

The Science Publication System – Transition to Open Access and Quality Control

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Outline

1. Reflecting current developments: Some theoretical considerations
2. Open Access, the green and the golden road
3. Green Open Access: Readjusting publishing practices
4. Gold Open Access: „Flipping“ business models and possible risks



Formal Communication System of Science

Registration function: Time of submission and publication of results and truth claims can be checked.

Certification function: Recognition of a contribution as part of a collective body of knowledge, often by peer review.

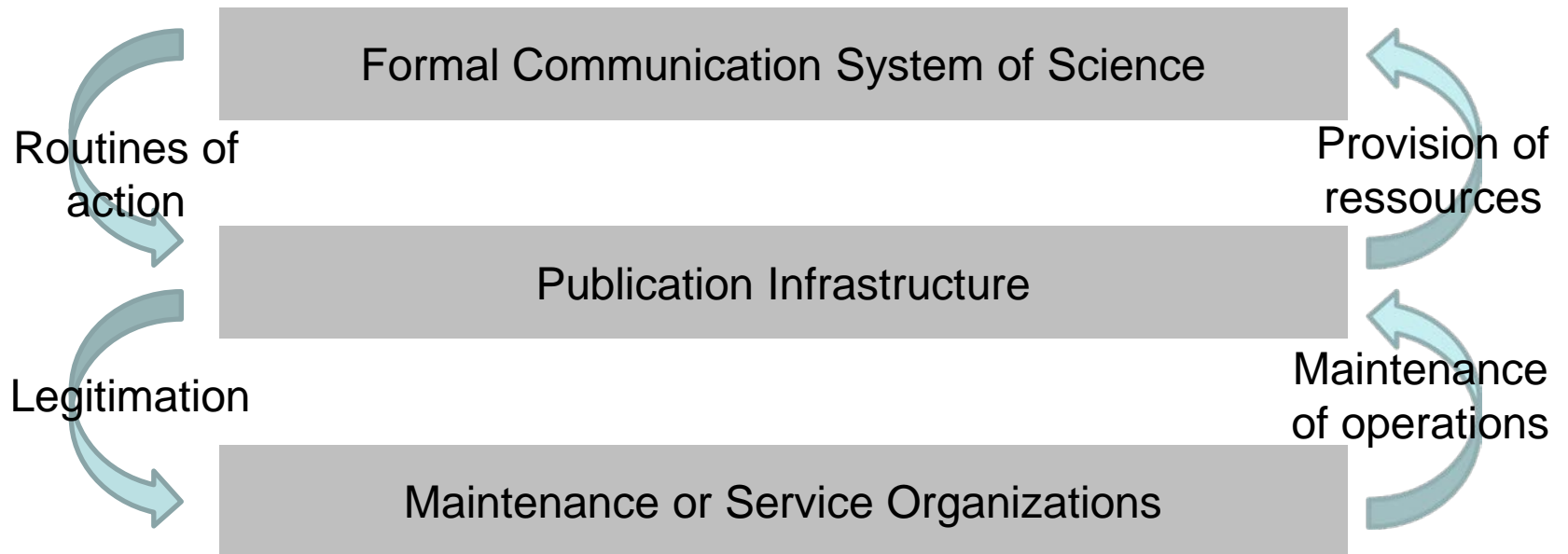
Dissemination function: Circulation of a contribution within a scientific community.

Archiving function: Ongoing stabilization of the body of knowledge, so that further research activities can follow it in the near or far future.

Kircz and Roosendaal 1996, 107–108; Hagenhof et al. 2007, 8; Andermann and Degkwitz 2004, 8, Taubert 2016

1. Reflecting current developments: Some theoretical considerations

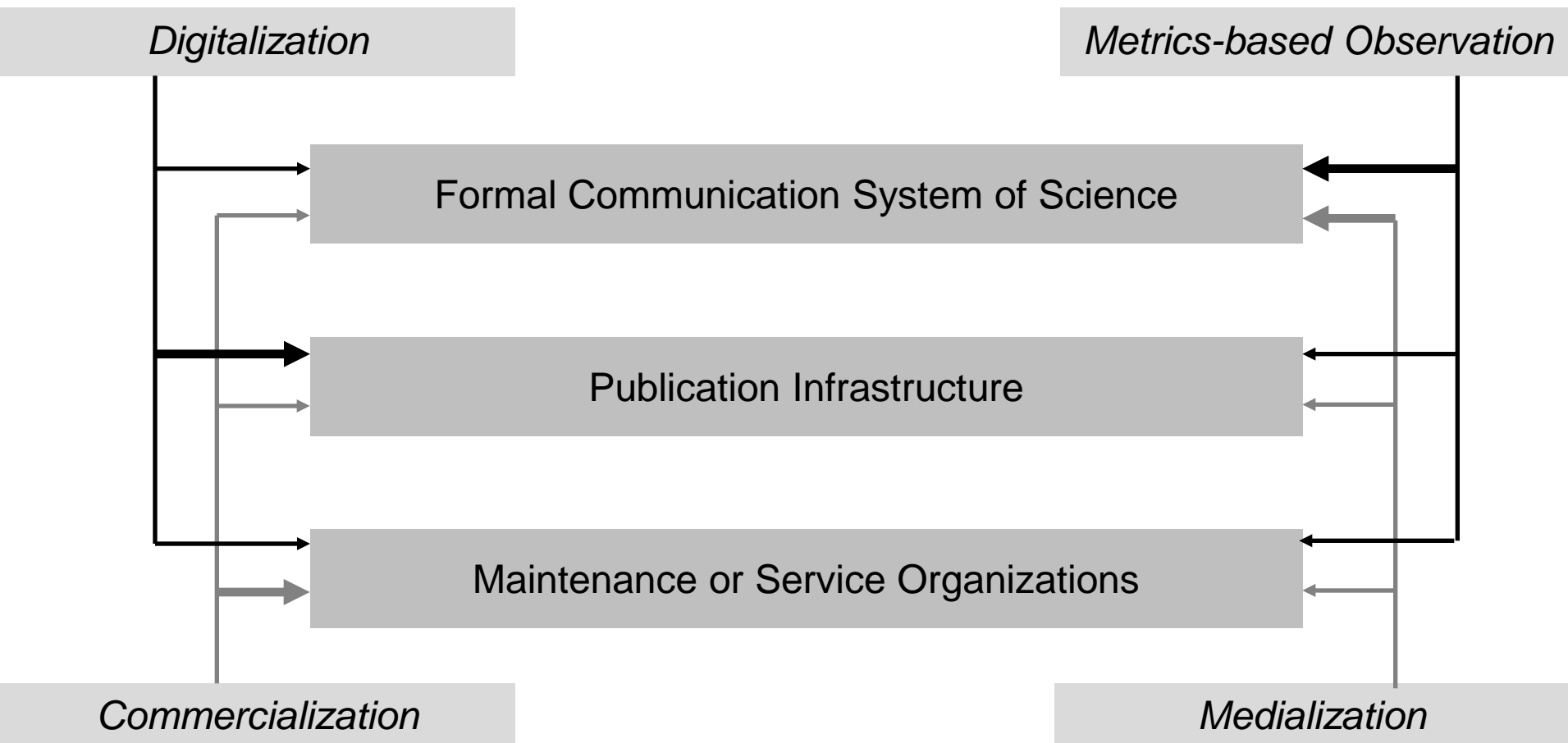




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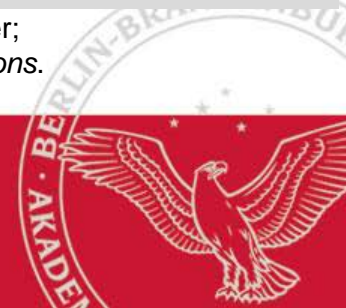


BBAW-Project: Recommendations on the future of the publication system of science



Taubert, Niels; Weingart, Peter 2016: Changes of Scientific Publishing – a Heuristic for their Analysis. In: Weingart, Peter; Taubert, Niels, *Publication System of science. Digitalization, Commercialization, Medialization, Metrics-based observations*. African Minds.

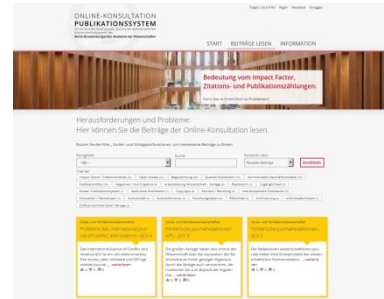
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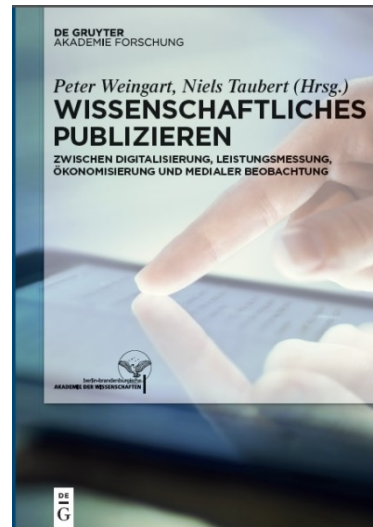
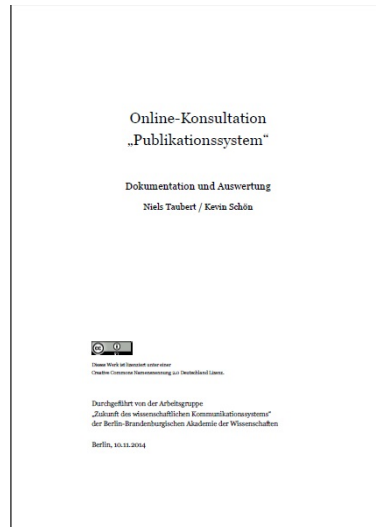
Interviews with Publishers

Interviews with Heads of Libraries

Interviews with Scientists



Online-dialog
involving ~ 700
scientist



1. Reflecting current developments: Some theoretical considerations



“By ‘open access’ to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself.”

Budapest Open Access Initiative (2002)

Gold OA: Open Access is provided at the original place of publication.*

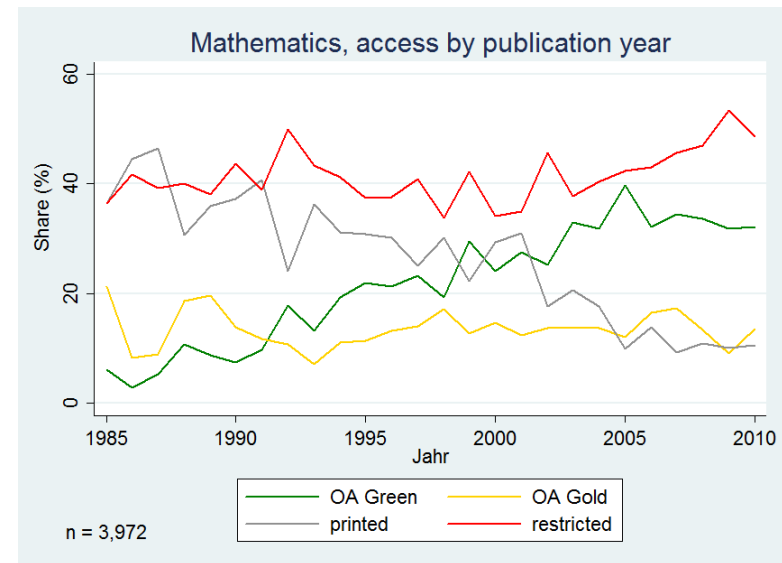
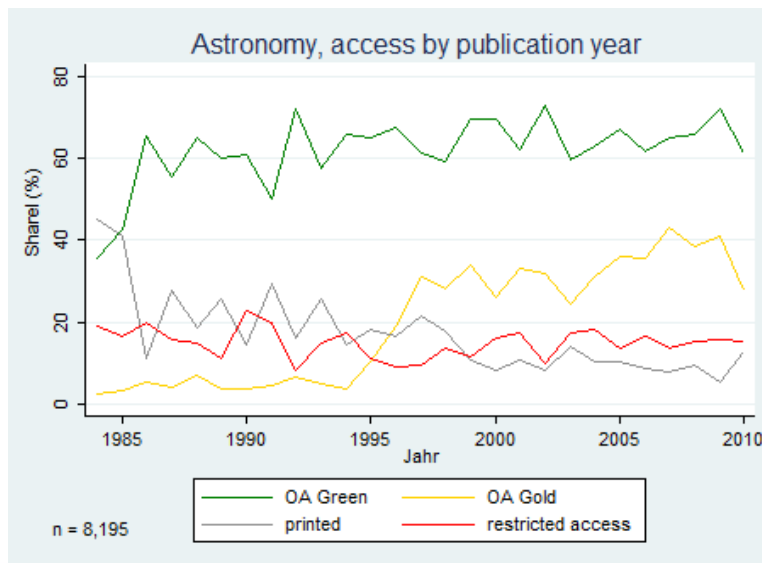
Green OA: Publications that appear not exclusively at the original place of publication (for instance in a toll-access/paywall journal) but are additionally self-archived on a repository to provide Open Access.

* For an overview: Directory of Open Access Journals (DOAJ) <https://doaj.org>

DFG-funded Project on OA in Astronomy and Mathematics

Comparison of the routines of scientists dealing with publication infrastructure

- in two disciplines (astronomy and mathematics)
- in two countries (Germany and South Africa)
- and two cohorts (scientists established before and after the advent of Open Access)
- Bibliometric analysis of the publication output of 224 scientists, randomly selected
- Interviews with 20 scientists from the sample
- Mapping of the publication infrastructure within the fields



3. Green Open Access: Readjusting publishing practices



In the case of **preprints**, the sequence of certification and dissemination is inverted and the **two functions are separated** (reason in astronomy: improving the speed of dissemination; reason in mathematics: access & speed of dissemination)

Mechanisms of trust in preprints

Astronomy	Mathematics
<ul style="list-style-type: none">- Interpretation of context information (status of preprint, duration of preprint)- Author as an indicator for trustworthy results (personal trust instead of trust in peer review)- Restricting citations (not pillar of own claims)- Distinction between trustworthy and non-trustworthy components of the preprint	<ul style="list-style-type: none">- Interpretation of context information (status of preprint, duration of preprint)- Author as an indicator for trustworthy results (personal trust instead of trust in peer review)- Plausibility check: evaluation of the basic idea of a mathematical proof- Discursive trust, proofs are discussed with colleagues



Conclusion Green OA: Conditions for the stabilization of a self-archiving culture within a discipline

- Green OA mainly deals with the relation between the formal communication system and the publication infrastructure
- **Legal certainty** is an important precondition for the development of self-archiving
- **Improvement** of the communication system of the discipline (not only access but also speed)
- **Complementary routines** of authors and readers in the use of the publication infrastructure
 - Early self-archiving has to meet specific routines on the side of the reader
 - Reader's routines may vary from discipline to discipline and refer to epistemic factors (e.g. characteristics of research data, complexity of proofs)

3. Green Open Access: Readjusting publishing practices



Powerful science policy activities towards Gold Open Access

Following the recommendations of the Finch Report, the **Research Councils UK** requires that peer review articles are Open Access and offers block grants to pay Article Processing Charges:

- “Where the RCUK block grant is used to pay Article Processing Charges for a paper, the paper must be made Open Access immediately at the time of on-line publication, using the Creative Commons Attribution (CC BY) licence.”

Max-Planck-Digital-Library organizes a coalition that aims at “flipping” the subscription model to a gold Open Access model

- The existing corpus of scholarly journals should be converted from subscription to Open Access
- Converting resources that are currently spent on subscriptions into funds to support sustainable Open Access models
- Transparent offsetting-model as an instrument of change



<http://www.aa2020.org>

70 subscribers, including: Deutsche Forschungsgemeinschaft, Leibniz Association, Max-Planck-Society, Helmholtz Association, German Rectors' Conference, Netherlands Organisation for Scientific Research, Spanish National Research Council, Swiss National Science Foundation, European Geosciences Union, Austrian Science Fund, University of Wits

4. Gold Open Access: Flipping business models and its risks



Lessons from astronomy

	<i>Astrophysical Journal (ApJ)</i>	<i>Monthly Notices of the Royal Astronomical Society (MNRAS)</i>	<i>Astronomy & Astrophysics (A&A)</i>
<i>Web of Science</i>			
Number Articles	2,472	2,348	1,937
Share (%)	36.58	34.79	26.66
<i>Germany</i>			
Number Articles	235	132	1,332
Share (%)	13.83	7.77	78.39
APC	Yes	No	No
<i>South Africa</i>			
Number Articles	168	342	289
Share (%)	21.03	42.80	36.17
APC	Yes	No	Yes
JIF	6.024	4.900	4.587

4. Gold Open Access: Flipping business models and its risks



Conclusion

- The Gold Open Access-APC model deals with the relation between the formal communication system and maintenance organisations.
- Currently authors in astronomy avoid journals with APC and submit to non-APC-journals
- Possible risks in the communication system during a transition period towards the APC-model:
 - Timing 1: Journals switch faster towards an APC-model than publication funds are introduced in universities and research organizations. Scientists from late-coming organizations might be excluded in part.
 - Timing 2: Research organizations introduce strong mandates and switch faster to the APC-model than journals give up their subscription models. The reputation of late coming journals may be affected as submissions are going down.
 - Only low quality journals switch towards an APC-model but high quality journals do not follow: Researchers may keep submitting to high quality journals and exploit publication funds for the publication of lower quality results (game-playing involving scientists).



Thank you for listening!

