# 創新學術傳播與未來大學圖書館的定位與因應之道

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## 綱要

- 學術傳播的定義
- 從學術記錄的演化
- 學術傳播的蛻變
- 大學圖書館的因應
- 約吉語

## Scholarly Communication 的定義 -- ARL (1/2)

• "the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use.

http://www.arl.org/focus-areas/scholarly-communication#.V1ZrgLdf1yY

# Scholarly Communication的定義 (2/2)

 The system includes both formal means of communication, such as publication in peer-reviewed journals, and informal channels, such as electronic listservs."

http://www.arl.org/focus-areas/scholarly-communication#.V1ZrgLdf1yY

# Scholarly Communication 的功能

- Registration
- Certification
- Awareness
- Archiving
- Rewarding

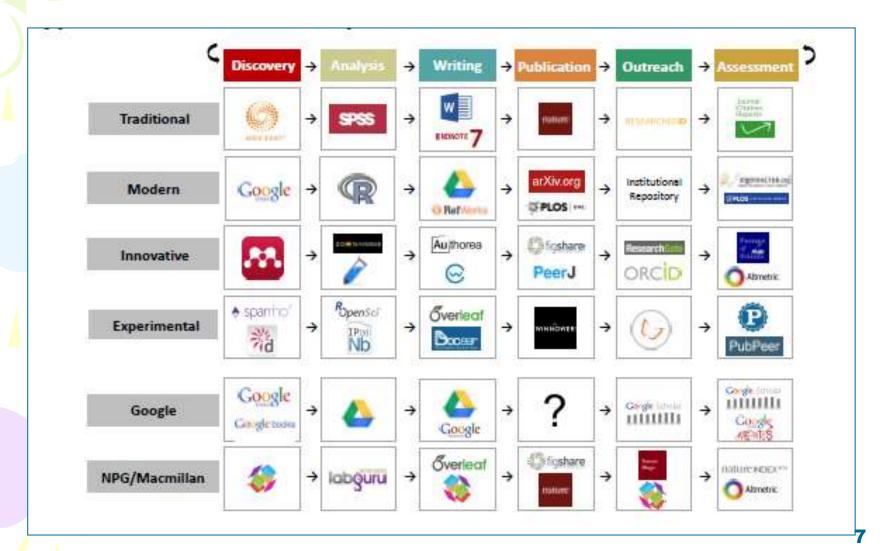
Roosendaal, H., and Geurts, P. 1997. Forces and functions in scientific communication: an analysis of their interplay. Cooperative Research Information Systems in Physics, August 31—September 4 1997, Oldenburg, Germany. http://www.physik.uni-oldenburg.de/conferences/crisp97/roosendaal.html

## 101 INNOVATIONS IN SCHOLARLY COMMUNICATION

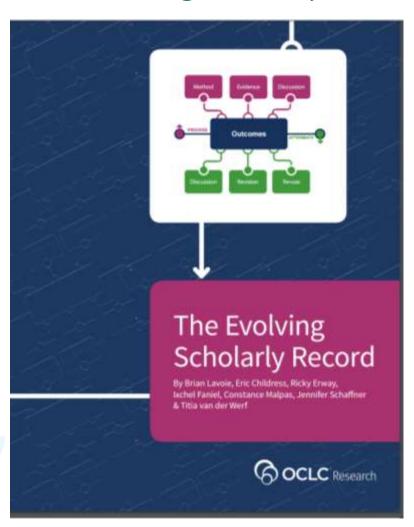
https://innoscholcomm.silk.co/



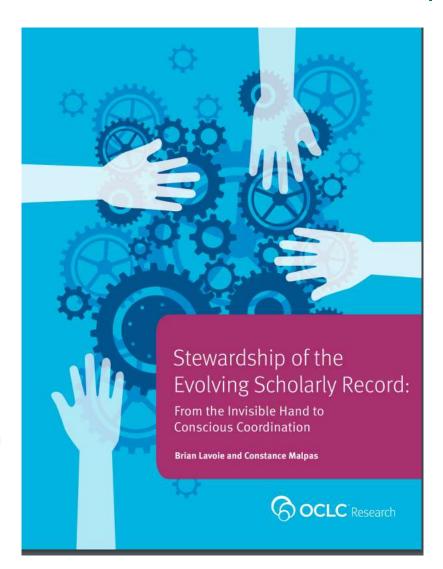
## Typical workflow examples

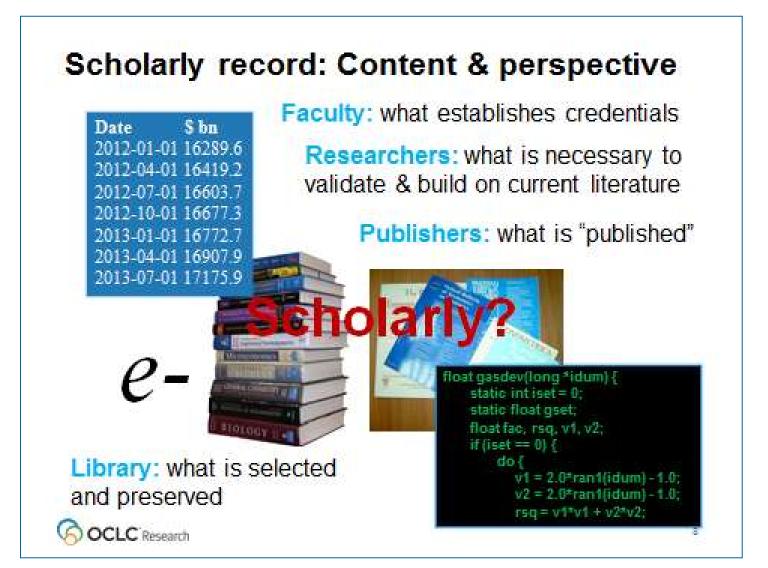


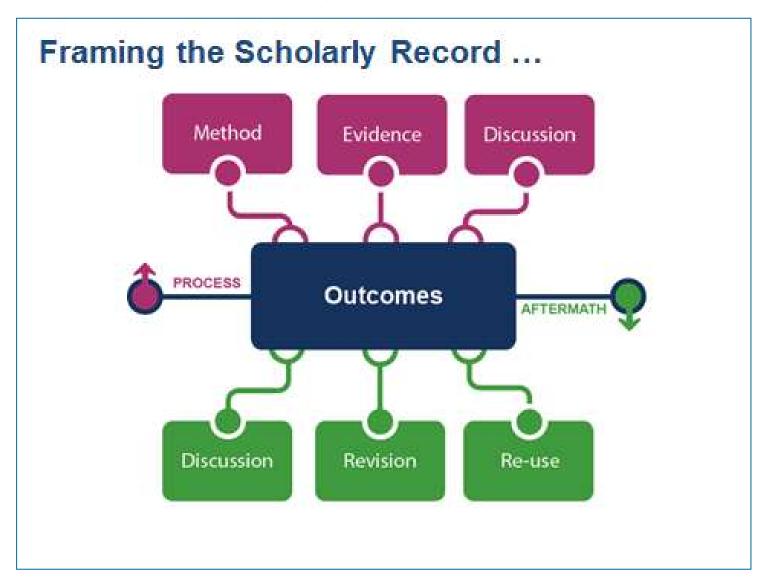
從學術記錄/資源的進化 觀察學術傳播創新發展 http://www.oclc.org/content/dam/research/publications/library/2 014/oclcresearch-evolving-scholarly-record-2014.pdf

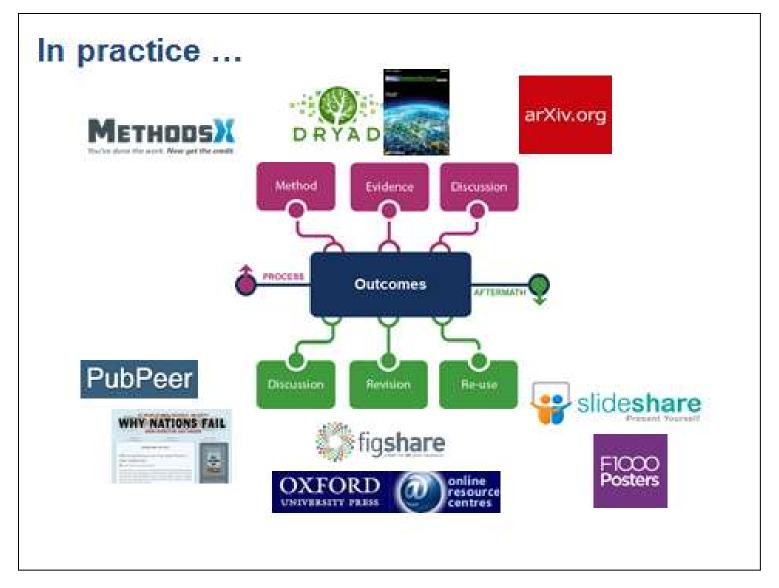


http://www.oclc.org/content/dam/research/publications/2015/oclcresearch-esr-stewardship-2015.pdf









#### Evolutionary trends ...

- Formats shifting:
  - Print-centric to digital, networked
- Boundaries blurring:
  - Articles/monographs, but also data, computer models, lab notebooks, blogs, e-mail discussion, e-prints, interactives/executables, visualizations, etc
- · Characteristics changing:
  - Traditionally: static, formal, outcome-focused
  - Today: dynamic, blend of formal & informal, more focus on process, replicability, "leveragability"
- Stakeholder roles reconfiguring:
  - New paths for the scholarly communication "supply chain"



#### Some remarks ...

- Framework components not new or "suddenly important"
  - But not formalized into scholarly record through systematic collection, referencability, accessibility
- Prior work is foundation of future inquiry
  - Scholarly record itself available as input to new research
- Framework conceptualizes scholarly record evolving into:
  - Greater emphasis on context (process & aftermath), not just outcomes
  - Deeper and more complete record of scholarly inquiry



## Scholarly Record 的進化

- 1. 內容格式: 多元,正式與非正式並行
- 2. 呈現方式:文本、數據、影響力、多媒體、鏈結
- 3. 出版流程:撰寫、審稿、發行同一平台
- 4. 動態出版:持續更新版本 Evolving manuscript
- 5. 典藏作業: 典藏單位、典藏機制
- 6. 傳播模式: OA、商業模式、影響
- 7. 識別方式:DOI、ORCID、Institute ID®

## 1. 内容格式

- Formal
  - -Research Paper
    - Narrative
    - Data
  - Data journals
  - -Data paper

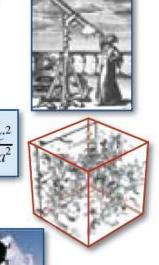
- Informal
  - -Poster
  - -Slides
  - -Picture
  - -Video
  - -Audio

## 科學研究典範的改變 Science paradigms (Jim Gray)

www.oclc.org/content/dam/research/events/dss/ppt/dss\_debelder.ppt

### **Science Paradigms**

- Thousand years ago: science was empirical describing natural phenomena
- Last few hundred years: theoretical branch using models, generalizations
- Last few decades:
   a computational branch simulating complex phenomena
- Today: data exploration (eScience) unify theory, experiment, and simulation
  - Data captured by instruments or generated by simulator
  - Processed by software
  - Information/knowledge stored in computer
  - Scientist analyzes database/files using data management and statistics



## 1. 內容格式舉例 (1/9)

## The Research Ideas and Outcomes (RIO)

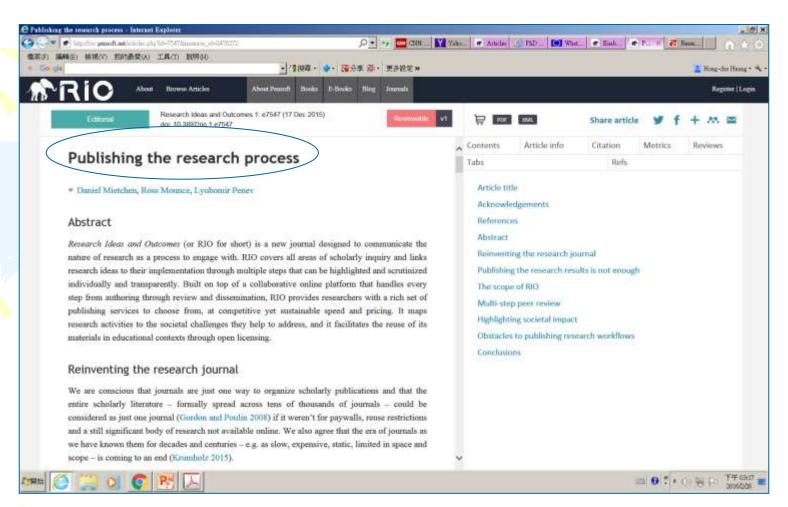
https://www.youtube.com/watch?v=2QKp4Ttpemw



## The Research Ideas and Outcomes (RIO) <a href="http://riojournal.com/">http://riojournal.com/</a>

• RIO Journal publishes all outputs of the research cycle, including: project proposals, data, methods, workflows, software, project reports and research articles together on a single collaborative platform, with the most transparent, open and public peer-review process.

## http://rio.pensoft.net/articles.php?id=7547&instanc $e_id=2478272$



#### 1. 內容格式舉例: Data Journal

http://proj.badc.rl.ac.uk/preparde/blog/DataJournalsList

- Geoscience Data Journal
  - http://www.geosciencedata.com
- Earth System Science Data
  - http://earth-system-science-data.net/
- Ecological Archives Data Papers
  - http://esapubs.org/archive/archive\_D.htm
- Journal of Chemical and Engineering Data
  - http://pubs.acs.org/journal/jceaax
- GigaScience?
  - http://www.gigasciencejournal.com/

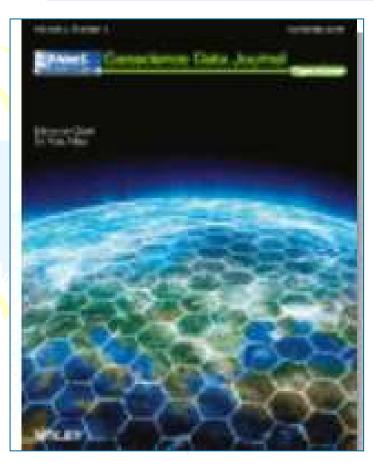
## 1.内容格式舉例: Hindawi publishing

http://www.datasets.com/

- Dataset Papers in Agriculture
- Dataset Papers in Biology
- Dataset Papers in Chemistry
- Dataset Papers in Ecology
- Dataset Papers in Geosciences
- Dataset Papers in Materials Science
- Dataset Papers in Medicine
- Dataset Papers in Nanotechnology
- Dataset Papers in Neuroscience
- Dataset Papers in Pharmacology
- Dataset Papers in Physics

## 1. 內容格式舉例: Geoscience Data Journal

http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)2049-6060



- Publishes short data papers cross-linked to, and citing, datasets that have been deposited in approved data centres.
- A data paper describes a dataset, giving details of its collection, processing, software, file formats etc, without the requirement of novel analyses or ground breaking conclusions. It allows the reader to understand the when, how and why data was collected and what the data-product is.

## **Geoscience Data Journal**

http://onlinelibrary.wiley.com/journal/10.1002/(ISSN )2049-6060

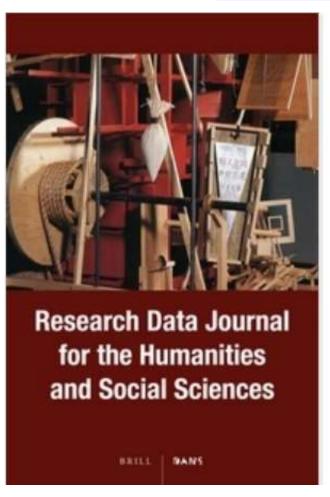
## 2049-6060 Current approved data centres or epositories include:

- •3TU.Datacentrum
- British Atmospheric Data Centre (BADC)
- British Oceanographic Data Centre (BODC)
- CISL Research Data Archive
- CSIRO Data Access Portal
- Environmental Information Data Centre (EIDC)
- Figshare
- •IEDA: EarthChem
- •IEDA:MGDS
- •National Center for Atmospheric Research (NCAR), USA •Earth Observing Lab (EOL), observational and supporting data from atmospheric science field experiments and arctic research
- •Research Data Archive (RDA), reference datasets for weather and climate research

. . . .

## 1. 內容格式舉例 - 人社

http://dansdatajournal.nl/



 Data papers are scholarly publications of medium length containing a nontechnical description of a data set and putting the data in a research context. Each paper gets a persistent identifier providing publication credits to the author.

## 人社 Data Journal 舉例

http://dansdatajournal.nl/

## Research Data Journal

for the Humanities and Social Sciences

Published by Brill in collaboration with Data Archiving and Networked Services (DANS), Netherlands

Home

Sections

For Authors

About

#### Latest Articles

- Wonen en werken in de Late IJzertijd in Spijkenisse
- Correspondence of Swammerdam (1664-1679)
- E.J. de Jager, Reis van de Razzia: een oral history project over de razzia van Rotterdam
- O. Gelderblom, Merchants from the Southern Netherlands (1578-1630)

#### Volume 1:1 (2016)

#### Editorial

· L. Breure, A Data Journal as Enhanced Publication.

#### I. Social and Economic History Data

 O. Gelderblom, Merchants from the Southern Netherlands and the rise of the Amsterdam staplemarket (1578-1630).

#### II. Language and Literature Data

 Correspondence of Swammerdam (1664-1679) [Circulation of Knowledge Project].
 Overlay data paper – depositor: E. Jorink

#### III. Audio-visual Data

## 2. 呈現方式

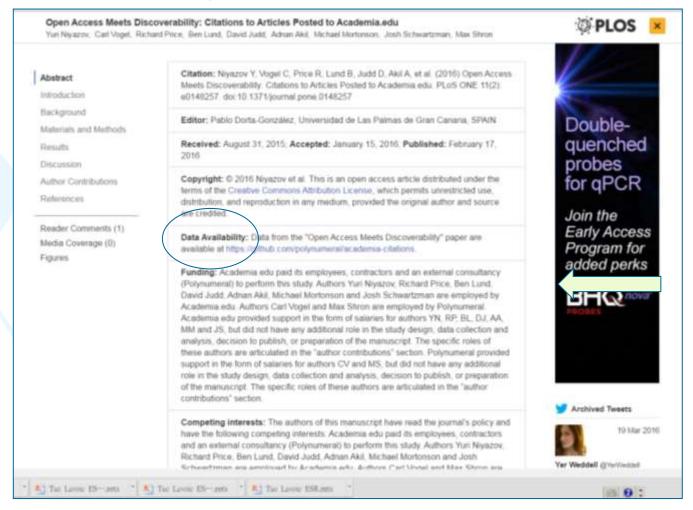
- 文本、影像、聲音
- 資料 (data)
- 方式
- 程式
- 影響力
- 鏈結
  - 內容主題、後設資料

#### 2. 呈現方式舉例

### http://journals.plos.org/plosone/article?id=10.1371 %2Fjournal.pone.0148257

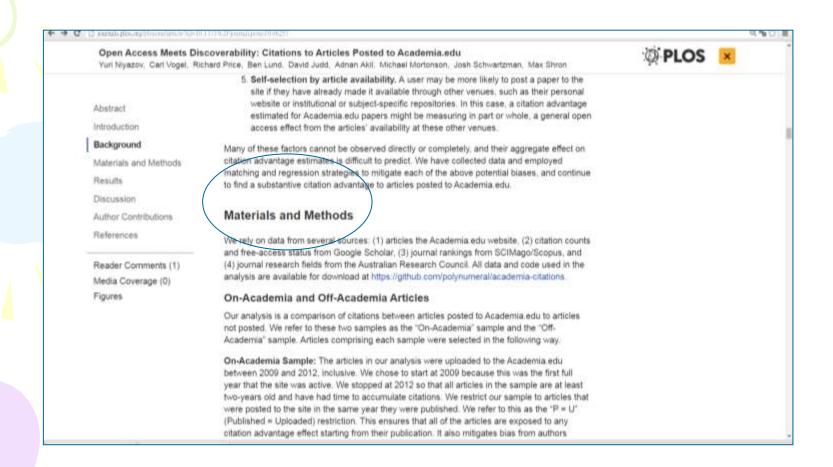


## http://journals.plos.org/plosone/article?id=10.1371 %2Fjournal.pone.0148257



 Data Availability: Data from the "Open Access Meets Discoverability" paper are available at https://github.com/polynumeral/academia-citations.

### http://journals.plos.org/plosone/article?id=10.1371 %2Fjournal.pone.0148257



#### Materials and Methods

Academia.edu website, (2) citation counts and free-access status from Google Scholar, (3) journal rankings from SCIMago/Scopus, and (4) journal research fields from the Australian Research Council. All data and code used in the analysis are available for download at <a href="https://github.com/polynumeral/academia-citations">https://github.com/polynumeral/academia-citations</a>.

### http://journals.plos.org/plosone/article?id=10.1371 %2Fjournal.pone.0148257

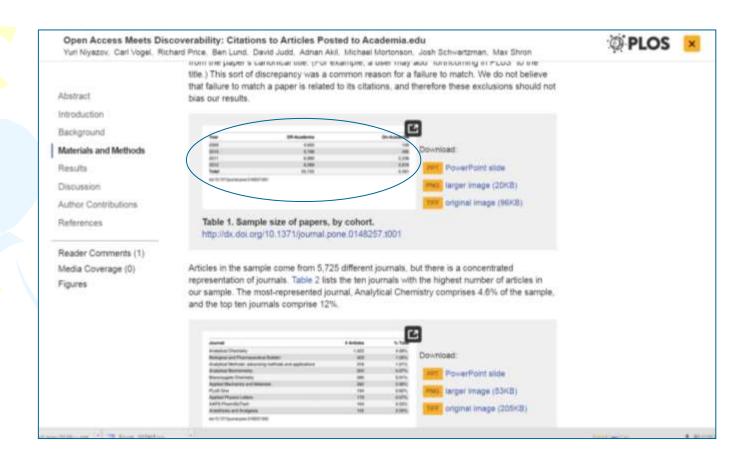


Table 1. Sample size of papers, by cohort.

Year	Off-Academia	On-Academia
2009	4,600	149
2010	5,768	490
2011	6,989	2,236
2012	8,368	2,616
Total	25,725	5,491

doi:10.1371/journal.pone.0148257.t001



35

## http://journals.plos.org/plosone/article?id=10.1371 %2Fjournal.pone.0148257

#### Open Access Meets Discoverability: Citations to Articles Posted to Academia.edu

Yuri Niyazov, Carl Vogel, Richard Price, Ben Lund, David Judd, Adnan Akil, Michael Mortonson, Josh Schwartzman, Max Shron





Abstract

Introduction

Background

Materials and Methods

Results

Discussion

#### **Author Contributions**

References

Reader Comments (1) Media Coverage (0) Figures

#### **Author Contributions**

Conceived and designed the experiments: YN CV RP. Performed the experiments: YN CV DJ MS. Analyzed the data: YN CV. Wrote the paper: CV BL RP YN. Performed first version of experiment: AA JS. Wrote software for analysis: DJ YN CV. Performed Internal Audit of Final Experiment: MM.

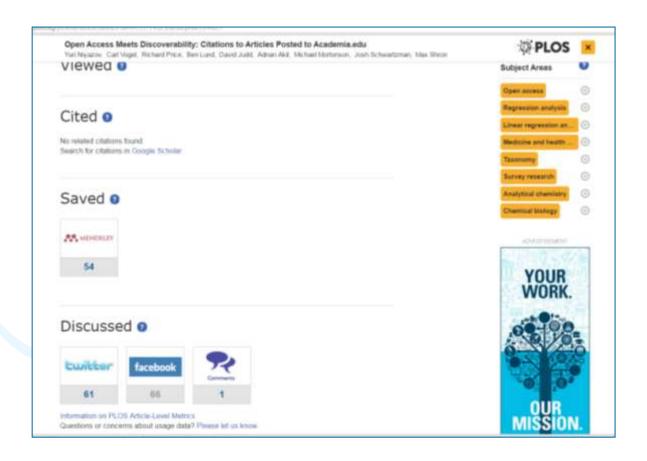
#### References

- Eysenbach G. Citation advantage of open access articles. PLoS biology. 2006 05;4(5):e157. doi: 10.1371/journal.pbio.0040157. pmid 16683865
   View Article • PubMed/NCBI • Google Scholar
- Gargouri Y, Haijem C, Larivière V, Gingras Y, Carr L, Brody T, et al. Self-Selected or Mandated, Open Access Increases Citation Impact for Higher Quality Research. PLoS ONE. 2010 10;5(10):e13636. doi: 10.1371/journal.pone.0013636. pmid:20976155
   View Article • PubMed/NCBI • Google Scholar
- Davis PM, Lewenstein BV, Simon DH, Booth JG, Connolly MJL. Open access publishing, article downloads, and citations: randomised controlled trial. BMJ. 2008;337. doi: 10.1136/bmj.a568.

View Article . PubMed/NCBI . Google Scholar

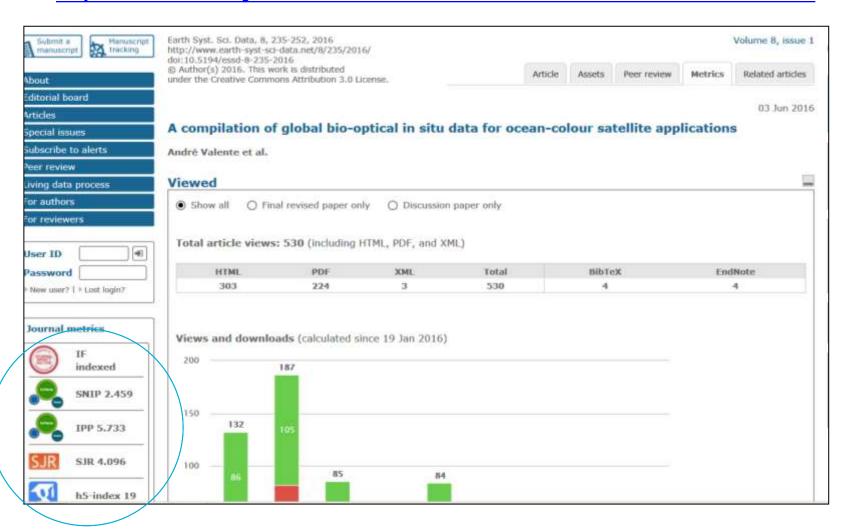
 Davis PM. Open access, readership, citations: a randomized controlled trial of scientific journal publishing. The FASEB Journal. 2011;25(7):2129–2134. doi: 10.1096/fj.11-183988. pmid:21450907

### http://journals.plos.org/plosone/article?id=10.1371 %2Fjournal.pone.0148257



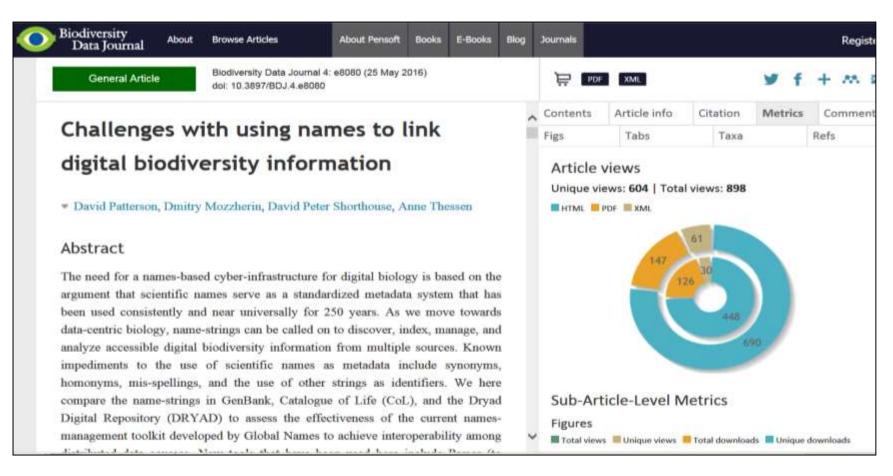
### Earth System Science Data – 期刊影響力

http://www.earth-syst-sci-data.net/8/235/2016/essd-8-235-2016-metrics.html



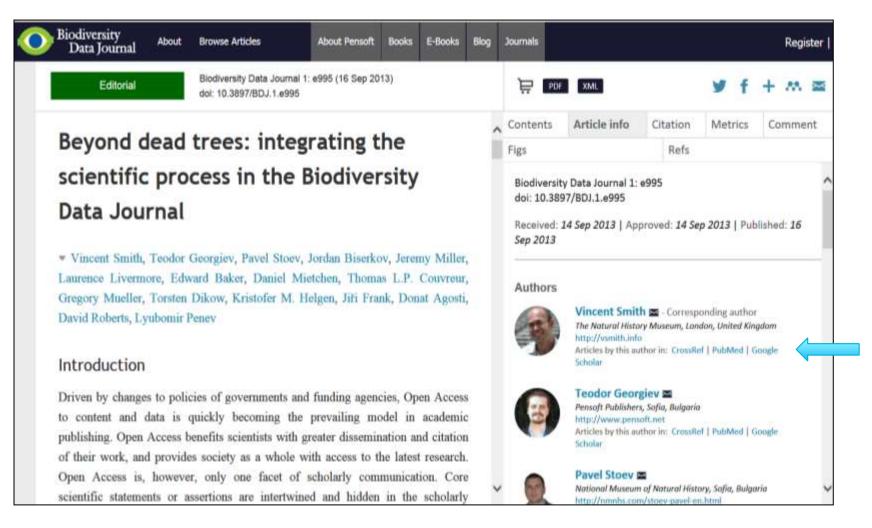
### 論文的影響力-BDJ

http://bdj.pensoft.net/articles.php?id=8080&display\_type=list&ele ment\_type=11



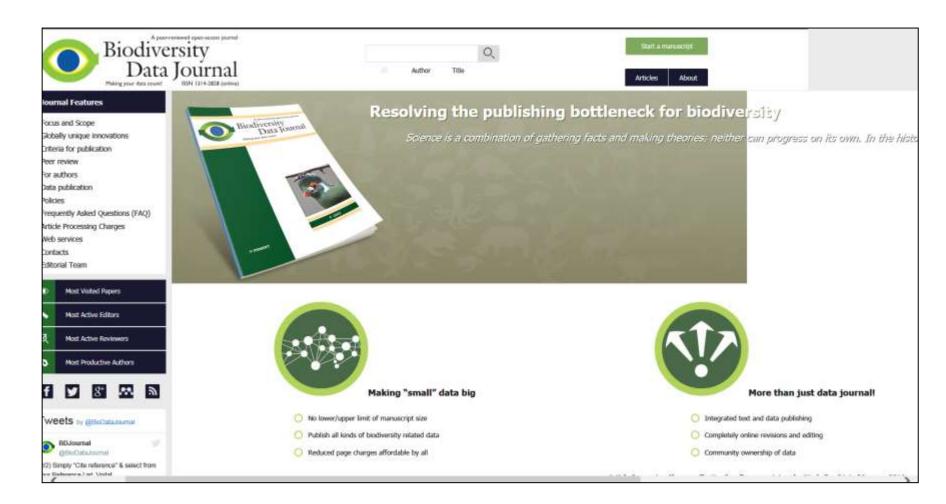
### 論文的影響力-BDJ

http://biodiversitydatajournal.com/articles.php?id=995&display\_ty pe=list&element\_type=11

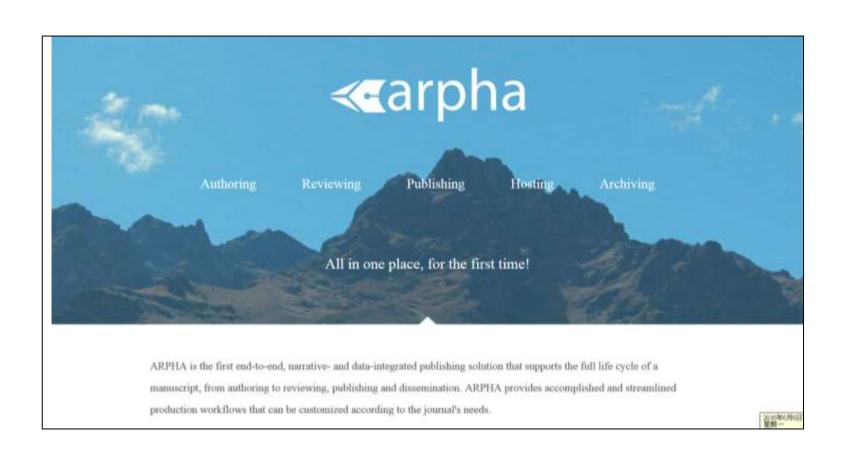


## 3. 出版流程進化之例-BDJ

http://bdj.pensoft.net/



## BDJ採用 Arpha 出版平台 http://arphahub.com/

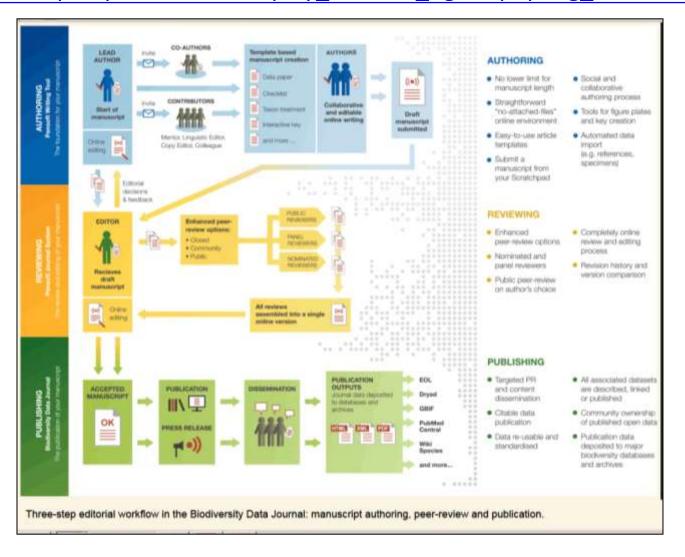


### http://arphahub.com/

 ARPHA is the first end-to-end, narrative- and data-integrated publishing solution that supports the full life cycle of a manuscript, from authoring to reviewing, publishing and dissemination. ARPHA provides accomplished and streamlined production workflows that can be customized according to the journal's needs.

## Three-step editorial workflow in the Biodiversity Data Journal: manuscript authoring, peer-review and publication.

http://arpha.pensoft.net/display\_zoomed\_figure.php?fig\_id=347384



### 4. 動態出版 – Evolving Manuscript

https://royalsociety.org/~/media/events/2015/04/FSSC1/FS SC-Report.pdf

The future of scholarly scientific communication

Conference 2015

# 2015 The NMC Horizon Report

also presents the exciting concept of an "evolving manuscript," which is an ongoing paper rather than a published paper that is frozen at a particular moment. Such manuscripts would allow for the evolution of scholarship to be presented and captured over time. There are still inherent challenges regarding how to preserve such a dynamic record. That said, such manuscripts could be presented in discrete and tangible packages that allow for easier collection and preservation

### http://www.niso.org/publications/rp/RP-8-2008.pdf



NISO-RP-8-2008

# Journal Article Versions (JAV): Recommendations of the NISO/ALPSP JAV Technical Working Group

April 2008

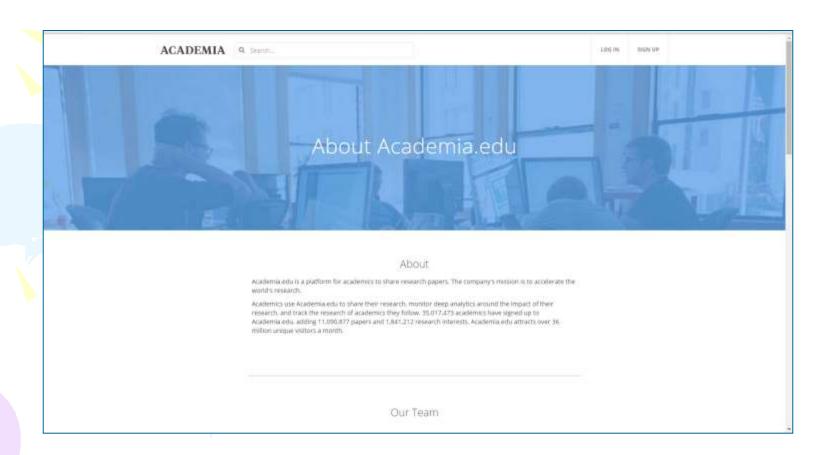
## 5. 典藏作業

- 單位擴增
  - 出版單位
  - 圖書館
  - 研究機構
  - 企業機構
  - 一個人
  - 第三者 (Third party)
    - Portico, Clockss,
       Lockss
  - 聯合典藏

- 機制改變
  - 圖書資訊專業人員
  - 著者參與
  - 系統互操
    - Jisc publication
       Router

## Academia.edu (1/3)

https://www.academia.edu/about



## Academia.edu (2/3)

https://www.academia.edu/about

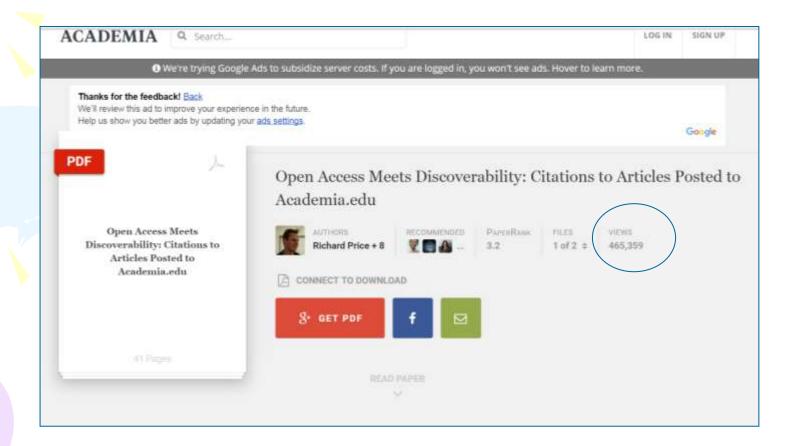
 Academia.edu is a platform for academics to share research papers.
 The company's mission is to accelerate the world's research.

## Academia.edu (3/3)

https://www.academia.edu/about

- Academics use Academia.edu to share their research, monitor deep analytics around the impact of their research, and track the research of academics they follow.
- 38,539,016 signed up
- 12,980,662 papers
- 1,879,716 research interests.
- over 36 million unique visitors a month. (2016-06-12)

## https://www.academia.edu/12297791/Open Access Meets Discoverability Citations to Articles Posted to Academia.edu



## ResearchGate (1/3)

https://www.researchgate.net/about

• Founded in 2008 by physicians Dr. Ijad Madisch and Dr. Sören Hofmayer, and computer scientist Horst Fickenscher, ResearchGate today has more than 9 million members. We strive to help them make progress happen faster.

## ResearchGate (2/3)

https://www.researchgate.net/about

Mission

To connect researchers and make it easy for them to share and access scientific output, knowledge, and expertise.

On ResearchGate they find what they need to advance their research.

## ResearchGate (3/3)

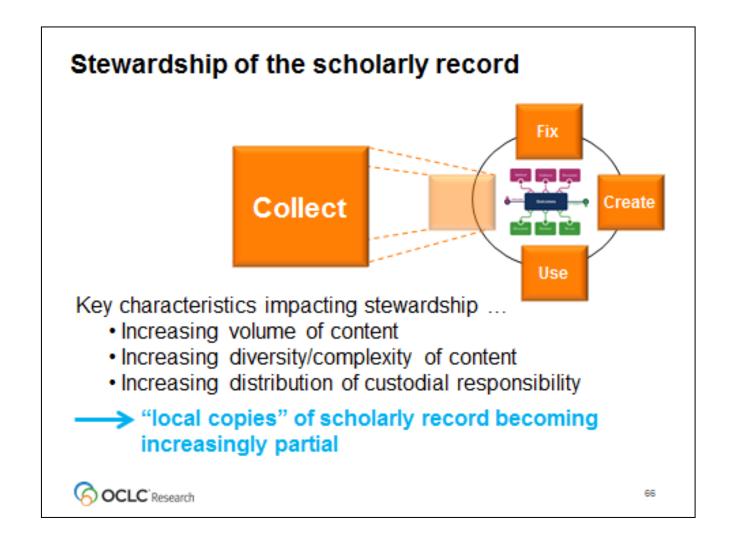
https://www.researchgate.net/about

- The New York Times
  - For a common purpose of advancing scientific research.
  - Cracking Open the Scientific Process.
- Reuters
  - ResearchGate allows researchers around the world to collaborate more easily.
- Science
  - Pioneers

## 出版者與典藏單位互操 Jisc Publication Router

https://pubrouter.jisc.ac.uk/

 Publications Router gathers information from content providers such as publishers and passes it on to institutions to help them capture their research articles onto their systems, such as their repositories or CRISs. The Evolving Scholarly Record: Scope, Stakeholders, and Stewardship Brian Lavoie, CNI Spring Meeting, April 1, 2014, St. Louis, Missouri http://www.oclc.org/research/presentations.htm



## 6. 傳播模式

- 朝向 OA 發展
  - Open Access 2020
- 多面向擴展
  - Open Access Article
  - Open Access Book
  - Open AccessTextbook
  - Open Data
  - Open evaluation
  - Open Metrics

- 費用問題
  - subscription fee
  - APC
  - Springer Compact
  - Central Charge
- 品質憂慮
  - Predatory Open
     Access Journal
    - Beall's List
    - megajournal

## The Competitiveness Council meeting in Brussels, May 2016.



The Competitiveness Council meeting in Brussels this week.

EU Competitiveness Council



In dramatic statement, European leaders call for 'immediate' open access to all scientific papers by 2020, By Martin Enserink, May. 27, 2016.

http://www.sciencemag.org/news/2016/05/dramatic-statement-european-leaders-call-immediate-open-access-all-scientific-papers

• In what European science chief Carlos Moedas calls a "life-changing" move, E.U. member states today agreed on an ambitious new open-access (OA) target. All scientific papers should be freely available by 2020, the Competitiveness Council a gathering of ministers of science, innovation, trade, and industry—concluded after a 2-day meeting in Brussels

## 亞洲響應 Open Access 2020 的單位

http://oa2020.org/mission/

### 韓國

- National Library of Korea 2016-03-24
- Seoul National University Library (SNU Library)
   2016-03-21
- KISTI (Korea Institute of Science and Technology Information) 2016-03-21
- CODE 2016-03-21

### 印度

- Open Access India 2016-05-20

### **Traditional**

### **Born OA**















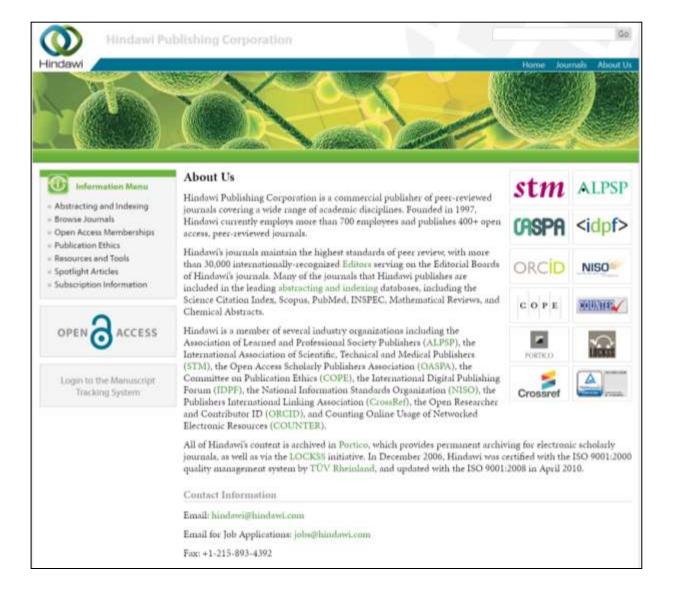








### http://www.hindawi.com/about/



### Open Book

http://www.knowledgeunlatched.org/



## Knowledge Unlatched

http://www.knowledgeunlatched.org/

• KU is helping stakeholders to work together for a sustainable open future for specialist scholarly books. Our vision is a healthy market that includes free access for end users.

### http://www.doabooks.org/



### http://open.umn.edu/opentextbooks/



### Make a difference in your students' lives with free, openly-licensed textbooks.

#### Textbooks every student can access and afford

Open textbooks are textbooks that have been funded, published, and licensed to be freely used, adapted, and distributed. These books have been reviewed by faculty from a variety of colleges and universities to assess their quality. These books can be downloaded for no cost, or printed at low cost. All textbooks are either used at multiple higher education institutions; or affiliated with an institution, scholarly society, or professional organization.

The Open Textbook Library is supported by the Center for Open Education and the Open Textbook Network.

### https://research.cehd.umn.edu/otn/



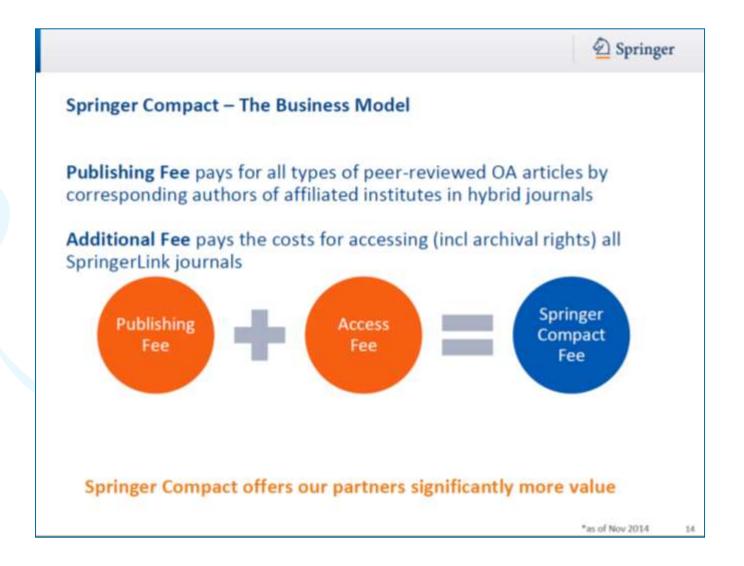
### TOGETHER, WE ARE TRANSFORMING HIGHER EDUCATION

The Open Textbook Network (OTN) promotes access, affordability, and student success through the use of open textbooks.

We believe in the power of open education to transform higher education. Open textbooks not only contribute to student academic success, but also offer faculty the chance to reclaim their courses based on their expertise.

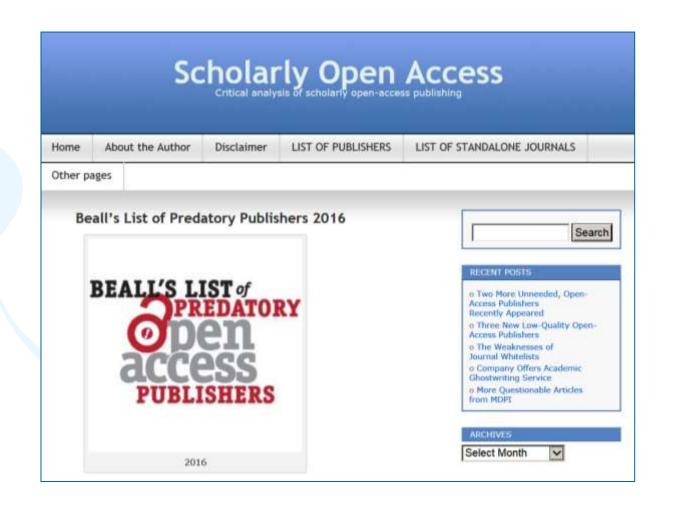
The leadership, actions, and results of <u>our network members</u> drive this transformation, and OTN connects these efforts to pool expertise and promote best practices. Be a part of our community of schools, universities, and institutions making a difference in higher education. Learn about the benefits of membership, and get in touch to

## http://www.liber32015.org.uk/wp-content/uploads/2015/0/Springer-Compact.pdf



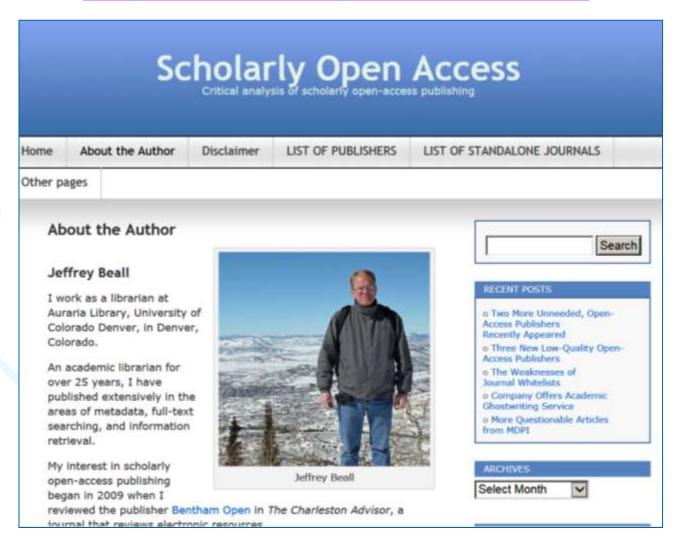
### OA 期刊品質問題

https://scholarlyoa.com/2016/01/05/bealls-list-of-predatorypublishers-2016/

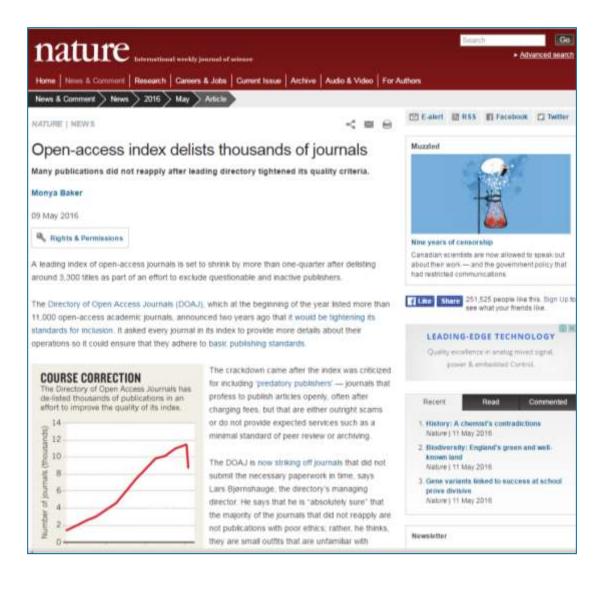


### Jeffrey Beall:揭發OA期刊黑名單

https://scholarlyoa.com/about/

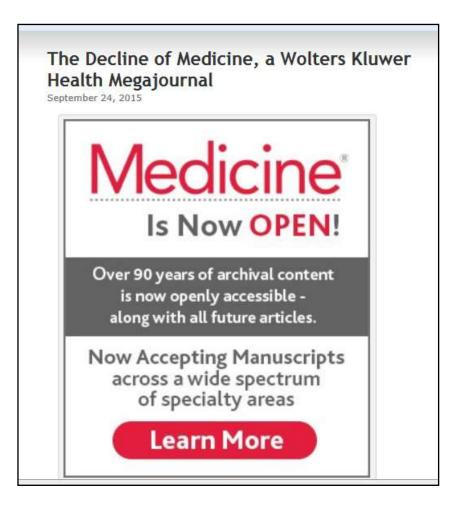


## http://www.nature.com/news/open-access-index-delists-thousands-of-journals-1.19871



## The Decline of Medicine, a Wolters Kluwer Health Megajournal

https://scholarlyoa.com/2015/09/24/the-decline-of-medicine-a-wolters-kluwer-health-megajournal/#more-5993

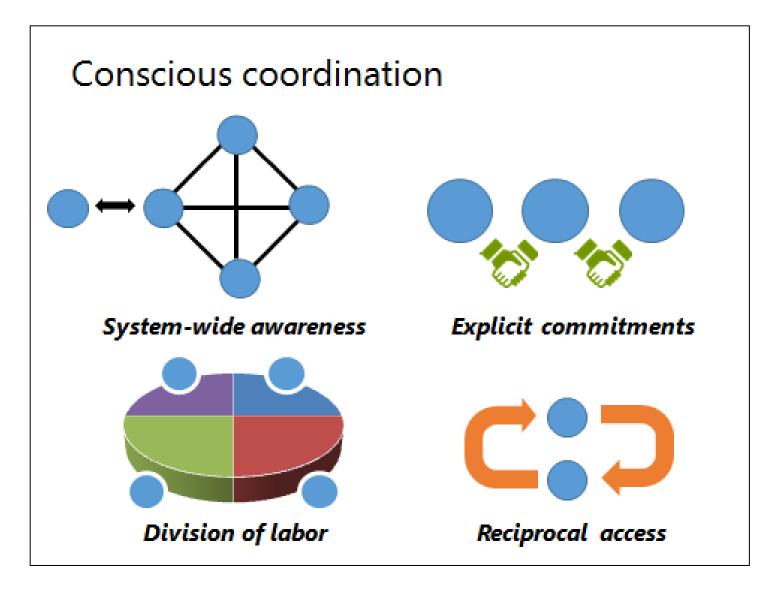


- In 2013, published 6 issues.
- In mid-2014, when the switch to APC,
- The journal began publishing weekly issues.
- Each issue has 20 to 40 articles, and the author fee is \$1,400.
- If about 30 articles are published per issue, that translates into \$2,184,000 in income for the year (30 articles x 52 issues x \$1,400),

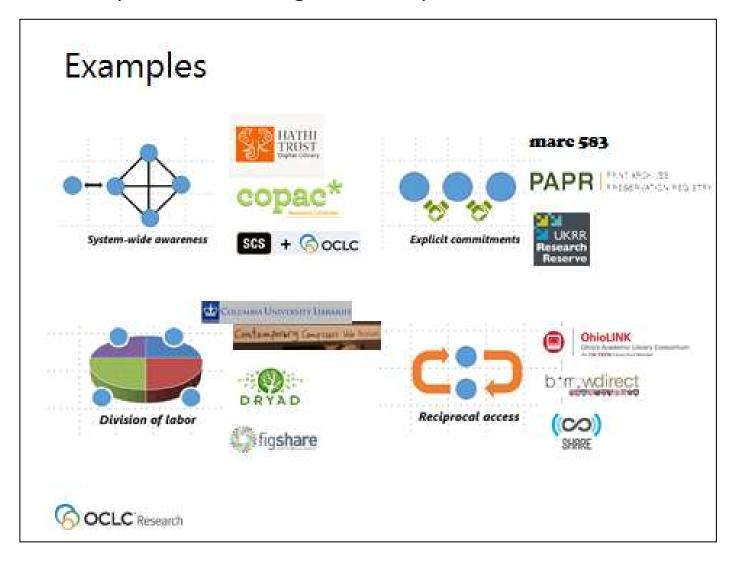
# 學術傳播蛻變下大學圖書館因應之道

- 營運的策略
  - OCLC 的觀點
  - 各校的應變
- 大學圖書館的角色

The Evolving Scholarly Record: Scope, Stakeholders, and Stewardship Brian Lavoie, CNI Spring Meeting, April 1, 2014, St. Louis, Missouri http://www.oclc.org/research/presentations.htm



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### Use of print collections

Pittsburgh study 1979

Cornell study 2010

40% of collection never circulates

If a book isn't borrowed during first 6 years, only 2% chance it will ever be used

55% of books purchased since 1990 never borrowed

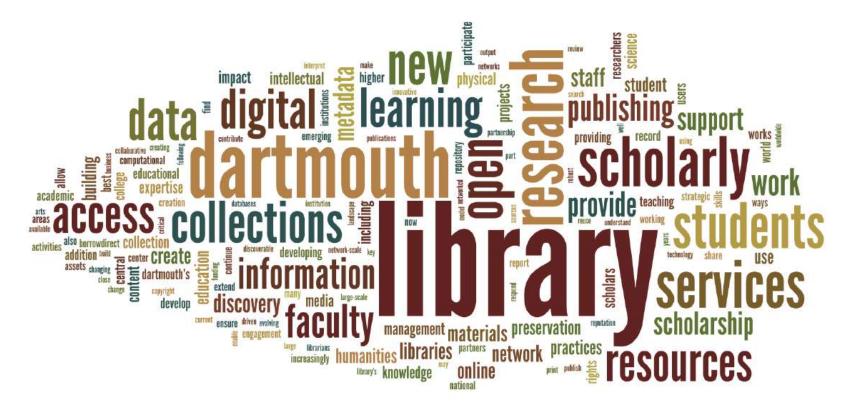
65% of books purchased in 2001 hadn't been borrowed

Average circulation from open shelf collections

Average circulation from high density collections

Average circulation from off-site storage

# Dartmouth College Library: Strategic Thinking 2015--2020



## Dartmouth College Library: Strategic Thinking 2015--2020

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## Sustaining the scholarly record

- Open Access
- Digital Publishing
- Student Publishing
- Digital Preservation
- New Scholarly Discourse

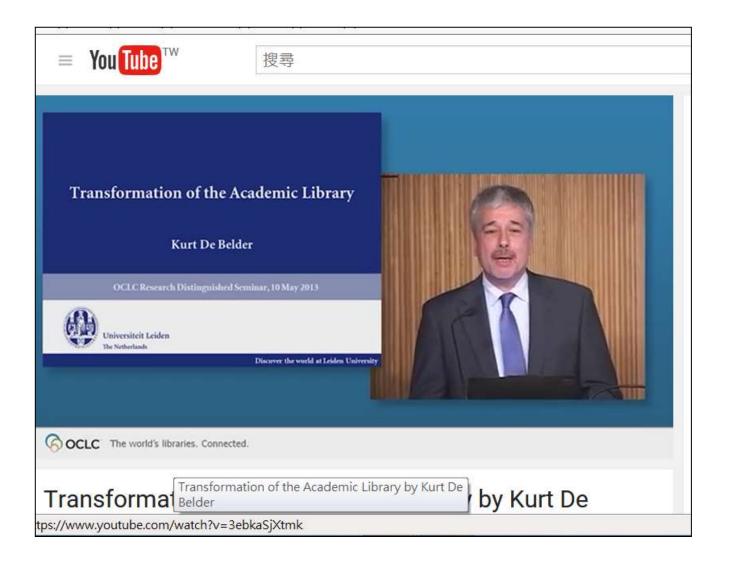
## New Scholarly Discourse

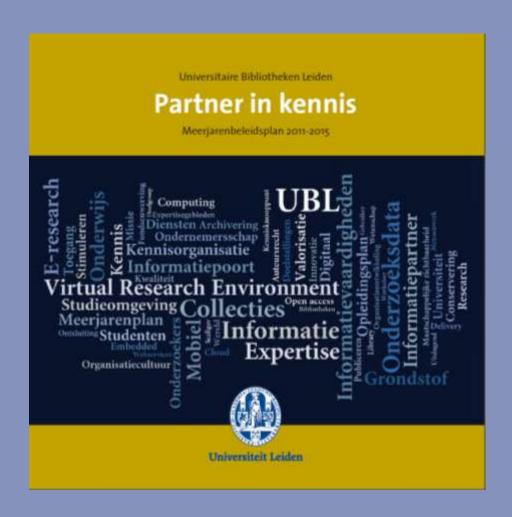
• OCLC Research's The Evolving Scholarly Record identifies an "aftermath" phase of materials that authors may wish to link to or store with their works, including online discussion, comments, and annotations, and conference presentations. The Library would like to contribute to the management of these new components of the scholarly record.

## New Scholarly Discourse

 The 2010 final report from the National Science Federation's Blue Ribbon Taskforce on Sustainable Digital Preservation and Access recommended exactly this, saying that "Libraries, scholars, and professional societies should develop selection criteria for emerging genres in scholarly discourse.

#### https://www.youtube.com/watch?v=JNLN72Y-fUI





## Leiden University Libraries – Strategic plan 2011-2015: Partner in Knowledge

### Partner in Knowledge (1)

• Library to become expert centre digital information for research and teaching.

```
    New areas of expertise in research support:
        o Virtual Research Environments (production)
        o Data management & curation (pilots)
        o Text & data mining (exploring project)
        o Copyright (production)
        o GIS (exploring project)
        o Publication support (exploring project)
        o [further areas to be identified through in-depth focus group discussions with researchers]
```

### Partner in Knowledge (2)

- New developments in teaching support
  - VRE's for education (pilots)
  - Thesis repository (BA/MA) (production)
  - Digital info skills in curriculum (production)
  - Support for OpenCourseWare (pilots)
  - Support for MOOCS (pilots)

### Partner in Knowledge (3)

- Important for Leiden University Libraries:
  - o One organisation in 2010
  - o Strategic plan developed with library staff
  - o Changes in function profiles (e.g. subject specialists)
  - o Within appointments time explicitly allocated for development of new expertise
  - o Focus on working in projects
  - o Sufficient funding for staff training and development

### Partner in Knowledge (4)

- Approach
  - o Increased emphasis on expertise approach instead of subject approach.
  - o Balance between own expertise and mediation.
  - o Collaboration is central: with faculty & researchers, research groups, teaching & research units, academic affairs, computing centre, CWTS and external partners such as SURF, national data archives (DANS & 3TU.Datacentre), Microsoft Research.
  - o Bottom up but accompanied by strategic discussion at leadership level of university.

#### http://davidlankes.org/?page\_id=7071

The MISSION of LIBRARIANS is to IMPROVE SOCIETY through FACILITATING KNOWLEDGE CREATION in their COMMUNITIES



#### http://quartz.syr.edu/rdlankes/Presentations/2014/Wisc-Lankes.pdf

Bad Libraries Build Collections,
Good Libraries Build Services,
Great Libraries Build Communities



#### R. David Lankes, The New Librarianship Field Guide, MIT Press, 2016.

#### Academic libraries and librarians

- should create an active research agenda
- work shoulder to shoulder with students
- incubate new forms of instruction
- transform the university press into a community publisher that also produces apps and courseware
- help departments make informed tenure and promotion decisions.

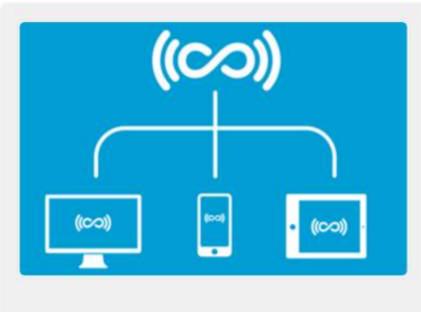
"Where Libraries Go From Here" By Carl Straumsheim, Inside Higher ED, June 8, 2016 https://www.insidehighered.com/news/2016/06/08/qa-author-book-how-librarians-can-better-serve-higher-education?utm\_source=Inside+Higher+Ed&utm\_campaign=ba0d4e3053-DNU20160608&utm\_medium=email&utm\_term=0\_1fcbc04421-ba0d4e3053-

*199153489#.V1jE0e61x3Q.twitter* 

#### http://www.oclc.org/en-US/memberstories/share.html



#### Embed your library in the research process





"Librarians need to be more involved in the process of scholarship, not just collecting its output."

#### Judy Ruttenberg

Program Director for Transforming Research Libraries, Association of Research Libraries





### 結語

- 正式與非正式傳播管道融合
- 人文與科技趨向一致
- 情境導向的呈現方式: Context, silo
- 新的傳播工具、平臺
- 營運的策略日新月異
- 館員的角色必須重新定位
  - -融入研究、教學的流程
  - 發揮對所屬機構的影響力
- 創新帶來正、負影響



謝謝聆聽 敬請指教!