Scholarly Communication Models in Flux!

GRIPS Seminar: Policy for Higher Education and University-Industry Cooperation

December 26th, 2018

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National Institute of Informatics
Today’s Talk

1. Serials Crisis and E-Journals
2. Open Access Movement among the Academia
3. Move at Governmental-level
4. Various Publishing Platforms and Funding Schema
5. Issues of OA and the Flipping to OA
6. Latest Bold Move by European Funding Agencies and China
7. Future of Scholarly Communication
1. Serials Crisis and E-Journals
How it started: “Serials Crisis”

- Journal subscription cost rising faster than the inflation speed

- Four times higher in 2011 than 1986

*Includes electronic resources from 1999-2011.
Subscription Cost Trends in STEM Fields
(Printed Bulletins)

Annual Increase Rate: 8.17%

Subscription Cost Trends in non-STEM Fields
(Printed Bulletins)

Annual Increase Rate:

- Business & Economics: 9.95%
- Military & Naval Sciences: 10.5%
- Education: 9.9%
- Non-STEM Fields Average: 8.7%

Subscription Cost Trends in STEM Fields
(Electric Journals)

Annual Increase Rate: 4.40%

Subscription Cost Trends in non-STEM Fields
(Electric Journals)

**Annual Increase Rate: 5.46%**

Business & Economics 19.9%
Military & Naval Science 4.98%
Political Science 4.8%
Education 6.6%
Average 6.6%

Source: “Periodicals Price Survey,” Library Journal （edited by JUSTICE）
Dramatic Increase in Available Journals through E-Journals

Total Journal Subscription Cost and Available Journals for Average Japanese Universities
Shrinking the digital divide by the size of universities

Each university can read almost the same amount.
Comparing journals contracts by e-journals vs printed bulletins

<table>
<thead>
<tr>
<th></th>
<th>E-Journals</th>
<th>Printed Bulletins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase Item</td>
<td>Access Right</td>
<td>Printed Matters</td>
</tr>
<tr>
<td>Purchase Unit</td>
<td>Bundled Package or by Periodicals</td>
<td>By Periodicals</td>
</tr>
<tr>
<td>Durability</td>
<td>Not granted</td>
<td>Almost forever!</td>
</tr>
<tr>
<td>Available Titles</td>
<td>Many!</td>
<td>Purchased titles only</td>
</tr>
<tr>
<td></td>
<td>As much as offered by package</td>
<td></td>
</tr>
<tr>
<td>Usability</td>
<td>Instant Use, anytime, everywhere</td>
<td>Burdensome</td>
</tr>
<tr>
<td>Manageability</td>
<td>Easy to manage! Statistics also available</td>
<td>Burdensome</td>
</tr>
</tbody>
</table>

E-journals are so easy to use!
Elsevier’s Full-text DB: Science Direct

- Over 15 million publications
- Over 3,800 journals & serials, representing more than 612,000 issues
- Over 37,000 books, including reference works
- Digital archives that reach as far back as 1823
Top three publishers make more than half of subscription cost

Subscription cost of Japanese universities to international academic journals F.Y. 2017

The impact of top three are big!
The package contract of academic journals (Big Deal)

- **Big Deal:**

  A package contract which allows access to **all** journals which a publisher publishes.

  - Journals which a university had no access.
  - By paying a small amount of additional charges, they become accessible.
  - The amount varies by the size of FTE of respective university.
  - Number of subscribed journals when switching from print to e-journals
  - This becomes the earmark of contract price. This amount is not allowed to change.

Attractive! But also dangerous!
Varying cost by universities

Univ. A (Big)

Subscribed Journals (500)
Not Subscribed Journals (1,500)

Subscribed 1.8m US$ +
Non-subscribed 0.2m US$

= 2mil US$

Univ. B (Medium)

Subscribed Journals (300)
Not Subscribed Journals (1,700)

Subscribed 0.9m US$ +
Non-subscribed 0.1m US$

= 1mil US$

Univ. C (Small)

Subscribed Journals (100)
Not Subscribed Journals (1,900)

Subscribed 0.25m US$ +
Non-subscribed 0.05m US$

= 0.3mil US$

Every university has access to 2000 journals!
E-Journals squeezing the books and printed matters

Total Journal Subscription Cost and its Percentage to Whole University Budget for Average Japanese Universities

The impact of canceling e-journals is so big!
When cancelling the Big Deal

- Printed Bulletins
  - Subscribed (300)
  - Non-Subscribed (1,700)
  - 0.9m US$ 300 Journals

- E-Journals
  - Subscribed (300)
  - Subscribed (250)
  - 0.9m US$ 250 Journals
  - 0.9m US$ 150 Journals
  - 0.9m US$ 70 Journals

E-journals subscription by journal titles
Japanese universities giving up on package subscription

A

B

C

Number of Universities

2012 2013 2014 2015 2016 2017

150 160 170 180 190 200 210 220 230 240 250 260

2012 2013 2014 2015 2016 2017

2012 2013 2014 2015 2016 2017
All Universities in the World suffering

Over time, however, the actual value of these “big deals” has grown less clear. Publishers have often raised the price of the packages by 5-15%, far outpacing library budgets.

<table>
<thead>
<tr>
<th>Institution/Consortium</th>
<th>Date</th>
<th>Region</th>
<th>Publisher(s)</th>
<th>Strategic Considerations</th>
<th>Outcome</th>
<th>Estimated Annual Savings (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida State University</td>
<td>2019</td>
<td>United States</td>
<td>Elsevier</td>
<td>Florida State University</td>
<td>The FSY Faculty</td>
<td>Undisclosed</td>
</tr>
</tbody>
</table>

(出典)SPARC, “Big Deal Cancellation Tracking”
https://sparcopen.org/our-work/big-deal-cancellation-tracking/
Attention required in the details of the contract

Back File
- Digitized contents of prints
- One-time purchase

Once purchased, universities have permanent access

Digitized contents published as printed matters

Subscription Journals
In general, universities have access to subscribed journals even after expiration of contract; but sometimes, it differs.

Print to Digital Era

Big Deal Contract

Non-Subscribed Journals

By cancelling the Big Deal, you lose access to the non-subscribed journals!

You have to buy the back file to have access!

Number of journal titles

Year

Contract by Journal Titles
2. Open Access Movement among the Academia
We are writing the articles!

Isn’t it unfair that the publishers are making profit, and many academics cannot even afford to read the articles?!

The journal subscription is too expensive!
Protest from Academia (2)

- “Subversive Proposal”
  - Steve Harnad (1994)
  - Called for scholarly articles to be freely available on the Internet, instead of published in print for the sake of royalties.

- “An Open Letter to Scientific Publishers”
  - 34,000 scholars worldwide (2001)
  - Called for the establishment of an online public library and pledging to refrain from publishing in traditional non-open-access journals.
Petition for Boycotting Elsevier — Cost of Knowledge

- Cambridge mathematician Timothy Gowers calling for Elsevier Boycott (2012.1.21)
- Asking not to publish, peer-review, edit at Elsevier journals.
  - 34 eminent mathematicians signing the “Cost of Knowledge” (2012.2.8)
  - More than 17 thousand people signing (2018.7).

http://www.thecostofknowledge.com/
Elsevier’s Profit Margin at around 40%

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0127502

We are not writing articles for publishers to make money!

Fig 7. Operating profits (million USD) and profit margin of Reed–Elsevier as a whole (A) and of its Scientific, Technical & Medical division (B), 1991–2013.

- Operating profits
- Profit margin

- Springer Science+Business Media (2012): 35%
- John Wiley & Sons’ Scientific, Technical, Medical and Scholarly division (2013): 28.3%
- Taylor and Francis (2013): 35.7%

37% Profit Margin! (FY 2017)


Provided definition of OA

Two ways to achieve OA:

1. Self-Archiving (green OA)
   - Author’s final manuscript or the publisher’s version after a certain embargo period is archived on a website accessible worldwide.

2. Open-access Journals (gold OA)
   - Subscription fees are omitted instead of a fee charged to the author, usually called the article processing charge (APC).

Source: Budapest Open Access Initiative
http://www.budapestopenaccessinitiative.org/read
Self-Archiving — green OA

Making research articles available on the Internet.

- Institutional Repositories
- Disciplinary Repositories
- Online Sites
- Preprint Server
- Submit Article
- Researcher
- ‘Found it!’

The copyright of printed-version belongs to the publishers. Thus, only final manuscripts are allowed to be made open.

- Some libraries inputs the bibliographic metadata for the researchers.
- Contents at repositories are searchable through research article discovery services such as OpenAIRE.
- Most journals allow printed-version to be made available after certain embargo period.

arXiv, bioRxiv, SocArXiv
OA policy for enabling universities to publish author’s final manuscript

- Faculty of Arts and Sciences at Harvard to adopt the first OA policy to enable green OA.
- Hereinafter, other universities following.
- MIT to become the first university to adopt university-wide OA policy. (2009.3.18)

**OA Policy**

1. Faculty grants university right to disseminate the author’s final manuscript.
2. Author has the right to decide by each article.
3. Faculty deposits e-copy to institutional repository.
4. University makes article OA through institutional repository.

Source: MIT Faculty Open Access Policy
https://libraries.mit.edu/scholarly/mit-open-access/open-access-policy/
Number of OA policies adopted

The OA policies vary by institutions

Source: Registry of Open Access Repository Mandates and Policies (ROARMAP)
http://roarmap.eprints.org/
Open Access Journals —gold OA

OA journals make articles available open, instantly!

Hybrid Journals

OA articles have chance for higher citation!

Openly accessible!

Submit Article
Publish OA

Open accessed by articles
OA Journals ask researchers, not the readers and universities, to cover the publishing cost.

**Subscription Model**

Researchers submit articles to publishers who charge subscription fees. Libraries pay to distribute the journals.

**Open Access Model**

Researchers pay Article Processing Charges (APCs) to publish articles. The articles become openly available to the public. Openly available!
How many articles can you publish with average APC US$1000-2000?

Source: Open Science, "How Much Do Top Publishers Charge for Open Access?" (2017.4.20)
Compact for OA Publishing Equity (COPE) — Universities committing to support APCs

The Compact for Open-Access Publishing Equity

We, the undersigned universities, recognize the crucial value of the services provided by scholarly publishers, the desirability of open access in the scholarly literature, and the need for a stable source of funding for publishers who choose to provide open access to their journals. These universities and funding agencies recognize the benefits of publisher services and should recognize the collective and individual responsibility for that funding, and this recognition should be ongoing and public so that publishers can rely on it as a condition for their continuing operation.

Therefore, each of the undersigned universities commits to the timely establishment of durable mechanisms for underwriting reasonable publication charges for articles written by its faculty and published in fee-based open-access journals and for which other institutions would not be expected to provide funds. We encourage other universities and research funding agencies to join us in this commitment, to provide a sufficient and sustainable funding basis for open-access publication of the scholarly literature.

Source: Compact for Open-Access Publishing Equity
http://www.oacompact.org/

COPE Signatories

Cornell University
Dartmouth College
Harvard University
MIT
University of California at Berkeley
University of Ottawa
Columbia University
Memorial Sloan-Kettering Cancer Center
Universitat de Barcelona
Duke University
University of Calgary
Simon Fraser University
European Organization for Nuclear Research (CERN)
Karlsruhe Institute of Technology
University of Utah
University of Pittsburgh
University of Tennessee, Knoxville
Texas A&M University
Emory University
University of Rhode Island

COPE Signatories (COPE署名なし)

Brandeis University
Carnegie Mellon University
Colorado State University
ETH Zurich
George Mason University
Indiana University-Purdue University Indianapolis
Johns Hopkins University
Lund University
Northern Illinois University
Southern Illinois University Carbondale
Tufts University
University of Bielefeld
University of California, Davis
University of California, Irvine
University of California, Merced
University of California, San Diego
University of California, San Francisco
University of California, Santa Barbara
University of California, Santa Cruz
University of Colorado
University of Florida
University of Illinois at Chicago
University of Iowa
University of Kansas
University of Manitoba
University of Minnesota
University of North Carolina at Chapel Hill
University of North Carolina at Charlotte
University of Oklahoma
University of Oregon
University of Tromsø
University of Wisconsin - Madison
Wake Forest University
3. Move at Governmental-level
Move at Governmental-level

☐ Protest from a medical patient
  ➢ “It is unfair that taxpayers do not have access to academic articles and thus cannot study their own medical condition, as the price of academic journals is exorbitant”.

☐ Funding agencies start making OA a mandate for scholarly articles funded publicly
  ▪ NIH(US)-2008-“NIH Public Access Policy”
  ▪ RCUK(UK)-2013-provides grant to universities for APC
The push which triggered US government to adopt OA policy
PubMed Central (PMC)—The first digital repository established by a funder to comply for OA mandate

- Online research articles archive in biomedical and life sciences established by NIH.
- As of 2007, NIH made OA a mandate for research outputs funding by NIH.
  - Researchers must archive their author’s final version on PMC.
- As of July 2018, about 5 million articles available.

(Note) PubMed Central is renamed to PMC in 2012.

https://www.ncbi.nlm.nih.gov/pmc/
UK Funders to support APC

The investment will enable a number of research-intensive UK institutions to kick-start the process of developing policies and setting up funds to meet the costs of article processing charges (APCs). This is in line with the recommendations of the Finch report on open access, published in June.

Source: Government invests £10 million to help universities move to open access (2012.9.7)
RCUK Open Access Block Grant

- RCUK awards universities with block grants based on number of publications the previous year.
- Each university supports researchers with APCs within the respective institution.

Summary of APC costs (FY 2016/17)

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Full OA</th>
<th>Hybrid Js</th>
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<tbody>
<tr>
<td>Value of block grant awarded</td>
<td>US$18M</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(£14M)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Articles which an APC was paid</td>
<td>10K</td>
<td>2.5K</td>
<td>7.5K</td>
</tr>
<tr>
<td>Average APC</td>
<td>US$2500</td>
<td>$2100</td>
<td>$2653</td>
</tr>
<tr>
<td></td>
<td>(£1988)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total RCUK spend on APCs</td>
<td>US$23M</td>
<td>US$5M</td>
<td>US$20M</td>
</tr>
<tr>
<td></td>
<td>(£18M)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OA block grant awards
Top 10

- UCL (£1.63M)
- Cambridge U (£1.27M)
- Manchester U (£1.08M)
- Oxford U (£0.91M)
- Edinburgh U (£0.988M)
- Sheffield U (£0.62M)
- Glasgow U (£0.61M)
- Warwick U (£0.50M)
- Leeds U (£0.48M)
- Bristol U (£0.48M)

Source: RCUK Open Access Block Grant analysis August 2013–July 2017

Source: UKRI, “2016–2017 block grant awards”
OA mandate of doctoral thesis

"Open Access of PhD dissertation through internet" made mandate by Ministry of Education (MEXT).

- Change announced in March 2013, regulation in enforcement since April 2013.
Governmental agencies providing publishing platforms

- **J-Stage**
  - An electronic journal platform for science and technology information in Japan, developed and managed by the Japan Science and Technology Agency (JST).

- **SciELO**
  - An electronic library covering a selected collection of Brazilian scientific journals.
Scholarly Information Infrastructure

**CiNii Articles**
- Metadata and links of Japanese journal articles
  - 19 M records

**JAIRO**
- Metadata and links of Japanese institutional repositories
  - 2.5 M records

**CiNii Books**
- Catalog of materials held by universities
  - Bibliographic info 11 M records
  - Holding information 137 M records

**KAKEN**
- Project reports of MEXT supported scientific researches
  - 820 K records

**Integration**

**Compilation**

**Digitization**

**Linkage to other DB services**
- J-Stage (JST)
- NDL
- Academic Societies

**Universities and Research Institutions**
- More than 1,300 libraries
- More than 800 institutions

**Metadata and links of Japanese institutional repositories**

**Note:** The record numbers are as of March 2017
**WEKO3**

• **Current System WEKO2**
  - Journal Article Repository
  - Add Functions more and more

  ✔ Research Data Handling

• **New System WEKO3**
  - Based on Invenio3 which is originally focused as Data Repository
  - Integrate WEKO2 Functions into Invenio3

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**WEKO3**

Data Repository  
**INVENIO**

Strengthen Conventional Functions

Realize New Publication Platform based on sophisticated Invenio3 Architecture  
(Invenio3 = our RDM Platform in Architecture)

- Effective Development and Operation
- Domain Use-case by Extensibility
European Open Science Cloud (EOSC)

- EOSC aims to accelerate and support the current transition to more effective Open Science and Open Innovation in the Digital Single Market.

- KEY FACTORS:
  - New modes of scholarly communication
  - Modern reward and recognition practices need to support data sharing and re-use.
  - Core data experts need to be trained and their career perspective significantly improved.
  - A real stimulus of multi-disciplinary collaboration requires specific measures in terms of review, funding and infrastructure.
  - The transition from scientific insights towards innovation needs a dedicated support policy.

Source: European Commission: Realising the European Open Science Cloud
4. Various Publishing Platforms and Funding Schema
OA Models without APCs

...Crowd Funding by Libraries

- Library consortium pools money from member organizations and publish journals and monographs.
- OA publishing model without authors paying for APCs.
Cornell U is the host and funds US$175k annually.

Simon Foundation commits US$100k annually.

University libraries across the world contribute membership fees based on its tier.

<table>
<thead>
<tr>
<th>Tier</th>
<th>Fee</th>
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<tbody>
<tr>
<td>Tier 1: 1–25</td>
<td>$4,400</td>
</tr>
<tr>
<td>Tier 2: 26–50</td>
<td>$3,800</td>
</tr>
<tr>
<td>Tier 3: 51–100</td>
<td>$3,200</td>
</tr>
<tr>
<td>Tier 4: 101–150</td>
<td>$2,500</td>
</tr>
<tr>
<td>Tier 5: 151–200</td>
<td>$1,800</td>
</tr>
<tr>
<td>Tier 6: 201+</td>
<td>$1,000</td>
</tr>
</tbody>
</table>

A gold OA framework in High-Energy Physics
...Supporting APCs institutionally and achieve full-OA—SCOAP³

SCOAP³ Journals
- Acta Physica Polonica B (APPB)
- Advances in High Energy Physics (AHEP)
- Chinese Physics C (CPC)
- The European Physical Journal C (EPJC)
- The Journal of High Energy Physics (JHEP)
- Nuclear Physics B (NPB)
- Physics Letters B (PLB)
- Physical Review C (PRC)
- Physical Review D (PRD)
- Physical Review Letters (PRL)
- Progress of Theoretical and Experimental Physics (PTEP)

Source: SCOAP³, "Journals, 2017-2019"
https://scoap3.org/phase2-journals/

Source: SCOAP³日本からの参加機関
https://www.nii.ac.jp/sparc/scoap3/#4

*Can submit articles without APC worries.*

- Coordinated by CERN
- 3000 institutions at 44 countries participating
- 67 Japanese institutions participating (2018)
OA publishing of journals in humanities funded by library community — Open Library of Humanities

- Libraries form consortium, collects membership fee, and publishes OA journals with this fund.
- Publishes ca. 20 journals in humanity area.
- More than 200 libraries in North-America and UK supporting OLH.
- Average annual membership fee is ca. US$1000.
- For one journal, a library supports ca. US$55 annually.

https://www.openlibhums.org/
OA publishing of books in humanities and social sciences funded by library community—Knowledge Unlatched

1. Publisher provides title list to KU

2. KU reviewing boards selects titles to be published

3. KU announces libraries the selection

4. Libraries confirms funding and orders to KU

5. KU orders publisher and collects money from libraries

6. KU pays publisher

7. Monograph becomes OA

http://www.knowledgeunlatched.org/
Private funders demanding immediate OA publication

https://f1000research.com/about
EU following the path of private funders—demanding immediate OA

- Open Research Publishing Platform
  - A OA publishing platform for peer-reviewed articles and preprints funded by Horizon2020.
  - Investing 6.4mil Euro in 4 years.
  - Taking the model of Wellcome Trust and Gates Foundations.

Source: Information Note towards a Horizon 2020 platform for open access (2017.12.21)
Proposal) EU provides the e-infrastructure where articles can be submitted, peer-reviewed, published, made available OA.

European Open Access Platform

http://blogs.lse.ac.uk/impactofsocialsciences/2017/04/10/rather-than-simply-moving-from-paying-to-read-to-paying-to-publish-its-time-for-a-european-open-access-platform/
5. Issues of OA and the Flipping to OA
Limits and Merits

...Green OA

☐ Limits

➢ Burdensome to deposit the author’s final manuscript after publication.

✓ Researchers are not cooperative.

☐ Merits

➢ Even if the share of green OA is 10%, it gives bargeoning power against publishers.


https://doi.org/10.7717/peerj.4375
Limits and Merits

...Gold OA

- **Limits**
  - OA journals, difficult to go beyond established prestigious journals.
  - For many researchers, the APCs are too expensive to afford.
    - Difficult to get the support of researchers.

- **Merits**
  - OA journals contributed significantly in increasing the OA rate. It led also to various OA ways, such as hybrid journals.
  - Now, 30-50% of articles are OA and people became to expect articles to be OA.
    - Possibility for full OA world?
Hybrid journals and double dipping... The smart publishers

Hybrid Journals

Double Revenue Stream!

Submit & Publish OA

Prestigious Journal

Submit & Publish OA

OA article

OA article

OA article

Article

Article

Library

Librarian

’ve got to pay Subscription as it is only partially OA.

APCを払うと、OA出版してもらえる！

Researcher

Researcher

Publisher
Max Planck’s Proposal
...Flipping from subscription to APCs—OA2020

Worldwide Publishing Market

before

Subscription Model

Market today subscriptions
€ 7.6 bn
Current worldwide spending on subscriptions

# 2m
Number of scholarly articles

7.6 bn/2m
Current price per article publication
€ 3,800

after

Submission Model

Market transformed open access
€ 4.0 bn
Estimated worldwide spending on open access publications after transition

45% Buffer

Total cost becomes roughly half!

# 2m
Number of scholarly articles

€ 2,000
Estimated realistic price per article publication

EOI: 109 institutions from 35 countries
Max Planck to form transformative OA agreements with top 20 publishers

- The top 20 journals where MPG submits articles reaches 80%
- Among the 20, 5 are OA journals
- In 2017, MPG signed transformative OA agreement with three publishers.
- Other journals to follow?
- By 2020, there should be no more subscription payment for the top 20 journals.

If the leading institutions at leading countries do also the transformative OA agreement, we get to the point of NO RETURN!

Source: MPDL, "What will it take to secure open access to today’s scholarly journals?"
https://www.knowledge.services/app/download/15426878896/9%202017-11-20_Campbell_OA2020_OpenScienceDays_Vienna.pptx.pdf?u=1529915786
Transformative OA agreement for realizing OA2020...Publish & Read Model

Hybrid Journals

Openly accessible!

Only partially accessible!

Institutions which publish many articles will have to pay more than total subscription cost.

Institutions which publish less will be paying less.
The negotiation with Elsevier in Germany: Projekt-DEAL

- German Rector’s Conference takes the lead to negotiate with Elsevier on a national license under Publish&Read agreement after FY 2017.
- No agreements made as of Dec. 2018.

（経過）As pf 2018.12

- Jan, 2017: 60 institutions loose access to Elsevier
- Feb, 2017: Elsevier restores access during negotiations
- Jan, 2018: Another 127 institutions not to update contract
- July, 2018: Germany to declare no more negotiations!

→Elsevier cuts off access for institutions without contract
Status of other countries with large publishers

- Netherland
  - ✔️ Netherland government has set a goal for 60% OA by 2018 and 100% OA by 2020. Based on this goal, Netherland formed Publish & Read agreement with Elsevier for 2016-18.
  - ✔️ However, as Elsevier retains the right to determine which journal to be made OA, the agreement is not as desirable as Netherland wants it to be.

- Sweden
  - ✔️ No agreement with Elsevier since July 2018.

- Peru, Taiwan
  - ✔️ No agreement with Elsevier since January 2017.

- France
  - ✔️ No agreement with Springer-Nature since April 2018.
OA publishing agreement by Springer-Nature—Springer Compact

☐ The Compact
- Researcher at signed institutions and countries can submit and publish OA without paying APCs.

☐ Agreement Partners
- Netherland
- UK
- Max Planck
- Austria
- Sweden
- Finland

Maybe, because Springer wants to retain authors Submission?

Springer is more positive than other publishers.
6. Latest Bold Move by European Funding Agencies and China
11 European research funders demand immediate OA…the Plan S of cOAlition S

- Declaring that publicly-funded research outputs from respective funders must be published OA immediately after 2020.
  - Articles can only be published on compliant OA journals or platforms. Hybrid journals are explicitly excluded.
  - Aiming to transform hybrid and subscription journals to OA journals.

- Supporting funders
  - Austria, France, Ireland, Italy, Luxembourg, Netherland, Norway, Poland, Slovenia, Sweden, UK
  - Remaining 18 European funders also expected to participate

Source: cOAlition S (2018.9.4)
https://www.scienceeurope.org/coalition-s/
China backs bold plan to tear down journal paywalls

- Officials pledge support for European-led ‘Plan S’ to make research papers immediately free to read — but it’s unclear whether China will adopt all the plan’s policies. (Nature, 2018.12.5)

Source: Nature, “China backs bold plan to tear down journal paywalls” (2018.12.5)
https://www.nature.com/articles/d41586-018-07659-5
Academic journals by the type of OA

<table>
<thead>
<tr>
<th>Type of OA</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subscription only</td>
<td>37.7%</td>
</tr>
<tr>
<td>Delayed OA</td>
<td>2.2%</td>
</tr>
<tr>
<td>Open-access</td>
<td>15.2%</td>
</tr>
<tr>
<td>Hybrid Journals</td>
<td>45%</td>
</tr>
<tr>
<td>Subscription Journals (non-OA)</td>
<td>66%</td>
</tr>
</tbody>
</table>

*From Scopus database. Hybrid journals are subscription titles that allow authors to make individual papers open for a fee.

Source: Nature, “Radical open-access plan could spell end to journal subscriptions” (2018.9.4) https://www.nature.com/articles/d41586-018-06178-7

The hybrid journals allow double-dipping through subscription and APC!
The impact of Plan S

- As China joined the 11 European countries, the impact is huge!

- Man of the prestigious hybrid journals will turn to full OA journals.
  - For smaller publishers which do not have the necessary e-infrastructure, there is a chance that they extinct or will be merged to large publisher even though the 11 funders are promising some funds for e-infrastructure.

- For other countries:
  - If most journals flip to OA journals, researchers will need many APCs to publish.
  - There needs to be some scheme to support APCs at respective countries.

Are other countries able to establish institutional APC support schema by 2020?
The annual research budget of a Japanese researcher (FY2015)

If more than half of Japanese researchers rely on less than $4000 for annual research budget, the strong reliance on APCs $1000-2000 can be damaging for number of research outputs.

Source: 第8期研究費部会(第8回) 配付資料 「個人研究費等の実態に関するアンケート」について(調査結果の概要)」
How to establish funding schema for APCs

1. Turning subscription budget to APCs
   - For many universities, the subscription budget is bigger than the total APCs spent. Thus, this is feasible.
   - However, for transitional period, some additional budget for APCs may be needed.
   - Also, for big research-intensive universities which produce many articles, turning subscription to APCs is not enough.

2. Acquiring grants from funding agencies
   - Funders could provide grants based on research grants allocated or number of published articles.
   - Funders could also support bigger research universities which need excess money for the many research publications.
7. Future of Scholarly Communication
The transformation of scholarly communication system ...From Print to Digital Era

Print Era
- Editorial & Review Cost
  - Accept submission, peer-review, editing, manage process
- Distribution Cost
  - Bind, print, market, Sales, distribution

Digital Era
- Editorial & Review Cost
  - Accept submission, peer-review, editing, manage process
- Distribution Cost
  - E-platform cost

Academia should be free to decide, how to use the 250m$ for scholarly communication.

Total subscription cost in Japan: 250m$

Total APCs in Japan: 140m$
In general, supportive of Open Science.

In reality however, they are very much concerned of the consequence of full OA.

Copyright law is an enabler that allows for the development of new services and innovations across the sciences; not a barrier to such innovations. As such, copyright must be protected and supported in any Open Science framework. Licensing options are strongly recommended by STM ⋯.

STM believes that authors should have the freedom to publish in a journal of their choice where publication will have the greatest potential to advance their field and help foster their careers. Research funders and government policies with overly restrictive policies – such as unsustainably low embargo periods, coupled with limited or no funding for gold open access – work against this.
Changing business from Publisher to Platform Provider for Research Support!

Source: Acquired from Dr. Anders Karlsson, Vice President, Strategic Alliances, Global Academic Relations, Elsevier-Japan, Nov. 2016
The M&As of Elsevier

There is no escape from Elsevier!

The publishers are controlling research!

We are providing excellent research environment!

(Publisher) Platformer

Researcher
From Access to Research Publications to Access to Research Data

Publicly-funded Research

Research Data

Research Publications
Data Management Plan (DMP)

- DMP – A plan where researcher state the treatment of data used during research process.
- More and more, research funders are requiring to submit DMP along with research proposal.
- In Japan, JST is asking for DMP since FY2018.

Librarians assist researchers in writing DMPs.
Data Journals and Supplemental Data

- **Data journals established (2014-)**
  - **Nature: Scientific Data**
    - *Scientific Data* is an open-access, online-only journal for descriptions of scientifically valuable datasets.
  - **Elsevier: Data in Brief**
    - *Data in Brief* provides a way for researchers to easily share and reuse each other's datasets by publishing data articles.

- **Supplemental Data**
  - Supporting material that cannot be included, and which is not essential for inclusion, in the full text of the manuscript, but would nevertheless benefit the reader.

NII Research Data Cloud

**Discovery Platform**
- Linking Func between Article and Data
- Researcher and Research Project Identification and Management Func
- Data Exchange with International Discovery Service

**Research Data Management System**
- Research Data Mng
- User Interface
- Access Control
- Metadata Mng

**RDM Platform**
- GakuNin RDM
- High Speed Access using SINETS5
- Data Sharing Func using Virtual NW and ID Federation
- Effective Data Storage Switcher

**Dis discovery Service**
- DOI
- Subject Repository
- International Metadata Aggregator

**Metadata Management**
- Re-use

**Research Data Repository**
- Private
- Shared
- Public

**Data Depositor**
- Exp/Store
- Archive

**Data User**
- Search/Find

**Supplemental Data**

**Publication Platform**
- JABOR by WEKO3
- Data oriented Self-Archiving Func
- Versioning and auto-Packaging Func
- User Dependent Personal Data Pseudonym Func

**Storage Area for Long-term Preservation**
- Hot Storage
- Cold Storage

**Discovery Service**
- Metadata Aggregation

**Journal Article**
- Institutional Research Data Mng

**Data Flow**
- User Flow
- Data Flow

**Data Depositor**
- Exp Data
- Article

**Data User**
- Article

**User Interface**
- Access Control
- Metadata Mng
Research Evaluation is closely tied to current scholarly communication venues

- Excellent research as of now:
  - Publication in high-impact journals
  - Highly cited articles
  - High number of publications
  - High in World University Rankings

To move to the next generation scholarly communication system fit to digital era, the scholarly value system is also likely to change.
Changing Scholarly Communication
...Peer Review System

- **Open Peer Review**
  -Reviewer’s comments are open to public with/without the name of reviewer
  -Enabling transparent peer review

- **Post Publication Peer Review**
  -Peer review done after publishing
  -Speeding up publishing, and allowing to count impact in peer review

- **Cascading Peer Review**
  -Peer review comments transferred to next submission
  -Reducing costs and improving efficiencies in peer review

- It takes too long until published!
- Too many paper to review!
- Do the reviewers really understand my work?
The push and resisting force towards Open Science

The degree of Open Science is determined by the balance of two forces.