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A Scientist's Perspective on Integrity, Trust, Accountability & Oversight in Scholarly Publishing

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Outline

Motivation & Challenges

- open science, open access, open review

Solutions & Achievements

- open review platforms, processes & statistics

Conclusions & Outlook

- epistemic web & specific suggestions

Motivation for Open Access & Open Science

Benefits of free online availability & usability of scholarly research articles, data & software

Educational

- equal opportunities, information & stimulation (*global/social, teachers/students ...*)
- re-integrate scholarly & common knowledge (*alternative facts, postfactual claims ...*)

Economic

- facilitate innovation (*text mining by SME*)
- liberate distorted market of scientific information (*copyright ...*)

Scholarly

- enhance interdisciplinary exchange, discussion, and collaboration
- **advance scholarly evaluation & quality assurance:** transparency & traceability, open review & discussion, 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 & full benefits and sustainability

Motivation for Open Review

Overcome limitations of traditional peer review by transparency, self-regulation & crowdsourcing

Editors & Reviewers: limited capacities

- work overload, conflicts of interest, little reward & incentive for constructive reviews

Traditional Pre-Publication Peer Review: retardation & loss of information

- delay of publication, dilution of messages, hidden obstruction/plagiarism
- critical & supportive comments unpublished/lost (often as interesting as paper)
- **waste of reviewer capacities as most limited resource in scientific evaluation**

Traditional Discussion: sparse & late commentaries

- laborious, delayed & diluted by review (comment/article 1978 $\Rightarrow$ 1998: 1/20 $\Rightarrow$ 1/100)

Replacement of traditional pre-publication review by post-publication commenting: **not really successful**

- lack of incentives & low frequency of scientific post-commenting (comments/article < 5/100)

Evolution into multi-stage open peer review & related concepts (Publish Review Curate, PRC etc.):

- combine & integrate strengths of traditional peer review with old virtues & new methods of **transparency, self regulation & crowdsourcing**
- *no mere advocacy for abstract ideas or niche products – **proven success at large scales since 25 years***

Prominent Open Review Platforms: Key Features

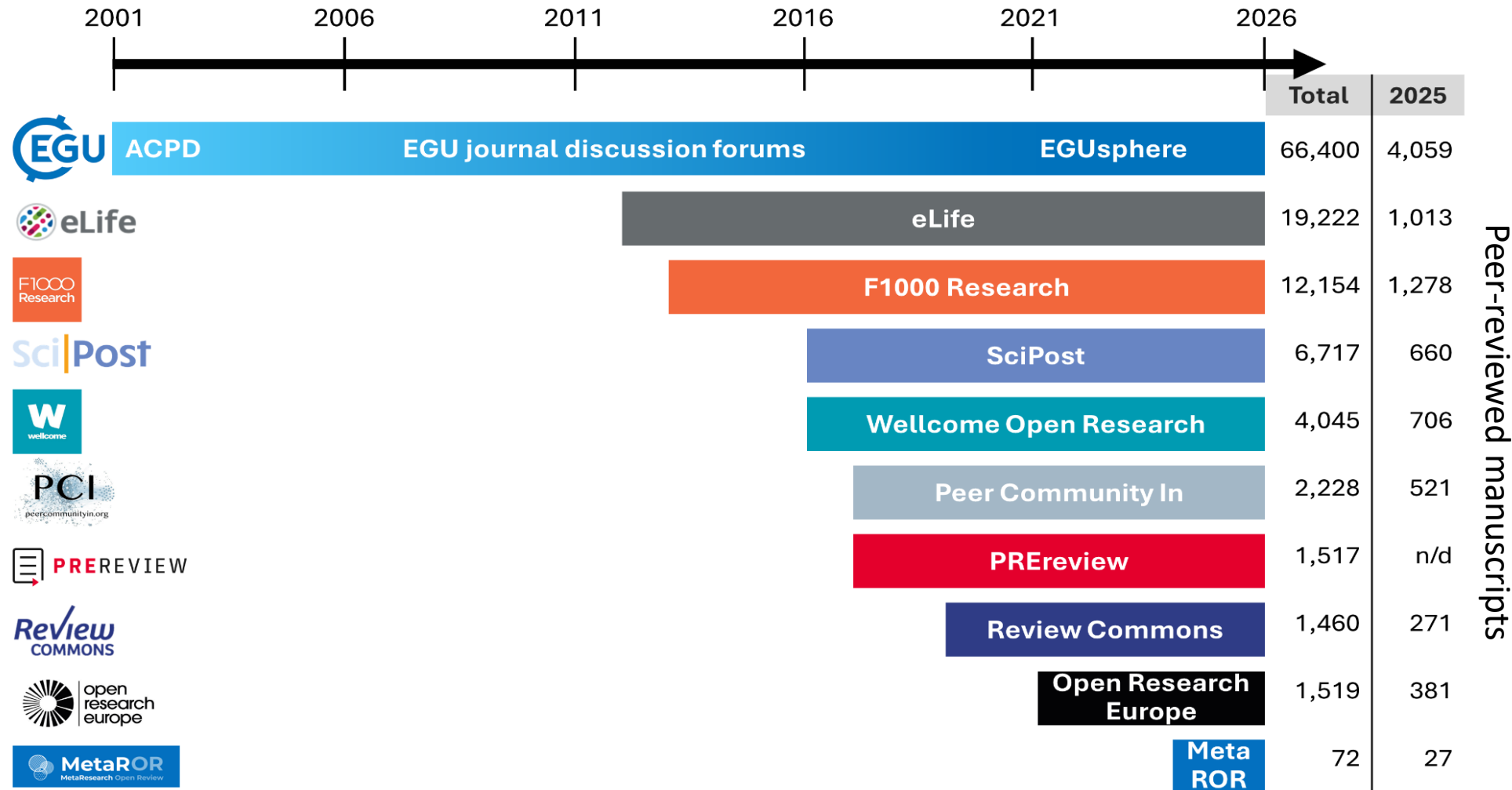
Platforms	<i>EGUsphere</i>	eLife	Wellcome Open Research	Review Com- mons	PRereview	SciPost	F1000	Peer Commu- nity In	Open Research Europe	MetaROR
Beginnings	2001/2022	2012	2016	2019	2017	2016	2019	2017	2021	2024
Discipline, Beginning Discipline	Geo, 2001 Geosciences		Life, 2012 Life sciences				Physics & Multi, 2016 Multidisciplinary			
Manuscript types										
Journal-related preprints (Type I)	✓	-	-	-	-	✓	-	-	-	-
External preprints (Type II)	✓	✓	-	✓	✓	✓	-	✓	-	✓
Standalone preprints (Type III)	✓	-	✓	-	-	-	✓	-	✓	-
Review features										
Initial editor/moderator decision	✓	✓	✓	✓	-	✓	✓	✓	✓	✓
Nominated peer reviewers	✓	✓	✓	✓	-	✓	✓	✓	✓	✓
Community comments/reviews	✓	-	✓	✓	✓	✓	✓	✓	✓	-
Reviewer anonymity	○	○	-	○	○	○	-	○	-	○
directly connected to peer-reviewed journal integration w/ peer-reviewed journals	✓ yes ✓	✓ (yes) (✓) ⁽²⁾	✓ - -	✓ - -	✓ - -	✓ yes ✓	- - -	- yes ✓	✓ - -	- (✓) ⁽³⁾ -
Document numbers 5, 2026										
preprints/discussion papers	66,400 66.000	10,222 20.000	4,045 4.000	1,460 271	1,517 n/d ⁽⁴⁾	6,717 7.000	12,154 12.000	2,228 2.000	1,519 381	72 27
classical journal articles Journal articles ⁽⁵⁾ (2025)	58,000 58,000 2,776	10,000 ⁽³⁾ 10,000				4,000 4,000 470		1,000 1,000 142		
Article processing charges										
APCs for authors	-	\$3,750	⁽⁶⁾	-	-	-	\$1,003 - \$1,758	-	⁽⁷⁾	-

Total

> 110.000

> 73,000

Prominent Open Review Platforms: Volume, Quality & Efficiency



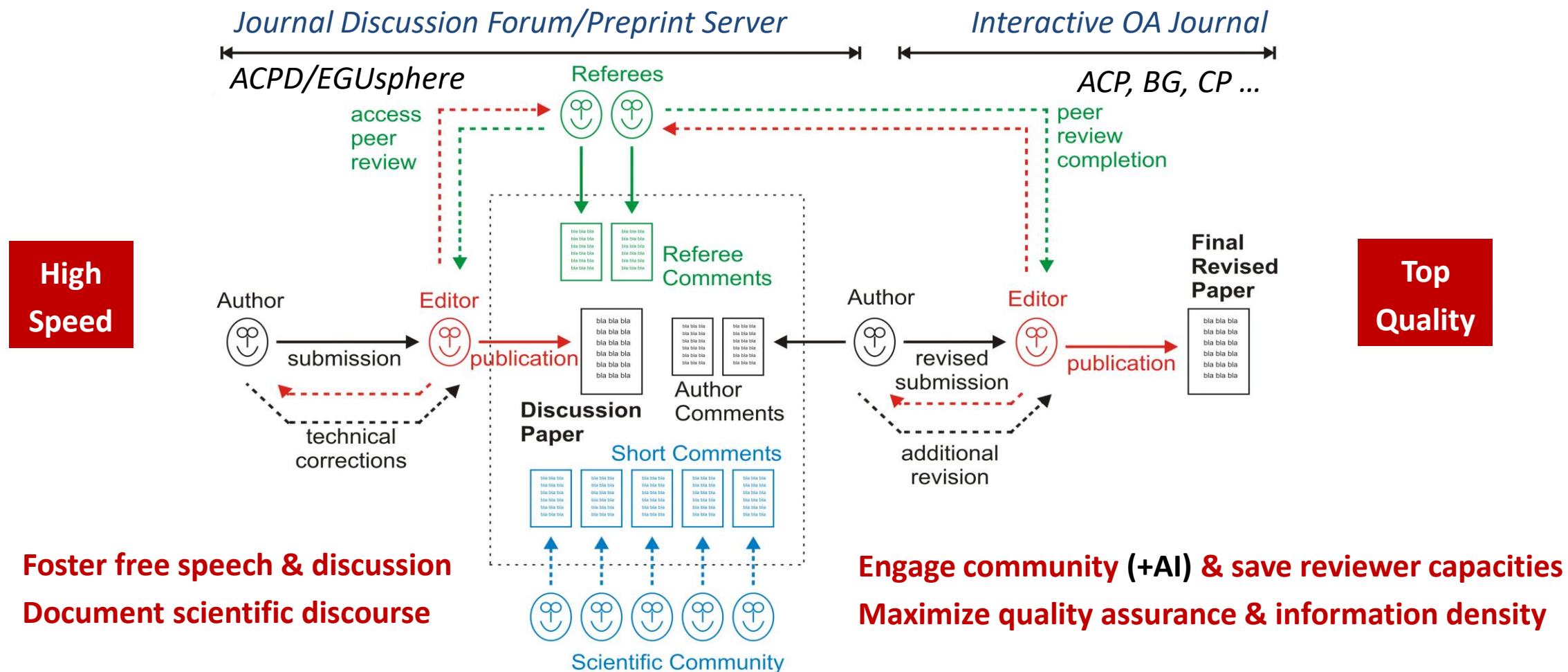
*Ervens et al.
EGU sphere 2026,
in preparation*

Since 25 years **EGU interactive OA journals** building on open review of preprints/discussion papers offer **top quality & top visibility/impact** at **low rejection rates & low costs**.

Similar results reported for other venues including **eLife** since 2012 & **SciPost Physics** since 2016.

Open Peer Review in Interactive Open Access Publishing

Combine & integrate strengths of traditional peer review with virtues of transparency & self regulation



EGU interactive OA journals: top quality & visibility at low rejection rates (highest/lowest across geosciences; large volume at low cost (< 2 kEUR/article); financial sustainability & surplus (~20%): 20 journals; >60,000 papers; >200,000 public comments, ~6 Mio EUR/yr



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■ Supplement (2930 KB)

Short summary

We use climate simulations, paleoclimate data and modern observations to infer that continued high fossil fuel...

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Citation

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Article Peer review Metrics Related articles

22 Mar 2016

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

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.

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

Hansen et al. ACP 2016:

climate change (Paris 2015), 110 comments, >350 000 views, Altmetrics 1160

acp.copernicus.org/articles/16/3761/2016/acp-16-3761-2016-discussion.html

Status: closed

Interactive discussion

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

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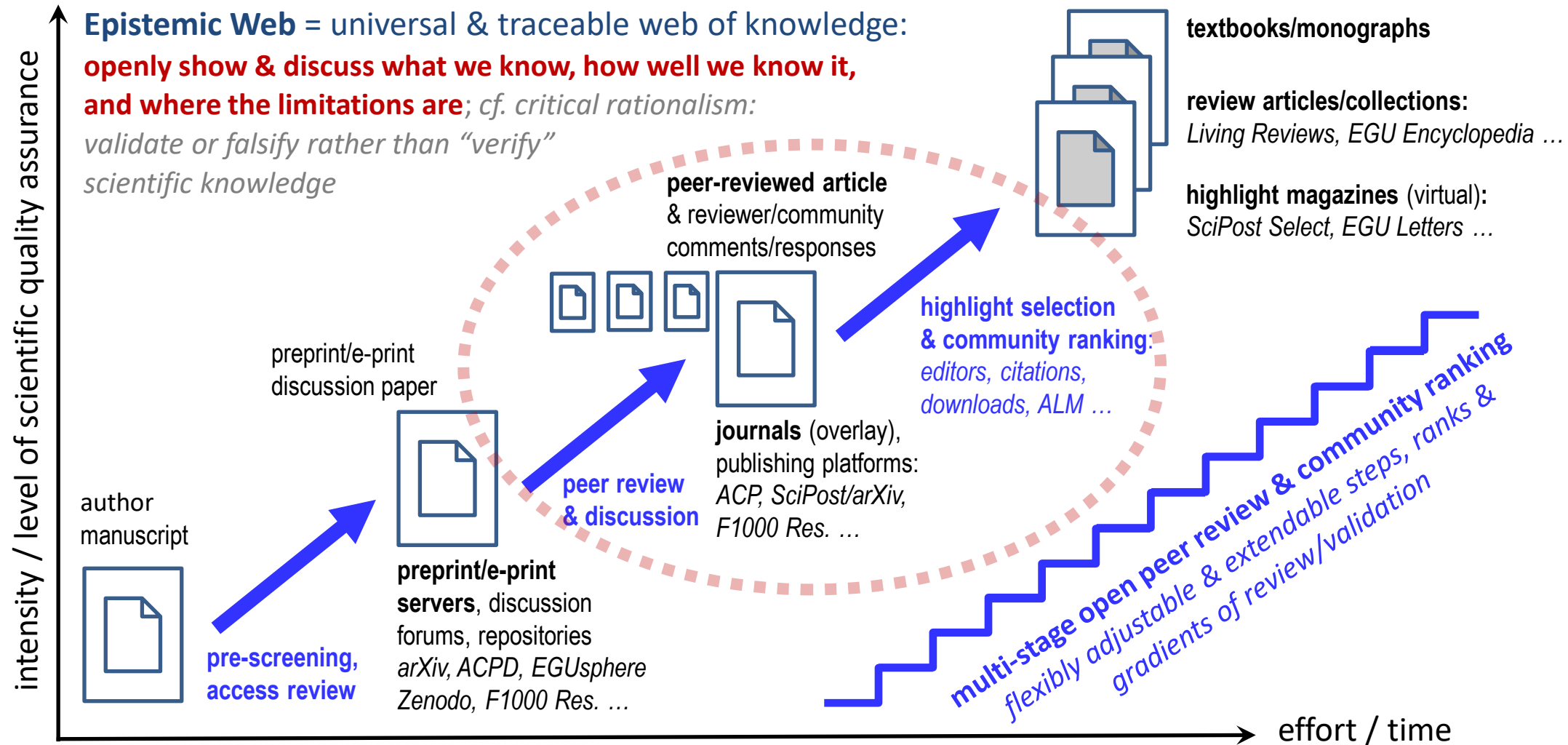
Password

► New user? | ► Lost login?

Journal metrics



Epistemic Web & Global Commons of Knowledge



Practice & demonstrate transparent & rational approach of solving complex questions & problems through open science in global commons of scholarly knowledge (*open access, open data, open review, open source ...*) ⇒ **role model for societal decision processes**

Specific Suggestions

1) Continue & promote experiments with new & improved forms of OA & OPR

- **build on existing successful models & experience** rather than re-inventing the wheel
- **foster transparency & self-regulation** (*multi-stage open peer review, PRC etc.*)

2) Demand disclosure of article reviews & pre-publication history

- establish **minimum standards for open proofs of quality assurance** to cope with increasing publication volume and eliminate predatory publishers

3) Advance & apply new metrics of publication impact & quality

- use **article level metrics** rather than just journal metrics/brands (*h-index, impact factor, names ...*)
- terminate intransparent & unscholarly reliance on citation counting oligopolies

4) Return control of scholarly publishing to scholarly community

- **offer/extend proper OA publishing contracts** (*equiv. to transform. agreements*) not just to large traditional publishers but also **to new/small/pure OA publishers to maintain competition & innovation**
- avoid futile discussions about gold vs. diamond OA publishing: publishing services have to be funded/paid by someone at some point, and it is essential to **maintain cost transparency & competition**
- **publishers are service providers** and can be “custodians” for the files they produce for their customers, but not for scholarly integrity & quality, which has been and continues to be role & responsibility of scholars
- let's finally **stop the tail wagging the dog** (*1% of costs controlling 99% of research activity & output*), complete global implementation of OA & enhance diversity of publishing venues

