The Great Change in Article Publishing and Research Assessment
—Paradigm Shift induced by Open Access

Osaka University Seminar

January 24, 2020

Miho Funamori
National Institute of Informatics

Today's Talk

1. Importance of ScholCom
2. Issues related to scientific journals and OA movements
3. Approach to full OA through Publish & Read agreements (?!)
4. Full OA puts researchers at risk—APCs, a heavy burden on researchers
5. Need for non-commercial Publishing Platforms
6. Negative effects of Quantitative Research Assessment Indicators in an Digital Era
7. Various attempts to change research assessments
8. Co-creating the Open Science Era with Societies and Academia

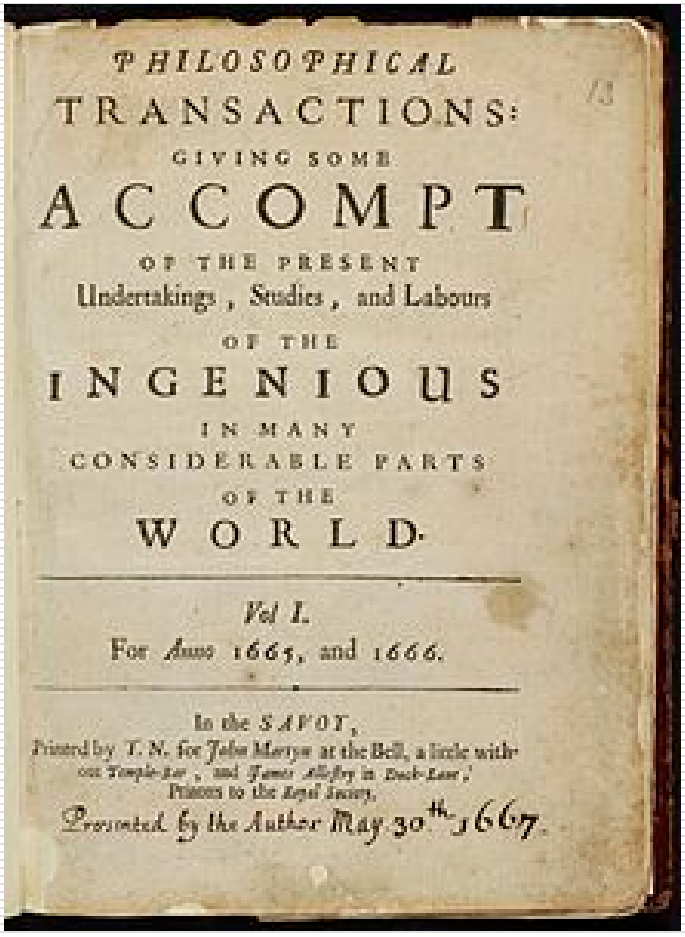
1. Importance of ScholCom

Research outputs are based on preceding research outputs

"If I have seen further it is by standing on the shoulders of Giants."

—Sir Isaac Newton（1675）

Royal Society's Philosophical Transactions
...The start of "open" scholarship tradition



PHILOSOPHICAL
TRANSACTIONS:
GIVING SOME
ACCOMPT
OF THE PRESENT
Undertakings, Studies, and Labours
OF THE
INGENIOUS
IN MANY
CONSIDERABLE PARTS
OF THE
WORLD.

Vol I.
For Anno 1665, and 1666.

In the SAVOY,
Printed by T. N. for John Martyn at the Bell, a little within
the Temple-Bar, and James Allestry in Duck-Lane,
Printers to the Royal Society.
Presented by the Author May 30th 1667.

- Founded in 1665
- Basic functionality of academic journals invented.
  - Registration (date stamping, provenance)
  - Certification (peer review)
  - Dissemination and Archiving
- Removing the impediments of research communication through letters and secret codes.
  - Able to judge who was faster with new findings
  - Able to build on preceding research

The meaning of research article for researcher

- **Learn** preceding research
- **Disseminating** own research
- **Being evaluated** from the research output

Meaning of scholarship to humankind

Reasons why scholarship and higher education are regarded social capitals and funded by tax-payer's money.

- Make people's life richer
- Understand the roots of human being and earth
- Frees life from illness and disasters
- Makes life convenient and efficient
- Enables to live wisely
- Leading to peace and happiness

Research articles are the core embodiment of research outputs

The meaning of “research articles” for researchers are the same as “vegetables” for farmers.

The relation of the academies and publishers

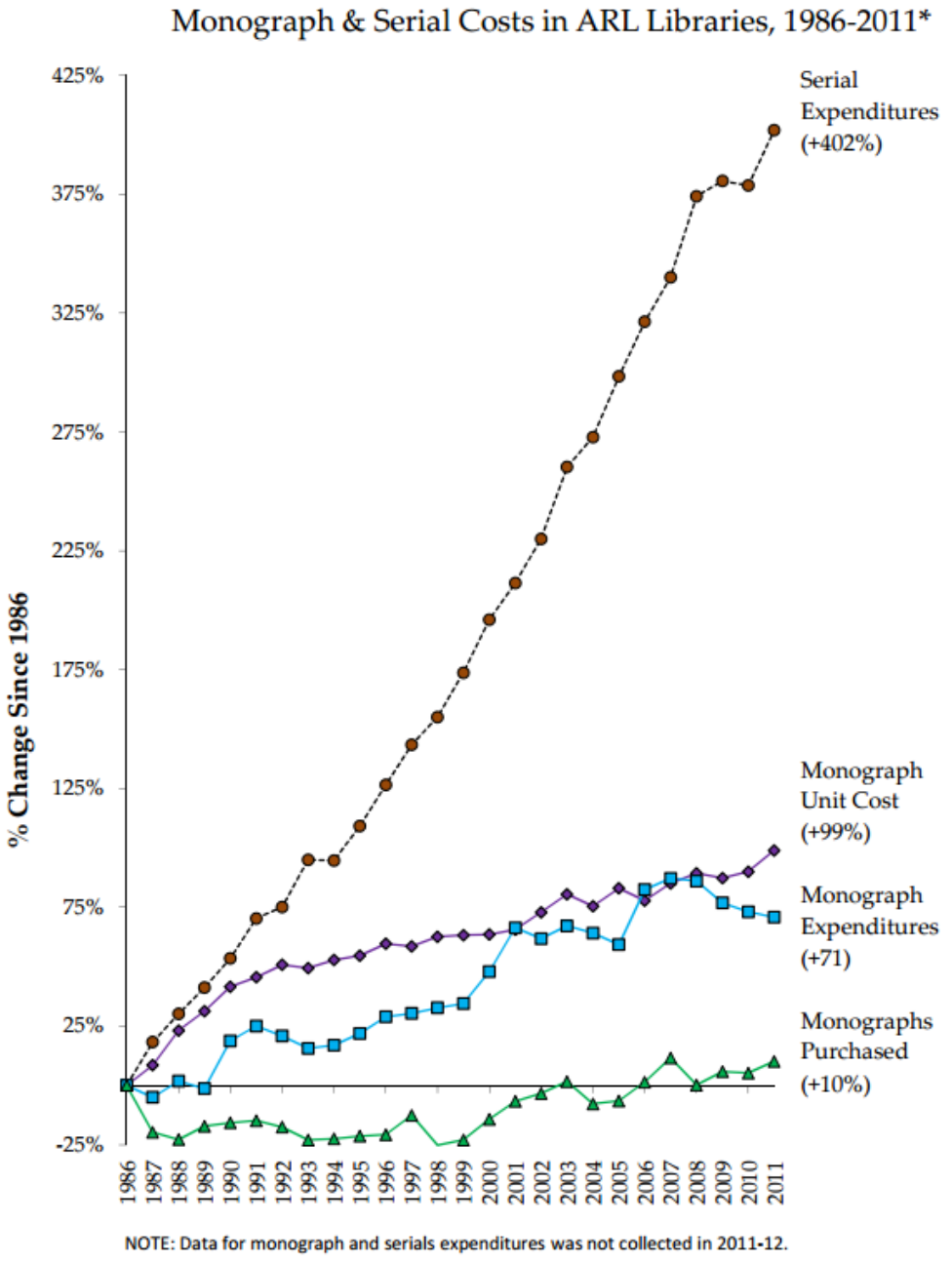
- Publishers print and disseminate research.
- In print age, publishers were essential to disseminate and preserve research outputs.

⇒ Academy and publishers as mutally beneficial existence and co-prospering!

2. Issues related to scientific journals and OA movements

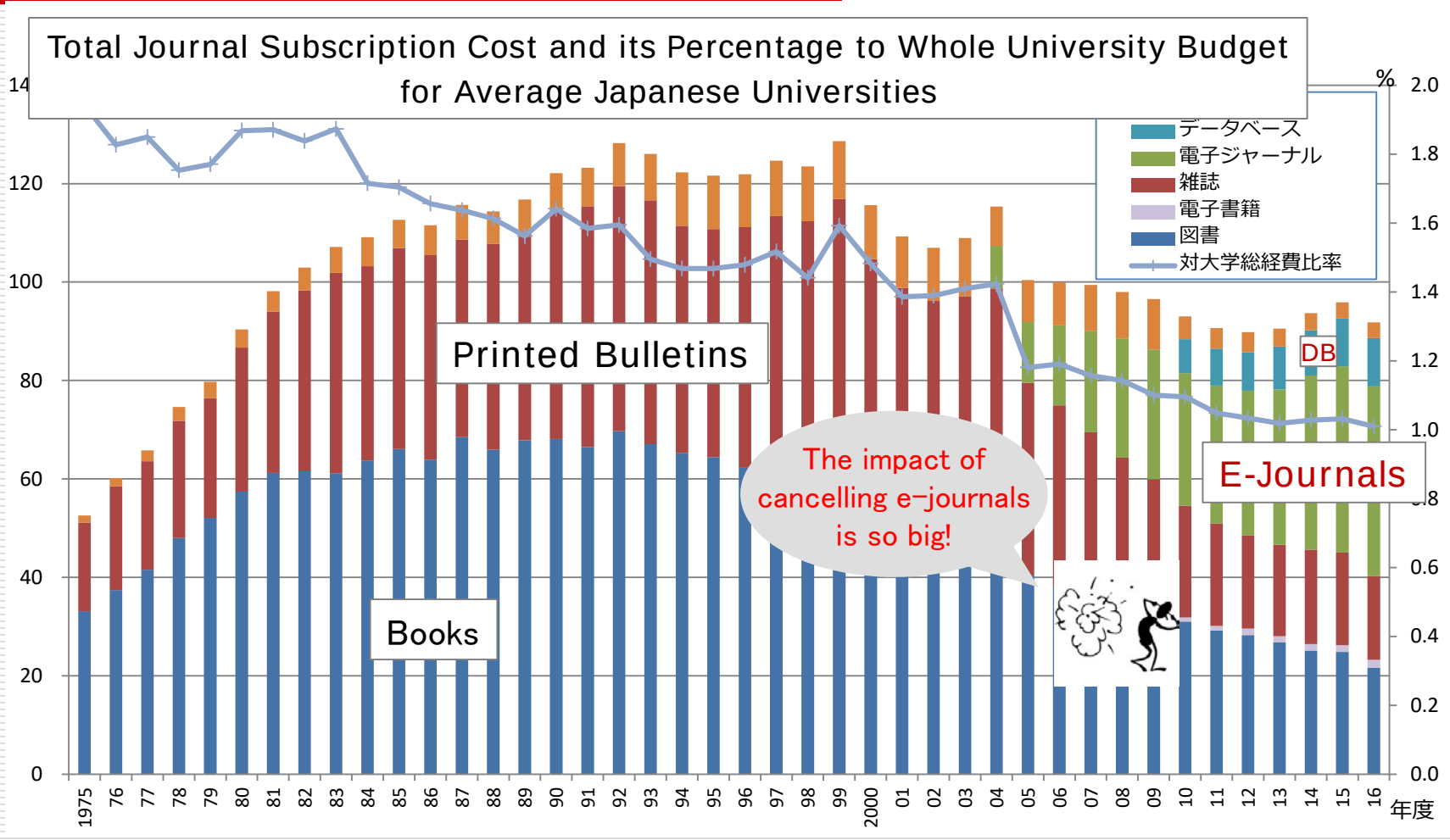
How it started: "Serials Crisis"

- Journal subscription cost rising faster than the inflation speed
  - Four times higher in 2011 than 1986



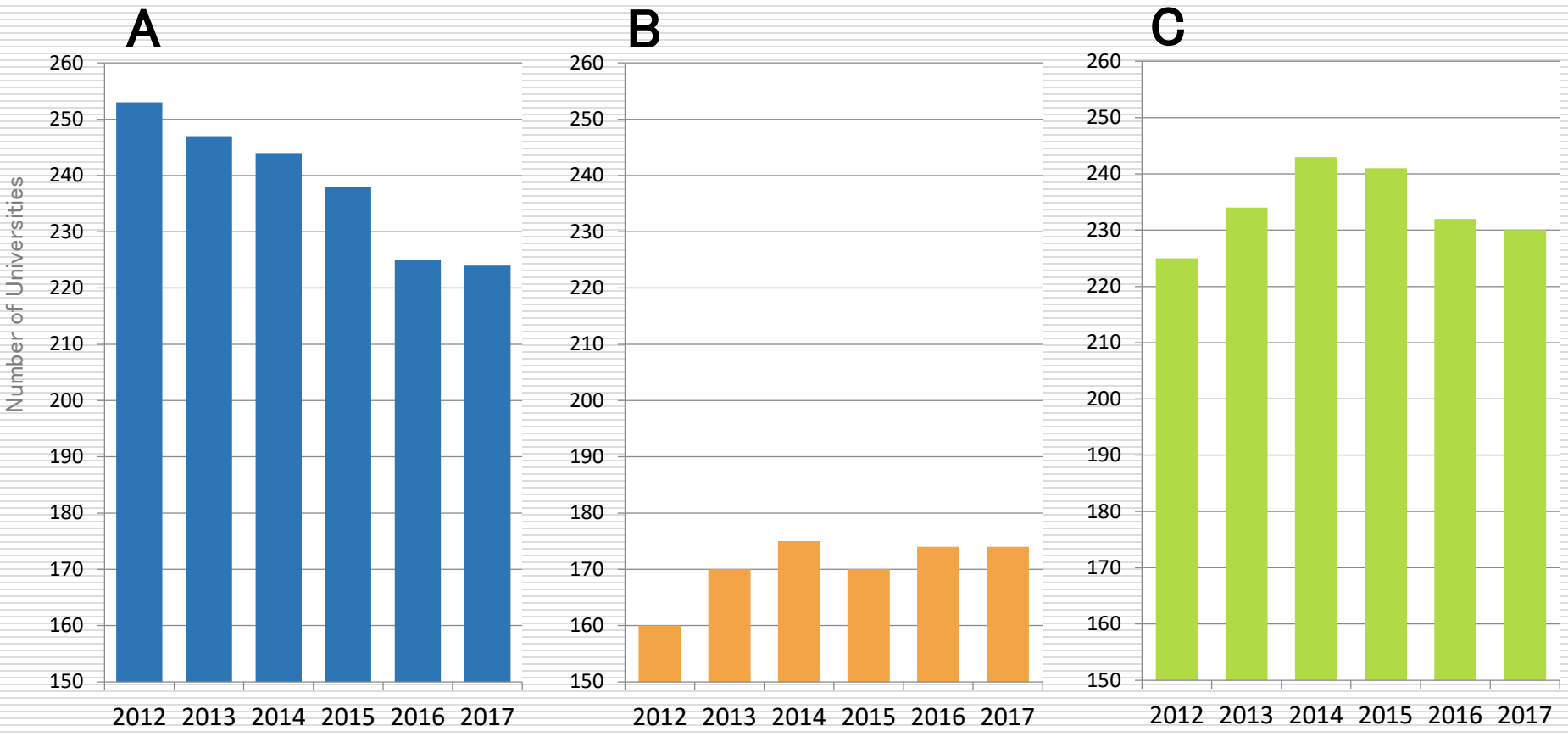
Source: ARL Statistics 2010-11 Association of Research Libraries, Washington, D.C.
*Includes electronic resources from 1999-2011.
http://www.arl.org/storage/documents/monograph-serial-costs.pdf

E-Journals squeezing the books and printed matters

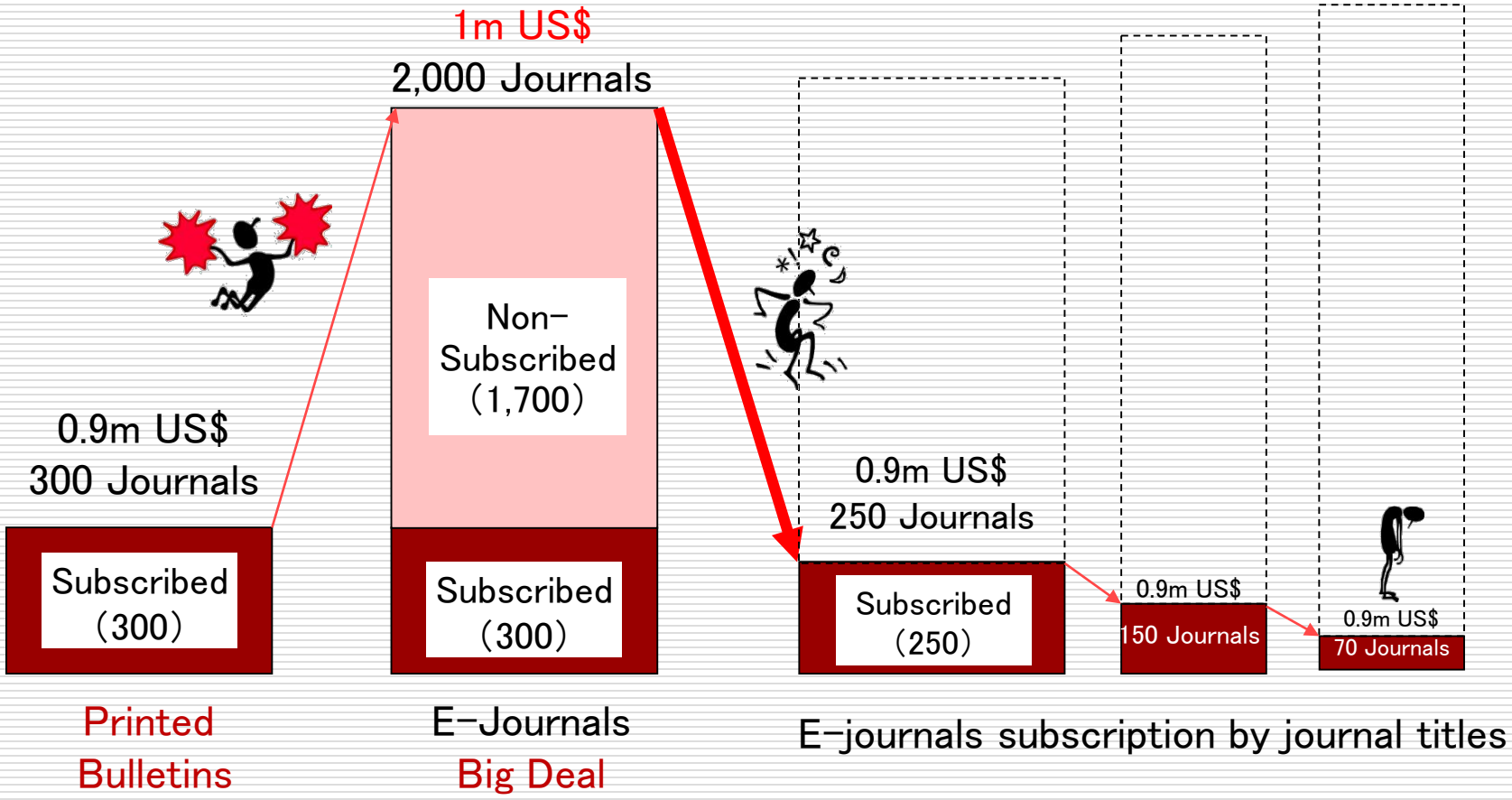


(出典)文部科学省(旧文部省)の「学術情報基盤実態調査結果報告」(旧「大学図書館実態調査結果報告」)による〔JUSTICE事務局作成〕
https://www.nii.ac.jp/content/justice/documents/

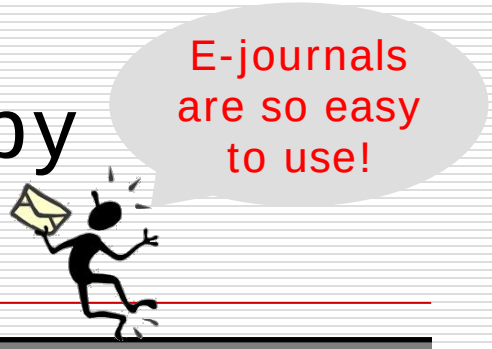
Japanese universities giving up on package subscription



When cancelling the Big Deal



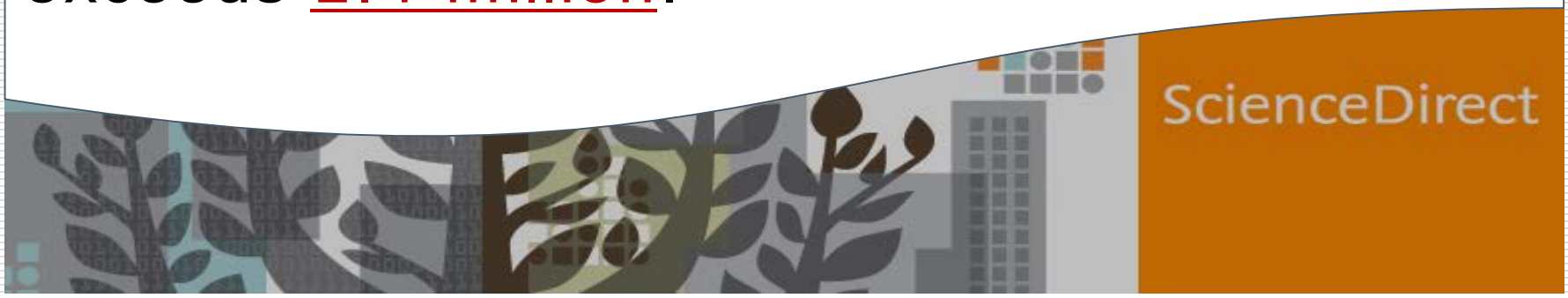
Comparing journals contracts by e-journals vs printed bulletins



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

The world's largest full-text database of Elsevier: Science Direct

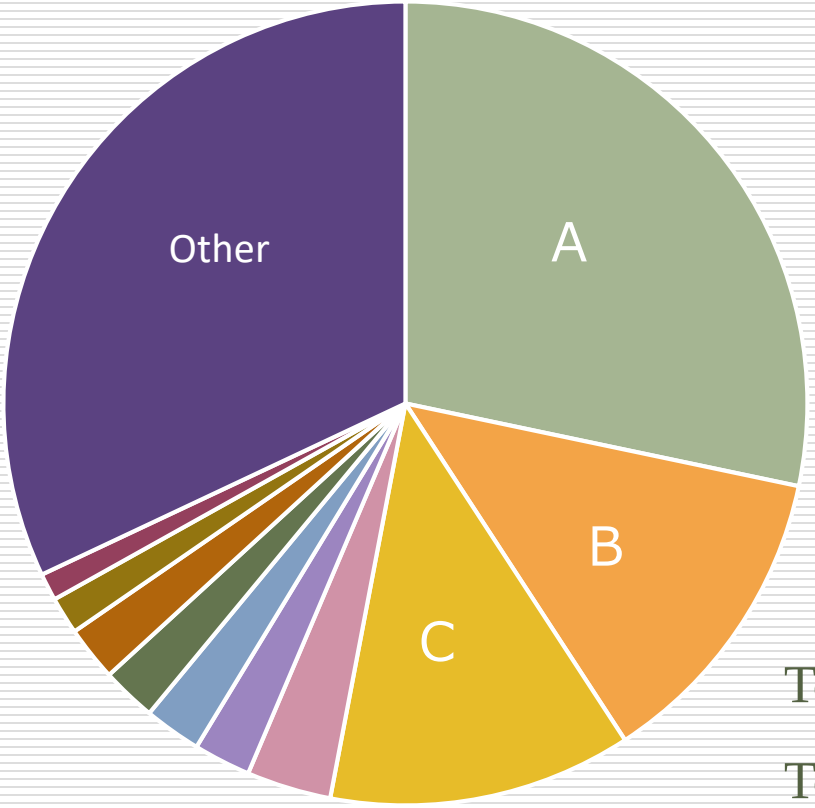
Science Direct is the world's largest full-text database of Elsevier and contains more than 2,500 electronic journals Elsevier publishes in the scientific, technologic, medical and socioscientific fields and more than 35,000 electronic books. The number of full-texts exceeds 1.4 million.



(Source) Elsevier's website "Science Direct, the world's largest full-text database" Last accessed 2018.7.18
http://jp.elsevier.com/online-tools/sciencedirect

Top three publishers make more than half of subscription cost

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



Top 3 publishers constitutes 50%

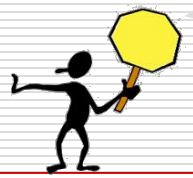
Top 10 publishers constitutes 60%

Why does e-journal subscription cost rise?

- Market failure
  - ✓ Journal A cannot be replaced by Journal A'
  - ✓ Monopoly by few publishers

- Increase in publications and users
  - ✓ Publishers arguing on this point which is not acceptable to academics.
  - ✓ Researchers are peer-reviewing and editing on voluntary basis.
  - ✓ E-platforms should enable handling of massive contents at almost same cost as small amounts of contentse.
- Developing new functionalities for journal platform
  - ✓ Discovery and analytics (publication no, citations, IF, etc)
  - ✓ Publishers claim they develop because there are needs. However, do we really need these?

Elsevier's Profit Margin at around 40%



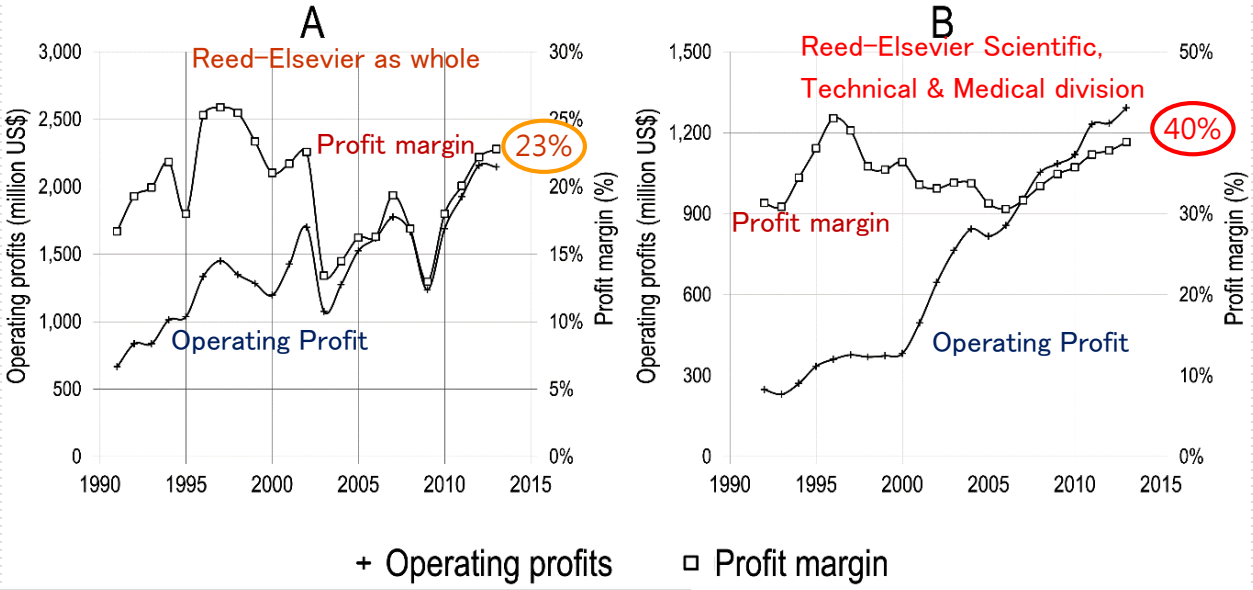


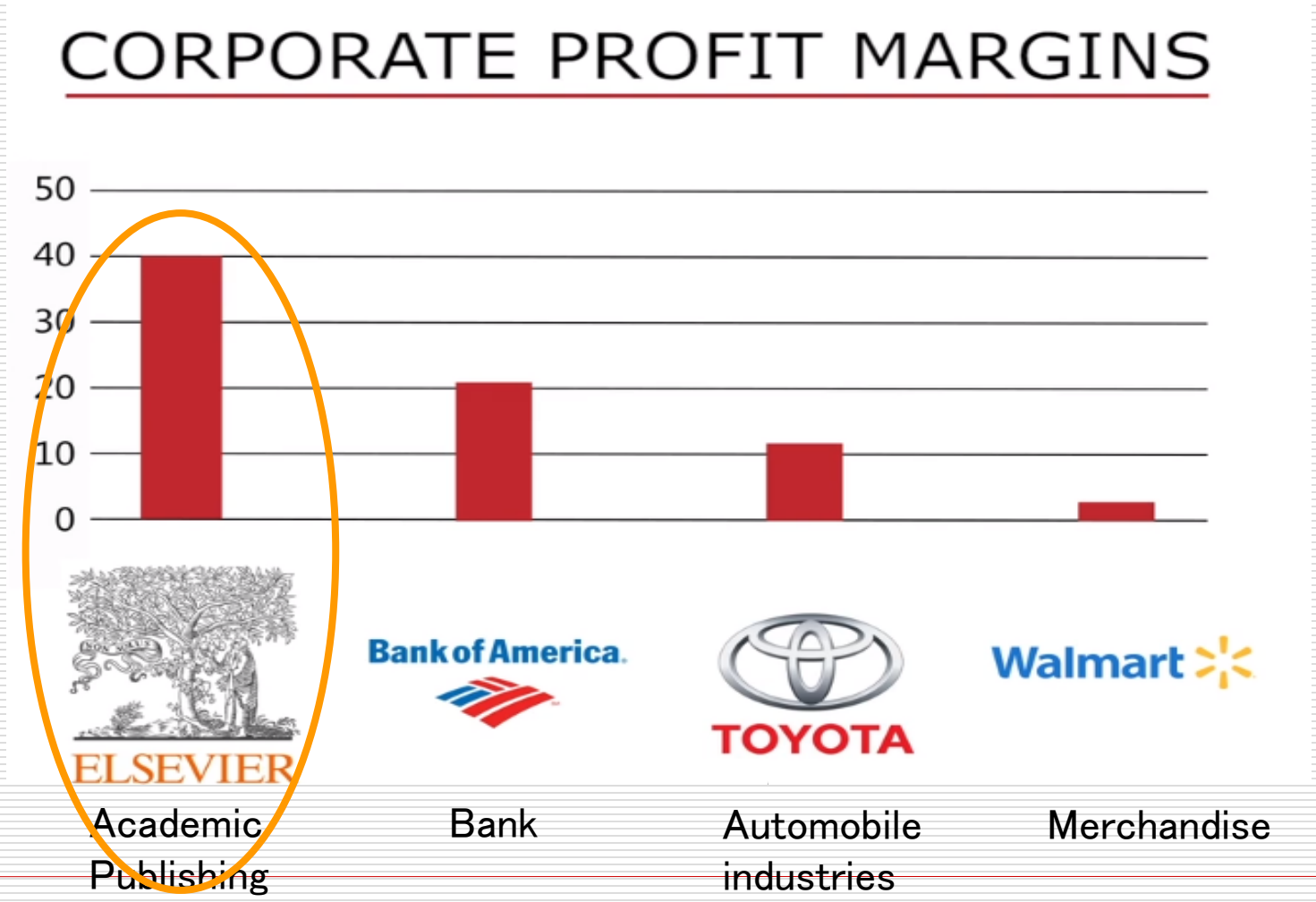
Fig 7. Operating profits (million USD) and profit margin of Reed-Elsevier as a whole (A) and of its Scientific, Technical & Medical division (B), 1991-2013.

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

Source: Vincent Larivière , Stefanie Haustein, Philippe Mongeon, "The Oligopoly of Academic Publishers in the Digital Era". 2015
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0127502

Source: "2017 RELX Group Annual Report". RELX Group Company Reports. RELX Group. March 2018.
http://www.relx.com/~/media/Files/R/RELX-Group/documents/reports/annual-reports/relx2017-annual-report.pdf

Differing Profit Margins by business type

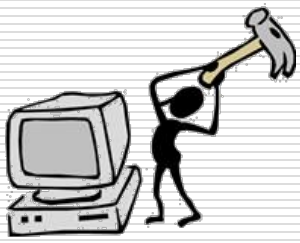


Source: "Paywall: The Business of Scholarship Trailer 1". 2018
https://vimeo.com/217495703

Protest from Academia (1)

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

We are
writing the
articles!



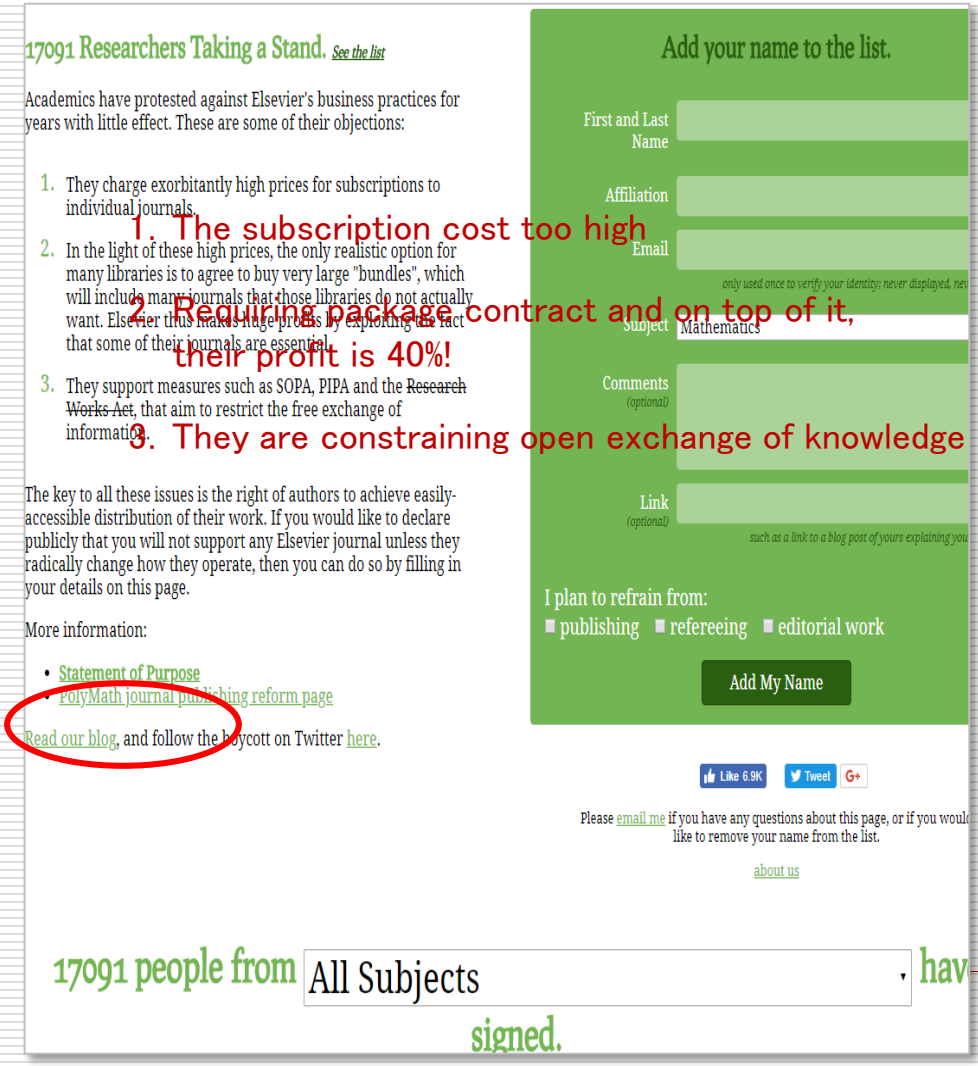
The journal
subscription is
too expensive!

Paywall

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



17091 Researchers Taking a Stand. See the list

Academics have protested against Elsevier's business practices for years with little effect. These are some of their objections:

1. They charge exorbitantly high prices for subscriptions to individual journals.
2. In the light of these high prices, the only realistic option for many libraries is to agree to buy very large "bundles", which will include many journals that those libraries do not actually want. Elsevier thus makes huge profits by exploiting the fact that some of their journals are essential.
3. They support measures such as SOPA, PIPA and the ~~Research Works Act~~, that aim to restrict the free exchange of information.

The key to all these issues is the right of authors to achieve easily-accessible distribution of their work. If you would like to declare publicly that you will not support any Elsevier journal unless they radically change how they operate, then you can do so by filling in your details on this page.

More information:

- Statement of Purpose
- PolyMath journal publishing reform page

Read our blog, and follow the boycott on Twitter here.

Add your name to the list.

First and Last Name

Affiliation

Email

only used once to verify your identity; never displayed, nev

Subject Mathematics

Comments (optional)

Link (optional)

such as a link to a blog post of yours explaining you

I plan to refrain from:

publishing refereeing editorial work

Add My Name

Like 6.9K Tweet G+

Please email me if you have any questions about this page, or if you would like to remove your name from the list.

about us

17091 people from All Subjects hav signed.

1. The subscription cost too high
2. Requiring package contract and on top of it, their profit is 40%!
3. They are constraining open exchange 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/

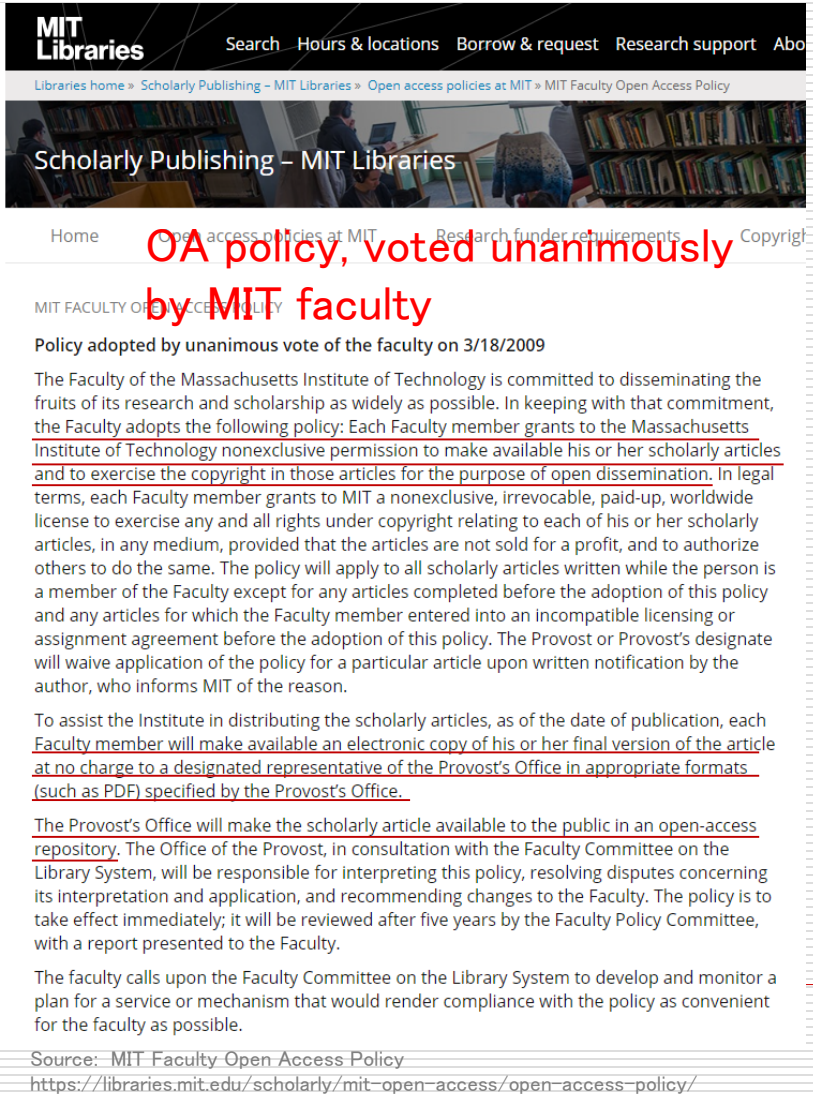
Protest from Academia (3)

- "Budapest Open Access Initiative (BOAI)", (2002)
  - 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

OA policy for enabling universities to publish author's final manuscript


MIT Libraries

Search Hours & locations Borrow & request Research support Abo

Libraries home » Scholarly Publishing – MIT Libraries » Open access policies at MIT » MIT Faculty Open Access Policy

Scholarly Publishing – MIT Libraries

Home Open access policies at MIT Research funder requirements Copyrigh

OA policy, voted unanimously by MIT faculty

MIT FACULTY OPEN ACCESS POLICY

Policy adopted by unanimous vote of the faculty on 3/18/2009

The Faculty of the Massachusetts Institute of Technology is committed to disseminating the fruits of its research and scholarship as widely as possible. In keeping with that commitment, the Faculty adopts the following policy: Each Faculty member grants to the Massachusetts Institute of Technology nonexclusive permission to make available his or her scholarly articles and to exercise the copyright in those articles for the purpose of open dissemination. In legal terms, each Faculty member grants to MIT a nonexclusive, irrevocable, paid-up, worldwide license to exercise any and all rights under copyright relating to each of his or her scholarly articles, in any medium, provided that the articles are not sold for a profit, and to authorize others to do the same. The policy will apply to all scholarly articles written while the person is a member of the Faculty except for any articles completed before the adoption of this policy and any articles for which the Faculty member entered into an incompatible licensing or assignment agreement before the adoption of this policy. The Provost or Provost's designate will waive application of the policy for a particular article upon written notification by the author, who informs MIT of the reason.

To assist the Institute in distributing the scholarly articles, as of the date of publication, each Faculty member will make available an electronic copy of his or her final version of the article at no charge to a designated representative of the Provost's Office in appropriate formats (such as PDF) specified by the Provost's Office.

The Provost's Office will make the scholarly article available to the public in an open-access repository. The Office of the Provost, in consultation with the Faculty Committee on the Library System, will be responsible for interpreting this policy, resolving disputes concerning its interpretation and application, and recommending changes to the Faculty. The policy is to take effect immediately; it will be reviewed after five years by the Faculty Policy Committee, with a report presented to the Faculty.

The faculty calls upon the Faculty Committee on the Library System to develop and monitor a plan for a service or mechanism that would render compliance with the policy as convenient for the faculty as possible.

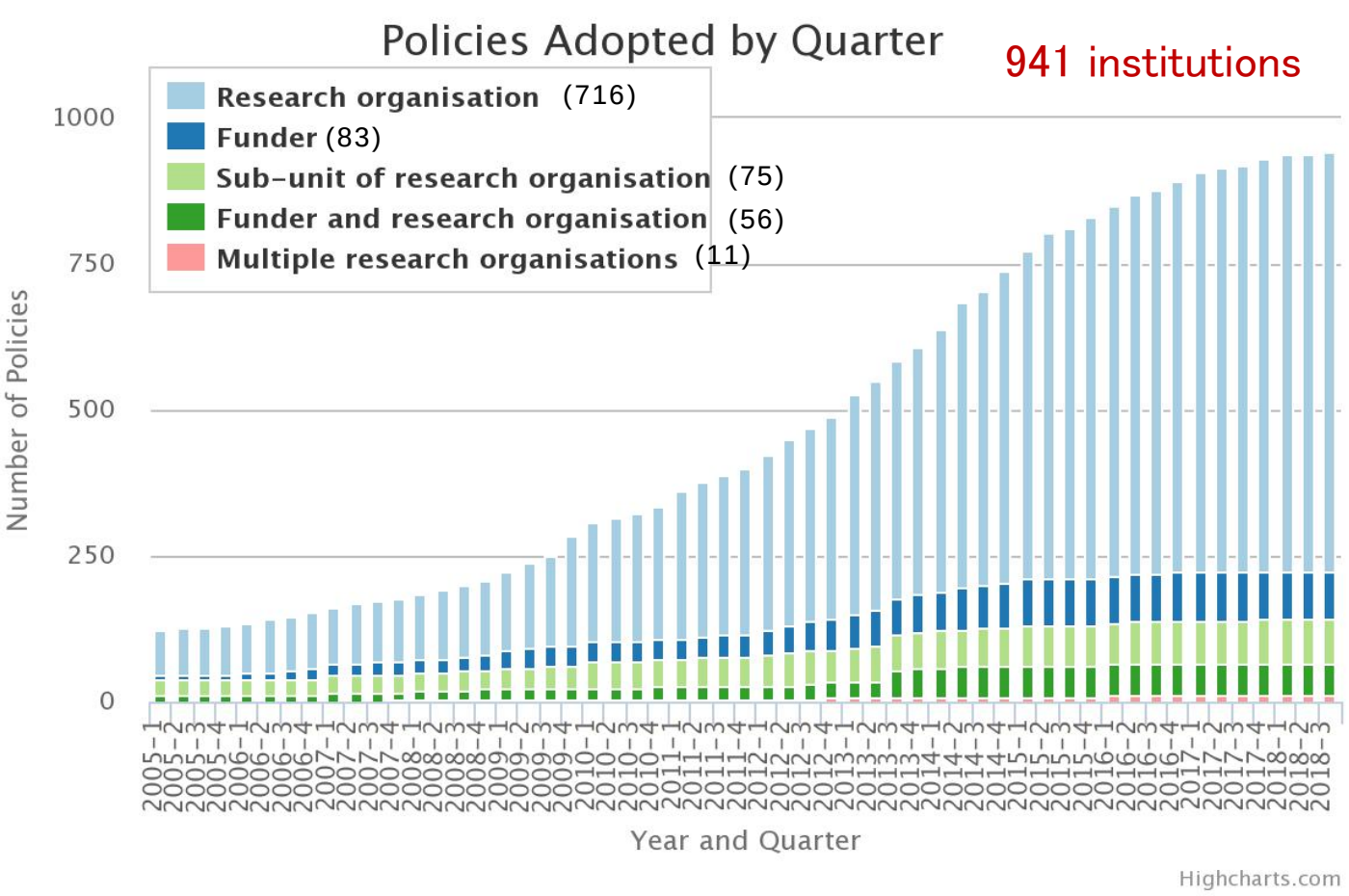
Source: MIT Faculty Open Access Policy
https://libraries.mit.edu/scholarly/mit-open-access/open-access-policy/

- 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.

Number of OA policies adopted



24 organizations adopting OA policies in Japan

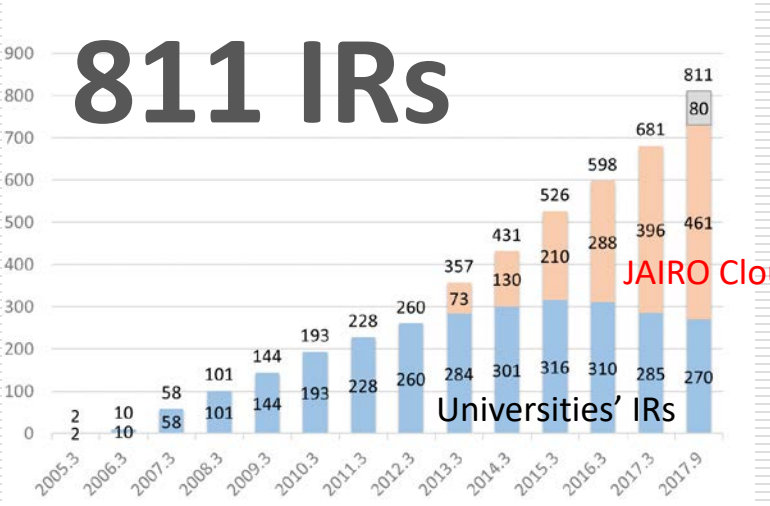
- ✓ Hokkaido University
- ✓ The Japan Advanced Institute of Science and Technology
- ✓ Tohoku University
- ✓ The University of Tsukuba
- ✓ The Tokyo University of Foreign Studies
- ✓ Tokyo Dental College
- ✓ Hitotsubashi University
- ✓ Yokohama National University
- ✓ Chiba University
- ✓ The Nagoya Institute of Technology
- ✓ Nagoya University
- ✓ Kanazawa University
- ✓ Kyoto University
- ✓ Osaka City University
- ✓ Osaka Prefecture University
- ✓ Kobe University
- ✓ The University of Tokushima
- ✓ Okayama University
- ✓ Hiroshima University
- ✓ Shimane University
- ✓ Kyushu University
- ✓ The Okinawa Institute of Science and Technology
- ✓ The National Institute of Polar Research
- ✓ International Research Center for Japanese Studies

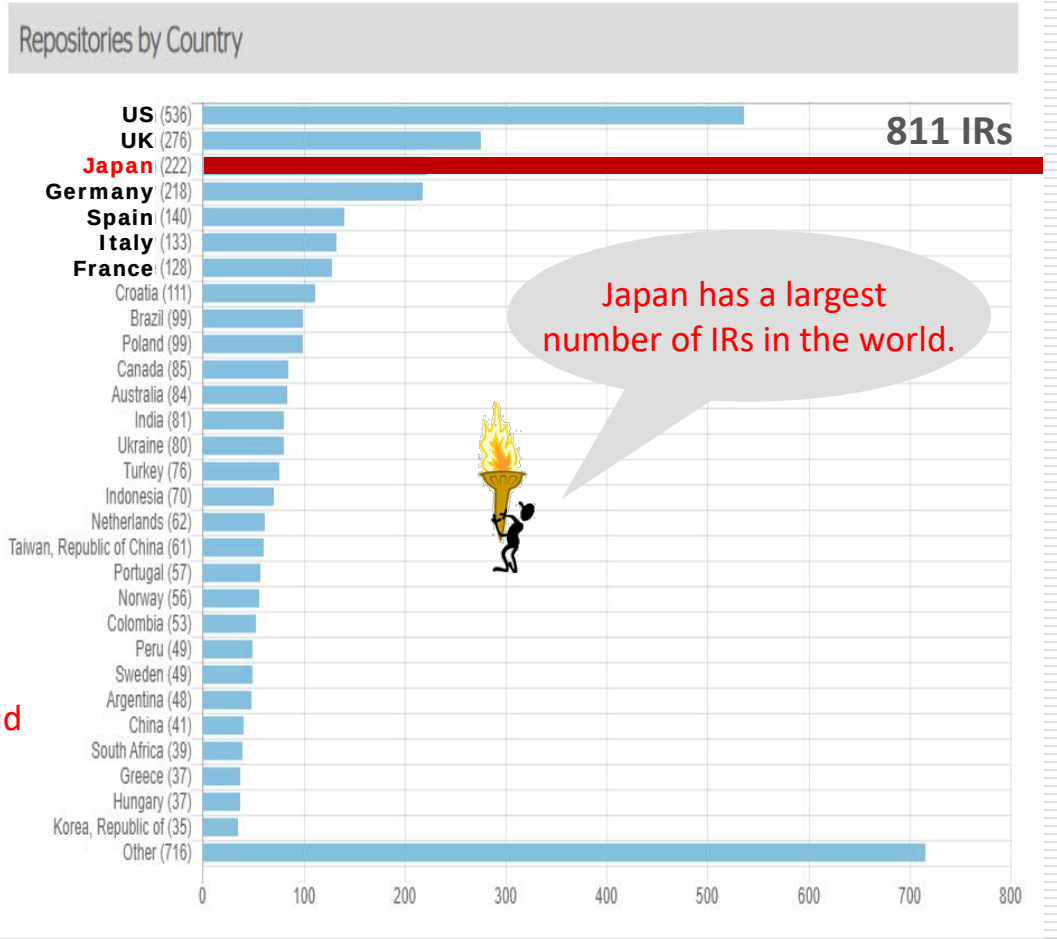
Source: Registry of Open Access Repository Mandates and Policies (ROARMAP)
http://roarmap.eprints.org/

Japan, the No.1 country by the number of institutional repositories (IRs)!

IR cloud service — JAIRO Cloud

- The IR hosting services for universities (started in FY2012)
  - It looks like as if the universities have their own IRs.
- Large universities having their own IRs recently started using the JAIRO Cloud.





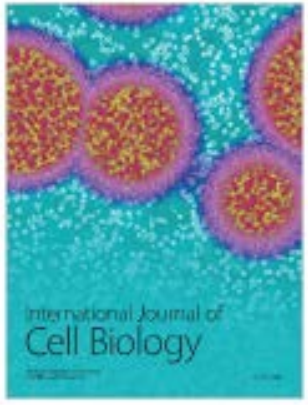
Source: OpenDOAR Statistics
http://v2.sherpa.ac.uk/view/repository_visualisations/1.html

Japanese researchers publish their articles mainly in Japanese OA journals.

Open access (OA) Journals

Top 10 Japanese OA journals in which Japanese researchers publish their articles

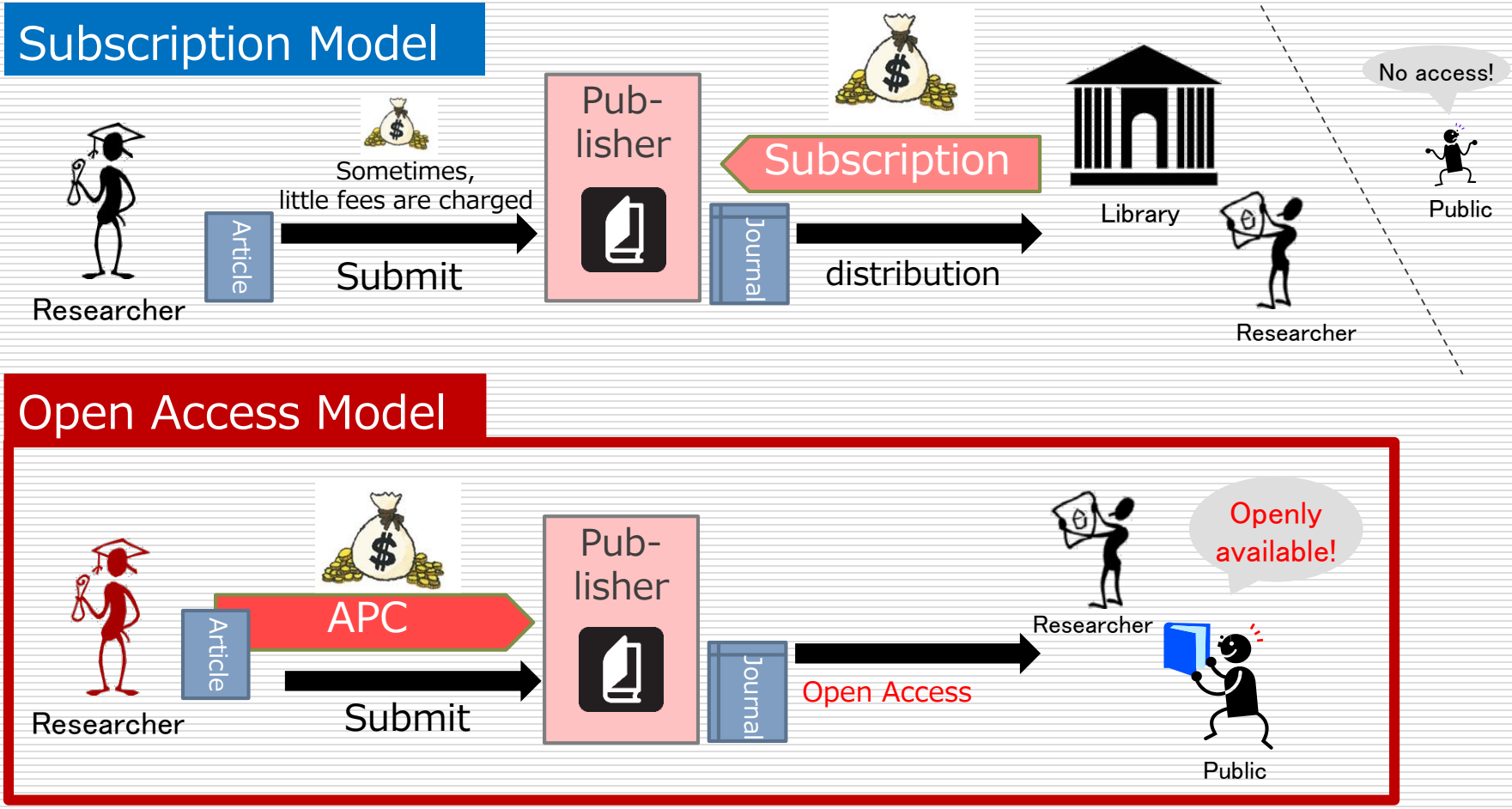
	During the past 3 years (2016-2018)
1	SCIENTIFIC REPORTS (5,506)
2	PLOS ONE (3,604)
3	CANCER SCIENCE (2,483)
4	JOURNAL OF PHARMACOLOGICAL SCIENCES (2,052)
5	INTERNAL MEDICINE (1,809)
6	JOURNAL OF PHYSICS CONFERENCE SERIES (1,233)
7	JAPANESE JOURNAL OF APPLIED PHYSICS (1,199)
8	NATURE COMMUNICATIONS (1,163)
9	CIRCULATION JOURNAL (765)
10	ONCOTARGET (657)



	Since 1971 (1971−2018)
1	BULLETIN OF THE CHEMICAL SOCIETY OF JAPAN (12,903)
2	PLOS ONE (11,788)
3	JOURNAL OF BIOLOGICAL CHEMISTRY (10,139)
4	INTERNAL MEDICINE (9,708)
5	PROGRESS OF THEORETICAL PHYSICS (8,878)
6	BIOSCIENCE BIOTECHNOLOGY AND BIOCHEMISTRY (8,477)
7	NIPPON KAGAKU KAISHI (7,998)
8	SCIENTIFIC REPORTS (7,641)
9	AGRICULTURAL AND BIOLOGICAL CHEMISTRY (7,526)
10	CHEMISTRY LETTERS (7,381)

*The results of searching using the Web of Science on November 12, 2018 according to gold OA journals, bronze OA journals and others

OA Journals ask researchers, not the readers and universities, to cover the publishing cost.

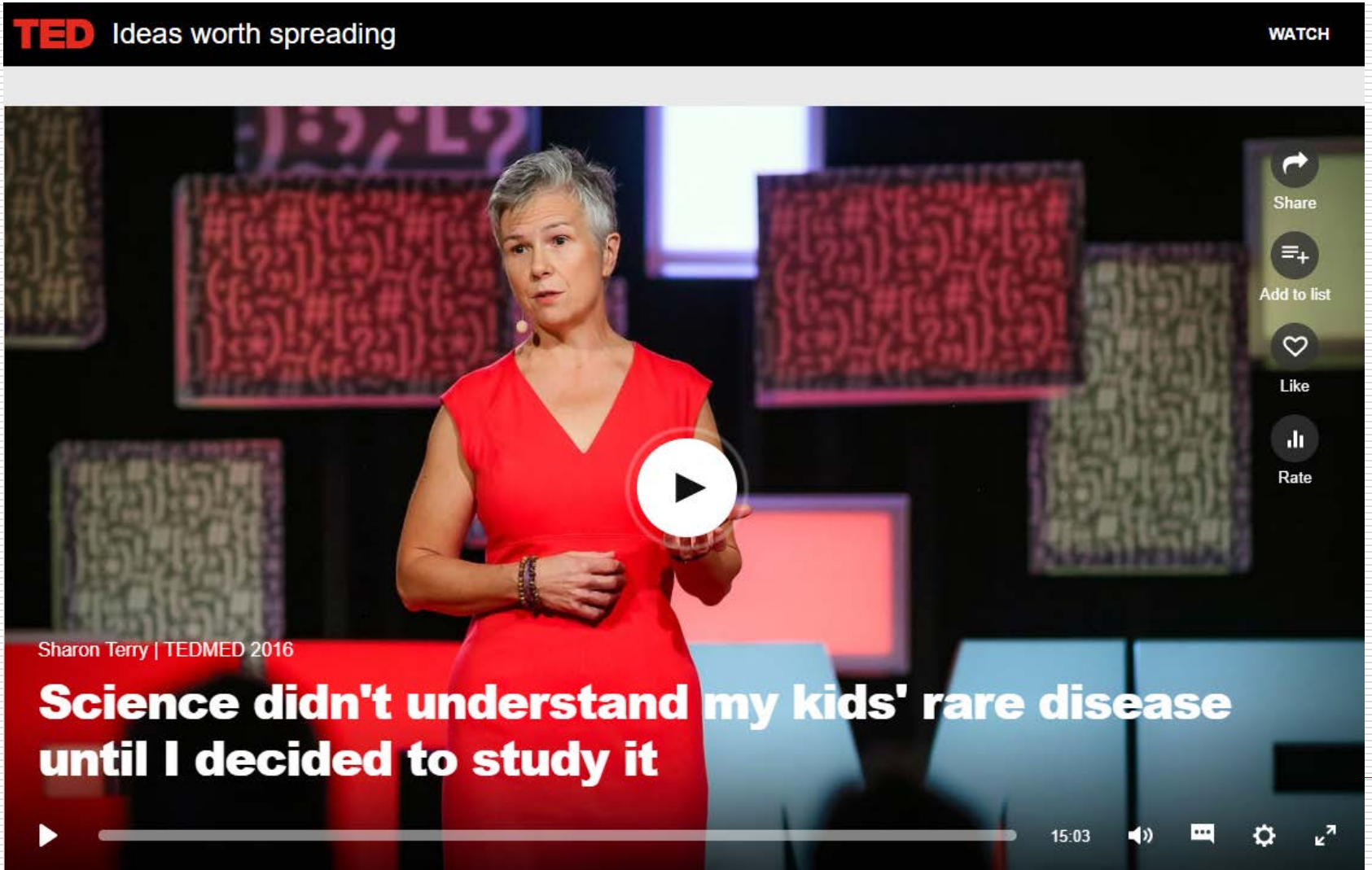


APC: Article Processing Charge

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



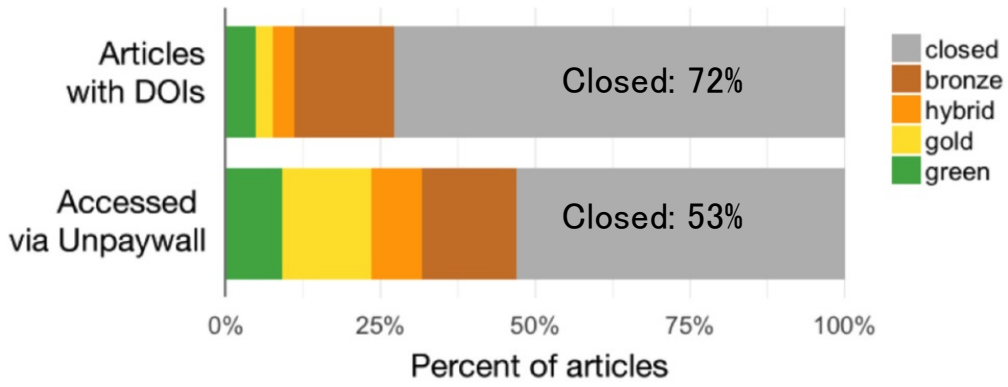
PubMed Central(PMC)—The first digital repository established by a funder to comply for OA mandate

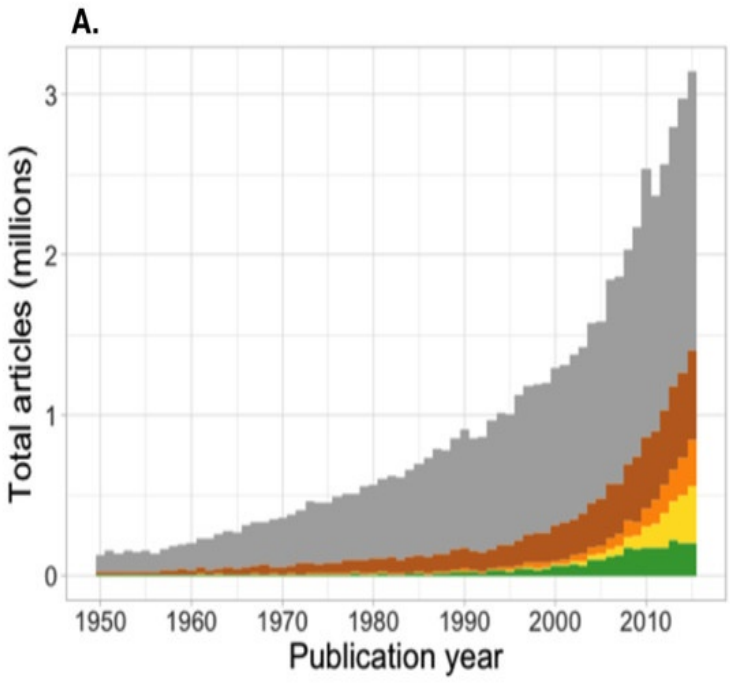
- Online research articles archive in biomedical and life sciences established by NIH.
- As of 2007, NIH made OA a mandate for research outputs funding by NIH.
  - ✓ Researchers must archive their author's final version on PMC.
- As of July 2018, about 5 million articles available.

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

https://www.ncbi.nlm.nih.gov/pmc/

Almost half of the scientific articles are published OA!



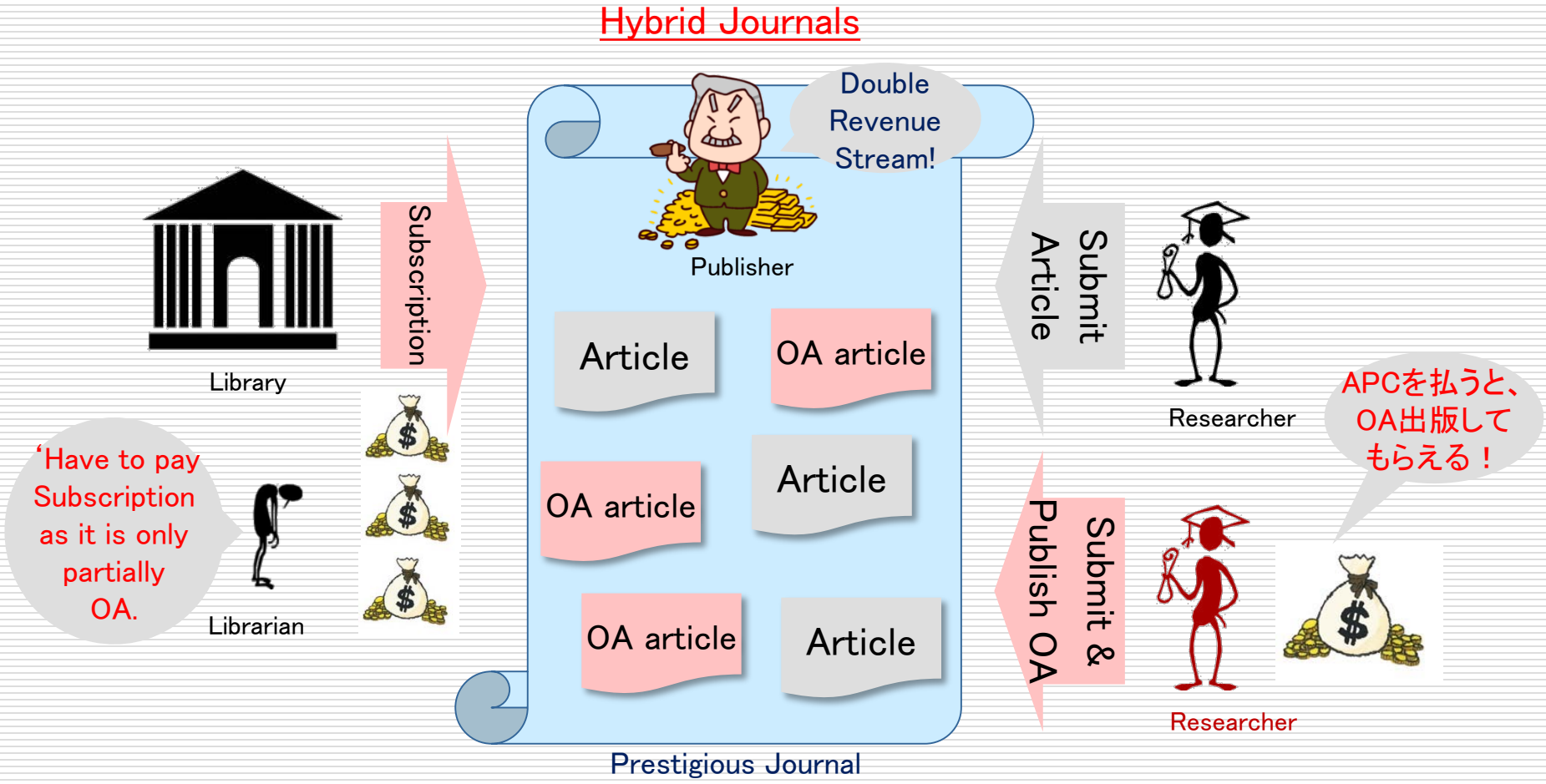


Type of OA journals	Articles with DOIs	Articles	Note
OA journals	28%	47%	
Bronze OA journals	16%	15%	Publication in OA journals not registered in the DOAJ
Hybrid OA journals	4%	8%	APCs for publication of articles in a non-OA journals
Gold OA journals	3%	14%	Publication in OA journals registered in the DOAJ
Green OA journals	5%	9%	Publication of finished articles using IRs
Non-OA journals	72%	53%	

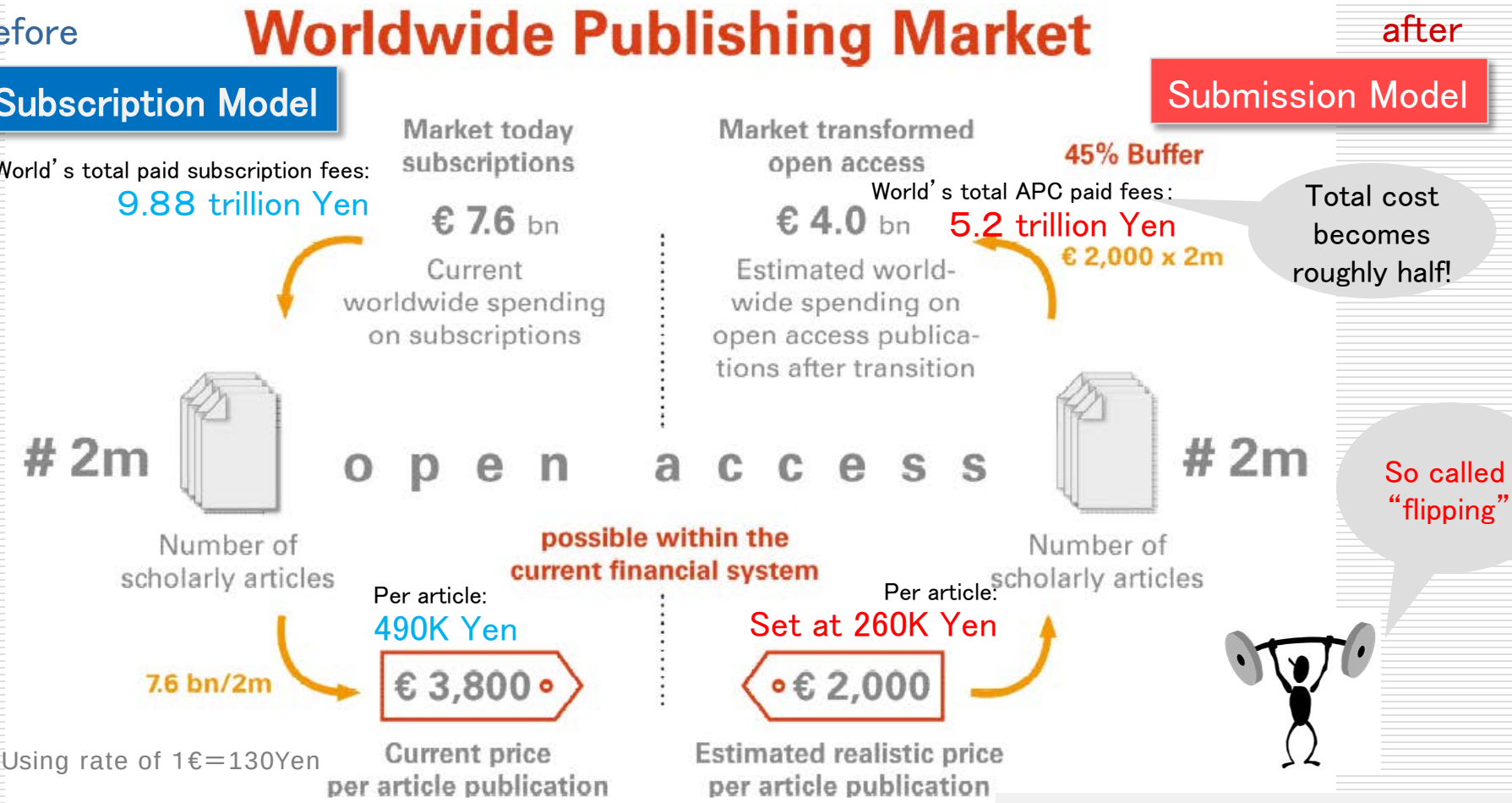
Source: Piwowar H, Priem J, Larivière V, Alperin JP, Matthias L, Norlander B, Farley A, West J, Haustein S. (2018) The state of OA: a large-scale analysis of the prevalence and impact of Open Access articles. PeerJ 6:e4375 https://doi.org/10.7717/peerj.4375

3. Approach to full OA through Publish & Read agreements (?!)

Hybrid journals and double dipping ...The smart publishers



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



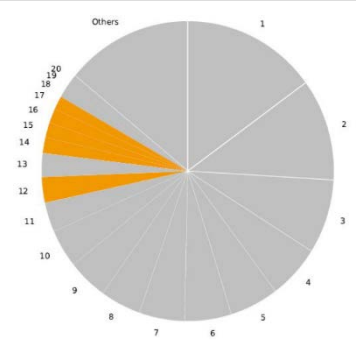
- ✓ EOI: 109 institutions from 35 countries
- ✓ Including two Japanese institutions
  - JUSTICE, Researchers group of solid state physics in Japan

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?t=1529915786

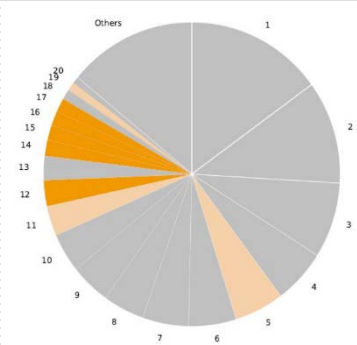
Max Planck to form transformative OA agreements with top 20 publishers

Journal distribution of MPG article submission

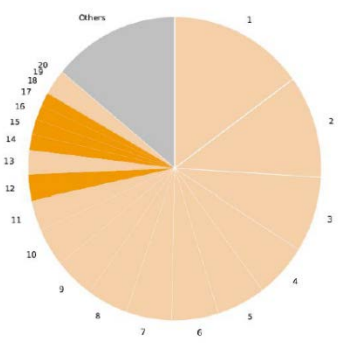
2015



2017



2020



Accumulative OA2020 signee by country

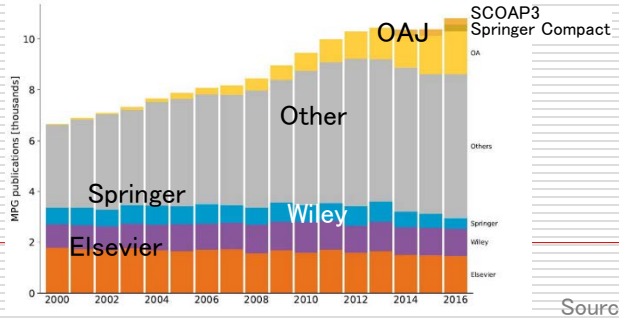
# of institutions	Cumulative
United States	15
China	25
Great Britain	32
Germany	39
Japan	45
South Korea	50
Italy	55
France	60
Canada	65
Australia	70
Spain	75
Brazil	79
Russian Federation	83
Netherlands	86
Poland	89
Switzerland	91
Sweden	93
Belgium	95
Denmark	97
Austria	99

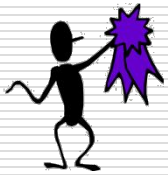
- The top 20 journals where MPG submits articles reaches 80%
- Among the 20, 5 are OA journals

- 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.

Trend of MPG's article submission

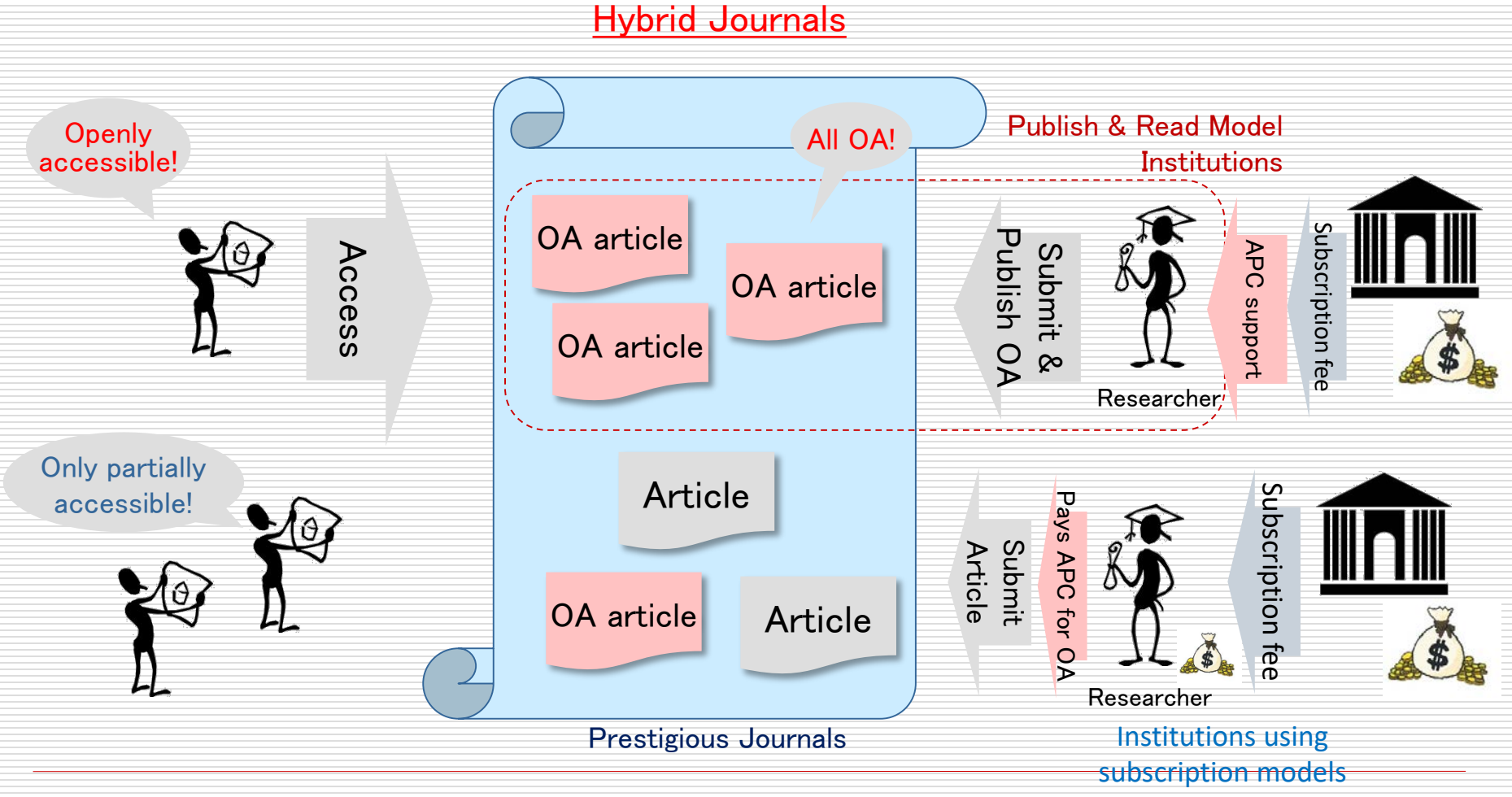




If the leading institutions at leading countries do also the transformative OA agreement, we get to the point of NO RETURN!

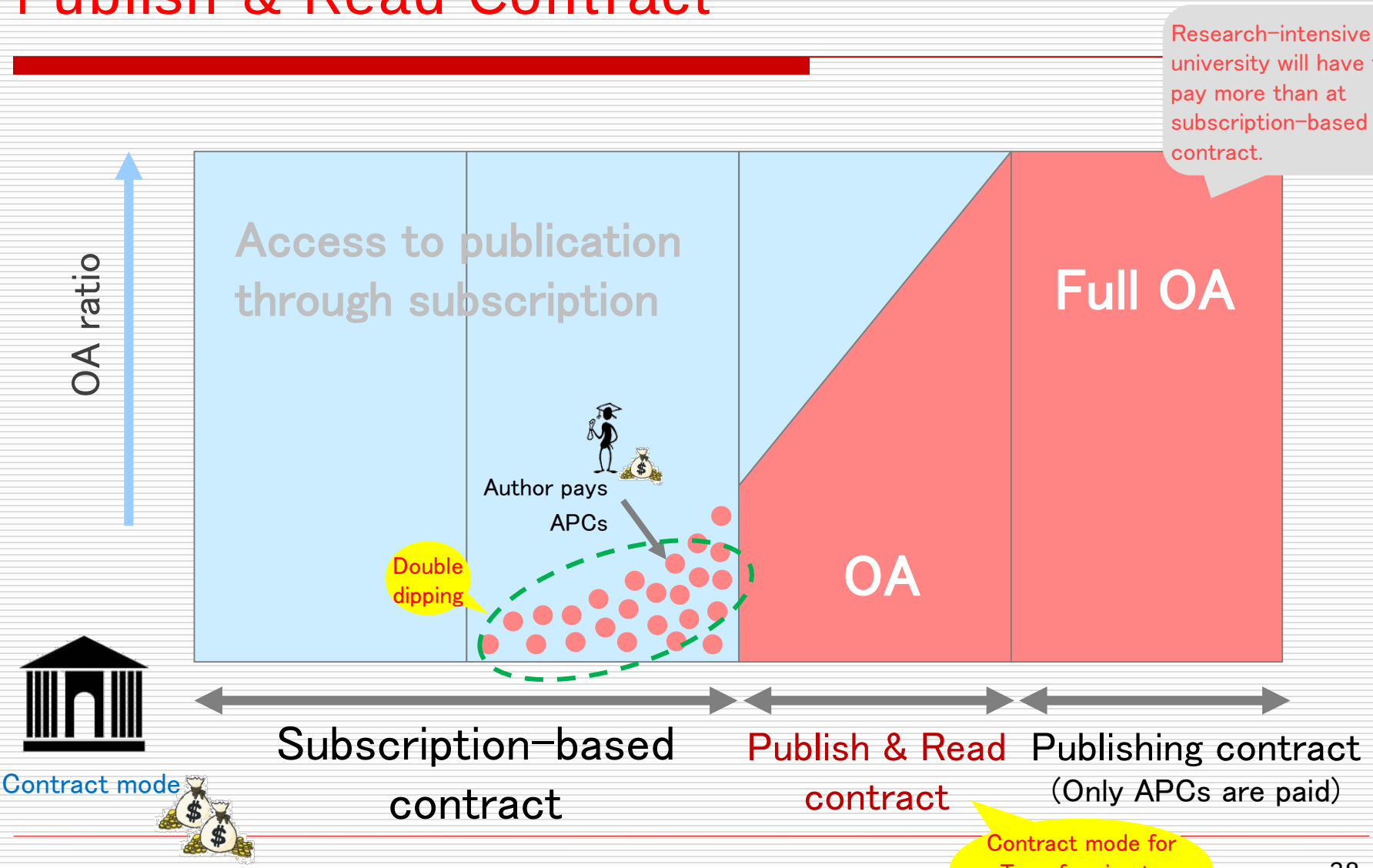
Source: MPDL, "What will it take to secure open access to today's scholarly journals?"
https://www.knowledge.services/app/download/15426878896/9%202017-11-20_Campbell_OA2020_OpenScienceDays_Vienna.pptx.pdf?t=1529915786

Transformative OA agreement for realizing OA2020…Publish & Read Model



Transformative agreement to full OA

Publish & Read Contract



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 Jan 2020.

(Progress)

- 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
- January, 2019: Max Planck advocating for OA2020 also looses access.
- January, 2019: Germany and Wiley signs Publish and Read deal.
- August, 2019: Germany and Springer-Nature signs Publish and Read deal.

Status of other countries with large publishers

- Netherlands
  - ✓ The Netherlands government has set a goal for 60% OA by 2018 and 100% OA by 2020. Based on this goal, the Netherlands formed a Publish& Read agreement with Elsevier for 2016-18.
  - ✓ However, as Elsevier retains the right to determine which journals are to be made OA, the agreement is not as desirable as the Netherland wanted it to be.
- Peru, Taiwan
  - ✓ No agreement with Elsevier since January 2017.
- Sweden
  - ✓ No agreement with Elsevier since July 2018.
- Norway
  - ✓ Signed a PAR deal with Elsevier for two years pilot. (April 2019)
- France
  - ✓ Signed quasi PAR deal with Elsevier for four years. (April 2019)

- [1] 13.3% price reduction in 4 years between 2019 and 2022, [2] 25% discount for APC, [3] full-text deposit from Elsevier in the national repository HAL (24-month embargo period)

US universities on OA2020

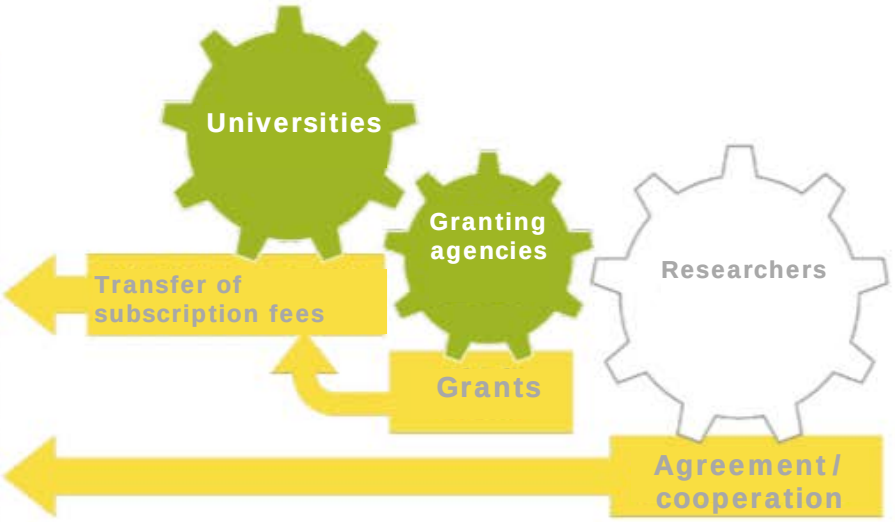
- No action has been taken by the US. (2019.5.8)
  - *It was rumored in December 2019 that the White House would oblige publishers to make articles openly access immediately after publication.* (https://current.ndl.go.jp/node/39850)

- Some highly conscious universities have taken action.
  - MIT
    - Signs PAR contract with Royal Society of Chemistry (2018.6)
    - Draft Recommendations on Open Access to MIT's Research (2019.3) mentioning to new modes of contract
  - University of California
    - Fails PAR contract with Elsevier (2019.3)
  - U Virginia, U North Carolina Chapel Hill, U Minnesota, Duke U, Iowa State, U Washington, U Massachusetts Amherst
    - Declare voice of support to the effort of University of California for a new publishing agreement with Elsevier and its walk away. (2019.5)
  - Carnegie Mellon University
    - Strikes PAR deal with Elsevier (2019.11)

JUSTICE University library consortium

JUSTICE OA2020 roadmap

YR	JUSTICE
2015	Data collection/analysis
2019	
～	Trials for OA article publication model agreements
2020	
～	Action for OA article publication model agreements



- Data Analysis (subscription fees, number of articles published, APCs)
- Pilots towards OA publishing model
- Expansion toward OA publishing model
- Flipping the subscription cost & grant
- Consensus & Cooperation
- Supplementary Actions

(Source)JUSTICE "Transformation from subscription model toward OA publishing model～JUSTICE OA2020 Roadmap～" (2019.3.5)
https://www.nii.ac.jp/content/justice_en/documents/JUSTICE_OA2020roadmap-EN.pdf

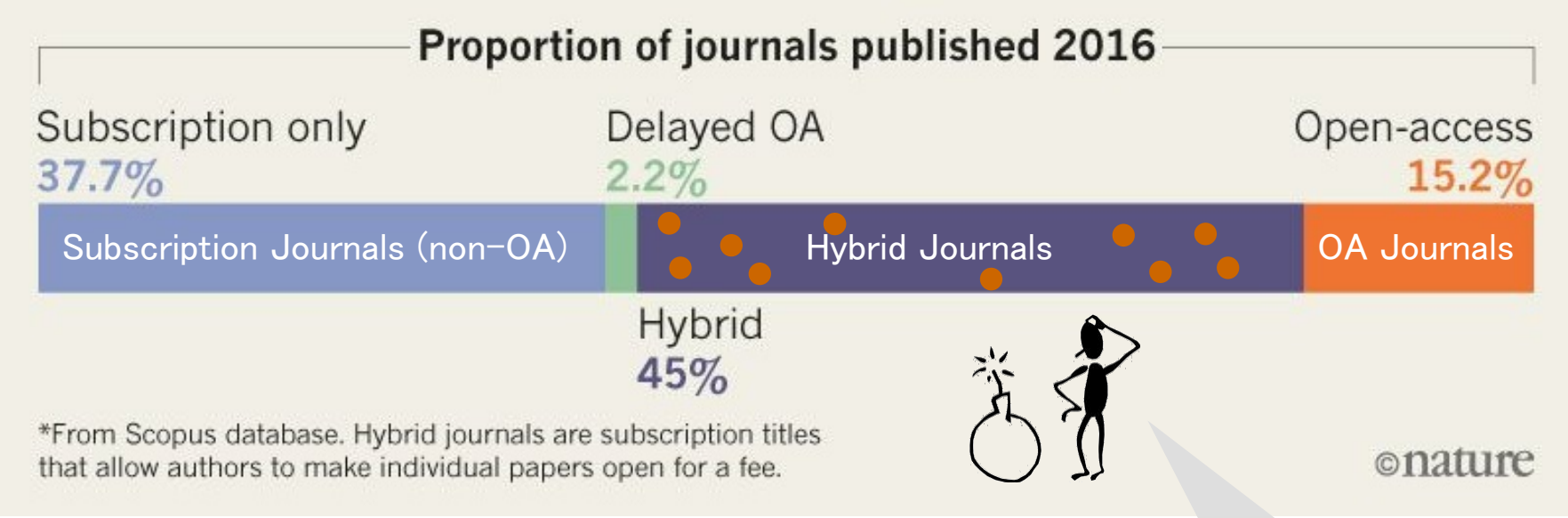
11 European research funders demand immediate OA...the Plan S of cOAlition S

- 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/

Academic journals by the type of OA



The hybrid journals allow double-dipping through subscription and APC!

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

Plan S compliant publication roads

A) OA journal

B) Subscription journal – non OA
- Articles have to be made available OA at repositories without an embargo period

C) Hybrid journal
- The journals must agree on transformative agreement and must become full OA journal within three years

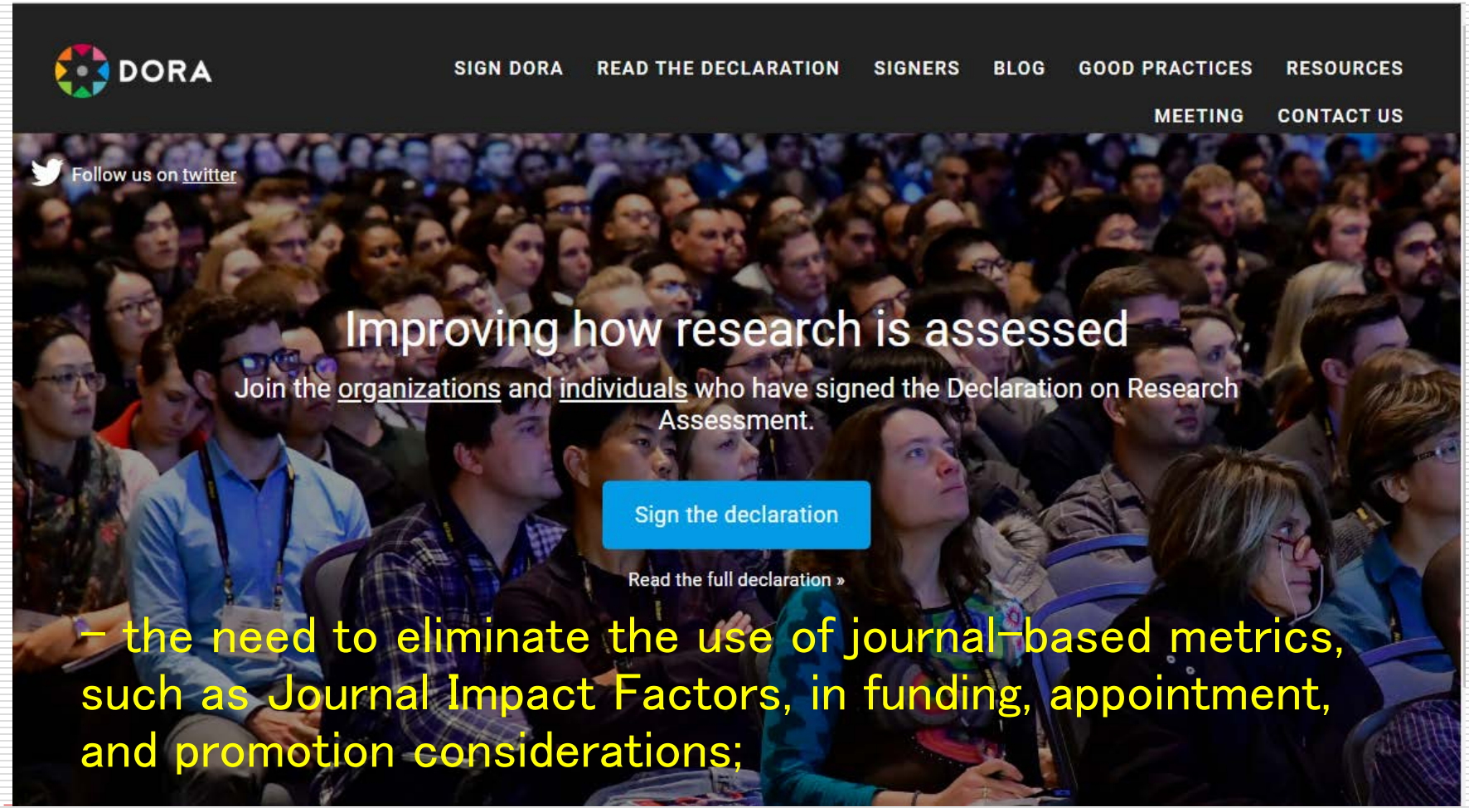
Source: cOAlition S, “Principles and Implementation” (2019.5.30)
https://www.coalition-s.org/principles-and-implementation/

Various reactions to Plan S … Researchers

- Agree, as Plan S reduces subscription fees.
- Disagree, as Plan S limits the choice where to publish your articles.
  - Violation of academic freedom!
  - Junior researchers are hindered to publish their research in subscription journals!

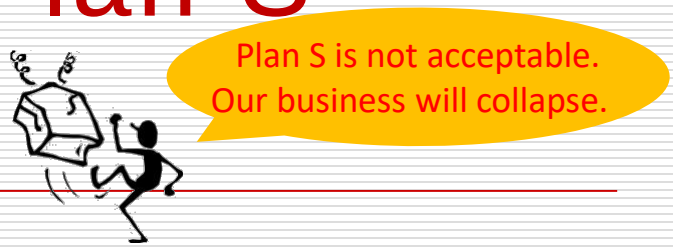
Source: Science, "Open-access plan draws online protest" (2018.11.8)
https://rcos.nii.ac.jp/miho/2018/12/20121202-2/

San Francisco Declaration on Research Assessment (DORA)



Source: San Francisco Declaration on Research Assessment (DORA)
https://sfdora.org/

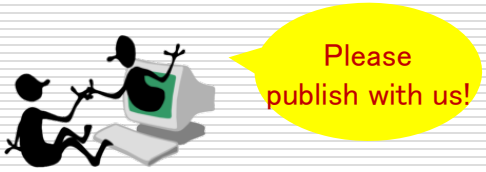
Various reactions to Plan S … Publishers



- Publishers in general (excluding OA journals) – disagree
  - Lack of resources to transform to OA journals.
  - On top, Plan S intends to put a cap on APCs which will limit the revenue flow tremendously.
- Top journals– definitely unacceptable
  - The selectivity of journals coincides with high in-house cost. To recover the costs, the APCs will become unrealistically high.
  - If APCs are set at reasonable price, the quality of journals will go down.
- Society journals– may accept green OA without embargo!?
  - Lack of resources to transform to OA journals.
  - If annually published articles are limited, the revenue from the APCs is not enough to sustain the journal.

Publishers positive for transformative agreement (TfA)

- Some publishers are positive for TfA
  - Strategy to lock in authors by transforming to OAJ at early stage?
  - Wiley, Springer-Nature, Cambridge Univ. Press, Oxford Univ. Press, RSC, ACS, SAGE, de Gruyter, Thieme, IWA Publishing, Karger etc.



- TfA mostly at country-level
  - Country: Austria, Germany, Netherland, Norway, Switzerland, Hungary, Greek, Slovenia, Spain
  - Institution: Max Planck, Delft University of Technology, California Digital Library, Iowa State University

Registry for transformative agreement

Agreement Registry

Search:

Publisher	Country	Customer	Size (# annual publications)	Start Date	End Date	Details/ ID
Wiley	Germany	Projekt DEAL/ MPDL Services GmbH	9500	01/01/2019	12/31/2021	wiley2019deal
Elsevier	Netherlands	VSNU-UKB	4500	01/01/2016	06/30/2019	els2016vsnu
Wiley	Netherlands	VSNU-UKB	2400	01/01/2016	12/31/2019	wiley2016vsnu
Elsevier	Norway	Unit	2100	01/01/2019	06/30/2020	els2019unit
Springer Nature	Netherlands	VSNU-UKB	2100	01/01/2018	12/31/2020	sc2018vsnu
Taylor & Francis	Sweden	Bibsam consortium	1700	01/01/2018	12/31/2020	tf2018bibsam
AkadémiaiKiadó	Hungary	EISZ	1500	01/01/2019	12/31/2020	kia2019eisz
Taylor & Francis	Netherlands	VSNU-UKB	950	01/01/2018	12/31/2020	tf2018vsnu

Source: ESAC, "Transformative Agreement, Agreement Registry"
https://esac-initiative.org/

Various reactions to Plan S

… Funding agencies

Publicly-funded research should be made openly available .

- Funding agencies participating in Plan S increased from 11 to 21. (as of 2019.6.28)
  - 16 national funders, 3 charitable foundations, and 2 European funders
  - Austria, Finland, France, Ireland, Italy, Luxembourg, Netherland, Norway, Poland, Slovenia, Sweden, UK, Zambia and Jordan
- Reactions by countries
  - European countries likely to accept.
  - The US does not accept? China accepts?
  - Zambia and Jordan accept. – Plan S is likely to be beneficial for developing countries.

Source: AIP, "An Interview with OSTP Director Kelvin Droegemeier " (2019.4.30)
https://www.aip.org/fyi/2019/interview-ostp-director-kelvin-droegemeier

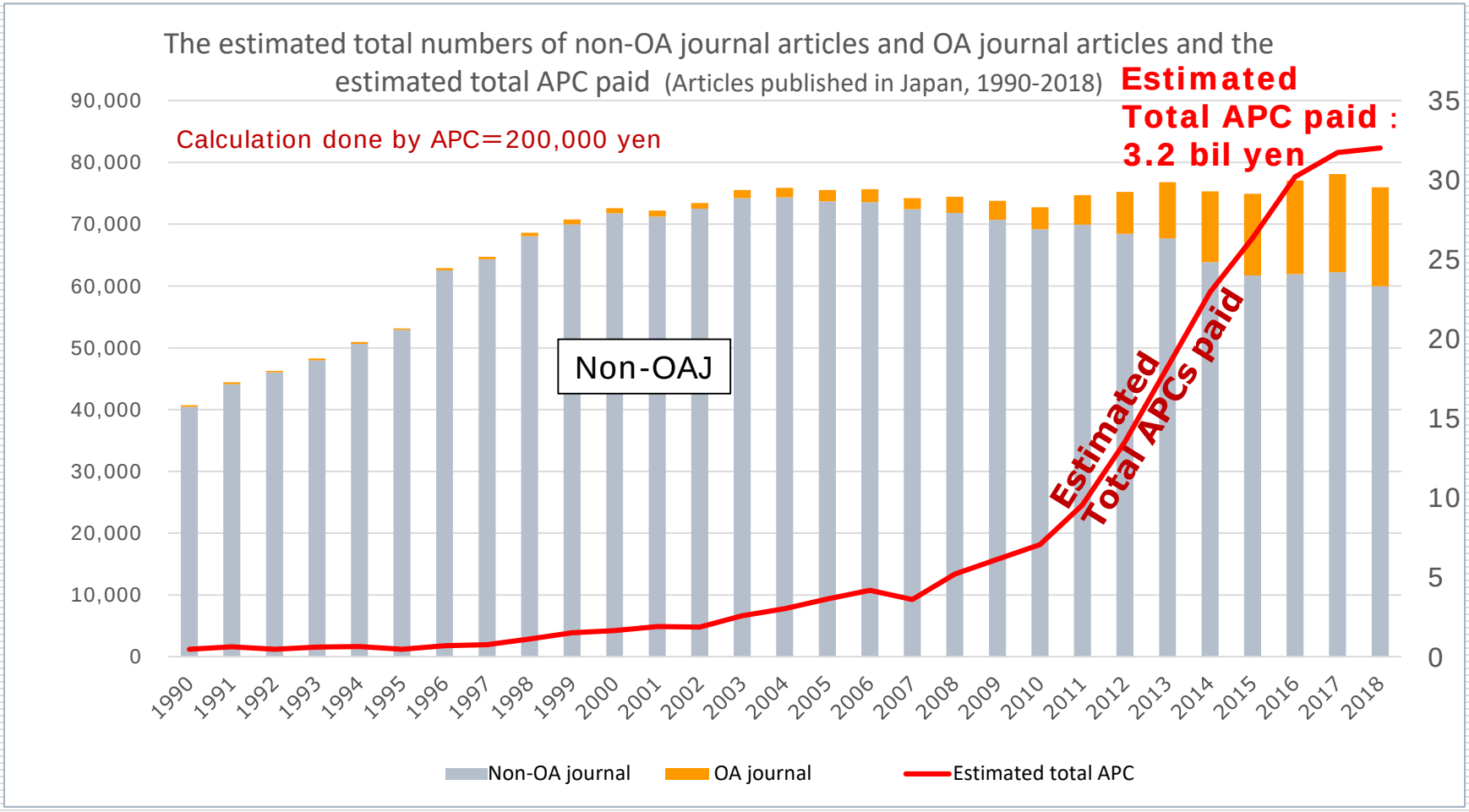
Source: cOAlition S, "Who's involved, funders"
https://www.coalition-s.org/funders/

4. Full OA puts researchers at risk—APCs, a heavy burden on researchers

Plan S, proposed by European funders, might quickly transform scientific journals to OA journals.

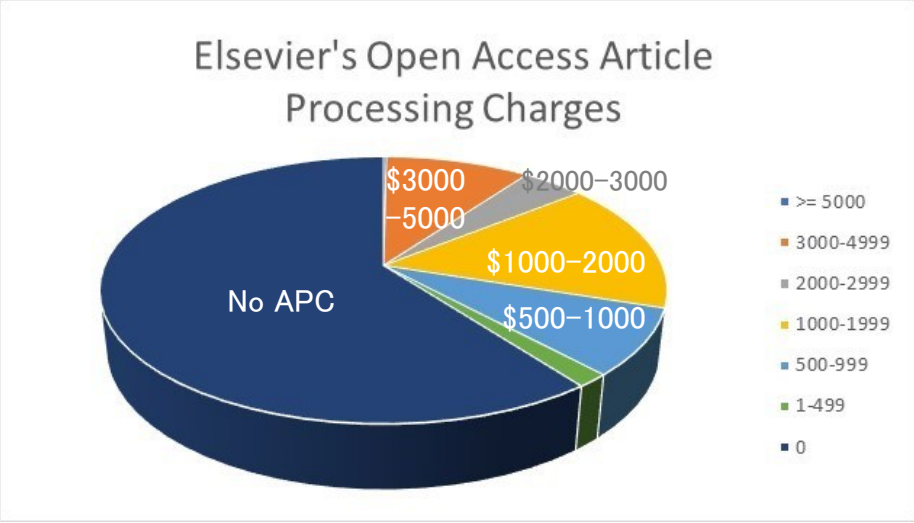
Journal issues to change from not being able to read to not being able to write!

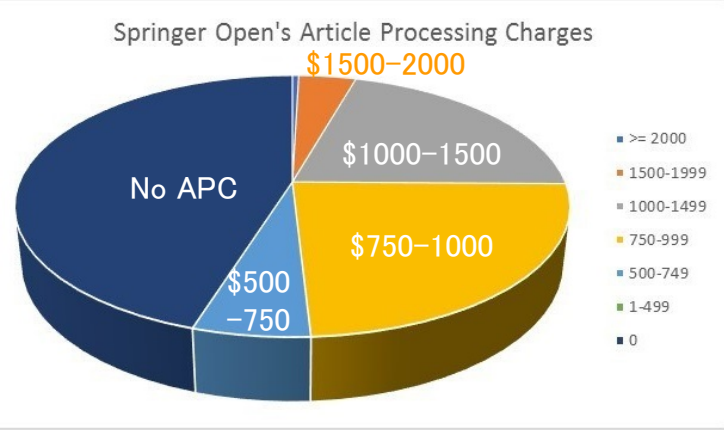
Rising APCs paid in Japan

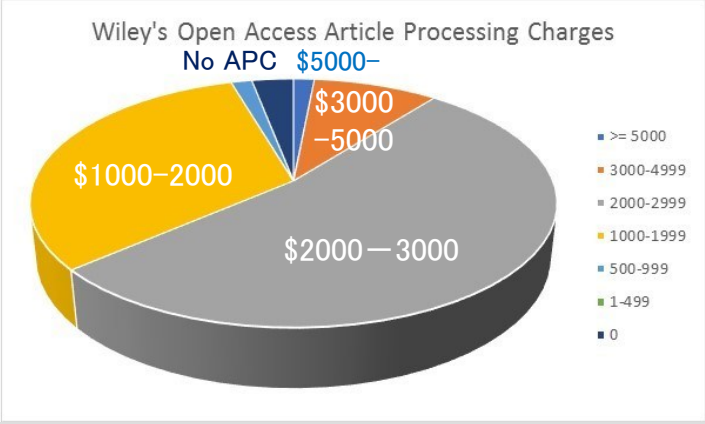


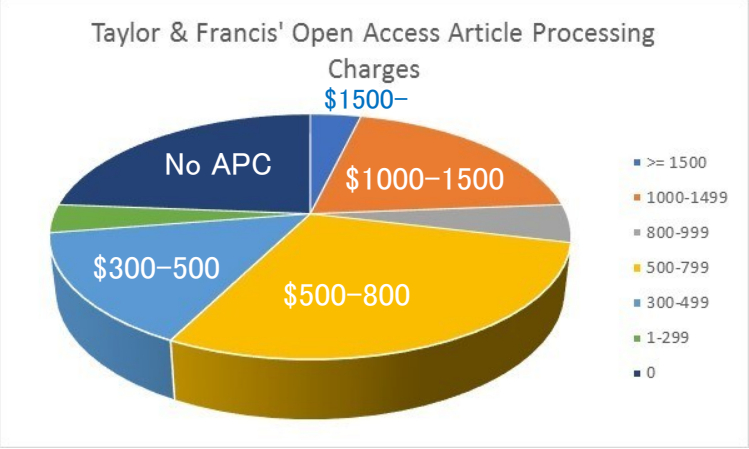
- ✓ Number of Japanese publication extracted from Web of Science by using CU=Japan DocumentType=Article within "DOAJ gold" and "Other gold."
- ✓ Publication includes also papers with Japanese author as co-author and not first author.

How many articles can you publish with average APC US$1000-2000?



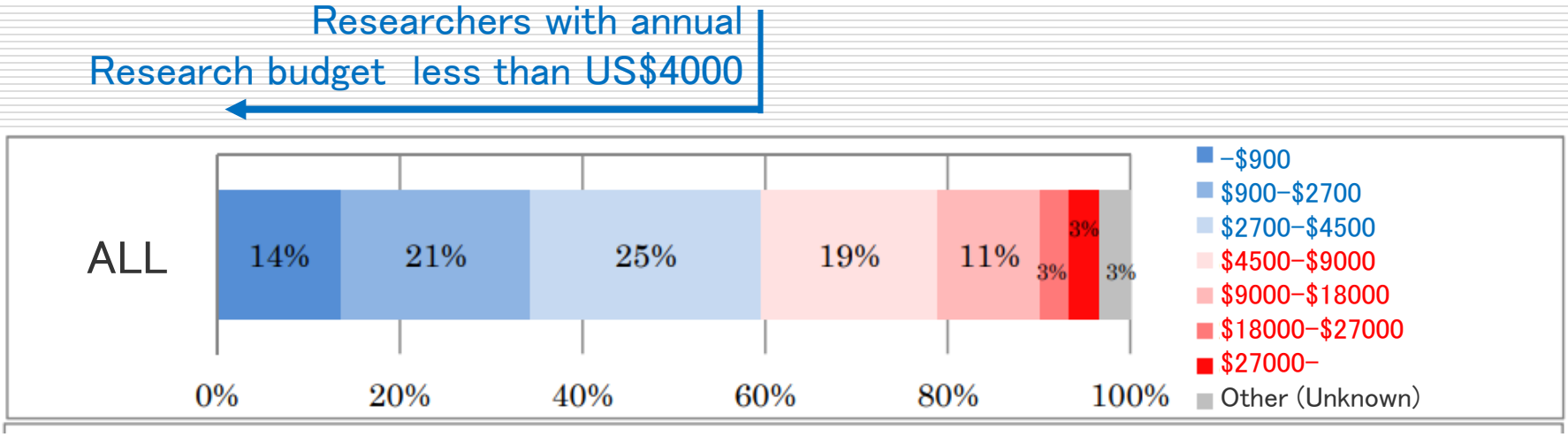






Source: Open Science, "How Much Do Top Publishers Charge for Open Access?" (2017.4.20)
https://openscience.com/how-much-do-top-publishers-charge-for-open-access/

The annual research budget of a Japanese researcher (FY2015)



- If more than half of Japanese researchers rely on less than $4000（50万円）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）」
http://www.mext.go.jp/b_menu/shingi/gijyutu/gijyutu4/037/shiryo/_icsFiles/afieldfile/2016/08/16/1375827_04.pdf

Compact for Open-Access Publishing Equity (COPE) —University subsidizes APCs

Compact for Open-Access Publishing Equity

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 to the scholarly literature, and the need for a stable source of funding for publishers who choose to provide open access to their journals' contents. Those universities and funding agencies receiving the benefits of publisher services should recognize their 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.

No signatories renewed after 2014

COPE Signatories	COPE compatible OA funds
Cornell University	Brandeis Univ
Dartmouth College	Carnegie Mellon Univ
Harvard University	Colorado State Univ
MIT	ETH Zurich
UC Berkeley	George Mason Univ
University of Ottawa	Indiana Univ-Purdue Univ Indianapolis
Columbia University	Johns Hopkins Univ
Memorial Sloan-Kettering Cancer Center	Lund Univ
Universitat de Barcelona	Northern Illinois Univ
Duke University	Southern Illinois Univ Carbondale
University of Calgary	Tufts Univ
Simon Fraser University	Univ of Bielefeld
CERN	Univ of California, Davis
Karlsruhe Institute of Technology	Univ of California, Irvine
University of Utah	Univ of California, Merced
University of Pittsburgh	Univ of California, San Diego
University of Tennessee	Univ of California, San Francisco
Texas A&M University	Univ of California, Santa Barbara
Emory University	Univ of California, Santa Cruz
University of Rhode Island	Univ of Colorado
	Univ of Florida
	Univ of Illinois at Chicago
	Univ of Iowa
	Univ of Kansas
	Univ of Manitoba
	Univ of Minnesota
	Univ of North Carolina at Chapel Hill
	Univ of North Carolina at Charlotte
	Univ of Oklahoma
	Univ of Oregon
	Univ of Tromsø
	Univ of Wisconsin - Madison

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

OA block grant by UKRI

- OA block grant provided by UKRI to universities, and redistributed to researchers by university.

Japan publishes ca 16,000 articles annually. So, an estimate of 2.8 billion yen is spent for OA publishing.

Since 30% are OA, Japan will need 9 billion yen for such block grant.

OA block grant provided in FY 2016/17

	Total	Full OA	Hybrid
Block grant provided	£14M		
Number of APC-funded articles	10,000	2500	7500
Average APC	£1988	£1654	£2101
Total APCs provided	£18M	£4M *	£16M *
		(* Total spent)	

Top 10 UK universities by OA block grant provided

JUSTICE estimate F.Y.2016

UCL	2.4B Yen	(£1.63M)
Cambridge U	1.9B Yen	(£1.27M)
Manchester U	1.6B Yen	(£1.08M)
Oxford U	1.3B Yen	(£0.91M)
Edinburgh U	1.3B Yen	(£9.88M)
Sheffield U	0.9B Yen	(£0.62M)
Glasgow U	0.9B Yen	(£0.61M)
Warwick U	0.7B Yen	(£0.50M)
Leeds U	0.7B Yen	(£0.48M)
Bristol U	0.7B Yen	(£0.48M)

Source: RCUK Open Access Block Grant analysis August 2013-July 2017
https://www.ukri.org/files/funding/oa/rcuk-apc-returns-analysis-2016-and-2017-pdf/

Source: UKRI, "2016-2017 block grant awards"
https://www.ukri.org/files/legacy/oadocs/open-access-block-grants-2016-17-pdf/

Yomiuri Shimbun（2019.2.13）

“APCs one of reasons of research strength decline in Japan”

過度な大学間競争 間違い

国立大学協会会長

山極寿一氏

やまぎわ・じゅいち　京都大教授などを経て、2014年10月に同学長に就任した。日本学術会議会長も兼務する。霊長類学の国際的権威。66歳。

2004年に国立大学が法人化して以降、政府は改革を進めようと大学を過度に競争させた。人件費などに充てる基盤経費である国立大運営費交付金を削り、競争的資金を手厚くした。例えば「国際化を進める改革」などの号令の下、新たな研究拠点を整備した大学に様々な補助金を増やしていった。

しかし、15年間かけてもうまくいかず、間違っていたことは明らかだ。

大学は、次の世代の人材を育てて、日本の研究力の向上に貢献する。企業の経営とは全く異なる役割を担っている。

政府は昨年末、大学が定める独自の経営目標とは別に、国が定めた共通指標で評価し、評価が高い大学に運営費交付金を手厚く配分することも決めた。介入としか思えない。研究現場は荒れ、大学は優れた研究者を囲い込むようになり、新しい研究ができなくなる。

論文数と、運営費交付金、研究者が応募して資金を獲得する国の「科学研究費助成事業（科研費）」の推移を比較してみた。研究者はこれらの資金で研究に専念でき、3、4年後には論文として成果を世に出していることが明らかになった。

その科研費が、19年度予算案などで大幅に増額されたのは評価できる。一方で、論文数が減少し、研究力がそがれているのも事実だ。これには、科学雑誌の論文投稿料の高騰も影響している。科研費に採択されるのは全体の20～30％程度で、残る7

The APC rises for scientific journals are a cause of the current decline in research strength.

Research grants are provided to only 20% to 30% of researchers, and the remaining researchers (approximately 70%) cannot pay even the APC.

This is why the number of articles published is declining. The national government or universities should support researchers.

How to establish funding schema for APCs

Offset agreement!

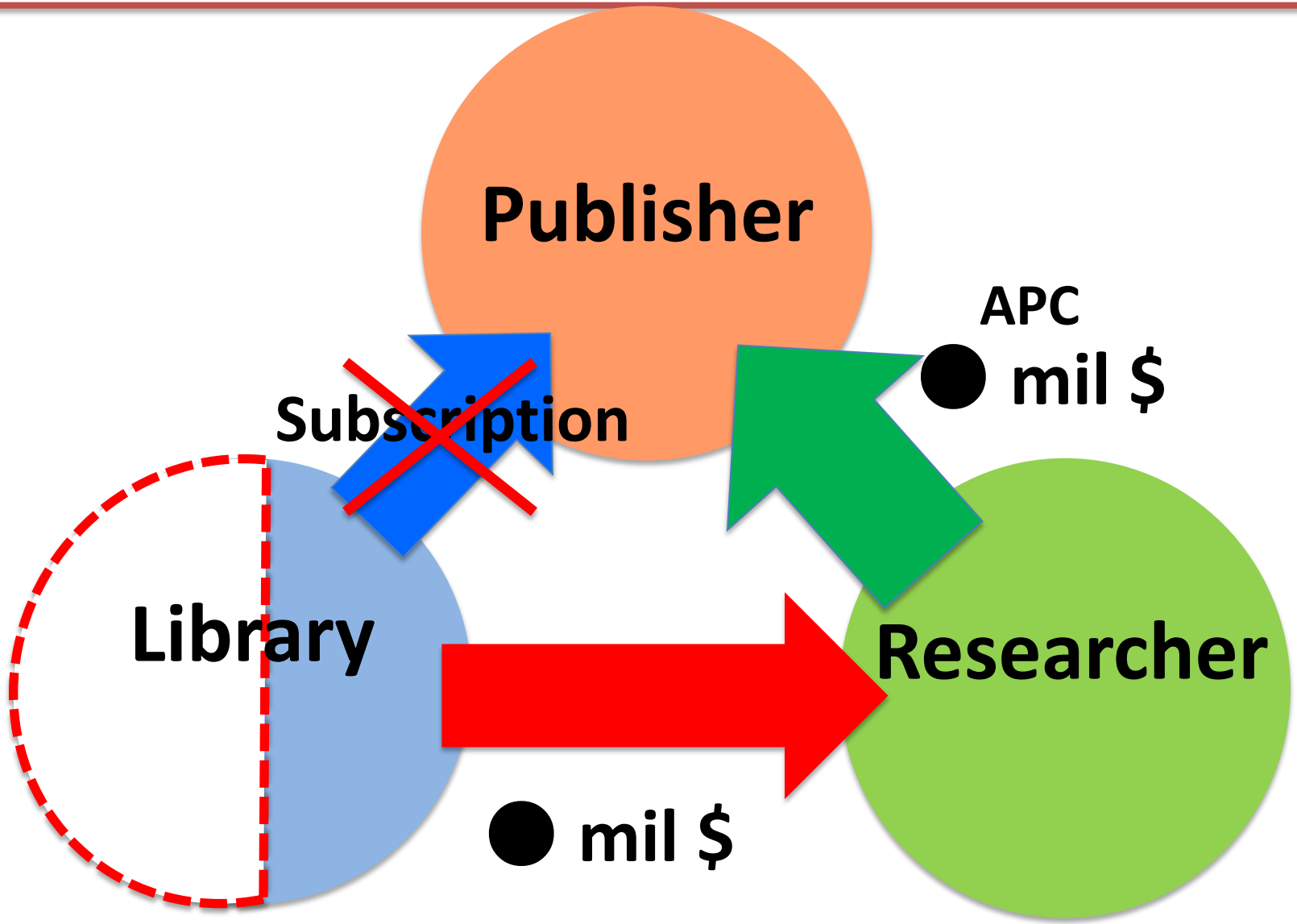
1. Turning subscription budget to APCs

- 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.

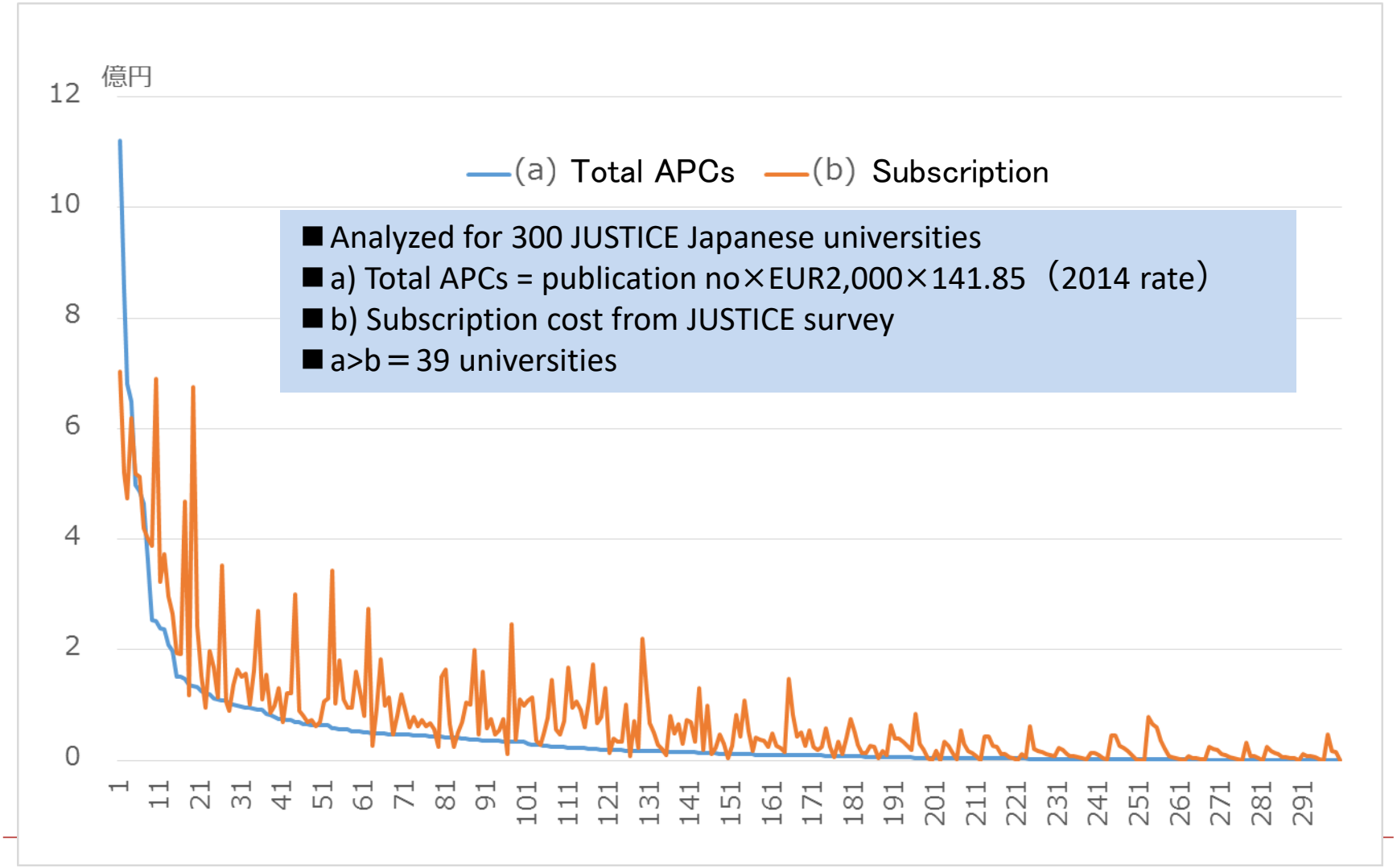
2. Acquiring grants from funding agencies

- 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.

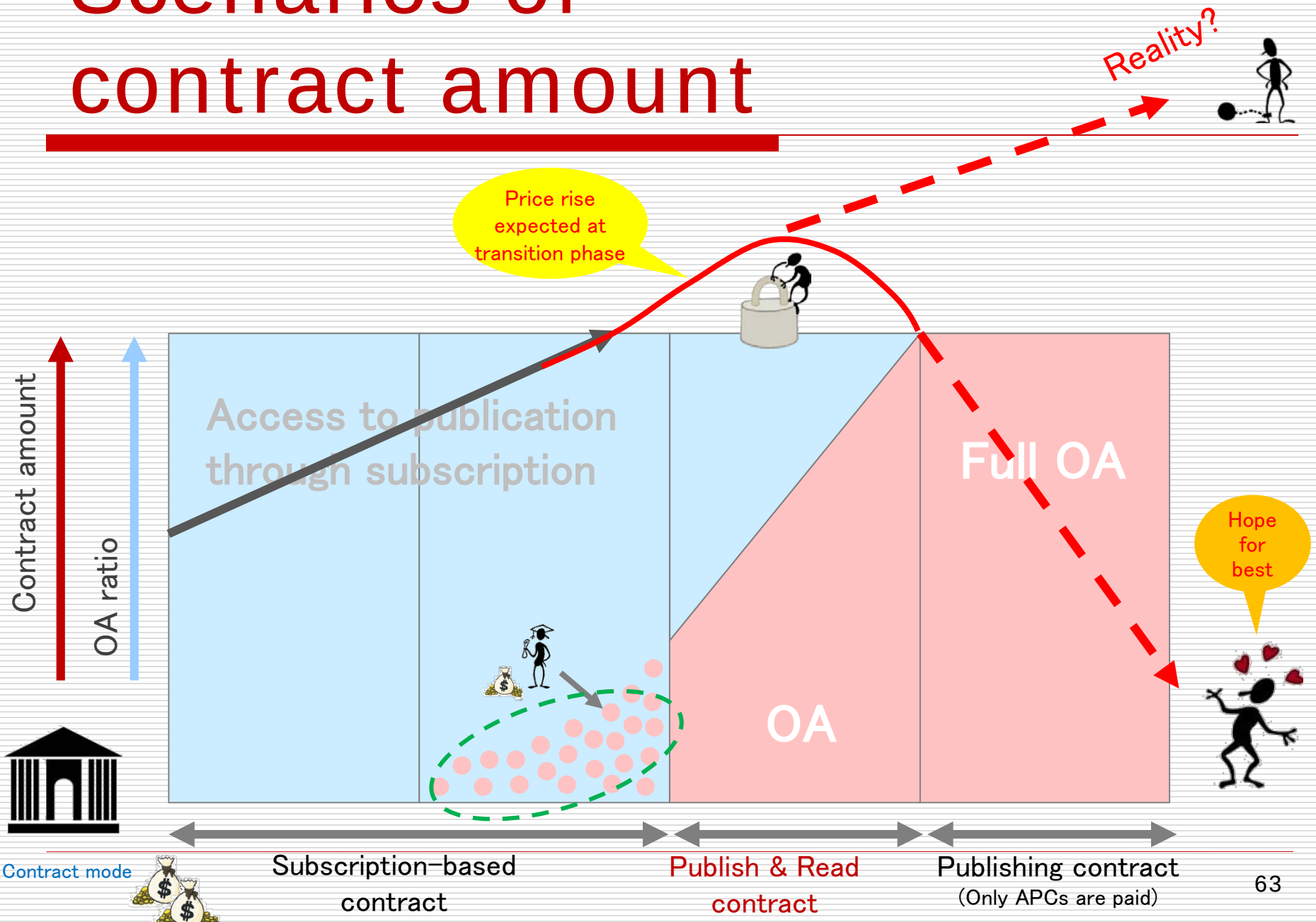
APC flow



Comparing total APCs and subscription for JUSTICE universities

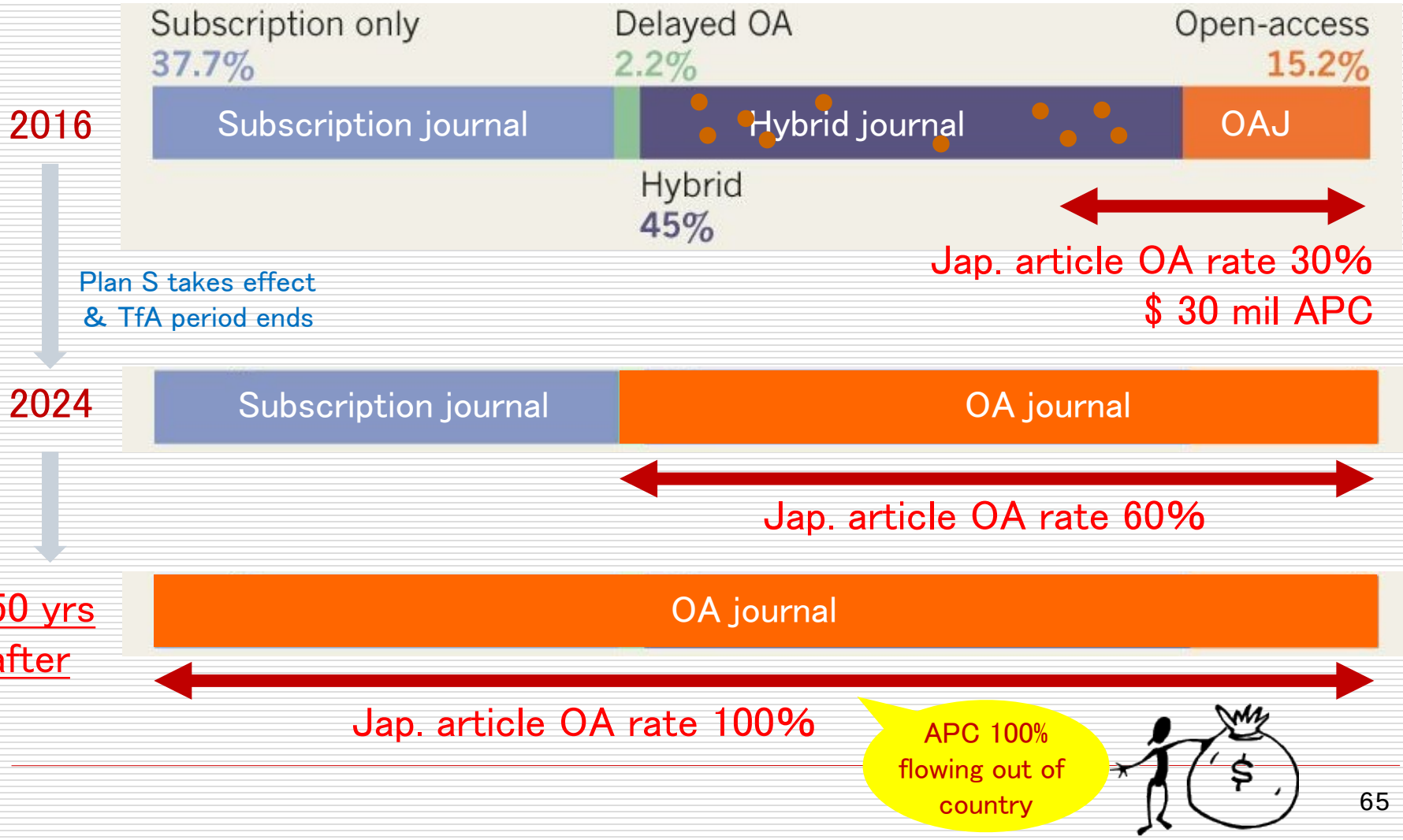


Scenarios of contract amount



5. Need for non-commercial Publishing Platforms

The transformation of acad. journals by state of OA



How many acad. contents, i.e. APCs, can we keep in Japan?

If articles are published 100% in overseas OAJs

OA journals with APCs

Let's use Jap. OA platforms !

APC 100% flowing out of country

If certain portion of contents can be published in Japan

APC-free OA platforms

J-STAGE

Repositories、JAIRO Cloud

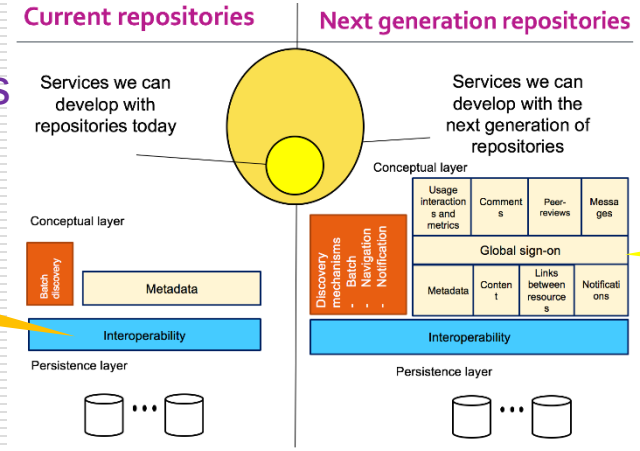
OA journals with APCs

APC-free OA journal publication systems
Separation between contents and assessment (journals)

Next Generation Repositories

- Proposal by the COAR, an OA repository association

Current repositories



Next generation repositories

Journal information is entered and linked to repositories.

The layers for review and comment functions are put on the content layer..

Contents and articles are not always put on the same scientific journals.

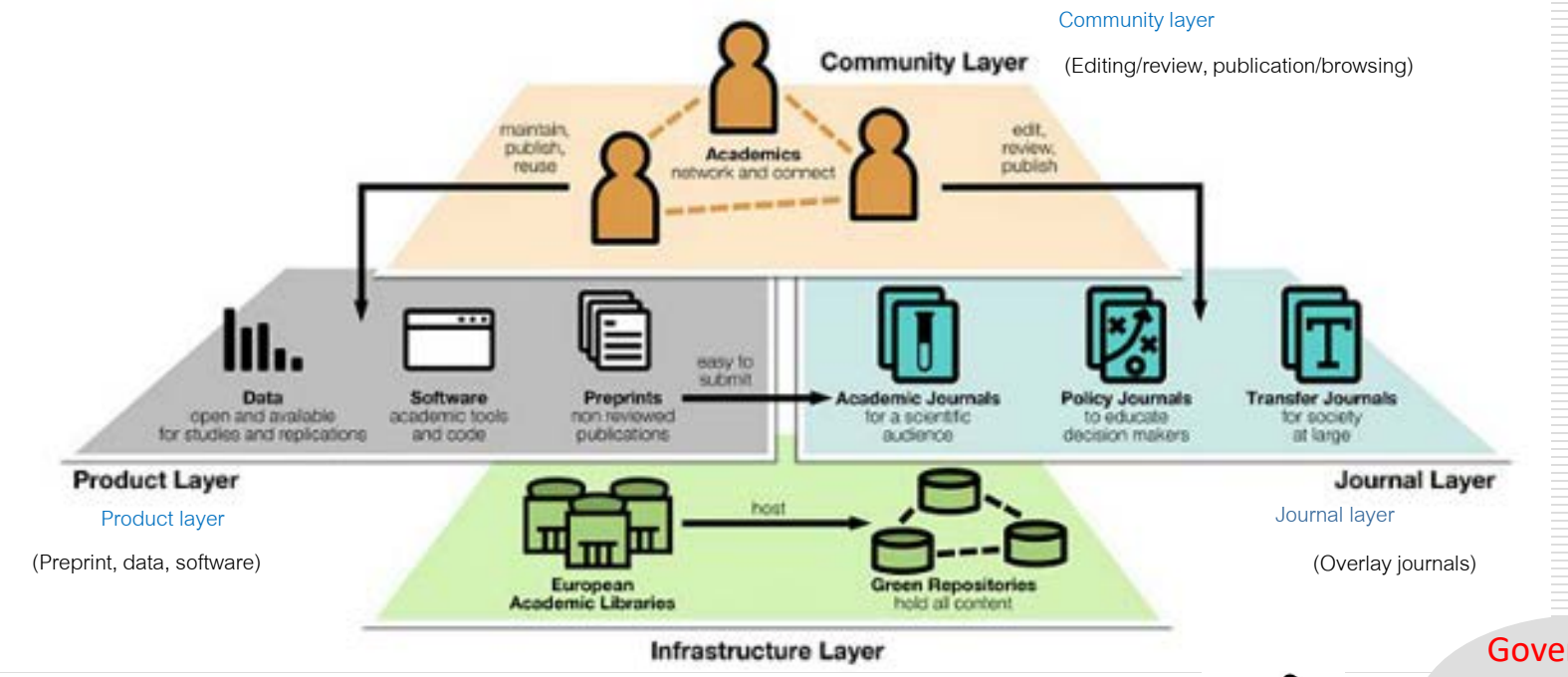
APC-free OA journal publication systems

- Preprint servers (including ArXiv and BioRxiv)
- OA platforms (including J-Stage, SciELO and F1000Research)
- Institutional repositories (including PubMed and JAIRO Cloud)

COAR, "Next Generation Repositories"
https://www.coar-repositories.org/activities/advocacy-leadership/working-group-next-generation-repositories/

Proposal) EU provides the e-infrastructure where articles can be submitted, peer-reviewed, published, and made available OA.

European Open Access Platform



Community layer

(Editing/review, publication/browsing)

Product layer

(Preprint, data, software)

Journal layer

(Overlay journals)

Infrastructure layer (Institutional repositories, categorical repositories)

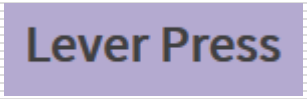
Government supporting the E-infra, excluding publishers

https://blogs.openaire.eu/?p=1961

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/

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.

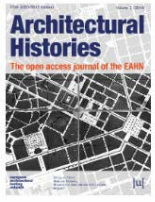


Libraries sustaining OA journals in humanities: Open Library of Humanities

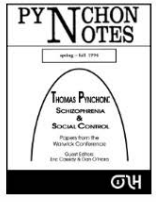
- Business model: Libraries form a consortium and publishes OA journals through membership fees
- 20 journals mainly in humanities
- More than 200 libraries mainly in the North America and UK support the OLH.
- Average annual contribution of a library is approximately 1,000 dollars.
- Annual contribution of a library for one journal is approximately 55 dollars.

C21 Literature: Journal of 21st-Century Writings

Studies in the Maternal



Architectural Histories



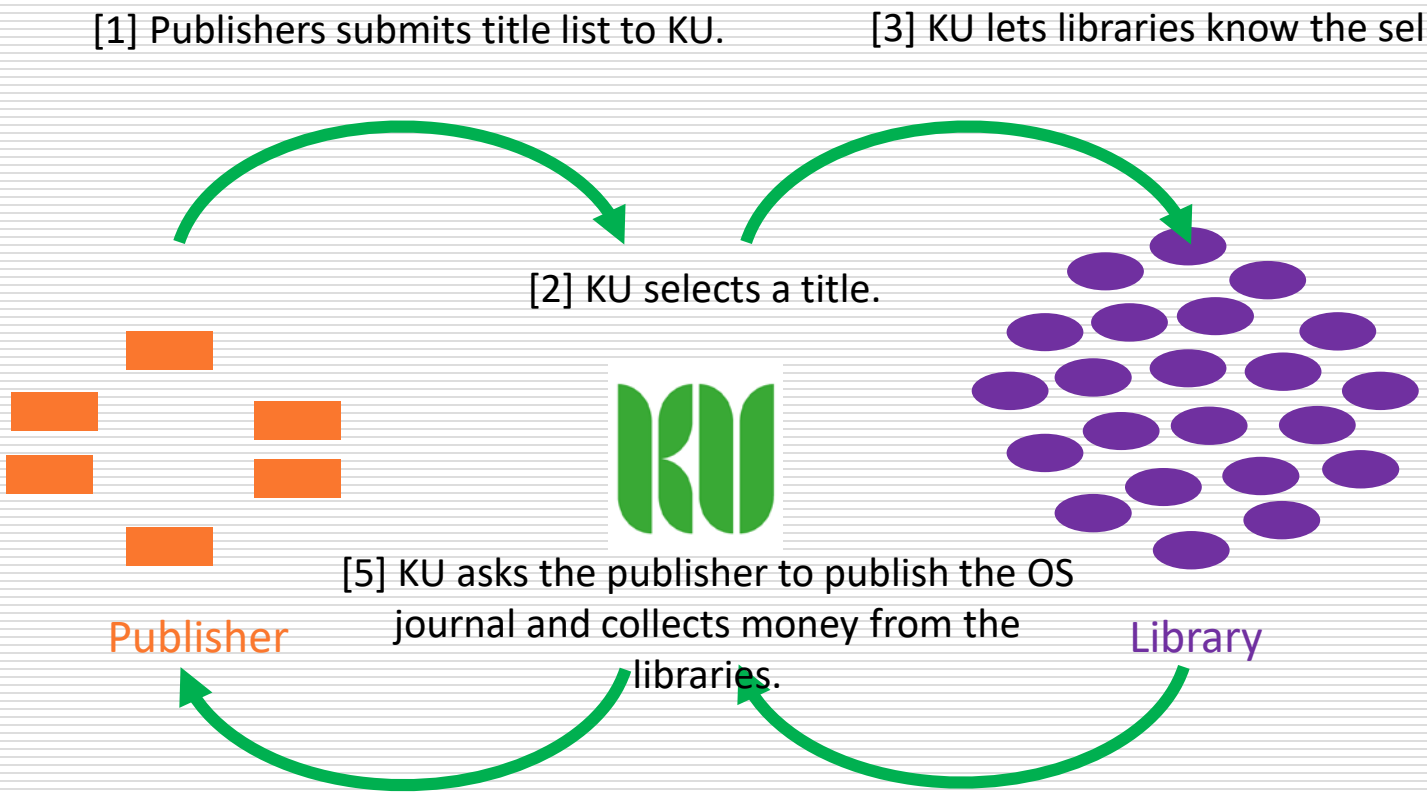
Pynchon Notes

Theoretical Roman Archaeology Journal

Open Screens

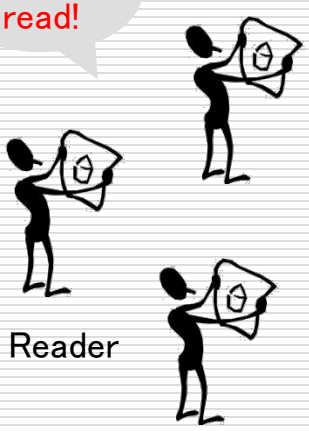
https://www.openlibhums.org/

Libraries sustain OA monographs in humanities — Knowledge Unlatched (KU)



A gold OA framework in High-Energy Physics ...Supporting APCs institutionally and achieve full-OA—SCOAP^3

Open to read!



Reader

Open Access

SCOAP^3 Journals

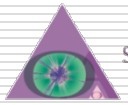
- Acta Physica Polonica B (APPB)
- Advances in High Energy Physics (AHEP)
- Chinese Physics C (CPC)
- The European Physical Journal C (EPJC)
- The Journal of High Energy Physics (JHEP)
- Nuclear Physics B (NPB)
- Physics Letters B (PLB)
- Physical Review C (PRC)
- Physical Review D (PRD)
- Physical Review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

'Can submit articles without APC worries.

Submit Article

Researcher

Membership Fee



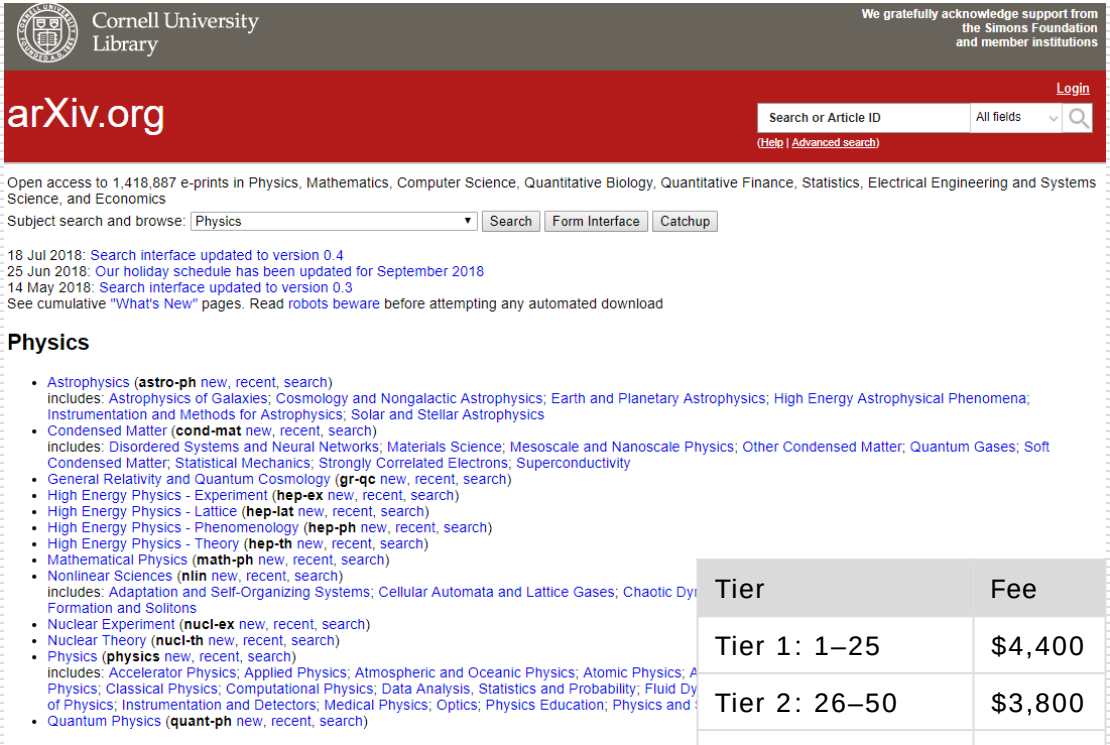
SCOAP^3 – Sponsoring Consortium for Open Access Publishing in Particle Physics

- ✓ Coordinated by CERN
- ✓ 3000 institutions at 44 countries participating
- ✓ 67 Japanese institutions participating (2018)

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

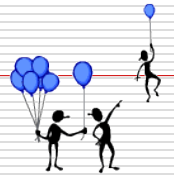
Preprint Server ...arXiv.org



Tier	Fee
Tier 1: 1–25	$4,400
Tier 2: 26–50	$3,800
Tier 3: 51–100	$3,200
Tier 4: 101– 150	$2,500
Tier 5: 151–200	$1,800
Tier 6: 201+	$1,000

Originally introduced in High energy physics; currently introduced in multiple areas

However, there is no peer-review!



- 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 their tier.
- Contributions from Japan
  - The University of Tokyo, Kyoto University, Tohoku University, Nagoya University, Osaka University, High Energy Accelerator Research Organization, Waseda University, National Astronomical Observatory of Japan, Tokyo Institute of Technology, Hokkaido University, Kyushu University, Hiroshima University, Tokyo University of Science and Tsukuba University

Source: arXiv, "2018–2022: Sustainability Plan for Classic arXiv"
https://confluence.cornell.edu/display/arxivpub/2018–2022%3A+Sustainability+Plan+for+Classic+arXiv

Preprint servers on rise!

Speedy information exchange!

arXiv.org

RePEc

Cryptology ePrint Archive

PhilSci Archive

American Chemical Society

bioRxiv

ChemRxiv™

PeerJ Preprint

SSRN

*Elsevier bought it in 2016.

AgriXiv

LIS Scholarship Archive

MarXiv

BITSS

MindRxiv

Earth ArXiv

NutriXiv

engrXiv

paleorXiv

FocUS Archive

PsyArXiv

Frenxiv

SOC ARXIV

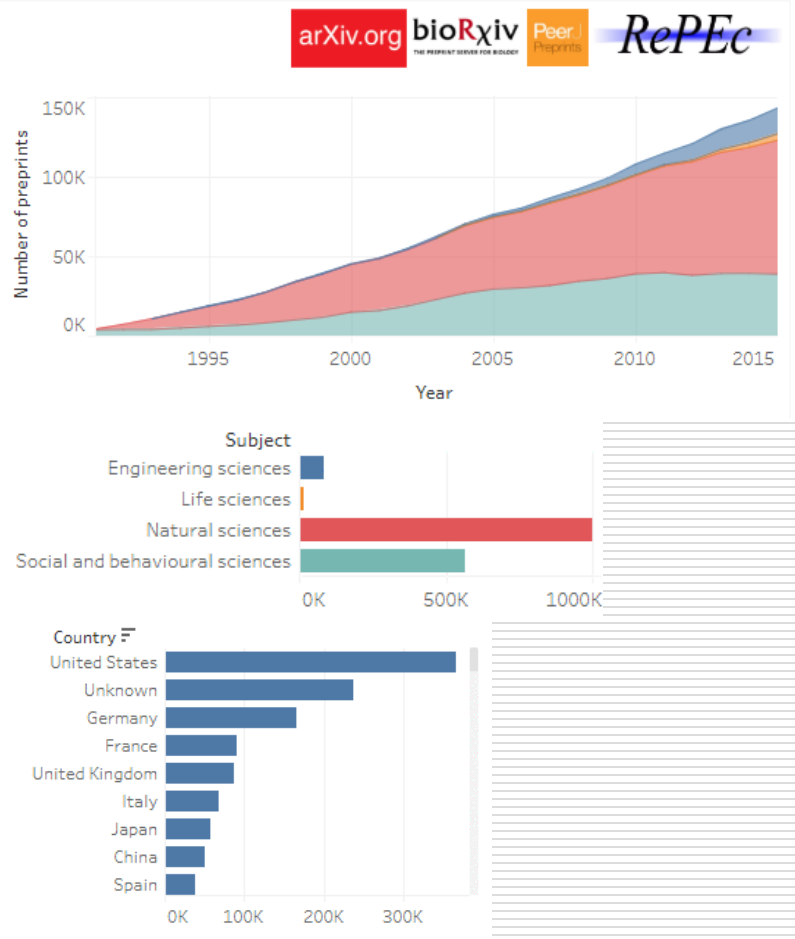
INA-Rxiv

SportRxiv

LawArXiv

THESIS COMMONS

COSのOSFがホストするサーバ



Source: Open Science Monitor, “Number of preprints”
https://public.tableau.com/profile/sarah.parks#!/vizhome/OApreprints/Dashboard1

Jussieu Call for Open science and bibliodiversity

https://jussieucall.org/jussieu-call/

Changing business from Publisher to Platform Provider for Research Support!

Changing from Contents to Context!

(Publisher)
Platformer

Source: Acquired from Dr. Anders Karlsson, Vice President, Strategic Alliances, Global Academic Relations, Elsevier–Japan, Nov. 2016

The M&As of Elsevier

Research Workflow

- Review
- Research Grant
- Experiment, Analysis
- Research Output
- Writing Papers
- Submission
- Publish
- Outreach
- Evaluation

Scopus — Bibliographic DB

Engineering Village — Bibliographic DB

MENDELEY — Reference Manager

Knovel — Workflow Tool

hivebench — E-Notebook

Mendeley Data platform — Research Data Management

WebShop — Support Service for Writing Papers

SSRN — Preprint Server

bepress Digital Commons — Institutional Repository

ScienceDirect — Publication Platform

bepress Digital Commons — Institutional Repositories

SciVal — Research Evaluation

PLUM ANALYTICS — Research Strength Analysis

Pure — Research Profiling

There is no escape from Elsevier!

The publishers are controlling research!

Researcher

We are providing excellent research environment!

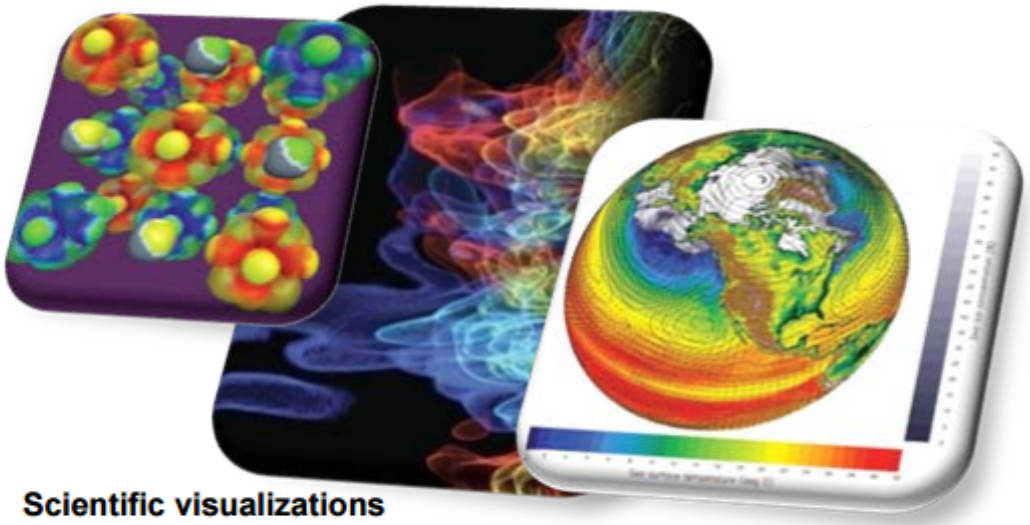
(Publisher)
Platformer

A Digital Data Deluge in Research

- Data collection
  - Sensor networks, satellite surveys, high throughput laboratory instruments, observation devices, supercomputers, LHC …
- Data processing, analysis, visualization
  - Legacy codes, workflows, data mining, indexing, searching, graphics …
- Archiving
  - Digital repositories, libraries, preservation, …

SensorMap

Functionality: Map navigation
Data: sensor-generated temperature, video camera feed, traffic feeds, etc.

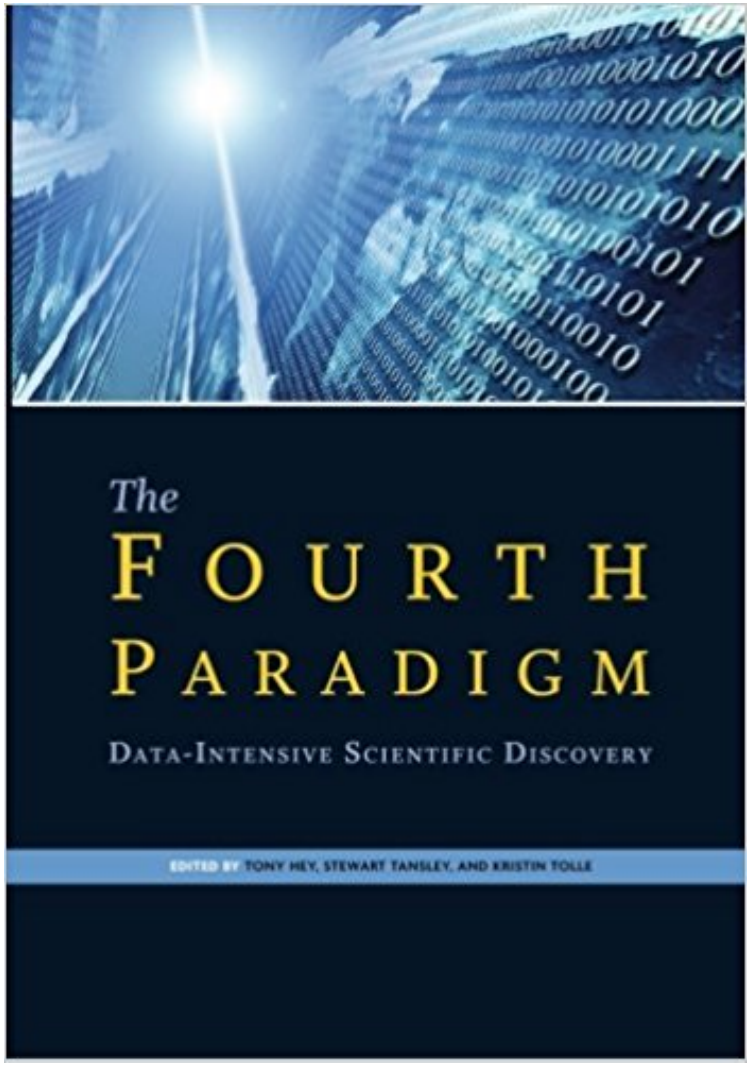


Scientific visualizations

NSF Cyberinfrastructure report, March 2007

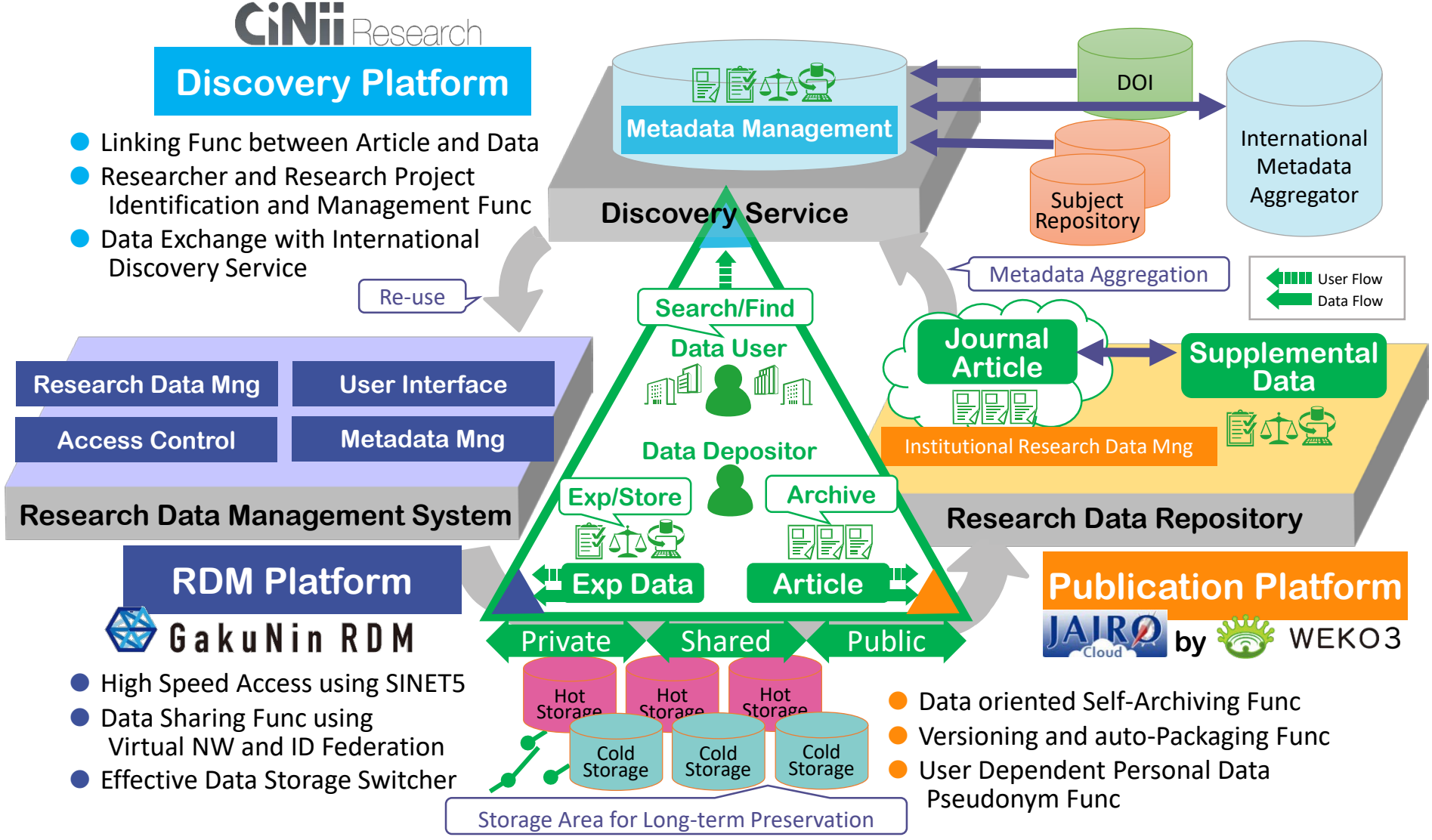
Emergence of a Fourth Research Paradigm

1. Thousand years ago – **Experimental Science**
   - Description of natural phenomena
2. Last few hundred years – **Theoretical Science**
   - Newton's Laws, Maxwell's Equations…
3. Last few decades – **Computational Science**
   - Simulation of complex phenomena
4. Today – **Data-Intensive Science**
   - Scientists overwhelmed with data sets from many different sources
     - Data captured by instruments
     - Data generated by simulations
     - Data generated by sensor networks
   - ➢ eScience is the set of tools and technologies to support data federation and collaboration
     - For analysis and data mining
     - For data visualization and exploration
     - For scholarly communication and dissemination



With thanks to Jim Gray

NII Research Data Cloud



6. Negative effects of Quantitative Research Assessment Indicators in An Digital Era

Proper research assessment leading to proper advancement of scholarship

Peer-review and citation

Excellent Research

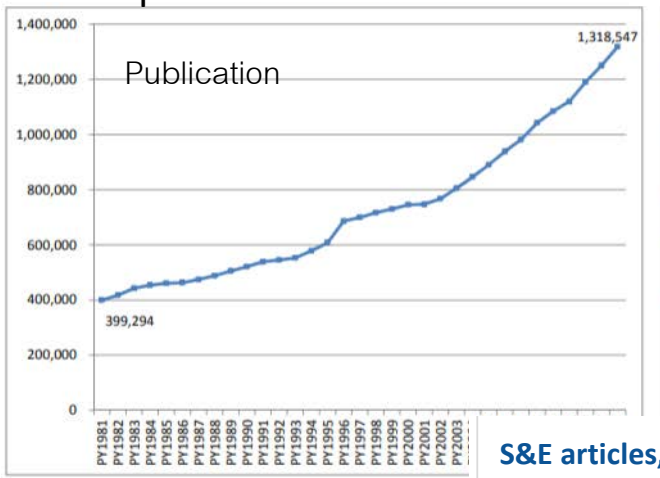
Positive incentive system in research and researcher assessments

Excellent Researcher

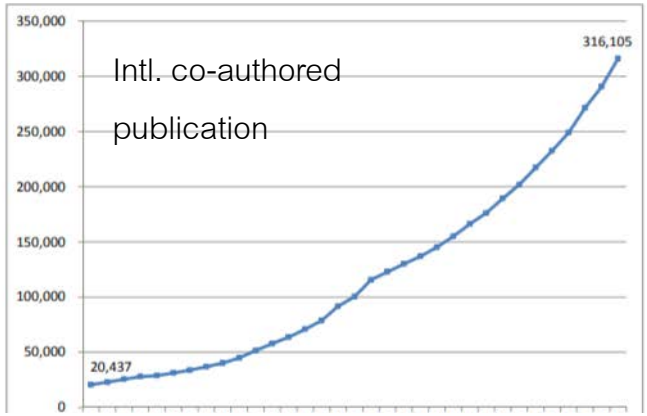
Hiring and promotion of researcher

Growth in Publications

Changes in the number of articles published in the world

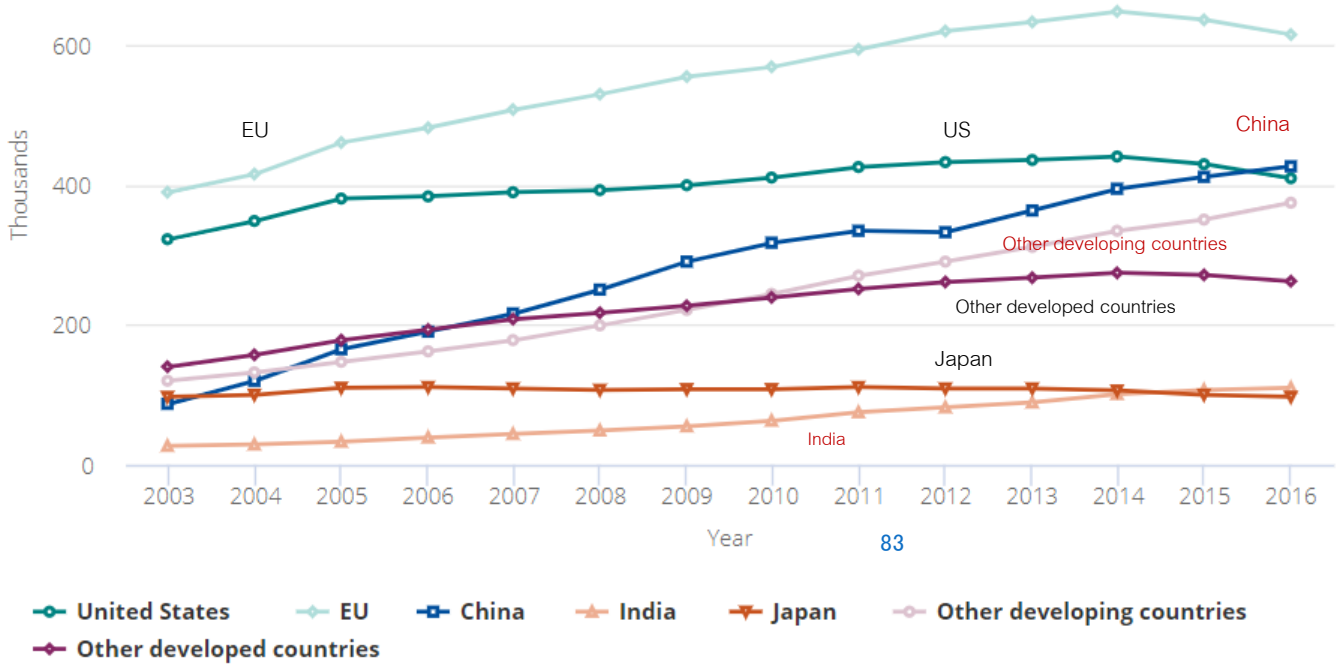


Changes in the number of international co-authored articles published in the world



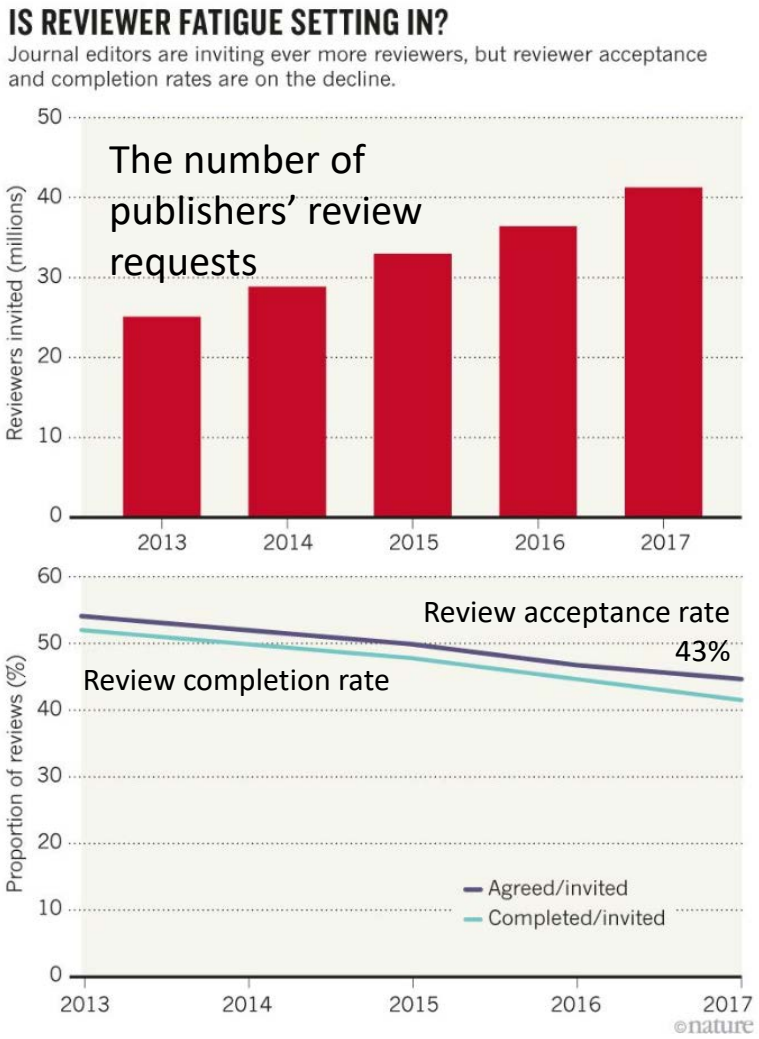
Source: Benchmarking of scientific research in 2015
Research materials of the National Institute of Science and Technology Policy -239, published in 2015

S&E articles, by selected region, country, or economy: 2003–16

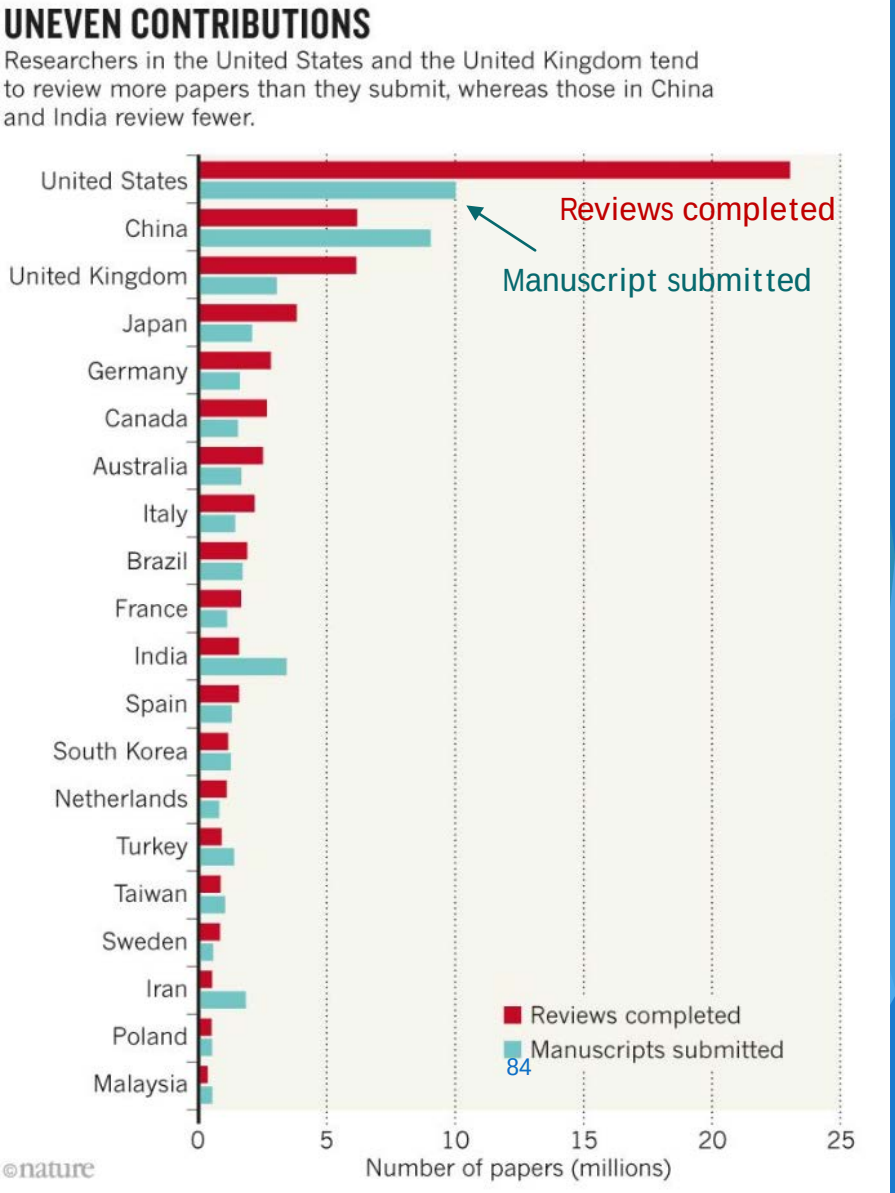


NSF, National Science & Engineering Indicators 2018

Reviewer Fatigue
especially in English-speaking countries



Nature, "Peer reviewers unmasked: largest global survey reveals trends" (2018.9.7)

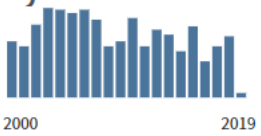


Web of Science calculating citation indices

Total titles

合計出版物数

1,099 分析



h-index

76

Average citation (per article)

平均被引用数（論文ごと）

28.95

Total citation

被引用数の合計

31,817

自己引用を除く

30,205

Total citation excluding self citation

Articles cited

引用論文数

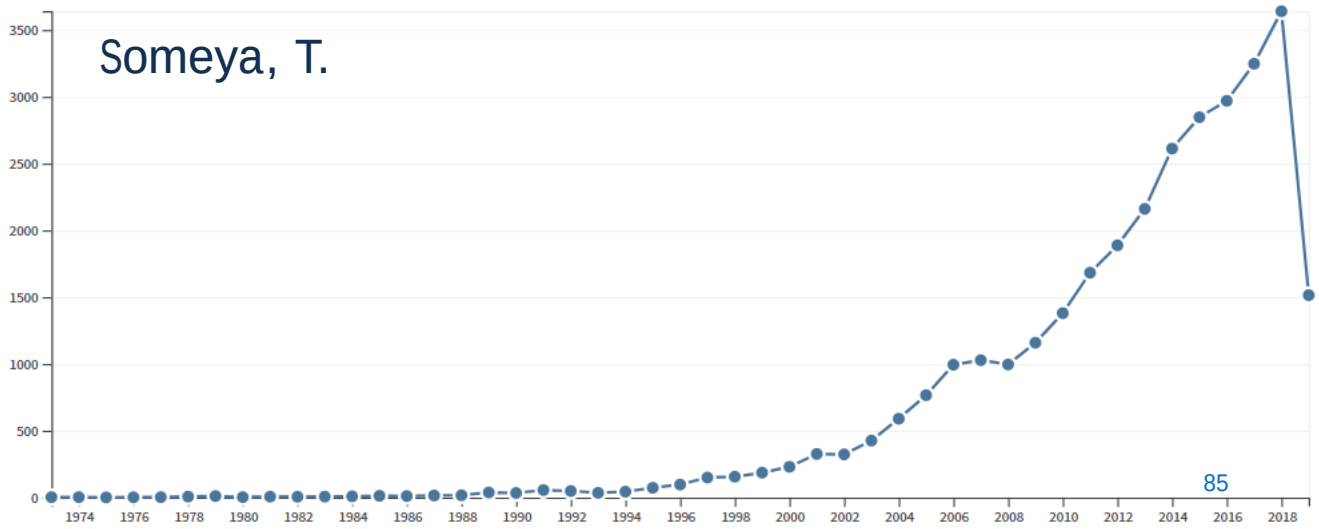
22,882 分析

自己引用を除く

22,341 分析

Total number of articles cited excluding self citation

年別の被引用数



World University Rankings putting quantitative pressure on universities

THE WORLD UNIVERSITY RANKINGS

PROFESSIONAL JOBS SUMMITS RANKINGS

Click here to help us compare the world's universities - and we'll make a £250 d
the Scholar Rescue Fund on behalf of a winning participant.

THE World University Rankings 2019: top 10

2019 rank	2018 rank	University	Country
1	1	University of Oxford	United Kingdom
2	2	University of Cambridge	United Kingdom
3	=3	Stanford University	United States
4	5	Massachusetts Institute of Technology	United States
5	=3	California Institute of Technology	United States
6	6	Harvard University	United States
7	7	Princeton University	United States
8	12	Yale University	United States
9	8	Imperial College London	United Kingdom
10	9	University of Chicago	United States

2019年6月20日

「世界大学ランキング2020」、日本の大学は半数以上が順位落とす

ツイート おすすめ 33 B! Bookmark 0

Quacquarelli Symonds社(QS社、ロンドン)は19日、「第16回QS世界大学ランキング2020」を発表した。それによるとランクインした日本の41大学のうち、半数以上の24校が順位を落とした。

また、研究パフォーマンスにおける上位100位以内に、初めて日本の大学が入らなかった。高等教育セクターの国際化に向けた日本の大学の試みは、同ランキングの結果として、その成果を表すには至っていないことが分かった。

高等教育のグローバルコンサルティング企業QS社が作成する同ランキングは、世界の大学の上位1000位までを網羅したもので、マサチューセッツ工科大学（米国）は8年連続世界1位という新記録を樹立した。

日本の大学を見ると、最上位は東京大学で23位から22位へと過去最高の順位に上げている。東大は4年連続で順位を上げており、31位だった2015年に比べると9ランク上昇。

東大は、QS社のAcademic Reputation（学術評判）指標で100/100の満点を獲得。Academic Reputationで満点を達成した世界の8校のうちのひとつで、アジアでは唯一。引き続き、世界で最も高い評価を得ている学術機関のひとつとして認

QS 世界大学ランキング 2020: 日本の大学(上位 10 位まで)

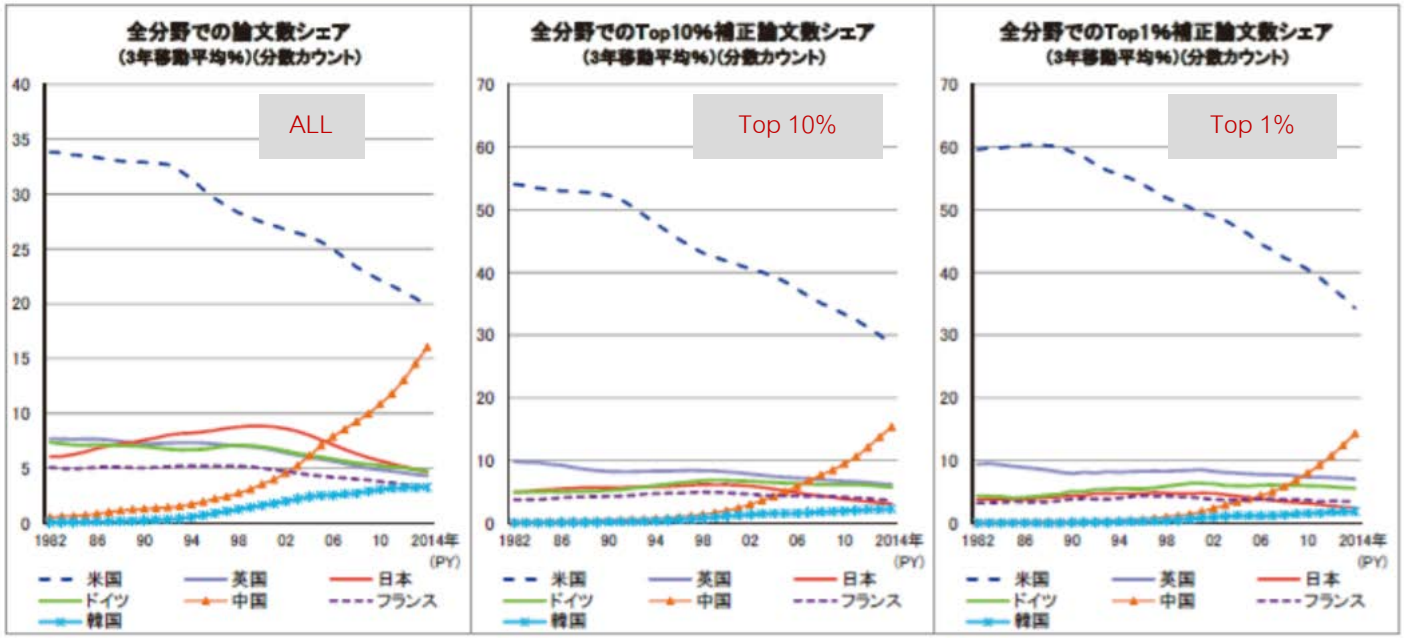
2020	2019	機関名
22=	23	東京大学
33=	35	京都大学
58=	58	東京工業大学
71	67	大阪大学
82	77	東北大学
115	111	名古屋大学
132=	128=	北海道大学
132=	126=	九州大学
196	208=	早稲田大学
200=	198	慶應義塾大学

Research Competitiveness measured by publication number

Changes in the percentage of articles frequently referred to in Japan

○ The percentages of top 10 articles and top 1% articles in Japan have acutely declined since 2000.

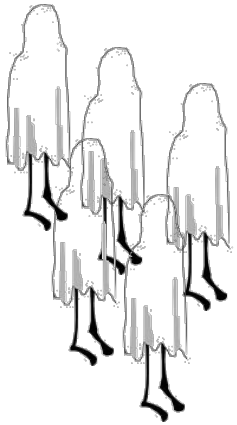
Changes in the number of articles in major countries, the number of top 10% corrected articles and the number of top 1% corrected articles
(all fields, fractional counting method, 3-year moving average)



注:分析対象は、article, review である。年の集計は出版年(Publication year, PY)を用いた。全分野での論文数シェアの 3 年移動平均(2014 年であれば PY2013、PY2014、PY2015 年の平均値)。分数カウント法である。被引用数は、2016 年末の値を用いている。
資料:クラリベイト・アナリティクス社 Web of Science XML (SCIE, 2016 年末バージョン)を基に、科学技術・学術政策研究所が集計。

Calculated by National Institute of Science and Technology Policy (NISTEP) using Web of Science data

Publish or Perish



Break in publication
leads to unemployment!

Factors affecting publication venue in OA age

- Journal impact factor?
- Whether journal is OA
- Amount of APC
- Swiftness of publication
- Swiftness of user comments

※ *Publishing first on a preprint server proves to be most effective!*

OA gains more citations!

THE WORLD UNIVERSITY RANKINGS

PROFESSIONAL JOBS SUMMITS RANKINGS STUDENT ABOUT US

Open access papers 'gain more traffic and citations'

Open access science articles are read and cited more often than articles available only to subscribers, a study has suggested.

July 30, 2014

The Research Information Network analysed the web traffic to more than 700 articles published in hybrid science journal *Nature Communications* in the first six months of 2013.

It found that, after 180 days, articles whose authors had paid for them to be made open access had been viewed more than twice as often as those articles accessible only to the journal's subscribers.

A further analysis of more than 2,000 papers published in *Nature Communications* between April 2010 and June 2013 revealed that open access articles were cited a median of 11 times, compared with a median of seven citations for subscription-only articles. The paper concludes that open access papers enjoy a "small" citation advantage in all disciplines except chemistry.

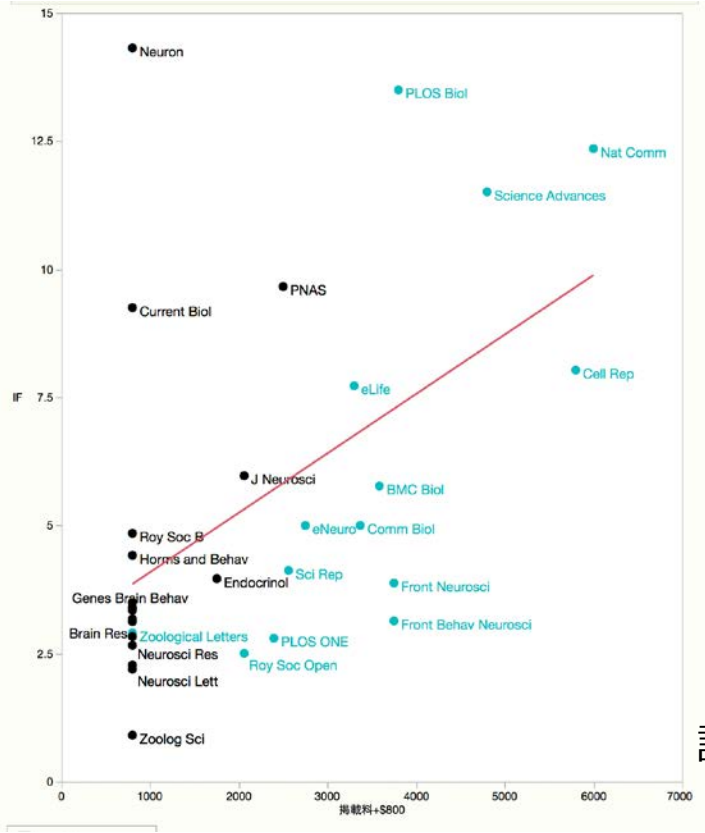
OpCit project carries many related information

Source: Times Higher Education, "Open access papers 'gain more traffic and citations' " (2014.6.30)
http://www.mext.go.jp/b_menu/shingi/gijyutu/gijyutu4/037/shiryo/_icsFiles/afieldfile/2016/08/16/1375827_04.pdf

APC-IF-OA-research budget considered to determine publication venue in life sciences

Which journal is a bargain?

インパクトファクター（IF）



青字はFull OA誌

Let's invite someone as co-author who has funds for APC

論文掲載料（APC in $）

21

菅野博士@
鹿児島大 作成

（出典）第3回 SPARC Japan セミナー2018 「オープンアクセスへのロードマップ: The Road to OA2020」
大隅 典子 （東北大学 副学長 / 附属図書館長/ 医学部・医学系研究科 教授）「日本におけるOAの推進を阻むもの：一（いち）生命科学者より」講演資料より

Predatory journals making a great flutter

粗悪学術誌：ネットで急増　査読ずさん、掲載料狙いか	毎日新聞 2018.04.03
粗悪学術誌：日本から５０００本　東大や阪大　論文投稿、業績水増しか	毎日新聞 2018.09.03
粗悪学術誌：九大が対策　国内初　投稿巡り注意喚起	毎日新聞 2018.09.03
ナビゲート２０１８：「ハゲタカジャーナル」＝粥川準二（科学ライター）	毎日新聞 2018.09.05
粗悪学術誌：投稿、教授が圧力　准教授証言　国立大、業績稼ぎ	毎日新聞 2018.09.15
粗悪学術誌：対策に大学本腰　聞き取り、投稿ルール　掲載上位の名大、新潟大	毎日新聞 2018.10.10
粗悪学術誌：削除応じず　掲載続け手数料請求　東京の医療機関被害	毎日新聞 2018.10.15
粗悪学術誌：論文削除応じず　都立病院の投稿、手数料まで請求	毎日新聞 2018.10.15
研究倫理向上ウイーク：「研究不正」どう防ぐ　自由な討論、データ共有を　黒木・東大名誉教授が講演　／京都	毎日新聞 2018.11.01
粗悪学術誌への投稿禁止、新潟大　信頼失い悪影響と指針作成	共同通信 2018.11.30
粗悪学術誌：新潟大、投稿「禁止」　ハゲタカ対策、明文化	毎日新聞 2018.11.30
粗悪学術誌：掲載で博士号　８大学院、業績として認定	毎日新聞 2018.12.16
クローズアップ２０１８：粗悪学術誌横行　研究者、手軽に実績　投稿、数日で了承	毎日新聞 2018.12.16
ことば：ハゲタカジャーナル	毎日新聞 2018.12.18
ハゲタカ学術誌：大学に注意喚起　文科相	毎日新聞 2018.12.26
ハゲタカ学会：何でも発表　参加料狙い？　手軽に「実績」研究者にも需要	毎日新聞 2019.01.19
ハゲタカ学会：多忙、使い勝手良く　異分野、一室で発表　専門外でも座長	毎日新聞 2019.01.19
記者の目：査読ずさんなハゲタカ学術誌　研究者自ら科学の信頼壊す＝鳥井真平（大阪科学環境部）	毎日新聞 2019.02.20
粗悪学術誌：日本医学会が注意喚起　延べ１０３万人所属	毎日新聞 2019.03.13
「粗悪学術誌」５５億円支払い命令　米連邦地裁判決　適切審査なし	毎日新聞 2019.04.05
粗悪学術誌：学術会議、ハゲタカ誌対応　問題点議論、提言へ	毎日新聞 2019.04.17
科学ジャーナリスト賞：毎日新聞・鳥井記者に	毎日新聞 2019.04.26
ハゲタカジャーナル：論文、４割引用　別の論文に　研究に欠陥の恐れ　カナダの大学調査	毎日新聞 2019.04.30

* This is the results of searching titles and texts containing “predatory or scientific” in nationwide newspapers, news service agencies and TV programs using G-Search on June 5, 2019. Similar or duplicated articles are removed.

Predatory journals using OA journals features

Predatory journals are just a vicious business using the characteristics of OA journals.

OA journals

- Article submission, peer-review, editing, and publication of articles done on a digital platform
- APCs collected from article authors.
- Swift and visible article publication
- As a mega journal, assures the soundness but not the excellence of research; i.e. ”Simple peer review,” “post-publication peer review.”
- As a newly setup journals, are not established as the prestigious journals.

Predatory journals

- Easy to start a business at low costs.
- Able to recover cost without risk.
- Able to take advantage of the weakness of researchers who quickly need visible achievements.
- Able to pretend to have peer-reviewed articles, or claims “post-publication peer review.”
- Able to run business without wide name recognition.

The Retraction Watch Leaderboard

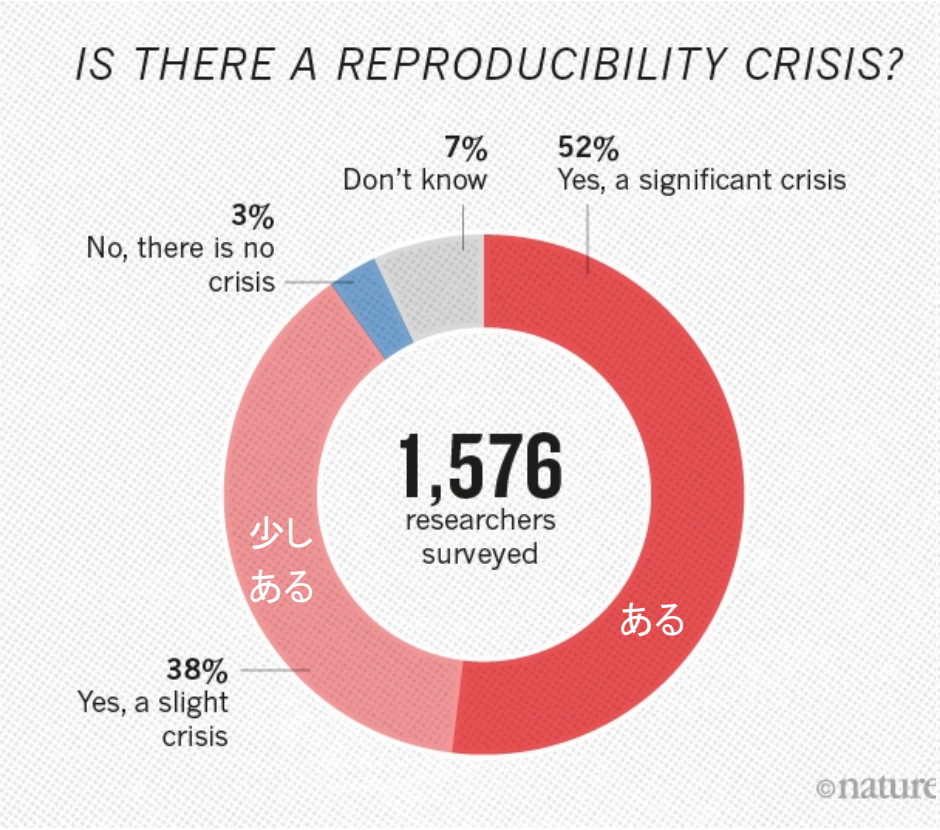
Who has the most retractions? Here's our unofficial list (see notes on methodology), which we'll update as more information comes to light:

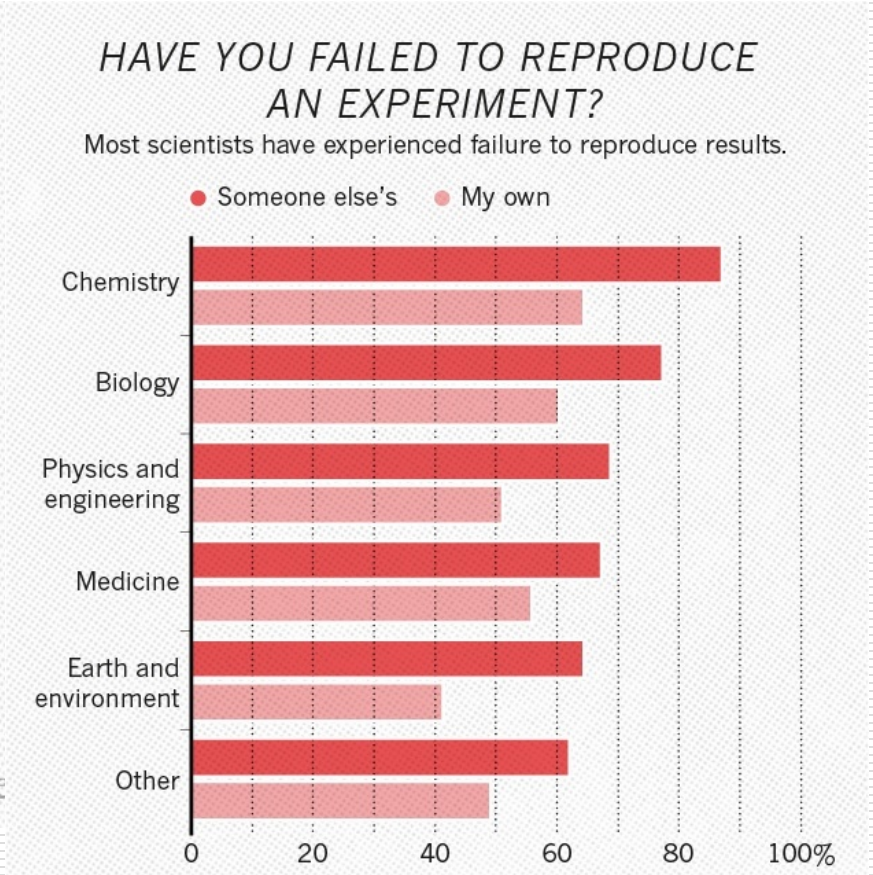
1. Yoshitaka Fujii (total retractions: 183) See also: Final report of investigating committee, our reporting, additional coverage
2. Joachim Boldt (97) See also: Editors-in-chief statement, our coverage
3. Yoshihiro Sato (87) See also: our coverage
4. Jun Iwamoto (69) See also: our coverage
5. Diederik Stapel (58) See also: our coverage
6. Yuhji Saitoh (53) See also: our coverage
7. Adrian Maxim (48) See also: our coverage
8. Chen-Yuan (Peter) Chen (43) See also: SAGE, our coverage
9. Fazlul Sarkar (41) See also: our coverage
10. Hua Zhong (41) See also: journal notice
11. Shigeaki Kato (40) See also: our coverage
12. James Hunton (37) See also: our coverage
13. Hyung-In Moon (35) See also: our coverage
14. Naoki Mori (32) See also: our coverage
15. Jan Hendrik Schön (32) See also: our coverage

Source: The Retraction Watch Leaderboard
https://retractionwatch.com/the-retraction-watch-leaderboard/ (Accessed 2019/11/24)

Reproducibility Crisis

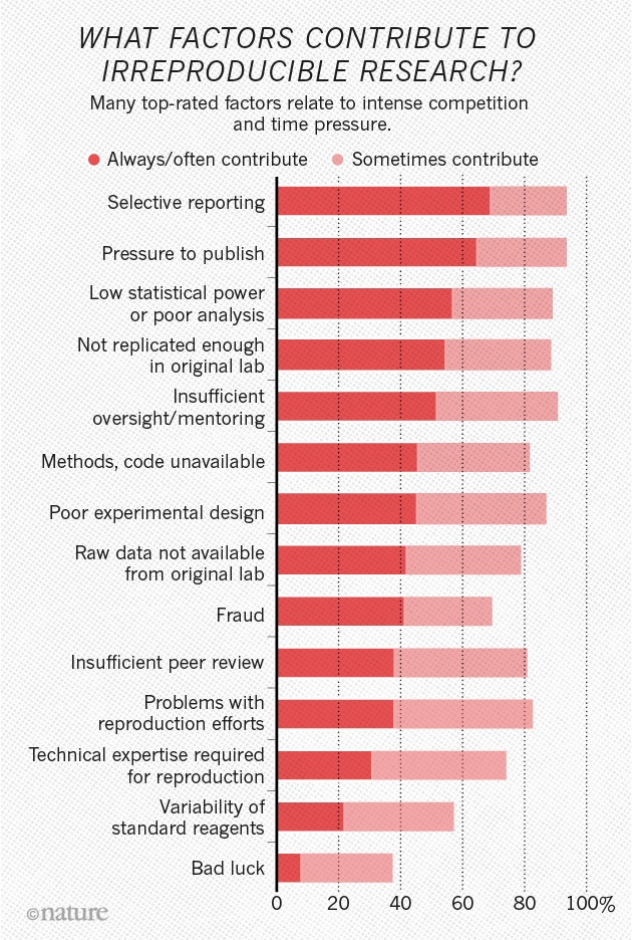
… Questionnaire survey for 1,500 scientists (2016)

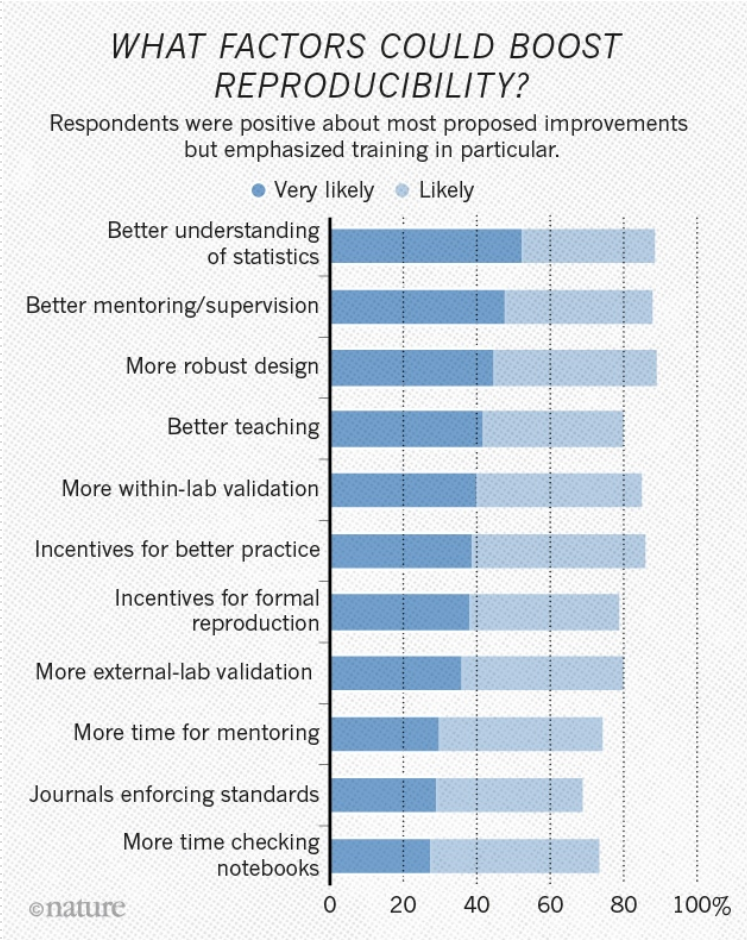




Source: Nature, "1,500 scientists lift the lid on reproducibility" (2016.7.26)
https://www.nature.com/news/1-500-scientists-lift-the-lid-on-reproducibility-1.19970

Reproducibility Crisis
...Factors of irreproducible research

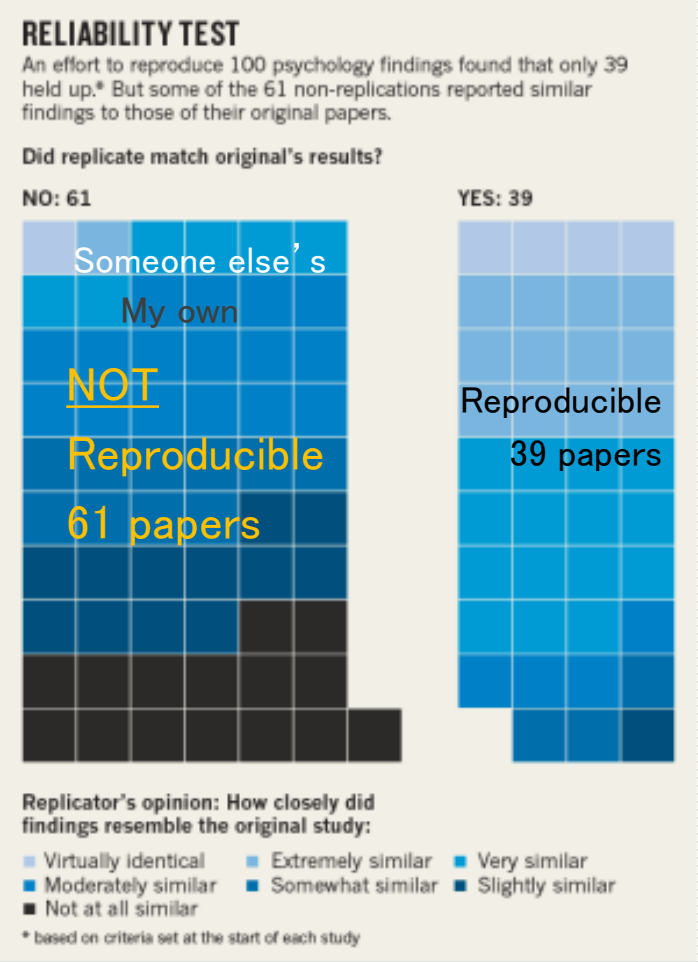




Source: Nature, “1,500 scientists lift the lid on reproducibility” (2016.7.26)
https://www.nature.com/news/1-500-scientists-lift-the-lid-on-reproducibility-1.19970

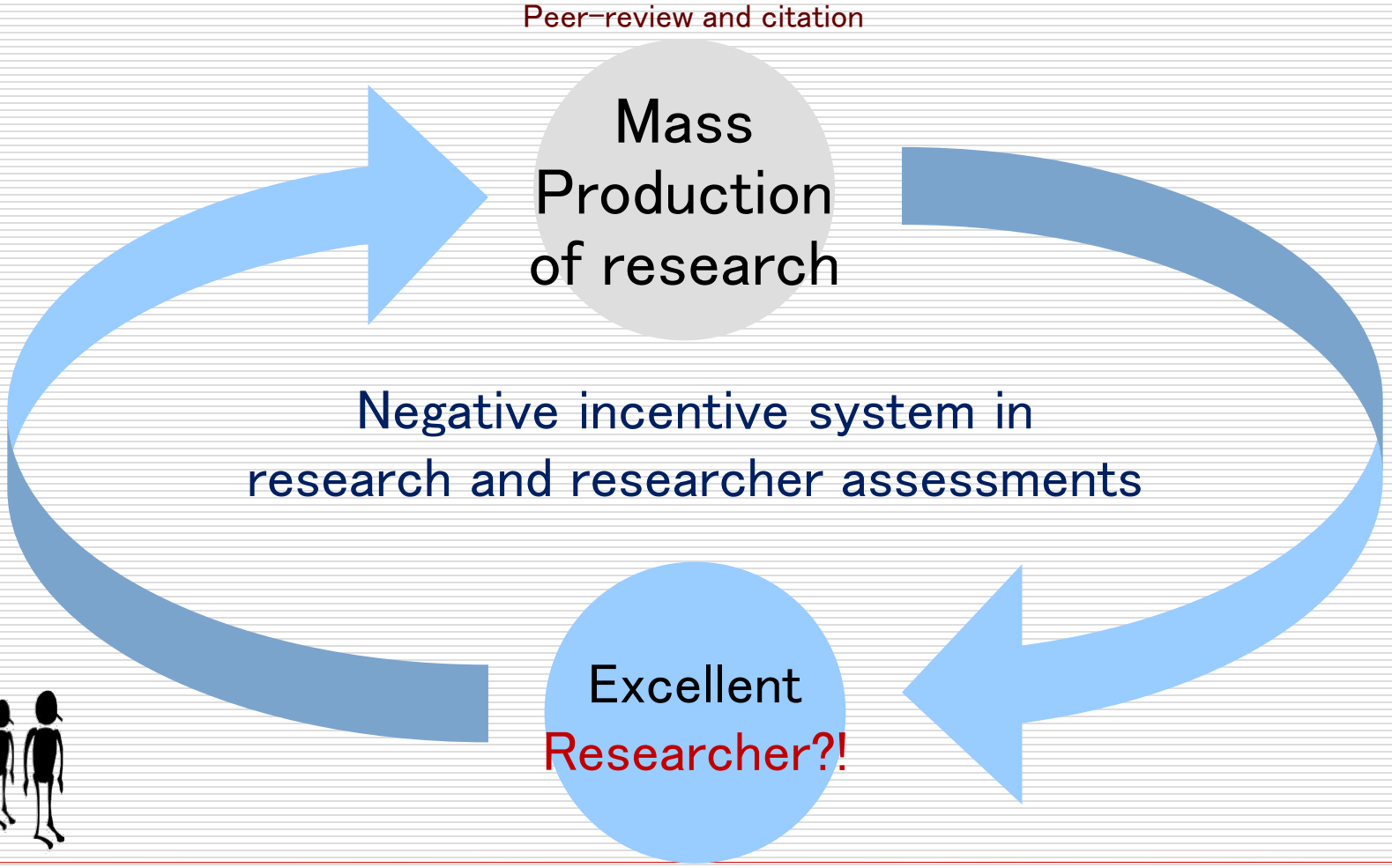
Reproducibility Project: Psychology

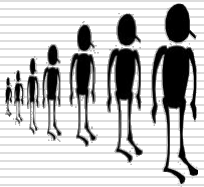
- Verification of the reproducibility of data in 100 psychology articles
- Reproducibility was attained for 39 articles and was not sufficiently attained for the remaining 61 articles.
- This review was performed because many people pointed out that even data in articles written by well-known psychologists could not be reproduced.
- Project Leader Brian Nosek has established the Center for Open Science (COS) and is supervising the development of an open science framework (OSF).



Source: Nature, "Over half of psychology studies fail reproducibility test" (2015.9.27)
https://www.nature.com/news/over-half-of-psychology-studies-fail-reproducibility-test-1.18248

Over-reliance on quantitative metrics leading to low quality research





7. Various attempts to change research assessments

Leiden Manifesto for Research Metrics

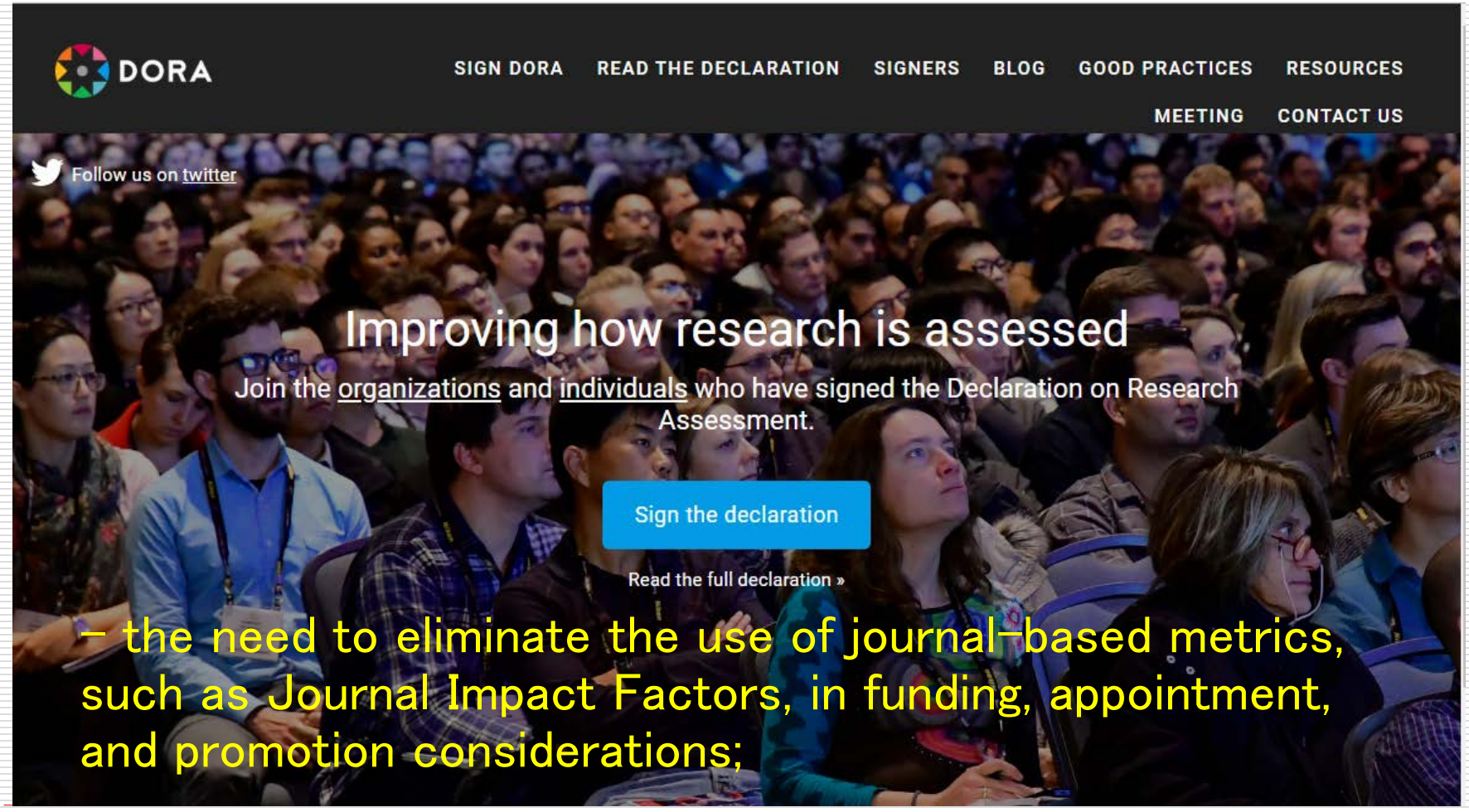
As research evaluation has become routine, the procedures that were designed to increase the quality of research are now threatening to damage the scientific system.

The Leiden Manifesto proposes 10 principles for the measurement of research metrics.

1. Quantitative evaluation should support qualitative, expert assessment.
2. Measure performance against the research missions of the institution, group or researcher.
3. Protect excellence in locally relevant research.
4. Keep data collection and analytical processes open, transparent and simple.
5. Allow those evaluated to verify data and analysis.
6. Account for variation by field in publication and citation practices.
7. Base assessment of individual researchers on a qualitative judgement of their portfolio.
8. Avoid misplaced concreteness and false precision.
9. Recognize the systemic effects of assessment and indicators.
10. Scrutinize indicators regularly and update them.

Source: Leiden Manifesto for Research Metrics
http://www.leidenmanifesto.org/

San Francisco Declaration on Research Assessment (DORA)

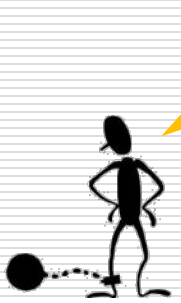


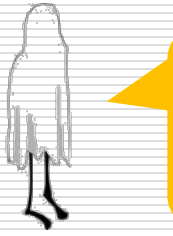
– the need to eliminate the use of journal–based metrics, such as Journal Impact Factors, in funding, appointment, and promotion considerations;

Source: San Francisco Declaration on Research Assessment (DORA)
https://sfdora.org/

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





Joint Data Archiving Policy (JDAP)

The Joint Data Archiving Policy (JDAP) describes a requirement that data supporting publications be publicly available.

[Journal] requires, as a condition for publication, that data supporting the results in the paper should be archived in an appropriate public archive, such as [list of approved archives here]. Data are important products of the scientific enterprise, and they should be preserved and usable for decades in the future. Authors may elect to have the data publicly available at time of publication, or, if the technology of the archive allows, may opt to embargo access to the data for a period up to a year after publication. Exceptions may be granted at the discretion of the editor, especially for sensitive information such as human subject data or the location of endangered species.

(出典) DRYAD, "Joint Data Archiving Policy (JDAP)"
https://datadryad.org/pages/jdap

Asking for evidence data for peer-review ...Peer Reviewers' Openness Initiative

THE PRO INITIATIVE for open science

"We will not offer comprehensive review for, nor recommend the publication of, any manuscript that does not meet the following minimum requirements."

1. Data should be made publicly available.
2. Stimuli and materials should be made publicly available.
3. In case some data or materials are not open, clear reasons (e.g., legal, ethical constraints, or severe impracticality) should be given why.
4. Documents containing details for interpreting any files or code, and how to compile and run any software programs should be made available with the above items.
5. The location of all of these files should be advertised in the manuscript, and all files should be hosted by a reliable third party.

(出典) Peer Reviewers' Openness Initiative
https://opennessinitiative.org/the-initiative/

Registered Reports
peer reviewing the design of study

- “Registered Reports eliminates the bias against negative results in publishing because the results are not known at the time of review.“
- "Because the study is accepted in advance, the incentives for authors change from producing the most beautiful story to the most accurate one."

(出典) Center for Open Science (COS), “Registered Reports”
https://cos.io/rr/

Research assessment in the digital age
...Excellent research vs Soundness of science

- In the print age, only excellent articles could be accepted because of physical constraints.
- In the digital age, e-journals can include all articles which is soundly performed.
  - Soundness of science

	E-journal (mega jouranal)	Print journal
Publication no	infinite	finite
Peer-review method	Able to include “sound science”	excellence
Peer-reviewed materials	Article and supplements (data, code, etc.)	Only text-based article
Advantage	➢ Include negative results ➢ Eliminate research bias ➢ Preserve research in detail	➢ filtering ➢ Less articles to read

Private funders demanding immediate OA publication

F1000Research
Open for Science

wellcome

BILL & MELINDA GATES foundation

HRB Health Research Board

https://f1000research.com/about

Data Journals and Supplemental Data

Data journals established (2014-)

- Nature: Scientific Data

  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.*

http://www.nature.com/sdata/ https://www.journals.elsevier.com/data-in-brief

Assessing social impact of academic research

- UK-REF(Research Excellence Framework)
  - Research assessment framework for UK universities.
  - Compared to its successor RAE, it assesses impact of research outside the academy.
- Altmetrics
  - Alternate bibliographics using impact on social media, views, downloads in contrast to traditional bibliometrics using citations, h-index, and IFs.

Altmetric Impactstory

http://altmetrics.org/manifesto/

小林直人他「英国の新たな大学研究評価 REF におけるインパクトの分析」
https://www.jstage.jst.go.jp/article/randi/30/0/30_154/_pdf

8. Co-creating the Open Science Era with Societies and Academia

Stakeholders for open science

Granting agencies

We have been keeping a balance by keeping traditions.

University management

Publishers

Governments

Researchers

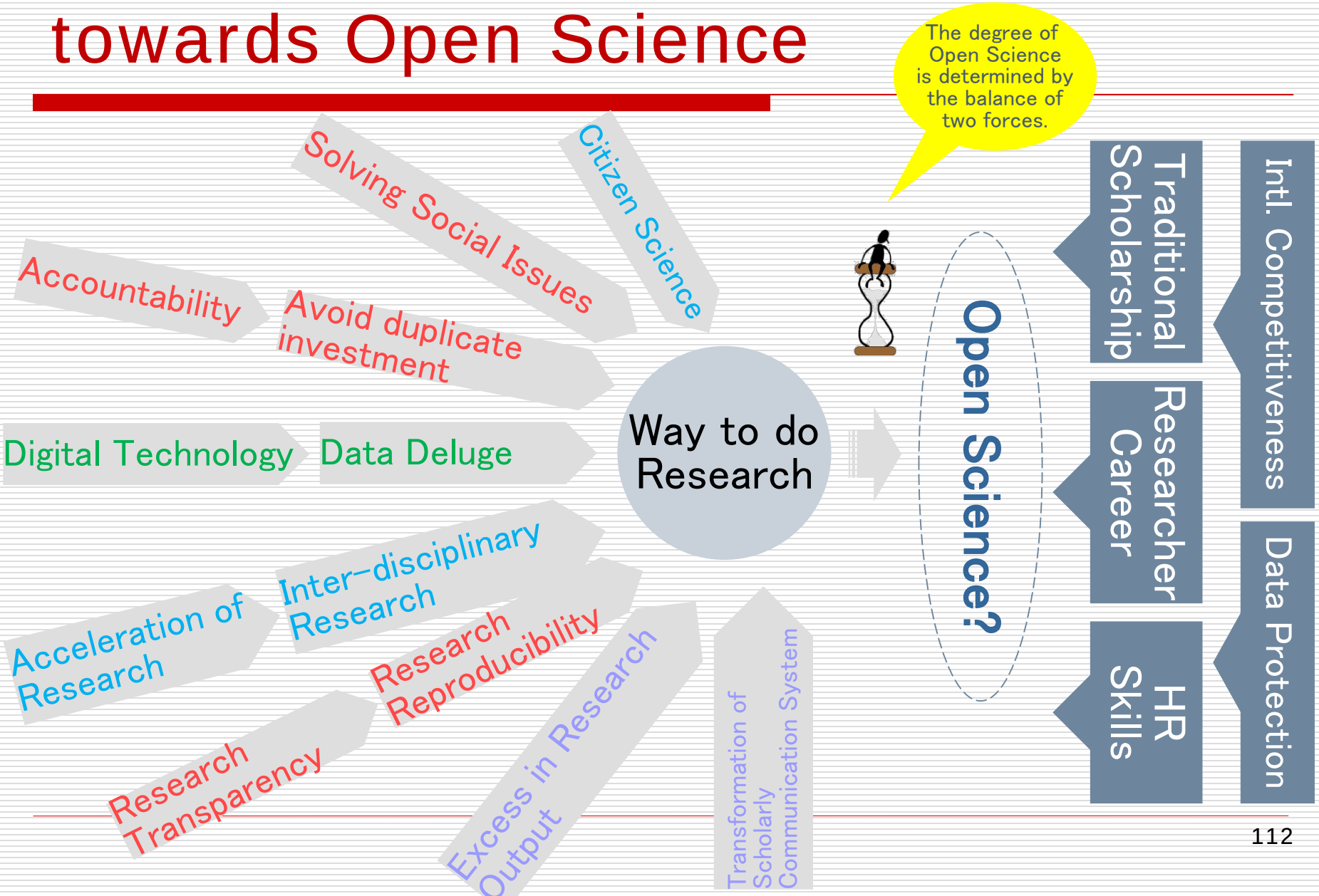
Public

University libraries

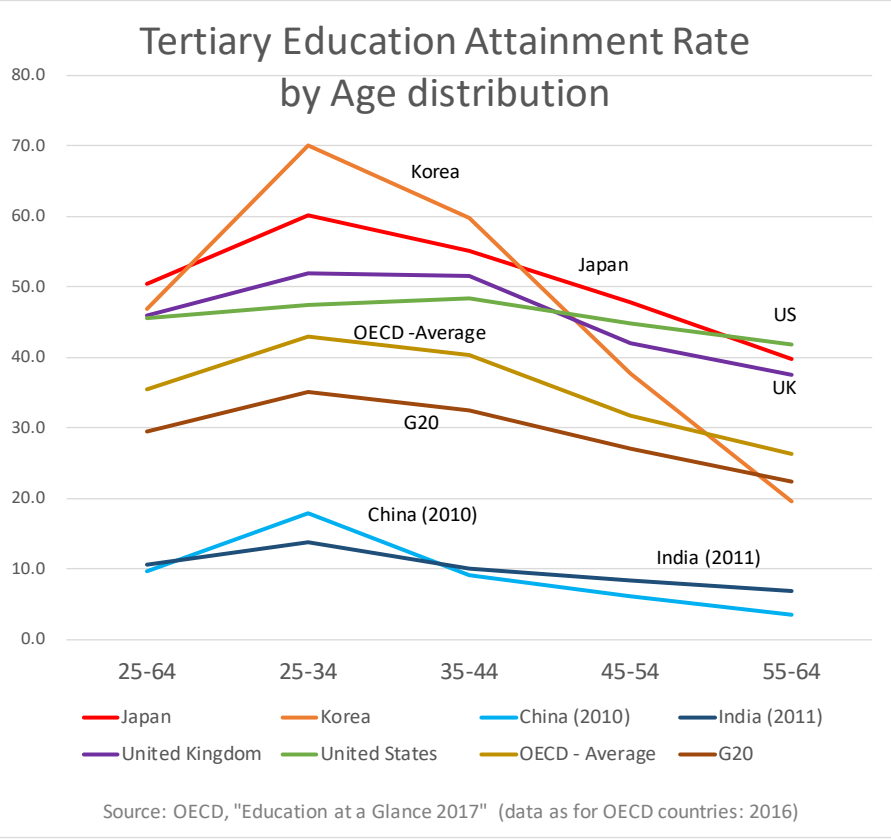
ICT centers

Researchers are not the only persons doing scientific research.

The push and resisting force towards Open Science



The shrinking gap between society and the academia



Source: OECD, "Education at a Glance 2017" (data as for OECD countries: 2016)

- Tertiary education attainment rate is rising, especially for younger generation.
- Thus, citizens literacy and analytical skills are getting comparable to the academia.
- This results in stronger demand for accountability and societal problem-solving.

Elite to Mass to Universal Student Access

- Proposed by Martin Trow in 1973
- Describing the transition in higher education according to HE Enrollment rate

Stages of Higher Ed	Elite	Mass	Universal
Higher Ed Enrollment	-15%	15% - 50%	50% -
Access	Privilege	Right	Obligation
Student Body	Uniform	Diverse	Extremely Diverse
Governance	Consensus making by academics	Professional Staff & Bureaucracy	Administration

Analogies between Open Science and Mass Higher Education

- Increases of university graduates in societies

  ⇒ Increasingly, people understand science in societies

  ⇒ Increased demands from societies to academies

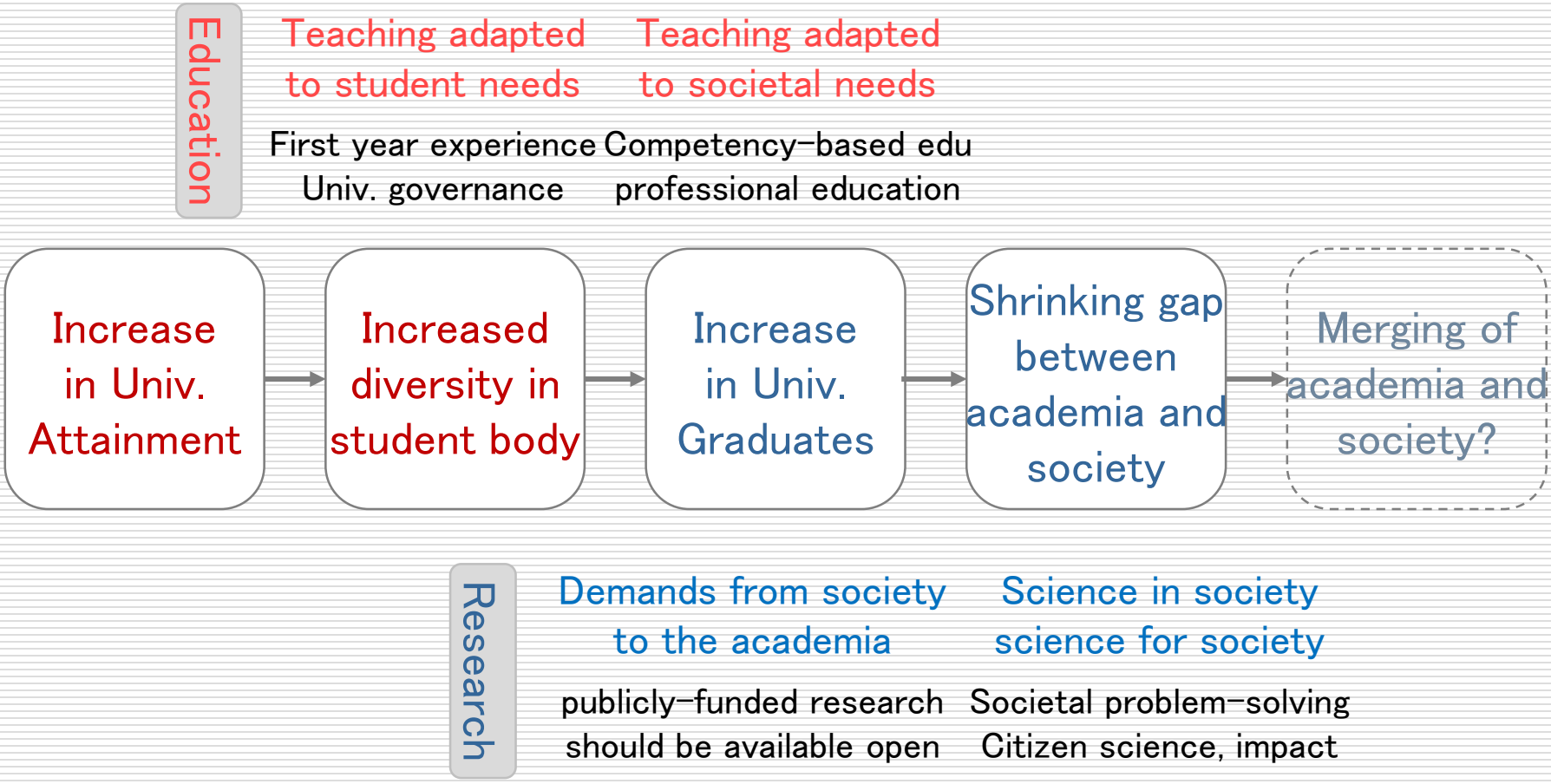
  - ✓ Demand for OA of publicly-funded research outputs, academic-industrial linkage, transparency and reproducibility of research, open communications

  ⇒ Closing gap between societies and academies

  ⇒ Cooperation between societies and academies

  - ✓ Citizen science, social problem solving, innovations, etc.

Time lagged effect of mass higher ed between education and research

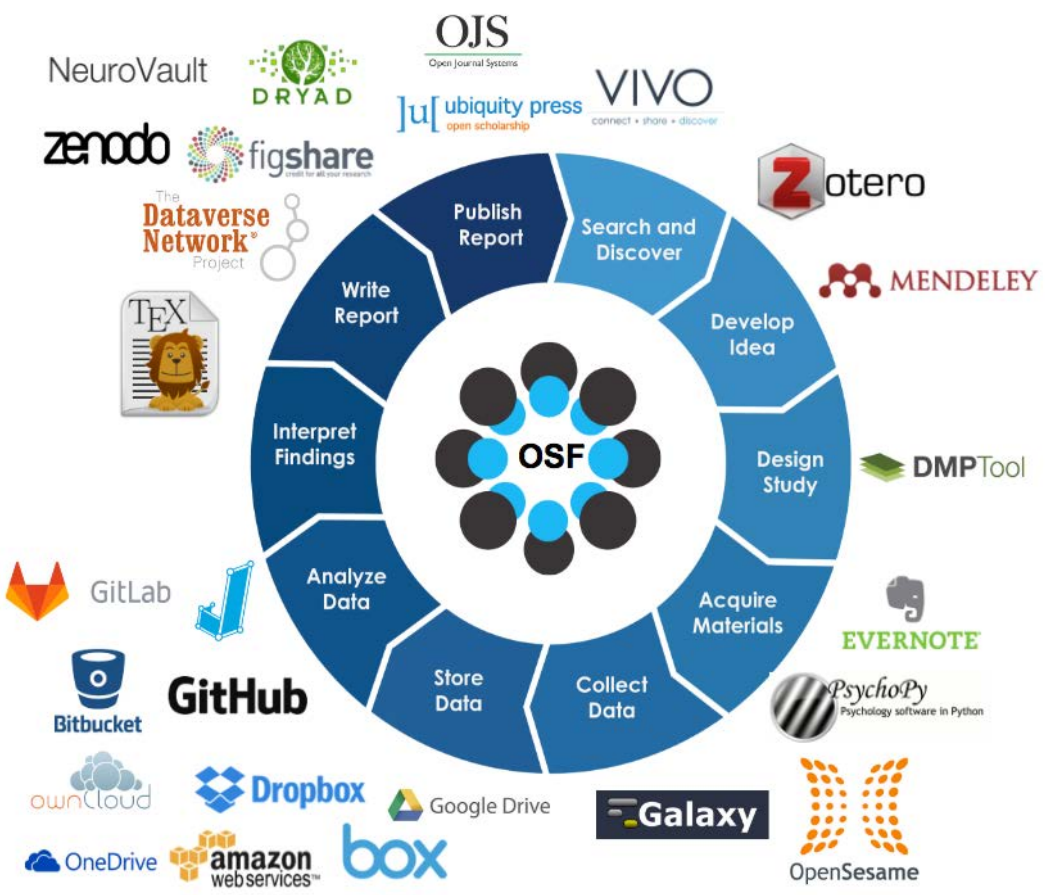


Social Change at the turn of 21st century —Need for active learning

- From industrial society to knowledge-based society
  - Hands-on skills → Information and knowledge managing skills
- Digital technology and e-infrastructures
  - Need to handle big data and information
  - Need to act with speed
- Globalization, borderless and unpredictable age
  - Ability to handle ever-evolving new problem sets (self-learning, problem-solving)
- Increased interdependence and social complexity through internationalization and informatization
  - Communication, collaboration
  - Cross-cultural understanding, international readiness, liberal arts
- Aging society
  - Need for life-long learning

Globalization and cooperation

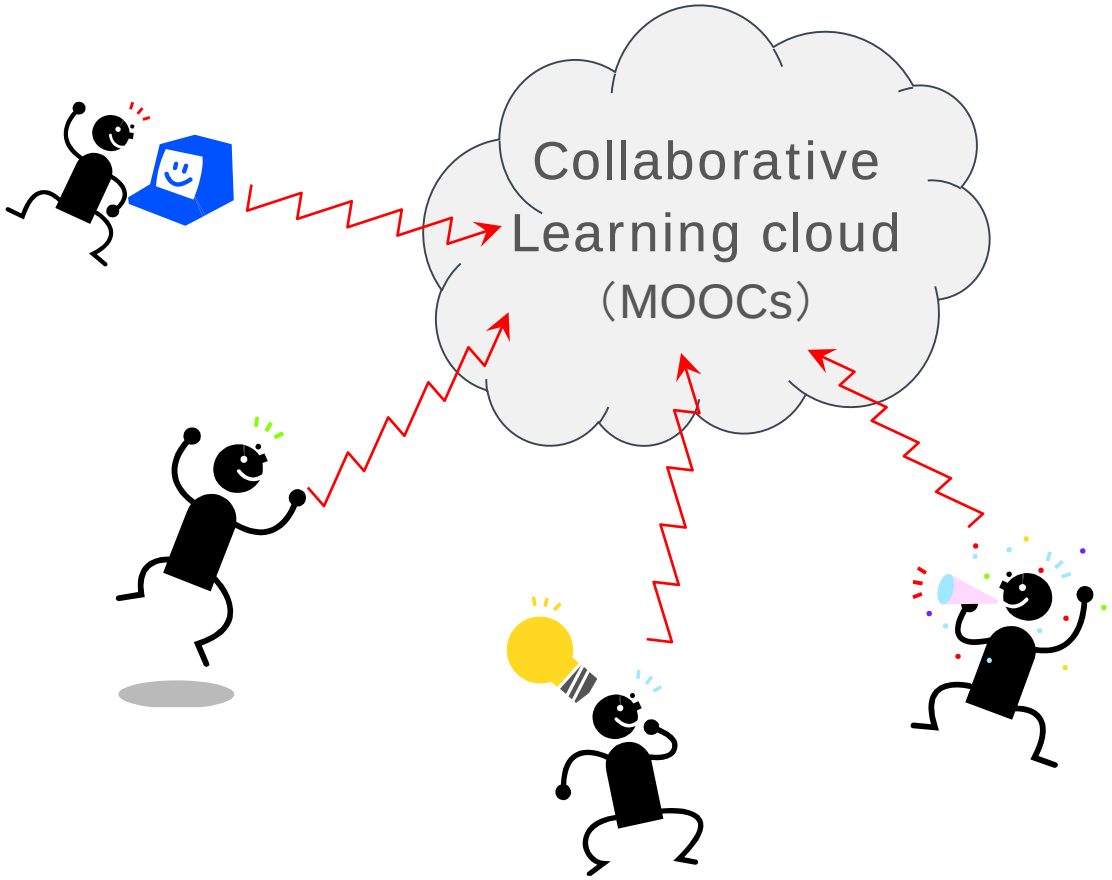
- More opportunities for international joint research due to the prevalence of the Internet
  - Platforms for information sharing and storage
  - Platforms for online collaboration



Source: Open Science Framework
https://cos.io/our-products/open-science-framework/

Open Learning Community by Professionals

- Professionals across disciplines collaborate and envision new solutions on learning cloud such as MOOCs.

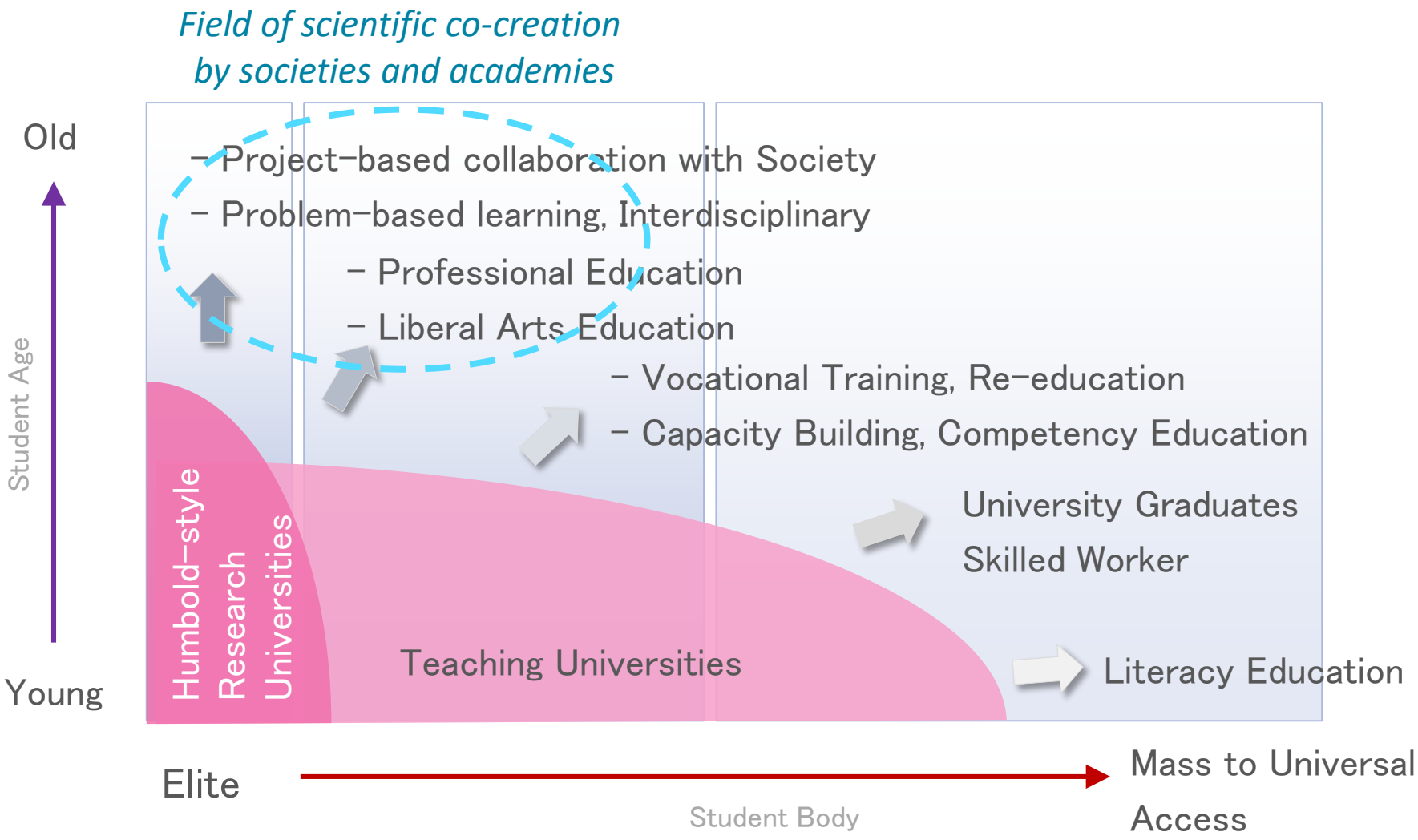


Case Study

- ✓ A MOOC on “Project Management” by École Centrale de Lille
- ✓ The first half is introductory courses on PM in teaching style.
- ✓ In the latter half, participants form groups and conducts projects.
- ✓ One group tackled the “Food distribution system in France.”
- ✓ Members of the group were policy-makers, distributors, merchants, farmers.
- ✓ This interdisciplinary team could address the issue well.

（出典）http://gestiondeprojet.pm/mooc-certificat-par-equipe-projet/
https://www.edsurge.com/n/2013-10-14-coursera-teaches-teachers-anywhere-anytime

The Changing Landscape of HE by the change of student body



The Co-creation of Scholarship and the Digital Platform needed

- In an era where the majority understands science, the boundary between the society and academia gets blur.
- The collaboration between the two parties becomes necessary for the development of scholarship and happiness of human kind.
- Digital platforms become a place where information sharing and collaboration happen. Societies have a say on the digital platform as a user.
- Societies and academia should co-design the scholarship and digital platform for the sake of human-kind.