These slides were made by
Tim Brody, Chawki Hajjem and Stevan
Harnad (Southampton University & Uiversité
du Québec à Montréal)

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them to promote open access and self-
archiving as long as their source is
acknowledged.

The Research-Impact Cycle

Open access to research output

maximizes

research *access*

maximizing (and accelerating)

research *impact*

(hence also research *productivity*

and research *progress*

and their *rewards*)
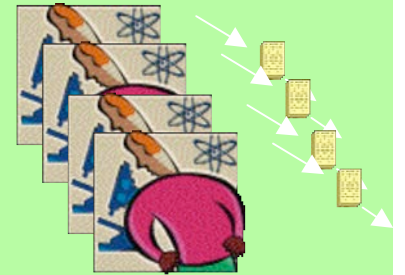
Limited Access: Limited Research Impact
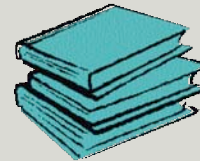
12-18 Months

Impact cycle begins: Research is done

Researchers write pre-refereeing "Pre-Print"

Submitted to Journal

Pre-Print reviewed by Peer Experts – "Peer-Review"

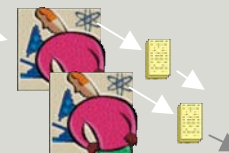Pre-Print revised by article's Authors

Refereed "Post-Print" Accepted, Certified, Published by Journal

Researchers can access the Post-Print if their university has a subscription to the Journal

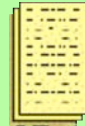**New impact cycles:** New research builds on existing research

Maximized Research Access and Impact Through Self-Archiving

12-18 Months

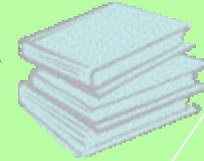**Impact cycle begins:**
Research is done

Researchers write pre-refereeing "Pre-Print"

Submitted to Journal

Pre-Print is self-archived in University's Eprint Archive

Pre-Print reviewed by Peer Experts – "Peer-Review"

Pre-Print revised by article's Authors

Post-Print is self-archived in University's Eprint Archive

Refereed "Post-Print" Accepted, Certified, Published by Journal

Researchers can access the Post-Print if their university has a subscription to the Journal

New impact cycles: Self-archived research impact is greater (and faster) because access is maximized (and accelerated)
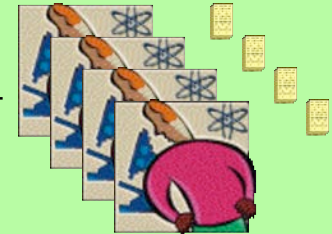
New impact cycles: New research builds on existing research

Open Access: Why?

To maximise:

research visibility

research usage

research uptake

research impact

research progress

By maximising:

research access

"*Online or Invisible*?" (Lawrence 2001)
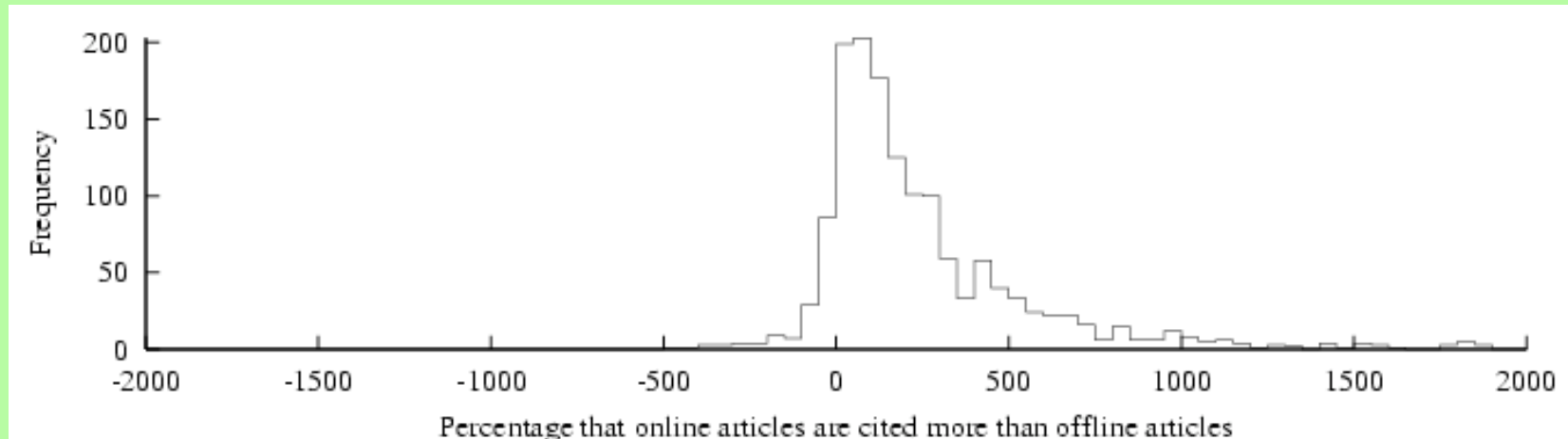
"**average of 336% more citations** to online articles compared to offline articles published in the same venue"

Lawrence, S. (2001) Free online availability substantially increases a paper's impact Nature 411 (6837): 521.

http://www.neci.nec.com/~lawrence/papers/online-nature01/

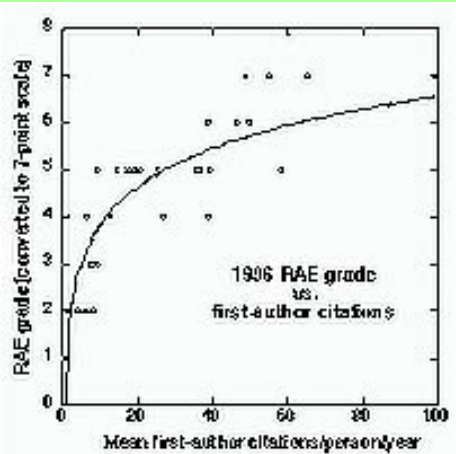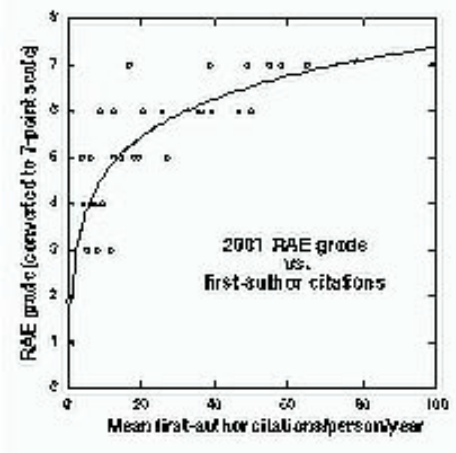# Research Assessment, Research Funding, and Citation Impact

"Correlation between RAE ratings and mean departmental citations +0.91 (1996) +0.86 (2001) (Psychology)"

"RAE and citation counting measure broadly the same thing"

"Citation counting is both more cost-effective and more transparent"

(Eysenck & Smith 2002)

http://psyserver.pc.rhbnc.ac.uk/citations.pdf

The objective of open-access self-archiving
(and what will persuade researchers to provide it)

- **is not** to quarrel with, ruin or replace journals, publishers or peer review (**at all**)

    (_Self-archiving is a <u>supplement to</u>, not a <u>substitute for</u> journal publication; it is done for the sake of providing access to all would-be research-users worldwide whose institutions cannot afford the publisher's official version.)_

- **nor** will researchers be persuaded to self-archive for the sake of providing access to teachers - students - the general public _(and yet that will come with the territory…)_

- **nor** will researchers be persuaded to self-archive for the sake of providing access to the Developing World _(and yet that will come with the territory …)_

- **nor** will researchers be persuaded to self-archive for the sake of providing access to medical information for tax-payers _(and yet that will come with the territory …)_

- **nor** will researchers be persuaded to self-archive for the sake of making all knowledge/information free _(and yet <u>some</u> of that will come with the territory…)_

- **nor** will researchers be persuaded to self-archive for the sake of relieving the budgetary problems of libraries _(and yet <u>some relief</u> for access needs that exceed the budget will come with the territory…)_

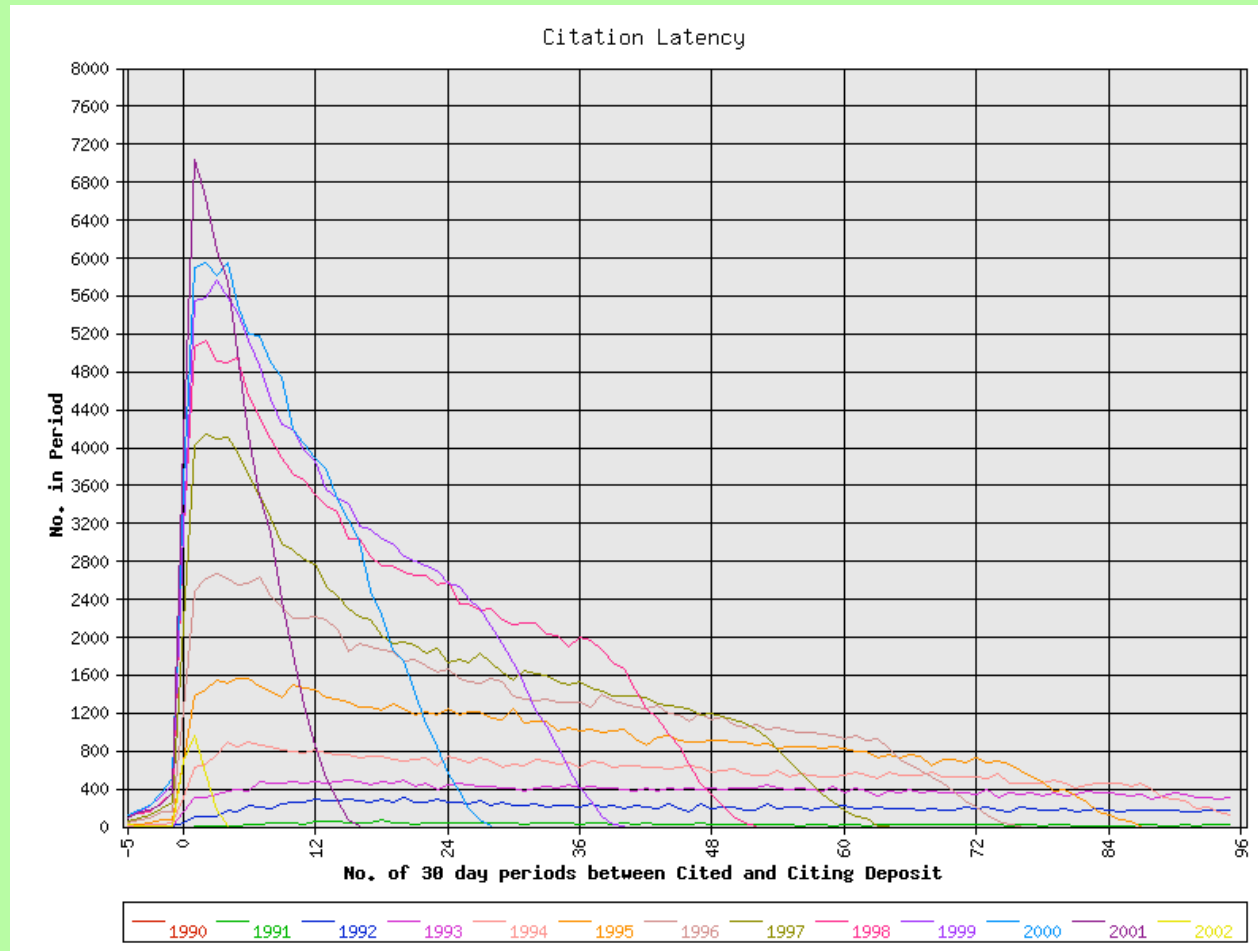# The objective of open-access is:

to maximize research
<u>impact</u>
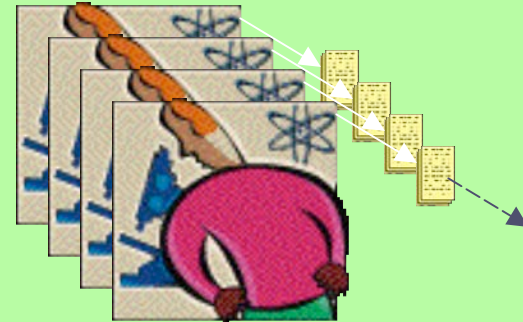
by maximizing research
<u>access</u>

Changing Citation Behaviour

The peak latency between a paper being deposited and then cited has reduced over the lifetime of arXiv.org: This means that papers are being read and cited sooner, both as preprints and as postprints.

Time-Course and cycle of Citations (red) and Usage (hits, green)

Witten, Edward (1998) String Theory and Noncommutative Geometry *Adv. Theor. Math. Phys.* 2 : 253
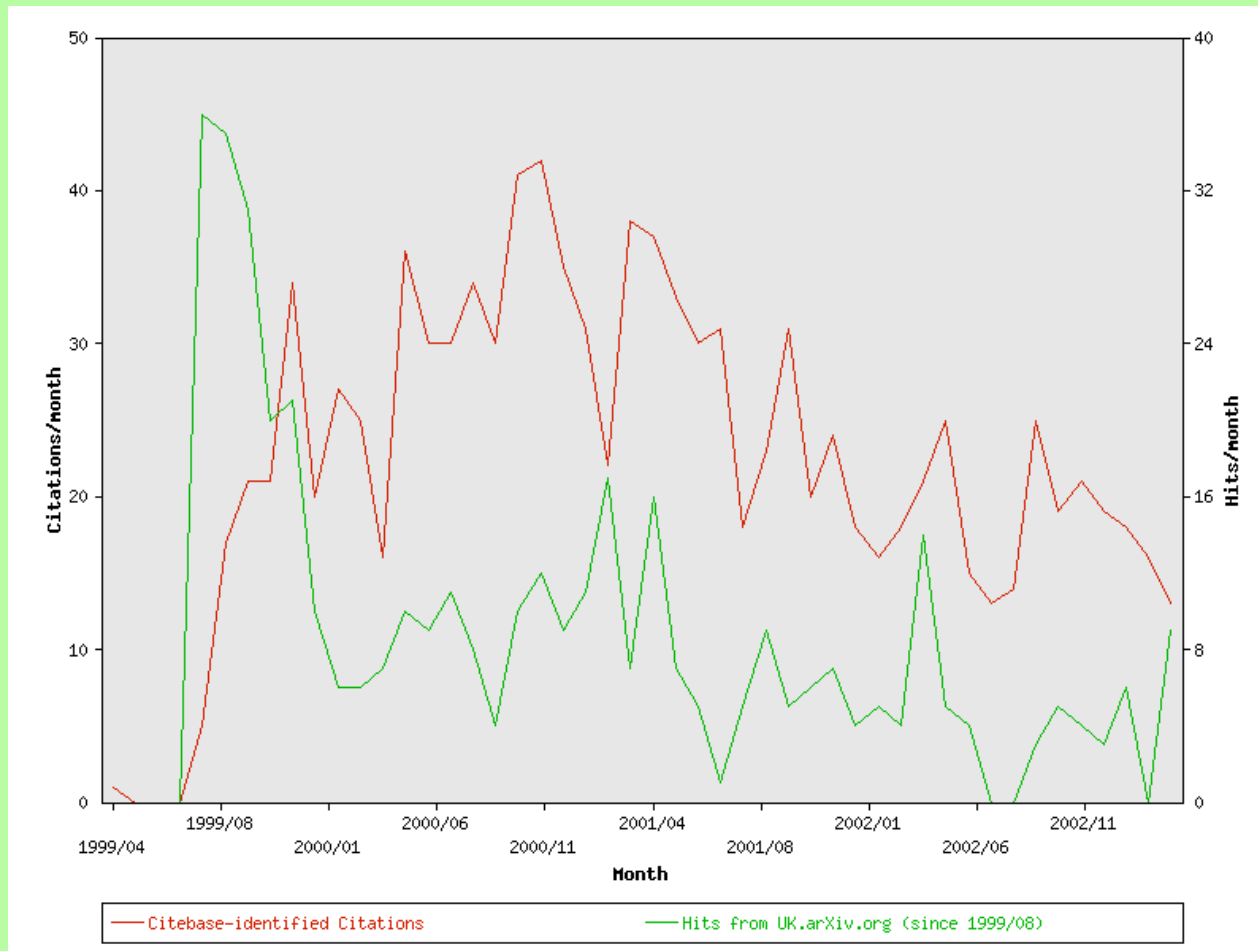
1. Preprint or Postprint appears.
2. It is downloaded (and sometimes read).
3. Next, citations may follow (for more important papers)…
4. This generates more downloads…
5. More citations...

Citation Histogram (papers deposited in 2000 only)

No. of Articles (Base 10 logarithm) vs No. of Citations (425 articles with more than 200 citations)
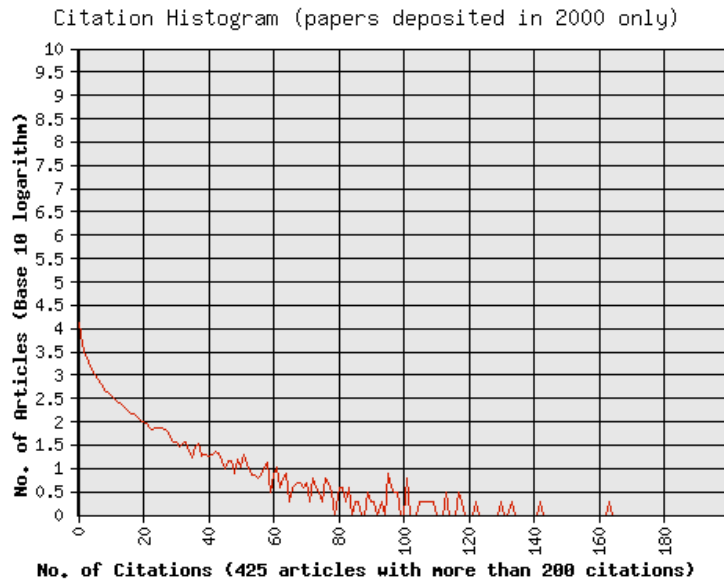
Most papers are not cited at all

Hits Histogram (papers deposited in 2000 only)
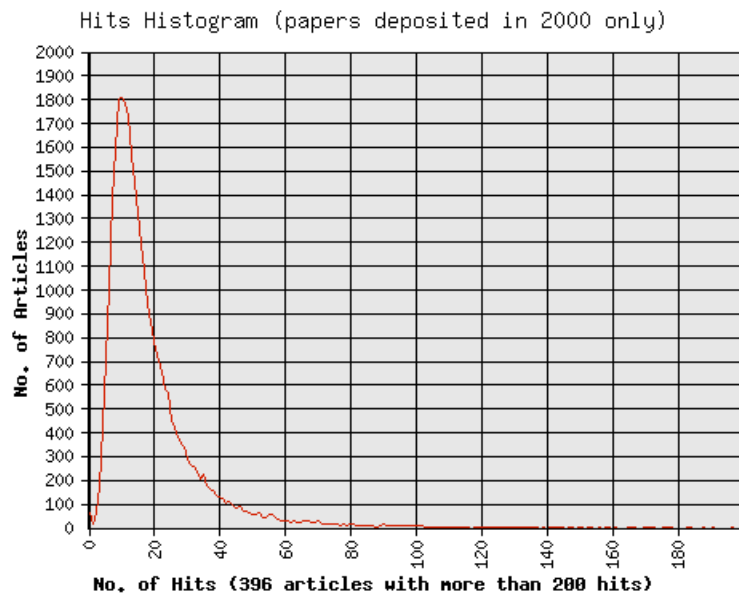
No. of Articles vs No. of Hits (396 articles with more than 200 hits)

Average UK downloads per paper: 10
(UK site only: 18 mirror sites in all)

Usage Impact (downloads)
is correlated with Citation Impact
(Physics ArXiv: **hep**, astro, cond, quantum; math, comp)
http://citebase.eprints.org/analysis/correlation.php

downloads from first 6 months after publication
predict citations 2 years after publicattion

(Quartiles Q1 (lo) - Q4 (hi))

All   ***r=.27***, *n=219328*
Q1 (lo)   r=.26, n=54832
Q2   r=.18, n=54832
Q3   r=.28, n=54832
Q4 (hi)   r=.34, n=54832

hep   ***r=.33***, *n=74020*
Q1 (lo)   r=.23, n=18505
Q2   r=.23, n=18505
Q3   r=.30, n=18505
Q4 (hi)   r=.50, n=18505

(correlation is highest for high-
      citation papers/authors)

Open Access: What?

Free,
Immediate
Permanent
Full-Text
On-Line
Access

Open Access: How?

Deposit all institutional research article output

In institutional OAI-compliant repositories

Open Access: How Not:

Archives without an institutional self-archiving policy

(near empty, in some cases for several years)
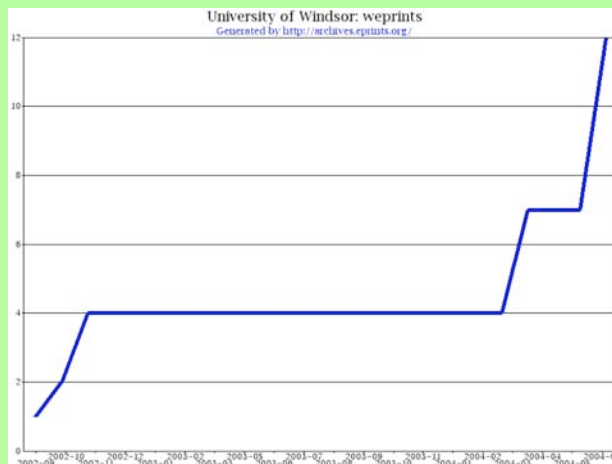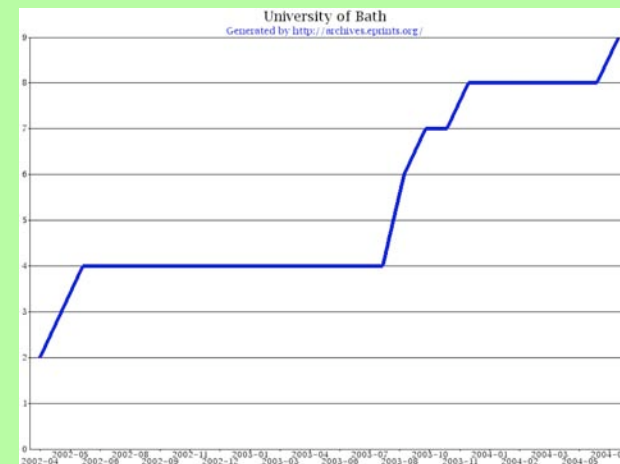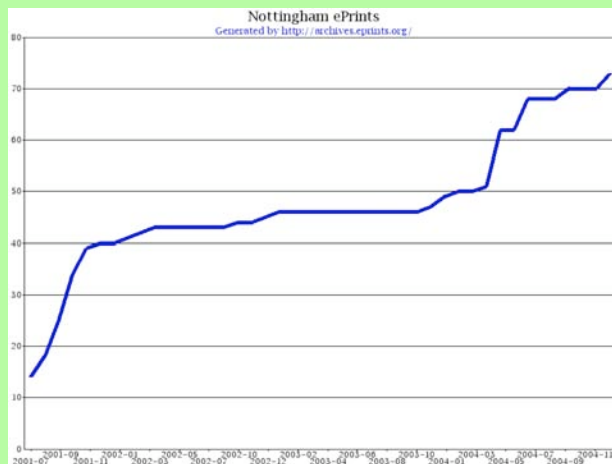
Open Access: How:

Two archives with an institutional self-archiving policy
Southampton Department of Electronic and Computer Science (since 2002) and Southampton University (since 2004)
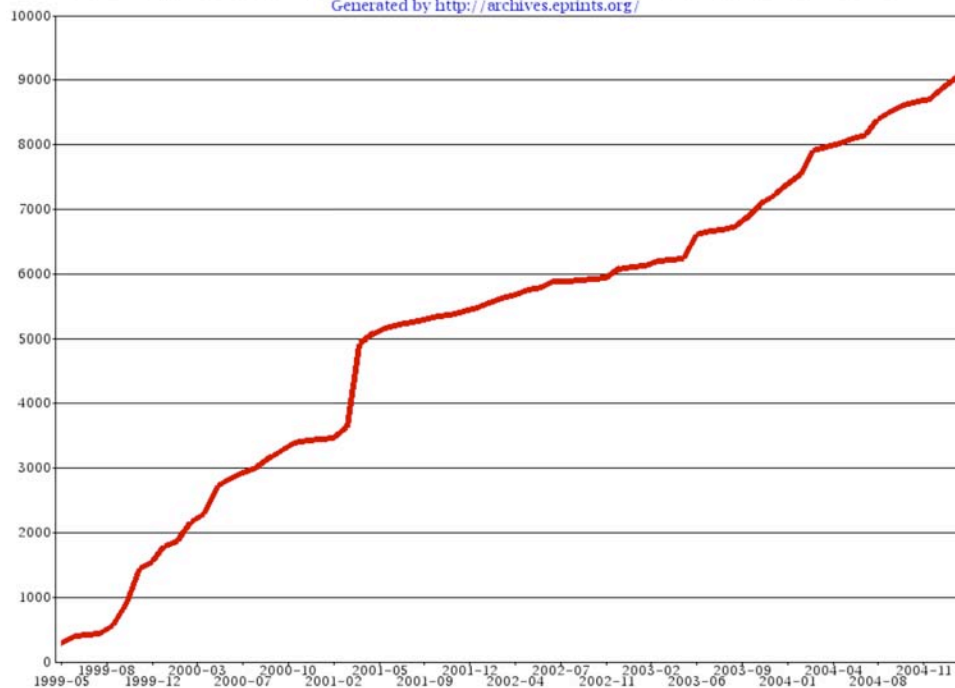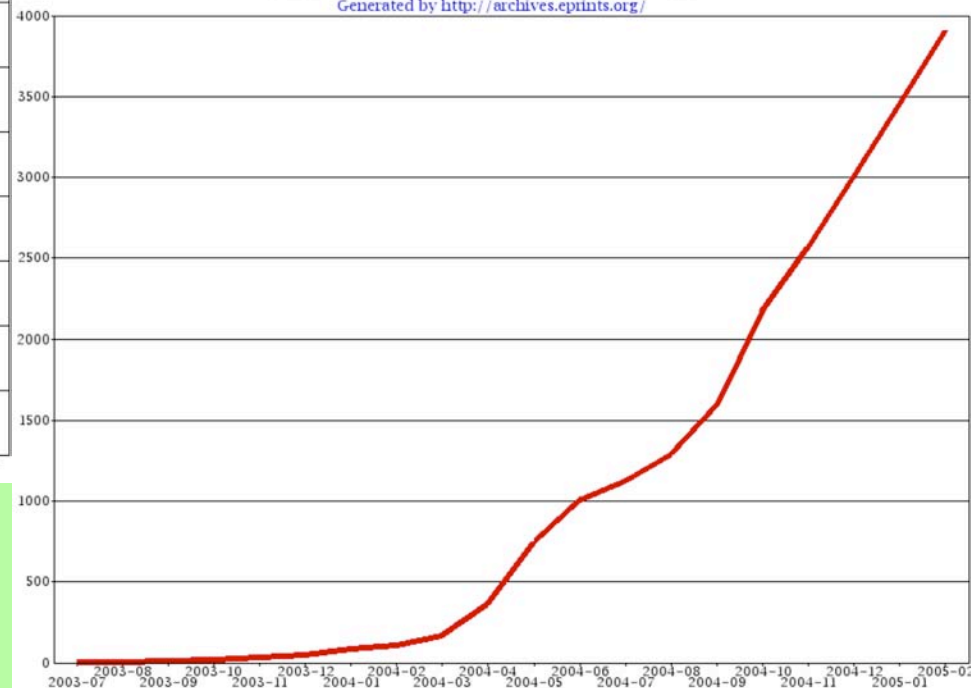
More archives with institutional self-archiving policies:
Max-Planck Institute (Edoc) (Germany), Physics ArXiv (USA),
University of Amsterdam (Netherlands), Lund University (Sweden)
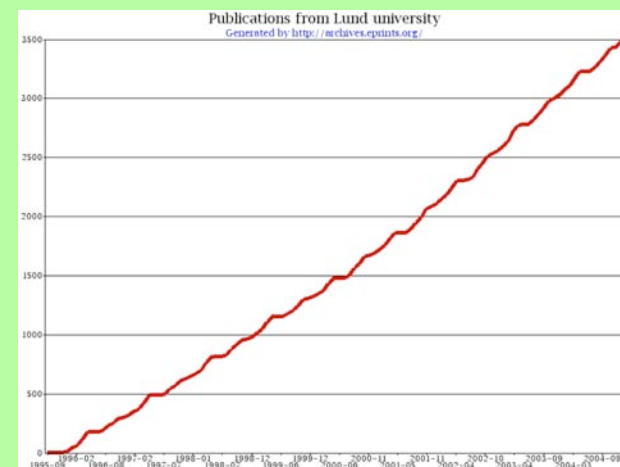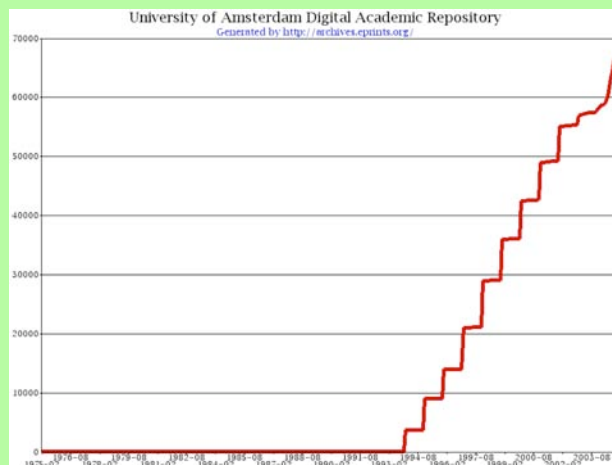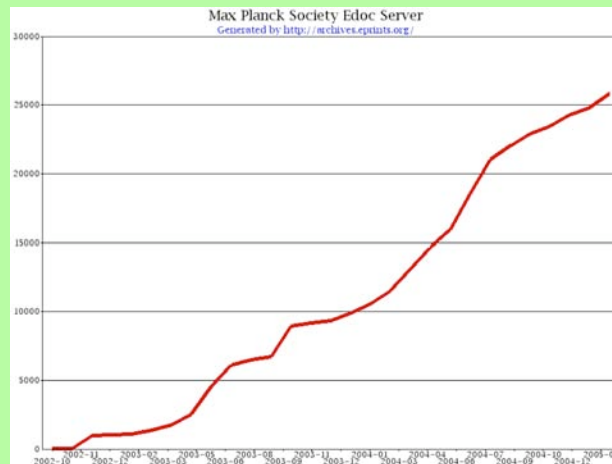
For at least 10 years now, <u>keystrokes</u> have been the only barrier to 100% Open Access

Hence what is now needed is an institutional keystroke policy.

The Southampton Bureaucratic "Keystroke" Policy:

The keystrokes for depositing the metadata and full text of all Southampton research article output need to be performed (not necessarily by you)

For institutional record-keeping and performance evaluation purposes

Otherwise your research productivity is invisible to the university (and RAE) bureaucracy

Southampton Bureaucratic "Keystroke" Policy: The Nth (OA) Keystroke

The metadata and full-text need merely be **deposited**, for the bureaucratic functions (for record-keeping and performance evaluation purposes)

The Nth (OA) Keystroke is strongly encouraged (for both preprints and postprints) but it is **up to you**.

Journal Policy Chart

79.18%	7087	GREEN journals
13.24%	1185	PALE-GREEN journals
7.58%	678	GRAY journals
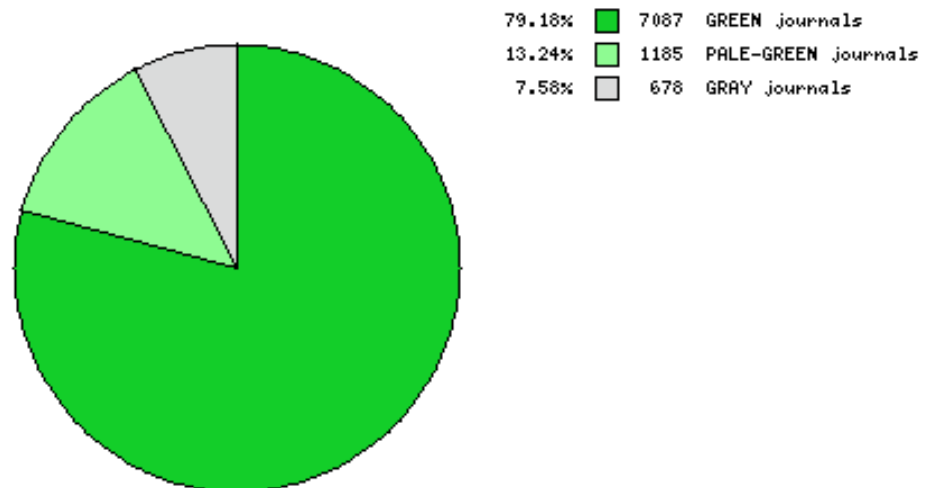
Current Journal Tally: 92% of journals have already given their official green light to self archiving

FULL-GREEN = Postprint 79%
PALE-GREEN = Preprint 13%
GRAY = neither yet 8%

Publishers to date: 110
Journals processed so far: 8950
http://romeo.eprints.org/stats.php

Journal Policy Chart

79.18%	7087	GREEN journals
13.24%	1185	PALE-GREEN journals
7.58%	678	GRAY journals

Publisher Policy Chart

64.55%	71	GREEN publishers
6.36%	7	PALE-GREEN publishers
29.09%	32	GRAY publishers
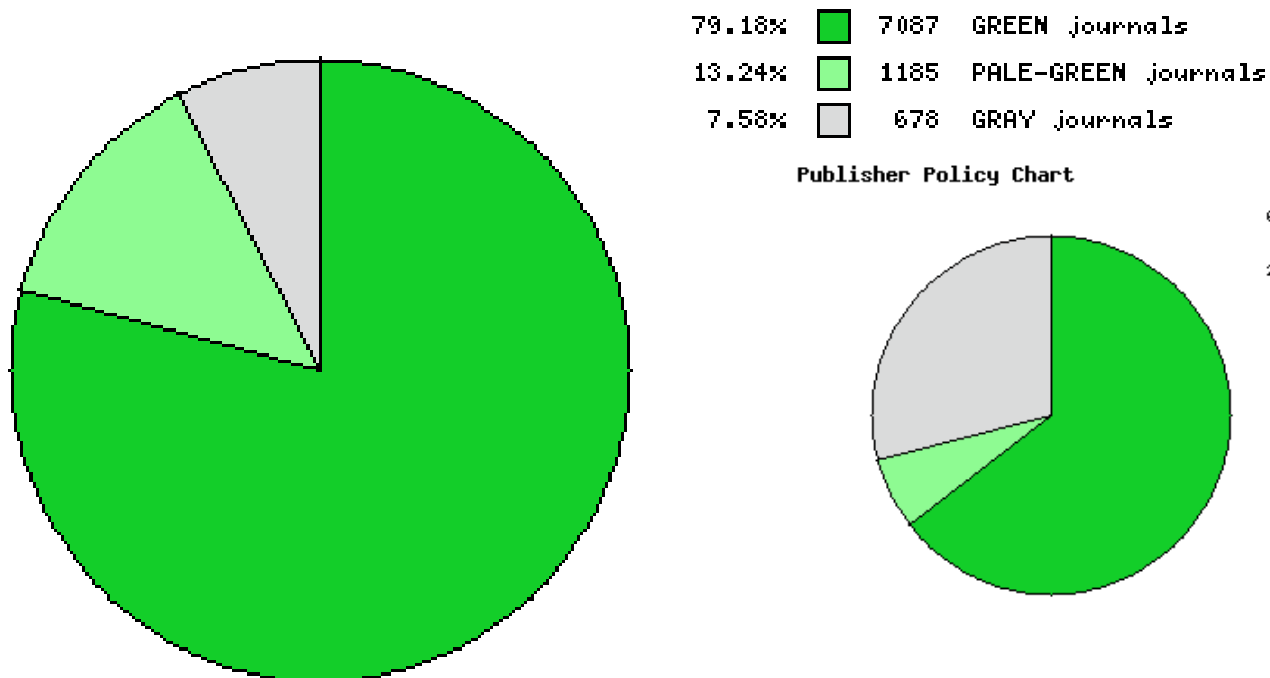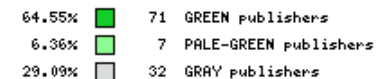
What is needed for open access now:

1. *Universities*: Adopt a university-wide policy of making all university research output open access (via either the gold or green strategy)

2. *Departments*: Create and fill departmental OAI-compliant open-access archives

3. *University Libraries*: Provide digital library support for research self-archiving and open-access archive-maintenance. Redirect 1/3 of any eventual toll-savings to cover open-access journal peer-review service charges

4. *Promotion Committees*: Require a standardized online CV from all candidates, with refereed publications all linked to their full-texts in the open-access journal archives and/or departmental open-access archives

5. *Research Funders*: *Mandate open access for all funded research* (via either the gold or green strategy). Fund (fixed, fair) open-access journal peer-review service charges. Assess research and researcher impact online (from the online CVs).

6. Publishers: Become either gold or green.

Institutional Archives Registry: (395 Archives, most near empty!)

http://archives.eprints.org/eprints.php

Archive Type
* Research Institutional or Departmental (199)
* Research Cross-Institution (53)
* e-Theses (55)
* e-Journal/Publication (33)
* Database (8)
* Demonstration (39)
* Other (38)

Software
* GNU EPrints v1 & v2 165)
* DSpace (78)
* CDSWare (9)
* ARNO (2)
* DiVA (1)
* other (various) (188)

Country
1 United States (129)
2 United Kingdom (55)
3 Germany (38)
4 Canada (28)
5 France (19)
6 Sweden (17)
7 Australia (16)
7 Netherlands (16)
8 Brazil (14)
9 Italy (13)
10 India (6)
* Japan 4)
* Spain (4)
* Hungary (4)
* China (4)
* Finland (4)
* Belgium (4)
* Denmark (4)

* Colombia (3)
* Mexico (3)
* Austria (3)
* Portugal (3)
* South Africa (3)
* Chile (2)
* Switzerland (2)
* Ireland (2)
* Singapore (2)
* Norway (2)
* Russia (1)
* Turkey (1)
* Argentina (1)
* Greece (1)
* Israel (1)
* Slovenia (1)
* Croatia (1)
* Namibia (1)
* Peru (1)
* Taiwan (1)

Growth of Institutional Archives and Contents
Generated by http://archives.eprints.org/
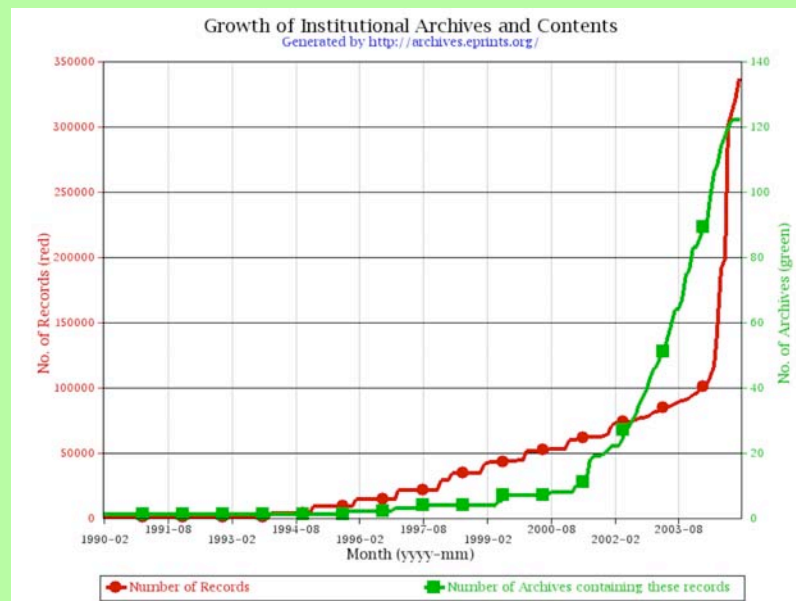
The optimal open-access strategy today: open-access publishing (5%) http://www.doaj.org/ plus open-access self-archiving (95%):

Open access is possible today for 5% of articles by publishing them in open access journals, and for at least 83% (but probably closer to 95%) of the rest by self-archiving them.

The optimal dual strategy is hence to
(1) publish your article in an open-access journal if a suitable one exists and otherwise:
(2) publish your article in a toll-access journal and also self-archive it in your institutional open-access eprint archive.

Proportion of
Toll-Access vs. Open-Access
Journals Today

1000

☐ Toll Access Journals (Ulrichs)
☐ Open Access Journals

23,500

Proportion of Toll-Access vs. Open-Access
Articles Today

Citeseer
(estimate)

Oaster
(estimate)

Open Access
Journal Articles
(estimate)

Total Toll-
Access Articles

Romeo "Green/Gold" versus "GRAY"
Journals

☐ Journals already supporting self-archiving (gold)
☐ Journals already supporting self-archiving (blue/green)
☐ Journals not yet supporting self-archiving (white)

5%

45%

50%

The 100% Solution for providing
immediate Open Access Today

☐ Open Access Journals
☐ Self-Archiving

Quo usque tandem patientia nostra...?

How long will we go on letting our cumulative daily/monthly/yearly research-impact losses grow, now that the online medium has at last made this all preventable?

What we stand to gain once we provide Open Access
(assuming minimal 50% OA Advantage)

Lost Open-Access Impact 33%

Today's Toll-Access Inpact 67%
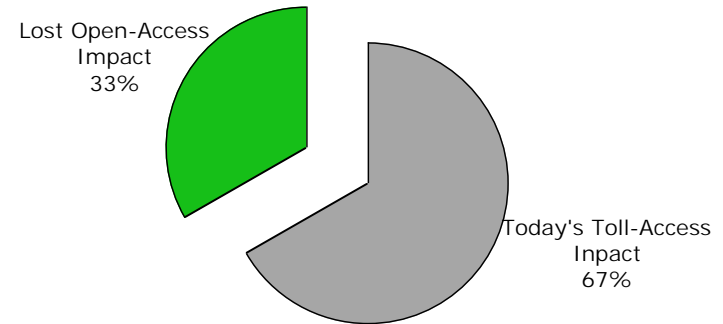
Our cumulative yearly/monthly/daily impact losses as long as we keep delaying Open Access (assuming even only a minimal 50% OA advantage)

1990/ 1992/ 1994/ 1995/ 1997/ 1999/ 2001/ 2003/ 2005/

year or month or day

- open-access impact
- toll-access impact
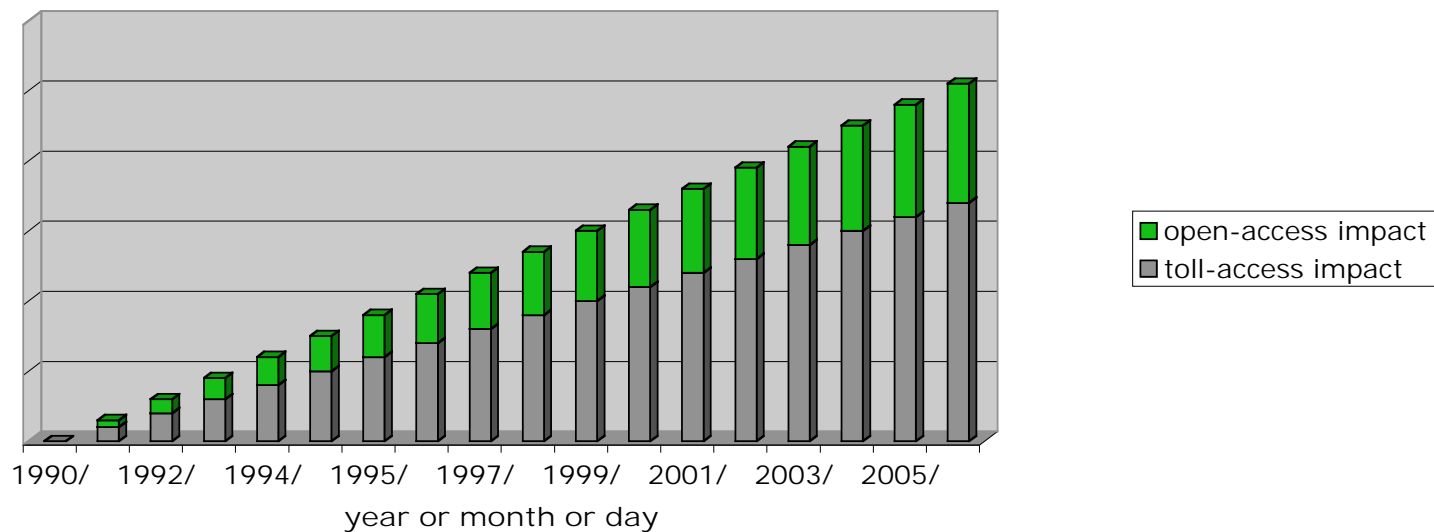
The two open-access strategies:
Gold and Green

Open-Access Publishing (OApub) (BOAI-2)

1. Create or Convert 23,000 open-access journals (1000 exist currently)
2. Find funding support for open-access publication costs ($500-$1500+)
3. Persuade the authors of the annual 2,500,000 articles to publish in new open-access journals <u>instead</u> of the existing toll-access journals

Open-Access Self-Archiving (OAarch) (BOAI-1)

1. Persuade the authors of the annual 2,500,000 articles they publish in the existing toll-access journals to <u>also</u> self-archive them in their institutional open-access archives.
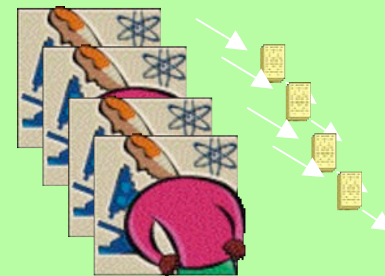
Dual Open-Access Strategy

GREEN (95%):
Publish your article in the toll-access journal of your choice (currently 23,500, >95%)
http://romeo.eprints.org/stats.php

OR

GOLD (5%):
Publish your article in an open-access journal if/when a suitable one exists (currently 1500, <5%)
http://www.doaj.org/

and

deposit all your articles
-- GREEN and GOLD --
in your own institutional repository

http://www.publications.parliament.uk/pa/cm200304/cmselect/cmsctech/399/39903.htm

To Maximize Research Impact:

Research Funders:

1. **Mandate open access provision for all funded research via the gold or green strategies**

2. (Help cover open-access journal charges)

Research Institutions:

1. **Mandate open access provision for all research output via the gold or green strategies**

2. (Libraries redirect 1/3 of any eventual toll-cancellation windfall savings toward funding open-access journal charges)

Outcomes:

1. Authors either find an open-access (gold) journal or a green journal to publish in.

2. Gray publishers will turn green.

3. Eventually green publishers might turn gold, but in the meanwhile:

4. Open-access itself increases to 100%.

5. *Eventually toll-cancellation savings might increase to 100%*

6. *If so, then 1/3 of the growing institutional windfall toll-cancellation savings can pay for all institutional gold journal publication charges (peer review)*

Berlin Declaration on
Open Access to Knowledge in the Sciences and Humanities

http://www.zim.mpg.de/openaccess-berlin/berlindeclaration.html

Here are its pertinent passages, distilling the essence
[while flagging the points that are still too vague/ambiguous
for a practical, concrete implementation]

"Open access [means]:

"1. free... [online, full-text] access *[to what?]*

"2. A complete version of the [open-access] work *[= what?]* ... is deposited... in at least one online repository... to enable open access, unrestricted distribution, [OAI-] interoperability, and long-term archiving.

"[W]e intend to... encourag[e]… our researchers/grant recipients to *publish [?]* their *work [?]* according to the *principles [?]...* of the open access *paradigm [?]* ."

Berlin Declaration
on
Open Access to Knowledge in the Sciences and Humanities

http://www.zim.mpg.de/openaccess-berlin/berlindeclaration.html

The pertinent passages (updated in green):

"Open access [means]:

"1. **immediate** free... [online, full-text] access *to published research articles*

"2. A complete version of *every search article*... is deposited...

in at least one online repository... to enable open access, unrestricted
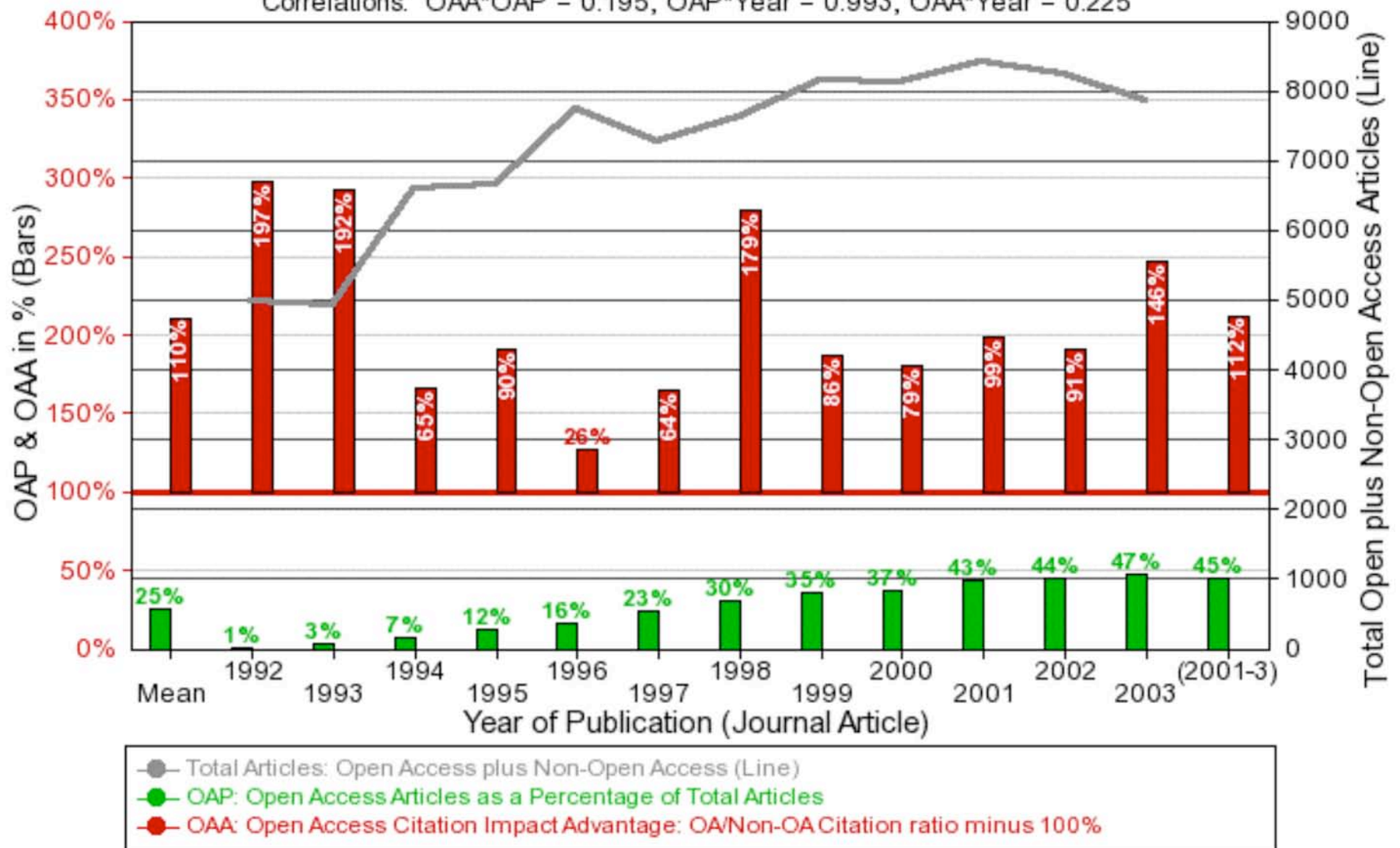distribution, [OAI] interoperability, and long-term archiving.

"[W]e intend to... **(1) require**... our researchers/grant recipients to
*self-archive all their research articles in our own institutional repository
and to (2) encourage them to make them*... open access."

Citation impact for articles in the same journal and year are consistently higher for articles that have been self-archived by their authors. (Below is a comparison for Astronomy articles that are and are not in ArXiv.)
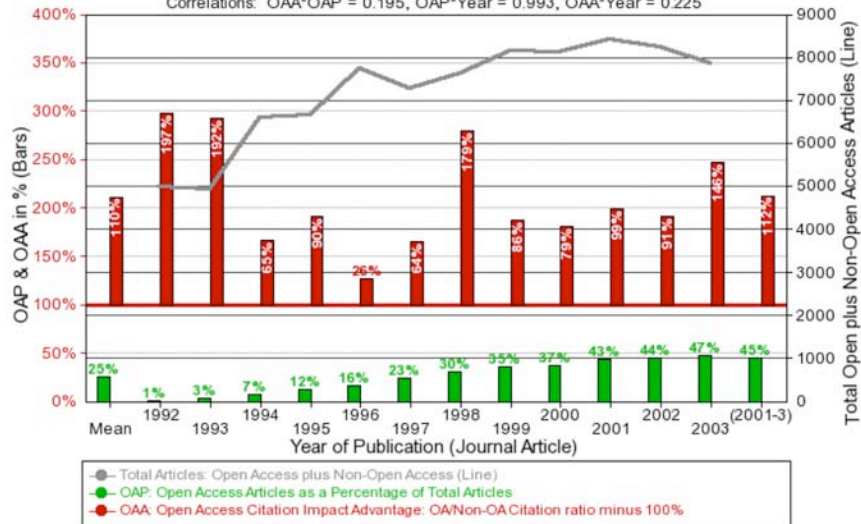

OA vs. Non-OA Citation Impact Advantage (Astronomy & Astrophysics)

On average 20.1 journals/year (incl. self-citations) - Fri Aug 20 20:37:18 2004

Correlations: OAA*OAP = 0.195, OAP*Year = 0.993, OAA*Year = 0.225

OAP & OAA in % (Bars)

Total Open plus Non-Open Access Articles (Line)

OAA values (red bars): 110%, 197%, 192%, 65%, 90%, 26%, 64%, 179%, 86%, 79%, 99%, 91%, 146%, 112%

OAP values (green bars): 25%, 1%, 3%, 7%, 12%, 16%, 23%, 30%, 35%, 37%, 43%, 44%, 47%, 45%

Year of Publication (Journal Article)

Mean, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, (2001-3)

— Total Articles: Open Access plus Non-Open Access (Line)
— OAP: Open Access Articles as a Percentage of Total Articles
— OAA: Open Access Citation Impact Advantage: OA/Non-OA Citation ratio minus 100%

Astrophysics

HEP/Nuclear Physics

General Physics

Chemical Physics

The citation impact advantage is found in all fields analyzed so far, including articles (self-archived in any kind of open-access website or archive) in social sciences (above right) biological sciences (below right) and all fields of Physics (self-archived in ArXiv, below). Note that the percentage of published articles that have been self-archived (green bars) varies from about 10-20%from field to field and that the size of the open-access citation impact advantage (red bars) varies from about 25% to over 300%, but it is always positive.
http://opcit.eprints.org/oacitation-biblio.html
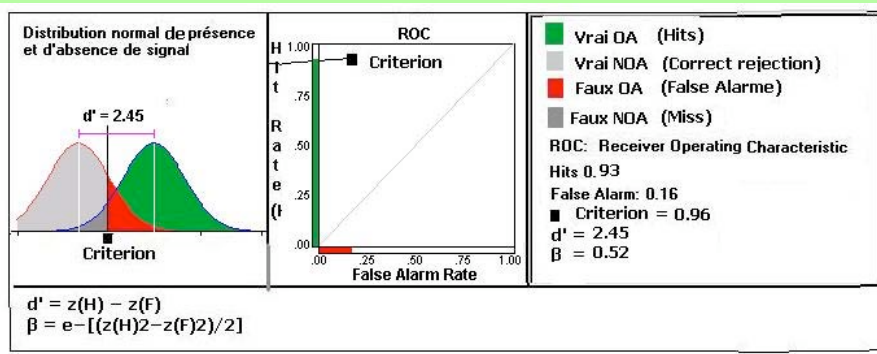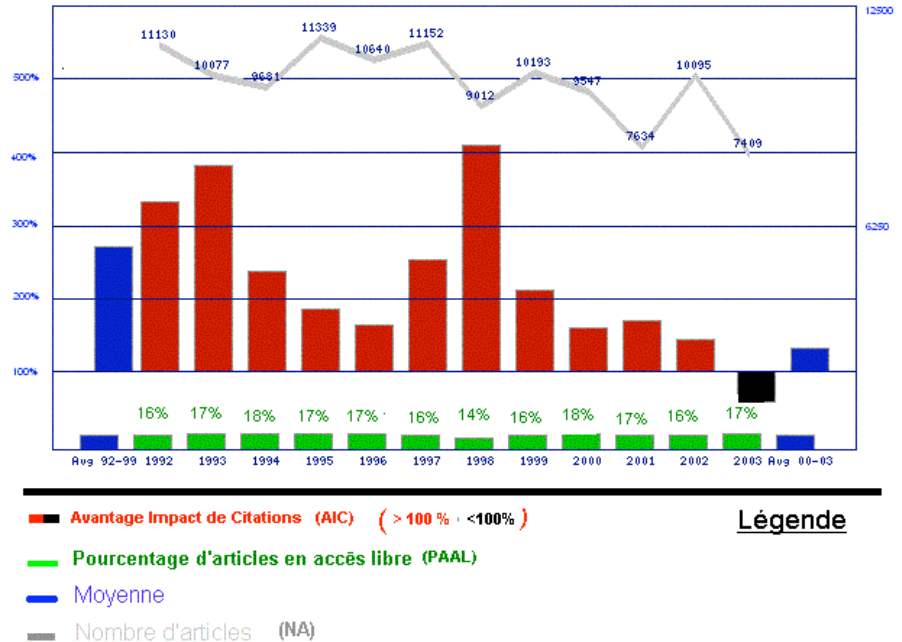
Signal detection analysis of the hit/miss rate of the algorithm that searched for full-text OA papers on the web:
    d′ = 2.45 (sensitivity)
    b = .52 (bias)

Discipline Sociologie   Corrélations: PAAL vs AIC -0.52, PAAL vs annee -0.12, AIC vs annee -0.66, PAAL vsNA 0.081, NA vs annee -0.66, AIC vsNA 0.321

Légende
- Avantage Impact de Citations (AIC) (> 100 % <100%)
- Pourcentage d'articles en accès libre (PAAL)
- Moyenne
- Nombre d'articles (NA)

Discipline Biologie   Corrélations: PAAl vs AIC -0.320, PAAL vs annee 0.074, AIC vs 0.193 PAAL vs NA 0.259, NA vs annee 0.525, AIC vs NA 0.092
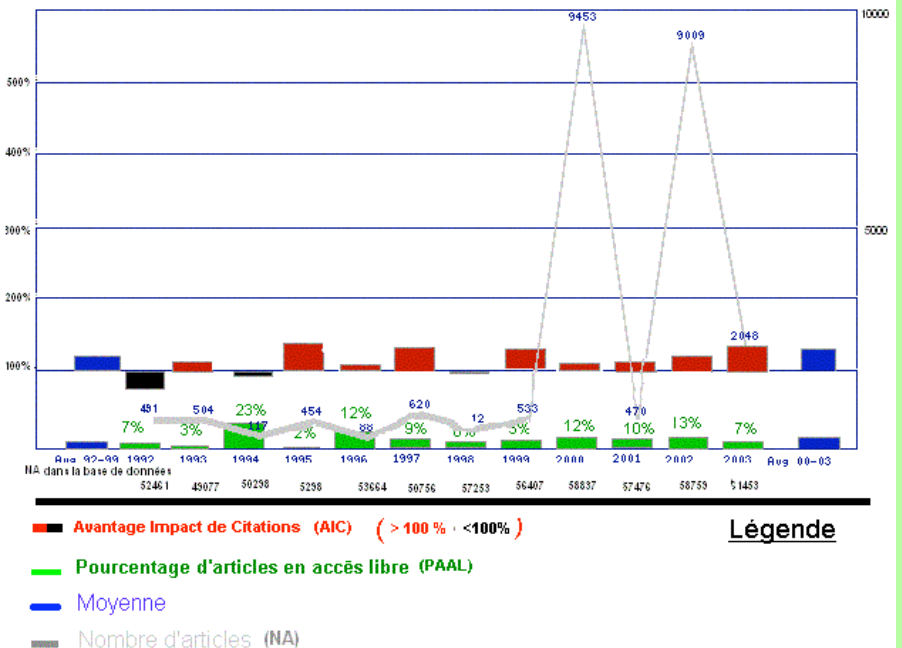
Légende
- Avantage Impact de Citations (AIC) (> 100 % <100%)
- Pourcentage d'articles en accès libre (PAAL)
- Moyenne
- Nombre d'articles (NA)

Distribution normal de présence et d'absence de signal

ROC
H 1.00   Criterion
t
R .75
a
t .50
e
(.25
.00
.00 .25 .50 .75 1.00
False Alarm Rate

- Vrai OA (Hits)
- Vrai NOA (Correct rejection)
- Faux OA (False Alarme)
- Faux NOA (Miss)
ROC: Receiver Operating Characteristic
Hits 0.93
False Alarm: 0.16
■ Criterion = 0.96
d' = 2.45
β = 0.52

$d' = 2.45$
Criterion

$d' = z(H) - z(F)$
$\beta = e-[(z(H)2-z(F)2)/2]$

UK House of Commons Science and Technology Committee Recommendation to Mandate Institutional Self-Archiving
http://www.publications.parliament.uk/pa/cm200304/cmselect/cmsctech/399/39903.htm

"This Report recommends that **all UK higher education institutions establish institutional repositories** on which their published output can be stored and from which it can be read, free of charge, online.

"It also recommends that **Research Councils and other Government Funders mandate their funded researchers to deposit a copy of all of their articles** in this way.

[The Report also recommends funding to encourage further experimentation with the "author pays" OA journal publishing model.]

US House of Representatives Appropriations Committee Recommendation that the NIH should mandate self-archiving
http://thomas.loc.gov/cgi-bin/cpquery/?&db_id=cp108&r_n=hr636.108&sel=TOC_338641&

"The Committee… recommends NIH develop a policy… **requiring that a complete electronic copy of any manuscript reporting work supported by NIH grants.. be provided _to PMC_ upon acceptance… for publication… [and made] freely and continuously available _six months after publication,_ or immediately [if]… publication costs are paid with NIH grant funds.**

(since passed by both House and Senate, then weakened by NIH to "encourage" rather than require, and within 12 months rather than 6; publication-charge rider dropped; delay/embargo period up to author; encouraged to self-archive as soon as possible)

OA advantage =
EA + AA + QB + OA + UA + SA

1. **EA: Early Advantage**: Permanent citation increment for preprint (not just phase-shift advantage in timing)

2. **AA: Arxiv Advantage**: (Physics/maths only) citation advantage for Arxiv even with 100% OA (astro, hep)

3. **QB: Quality Bias**: Higher-citation authors/papers self-archived more: self-selection bias

4. **OA: Open Access**: OA enhances citations 25%-400%+ (<u>relative advantage only</u>; disappears at 100% OA)

5. **UA: Usage Advantage**: OA enhances downloads 300%+ (<u>absolute advantage</u>; persists at 100%OA)

6. **SA: Selectivity Advantage**: At 100% OA, researchers do not cite more, but can use and cite the best and most relevant work (not just what their institutions can afford to access)

Open Access: To What?

2.5 million annual research articles

In 24,000
peer-reviewed
journals (conferences)

Open Access: To What?

ESSENTIAL:

to all 2.5 million annual research articles

published in all 24,000 peer-reviewed journals (or conferences) in all scholarly and scientific disciplines, worldwide

OPTIONAL:
(because these are not all author give-aways, written only for usage and impact)

1. Books
2. Textbooks
3. Magazine articles
4. Newspaper articles
5. Music
6. Video
7. Software
8. "Knowledge"

(or because author's choice to self-archive can only be encouraged, not required in all cases):

9. Data
10. Unrefereed Preprints

Research Impact

I. measures the <u>size</u> of a research contribution to further research ("publish or perish")

II. generates further research <u>funding</u>

III. contributes to the research <u>productivity</u> and financial support of the researcher's institution

IV. advances the researcher's <u>career</u>

V. promotes research <u>progress</u>

The author/institutional self-archived version is a <u>supplement</u> to -- not a <u>substitute</u> for -- the publisher's official version

1. Link the self-archived author/institution supplement to the publisher's official website

1. Pool and credit download counts for the self-archived supplement with downloads counts for the official published version

2. (All citation counts of course accrue to the official published version)

Registry of
Institutional Open Access Provision Policies

http://www.eprints.org/signup/sign.php

Universities and research institutions who officially commit themselves to *implementing* the Berlin Declaration by adopting a systematic institutional self-archiving policy for their own peer-reviewed research output are invited to describe their policy in this Registry so that other institutions can follow their example. *Self-archive unto others as ye would have them self-archive unto you...*

Institution	OA Archive(s)	OA Policy
AUSTRALIA: Queensland Univ. Technology, Brisbane	http://eprints.qut.edu.au/	Policy
FRANCE: CNRS	http://www.cnrs.fr/	Policy
FRANCE: INRIA	http://www.inria.fr/index.en.html	Policy
FRANCE: Institut Jean Nicod, CNRS	http://jeannicod.ccsd.cnrs.fr/	Policy
FRANCE: Institut Nat. de la Rech. Agronomique	http://phy043.tours.inra.fr:8080/	Policy
GERMANY: Universitaet Hamburg	http://www.rrz.uni-hamburg.de/FZH/archiv.html	Policy
GERMANY: Institute for Science Networking Oldenburg	http://www.isn-oldenburg.de/publications.html	Policy
MULTINATIONAL: CERN	http://library.cern.ch/	Policy
UK: Southampton Univ. Electronics/Computer Science	http://eprints.ecs.soton.ac.uk/	Policy
PORTUGAL: Universidade do Minho, Portugal	https://repositorium.sdum.uminho.pt	Policy
UK University of Southampton	http://eprints.soton.ac.uk/	Policy
US: University of Kansas	http://kuscholarworks.ku.edu/	Policy

Declaration of Institutional Commitment
to implementing
the Berlin Declaration on open-access provision

Our institution hereby commits itself to adopting and implementing an official institutional policy of
   providing open access to our own peer-reviewed research output -- i.e., toll-free, full-text online
   access, for all would-be users webwide -- in accordance with the Budapest Open Access Initiative and
   the Berlin Declaration

UNIFIED OPEN-ACCESS PROVISION POLICY:

   (OAJ) Researchers publish their research in an open-access journal if a suitable one exists
otherwise
   (OAA) Researchers publish their research in a suitable toll-access journal and also self-archive it in their
   own research institution's open-access research archive.

To sign: **http://www.eprints.org/signup/sign.php**

A JISC survey (Swan & Brown 2004) "asked authors to say how they would feel **if their employer
or funding body required them** to deposit copies of their published articles in one or more…
repositories. The **vast majority**... said they **would do so willingly**."

http://www.jisc.ac.uk/uploaded_documents/JISCOAreport1.pdf

Central/Discipline-Based Self-Archiving
vs
# *Distributed Institutional/Departmental* Self-Archiving

- All OAI-compliant Archives (Central and Institutional) are <u>interoperable and functionally equivalent</u>

- <u>Researchers and their institutions</u> (but not researchers and their disciplines) <u>share a common stake</u> in their research impact

- A self-archiving <u>mandate will propagate quickly and naturally across departments and institutions</u> if archiving is institutional, not if archiving is central

- Institutions can <u>monitor compliance, measure impact, and share the distributed archiving cost</u>

- Institutional archive contents <u>can be automatically harvested into central archives</u> (metadata alone, or full-texts too)

- UK JISC report recommends distributed self-archiving and harvesting rather than central archiving

- 92% of journals have given green light to author self-archiving but many are <u>reluctant to endorse 3rd-party archiving</u> (which could sanction to free-loading rival re-publishers)

Even the fastest-growing archive, the Physics ArXiv, is still only growing
linearly (since 1991):
At that rate, it would still take a decade
before we reach the first year that all physics
papers for *that year* are openly accessible
(Ebs Hilf estimates *2050*!)
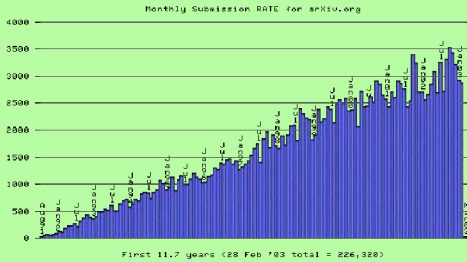
Physics ArXiv Growth (1991-2003-2020)

Number of
Self-Archivings
Per Month

Years (since 1991)

- Linear Growth
- Sigmoid Growth
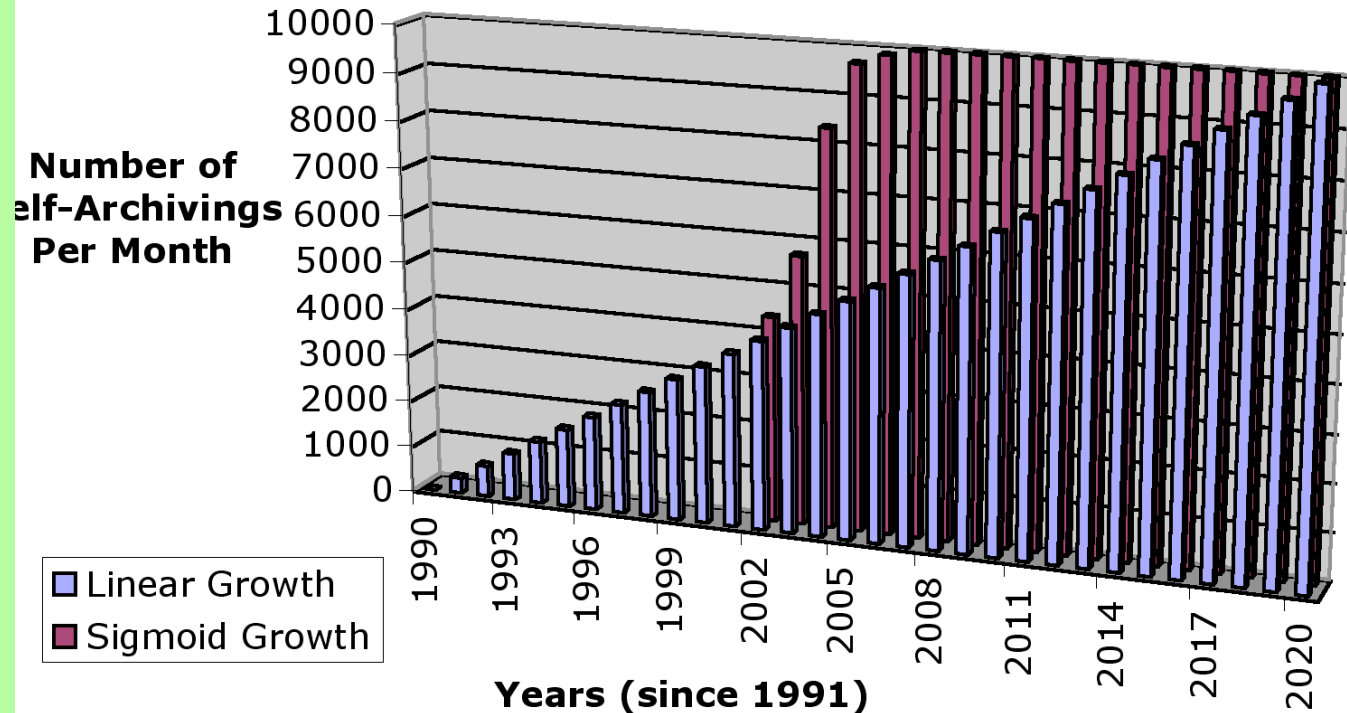
Four reasons for research impact
(shared by researcher and institution but not by researcher and discipline)

1. Contributions to Knowledge

2. Employment, Salary, Promotion, Tenure, Prizes

3. Research Funding, Resourcing

4. Institutional Overheads, Prestige (attracting teachers, students, researchers, industrial collaboration)

Don't conflate the different forms of institutional archiving:
Only the 5th is relevant here

1. Institutional digital collection management

2. Institutional digital preservation

3. Institutional digital courseware

4. Institutional digital publishing

5. **Institutional self-archiving of refereed research output**

Would-be peer review reformers, please remember:

- The pressing problem is to free peer-reviewed research access and impact from <u>tolls</u>:
- not from <u>peer review</u>!

- If you have a peer-review reform hypothesis,
- please take it elsewhere,
- and test it,
- and then let us all know how it comes out…

- Meanwhile,
- please let us free peer-reviewed research
- such as it is!

Universal Access
Through Affordable Licensing?

Open access through author/institution self-archiving is a _parallel_ self-help measure for researchers, to prevent further impact-loss now. Open access is a _supplement_ to toll-access, but not necessarily a _substitute_ for it.

One possible outcome is that the toll access and open access versions will peacefully co-exist in perpetuity, with all researchers using the toll-access versions of the research their own institutions can afford and the open-access versions of the rest. The more affordable the toll-access licenses, the less researchers will need to use the open-access versions.

Even if the growth of the open-access versions is destined eventually to reduce the demand for the toll-access versions, that is a long way off, because self-archiving proceeds gradually and anarchically, and journals cannot be cancelled while only random parts of their contents are openly accessible.

If and when open accessibility does reduce the demand for the toll-access versions, this will at the same time be creating windfall savings for institutions on their periodical budgets -- savings which will then be available to institutions to pay for peer-review service provision up-front to those journals that are ready to convert to becoming open-access journals.
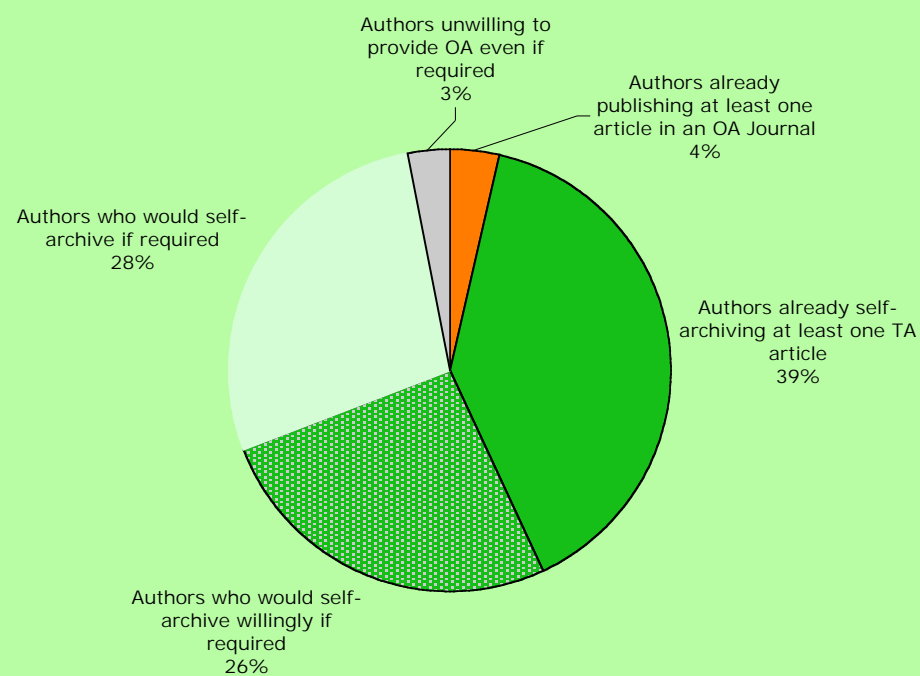
Swan & Brown (2005)
49% of authors have self-archived (at least once)
81% would self-archive <u>willingly</u> if required
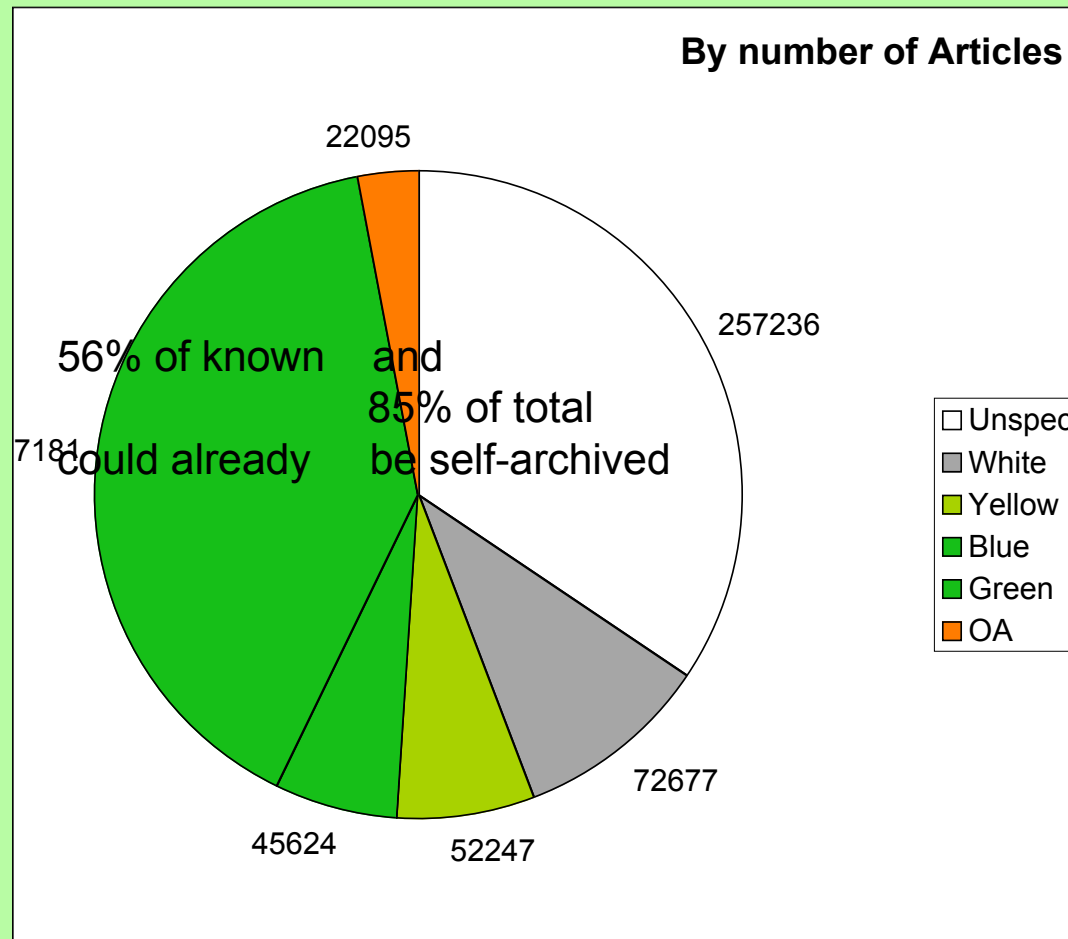### (only 15% of articles are self-archived today)

Actual and potential proportions of Open Access Arcticles

Authors unwilling to provide OA even if required
3%

Authors already publishing at least one article in an OA Journal
4%

Authors who would self-archive if required
28%

Authors already self-archiving at least one TA article
39%

Authors who would self-archive willingly if required
26%

% of ISI-indexed articles that *could have been* OA in 2003 (if their authors had acted on their publishers' green light to self-archive

http://www.isinet.com/isihome/media/presentrep/essayspdf/openaccesscitations2.pdf

By number of Articles

22095

56% of known   and
85% of total
7181 could already   be self-archived

257236

Legend:
- Unspec
- White
- Yellow
- Blue
- Green
- OA

45624

52247

72677

Publisher self-archiving policies, by article from JCR 2003 and Project Romeo listings at
http://www.sherpa.ac.uk/romeo.php

Some old and new scientometric ("publish or perish") indices of research impact
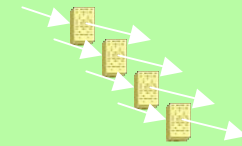
- <u>Peer-review</u> quality-level and citation-counts of the <u>journal</u> in which the article appears
- citation-counts for the <u>article</u>
- citation-counts for the <u>researcher</u>
- <u>co-citations</u>, <u>co-text</u>, "semantic web" (cited with whom/what else?)
- CiteRank/PageRank, hub/authority analysis
- citation-counts for the <u>preprint</u>
- <u>usage-measures</u> (webmetrics: downloads, co-downloads)
- <u>time-course analyses</u>, early predictors, etc. etc.

BOAI Self-Archiving FAQ http://www.eprints.org/self-faq/

What-is/why/how FAQs:

What is self-archiving?
What is the Open Archives Initiative (OAI)?
What is OAI-compliance?
What is an Eprint Archive?
How can I or my institution create an Eprint Archive?
How can an institution facilitate the filling of its Eprint Archives?
What is the purpose of self-archiving?
What is the difference between distributed and central self-archiving?
What is the difference between institutional and central Eprint Archives?
Who should self-archive?
What is an Eprint?
Why should one self-archive?
What should be self-archived?
Is self-archiving publication?
What about copyright?
What if my copyright transfer agreement explicitly forbids self-archiving?
Peer-review reform: Why bother with peer review?
Is self-archiving legal?
What if the publisher forbids preprint self-archiving?

What-to-do FAQs:

What can researcher/authors do to facilitate self-archiving?
What can researchers' institutions do to facilitate self-archiving?
What can libraries do to facilitate self-archiving?
What can research funders do to facilitate self-archiving?
What can publishers do to facilitate self-archiving?

BOAI Self-Archiving FAQ   http://www.eprints.org/self-faq/

"I-worry-about..." 32 FAQs (sub-grouped thematically)

http://www.ecs.soton.ac.uk/~harnad/intpub.html

Harnad, S. (1990) Scholarly Skywriting and the Prepublication Continuum of Scientific Inquiry. Psychological Science 1: 342 - 343 (reprinted in Current Contents 45: 9-13, November 11 1991). http://cogprints.soton.ac.uk/documents/disk0/00/00/15/81/

Harnad, S. (1994) A Subversive Proposal. In: Ann Okerson & James O'Donnell (Eds.) Scholarly Journals at the Crossroads: A Subversive Proposal for Electronic Publishing. Washington, DC., Association of Research Libraries, June 1995. http://www.arl.org/scomm/subversive/toc.html

Harnad, S. (2001) For Whom the Gate Tolls? How and Why to Free the Refereed Research Literature Online Through Author/Institution Self-Archiving, Now. http://cogprints.soton.ac.uk/documents/disk0/00/00/16/39/

Harnad, S., Carr, L., Brody, T. & Oppenheim, C. (2003) Mandated online RAE CVs Linked to University Eprint Archives: Improving the UK Research Assessment Exercise whilst making it cheaper and easier. Ariadne 35 http://www.ariadne.ac.uk/issue35 harnad/ /

Harnad, S. (2003) Electronic Preprints and Postprints. Encyclopedia of Library and Information Science Marcel Dekker, Inc.

http://www.ecs.soton.ac.uk/~harnad/Temp/eprints.htm

Harnad, S. (2003) Online Archives for Peer-Reviewed Journal Publications. International Encyclopedia of Library and Information Science. John Feather & Paul Sturges (eds). Routledge. http://www.ecs.soton.ac.uk/~harnad/Temp/archives.htm
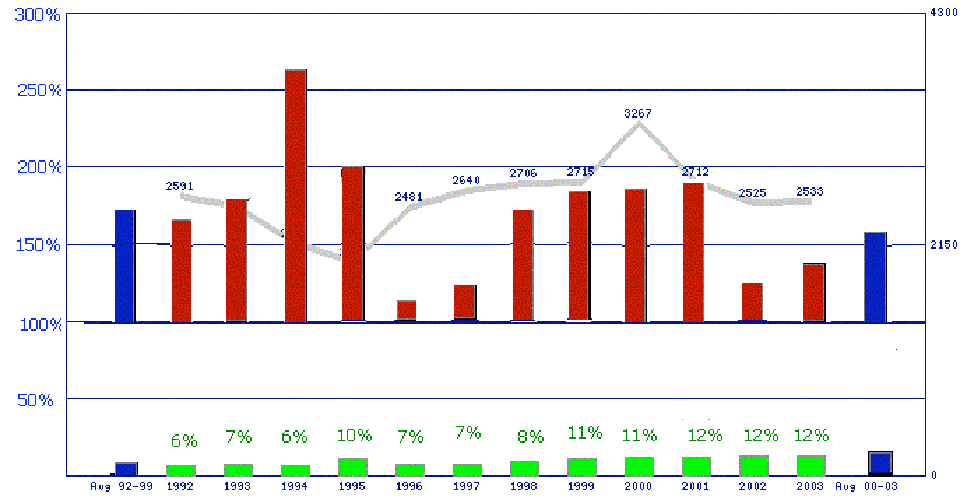
Discipline Psychologie Corrélations:PAAl vs AIC 0,14 , PAAL vs Annee 0,94 , AIC vs Annee 0,21
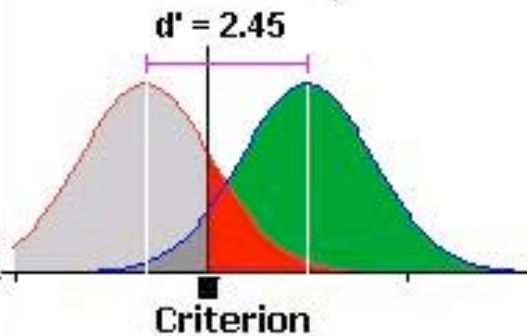PAAl vs NB 0,19 , NB vs Annee 0,26 AIC vs NB -0,02
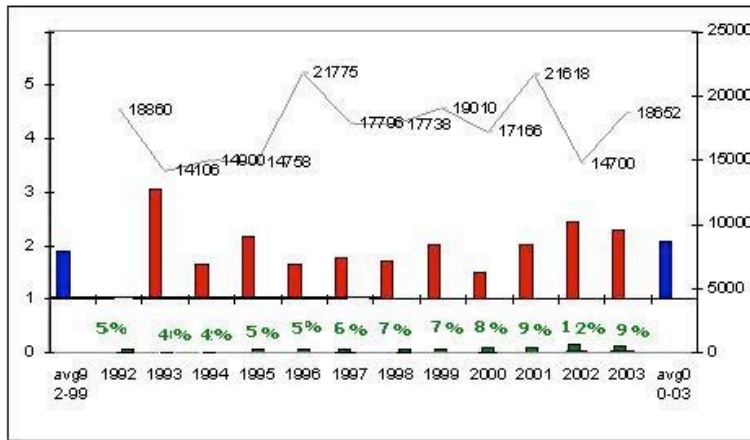
Discipline gestion Correlation: PAAL vs AIC -0.132, PAAL vs Annee 0.883, AIC vs Annee -0.341
PAAL vs NB 0.279, NB vs Annee 0.437, AIC vs NB -0.529.

Légende

Avantage Impact de Citations (AIC) (>100 % , <100%)

Pourcentage d'articles en accès libre (PAAL)
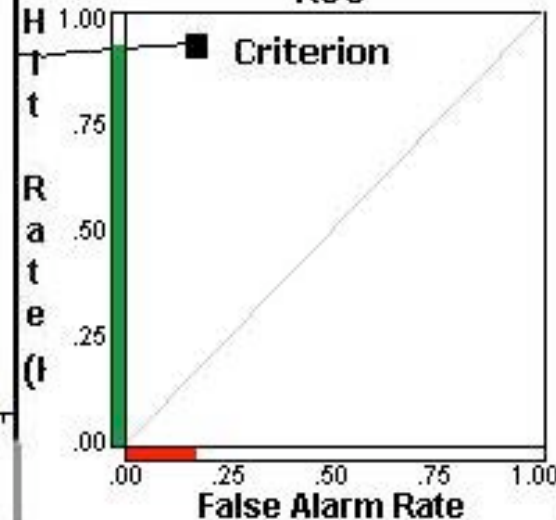
Moyenne

Nombre d'articles (NA)

Distribution normal de présence et d'absence de signal

$d' = 2.45$

Criterion

ROC

Criterion

False Alarm Rate

Vrai OA (Hits)

Vrai NOA (Correct rejection)

Faux OA (False Alarme)

Faux NOA (Miss)

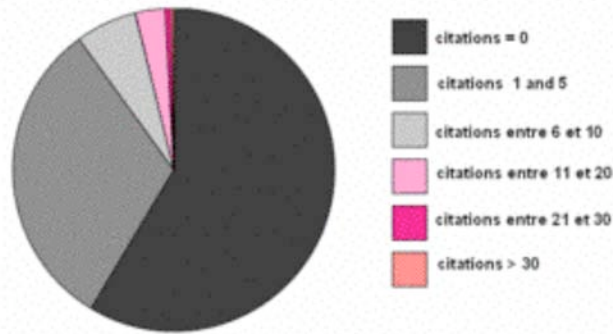ROC: Receiver Operating Characteristic

Hits 0.93

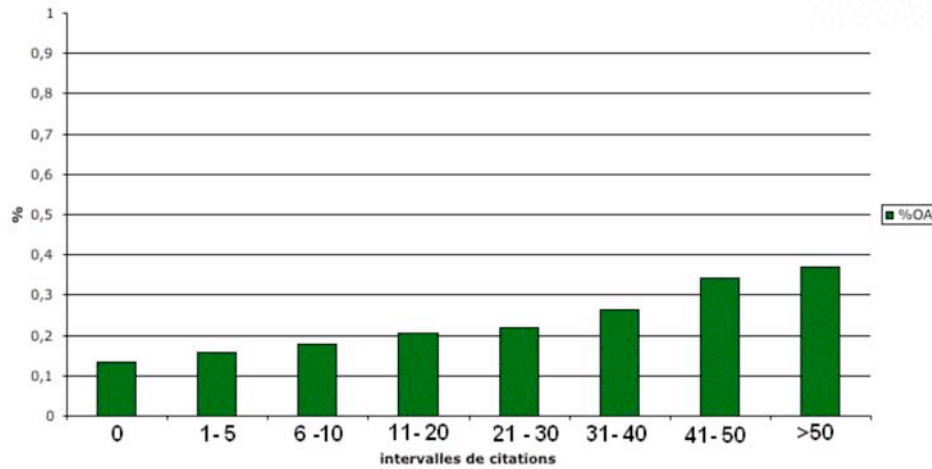False Alarm: 0.16

■ Criterion = 0.96

$d' = 2.45$

$\beta = 0.52$

$$d' = z(H) - z(F)$$
$$\beta = e-[(z(H)2-z(F)2)/2]$$

Percentage of high and low citation articles that are self-archived:
   BIOLOGICAL SCIENCES

SOCIAL SCIENCES

Variation de pourcentages d'articles en fonction de taux de citations

- citations = 0
- citations 1 and 5
- citations entre 6 et 10
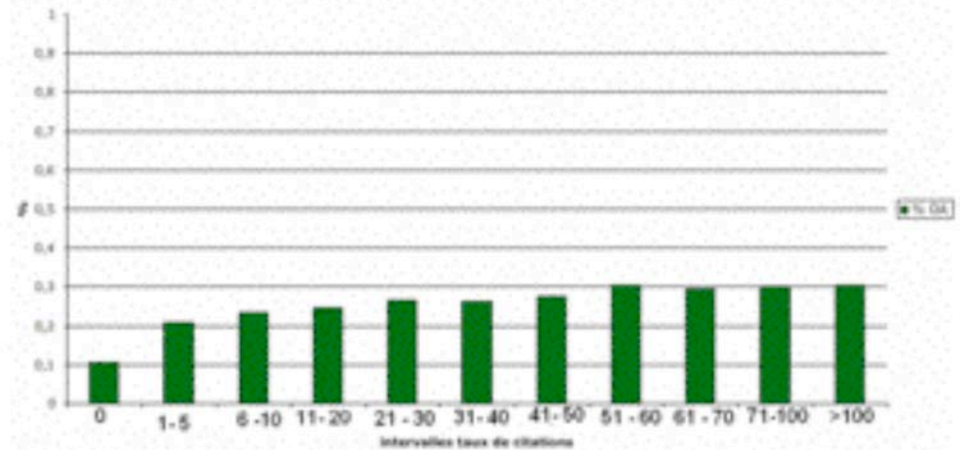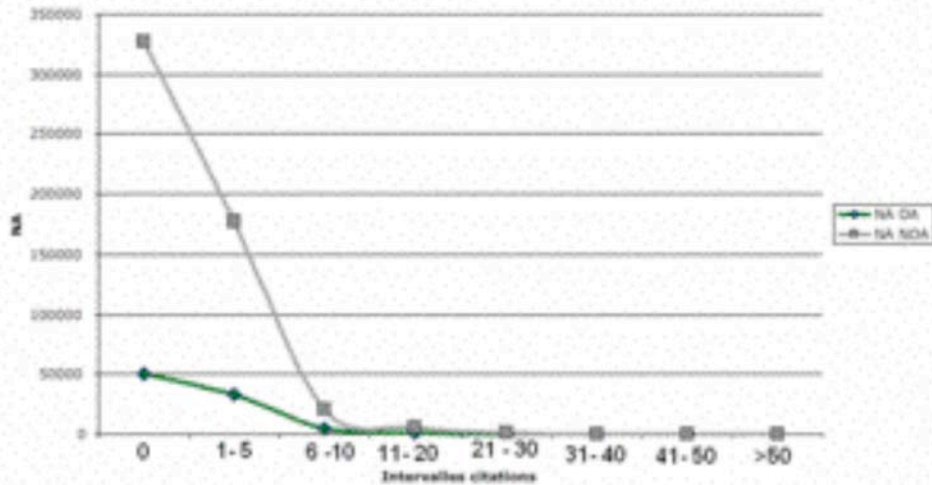- citations entre 11 et 20
- citations entre 21 et 30
- citations > 30

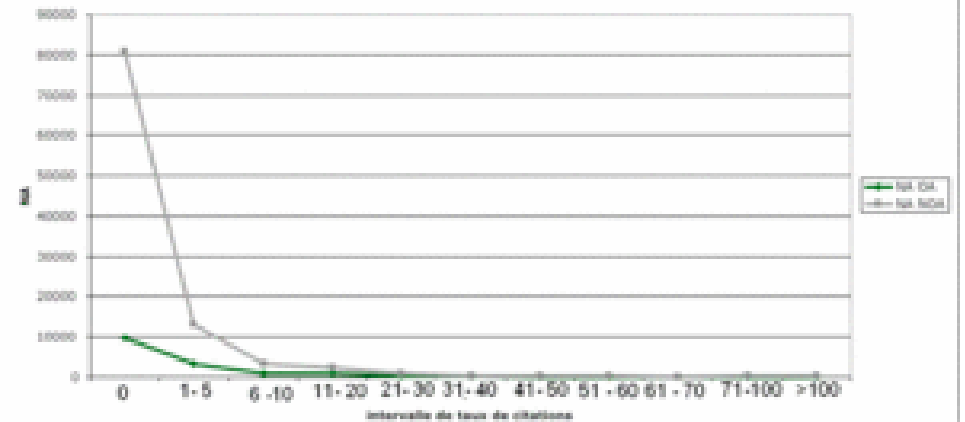Variation %OA en fonction des intervalles de taux citations en Biologie

Variation %OA en fonction des intervalles de taux de citations en Sociologie

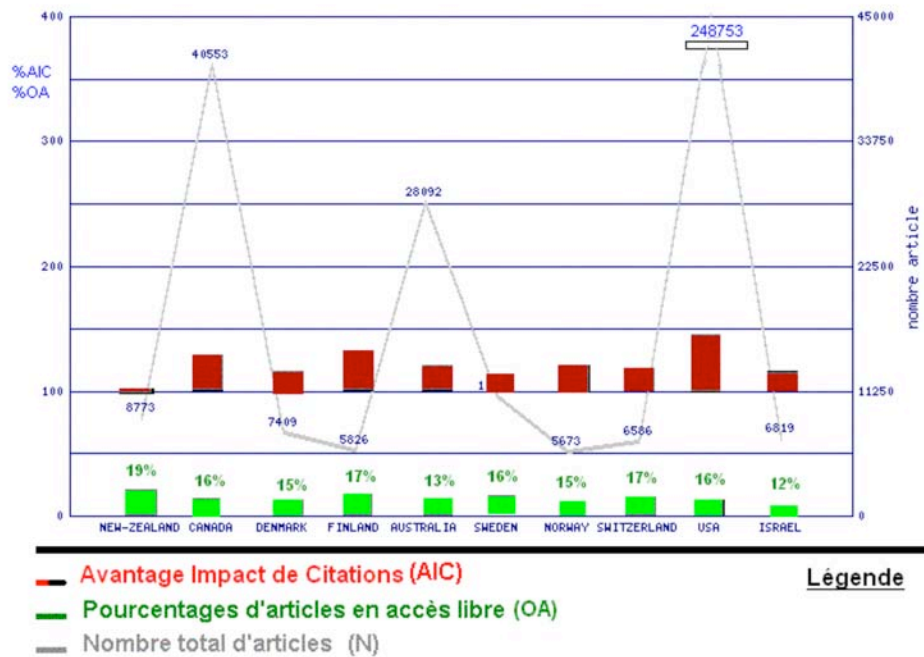Variation NA OAet NA NOA en fonction des intervalles de taux de citations en Biologie

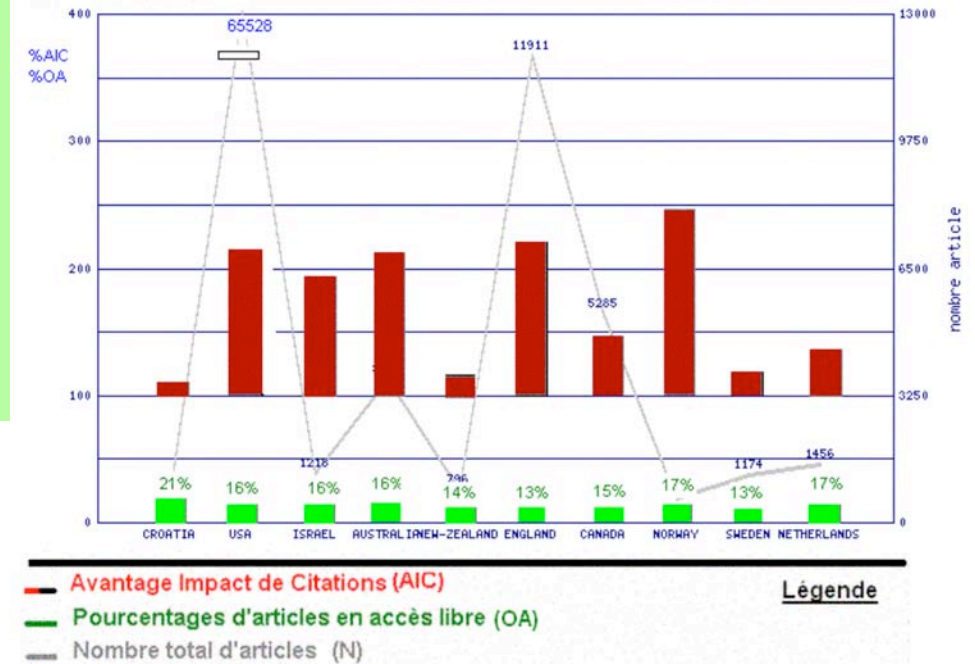Variation NA OA et NA NOA en fonction des intervalles de taux de citations en Sociologie

Percent OA articles

and

OA Impact Advantage

by country

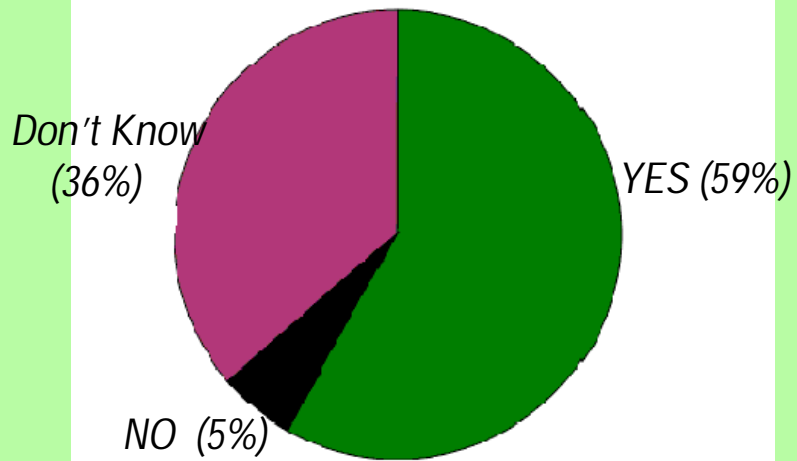
Social Sciences

Biological Sciences

UQàM Survey

Don't Know (36%)

YES (59%)

NO (5%)

L'auto-archivage à t-il un impact sur le taux de citations des articles?

Do you think self-archiving influences citation impact?
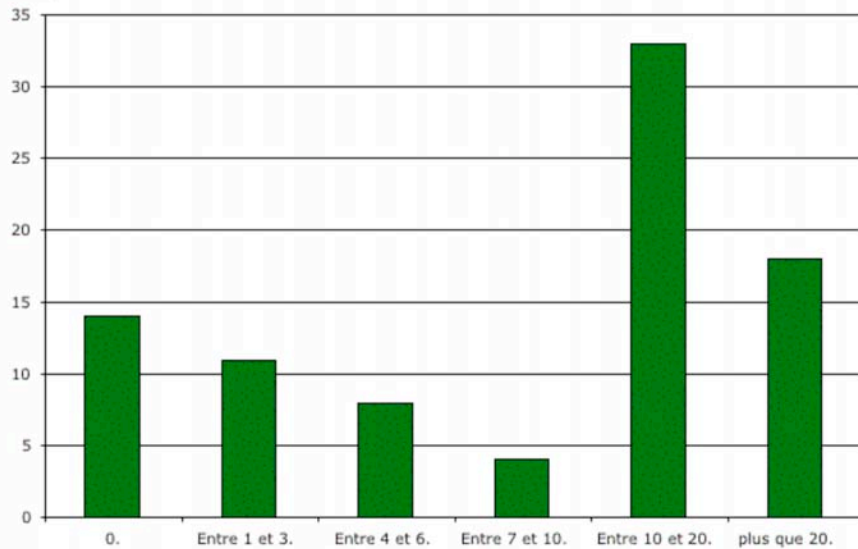
■ 0%.
■ Entre 0 et 25%.
■ Entre 25 et 50%.
■ Plus de 50%.
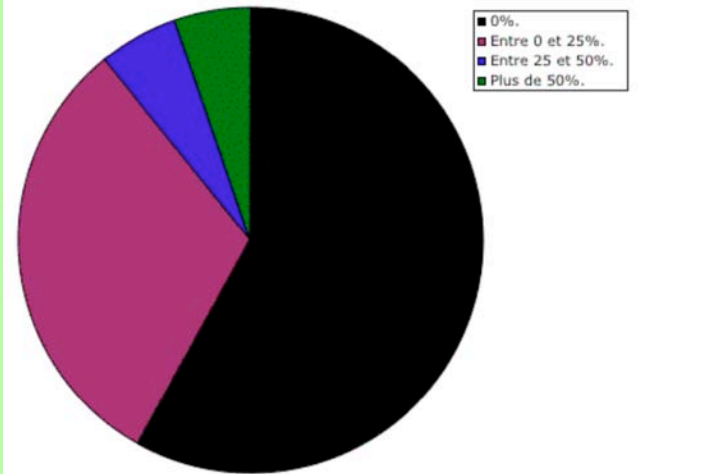
Pourcentage des articles publiés par les chercheurs de l'UQÀM

What percentage of your articles have you made Open Access?

Nombre des répondants
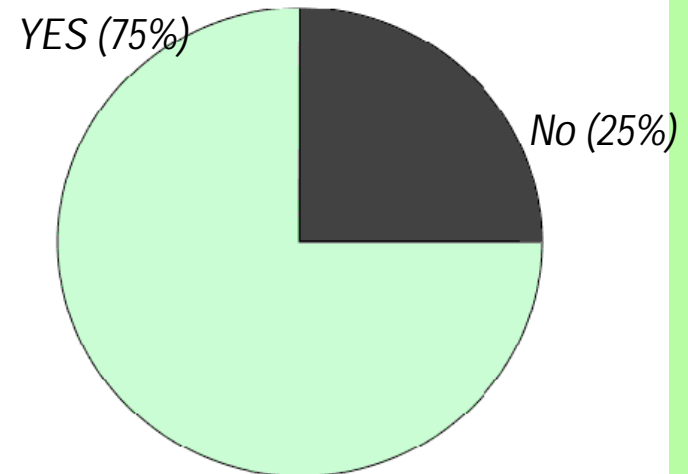
Pourcentage d'articles publiés par les chercheurs de l'UQÀM

How many articles do you publish yearly?
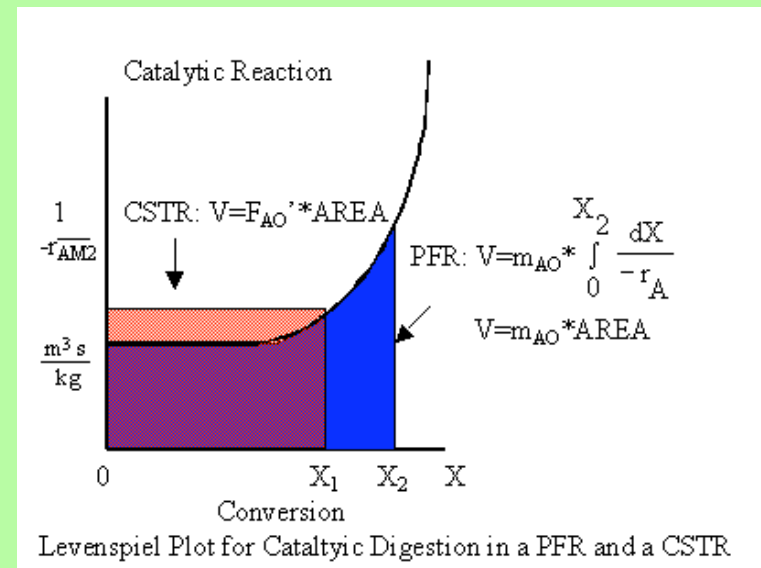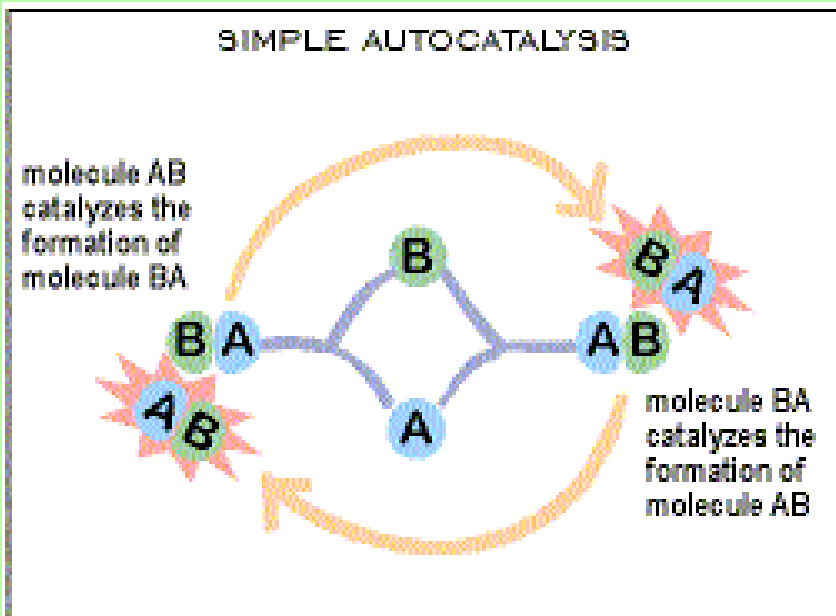
YES (75%)

No (25%)

Pourcentage des chercheurs qui pensent de la nécessité d'une politique officielle d'auto-archivage

Is an official UQàM self-archiving policy necessary?

The Golden Rule for Open Access: Reciprocity

(i) <u>Researchers</u> share a <u>common stake</u> with their own <u>Institutions</u>
(*not their Disciplines*) in maximizing their joint research impact
(ii) Institutions share a <u>reciprocal stake</u> in access to one another's
(give-away) research output

SIMPLE AUTOCATALYSIS

molecule AB catalyzes the formation of molecule BA

molecule BA catalyzes the formation of molecule AB

Catalytic Reaction

CSTR: $V = F_{AO}' * AREA$

PFR: $V = m_{AO} * \int_{0}^{X_2} \frac{dX}{-r_A}$

$V = m_{AO} * AREA$

Conversion

Levenspiel Plot for Cataltyic Digestion in a PFR and a CSTR

"*Self-archive unto others as ye would have them self-archive unto you*."

http://www.ecs.soton.ac.uk/~harnad/Temp/unto-others.doc

http://www.ecs.soton.ac.uk/~harnad/Temp/self-archiving.ppt

1. _Universities_**:**

**Adopt a policy mandating open access for
all university research output:
Extend existing
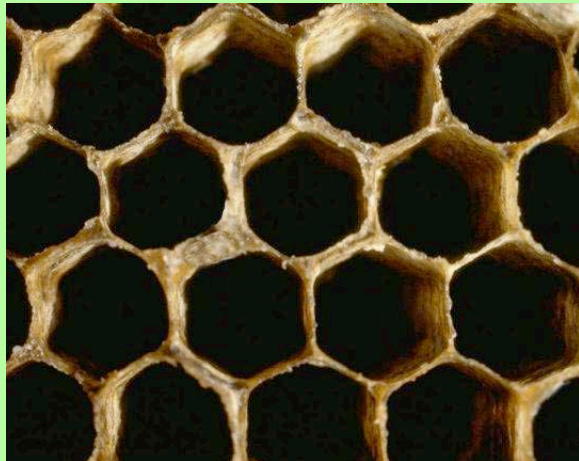"Publish or Perish"
policies to**
"Publish with Maximal Impact"

MAXIMIZE ACCESS

TO

MAXIMIZE IMPACT

http://www.eprints.org/signup/sign.php

2. <u>Departments</u>:

Adopt a departmental policy mandating
<u>Open Access for All Research Output</u>
Create (and Fill):
OAI-compliant Eprint Archives

http://software.eprints.org/handbook/departments.php

3. <u>University Libraries</u>:

**Provide digital library support for university
research self-archiving and archive-maintenance**

**(*and if/when university toll-cancellation savings begin to grow,
prepare to redirect 1/3 of annual windfall savings to cover
open-access journal peer-review service-costs
for university research output*)**

http://www.eprints.org/self-faq/#libraries-do
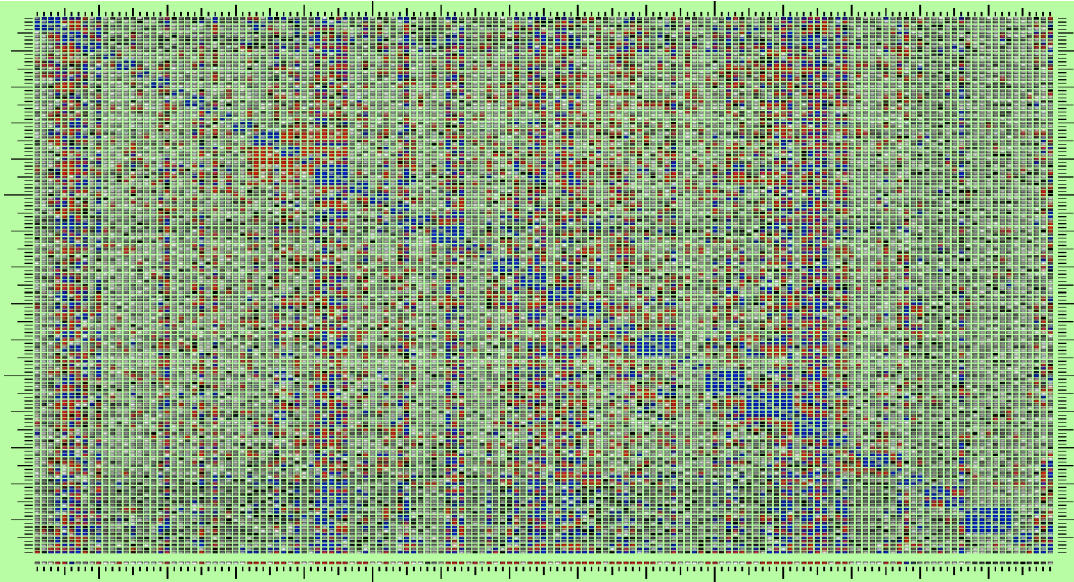
4. <u>Universities and Research Institutions</u>:

Mandate *open access* for all research output.
http://www.eprints.org/signup/sign.php

**Adopt a standardized online-CV
with harvestable performance indicators
and links to open-access full-texts**
(template and demo below)

http://paracite.eprints.org/cgi-bin/rae_front.cgi

5. <u>Research Funders:</u>

Mandate *open access* for all research output.

See proposal for a UK national policy of open access for all refereed research output for research assessment…
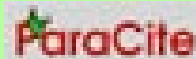
…as a model for the rest of the world

Tools for
(a) creating OAI-compliant university eprint archives
(b) parsing and finding cited references on the web,
(c) reference-linking eprint archives,
(d) doing scientometric analyses of research impact,
(e) creating OAI-compliant open-access journals

http://software.eprints.org

http://paracite.eprints.org/

http://opcit.eprints.org/evaluation/Citebase-evaluation/evaluation-
   report.html

http://citebase.eprints.org/help/

http://psycprints.ecs.soton.ac.uk/

Budapest Open Access Initiative

The BOAI Self-Archiving FAQ
(BOAI-1)

http://www.eprints.org/self-faq/

http://www.soros.org/openaccess/