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# Leading the next frontier of OA: Filtering, Aggregating, and Evaluating Research Content

Session 4

October 25, 2011

Jennifer Lin,  
Product Manager, PLoS



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# In the beginning of OA...

MESSAGE FROM THE FOUNDERS

OPEN  ACCESS

## Why PLoS Became a Publisher

Article

Metrics

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Patrick O. Brown, Michael B. Eisen, Harold E. Varmus

**Citation:** Brown PO, Eisen MB, Varmus HE (2003) Why PLoS Became a Publisher. PLoS Biol 1(1): e36. doi:10.1371/journal.pbio.0000036

**Published:** October 13, 2003

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Communication among scientists has undergone a revolution in the last decade, with the movement of scientific publication to a digital medium and the emergence of the Internet as the primary means for distributing information. Millions of articles are, in principle, just a mouse click away from our computers. For many of us, PDFs have replaced printed journals as the primary form in which we read about the work of our colleagues.

Yet we have barely begun to realize the potential of this technological change. For practicing scientists, it provides myriad opportunities to expand and improve the ways we can use the scientific literature. Equally important, it is now possible to make our treasury of scientific information available to a much wider audience, including millions of students, teachers, physicians, scientists, and other potential readers, who do not have access to a research library that can afford to pay for journal subscriptions.

We founded the Public Library of Science three years ago to work toward realizing these opportunities. We began as a grassroots organization of scientists, advocating the establishment and growth of online public libraries of science, such as the National Institutes of Health's PubMed Central, to provide free and unrestricted access to the scientific literature. Today, with the launch of *PLoS Biology*, we take on a new role as publishers, to demonstrate that high-quality journals can flourish without charging for access.

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**Metrics** 

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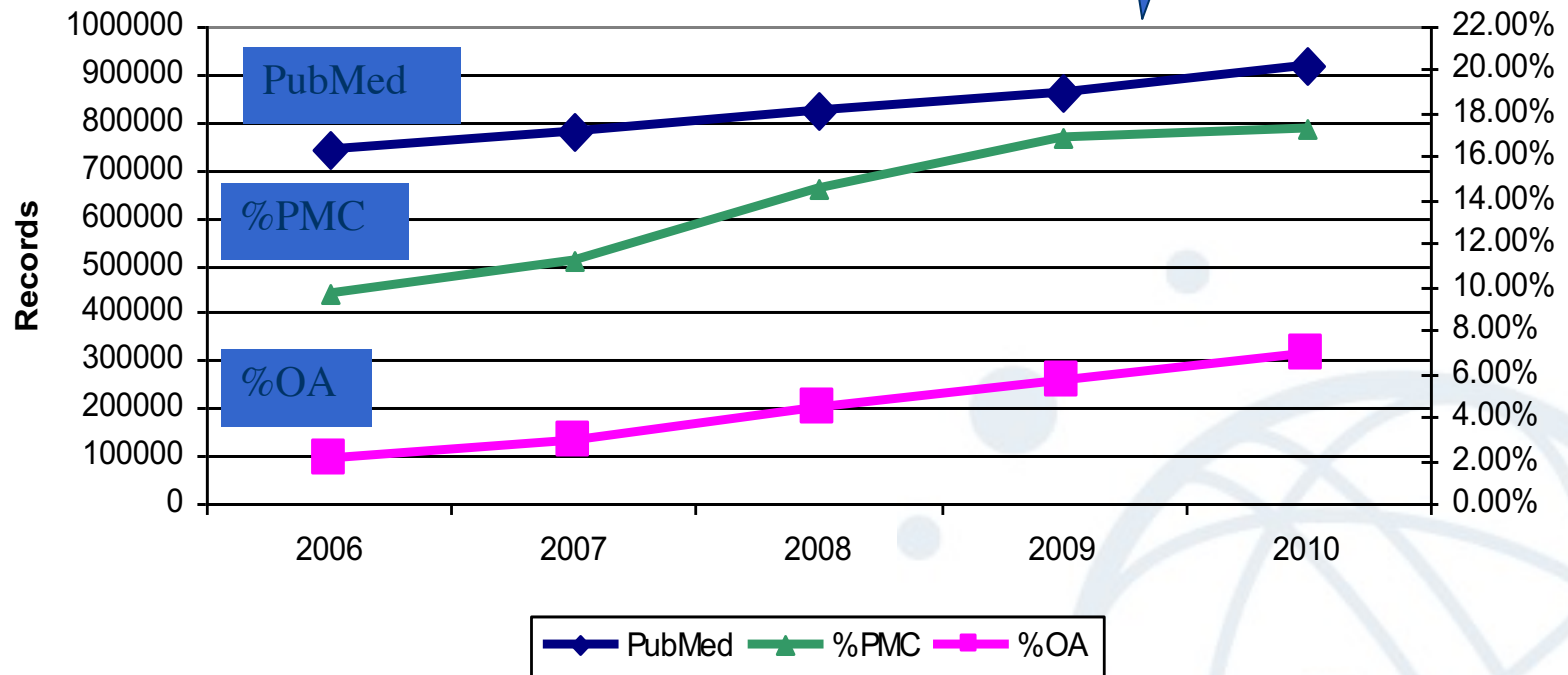
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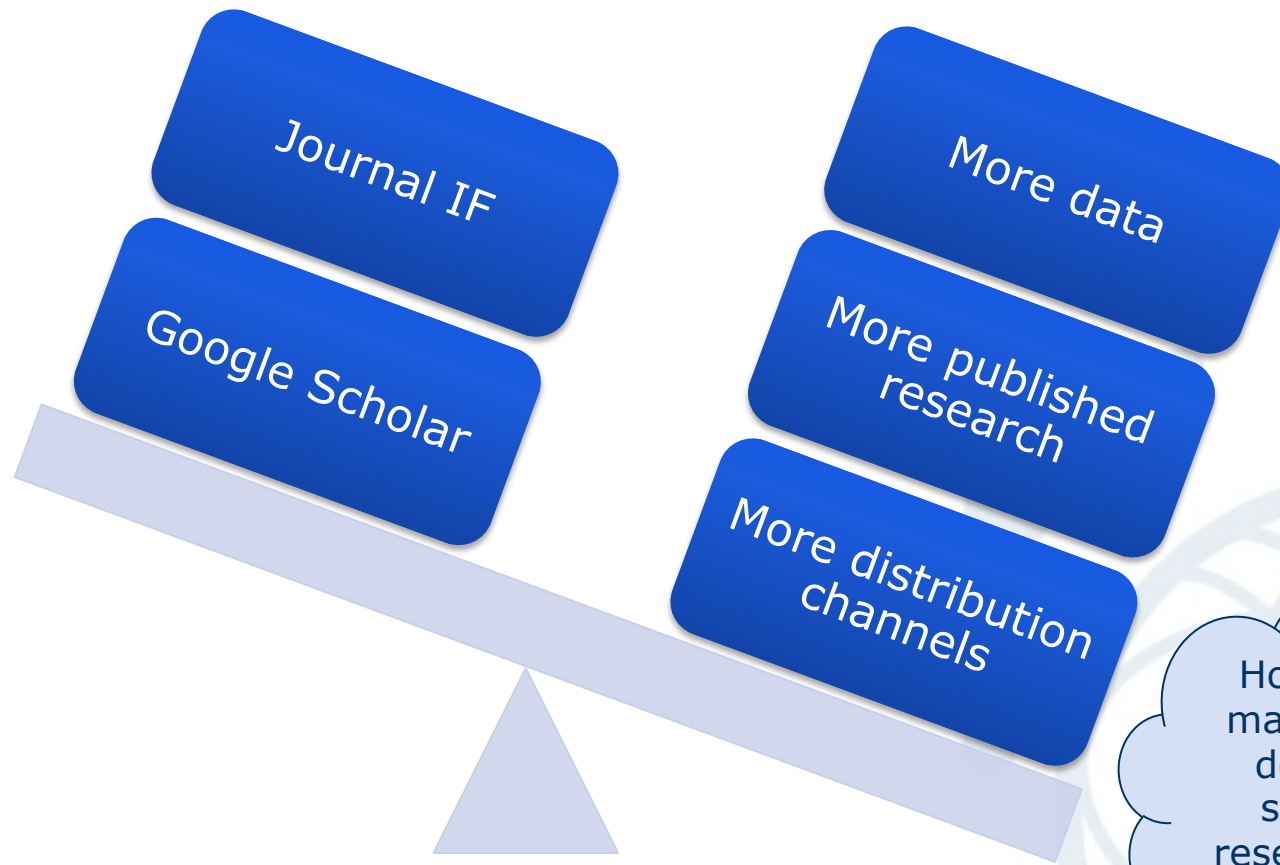
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# Information Overload and Filter Failure



How do we manage this deluge of scientific research data and content?



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# At PLoS, this challenge represents the next frontier for OA.

Researchers need new approaches  
to the:

- structuring
- presentation
- use
- evaluation of research literature.

*We need post-publication tools to  
manage research content.*



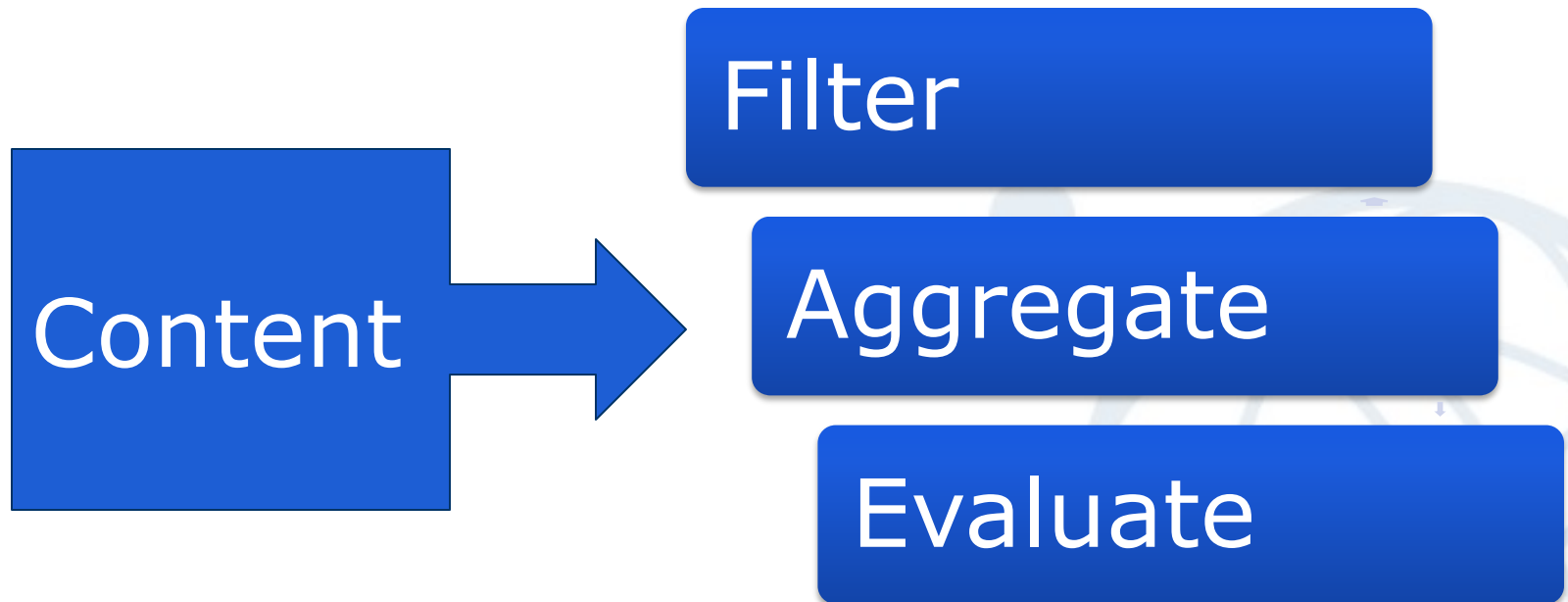
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# PLOS is tackling this challenge

## *Approach:*

Build a flexible operational framework with a robust toolset for researchers to experiment and develop customized solutions for their research needs.





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# What existing tools support our research discovery process?

- Key word search on PubMed, Google Scholar, journal page, etc.
- Taxonomic browsing in research area
- RSS alerts/emails of newly published articles
- ... [insert your own] ...







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# How do I find research of relevance to me?

***I learn about it through other researchers.***

Citations

Conferences

Collaborators

Listserve

Social  
bookmarks

Twitter

Facebook

Blogs



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# Research Dissemination IS Research Impact

***But how  
do we  
measure  
it?***





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*To be more specific:*

# The process of research dissemination creates indicators of impact.



**Current technology makes it possible to measure these communication conduits**



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# The ecosystem of research dissemination channels is broad and diverse

Article  
“usage”

Scholarly  
Citation

Non-  
Scholarly  
Citations

Blog  
Coverage

Community  
Input

News  
Coverage





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**We can capture these channels,  
measure them as indicators of  
impact, and make them the basis  
of research assessment.**



**Collectively as a suite, Article-Level Metrics measures  
research impact in a transparent and comprehensive  
manner.**



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## TOOLS: FILTER, AGGREGATE, EVALUATE

Article  
"usage"

Scholarly  
Citation

Non-  
Scholarly  
Citations

Blog  
Coverage

Community  
Input

News  
Coverage

**Information  
Overload**

**Filter  
Failure**

# ALMS



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# ALM Data Channels

ALM Category	Data Types and Channels	
	<i>Existing</i>	<i>Planned Additions</i>
<b>Article Usage</b>	HTML page views PDF downloads XML downloads PMC HTML pageviews PMC HTML PDF downloads Trackbacks	
<b>Community Input - PLoS site</b>	Reader Comments Reader Notes Ratings	
<b>Citations - Scholarly Literature</b>	PubMed Central Scopus CrossRef Web of Science Google Scholar (direct search link)	Microsoft Academic Search
<b>Citations - Non-Scholarly Literature</b>		Wikipedia Encyclopedia of Life F1000 Evaluations
<b>Media Coverage</b>		News (Google, Yahoo)
<b>Blog Coverage</b>	Nature Blogs (direct search link) Google Blogs (direct search link)	Yahoo Search Reditt
<b>Social/Behavioral Mining</b>	CiteULike	Twitter Facebook Mendeley Reference Manager Bookmarks Social bookmarks (Zotero, Delicious, Digg)

# ALMs: Uses

## Authors

### Self-Metrics

Measure the impact and reach of their work

Benchmark article performance against others

Evaluate publication decisions to maximize the impact of their work

Communicate impact of research to employers, funders, potential collaborators

## Researchers

### Research & Discovery

Gauge value of any article with post-publication peer review

Conduct custom searches that account for research impact

Collect relevant articles and organize based upon array of criteria

Gain insight into article's impact within context of related research

Analyze trends/behaviors across a database of academic literature

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# Article Level Metrics at PLoS Product Demos

- On a PLoS Article  
<http://www.plosone.org/article/metrics/info%3Adoi%2F10.1371%2Fjournal.pone.0000443>
- On the Biodiversity Hub  
<http://hubs.plos.org/web/biodiversity/article/10.1186/1471-2148-6-65>
- As part of navigation / search  
<http://www.plosone.org/search/simpleSearch.action?startPage=0&volume=&eLocationId=&id=&filterArticleType=&filterKeyword=&filterJournals=PLoSONE&query=cancer&sort=Most+views%2C+all+time&pageSize=10>
- Marketing / Dev site for the ALM API  
<http://article-level-metrics.plos.org/> &  
<http://api.plos.org/>



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# Article Level Metrics (ALM) at PLoS

## ALM initiative:

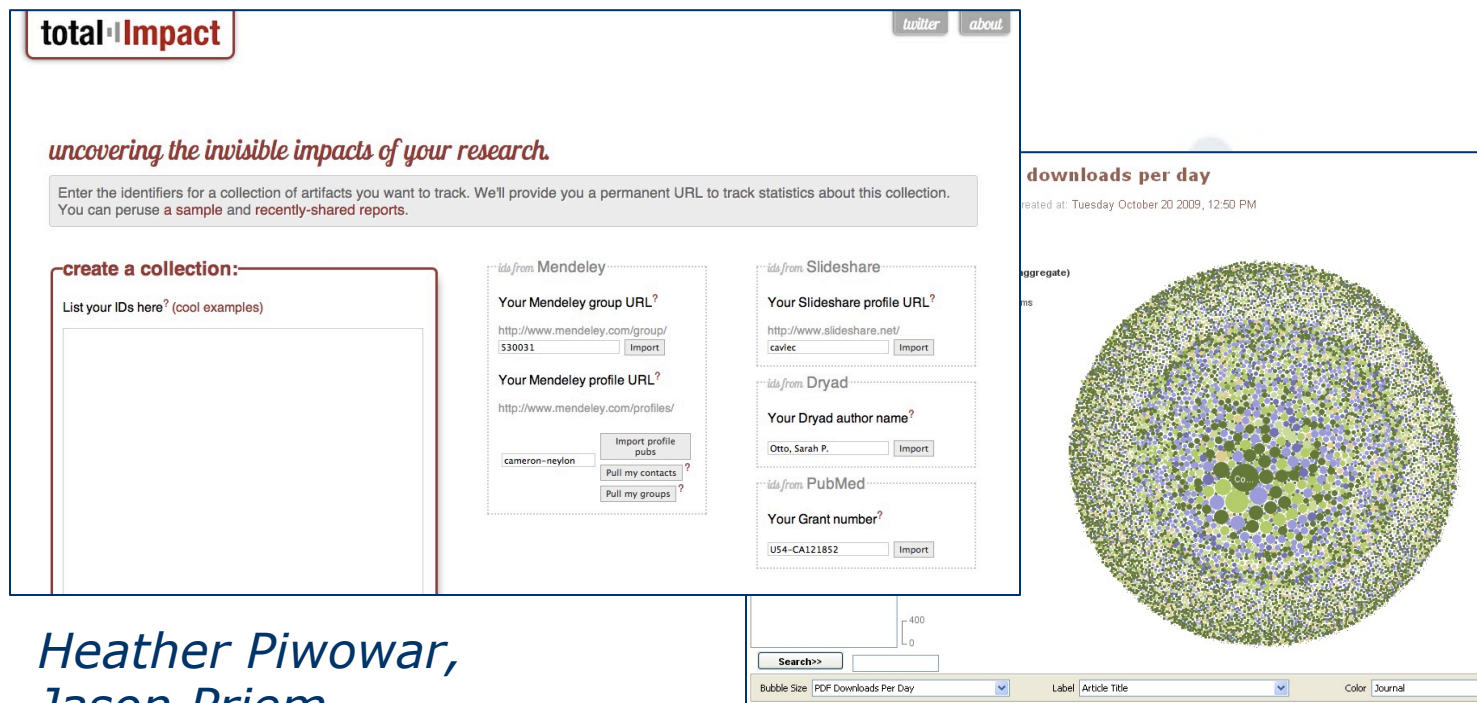
- Collect data at the research article level beyond usage and citations, measures which might provide insight into “impact” across the dissemination domains
- Present these data on the article & within search
- Develop ALM data toolset
- Provide an extensible, open platform which allows others to use the same tool, and also allows us to apply the tool to 3rd party content
- Reach out to publishers, decision makers, funding bodies, governance organizations to promote adoption of article level metrics

# New ALM Uses from the Community

With PLoS's open API, the uses of ALM data are unlimited.

## Third party re-use of the PLoS API

- Total Impact (<http://total-impact.org/sandbox/>)
- Science Card (<http://sciencecard.org/>)
- Altmetric (<http://www.altmetric.com/>)



Heather Piwowar,  
Jason Priem

Mike Chelen

**PLOS**  
impact explorer

Search for articles:

Examples:  
[speech development chimpanzees](#)  
[ocean temperature dinosaurs](#)

OR

Browse articles with mentions in the past:  
[1d](#), [3d](#), [1w](#), [1m](#), [3m](#) or [all time](#)

In these journals (all by default):

- ☐ PLoS One
- ☐ Genetics
- ☐ Computational Biology
- ☐ Pathogens
- ☐ Medicine
- ☐ Biology
- ☐ Neglected Tropical Diseases

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Buzz	Title	Saved by
132	<b>The Effect of Chromosome 9p21 Variants on Cardiovascular Disease May Be Modified by Dietary Intake: Evidence from a Case/Control and a Prospective Study</b> Amazing stuff: Genes that cause heart disease are modified by good diet (fruit and vegs), lowering risk. Risco genético de doença cardíaca pode ser modificado pela dieta. Sonia Anand of McMaster U re study re effects of eating fruits/veggies for ppl w/ certain cancer-influencing genes Genetic risk for cardiovascular disease may be modified by diet	1
98	<b>Smart Phone, Smart Science: How the Use of Smartphones Can Revolutionize Research in Cognitive Science</b> How smartphones can revolutionize cognitive science research Could smart phones revolutionize cognitive science? New research explains how. How the Use of Smartphones Can Revolutionize Research in Cognitive Science (sound like a typical journal club paper) How the Use of Smartphones Can Revolutionize Research in Cognitive Science. #PlosOne #OpenAccess	5
91	<b>Benefit from B-Lymphocyte Depletion Using the Anti-CD20 Antibody Rituximab in Chronic Fatigue Syndrome. A Double-Blind and Placebo-Controlled Study</b> PLOS ONE Link to the full Rituximab paper in PLoSOne: #mecfs #cfs #xmrv #rituximab Here's the study on Rituximab/Rituxan in ME/CFS that shows major improvement in 67 % of patients #ME #CFS @PLOSOne #ACR2011 Patients with #MECFS need larger clinical trials with Rituximab this is very strong evidence 4 illness plshelp EXCITING NEWS: PLoS ONE reports results of Rituxin trial in 30 CFS patients. 67% rec'd durable benefit. More to come!	0

Euan Addie

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**Martin Fenner**  
Hannover, Germany  
Clinical fellow in oncology and science blogger.  
<http://blogs.plos.org/mfenner>

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**22 Articles**

**Response of renal lesions during systemic treatment with sunitinib in patients with metastatic renal cell carcinoma: a single center experience with 14 patients**  
Journal article. World Journal of Urology. 2011;29 (3):355-360  
<http://doi.org/dmf>

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**Thank you for your time and  
interest in ALMs.**

**Questions or Comments?**

**[jlin@plos.org](mailto:jlin@plos.org)**