Scholarship Unlocked:
The future of Open Access

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Let’s celebrate the technology that made Open Access possible!
Goals of this talk

• Place Open Access (OA) in a historical context
• Provide an overview research on the growth and direction of Open Access publishing/archiving
• Discuss some of new directions in OA and scholarly communication
Twenty Years of Digital Dissemination

Based on the confluence of three technical innovations

1. Access to the Internet reached a critical mass

2. Standardized protocols that allow formatted text and graphics became available

3. Freely available easy to use browser software running on common platforms

Hello world!
Implications of Digital Distribution of Scholarly Journals

*How do we make sense of it?*

- Looking back at how our paper scholarly journal system evolved
- Consider the roles journals play in scholarly communities

Roles journals play is scholarly communities

- Building a collective knowledge base
- Communicating information
- Validating the quality of research
- Distributing rewards
- Building scientific communities
Origin of scholarly journals

- Philosophical Transactions of the Royal Society (1665)
- Journals have traditionally been owned and operated by scientific societies at great cost
- Journals evolved slowly over time

Post world war II

- Dramatic increase in the government funding of Scientific, Technical and Medical (STM) areas
- Rise of commercial publishing
  - In 2006 45% of journals were owned and 17% run by commercial publishers under contract
- The serial crisis was created as library budgets could not keep up with the price and number of serials needed

Data from the Association of Research Libraries
Take away message

- Journals arose out of scientific/scholarly societies and operated at a loss.
- The format and structure of scholarly journals as well as conventions of scholarly publishing developed over centuries.
- The development of digitally distributed journals and open access did not happen in a vacuum.
  - Commercialization of scholarly publishing
  - Serial pricing crisis
Paul Ginsparg’s arXiv
Rapid development of digital publishing

• Initially most were small scholar developed journals that were largely experiments that often petered out quickly
• Publishers fairly quickly saw inevitability of digital distribution and the monetary potential
  – In 1998, about 30% of the titles in Science Citation Index (SCI) were available online.
  – By 2002 approximately 75% of the journals in the SCI were available online.
  – *Then there was a “digital flip”*

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The Traditional Publication Process

Researcher/Scholars

Publishers
Select, edit, typeset, print and distribute the material

Librarians
Archive, and facilitate access to the material

Produce the raw material

Consume the finished product
Digital Publication Process (subscription model)

Researcher/Scholars
- Produce the raw material

Consumed by:

- Publishers
  - Select, edit, typeset, deliver digitally.
  - Provide a digital archive

- Librarians
  - Purchase license and facilitate access

Dashed arrow from Librarians to Researchers/Scholars indicates a relationship or action taken by Librarians towards Researchers/Scholars.
On the bright side.....

- With paper publication
  - First copy costs
  - Incremental distribution costs

- With digital publication
  - First copy costs (reduced)
  - Minimal distribution costs not incremental
  - It becomes feasible to fund publication by means other than subscription fees and make journals freely available!!!

- A freely accessible archive of biomedical reports maintained by the National Institutes of Health (NIH)
  - The original proposal included a peer-reviewed component with editorial boards much like peer-reviewed journals
  - Lightly edited component for posting and quickly disseminating findings
  - Authors maintained copyright with a license similar to CC-BY

“The essential feature of the plan is simplified, instantaneous cost-free access by potential readers to E-biomed's entire content in a manner that permits each reader to pursue his or her own interests as productively as possible.”

Harold Varmus, Director of the National Institutes of Health (NIH)

Accessed 09-06-12
Reaction to E-BioMed

ARCHIVE OF COMMENTS ON
E-biomed: A Proposal for Electronic Publications in the Biomedical Sciences (May 5, 1999 DRAFT)

Go to: [E-biomed document][Link disclaimer]

August 16 - August 22, 1999
- J.J. Anderson, NIGMS/NIH, August 17, 1999
- John Schmidt, Department of Biological Sciences, Wichita State University, August 16, 1999

August 9 - August 15, 1999
- Sterling Steudemann, August 11, 1999
- Stevan Harrod, University of Southampton, August 10, 1999
- Laura DeFrancisco, Ph.D., Managing Editor, Bioresearch On Line, August 10, 1999
- Bruce Macdonald, August 10, 1999
- Stevan Harrod, University of Southampton, August 9, 1999

August 2 - August 8, 1999
- Otto Kiene, Editor, Marine Ecology Progress Series, August 4, 1999
- Barbara Fawcett, Electronic Publishing Trust for Development, August 3, 1999

July 26 - August 1, 1999
- Sterling Steudemann, August 1, 1999
- Stevan Harrod, University of Southampton, July 31, 1999
- Stevan Harrod, University of Southampton, July 30, 1999
- Dr. Rosemary J. Redfield, Univ. of British Columbia, July 30, 1999
- Yehouda Hanaz, July 30, 1999
- Glyn D. Jones, Executive Secretary, The Biochemical Society, July 29, 1999
- Stevan Harrod, University of Southampton, July 28, 1999
- T. Kendall Harden, Ph.D., Jerry R. Mitchell, M.D., Ph.D., Am. Soc. for Pharmacology and Experimental Therapeutics, July 27, 1999
- Cheryl S. Watson, Ph.D., Publishing Consultant, Sacramento, July 27, 1999
Budapest Open Access Initiative

The Budapest Open Access Initiative arises from a small but lively meeting convened in Budapest by the Open Society Institute (OSI) on December 1-2, 2001. The purpose of the meeting was to accelerate progress in the international effort to make research articles in all academic fields freely available on the internet. The participants represented many points of view, many academic disciplines, and many nations, and had experience with many of the ongoing initiatives that make up the open access movement. In Budapest they explored how the separate initiatives could work together to achieve broader, deeper, and faster success. They explored the most effective and affordable strategies for serving the interests of research, researchers, and the institutions and societies that support research. Finally, they explored how OSI and other foundations could use their resources most productively to aid the transition to open access and to make open-access publishing economically self-sustaining. The result is the Budapest Open Access Initiative. It is at once a statement of principle, a statement of strategy, and a statement of commitment.

The initiative has been signed by the Budapest participants and a growing number of individuals and organizations from around the world who represent researchers, universities, laboratories, libraries, foundations, journals, publishers, learned societies, and kindred open-access initiatives. We invite the signatures, support, and participation of the entire world scientific and scholarly community.
OA since 2001

- Archiving versions of articles published in subscription journals
- OA journals funded by Article Processing Charges (APCs)
- OA journals funded by other means
Archiving subscription journal articles

• Most publishers allow some form of self archiving
  – Most commonly the accepted version of the paper is archived
  – Sometimes journal publication agreements require an embargo

• Types of repositories for these manuscripts
  – Author’s web site, institutional repository or disciplinary/funder repository
  – Repositories ideally include standard metadata describing each paper

• Archives ideally should be designed to ensure the material is permanently available
Repositories: mandates and compliance

• Repositories¹
  – Institutional (~120)
  – Funder (~55)
  – Project, Other/Unknown (~94)
  – Total number 269

• Evidence on the effectiveness of mandates
  – Compliance for the NIH mandate went from 19% to 49% the year (2008) it was made a requirement and is now at 75%²
  – The UK Welcome Trust has only been able to achieve a 55% compliance rate with its mandate³

²http://poynder.blogspot.com/2012/05/open-access-mandates-ensuring.html
Impact of mandates on institutional self-archiving

doi:10.1371/journal.pone.0013636
Impact of green archiving

- Based on a random sample of ~ 2,000 journals approximately 12% of subscription articles were freely available in 2009\(^1\)
- No evidence that NIH or other mandates are impacting on journal subscriptions \textit{at this point in time}
- A significant portion of green OA is illegal\(^2\)


\(^2\)Informal communication with Bo-Christer Bjork
OA journals w/o article processing fees

• A whole variety of funding models\(^1\)
  – Scholar/publishers who fund their journals largely on volunteer effort
  – 609 societies publishing 702 full OA journals\(^2\)
  – National and international efforts
    • SciELO - Scientific Electronic Library Online
  – University based publishing services
    • U of M Scholarly Publishing Office
    • Igitur Library at Utrecht University
    • University presses

\(^1\)http://oad.simmons.edu/oadwiki/OA_journal_business_models
\(^2\)https://plus.google.com/u/0/109377556796183035206/posts/6fviS6exUJ5
Birth of Professional OA Publishing
Funded by Article Processing Charges (APCs)

• BioMed Central
  – For profit OA publisher conceived by Vitek Tracz
  – Developed the Article Processing Charge (APC) funding model

• Public Library of Science (PLoS)
  – Developed by Varmus and colleagues as an advocacy organization
  – Later with funding evolved into a publisher of a few very high end OA journals

• Both struggled for years to be financially stable though for somewhat different reasons
Gold OA publishing today

- APC funded OA publishing accounted for 49% of the estimated 340,000 fully OA articles published in 2011\(^1\) and 27% of the journals in the Directory of Open Access Journals are funded by APCs. \(^2\)

- Gold OA accounts for about 8% of the literature.

- The average APC is ~ $900.\(^3\)

- Roughly 4,300 Hybrid Journals, but low uptake, generally 1 – 2%. APC’s tend to cost about $3,000.\(^4\)

- Delayed OA is estimated at about 3.5%\(^5\)

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\(^2\)Based on data downloaded from the DOAJ site on August 7, 2012.


Laakso M, Björk B-C. Anatomy of open access publishing: a study of longitudinal development and internal structure
## Gold OA in Scopus Citation Database

<table>
<thead>
<tr>
<th>Journals</th>
<th>Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Count</strong></td>
<td><strong>Percent</strong></td>
</tr>
<tr>
<td>Subscription Journal</td>
<td>15,523</td>
</tr>
<tr>
<td>Open Access No Fee</td>
<td>1,139</td>
</tr>
<tr>
<td>Open Access Article Processing Fee</td>
<td>715</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>17,377</td>
</tr>
</tbody>
</table>

**Data from the Scopus 2010 Database**


Merged with the DOAJ
Digital publishing is still in transition

• The norms and conventions and economics needed for digital journals to operate efficiently are still developing

• Open Access in one form or another will be the norm
  – Transition will be slow and painful

• It appears the APC funding model will dominate at least in fields where there is significant research funding

• *The APC model needs work!*
SCOAP³

A consortium facilitates Open Access publishing in High Energy Physics by redirecting subscription money. This answers the request of the High Energy Physics community.

Today: (funding bodies through) libraries buy journal subscriptions to support the peer-review service and allow their patrons to read articles.

Tomorrow: funding bodies and libraries contribute to the consortium, which pays centrally for the peer-review service. Articles are free to read for everyone.

Read now:
- The Executive Summary of the Report of the SCOAP³ Working Party
- The complete report

» To know more

Latest news

10/10/2012, LYRASIS to act as the SCOAP³ National Contact Point in the U.S.

Following the successful launch of the SCOAP³ initiative at CERN on October 1st, 2012, and as the initiative moves into its implementation phase, LYRASIS has been identified as the SCOAP³ National Contact Point in the U.S.

In the SCOAP³ funding model, libraries, library consortia, research institutions and funding agencies will re-direct, on a national basis, resources currently used to subscribe to journal content to directly pay for the peer-review service through established high-quality journals, whose content will become Open Access. Each country will contribute in proportion to its contributions to the literature of the field. In the US, this amounts to $3.5 million per year. LYRASIS will serve the U.S. community through the tasks ahead: Identifying prospective participating libraries and contacting them; Helping them through the process of calculating and securing reductions in their current subscriptions to titles of participating publishers; Setting the framework for their participation to SCOAP³ through firm pledges.
SCOAP3 Model

• Libraries and funders (SCOAP3 partners) pledge to cancel subscriptions and use the funding for APCs.
• Funding is centralized in a single pot. The total cost of the project is estimated to be 10,000,000 Euros per year
• Each country will contribute according to its share of HEP publishing.
• An APC will be negotiated with the a select set of publisher/journals
• The centralized funding agency will fund APCs from participating institutions
How far are we?

Members of SCOAP³ will contribute to the consortium according to their share of the HEP scientific production. So far many countries have manifested the interest to join the consortium, and negotiations are underway in several others. You can find a real-time status of the fund-raising effort below.

Partners which have pledged funds to the SCOAP³ consortium

- Pledged 83.7%
- Work in progress 16.3%

Status 11/07/2012

» See the plot of the distribution of HEP articles by country in 2005/2006
» See the table of the distribution of HEP articles by country in 2005/2006
PeerJ provides a one-time, publish for life fee and community oriented model that provides both peer-reviewed and preprint publishing venues.
Peerj pricing plan

**Basic Plan**
$99
- $99 when/before submitting
- or $129 when accepted
- See FAQ below

**Within PeerJ**
- One publication/year

**Within PeerJ PrePrints**
- Unlimited public preprints
- One private preprint/year

Great for graduate students

Create my Basic Plan

**Enhanced Plan**
$199
- $199 when/before submitting
- or $239 when accepted
- See FAQ below

**Within PeerJ**
- Two publications/year

**Within PeerJ PrePrints**
- Unlimited public preprints
- Unlimited private preprints

Great for post-docs

Create my Enhanced Plan (most popular)

**Investigator Plan**
$299
- $299 when/before submitting
- or $349 when accepted
- See FAQ below

**Within PeerJ**
- Unlimited publications/year

**Within PeerJ PrePrints**
- Unlimited public preprints
- Unlimited private preprints

Great for lab heads & high-volume authors

Create my Investigator Plan
eLIFE is a collaboration between funders and researchers to offer an innovative publishing platform that among other things increases access to data.