Openness and Innovation in Scholarly Communication: The Future is Now

Virginia Barbour
Executive Director, AOASG
Chair, COPE
ORCID: 0000-0002-2358-2440
eo@aoasg.org.au
@ginnybarbour
@openaccess_anz
My interests

Executive Director, Australasian Open Access Strategy Group
Chair, Committee on Publication Ethics (COPE)
Involved in a number of publishing initiatives, including AllTrials, TOP
Joint appointment between Office of Research Ethics and Integrity, and Division of Technology, Information and Learning Support, QUT
Australasian Open Access Strategy Group - AOASG

Advocacy
Information
Resources
Graphics
Discussion list
Newsletter
Blogs, Twitter

@openaccess_anz
www.aoasg.org.au
AOASG members 2016

Curtin
UWA

Western Australia

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Queensland

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QUT

New South Wales

Newcastle
Charles Sturt

Macquarie

Victoria
ANU

Melbourne
Tasmania

Council of New Zealand University Librarians - CONZUL
Open Access Week 2016: A Drumbeat for ‘Open In Action’
Recent global developments in OA

• **The United Nations** urges governments, universities, and funders to prioritize open access to research as a means to improve global health.

• **The European Union** pushes ahead in support of open science, and the Commission wants scientific data to be ‘open by default’ as a requirement for future research grants.

• **US Vice President Biden** launched the National Cancer Moonshot Initiative, which seeks to make ten years’ worth of progress on cancer research in half that time. As part of that initiative, CC continues to call for immediate open access to all publicly-funded cancer research and data.

• **UK national research assessment** requires authors’ final peer-reviewed manuscripts must have been deposited in an institutional or subject repository.

• **Berlin 12 meeting** launches OA2020 movement
And innovation in scholarly communication is thriving more than 500!

Discovery
Analysis
Writing
Publication
Outreach
Assessment

Bianca Kramer & Jeroen Bosman
Geneva Workshop on Innovations in Scholarly Communication (OAI9), Geneva, June 18, 2015
Why is there an explosion of innovation now?
Problem #1
Josh Bolick
@JoshBolick

#SPARC2016 @albertopepe: we use 20th C tools to publish in a 17th C format. In the 21st C.

5:33 PM - 8 Mar 2016
We are at a critical time in publishing

http://127.0.0.1:8081/plosone/article?id=info:doi/10.1371/journal.pone.0127502
The flow of money is complex (and hidden)


http://dx.doi.org/10.6084/m9.figshare.1601864
Key development #1
open access

<table>
<thead>
<tr>
<th>Discovery</th>
<th>Analysis</th>
<th>Writing</th>
<th>Publication</th>
<th>Outreach</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trends</td>
<td>social discovery tools</td>
<td>data-driven &amp; crowdsourced science</td>
<td>collaborative online writing</td>
<td>Open Access &amp; data publication</td>
<td>scholarly social media</td>
</tr>
<tr>
<td>Expectations</td>
<td>growing importance of data discovery</td>
<td>more online analysis tools</td>
<td>more integration with publication &amp; assessment tools</td>
<td>more use of “publish first, judge later”</td>
<td>use of almetrics for monitoring outreach</td>
</tr>
<tr>
<td>Uncertainties</td>
<td>support for full-text search and text mining</td>
<td>willingness to share in analysis phase</td>
<td>acceptance of collaborative online writing</td>
<td>effect of journal/publisher status</td>
<td>requirements of funders &amp; institutions</td>
</tr>
<tr>
<td>Opportunities</td>
<td>discovery based on aggregated OA full text</td>
<td>open lab notes</td>
<td>semantic tagging while writing/citing</td>
<td>reader-side paper formatting</td>
<td>using repositories for institutional visibility</td>
</tr>
<tr>
<td>Challenges</td>
<td>real semantic search (concepts &amp; relations)</td>
<td>reproducibility</td>
<td>safety/privacy of online writing</td>
<td>globalization of publishing/access standards</td>
<td>making outreach a two-way discussion</td>
</tr>
</tbody>
</table>

**Most Important Long-term development**
- multidisciplinary + citation-enhanced databases
- collaboration + data-driven
- online writing platforms

**Potentially most disruptive development**
- semantic/concept search + contextual/social recommendations
- open science
- collaborative writing + integration with publishing

Bianca Kramer & Jeroen Bosman
Geneva Workshop on Innovations in Scholarly Communication (OAI9), Geneva, June 18, 2015
Open access to publications is just one of many “open” initiatives

- Data Rights Publishing Society and government

- OAASG

- ODI

- ANDS

- Creative Commons

- AusGOAL

- CASPA

- Open Access Scholarly Publishers Association

- Open Knowledge

- Data.gov.au
Metadata is crucial

- Machine and human readable open licenses
- Unique author ID
- Unique article & sub-article ID
- Unique crosslinking
- Article versioning
Licenses are metadata

http://creativecommons.org/licenses/
Metadata allow precise definitions: open is greater than free

Open Access

= free access + reuse rights + author attribution rights + permanent archiving
Publishers withdraw 2500 journals from free access scheme in Bangladesh

Zusia Kmita-Trznadel

Fire publishers have withdrawn free access to more than 2500 health and biomedical online journals from institutions in Bangladesh. One research leader has described the situation as "very discouraging."

From 4 January Elsevier Journals withdrew access in Bangladesh to 1610 of its publications, including the Lancet stable of journals, which had been available through the World Health Organization’s Health Inter-Network for Access to Research Initiative (HINARI) programme. HINARI was set up in 2002 to enable not-for-profit institutions in developing countries to gain access online to more than 7000 biomedical and health titles either free or at very low cost.

Springer has withdrawn 585 of its journals from Bangladesh and Lipincott Williams and Wilkins 299 journals. The American Association for the Advancement of Science and the American Society for Animal Science have withdrawn access to, respectively, two and three of their journals.

Altogether 150 publishers take part in HINARI.

Tracey Kochharoo, head of the health and family planning systems programme at the International Centre for Diarrhoeal Disease Research in Dhaka, said: "We are a little less than 300 scientists eating out world class research on a shoestring budget without the purchasing power capacity of a big university in the UK."
Data need to be:

- Findable
- Accessible
- Interoperable
- Re-usable

Metadata make data useful
# Key development #2

disruption: circumventing traditional models

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<td>article level (alt)metrics</td>
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<td>more open and post-publication peer review</td>
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<td>who pays for costly qualitative assessment?</td>
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<td>using author-, publication- and affiliation-IDs</td>
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<td>quality of measuring tools</td>
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**Most important long-term development**
- multidisciplinary + citation-enhanced databases
- collaboration + data-driven
- online writing platforms
- Open Access
- more & better connected researcher profiles
- importance of societal relevance + non-publication contributions
- moving away from simple quantitative indicators

**Potentially most disruptive development**
- semantic/concept search + contextual/social recommendations
- open science
- collaborative writing + integration with publishing
- circumventing traditional publishers

Bianca Kramer & Jeroen Bosman
Creative disruption at the consortial level: SCOAP³
Sponsoring Consortium for Open Access Publishing in Particle Physics

- No change in behavior
- No burden
- Retains the copyright

- Support OA policies
- Use existing funds
- No operations

Publishers

Libraries / Consortia

Researcher: No change in behavior, no burden, retains the copyright

Subscriptions

Open Access

APCs

Membership
20,000 authors from 97 countries are supported by SCOAP³
Creative disruption in new publishing models...

Knowledge Unlatched

Winner: 2014 IFLA/BRILL Open Access Award

Knowledge Unlatched is helping stakeholders to work together for a sustainable open future for specialist scholarly books. Our vision is...
We do need ways of authenticating new players
Problem #2
“There is increasing concern that most current published research findings are false.”
“Throughout the project we heard repeatedly that publishing in high impact factor journals is still thought to be the most important element in determining whether researchers gain funding, jobs and promotions, along with article-level metrics such as citation numbers. This has created a strong pressure on scientists not only to ‘publish or perish’, but to publish in particular journals.”
“The perception that publishing in high impact factor journals is the most important element in assessments for funding, jobs and promotions is creating a strong pressure on scientists to publish in these journals. **This is believed to be resulting in important research not being published, disincentives for multidisciplinary research, authorship issues, and a lack of recognition for non-article research outputs**”
“...scientists feeling tempted or under pressure to compromise on research integrity and standards ... Suggested causes include high levels of competition in science and the pressure to publish.”
A lot happens in research

- Rounds of grant writing and application
- Iterations of search and reading
- Drafting, receiving comments, rewriting
- Rounds of experiments and measurements
- Peer review of other grants
- Data generation
- Journal article

(adapted from: Bianca Kramer & Jeroen Bosman; Geneva Workshop on Innovations in Scholarly Communication (OAI9), Geneva, June 18, 2015)
What do we currently reward?

Journal article

Adapted from: Bianca Kramer & Jeroen Bosman
Geneva Workshop on Innovations in Scholarly Communication (OAI9), Geneva, June 18, 2015
What do we currently reward?
Innovation can be linked with the culture we want.

Good research governance
- declaring competing interests
- replication & reproducibility
- reviewing, commenting
- meaningful assessment
- effective quality checks
- credit where it is due
- no fraud, plagiarism

Technical standards
- connected tools & platforms
- null result publishing
- new article formats
- speed of publication
- (web)standards, IDs
- semantic discovery
- full reporting
- re-useability
- versioning

Transparent standards
- open peer review
- open (lab)notes
- plain language
- open drafting
- data sharing
- open access

Adapted from: Bianca Kramer & Jeroen Bosman
Geneva Workshop on Innovations in Scholarly Communication (OAI9), Geneva, June 18, 2015
## Transparency and Openness Promotion (TOP) Guidelines

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Level 0</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Citation Standards</strong></td>
<td>Journal encourages citation of data, code, and materials, or says nothing</td>
<td>Journal describes citation of data in guidelines to authors with clear rules and examples.</td>
<td>Article provides appropriate citation for data and materials used consistent with journal’s author guidelines.</td>
<td>Article is not published until providing appropriate citation for data and materials following journal’s author guidelines.</td>
</tr>
<tr>
<td><strong>Data Transparency</strong></td>
<td>Journal encourages data sharing, or says nothing</td>
<td>Article states whether data are available, and, if so, where to access them.</td>
<td>Data must be posted to a trusted repository. Exceptions must be identified at article submission.</td>
<td>Data must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication.</td>
</tr>
<tr>
<td><strong>Analytic Methods (Code) Transparency</strong></td>
<td>Journal encourages code sharing, or says nothing</td>
<td>Article states whether code is available, and, if so, where to access them.</td>
<td>Code must be posted to a trusted repository. Exceptions must be identified at article submission.</td>
<td>Code must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication.</td>
</tr>
<tr>
<td><strong>Research Materials Transparency</strong></td>
<td>Journal encourages materials sharing, or says nothing</td>
<td>Article states whether materials are available, and, if so, where to access them.</td>
<td>Materials must be posted to a trusted repository. Exceptions must be identified at article submission.</td>
<td>Materials must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication.</td>
</tr>
<tr>
<td><strong>Design and Analysis Transparency</strong></td>
<td>Journal encourages design and analysis transparency, or says nothing</td>
<td>Journal articulates design transparency standards</td>
<td>Journal requires adherence to design transparency standards for review and publication</td>
<td>Journal requires and enforces adherence to design transparency standards for review and publication</td>
</tr>
<tr>
<td><strong>Preregistration of studies</strong></td>
<td>Journal says nothing</td>
<td>Journal encourages preregistration of studies and provides link in article to preregistration if it exists</td>
<td>Journal requires preregistration of studies and provides link and badge in article to preregistration and certification of meeting preregistration badge requirements</td>
<td>Journal requires preregistration of studies and provides link in article to preregistration and certification of meeting preregistration badge requirements</td>
</tr>
<tr>
<td><strong>Preregistration of analysis plans</strong></td>
<td>Journal says nothing</td>
<td>Journal encourages preregistration plans and provides link in article to registered analysis plan if it exists</td>
<td>Journal requires preregistration of analysis plans and provides link and badge in article to preregistration and certification of meeting registered analysis plan badge requirements</td>
<td>Journal requires preregistration of analysis plans and provides link and badge in article to preregistration and certification of meeting registered analysis plan badge requirements</td>
</tr>
<tr>
<td><strong>Replication</strong></td>
<td>Journal discourages submission of replication studies, or says nothing</td>
<td>Journal encourages submission of replication studies</td>
<td>Journal encourages submission of replication studies and conducts results blind review</td>
<td>Journal uses Registered Reports as a submission option for replication studies with peer review prior to observing the study outcomes.</td>
</tr>
</tbody>
</table>
Reporting guidelines: simple innovation that can change culture
Innovation has to work with researchers’ preference for innovations that maximize efficiency...
... and which are...

Intuitive and easy to use (even invisible)
Available free at the point of use
Incremental in building upon existing practices

If you build it, will they come?
How researchers perceive and use web 2.0

A Research Information Network report

July 2010
Open Access Week 2016: A Drumbeat for ‘Open In Action’
There is an increasingly urgent need for change...
19. The ScienceDirect database is home to almost one-quarter of the world's peer-reviewed, full-text scientific, technical and medical content.
"Indian company OMICS is being sued by the U.S. government for deceptive publishing practices that undermine scientific research"
We are developing a thriving OA ecosystem...

• Preprints
• Journals
• Archiving
• Book & monograph publishing
...now woven into publishing globally...
..which is changing norms...
...throughout the publishing lifecycle...
...from the beginning to the end...
...including new ways and rewards for peer review.

<table>
<thead>
<tr>
<th>#</th>
<th>INSTITUTION</th>
<th>REVIEWERS</th>
<th>REVIEWS</th>
<th>MERIT</th>
<th>OPENNESS</th>
<th>TOP PUBLONS REVIEWER</th>
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<tbody>
<tr>
<td>1</td>
<td>The University of Queensland</td>
<td>308</td>
<td>4688</td>
<td>14738</td>
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<td>University of Melbourne</td>
<td>190</td>
<td>2004</td>
<td>5998</td>
<td>1.2</td>
<td>Nathan Lawrentschuk</td>
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<td>3</td>
<td>Monash University</td>
<td>145</td>
<td>1646</td>
<td>4870</td>
<td>1.5</td>
<td>Shibo Kuang</td>
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<tr>
<td>4</td>
<td>University of Sydney</td>
<td>140</td>
<td>1962</td>
<td>5992</td>
<td>0.9</td>
<td>Henry Woo</td>
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<tr>
<td>5</td>
<td>University of New South Wales</td>
<td>134</td>
<td>1637</td>
<td>5853</td>
<td>8.7</td>
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<tr>
<td>6</td>
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<td>959</td>
<td>3068</td>
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<td>8</td>
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<tr>
<td>10</td>
<td>Queensland University of Technology</td>
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<td>1101</td>
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<td>11</td>
<td>Australian National University</td>
<td>48</td>
<td>495</td>
<td>1495</td>
<td>0.6</td>
<td>Patrick Kluth</td>
</tr>
</tbody>
</table>
But to make this a reality, we need collective action.
Thanks from Brisbane!

@openaccess_anz
www.aoasg.org.au