Observatoire des Sciences et des Techniques

Les Séminaires SciScI-OST. Paris, 12 Octobre 2012

iMetrics

INFORMATION METRICS NEW DEVELOPMENTS

Isidro F. Aguillo
The Cybermetrics Lab. CSIC. Espagne

Cybermetrics Lab CSIC

iMetrics

- **Bibliometrics still at the core of the Information Metrics applied to the description and evaluation of scholarly communication**
  - There are relevant new sources (citation databases) available
  - A new generation of indicators is being developed and used

- **But still some gaps should be filled**
  - Freshness of data (the current window, less than one year old)
  - The role of additional stakeholders (non academic third parties)
  - Expanding and explaining the motivations behind impact and visibility of scientific activities

- **Emerging iMetrics sub-disciplines**
  - Exploring larger and more diverse audiences
  - Recognizing the role and impact of the informal communication
  - Completing the indicators portfolio in the evaluation of individuals, groups and institutions

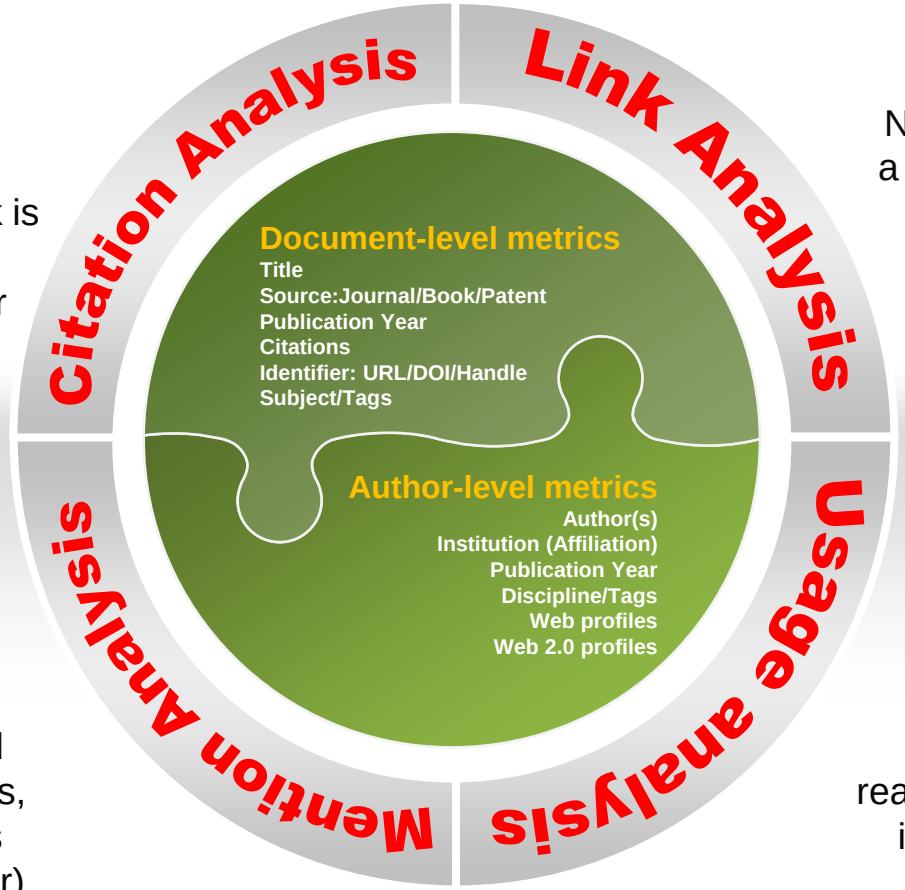
A new model for the XXIst century

BIBLIOMETRICS

Number of times the bibliographic record (identifier) of a paper/book is cited in another similar formally published paper

WEBOMETRICS

Number of times the URL of a document/author webpage is linked from another webpage



ALTMETRICS

Number of times the elements are mentioned (shared) in websites, wikis, blogs, social bookmarks and networks (incl. Twitter) or search engines

USAGEMETRICS

Number of times the document is read/visited/downloaded from its publishing place (incl. websites)

Profiling, the new bibliometrics

- **Two new bibliometric sources: The free citation databases from the giants Google and Microsoft**

	Google Scholar scholar.google.com	MS Academic Search academic.research.microsoft.com
Size	+100 million	~40 million
Sources	(Un)reliable	Reliable
Currency	Yes	No
Quality control	At the source	By end user

- **Different approaches to profiling**
  - *Google Scholar Citations*: Profile created by the user, automatically populated by GS, direct tuning by user, limited visualization capabilities
  - *MS Academic Search*: Multiple candidate profiles generated automatically, supervised tuning options including merging profiles, powerful visualization options
  - Additional automatic-only profiles for journals (both) and institutions (MAS)

Google Scholar Citations



Judit Bar-Ilan

Professor of Information Science, Bar-Ilan University, Israel
Internet research - informetrics - information retrieval - information behavior - bibliometrics
Verified email at biu.ac.il

Citation indices

	All	Since 2007
Citations	2771	1867
h-index	31	27
i10-index	55	49

Citations to my articles



Select: All, None Export Show: 20 **1-20** Next >

Title / Author	Cited by	Year
Non-cryptographic fault-tolerant computing in constant number of rounds of interaction J Bar-Ilan, D Beaver Proceedings of the eighth annual ACM Symposium on Principles of distributed ...	206	1989
Which h-index?—A comparison of WoS, Scopus and Google Scholar J Bar-Ilan Scientometrics 74 (2), 257-271	183	2008
Search engine results over time–a case study on search engine stability J Bar-Ilan Cybermetrics 2 (3), 1	145	1999

Google scholar

Search Authors

Get my own profile - Help

Follow this author

Follow new articles
Follow new citations

Co-authors

Guy Kortsarz
Eric Zimmerman
Sheizaf Rafaeli
Gilad Ravid
Hadas Shema
José Luis Ortega
Isidro F. Aguillo
Jens Terliesner
Jason Priem
Stefanie Haustein
Mike Thelwall
Isabella Peters
Yonatan Aumann
Jenny Bronstein

View all co-authors

Cybermetrics Lab CSIC

Ranking of profiles

Google scholar label:bibliometrics Search Authors Search Scholar

Authors 1-10 Next >



Peter Willett
University of Sheffield
Verified email at sheffield.ac.uk
Cited by 18526



David I. Stern
Professor, Crawford School of Public Policy
Verified email at anu.edu.au
Cited by 5997

Yannis Manolopoulos
Professor, Dept of Informatics, Aristotle University, Thessaloniki, Greece
Verified email at csd.auth.gr
Cited by 5980

Anne-Wil Harzing
Professor of International Management, University of Melbourne
Verified email at harzing.com
Cited by 4376



Carl T. Bergstrom
Professor of Biology, University of Washington
Verified email at u.washington.edu
Cited by 3905



Judit Bar-Ilan
Professor of Information Science, Bar-Ilan University, Israel
Verified email at biu.ac.il
Cited by 2771



Martin Meyer
Professor, Business & Management, SPRU, University of Sussex, Katholieke Universiteit ...
Verified email at sussex.ac.uk
Cited by 2700



Diana Hicks
Georgia Institute of Technology, Sussex University, CHI Research
Verified email at gatech.edu
Cited by 2447



Félix de Moya Anegón
CSIC SCImago Group - SPAIN
Verified email at csic.es
Cited by 2379



Olle Persson
Professor of information science, Umeå University, Sweden
Verified email at soc.umu.se
Cited by 2115

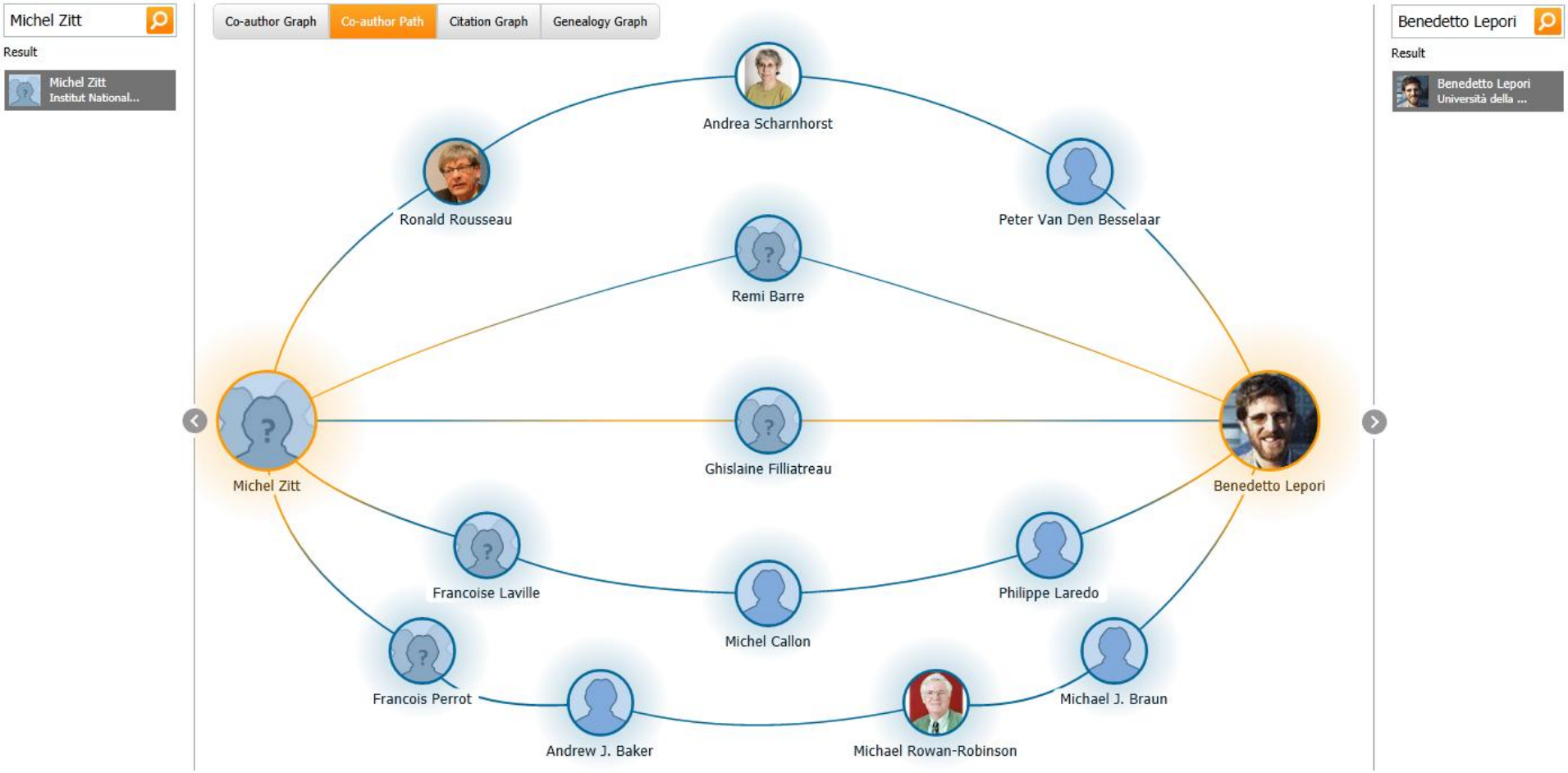
Dates and citation counts are estimated and are determined automatically by a computer program.

Cybermetrics Lab CSIC

MAS Author profile



MAS Co-author Path Visualization



Other MAS profiles

Microsoft Academic Search Beta

Authors »
Publications »
Conferences »
Journals »
Organizations »
Keywords »

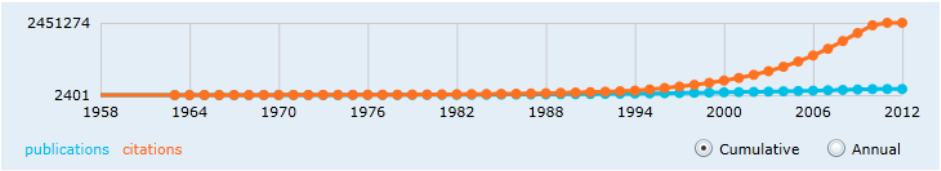
Academic > Top organizations in Library Science — 1 - 100 of 273 results

Social Science | Library Science | Last 5 Years | Europe

Organizations	Publications	H-Index
University College London	34	6
University of Strathclyde	45	4
Royal School of Library and Information Science	19	4
Universidad de Granada	40	3
Consejo Superior de Investigaciones Científicas	36	3
University of Sheffield	30	3
Northumbria University	16	3
University of Tampere	15	3
University College Dublin	12	3
Manchester Metropolitan University	8	3
University of Novi Sad	7	3
Swiss Federal Institute of Technology Zurich	3	3
Loughborough University	48	2
University of Oxford	17	2
University of Navarra	13	2
Humboldt University of Berlin	10	2
Birkbeck University of London	8	2
University of Ljubljana	8	2
UPS76 Institut de l'Information Scientifique et Technique	7	2

Academic > Organizations > University College London — Comparison

University College London
[Europe]
Publications: 222,277 | Citation Count: 2,767,190 | H-Index: 384
Top Areas: Neuroscience, Psychiatry & Psychology, Pharmacology, Diseases, Oncology
Sub-organizations (2): Institute of Child Health, Eastman Dental Institute for Oral Health Care Sciences
Homepage



Authors (14609) — All Years



Karl Friston
Publications: 614 | Citations: 53376 | G-Index: 220 | H-Index: 109
Interests: Neuroscience, Psychiatry & Psychology, Artificial Intelligence



Raymond Dolan
Publications: 458 | Citations: 28012 | G-Index: 155 | H-Index: 94
Interests: Neuroscience, Psychiatry & Psychology, Pharmacology



Salvador Moncada
Publications: 368 | Citations: 24944 | G-Index: 152 | H-Index: 73
Interests: Pharmacology, Biochemistry, Physiology

Cybermetrics Lab CSIC

Webometrics

- **The Web is already the main scholarly communication tool**
  - The scenario is larger (huge audiences), more rich and diverse (not only formal papers in peer-reviewed journals), and with many additional actors (not only scientific colleagues) involved than those in the traditional academic publishing arena
  - But the new generation of web tools are derived from previous bibliometrics developments and the web indicators are strongly similar to those that are standards in scientometrics

- **Powerful advantages**
  - Public giant databases (commercial search engines like Google)
  - Main tool is link analysis, that is an extended and expanded citation analysis
  - Freshness contents, updated almost instantaneously
  - Universal tool, easy to edit, cheap to access, used by authors and readers from all over the world coming from both academic and non-academic sectors

Major disadvantages

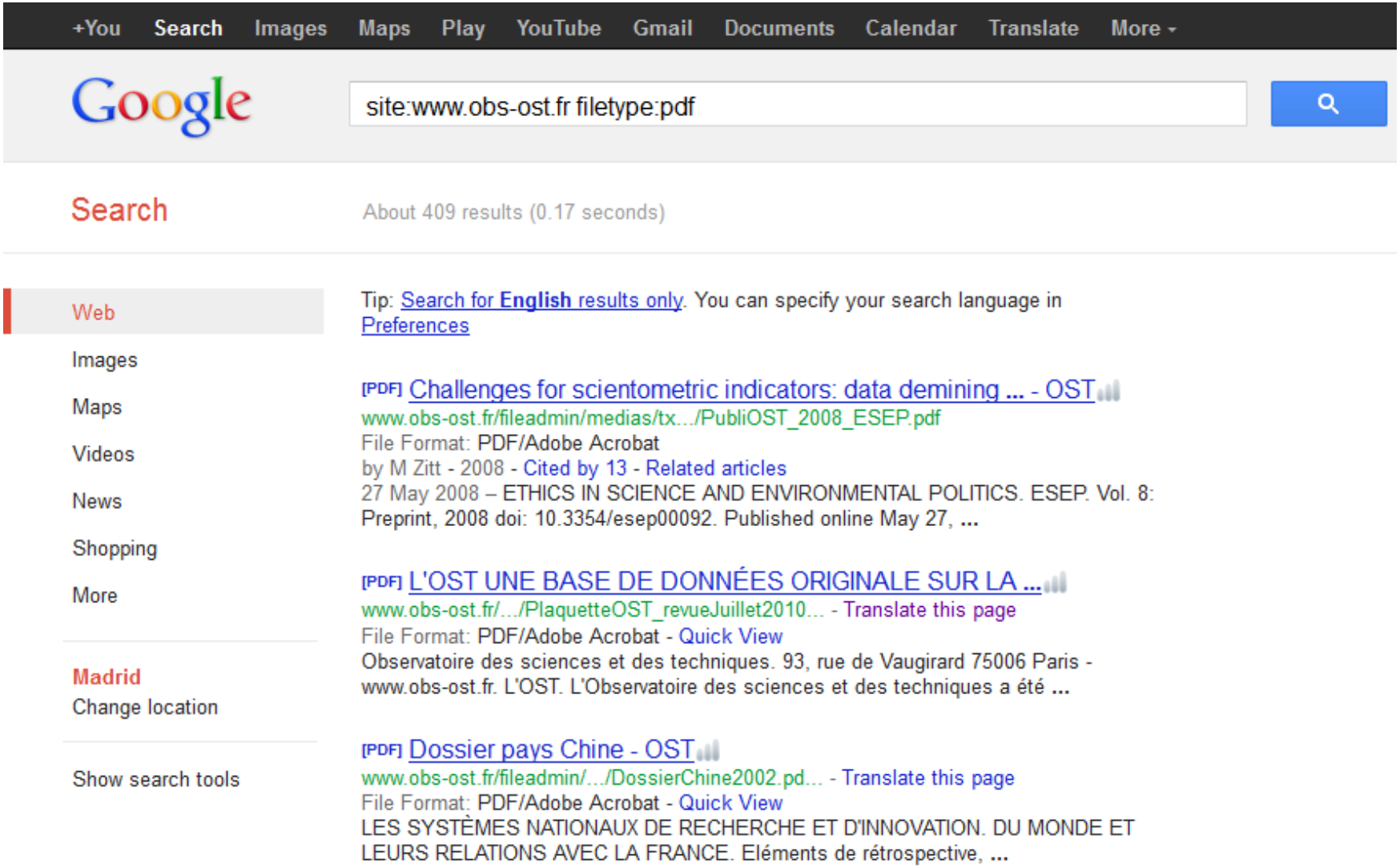
- **Theoretical**
  - Epistemological problems related to citation, linking behavior and motivations
  - Lack of articulation of the network theory in STS (Science, Technology & Society)

- **Practical**
  - Public search engines are based on compilation, indexing and ranking algorithms that are non-disclosed commercial secrets
  - Global coverage is wildly different among the available search engines, with important geographical and other biases
  - Sometimes, unexpectedly and without explanation plausible, the search engines provide inconsistent or irregular results
  - There is no quality control regarding the contents (noise), naming of the web addresses, preservation of the information (volatility) and the network structure (link rot)
  - A few reports about academic bad practices (web manipulation in GS) already exist!

A few web indicators

Indicators	Bibliometrics	Webometrics
ACTIVITY	Publications	Web pages Documents (rich files) Multimedia (media files) Profiles
IMPACT	Citations (IF, SIR, MNCS) Titles, Keywords	Links (HITS, PageRank) Mentions
NETWORKS	Co-authorships Co-citations Bibliographic coupling Co-words	Co-inlinks Co-outlinks Co-mentions
USAGE	Circulation Readers	Visits Visitors Downloads
SOURCES	Coverage Biases	Coverage Biases
COMPOSITE INDICATORS	Survey + Bibliometrics Rankings	Web Rankings

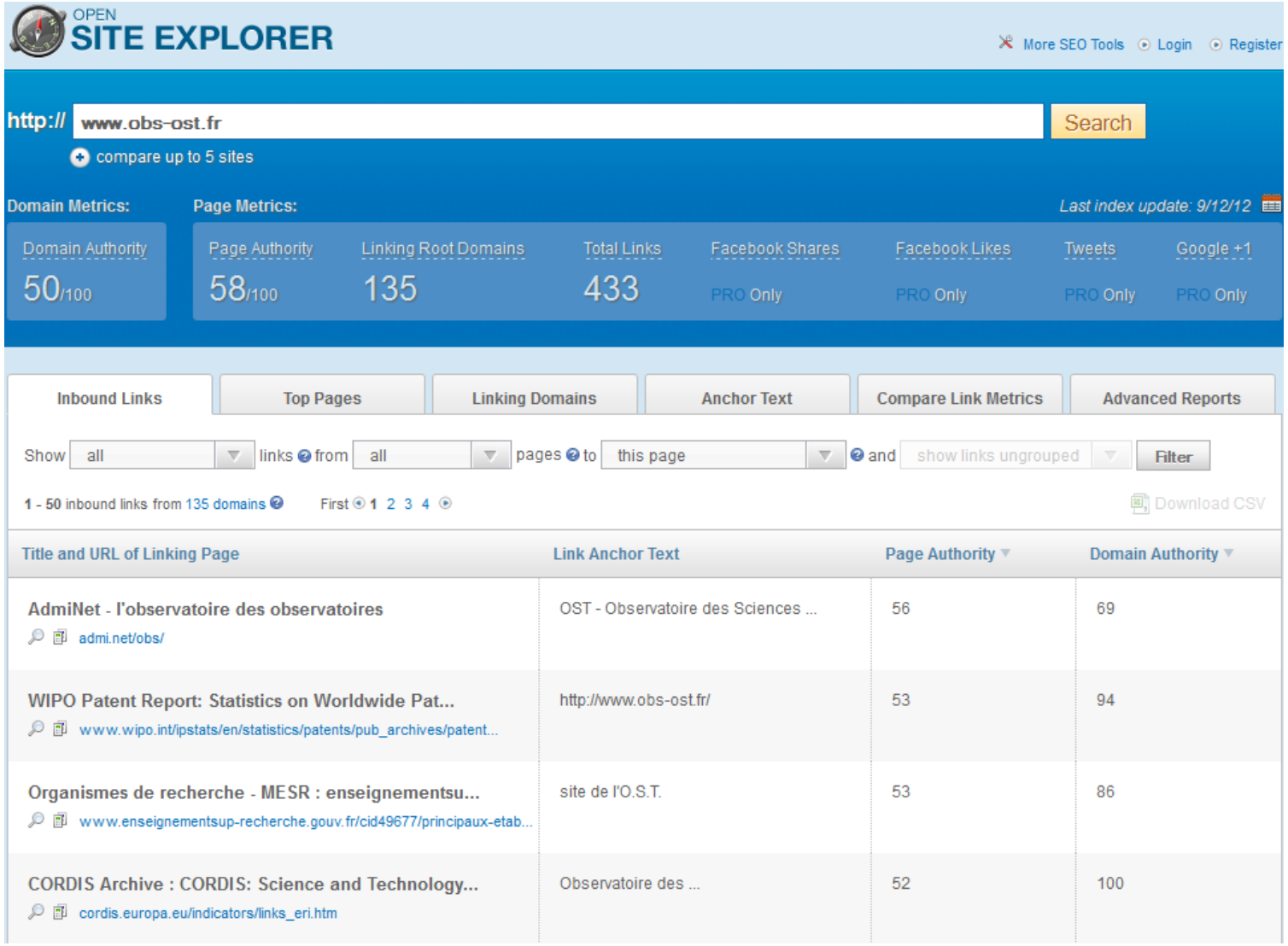
Rich files (by Google)



Link analysis

- **Visibility**
  - Backlinks/Inlinks (referring webdomains)
  - Outlinks (referred webdomains)
  - Link motivations (anchor analysis)
  - Link rot
- **Networks**
  - Interlinking, Co-linking (centrality measures)
  - Weighted linking (PageRank, HITS)
- **Sources and Tools**
  - Search engines (discontinued)
  - Commercial SEO-information providers
  - In-house (personal) crawlers (e.g.: SocSciBot)

Open Site Explorer



Comparing webdomains

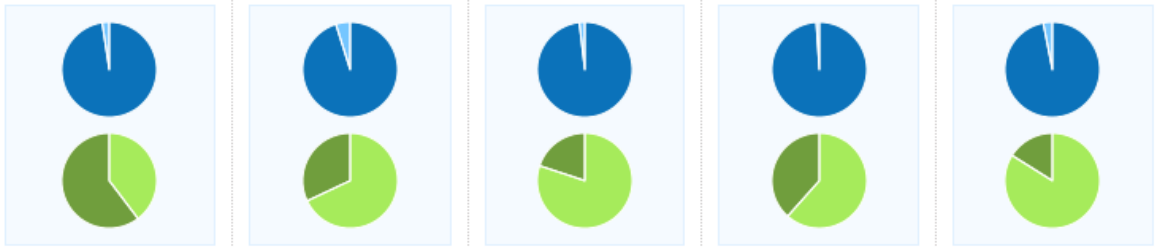
OPEN SITE EXPLORER

More SEO Tools | Login | Register

Root Domain Metrics See which metrics are affecting the root domain of your site.

	harvard.edu/	cam.ac.uk/	usp.br/	unam.mx/	upmc.fr/
Domain Authority	95	94	85	86	81
Domain MozRank	7.58	7.15	6.51	6.62	5.89
Domain MozTrust	8.95	8.91	7.2	7.23	6.72
External Followed Links	16,245,576	5,148,978	544,521	892,517	77,332
Total External Links	16,920,329	5,516,921	615,872	938,429	80,167
Total Links	28,041,947	17,246,665	3,094,959	2,442,925	498,353
Followed Linking Root Domains	174,920	66,031	26,053	26,903	3,610
Total Linking Root Domains	205,673	73,804	37,284	31,009	3,896
Linking C Blocks	61,643	34,224	15,863	15,110	2,832

- Followed Links vs Nofollowed Links:
- Internal Links vs External Links



MajesticSEO

MAJESTIC SEO

Blog | My Reports | Tools | Support | Plans & Pricing | Account | Logout

Majestic Site Explorer

obs-ost.fr

Explore | Create Report | Track

http://www.obs-ost.fr | www.obs-ost.fr | obs-ost.fr | Use Fresh Index: | Use Historic Index:

Summary | Backlinks | New | Lost | Anchor Text | Ref Domains | Pages | Link Profile

Summary

Domain Information

Referring Domains
1,043

397 in the last 60 days.

Educational Ref. Backlinks: **15**

Governmental Ref. Backlinks: **19**

Educational Ref. Domains: **8**

Governmental Ref. Domains: **6**

Referring **IP** addresses: **759**

Referring **Class C subnets**: **673**

Indexed **URLs**: **3,038**

External Backlinks
9,587

1,826 in the last 60 days.

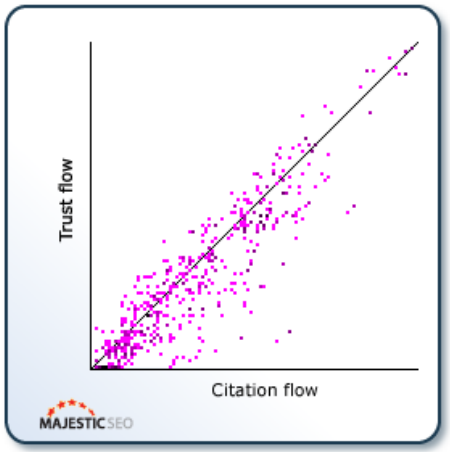
Backlink Breakdown

Images:	421
NoFollow:	1,143
Redirects:	42
Frames:	1
Deleted:	2,649

Link profile

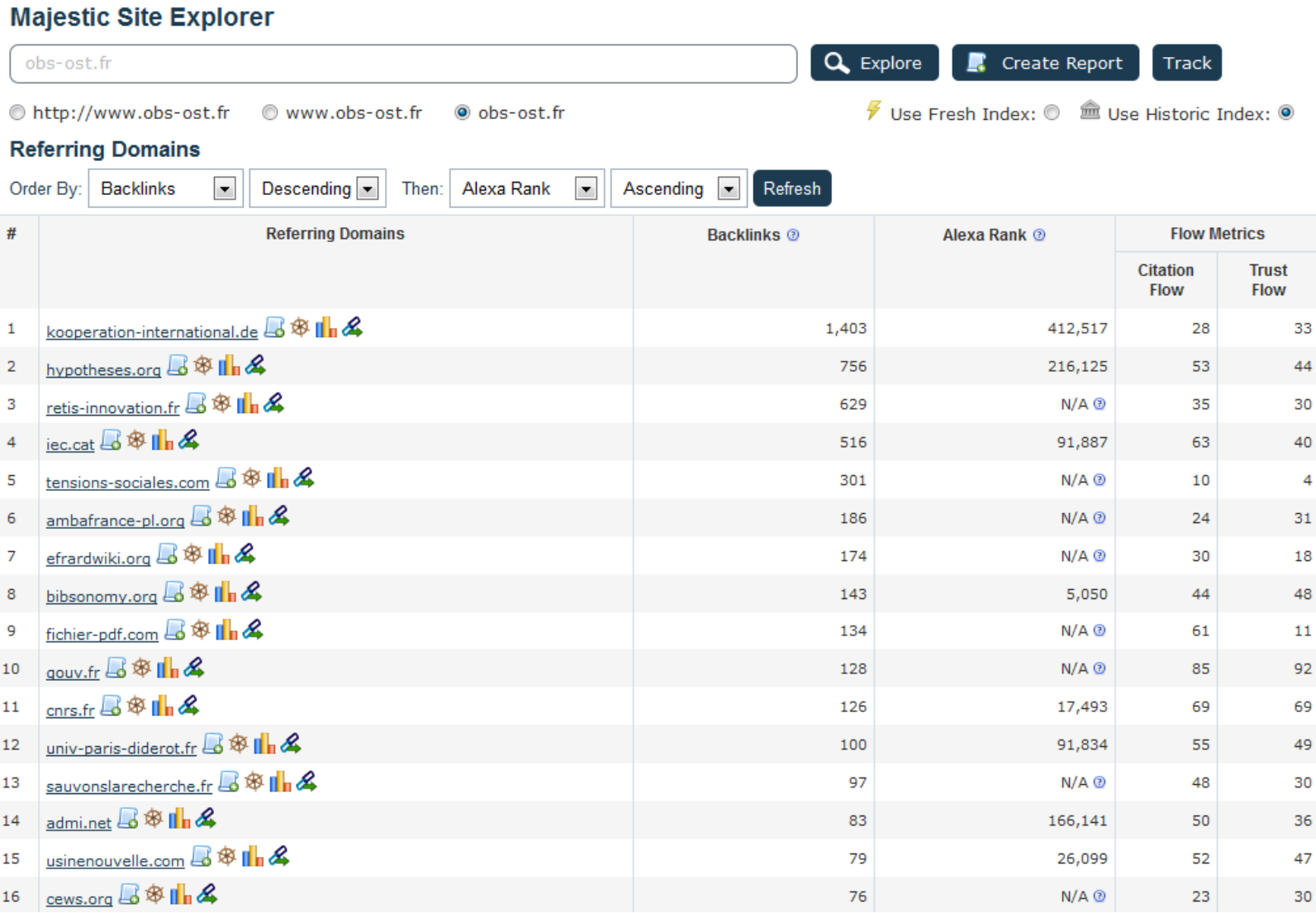
Citation Flow
34

Trust Flow
32



Cybermetrics Lab | CSIC

Referring domains



#	Referring Domains	Backlinks	Alexa Rank	Flow Metrics	
				Citation Flow	Trust Flow
1	kooperation-international.de	1,403	412,517	28	33
2	hypotheses.org	756	216,125	53	44
3	retis-innovation.fr	629	N/A	35	30
4	iec.cat	516	91,887	63	40
5	tensions-sociales.com	301	N/A	10	4
6	ambafrance-pl.org	186	N/A	24	31
7	efrardwiki.org	174	N/A	30	18
8	bibsonomy.org	143	5,050	44	48
9	fichier-pdf.com	134	N/A	61	11
10	gouv.fr	128	N/A	85	92
11	cnrs.fr	126	17,493	69	69
12	univ-paris-diderot.fr	100	91,834	55	49
13	sauvonslarecherche.fr	97	N/A	48	30
14	admi.net	83	166,141	50	36
15	usinenouvelle.com	79	26,099	52	47
16	cews.org	76	N/A	23	30

ahrefs

ahrefs | Site Explorer | Keywords Analysis | Other Tools | Plans & Pricing

Enter a Domain or Url:

obs-ost.fr

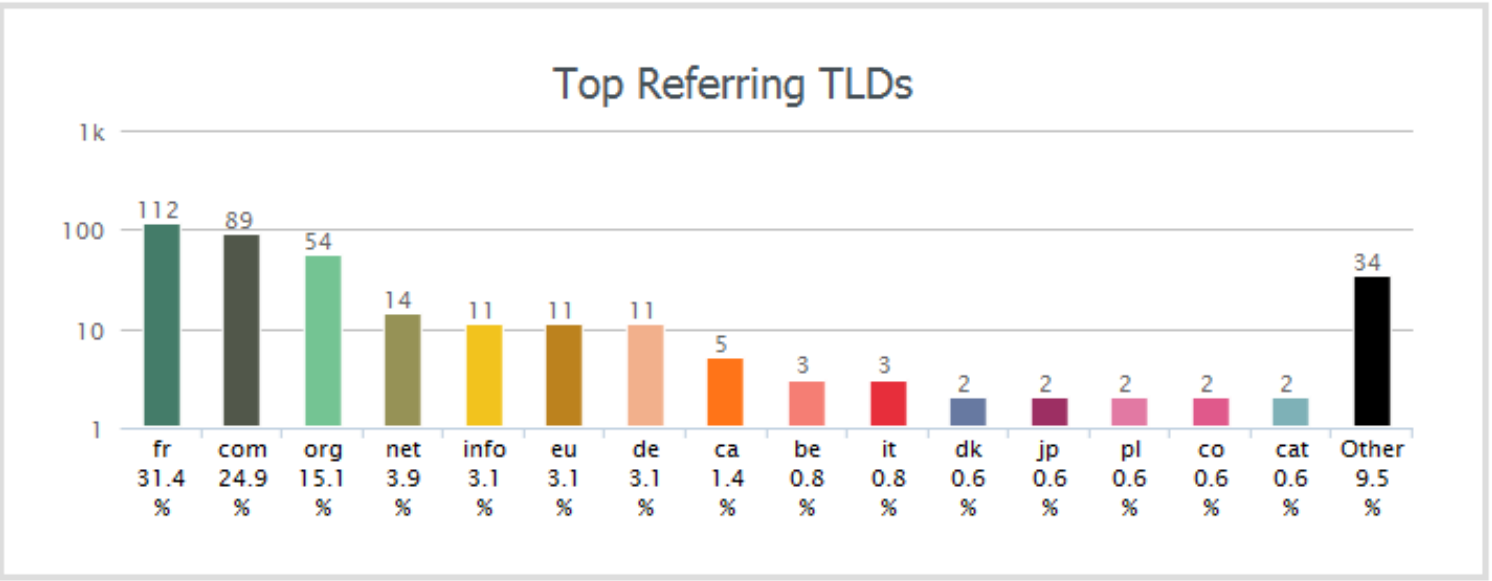
Explore links

URL | domain/* | *.domain/*

Backlinks

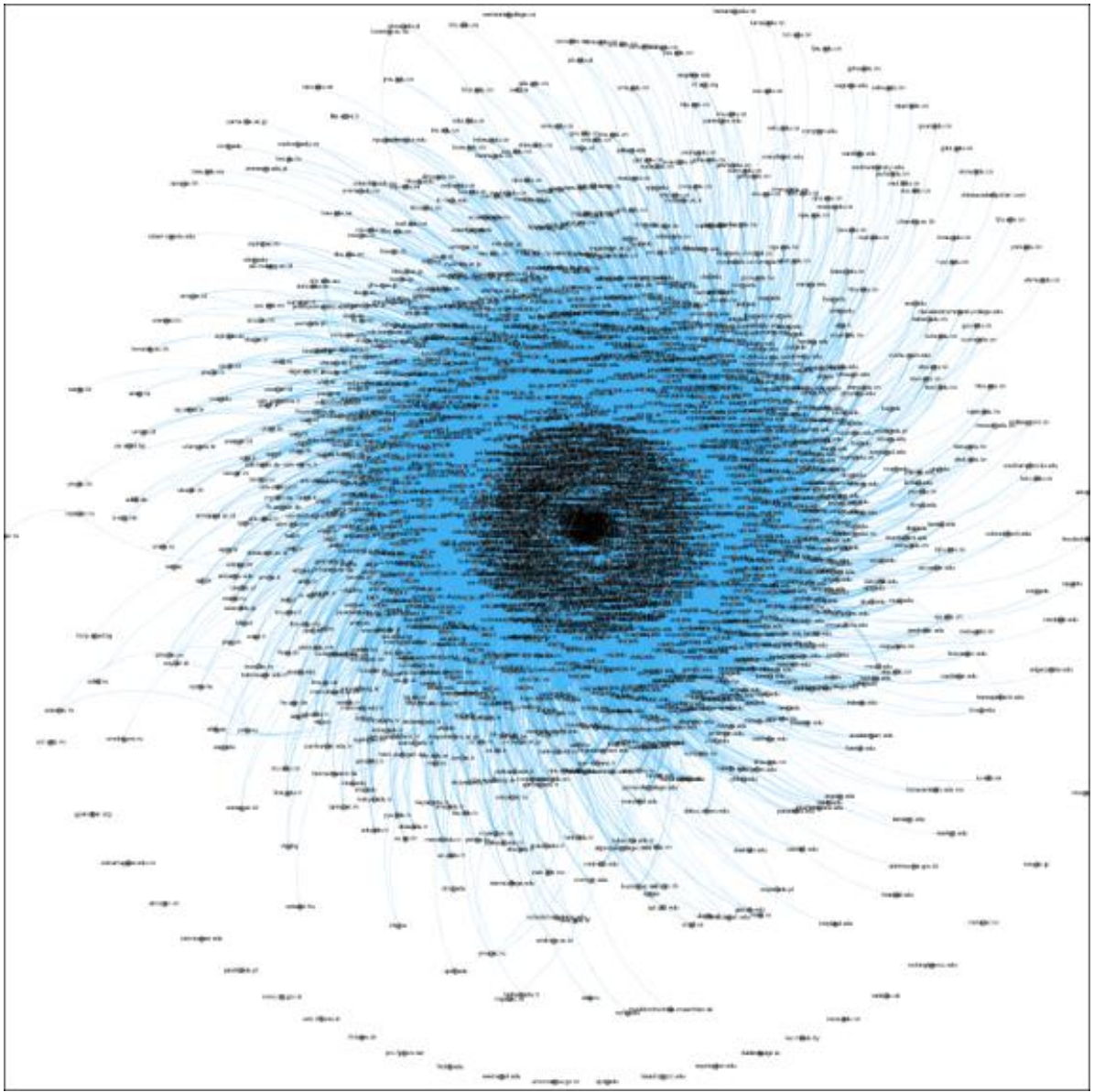
Keywords Analysis | Overview | External | New / Lost | Anchors | Pages | Referring Domains | Linked Domains | Site Issues | Raw export

Referring pages	3,901
Total Backlinks	4,179
Referring IPs	316
Referring subnets	281
Referring domains:	357
.gov	0
.edu	2
.com	89
.net	14
.org	54



Cybermetrics Lab | CSIC

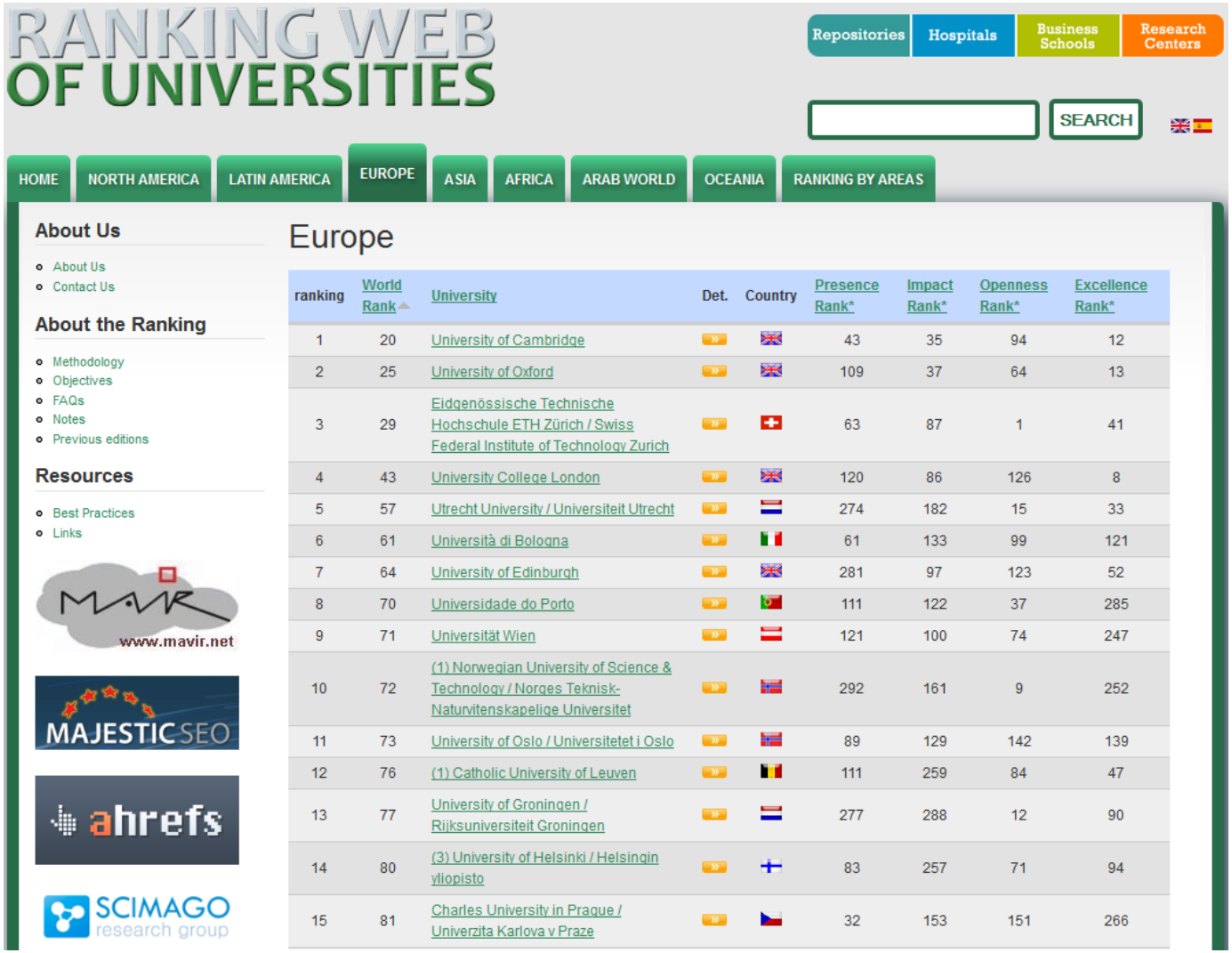
Interlinking



2100 university webdomains
(CybermetricsLab, Jan. 2012)
by Gephi v. 0.8 beta

Cybermetrics Lab CSIC

Composite indicators



RANKING WEB OF UNIVERSITIES

Repositories | Hospitals | Business Schools | Research Centers

SEARCH

HOME | NORTH AMERICA | LATIN AMERICA | EUROPE | ASIA | AFRICA | ARAB WORLD | OCEANIA | RANKING BY AREAS

About Us
- About Us
- Contact Us

About the Ranking
- Methodology
- Objectives
- FAQs
- Notes
- Previous editions

Resources
- Best Practices
- Links

www.mavir.net

MAJESTICSEO

ahrefs

SCIMAGO research group

Europe

ranking	World Rank	University	Det.	Country	Presence Rank*	Impact Rank*	Openness Rank*	Excellence Rank*
1	20	University of Cambridge			43	35	94	12
2	25	University of Oxford			109	37	64	13
3	29	Eidgenössische Technische Hochschule ETH Zürich / Swiss Federal Institute of Technology Zurich			63	87	1	41
4	43	University College London			120	86	126	8
5	57	Utrecht University / Universiteit Utrecht			274	182	15	33
6	61	Università di Bologna			61	133	99	121
7	64	University of Edinburgh			281	97	123	52
8	70	Universidade do Porto			111	122	37	285
9	71	Universität Wien			121	100	74	247
10	72	(1) Norwegian University of Science & Technology / Norges Teknisk-Naturvitenskapelige Universitet			292	161	9	252
11	73	University of Oslo / Universitetet i Oslo			89	129	142	139
12	76	(1) Catholic University of Leuven			111	259	84	47
13	77	University of Groningen / Rijksuniversiteit Groningen			277	288	12	90
14	80	(3) University of Helsinki / Helsingin yliopisto			83	257	71	94
15	81	Charles University in Prague / Univerzita Karlova v Praze			32	153	151	266

Altmetrics

- **Mentions in the Web**
  - In major search engines (Google, Bing, Teoma, Yandex, Baidu)
  - In selected “closed” groups: Newspapers, Portals, Gov’t sites, Political parties, Hospitals, Companies, …
  - In repositories and other e-libraries

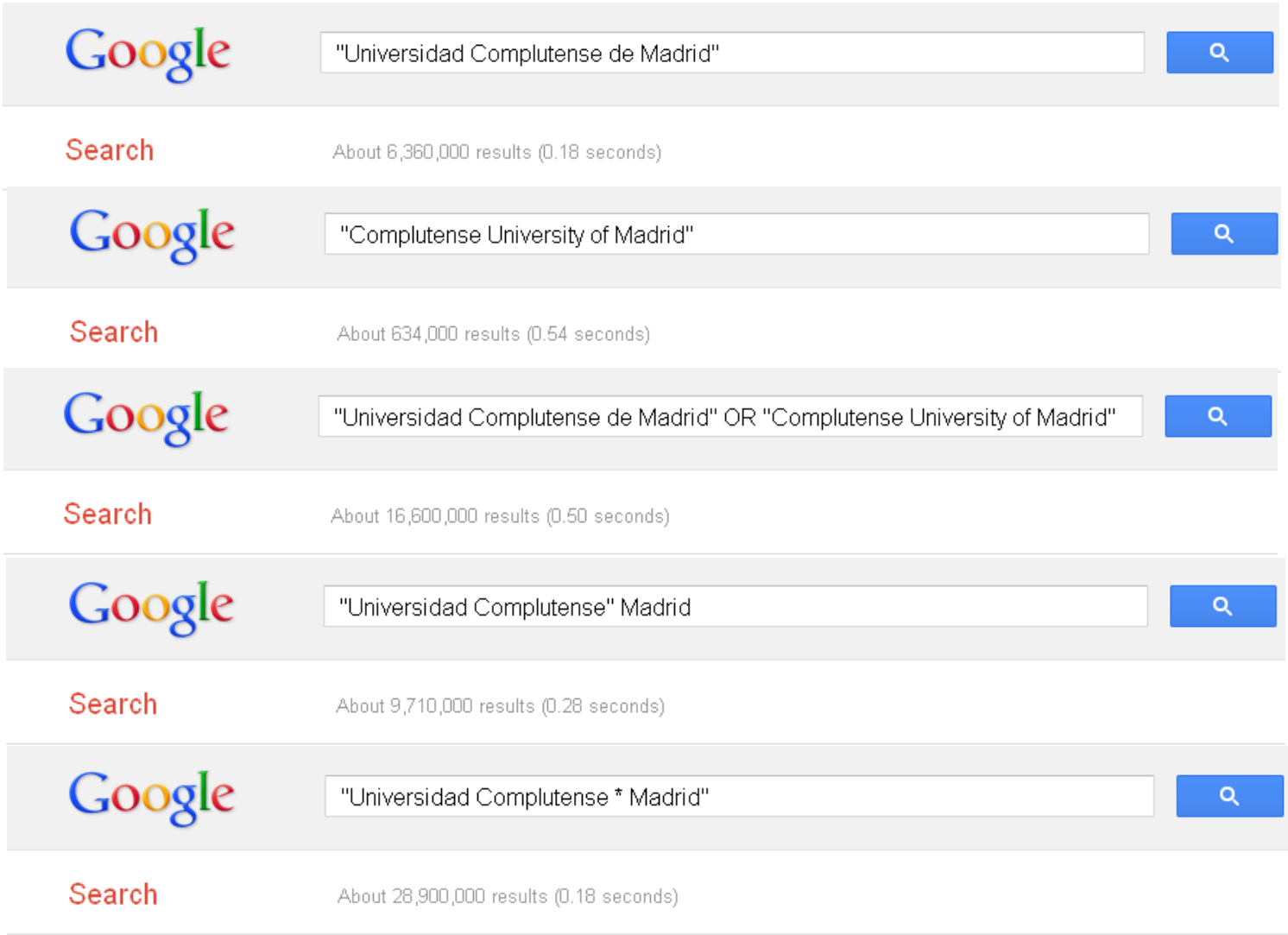
- **Mentions in the Web 2.0**
  - Wikis, specially in Wikipedia (Wikimetrics)
  - Blogs (Blogometrics: Technoratii, Digg, ScienceSeeker)
  - Social sites (Facebook, Google+, MySpace, Academia.edu, LinkedIn, ResearchGate)
  - Full text collections (Google Books, Amazon!)
  - Multimedia (YouTube, Flickr)
  - Twitter (Klout, Peerindex, Twitteralyzer)
  - And the most relevants for academic purposes: Social Bookmarking (Delicious, CiteULike, Mendeley, CrossRef, CitedIn, Connotea, Bibsonomy), Social Peer-review (F1000) and Social sharing (Slideshare)

Mention analysis

- **Bibliographic units**
  - Author's name, with problems related to the lack of standardization (but there are proposals like ResearcherID, ORCID or AuthorClaim)
  - Article (book, journal) title(s), that usually requires a minimum length (~35 characters) for avoiding noise
  - Codes (URL, DOI, Handle), when available

- **Other units**
  - Institution or organization name, considering all variants like official name, translation in other languages or short versions and acronyms
  - Topics (and tags), specially "hot topics"
  - Super-sites: Standardized names or acronyms of portals, directories, repositories,…
  - Full collections or individual items: software, slides, learning objects, data files
  - Events: Conferences, workshops, seminars
  - Email addresses, specially postal domains
  - Coded objects: Biological scientific names, Chemistry formulas, Physics/Astronomy datasets, …

Limitations



Mendeley (ReaderMeter)

ReaderMeter About FAQ News Contact

BENEDETTO LEPORI

H_R-Index: 7

G_R-Index: 9

Most read publication: 23

Total number of publications: 17

Total bookmarks: 108

[what's this?]

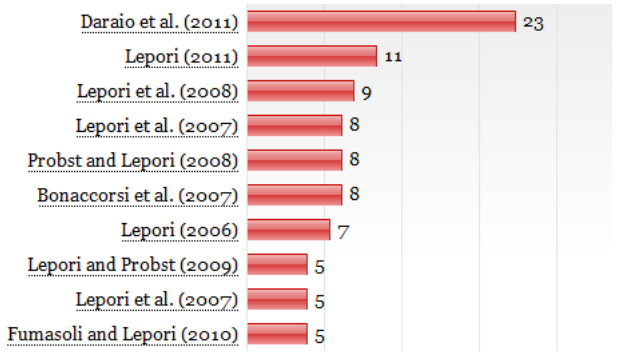
Permalinks

HTML: http://readermeter.org/lepori.benedetto

JSON: http://readermeter.org/lepori.benedetto/json

Powered by MENDELEY

Top 10 publications by readership (?)



[show all]

benedetto lepori's coauthors

Peter ANDRAS, Laurent BACH, Rémi BARRÉ, Peter BOGETOFT, Andrea BONACCORSI, Luca BOTTURI, Lorenzo CANTONI, Elias Sanz CASADO, Elena CASTRO-MARTINEZ, Bruce G CHARLTON, Gustavo CRESPI, Cinzia DARAIO, Daniela Alejandra DE FILIPPO, Daniela DE FILIPPO, Ignacio Fernandez DE LUCIO, Peter Van DEN, Michael DINGES, Philippe Vanden EECKAUT, Margarida F CARDOSO, Ghislaine FILLIATREAU, Harold FRIED, Tatiana FUMASOLI, Adela GARCIA-ARACIL, Aldo GEUNA, Isabel GÓMEZ, Diana INGENHOFF, Annamaria INZELT, Ben JONGBLOED, Gerhard KEMPKES, Svein KYVIK, Patrick LLERENA, Mireille MATT, Giles MOHAN, Maria OLIVARES, Carsten POHL, Bianca POTÌ, Emilia PRIMERI, Carole PROBST, Tarmo RATY, Emanuela REALE, Maria J ROSA, Cláudia S SARRICO, Léopold SIMAR, Stig SLIPERSAETER, Stig SLIPERSÆTER, Michael STAMPFER, Stefano TARDINI, Pedro N TEIXEIRA, Jean THEVES, Jean THÈVES

Beyond mentions

- **Social actions**
  - Ratings
  - Reviews
  - Comments
  - Likes
  - Shares
  - Bookmarks
  - Clusters (also search, also visited, friends)
- **Usage**
  - *See next section*
  - Clicks, accesses
  - Page views (webpages)
  - Downloads (rich & media files, software, data)
  - Frequent used terms

Facebook & Twitter

Over One Million 'Likes' of Facebook Pages for the 24 Russell Group Universities

Posted by **Brian Kelly (UK Web Focus)** on 2 August 2012

Ref. No.	Institution and Web site link Facebook name and link	Nos. of Likes (Jan 2011)	Nos. of Likes (Sep 2011)	Nos. of Likes (May 2012)	Nos. of Likes (Aug 2012)	% increase since Sep 2011
1	**Institution**: University of Birmingham **Fb name**: unibirmingham	8,558	14,182	18,611	20,756	46%
2	**Institution**: University of Bristol **Fb name**: University-of-Bristol/108242009204639	2,186	7,913	11,480	12,357	56%
3	**Institution**: University of Cambridge **Fb name**: cambridge.university	58,392	105,645	153,000	168,000	59%
4	**Institution**: Cardiff University **Fb name**: cardiffuni	20,035	25,945	30,648	31,989	23%
5	**Institution**: Durham University **Fb name**: Durham-University/109600695725424	-	-	-	10,843	-

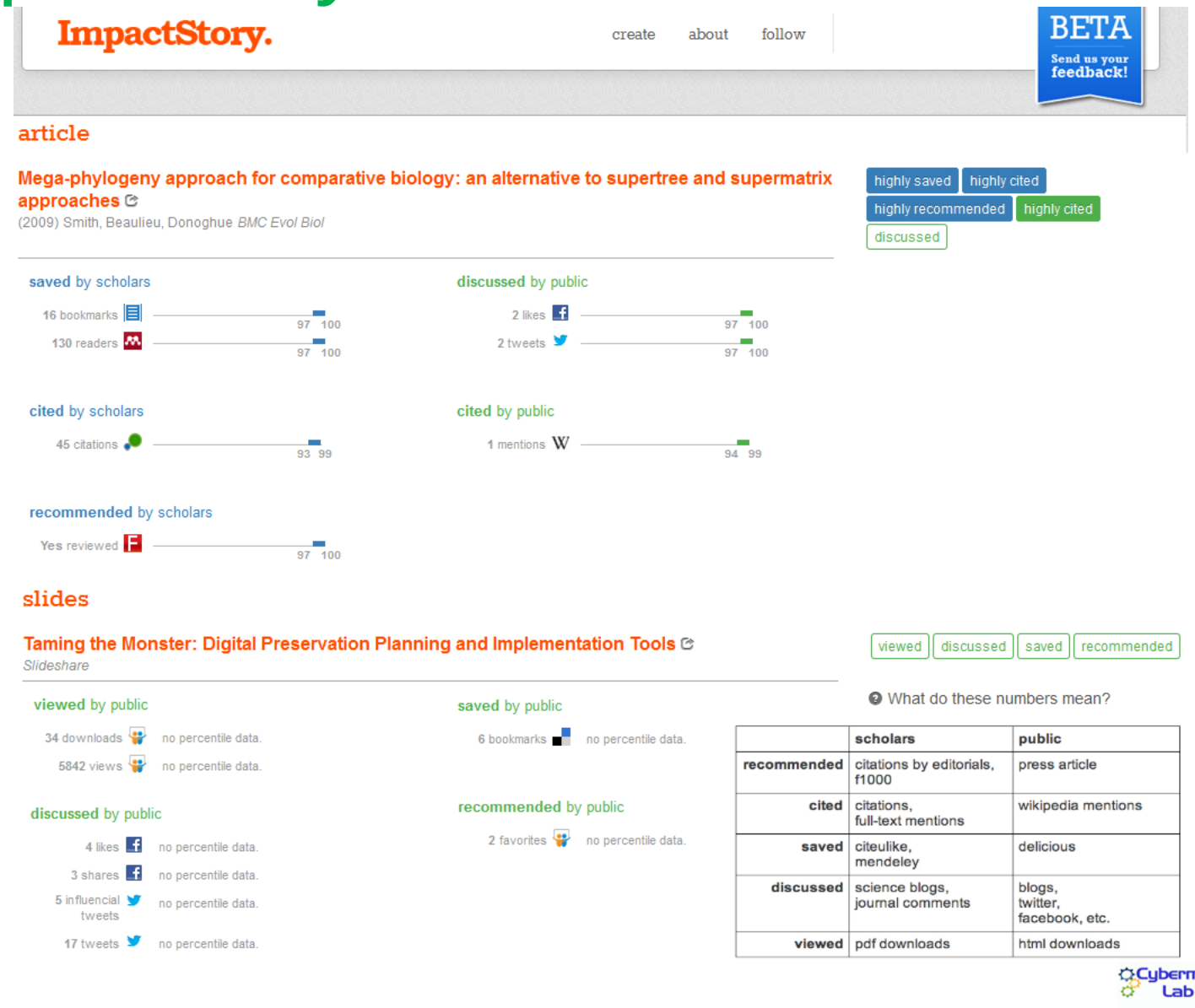
Social Analytics for Institutional Twitter Accounts Provided by the 24 Russell Group Universities

Posted by **Brian Kelly (UK Web Focus)** on 3 August 2012

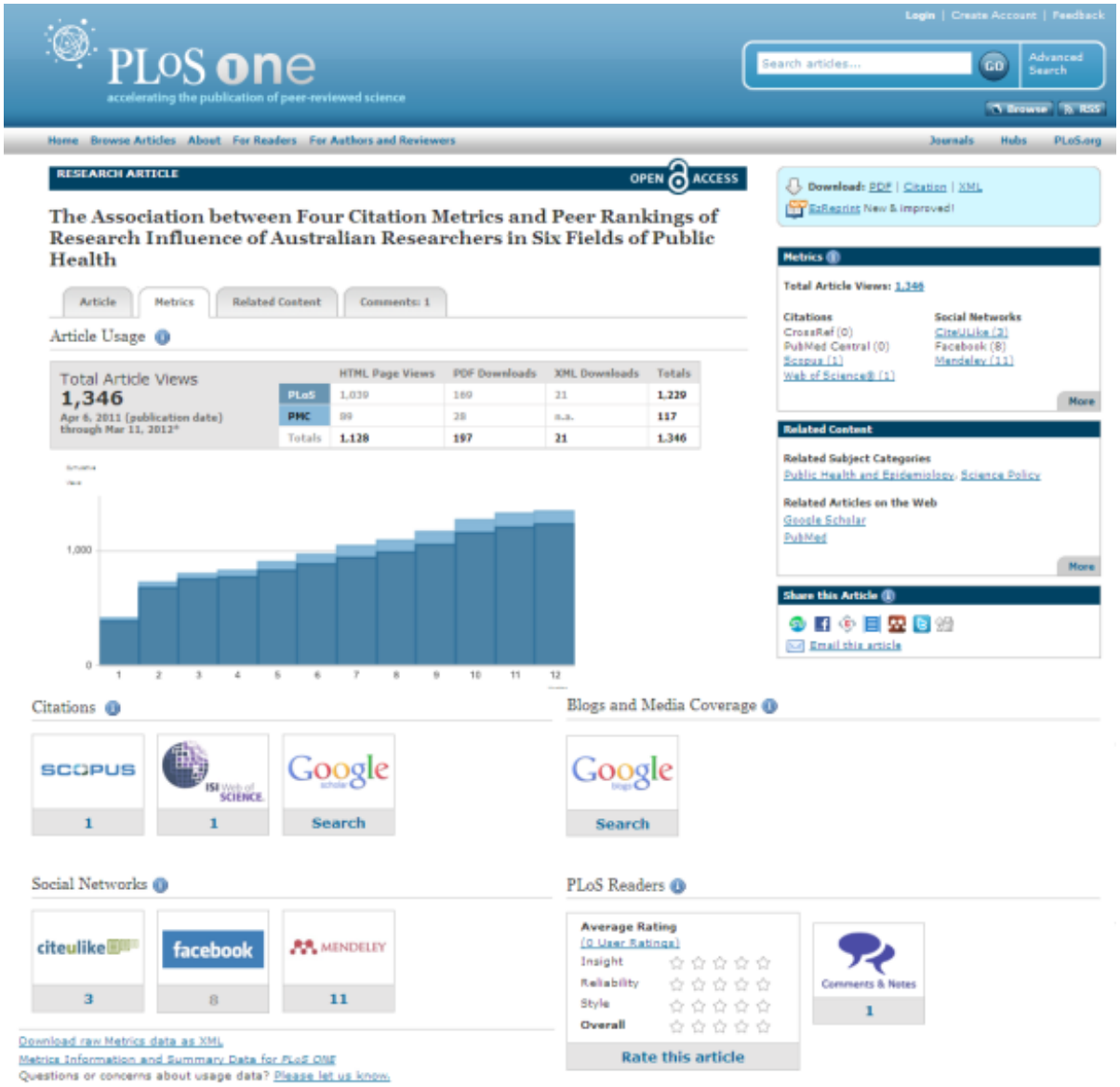
Ref. No.	Institution / Twitter Account	No. of Tweets	No. of Followers	Klout					Peerindex	Twitteralyzer			
				Score	Network influence	Amplification Probability	True Reach	Description	Score	Impact	Percentile	Type	Full Metrics
1	University of Birmingham: **@unibirmingham**	3,814	17,373	**57**	39	11	6K	Specialist	**97**	**17.2%**	97	Everyday user	**View**
2	University of Bristol: **@bristoluni**	2,504	13,195	**53**	36	17	3K	**Specialist**	**90**	**5.0%**	90	Everyday user	**View**
3	University of Cambridge: **@cambridge_uni**	2,460	37,195	**52**	34	9	3K	**Specialist**	**?**	**13.1%**	96	Everyday user	**View**
4	Cardiff University: **@cardiffuni**	1,832	15,919	**49**	30	7	2K	**Specialist**	**58**	**9.4%**	94	Everyday user	**View**
5	University of Edinburgh: **@uniofedinburgh**	2,135	15,077	**51**	32	10	3K	**Specialist**	**54**	**6.7%**	92	Everyday user	**View**

http://ukwebfocus.wordpress.com/

ImpactStory



PLoSone Article-level Metrics



Usagemetrics

- **Direct analysis of usage data**
  - Access to the log-file of the server
  - It should be customized for collecting specific information
  - Logs are huge(!) files that require specialized analytical software
  - Privacy issues, webmasters reluctant to share

- **External tools**
  - Intercept and analyze visits if codes are added to the webpages
  - Most popular is *Google Analytics*, a *de facto* standard
  - *Alexa* intercept the visitor not the visited site

- **Registered users**
  - Specially developed in-house or commercial software
  - See the important MESUR project

Usage analysis

- **Global indicators**
  - Traffic Rank (*Alexa*)
  - World and national rank according to the mean number of visits received in the last three months by the whole webdomain (only)
  - Unreliable and biased information
  - Other options (not recommended): *Quancast, Compete*

- **Popularity**
  - Number of visits/visitors, temporal distribution, geographical origin
  - Popular directories and files
  - Duration, clickstreams, entry/exit page/link, pages/visit
  - Downloads
  - Referrers (search engines, others)/referrals (terms, sentences)

Traffic Rank

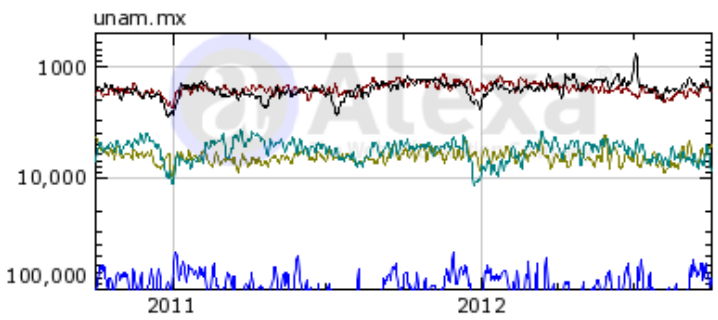
Alexa The Web Information Company

upmc.fr

Université Pierre et Marie Curie - Paris 6 (UPMC)

Alexa Traffic Rank		Reputation
72,904	2,440	2,825
Global Rank	Rank in FR	Sites Linking In

Daily Traffic Rank Trend



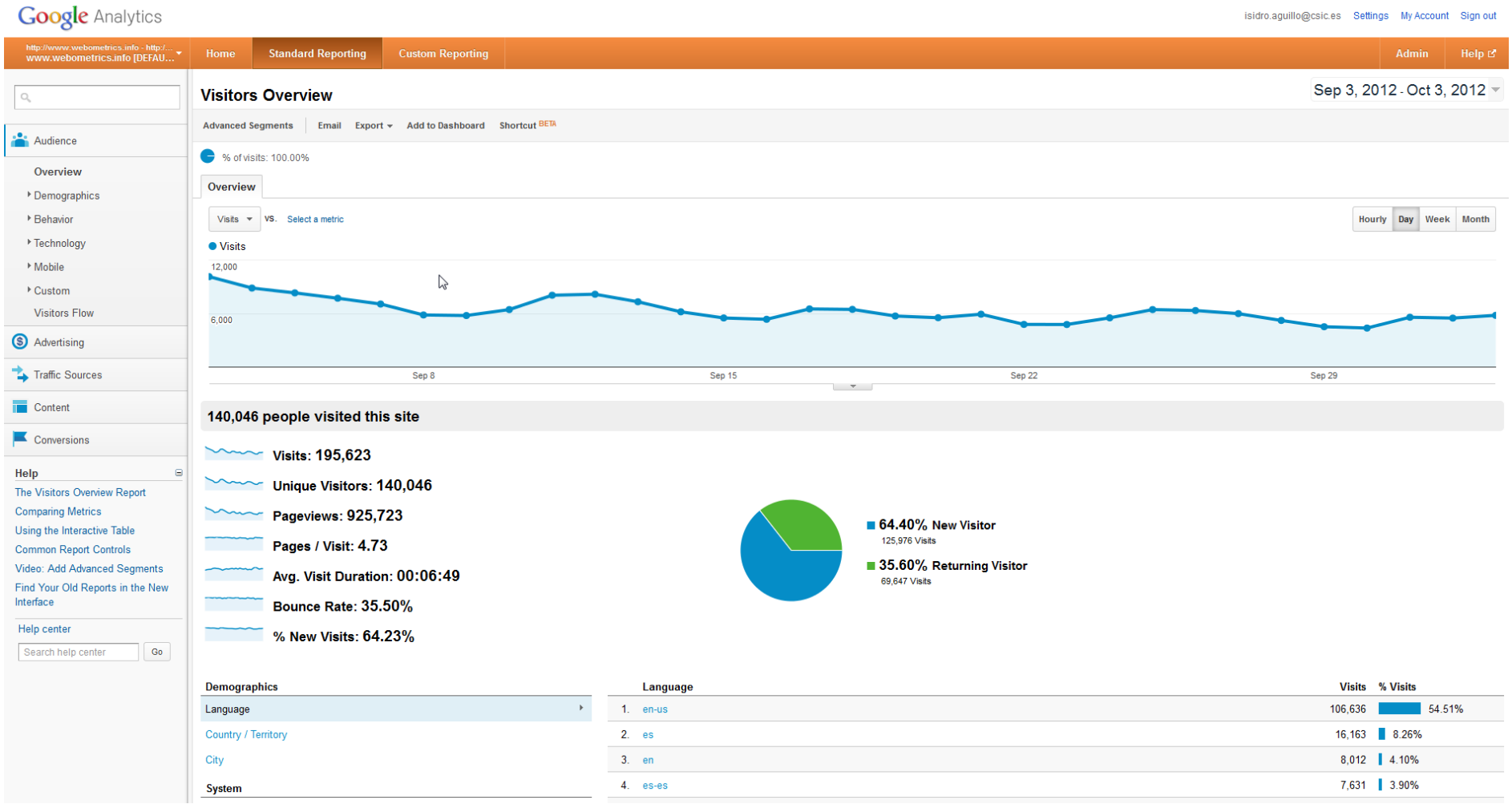
Upmc.fr's Regional Traffic Ranks

Country	Rank
France	2,440
Tunisia	3,867
Algeria	5,535
Morocco	16,306

Where Visitors Go on Upmc.fr

Subdomain	Percent of Visitors
upmc.fr	33.10%
enf.upmc.fr	13.12%
edu.upmc.fr	8.80%
isir.upmc.fr	8.66%
ifd.upmc.fr	6.38%
enligne.upmc.fr	6.23%
meca.upmc.fr	5.45%
australe.upmc.fr	5.19%
sdi.upmc.fr	4.80%
sisyphe.upmc.fr	4.59%
math.upmc.fr	4.47%
mon.upmc.fr	3.51%
elec.upmc.fr	3.42%
etu.upmc.fr	2.78%
courriel.upmc.fr	2.76%
jubil.upmc.fr	2.73%
polytech.upmc.fr	2.50%
chusa.upmc.fr	2.06%

Google Analytics



Summary

- **Increasing role of the new iMetrics sub-disciplines**
  - "Web publish or perish"
  - **Link**, **mention** and **usage** analysis can be used in conjunction with **citation** analysis, using similar approaches but with capabilities for extending (large scale populations), accelerating (immediacy) and deepening (increased diversity of actors and actions) the description of scholarly communication processes
  - Apart from theoretical developments more research is required about the data sources, specially regarding the quality of the information (sometimes it is unreliable, biased and frequently noisy) and the way the info is obtained, indexed and provided (most of the procedures are opaque)

- **Opportunities**
  - Describing new scenarios (geographical units, institutions and institutional types, disciplines and topics)
  - Discovering the relationships between the academia and non-scientific stakeholders, specially the so called university "third mission"

Merci beaucoup!

Questions?

Contact info
Isidro F. Aguillo
isidro.aguillo@csic.es