Beyond citation metrics and other publishing innovations

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Disclaimer
At Springer Nature we’re advancing discovery through robust and insightful research

We advance discovery by:

- Supporting the development of knowledge and new ideas
- Making information more accessible around the world
- Continually improving systems, prioritising ideas and innovations that add value to our community
- Innovating science communications and connecting people in a world where technology changes rapidly
We are enabling the development of new and existing products through both internal and external talent

- Products like SharedIt, SciGraph and Bookmetrix have been created in-house

- LaunchPad Meetups have leveraged on external partnerships to find solutions for challenges that need solving e.g. author services and content discovery

- Hack Days provide a platform for our developers to trial new ideas
The current
Researcher life cycle

- **Discovering and planning**
  - Researching scientific literature and patents
  - Designing studies
  - Procuring funding

- **Experimenting and managing data**
  - Searching for collaborators
  - Experimenting
  - Managing and analyzing data

- **Driving and establishing impact**
  - Managing reputations
  - Measuring impact

- **Authoring, publishing and disseminating findings**
  - Writing up findings
  - Publishing article(s)
  - Disseminating outputs and outcomes

Source: Outsell analysis
Rapid rise in number of researchers results in an increased competition
Research evaluations were once bespoke and performed by peers...

...but now research evaluations are done now routine and reliant on metrics


https://en.wikipedia.org/wiki/Nobel_Prize

http://www.nature.com/news/bibliometrics-the-leiden-manifesto-for-research-metrics-1.17351
Research dissemination channels are changing rapidly to accommodate the increasing volume of scholarly literature.
The rise of mega-journals and devaluation of IF

- Launched June 2006
- Biology and Medicine
- Rejection rate: 15%
- Jan 2012: Article 30,000 published
- 2010 Impact Factor: 4.351
External forces are driving change

Changed Research Evaluation in:
- UK
- Netherlands
- Australia

“There is a pressing need to improve the ways in which the output of scientific research is evaluated by funding agencies, academic institutions, and other parties.”

San Francisco Declaration on Research Assessment

Part 3 Section 3: Impact template and case studies (REF3a/b)
Definition of impact for the REF
140. For the purposes of the REF, impact is defined as an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia (as set out in paragraph 143).
The future of publishing
STM Tech Trends 2022
created at our meeting on 4 December 2017

Chris Fell
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Jonathan Morgan
Todd Carpenter
Bob Saffell
IJ J Aalbersberg
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Cambridge UP
IET
ACS
NISO
Kluwer
Elsevier
APA
Cell Press
RSC
CABI
IEEE
SpringerNature

Heather Staines
Graham McCann
Michael Forster
Richard Fidczuk
Michael Duerst
Daniel Schiff
Phill Jones
Liz Marchant
John Sack
Dawa Riley
Kent Anderson
Sam Bruinsma
Eefke Smit

Hypothesis
IOPP
IEEE
Sage
Karger
Thieme
Digital Science
T&F
Highwire
Hypothesis
Redlink
Brill
STM

Tech Trends 2022

Open Science
- Early sharing
- Includes all research artefacts
- European Open Science Cloud (EOSC)

Social Media
- Cyber Influencing
- Bots warfare
- Internet Surveillance
- Citizen Science
- How to avoid fake science

Easy Access
- Single Sign-on
- Transparent collaboration
- Complexity of ID Management
- Simple Business Models
- RAZI

Sharing Platforms
- A Spotify for Science?
- Find the Napster moment
- How to control governance
- Will it all be Google or Sci-Hub
- Complete platform integration
- Responsible sharing
- Will it all be open?
- CHORUS

Brexit

Research in Asia

Net Neutrality

Data Analytics

Intelligent Machine Reading

User-Oriented Publishing

Research Integrity

Research Data

Blockchain
- Can Blockchain help solve the trust-issues
- Ensure Authenticity in a Network of Trust
- Is it robust and fast enough?
- Will it all be open?

Metrics
- New reward systems
- Measuring all outputs

GDPR
- Will it take all development resources?
- May change marketing fundamentally
- Impact on user data analytics
- What does it do to the UX interface?

Publishing to underpin TRUST:
- Help avoid crap science
- Quality Assurance of Data

Research Data:
- Who funds the infrastructure
- Will it bust the pipes?
- Volume is enormous
- What will funders pay for?
- FAIR Data
- Persistent ID's
- Data Management Plans

Entering the AI Era
Creative Humans & Smart Machines
Deep Publishing Knowledge
Where the hippocampus is located, regulating long term memory and emotions

Smart Services
- Personalization
- User tracking
- New metrics
- AI for Peer Review
- Smart contracts
- Cryptocurrencies
- Machine written articles

User Oriented Publishing
- User Power
- Performance assessments
- Customized alerts
- Intelligent augmentation
- Computer generated hypothesis
- Turing test for peer review
- Find research flaws with AI

- Individualised precision information
- Targeted discovery
- Accelerates research
What are we facing outside the brain:

**Social Media**
- Cyber influencing
- Citizen Science
- Avoid fake science

**Easy Access**
- Single sign-on
- Fix the off campus problems
- RA21

**Sharing Platforms**
- A spotify for science?
- Governance
- Google, SciHub
- Responsible sharing
Publishing to underpin Trust and Quality

Trust in Science
• Quality Assurance
• Avoid crap science

Research Data
• Infrastructure funding
• Volume is enormous
• FAIR Data
• Persistent ID’s
• Data Management Plans

Blockchain
• Can it help solve trust issues?
• Ensure authenticity
• Is it robust and fast enough?
• Will it all be open?
Persistent ID’s – or why your lifelong identifier is important in the digital age
"I'm the 38th author..."
"Wow, that sucks."
"I hadn't finished. I'm the 38th author called "Wang".
"Oh."
RESEARCHER / AUTHOR

- Provides ORCID at submission
- If he/she already has an ORCID iD: log in to the submission system via ORCID
- If he/she does not have an ORCID iD: register an ORCID iD via the submission system

EDITORIAL/PUBLISHER

- Author identification and disambiguation
- Collect ORCID iDs

ORCID record

- Basic information
  - Name
  - Email addresses etc.
- Account settings

- Employment: XXX University
  - Source: XXX University
- Funding: YYY Foundation, Grant #123
  - Source: YYY Foundation
  - Source: ZZZ Publishing

Permissions to use ORCID record
Auto-update of ORCID records

- List of works is automatically updated when we send metadata to Crossref
- Prerequisite: researcher has enabled this service in the record’s preferences and authorized Springer Nature to read/write to the record

There are 1,347,345 works that have a book type and a DOI. In total, ORCID holds 11,648,419 works with DOIs.

At Springer Nature we published 5,472 chapters with ORCID iDs.
ORCID Books Survey 2017

Does your organization currently use ORCID iDs in any of your book and/or journal publishing workflows

Are any of the systems you use in your book publishing workflows already capable of incorporating ORCID iDs for contributors?

Total Responses: 85 / Date Created: Saturday, March 18, 2017 / Complete Responses: 37
Global Research Identifier Database - cataloguing the world’s research organisations

http://www.bookmetrix.com/detail/book/111ea4da-6f2d-406a-b71f-0ad943ae6604#citations
From Content to Data

We create the largest state-of-the-art linked open data aggregation platform for the scholarly domain.

In doing so, we increase content discoverability and provide data tools and services for researchers, authors, editors, librarians, data scientists, funders, conference organizers, and many others by adding value across all content types.

We publish content

We manage knowledge
Three areas of knowledge we care about

reads / writes

is about

interested in
From hypertext pages to the Web of Data

TED Talk Tim Berners-Lee: The Next WEB
Metrics – measuring all outputs (but let’s start with books...)
Let’s start with a couple of questions...

• Who has authored a (scholarly) book or chapters?
• ...and knows how many citations, downloads and altmetrics it has?
• ...and did it count in your university assessment / funder evaluation?

• Who is involved in researcher assessments / evaluations?
• ...and included books/chapter in this, to a similar extend as journal articles?

• Who is involved in purchasing decisions for e-book collections?
• ...and knows the reach & impact of the purchases?
<table>
<thead>
<tr>
<th>HUMANITIES AND ARTS</th>
<th>SOCIAL SCIENCES</th>
<th>ENGINEERING</th>
<th>SCIENCE</th>
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</thead>
<tbody>
<tr>
<td>Other output types</td>
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<td>Journal articles</td>
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</tr>
<tr>
<td>Books</td>
<td>Books</td>
<td>Conference proc’s</td>
<td>Conference proceedings</td>
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The Academic Book of the Future
Edited by Rebecca E. Lyons and Samantha J. Rayner
These 2017 books made an impact. 

In 2017.

Our books are very much alive and used

31% of our 2017 books have been cited once or more in 2017

47.5% of our 2017 books have been mentioned online once or more in 2017

http://www.springernature.com/gp/open-research/journals-books/books/the-oa-effect
Traditional citation databases underestimate the impact of books

On average 20 citations per book

Cited half life 20 - 30 years

10.81 citations per article

Source: Thomson Reuters’ Essential Science Indicators database, 2000 - 2010
The Initiative for Open Citations is a collaboration between scholarly publishers, researchers, and other interested parties to promote the unrestricted availability of scholarly citation data.
Collection Citation Performance (CCP)

The total number of citations in 2016 to books published in 2014 and 2015 in a eBook collection

The total number of books published in the same eBook collection in 2014 and 2015

![Graph showing Collection Citation Performance (CCP) for different fields over 5 years and over 2 years. The fields include Biomedical and Life Sciences, Chemistry and Materials Science, Computer Science, Earth and Environmental Science, Engineering, Mathematics and Statistics, Medicine, Physics and Astronomy, Professional and Applied Computing, and Energy. The data is presented for the years 2007, 2012, and 2017. The values for over 5 years are 6.34 and for over 2 years are 4.77.]
Responsible sharing

“We advance discovery not by working in isolation and recreating solutions found elsewhere, but by collaborating with partners, harnessing what they do best and coupling it with our best-in-class services, solutions and products."

- Steven Inchcoombe, Chief Publishing Officer
Scientists have always shared their work ... helping them do so is central to *Nature*’s mission

*Nature* has a duty to readers and authors to facilitate sharing that benefits research and is commercially viable

- Tools are sub-optimal (Dropbox; I can haz PDF)
- It’s a black box: for publishers/libraries
- It creates conflict: take-down notices = reputational damage
Users with access rights share with colleagues and collaborators

With the content sharing function ...

Just by attaching share URLs to email or social media, anyone can access

- About 815K ‘shared views’ during period
- Most (~630K) views are referrals from whitelist media sites
- Of ~184K Peer-to-Peer shares:
  - 67% (123K) subscribers to non-subscribers
  - 33% (61K) subscriber - subscriber or OA content
Sharing Activity - Top Five

TOP TEN COUNTRIES

Sharing articles

1. USA
2. France
3. Germany
4. UK
5. India
6. Spain
7. France
8. Japan
9. China
10. Korea

Receiving articles

1. USA
2. France
3. Germany
4. Netherlands
5. UK
6. Japan
7. Brazil
8. Spain
9. Canada
10. UK

#scishare
We’ve SharedIt! Springer Nature completes integration of its content sharing initiative across its entire owned portfolio of over 1,300 journals

London, 17 October 2016
SharedIt – one year later....

Springer Nature continues to advance sharing

Over 3.25 million articles accessed in SharedIt’s first year

London | Berlin, 27 November 2017

Articles have been successfully shared by authors, subscribers and media outlets over 3.25 million times during the first year of SharedIt, Springer Nature’s free content sharing initiative.

SharedIt was launched in October 2016 and covers over 2,700 journals including all the Springer Nature-owned portfolio and over 1,000 co-owned and partner-owned journals. This industry-leading initiative enables authors and subscribers to post links to free-to-read versions of research articles anywhere, including social media platforms, repositories, websites, scholarly collaboration networks and via email.

<table>
<thead>
<tr>
<th>Clicks from Nature Research author shares</th>
<th>Clicks from Nature Research subscriber shares</th>
<th>Clicks from Nature Research media shares</th>
<th>Clicks from Springer author shares</th>
<th>Clicks from Springer subscriber shares</th>
<th>Clicks from Springer media shares</th>
</tr>
</thead>
<tbody>
<tr>
<td>297,021</td>
<td>955,519</td>
<td>883,849</td>
<td>853,807</td>
<td>284,583</td>
<td>1,346</td>
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</table>
Tech takes over – if you can’t beat them, join them

https://meetthealchemist.blogspot.de/2016/09/will-technology-take-over-your-job.html
Avalanche of workflow tools

https://innoscholcomm.silk.co/
https://doi.org/10.6084/m9.figshare.5065534
Wide variety of publishing workflows

Innovative / Digital Science

**discovery** → **analysis** → **writing** → **publication** → **outreach** → **assessment**

**ReadCube + Papers** → **LabGuru** → **Overleaf Readcube Papers** → **Spring.NPG Figsh/Front Palgr/BMC** → **Nature Blogs + ReadCube** → **NatureIndex + Altmetric + Simplectic**

https://innoscolcomm.silk.co/
We work with Launchpad Meetups, an event format set up by StartupAmsterdam and The Next Web.

StartupAmsterdam are at the centre of the European startup and tech ecosystem, providing a platform for corporates like us to connect with upcoming startup talent. By pitching ideas against a current innovation challenge, startups are given the opportunity to achieve the goals they always dreamed of.

Join our next Launchpad Meetup on May 24, 2018
Our challenge:

How can we help researchers get more from their experimental research data, through faster, easier routes of discovery, organization or sharing of data?

http://www.launchpadmeetups.com/meetups/springer-nature-1
Springer Nature & Paper Hive

Making high-quality academic literature stand out
In-document discussions & rich-media annotations
Can Blockchain help solve trust issues?
Peer review crisis: transparency & recognition

1. Difficulty identifying suitable and available reviewers
2. Lack of reviewer recognition
3. Fraud and manipulation
4. Overall lack of transparency & trust in the process
Review activities across publishers stored on a safe and neutral place, fully complying to demands around confidentiality and privacy. With this:

- The process can be **independently verified**
- Information can be used to build **better reviewer finding tools**, and **fraudulent reviewers can be flagged**
- Reviewers could be **properly recognized** for their work
- **Trust in the process** (and publishers in general) could be increased?

https://www.blockchainpeerreview.org/
The Blockchain can achieve that

- **Decentralized**: no single (commercial) owner or governance
- **Distributed**: everyone can host a copy of the data store
- **Transparent but pseudonymous**: Encryption can obfuscate identities and information where needed
Information on review activities is fed from publishers, via submission systems, to the blockchain.
Validated information can be sent to platforms recognizing reviewer work, such as researcher profile pages on ORCID.

With information stored on blockchain, sophisticated tools can be built to find and validate reviewers across publishers. Fraudulent reviewers can be flagged.

Review activity on journals and article level can be independently verified, giving stamp of quality to legitimate scientific content.

Publishers, reviewers, editors have access to their part of the content.