

# Why the economics don't stack up

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## Key points:

- Scholarly communication is changing rapidly
- Available information drives patterns of usage
- Journals are not where the interesting action is
- Competition for attention is key to the future

Why can't we go on like this?

After all, we have been going on like this for decades!

It's a complicated world with many poorly understood feedback loops:

STM publishing:

- approx. 2 million articles per year
- approx. \$8 billion in revenues for publishers

but total spending on R&D is 100 times larger!

Still, pressure for change is increasing rapidly.

# Library statistics, 1996–97 academic year

	circulation	staff	acquisition	total budget
Brown	0.3M	240	\$5.0M	\$14.8M
Harvard	1.4M	1182	\$17.5M	\$70.9M
Ohio State	1.5M	423	\$8.6M	\$22.1M
Princeton	0.6M	384	\$9.2M	\$24.9M

The journal crisis is a library cost crisis more than a publisher pricing crisis!

In the meantime, online usage is increasing rapidly!

## Library of Congress electronic services

month	GB	requests (millions)
Feb 1995	14.0	1.1
Feb 1996	31.2	3.9
Feb 1997	109.4	15.1
Feb 1998	282.0	36.0
Feb 1999	535.0	48.6
Feb 2000	741.1	61.3
Feb 2001	1202.6	86.7
Feb 2002	2043.6	138.6

*First Monday* access statistics

month	hosts	articles	MB
Feb 1999	16,780	63,722	1,607
Feb 2000	22,839	122,983	2,995
Feb 2001	48,478	210,269	5,938
Feb 2002	58,309	299,273	8,913

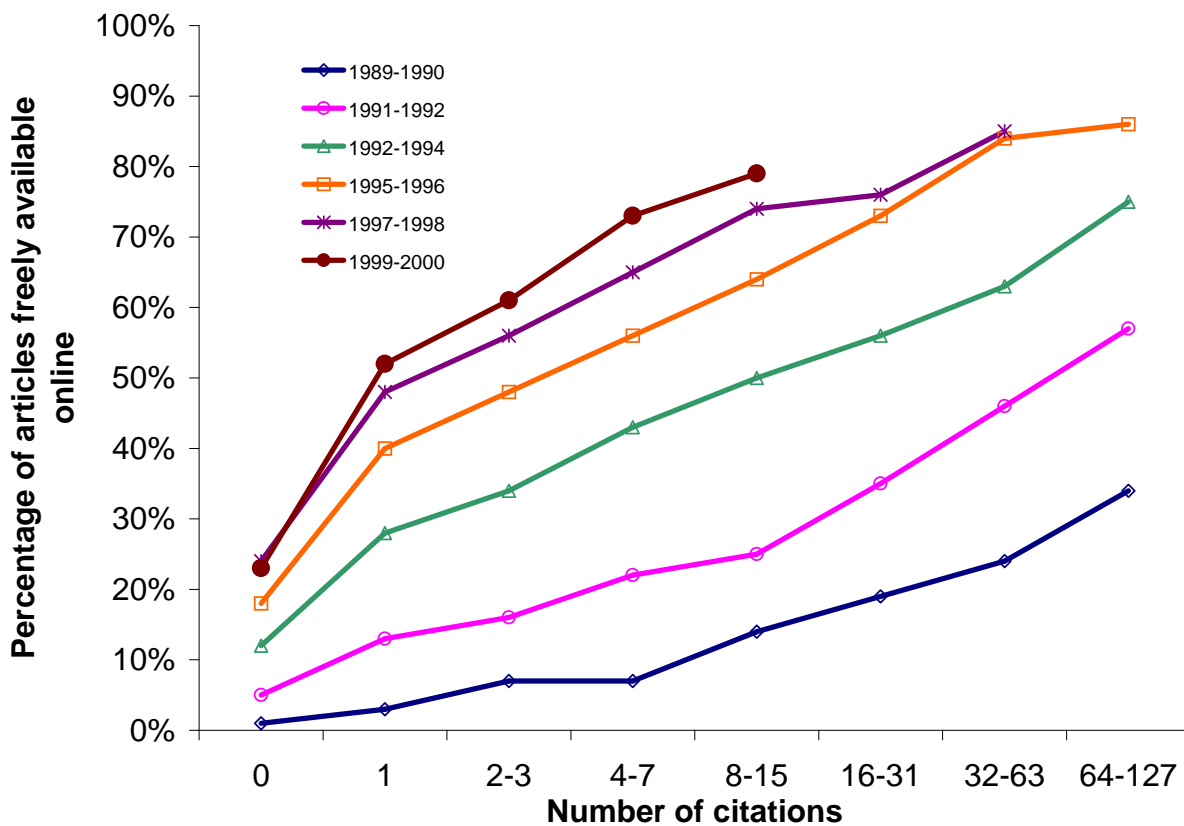
even small barriers reduce usage

easy Web access reduces barriers, and stimulates usage

AO, “Tragic loss or good riddance: The impending demise of traditional scholarly journals,” 1994: predicted that pay-per-view in scholarly communication doomed to fail because of the deterrent effects of usage charges

[Elsevier’s] goal is to give people access to as much information as possible on a flat fee, unlimited use basis. [Elsevier’s] experience has been that as soon as the usage is metered on a per-article basis, there is an inhibition on use or a concern about exceeding some budget allocation.

K. Hunter of Elsevier, 2000



S. Lawrence, [www.nature.com/nature/debates/e-access/](http://www.nature.com/nature/debates/e-access/)

and (extended version) at

[www.neci.nec.com/~lawrence/papers/online-nature01/](http://www.neci.nec.com/~lawrence/papers/online-nature01/)

online articles are cited 4.5 times as often as those available exclusively in print

Such data produces strong incentives for authors to make their articles freely available. Appeals to altruism will no longer be the primary motivation!



digitization of print literature is not a huge task from financial and technical standpoint (but economics and copyrights are a different story):

total mathematical literature:

on the order of 30,000,000 pages

digitization (including some OCR, but not rekeying) costs from 20 cents to 2 dollars per page (depending on how much skilled labor is involved in the preparation of final output)

hence total costs of digitizing the literature are in the range of \$6 M to \$60 M

by comparison, all math journals have annual revenues of over \$200 M

Spending on information  
in an Information Age  
can only increase!

But where will this spending take place?

Most functions (peer review, distribution,  
preservation, ...) can migrate.



## Conclusions:

- ease of access and use is paramount
- the most interesting developments are outside the formal library/publishing format
- it's a “war for the eyeballs” in scholarly communication as well as in commerce

More details in papers at

[www.dtc.umn.edu/~odlyzko/doc/eworld.html](http://www.dtc.umn.edu/~odlyzko/doc/eworld.html)