressed an interest in the following:

- 1. McGuire, A. The Assessment: The Economics of Health Care. Oxford Review of Economic Policy. 5.1 (1989): 1-.
- 2. van Doorslaer, Eddy. Inequalities in access to medical care by income in developed countries. CMAJ. 174.2 (2005): 177-183.
- 3. Singh, Jerome Amir A. Do human rights matter to health? Lancet, The. .9586 (2007): 521-7.

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# ExLibris

The bridge to knowledge

ExLibris SFX Language: English

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**Source:** The Lancet [0140-6736] Singh yr:2007 iss:9586 pg:521 -7

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**Users interested in this article also expressed an interest in the following:**

1. Orbinski, James. Violations of human rights: health practitioners as witnesses. Lancet, The. 370.9588 (2007): 698-704.
2. Mollica, R F F. Mental health in complex emergencies. Lancet, The. 364.9450 (2004): 2058-67.
3. Graybill, Lyn S.. Pardon, punishment, and amnesia: three African post-conflict methods. Third world quarterly. .6 (2004): 1117-1130.

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## Can Animals Aid Therapy?

**By:** Scott O Lilienfeld ; Hal Arkowitz ; Hal Arkowitz  
**Format:** Article  
**Year:** 2008  
**Published in:** Scientific American Mind 2008, Vol. 19 Issue 3, p78-79 2p; 1 color 15552284  
**Database:** Academic Search Premier

-  Full-Text in HTML
-  Check for availability
-  Save this record



### Summary

The article discusses the possibility of animal-assisted therapy. Scholars are considered to have long been intrigued by the possibility that animals possess largely untapped therapeutic powers. Studies are stated to have revealed that the presence of pets could lower blood pressure and stress levels, although they do not reveal the reasons for this effect. It is stated that the effectiveness of animal-assisted therapy is still controversial.


### Covers the topics:


- PSYCHOTHERAPY
- TREATMENT
- ANIMALS
- PETS -- Therapeutic use
- STRESS management
- STRESS (Psychology)
- BLOOD pressure -- Regulation

### My Account

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### Related Articles

"Animal-assisted Therapy for Children with Pervasive Developmental Disorders", by François Farnum. *Western Journal of Nursing Research* vol. 64 iss. 6, pgs. 657-70.  Full-text available

"Animal-Assisted Therapy and Nutrition in Alzheimer's Disease," by Nancy Edwards. *Western Journal of Nursing Research* vol. 64 iss. 6, pgs. 697-712.  Full-text available

"Pet-facilitated Therapy with Autistic Children," by Laurel Redefor. *Journal of Autism and Developmental Disorders* vol. 19 iss. 3, pgs. 461-467.  Full-text available

[ 30 more recommendations ]

### Cite this article

in APA 

Lilienfeld, S. , Arkowitz, H. , & Arkowitz, H. (2008). Can Animals Aid Therapy? *Scientific American Mind*. 19(3) 78-79

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EXLibris bx

socialNetwork  
privacy  
businessModel  
metrics  
recommendationQuality  
logUnionCatalogue  
otherMaterials



real change  
is coming



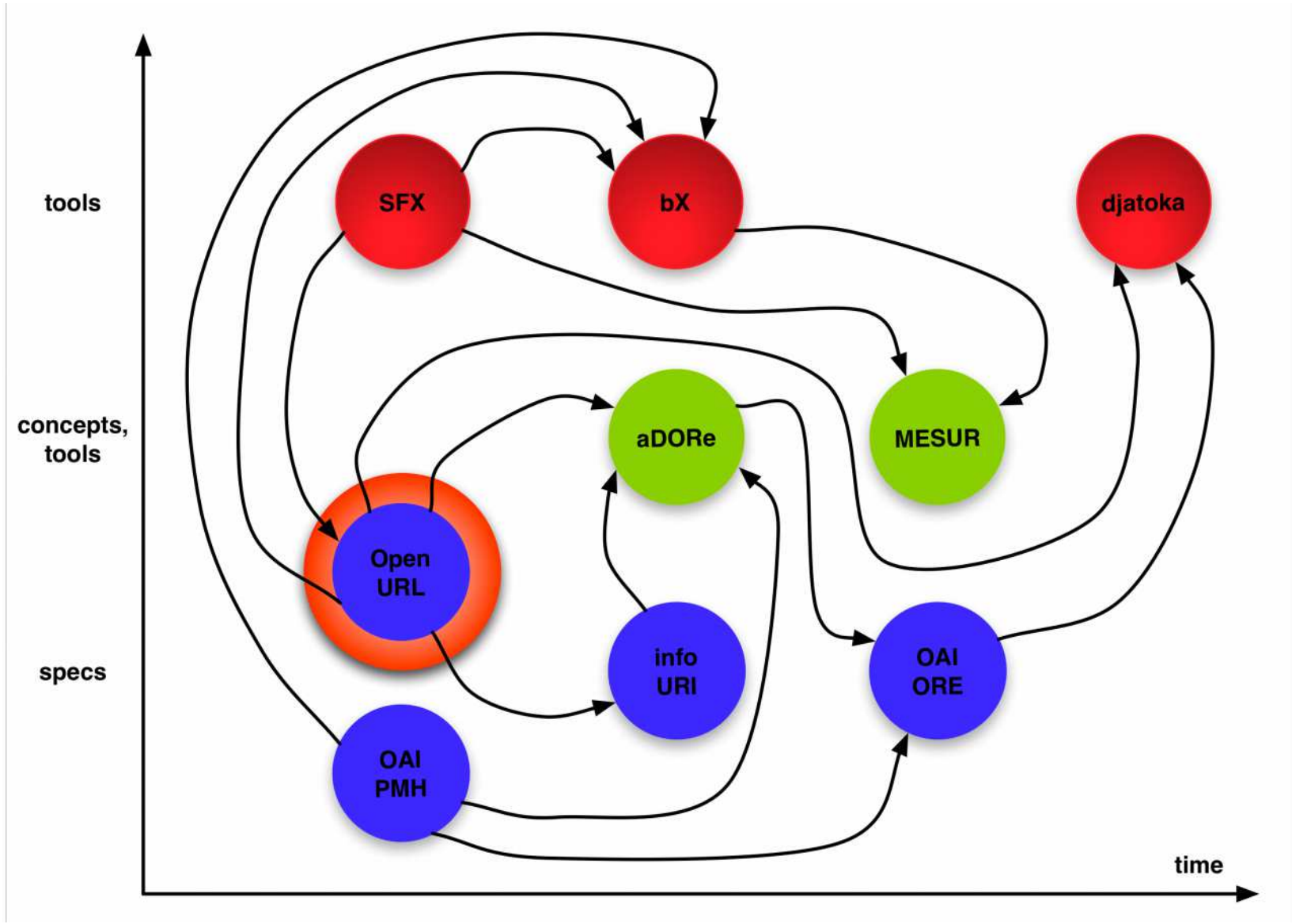
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datasetIntegration  
webcenteredCyberInfrastructure  
scholarlyCommunication  
semanticSubstrate  
exposeScholarlyProcess







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EricVandeVelde.org  
OrenBeitArie  
TonyHammond  
generalization

**OPENURL**

BisonFutePaper

CornellUniversity

**NISO**



# Nature of possible paths of generalization - **objects**

0011101000100111101000010001000111111000110011100001100011100000000010111101001110010001111001110100010011101000010001000111110001100111000011000111000000

## Type of objects for which to provide OpenURLs

- now: related to scholarly communication (journal articles, books, preprints)
- possible extensions:
  - other published objects (CDs, CD-ROMs, DVDs, audio files, videos, ...)
  - other *objects* (cities, cars, people, companies, telephones, ...)
  - concepts (words from thesauri, classification codes, ...)
  - basically everything that can be "described" (see **descriptor-concept**, later)

May 2001



## Concept 2 - context object

00111010001001111010000100010001111110001100111000011000111000000000101111010011100100011110011101000100111101000010001000111111000110011100001100011100000

The **context object** contains all the information required in a contextual resolution of a descriptor of an object into services.

- resolver - **by what** (mandatory)
- **object** - **for what** (mandatory)
- referring resource - **referrer from where**
- referring **entity** - **from what**
- requester - **for whom**
- type of service - **what?**
- privateZone - **for whatever**

May 2001



# OpenURL generalization (1)

001110100010011110100001000100011111100011001110000110001110000000001011110100111001000111100111010001001111010000100010001111110001100111000011000111000000

## The standardization of OpenURL brings up the question of generalization

- pro:
  - make OpenURL applicable in a broader context (before it is too late)
  - opportunity to adjust some weaknesses in current spec
  - opportunity to build a solid model
- con:
  - generalizations rarely are simplifications
  - potential conflict with the goal to have a draft standard ASAP
  - potential conflict with trying to remain close to current spec which is already widely used
  - increasing complexity may result in stagnating buy-in

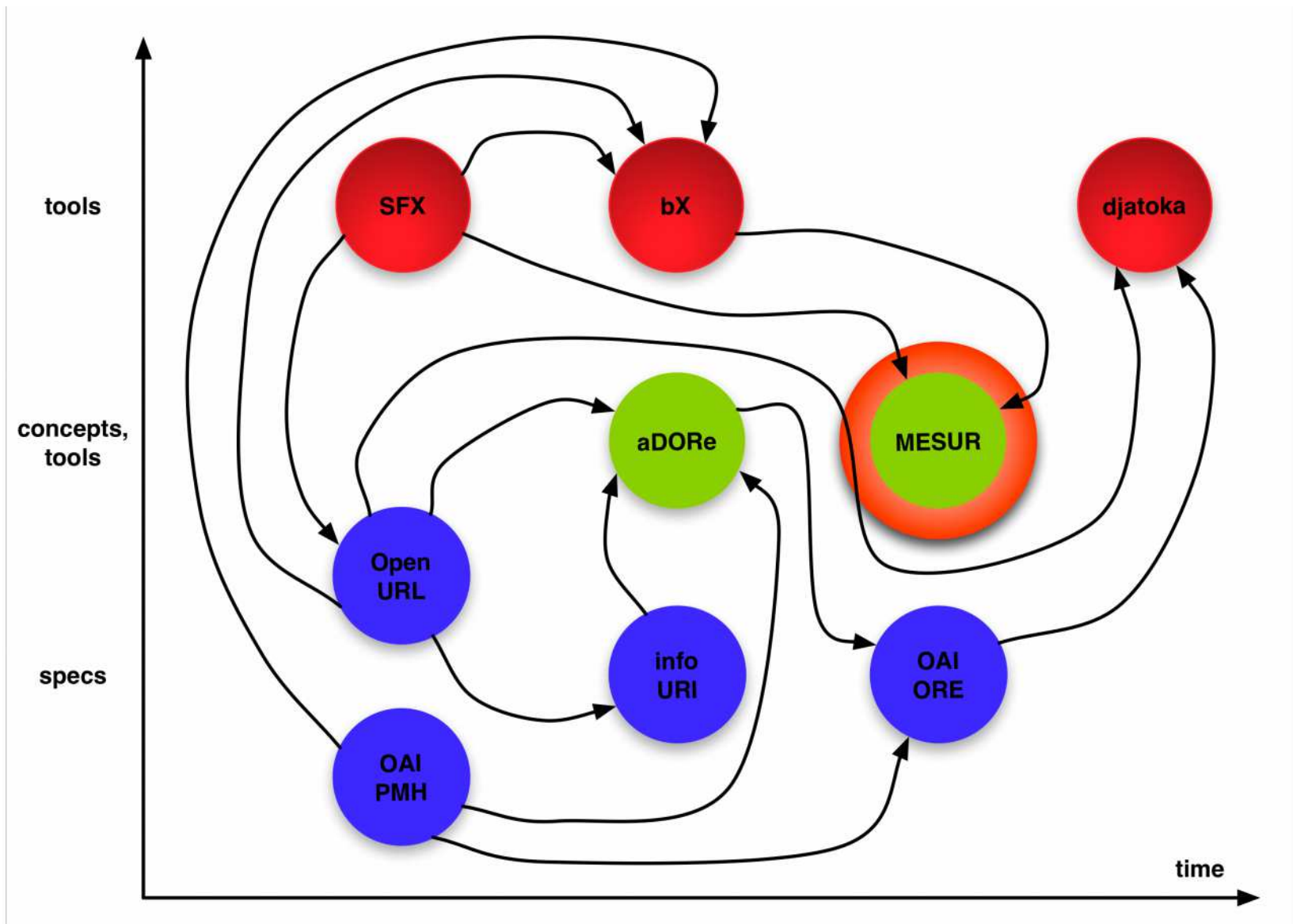
May 2001



ServiceType

ContextObject  
KEV  
vocabulary  
Referent  
serialization  
ReferringEntity  
URIncaryingURIs  
WebArchitecture  
adoption  
Requester  
Resolver  
ShareThis  
NISO



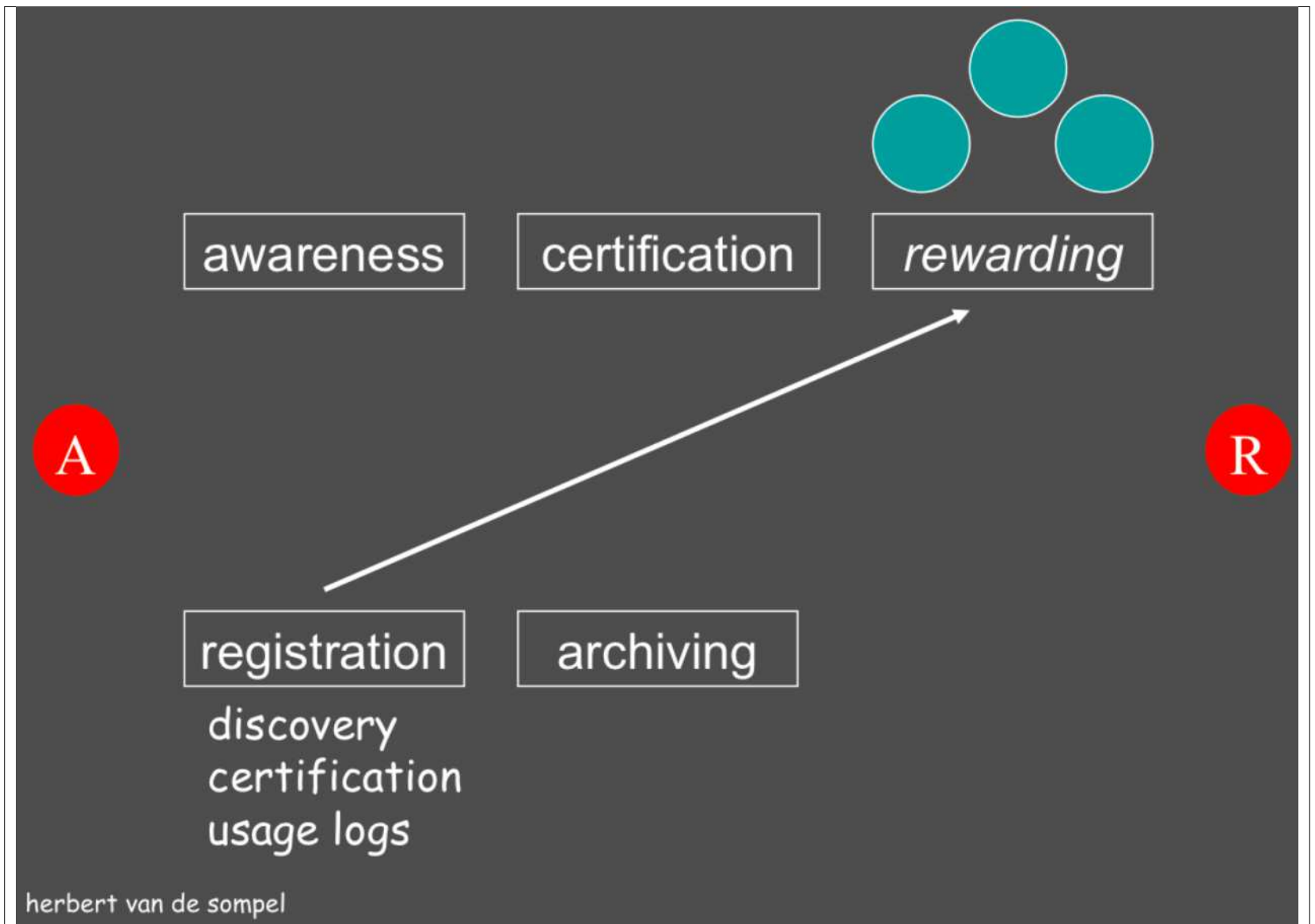


metrics  
networkScience  
logAggregation Scimago  
ImpactFactor newAssessmentTools  
eigenfactor  
JohanBollen  
hindex

•mesur







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# MESUR is Paradigm Shift Material

## **MESUR looks into one aspect that would benefit from some change: assessment of scholarly impact**

- The Thomson Scientific IF was about the only metrics that could be computed in a paper-based era.
- But we don't live in the paper-based era anymore. So MESUR researches metrics for the digital era:
  - Usage-based metrics:
    - Access to scholarly materials happens via networked systems, not via paper stored in libraries.
    - Networked systems can record a great deal about access to materials; much more than libraries could about access to paper.
  - Network-based metrics:
    - Scholarly communication generates networks, e.g. citation networks, co-authorship networks, usage networks, ...
    - A wide variety of metrics can be computed for such networks; much more than simple citation counts.



Digital Library Research & Prototyping Team  
Research Library, Los Alamos National Laboratory  
UKSG, Torquay, UK, April 7-9 2008



April 2008



Attempts at innovation in scholarly communication  
Herbert Van de Sompel  
Inforum 2009, May 27 2009, Prague, Czech Republic



# How to Obtain 1,000,000,000 Usage Events?

## Politely ask publishers, aggregators, institutions

- Scale: > 1,000,000,000 usage events
- Period: 2002-2007, but mostly 2006
- Span:
  - > 50M documents
  - > 100,000 journals (inc. newspapers, magazines,...)



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Research Library, Los Alamos National Laboratory  
UKSG, Torquay, UK, April 7-9 2008



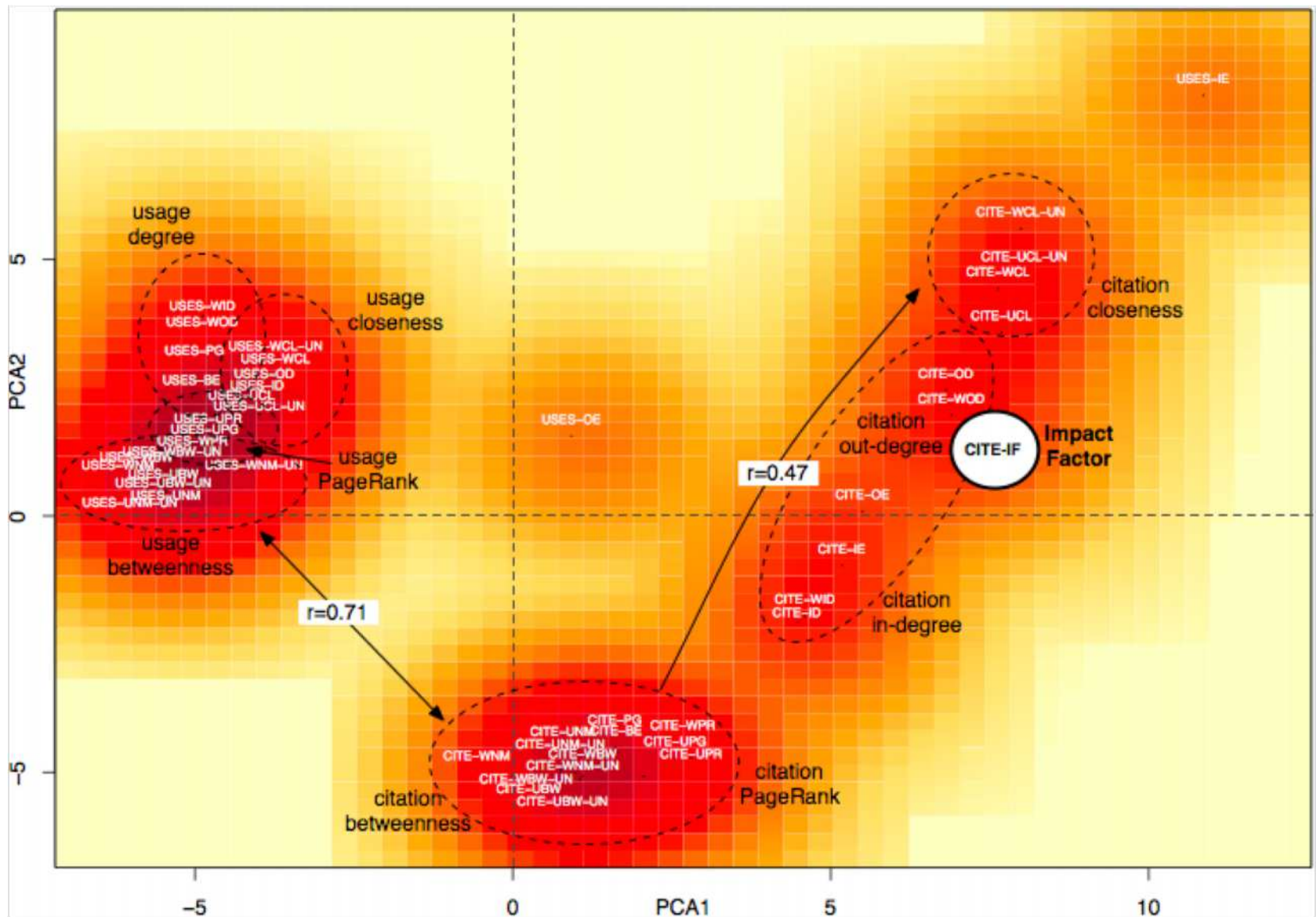
April 2008



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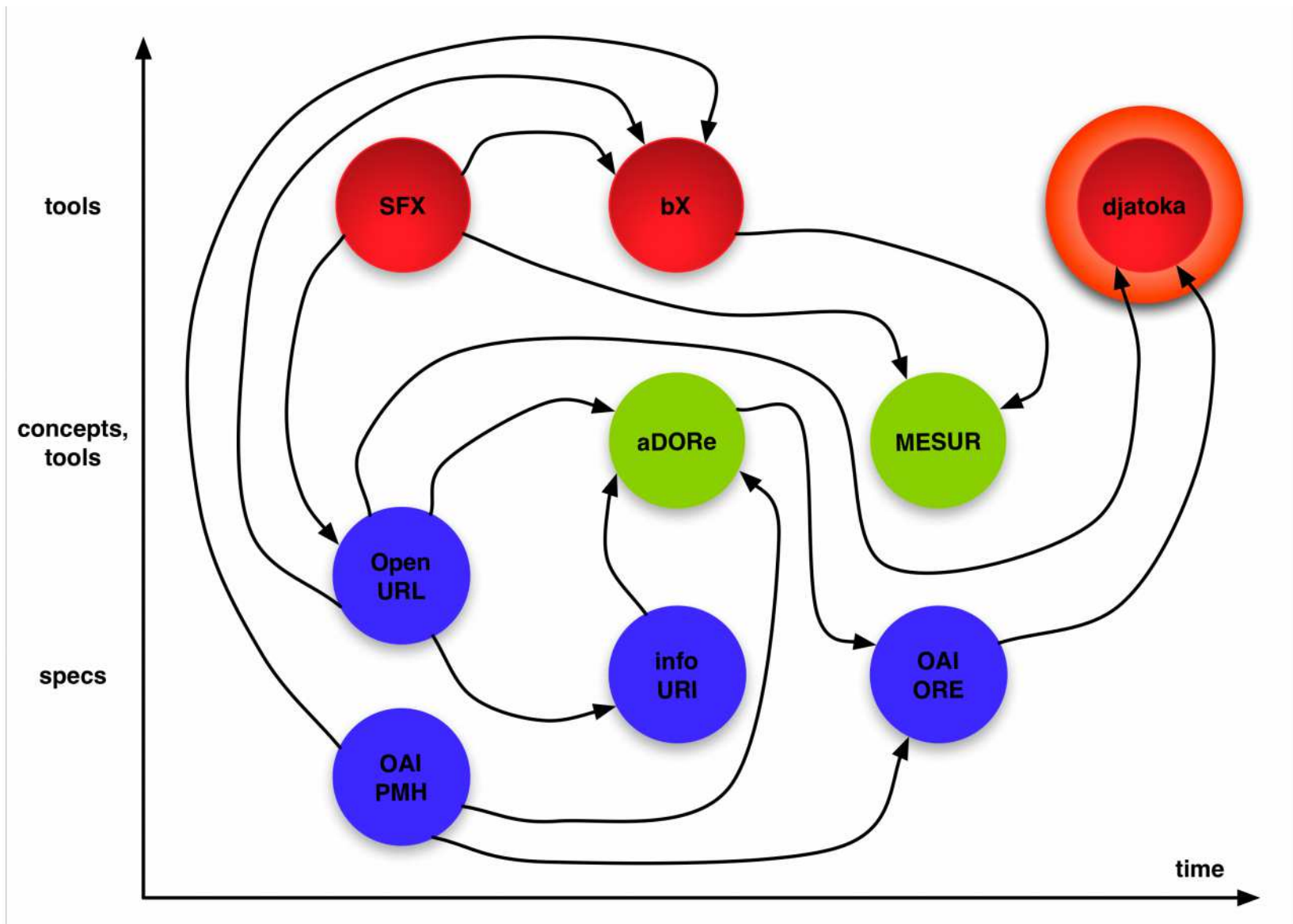
MESUR Map of Metrics (usage and citation) 2008



•mesur

community commercial  
logAggregation transparency  
standards WhereToGoFromHere infrastructure  
research adoption  
advocacy





RyanChute  
imageServer  
digitalPreservation  
highResolutionImages  
OpenURL  
JPEG2000  
openSource





# What is aDORe djabatoka?

- Open-source JPEG 2000 image server and dissemination framework
  - Java-based solution built around the Kakadu JPEG 2000 library
- Leverages existing standards and technologies
  - Standards: ISO JPEG 2000 / NISO OpenURL
  - APIs & Libraries
    - NIH - ImageJ
    - Sun Microsystems - Java Advanced Imaging
    - Kakadu Software - JPEG 2000 SDK
    - OCLC - OpenURL OOM
- Provides of an implementation agnostic (e.g. Kakadu, Aware, etc) framework for JPEG 2000 compression and extraction.
- Geared towards reuse through URI-addressability of all image disseminations including regions, rotations, and format transformations
- Provides an extensible service framework for image disseminations enabled by OCLC's Java OpenURL package



The djabatoka JPEG 2000 image server  
Ryan Chute, Herbert Van de Sompel  
DLF Fall Forum, Providence, Rhode Island, November 13 2008



November 2008



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January 2009



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# Develop Suggestions Use it Download it Feedback



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