

UNIVERSITY OF INNSBRUCK

Open Access Publishing

Helmut WOLF

helmut.wolf@student.uibk.ac.at

Abstract

This paper basically has two aims: to define why Open Access has been introduced and thus to define what Open Access is and to show how it impacts the present and *might* impact the future.

To accomplish this the paper is divided into 4 different sections. While the first gives motivation and a first look into what Open Access is and how it has evolved the second gives an overview on how Open Access articles and journals are published. Further on, basic statistics and an estimated growth on Open Access publications are shown. Last but not least a paper on Open Access would not be complete without criticism on the subject itself which also concludes the paper.

1 Historical Overview And Motivation

In the year 1158 the University of Bologna, the first university in history, adopted the academic chapter “Constitutio Habita”. This key founding document granted rights to scholars e.g. concerning the freedom of movement and travel. Nowadays this is claimed to be the origin of “academic freedom”. Since then the work of scholars has been tightly coupled with these thoughts, although the over-all meaning has changed. The modernistic definition of academic freedom comprises the fact that knowledge should be available to everybody - no matter what kind of race or sex he/she belongs to.

Since 1665, the year when the first scientific journals, the *Journal des sçavans*, began its publication, scholars published their knowledge using the printing press (e.g. in journals, articles, books etc.).

But of course the publishing houses don't do anything for free as they gain their revenue by selling these journals, books etc. This lead to a kind of separation among people: Those who can afford to buy those articles and those who don't. This gap is even larger today as not even scientists at elite universities can gain access to some highly priced papers; not to mention the situation of people in poorer countries...

However, with the rise of the *Internet* a new era has begun: Information can be delivered in near real-time to everybody in the world having an Internet access. Nevertheless nothing really has changed: You still have to pay for scientific articles (even if they are provided in a digital way) thus there is still limited access. This circumstances lead to the so-called Pricing and Permission Crisis (for further information see [1] and [2]) and this is where Open Access comes into play:

Open-access (OA) literature is digital, online, free of charge for everyone with an internet connection and free of most copyright and licensing restrictions. [1]

2 Providing Open Access

Authors can provide open access to their work in two ways: Green OA Self Archiving and Gold OA Publishing. These two types will be dealt with in the following sections.

2.1 Green Open Access Self Archiving

As the name suggests this kind prompts the author to self-archive a version of the article for *free* use. There are different ways authors nowadays handle this, where the most popular among them are:

- the author's website itself (*self-hosting*)
- an institutional repository (i.e provided and hosted by their institution)
- a central repository¹

2.2 Gold Open Access Publishing

Instead of publishing to a local server or a repository Gold Open Access Publishing enforces the authors to publish to an open access journal which further on provides *immediate* access to these articles, of course maintaining the fundamental principles of Open Access: to provide them for *free* and without *technical barriers*.

As time went on a lot of hybrid forms have come up loosing the strict definition, e.g.:

- Journals entirely open access²
- Journals with some research articles open access (hybrid open-access journals)
- Journals permitting self-archiving of articles
- ...

Many of these journals are for-profit organizations, but how do they gain their money if they provide access to "their" papers for free? This thought leads us to the point of...

2.2.1 Financing Open Access Journals

Open Access Journals most commonly get their revenue by one of the following two ways:

Fee-based Open Access journals

To publish an article in a fee-based Open Access journal the author has to pay the publishing costs. However it is quite seldom that the author himself pays these fees instead of having his employer or institution take

¹For some of the most popular central repositories see e.g. PubMed Central.

²For one of the most popular open access journals see e.g. BioMed Central

care of this.

Journals of this type are the minority. The majority represent the...

No-fee Open Access journals

Journals of this type have direct or indirect subsidies from institutions like universities, laboratories, research centers, libraries [...], foundations or government agencies. Some have revenue from advertising, auxiliary services, membership dues, endowments, reprints, or a print or premium edition.[3] Also without voluntarism this kind of journals would hardly be possible to finance.

3 Open Access in Figures

The reason why scholars publish their articles using Open Access is to improve their research impact. A lot of studies have been made on how Open Access improves citation frequency. Various papers have shown that the probability for being cited is much higher using an Open Access publishing method (see e.g. [4] and [5]), which leads to the natural consequence that Open Access will gain more members over time.

To get an idea of how important open access might get in future Figure 1 shows an extrapolation by which can be seen that while the number of articles rises nearly linearly the number of articles published using Gold Open Access Publishing (see Section 2.2) grows exponentially. The variance between both curves is because the Björk-simulation takes non-ISI-journals into account as well, while the Springer extrapolation just makes use of the core-journals listed in the ISI-index³.

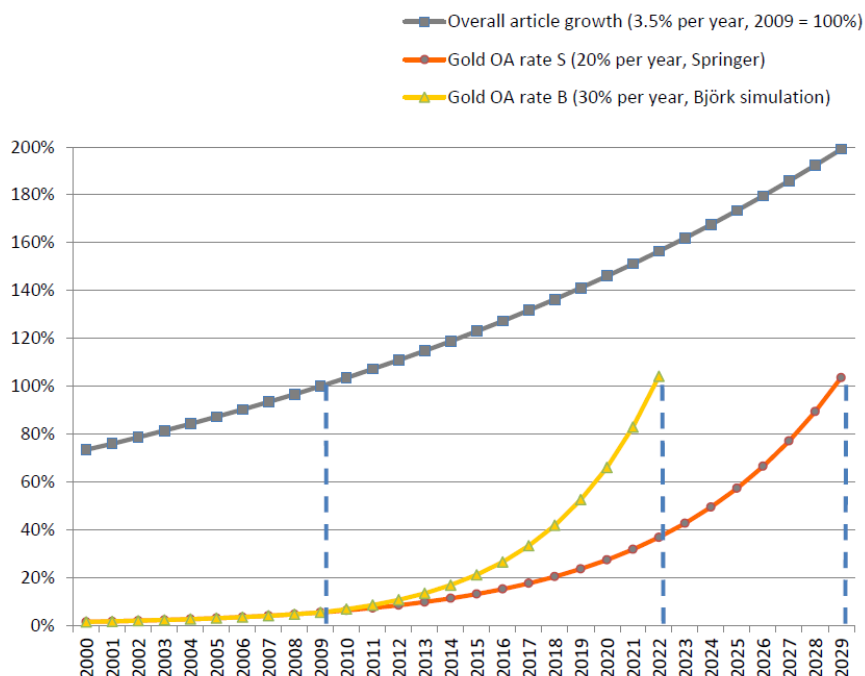


Figure 1: Curve showing the possible future importance of Open Access as seen in [6].

³ISI stands for the *Institute of Science Index*; this index tries to cover the world's most important and influential journals and research results, for further information see <http://www.isi-thomsonreuters.org/>.

4 Criticism

The biggest criticism on Open Access Publishing is that peer-reviewing⁴ a paper/article is not of that much importance any more as even “not so good” papers can be published by everybody.[8]

Also - as with every other topic - people try to abuse the basic ideas, with Open Access being no exception: Predatory open access publishing refers to publishers and journals which charge large fees to authors without providing services and/or quality which would be provided by journals of high quality. A (never-complete) list of such publishers can be found here.

There are even more points of criticism, but that would go beyond this paper.

5 Conclusion

This paper showed the importance of Open Access in the 21st century. The main technology which makes Open Access work is the Internet, giving *easy access* to scholarly articles and journals to *everybody* for *free*.

Many of the sections in this paper are far from being complete. However, the interested reader should feel free to have a look into the references given below.

On May 22, 2013 IEEE announced that they provide Open-Access Option for All Peer-Reviewed Journals.⁵ I personally think that this shows that even the big publishers have to factor in Open Access in future.

References

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- [7] Wikipedia, “Peer review — wikipedia, the free encyclopedia,” 2013. [Online; accessed 26-May-2013].
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⁴ Peer review is the evaluation of work by one or more people of similar competence to the producers of the work.[7]

⁵For further information see the article in The Sacramento Bee