

Scholarly and Policy Perspectives of Open Access

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Outline

Introduction

- *motivation & challenges*

Transition to Open Access

- *concepts & achievements: institutional, national, and global scales*
- *message: both bottom-up & top-down approaches like OA2020 & Plan S are needed for a swift & successful transition*

Scholarship in Open Access

- *concepts & examples: interactive OA publishing, open peer review, and the epistemic web*
- *message: in an open access world, we can do much better than traditional journal publishing*

Conclusions

- *lessons learned & outlook*

Motivation for Open Access

Educational, economic & scholarly advantages of free & immediate online availability & usability of scholarly research articles

Educational:

- equal opportunities, information & stimulation: *global/social, teachers/students ...*
- **re-integrate scholarly & common knowledge:** *real vs. alternative facts; scientific insights vs. postfactual claims; proper figures in Wikipedia ...*

Economic:

- facilitate technical innovation: *scientific knowledge & text mining for SME ...*
- **liberate distorted market of scientific information:** *copyrights & oligopolies ...*

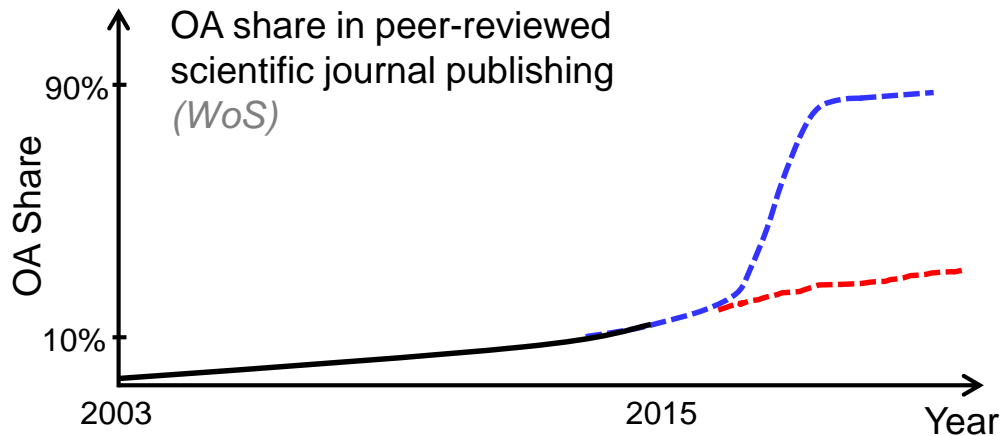
Scholarly:

- enhance interdisciplinary & international exchange, discussion, and collaboration
- **advance scholarly evaluation & quality assurance:** *open review & discussion, transparency & new metrics beyond citation counting oligopoly ...*

Open Access Variants:

- **OA archiving (“green”):** *good but not enough (delays/limits in usability/sustainability)*
- **OA publishing (“gold/diamond”):** *immediate and full benefits and sustainability*

Let's act now because ... (B12 OA Conference 2015)

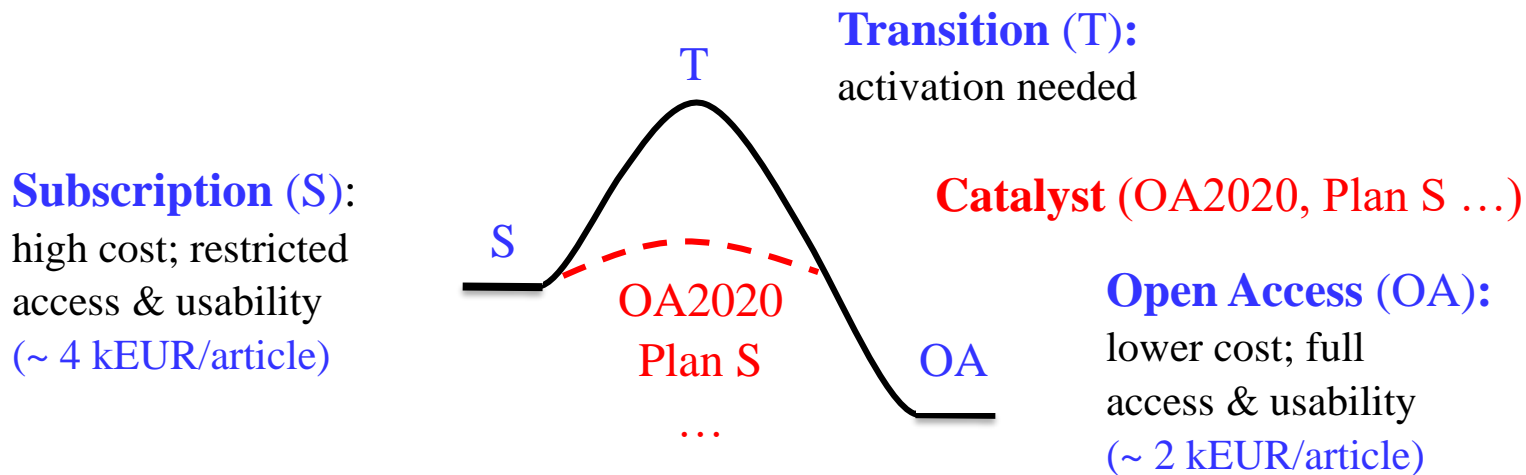


Concerted action is required to reach high OA share swiftly & efficiently
(long-term contracts ...)

Inactivity leads to slow increase of high quality OA & promotes low quality OA
(predatory publishers ...)

- OA publishing well established (~20 years); substantial volume achieved (~13% OA journal articles in WoS); tipping point in reach ...
- Politics pay attention and support, traditional publishers start to move
- Junior scientists & public demand free information on the Internet
- OA publishing & increase limited by availability of high quality OA journals: percentage OA publishing \approx percentage OA journals (WoS: ~1500 of ~12000)
- **Delayed transition may harm integrity & quality of scientific literature:** predatory publishers & self-archiving may erode trad. system before adequate replacement
- **Concerted action enables continuity, stability, and full benefit**
- Pilots & role models available (SCOAP3, AT-IOP, DE-RSC, AT/NL/UK/MPG-Springer ...)
- **Publishing Costs \approx 1-2% of Science Budgets: Let's stop the tail wagging the dog**

Transition from Subscription to Open Access



Publications carry much of the value but only ~1% of the costs of scientific research: stop the tail wagging the dog, and do not allow ~1% to lock up ~99%!

OA will liberate distorted market (*oligopoly*) and lead to higher value @ lower cost

Trust & apply the principles of mass/energy conservation & reaction kinetics:

Necessary funds are already in the system: ~50% buffer (~8 bn EUR/yr vs. ~4 bn EUR/yr)

Change requires activation: OA2020 & Plan S serving as energizers & catalysts

Multiple pathways & tools: transformative agreements with traditional publishers; continued & extended support for alternative & improved OA publishing platforms

Financial Conditions in a Nutshell

Today's subscription & hybrid journal market

total volume of ~8 billion EUR/yr divided by ~2 million articles/yr

⇒ **effective average article processing charge (APC) of ~4000 EUR/article**

including expensive magazines, large inefficiencies (access & usage barrier costs, long-term oligopoly effects, „divide et impera“), high profits (up to ~40%)

Today's proper OA journal market

conservative average APC of ~2000 EUR/article for high quality OA journals

~1500 EUR/yr in top quality OA journals from efficient OA publishers, established since ~20 yrs with substantial surpluses for publishers & learned societies

Future OA journal market

conservative average APC of ~2000 EUR/article for ~2 Mio articles/yr

⇒ base volume of ~4 bn EUR/yr for ~2 Mio articles/yr

⇒ **buffer of ~50%** (~4 bn EUR/yr) for APC waivers against undue publication barriers, new & improved services, remaining subscription journals/magazines, etc.

⇒ **budget-neutral OA transformation is possible at short notice**

⇒ **we have plenty of buffering capacities for valid concerns**

⇒ **we can expect substantial savings and/or service improvements**

How to Achieve an OA Transformation ?

First-Order Approximation

(1) maintain payments & drop paywalls; **(2) adjust** budgets & cash flows

Second-Order Approximation

- (1) Every organization continues to pay** for some time the same amount as for past journal subscriptions while requesting OA for their corresponding author articles
- (2) Check “effective APC” or “publish & read (PAR) fees”** = subscription fees divided by number of articles for every publisher/journal & every organization/country (*corr. author*)
- (3) Adjust balances** between past & future “effective APCs” or “PAR fees” at institutional, regional & global levels (*those who publish a lot usually also subscribe to a lot, v.v.*), include mechanisms against undue publication barriers (*waivers ...*)
- (4) Move to free/social OA market** (*moderated/regulated by competition/cooperation*)

Practical Implementation

- (a) Bottom-up by researchers** (*OA2020 et al.*): develop & promote suitable tools and global collaboration: transformative agreements, new & improved publication platforms ...
- (b) Top-down by funders** (*Plan S et al.*): ensure proper use of public funds & resources; enforce co-operation of publishers & end their denial of service ...

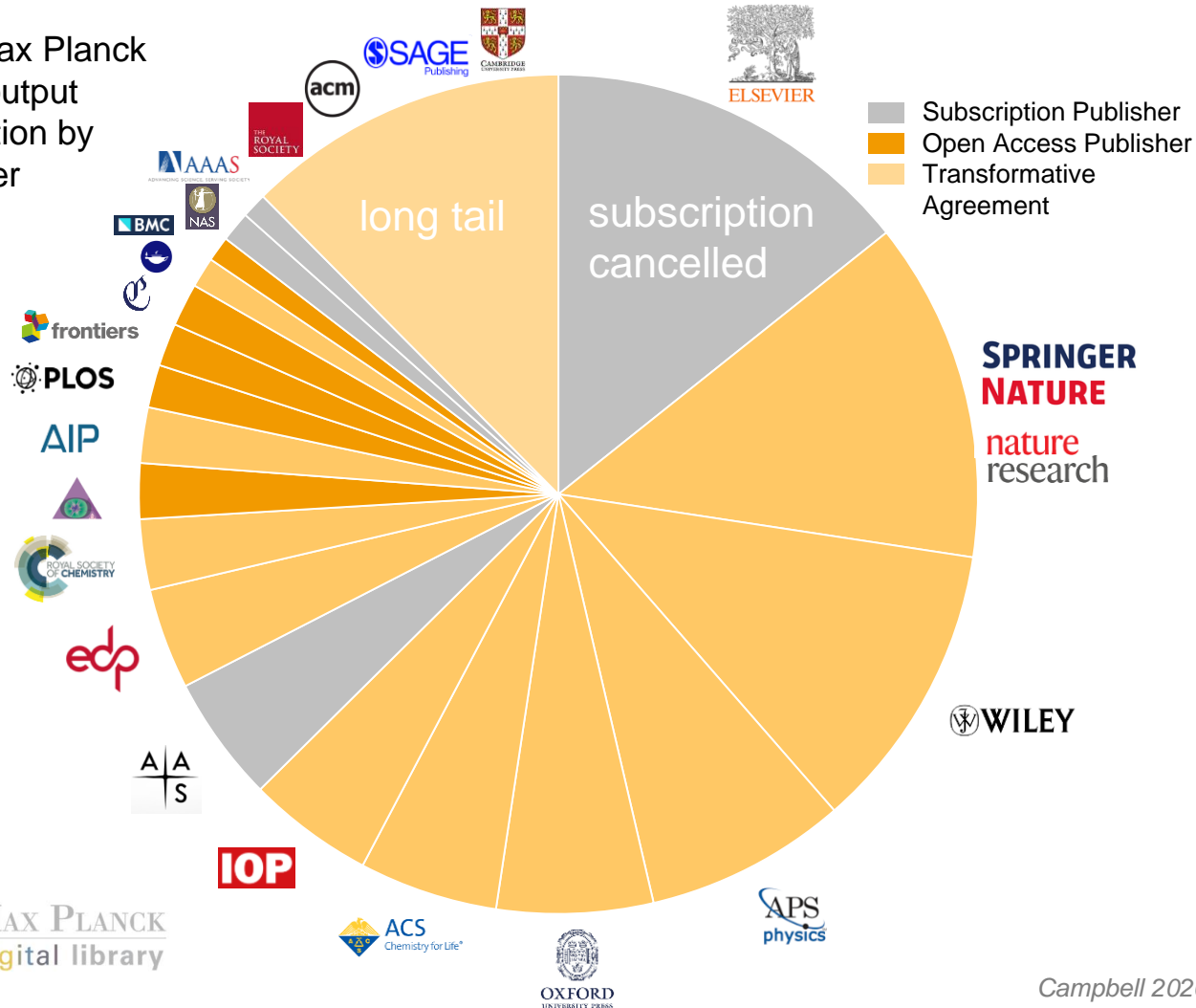
⇒ *both approaches are complementary, needed & successful*

OA Transformation in Germany: MPG & DEAL Consortium

Goal: enable open access for all papers from our authors & maintain access to others (PAR)

Status: ~80% open access to publications from MPG, similar developments at DEAL partners

2017 Max Planck article output distribution by publisher



Transformative Agreements (PAR):

~20 publishers provide open access for ~80% of MPG output;

- similar developments for other DEAL partners & publishers (*Springer-Nature, Wiley ...*)

- *Elsevier*: MPG & DEAL partner contracts expired since 2017/2018, few complaints

Wiley and Springer Nature agreements will enable around 23,000 new articles a year to be published CC-BY and massively expand access for readers from ~700 institutions
All costs collapsed into a PAR fee of €2750 per research article

- Lump-sums of subscriptions are disaggregated and costs attributed solely based on article output
- Funds follow authors, even those lacking grant funds (SSH)
- Payments are centralized, alleviating authors of administrative burden and enabling innovative cost allocation models

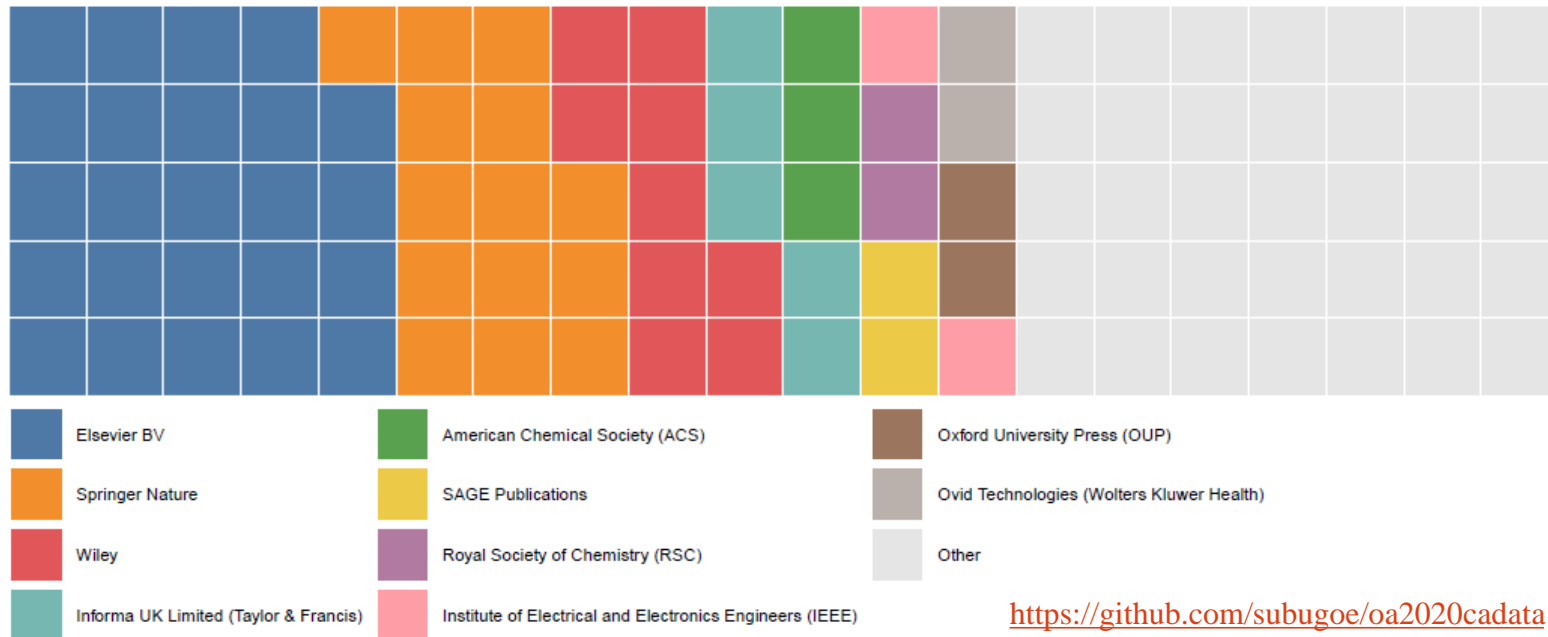
Lacking an offer that responds to DEAL's objectives for transformation, negotiations remain stalled with Elsevier, and the 200+ institutions that cancelled their contracts end 2017 and 2018 remain firm in their stance of non-renewal

Hippler, H., Sander, F.: DEAL with it! Presentation at APE, Berlin, 2020.

Hippler, H.: Advances realized through Projekt DEAL's first Transformative Agreement, 2020.

Global Perspectives

Global Publisher Market Share indexed in the Web of Science between 2014–18



<https://github.com/subugoe/oa2020cadata>

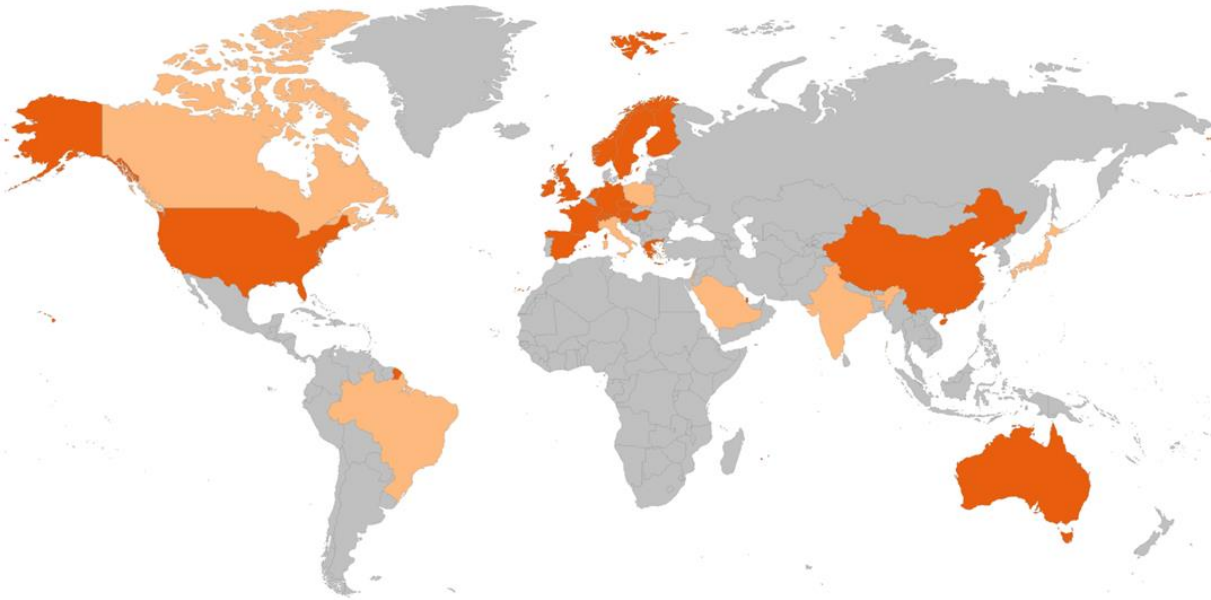
Status 2018:

~8 billion EUR turnover; ~70% by 10 publishers; ~80% behind paywalls

Perspectives 2020:

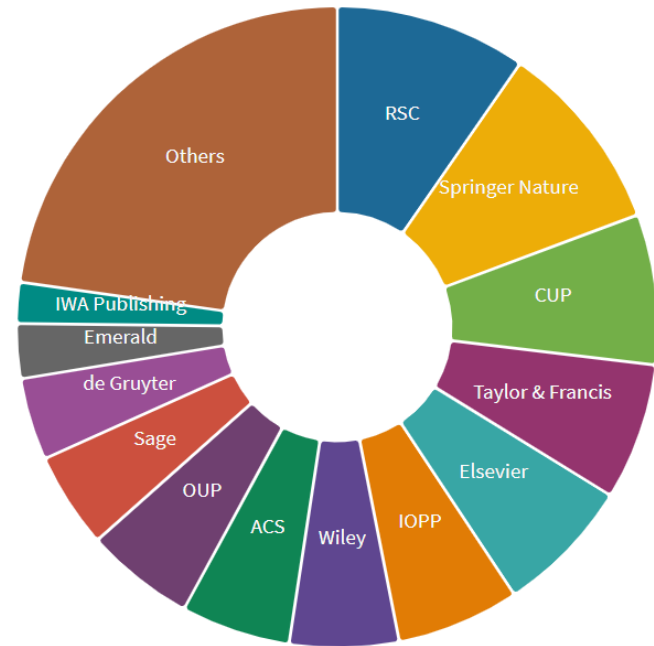
- many countries & organizations engaged in successful transformative activities (see *OA2020.org*)
- most publishers ready to offer transformative agreements (“*Publish & Read*”)
- Elsevier continues its “denial of service” in largest markets but starts to move in smaller markets

Global Spread of Transformative Agreements



Pale orange: existing transformative agreements not yet in registry.

esac-initiative.org/about/transformative-agreements/agreement-registry/



ESAC Registry of Transformative Agreements:

~140 contracts in 20 countries with 33 publishers

⇒ OA to 90,000 journal articles published in 2020

⇒ major advances, but transition remains to be completed



Austria & FWF continue to be among successful pace makers for open access

Plan S: Accelerate & Complete the OA Transformation

Plan S Principles

“With effect from 2021*, all **scholarly publications** on the results **from research funded by public or private grants** provided by national, regional and international research councils and funding bodies, must be published in Open Access Journals, on Open Access Platforms, or made **immediately available through Open Access** Repositories without embargo.”

*For funders agreeing after January 2020 to implement Plan S in their policies, the start date will be one year from that agreement. In addition:

01: Authors or their institutions retain copyright to their publications. ... ([copyright = essential cornerstone](#))



Timely & long-sought support from research funding organizations (*top-down*) to accelerate & complete the open access transformation initiated & pursued by research performing organizations (*bottom-up*).

Well-suited & welcome complement & follow-up on OA2020 & related initiatives.

Sufficiently stringent to accelerate & advance the ongoing OA transformation, & **sufficiently flexible** to enable an efficient & smooth transition as advocated and prepared in OA2020 & related initiatives.

Logical & overdue consequence of the Berlin Declaration on Open Access (2003), signed by more than 650 leading scholarly institutions worldwide, and related Open Access Statements (Bethesda 2003, Budapest 2002).

Plan S: Stringency & Flexibility

All scholarly articles that result from research funded by members of cOAlition S must be openly available immediately upon publication without any embargo period.

There are three routes for being compliant with Plan S:

	Open Access publishing venues (journals or platforms)	Subscription venues (repository route)	Transition of subscription venues (transformative arrangements)
Route	Authors publish in an Open Access journal or on an Open Access platform.	Authors publish in a subscription journal and make either the final published version (Version of Record (VoR)) or the Author's Accepted Manuscript (AAM) openly available in a repository.	Authors publish Open Access in a subscription journal under a transformative arrangement.
Funding	cOAlition S funders will financially support publication fees.	cOAlition S funders will not financially support 'hybrid' Open Access publication fees in subscription venues.	cOAlition S funders can contribute financially to Open Access publishing under transformative arrangements.

For any chosen route to compliance, the publication must be openly available immediately with a Creative Commons Attribution license (CC BY) unless an exception has been agreed by the funder.

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Motivation for New Forms of OA Publishing

Traditional journals & peer review are not sufficient for efficient communication & quality assurance in today's diverse & rapidly evolving world of science:

- limited capacities of journal editors & reviewers
(overcome by public review & discussion)
- delays & losses of information from original manuscripts & reviewer comments
(often as interesting as final article)
- iterative submissions & **waste of reviewing capacities**
(most limited resource in scientific publishing & quality assurance)

Open access journals & new publishing platforms provide urgently needed opportunities for improved scientific quality assurance:

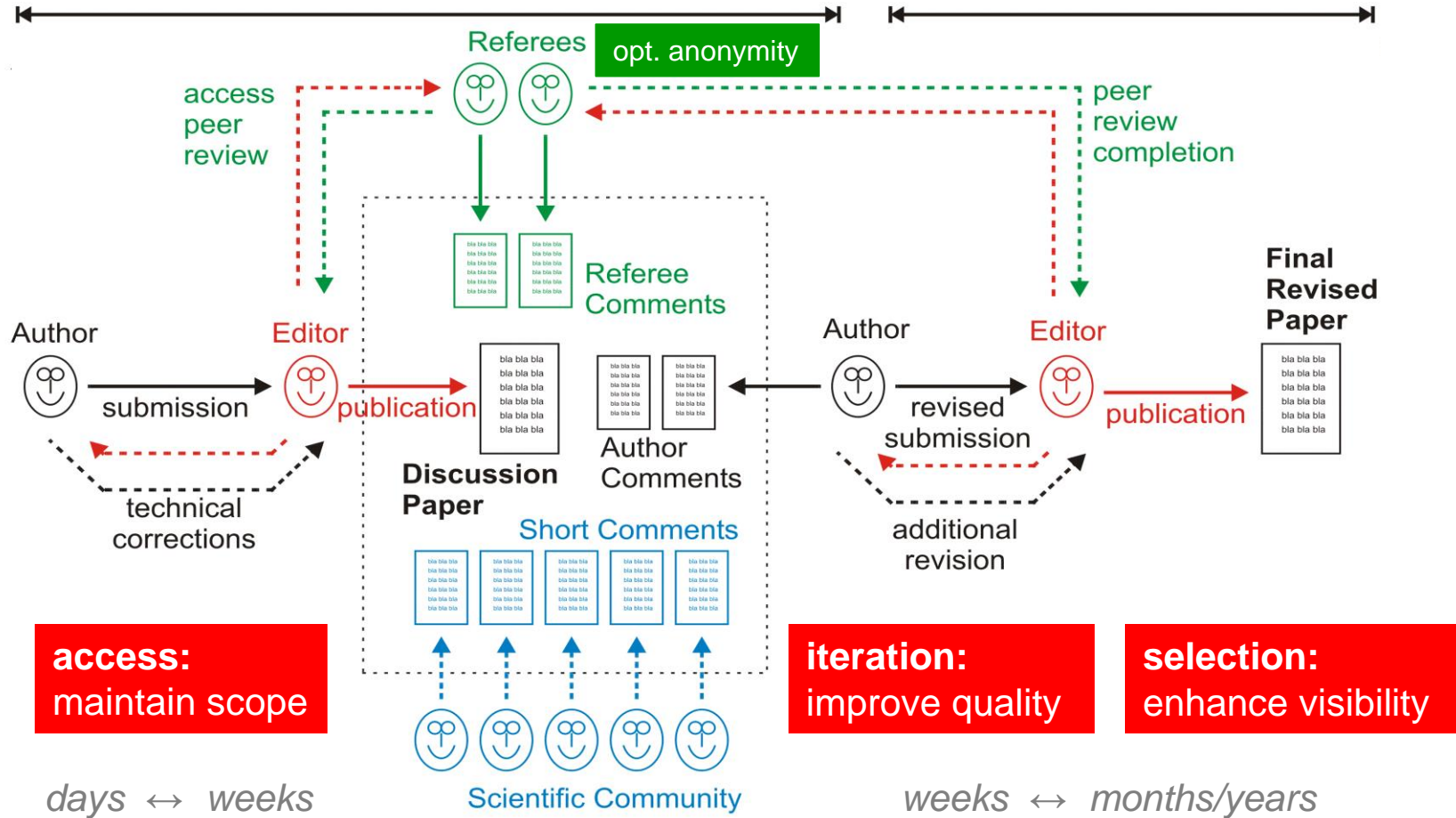
- transparency & new metrics beyond citation counting oligopoly:
article level metrics (ALM) ...
- open peer review, pre-publication history, peer commentary, post-publication review etc.:
BMJ, BMC Medical Journals, BBS, PLOS One, PeerJ, Peerage of Science, Peer Community (PCI), PREreview, Winnower, F1000 Research/Wellcome Open Research ...
- interactive OA publishing & multi-stage open peer review: **combine & integrate the strengths of traditional peer review with the virtues of transparency & self-regulation:**
ACP & EGU/Copernicus, Economics e-journal, SciPost/arXiv, ...

Interactive Open Access Publishing

Flexible & transparent advancement of traditional journal review:

OA Discussion Forum (ACPD)

OA Journal (ACP)



1. Pre-publication review & selection
short term

2. Public peer review & interactive discussion
mid-term, **integrative !**

3. Peer review completion
mid term

4. Post-publication review & evaluation
long-term, **ALM ...**



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Atmos. Chem. Phys., 16, 3761-3812, 2016
<http://www.atmos-chem-phys.net/16/3761/2016/>
doi:10.5194/acp-16-3761-2016
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Research article

22 Mar 2016

Ice melt, sea level rise and superstorms: evidence from paleoclimate data, climate modeling, and modern observations that 2 °C global warming could be dangerous

James Hansen et al.

Hansen et al. 2016: *climate change, 110 comments, 260,000 downloads*
acp.copernicus.org/articles/16/3761/2016/

Download

- Final revised paper (published on 22 Mar 2016)
- Supplement to the final revised paper
- Discussion paper (published on 23 Jul 2015)
- Supplement to the discussion paper

Interactive discussion

Status: closed

AC: Author comment | RC: Referee comment | SC: Short comment | EC: Editor comment

- Printer-friendly version - Supplement

- SC C5202: 'SC Two papers that conflict with section 2.2. argument for Eemian "superstorm" activity', Andrew Revkin, 26 Jul 2015
- SC C5522: 'Is a 10% increase in wind speed enough to increase wave heights enough to move the Bahamian boulders in the Eemian?', Michael Wehner, 31 Jul 2015
- AC C8101: 'Response to SC C5522', James Hansen, 15 Oct 2015
- AC C5615: 'Boulders in the Bahamas: Response to Comment by A. Revkin on paper Ice Melt, Sea Level Rise and Superstorms', James Hansen, 04 Aug 2015
- SC C5885: 'Boulders show mega-tsunamis and multi-metre sea level rise could result from rapid Arctic warming; both precautionary and preventative actions are required urgently', John Nissen, 13 Aug 2015
- AC C7872: 'Response to SC C5885', James Hansen, 12 Oct 2015
- SC C6270: 'Speculations on superstorms', Max Engel, 26 Aug 2015
- AC C7633: 'Reply to SC C6270 'Speculations on superstorms'', Max Engel, 26 Aug 2015', James Hansen, 06 Oct 2015
- SC C5208: 'Evidence and validation', Erik Stabenau, 26 Jul 2015
- SC C6508: 'Antarctic sea ice growth', Steven Marcus, 03 Sep 2015
- AC C7963: 'Response to SC C6508', James Hansen, 13 Oct 2015
- AC C7962: 'Response to SC C5208', James Hansen, 13 Oct 2015

- RC C5209: 'Very important but strenuous paper', David Archer, 27 Jul 2015
- SC C5270: 'Archer's comment on Hansen's new SLR paper', Rud Istvan, 27 Jul 2015
- SC C5316: 'RE: Rud Istvan's reply to 'Archer's comment on Hansen's new SLR pap
- SC C5336: 'Greenland ice mass loss', Rud Istvan, 29 Jul 2015
- AC C7878: 'Response to SC C5336', James Hansen, 12 Oct 2015
- AC C7876: 'Response to SC C5316', James Hansen, 12 Oct 2015
- AC C7874: 'Response to SC C5270', James Hansen, 12 Oct 2015

Self-regulation by transparency:
- efficient handling of controversial studies
- top impact & visibility @ low rejection rate



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Journal metrics

IF 5.053

IF 5-year 5.656

SNIP 1.574

IPP 5.054

SJR 3.022

h5-index 92

Definitions

Abstracted/indexed

- Science Citation Index

Achievements ACP/EGU

Atmospheric Chemistry & Physics (ACP)

launched 2001 with Nobel laureate P. Crutzen &

European Geosciences Union (EGU)

20 EGU sister journals since then:

Biogeosciences, Climate, Hydrology ...

Large-scale move to interactive OA

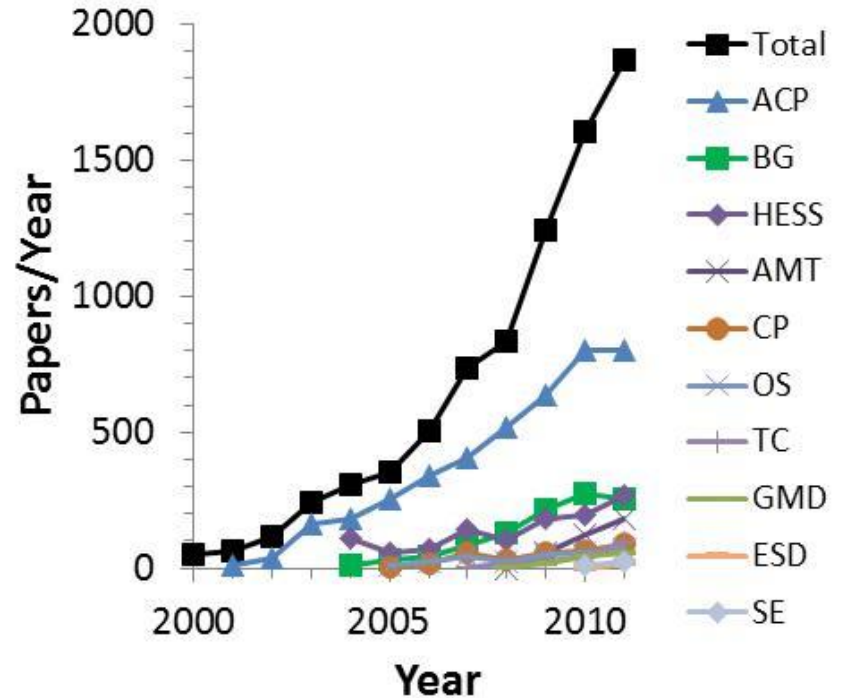
publishing in geosciences:

> 10 000 papers; > 50 000 comments

Spread of concept to other communities/platforms:

Economics e-journal, SciPost Physics/arXiv.org,

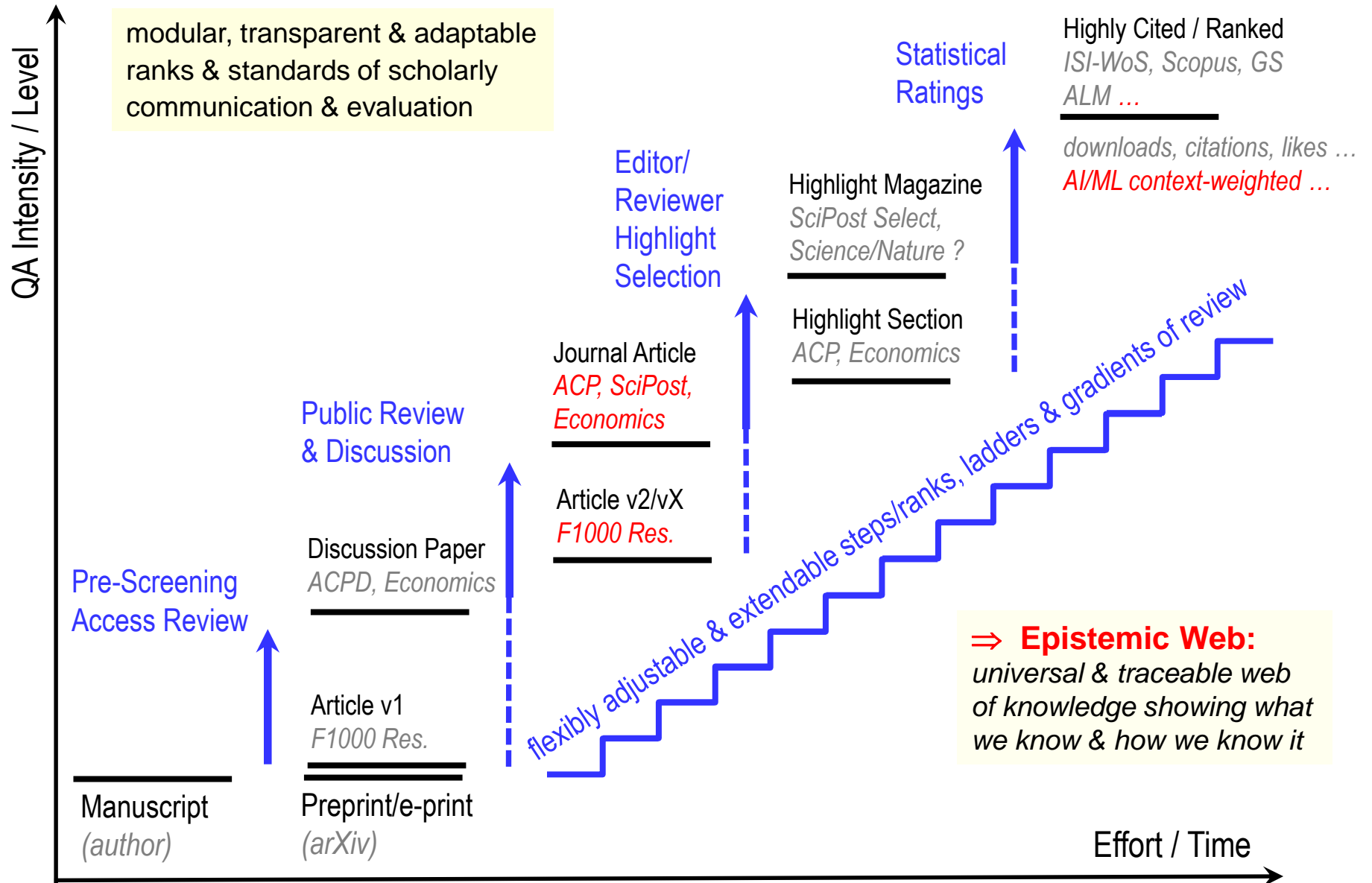
F1000 Research, Wellcome Open Research ...



Unique combination:

- top speed: 1+x weeks from submission to citable publication (discussion paper)
 - top impact & visibility (across atmos., environ. & geosciences)
 - low rejection rate (~15% vs. ~50+%)
 - large volume (~10% of geoscience journal market)
 - low cost (~1-2 kEUR/paper vs. ~2-4 kEUR/paper)
 - fully self-financed & sustainable (incl. review, production, archiving & 10-20% surplus for publisher & society), 2019: ~ 5000 papers, ~ 5 MEUR turnover, > 500 kEUR surplus
- self-regulation by transparency

Multi-Stage Open Peer Review



Conclusions

1) A swift transition from subscription to open access is desirable & possible.

- Benefits & viability of OA are well proven; transition is long & well prepared.
- Successful strategies & role models are available on institutional & national levels.

2) Plan S, OA2020 & related initiatives are needed to gather & maintain momentum.

- 3 years of OA2020 & transformative agreements have enabled more open access than 30 years of OA archiving & publishing without transformation.
- Plan S has fostered successful recent developments & will further accelerate OA transformation by increasing pressure on publishers.
- Plan S is needed to ensure proper use of public funds & resources; to enforce co-operation of publishers; and to end their denial of service (“divide et impera”).

3) Open access returns control of scholarly publishing to the scholarly community.

- OA ends the intransparent & unscholarly reliance of scholarly evaluation of a citation counting oligopoly (*WoS, Scopus, Google Scholar*), and it enables the development & application of new & improved metrics (*e.g., ALM vs. JIF*).
- OA introduces cost transparency, it ends the oligopoly of traditional publishers built on their appropriation of copyrights, and it enables open science & bibliodiversity.

4) Open access enables new & improved forms of scholarly discourse & evaluation.

- Interactive OA publishing; multi-stage open peer review; virtual & overlay journals; ...
and an epistemic web to support critical rationalism & counteract the unfortunate recent spread of alternative facts, postfactual claims, and conspiracy theories.