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HOW COULD AN OPEN ACCESS SCHOLARLY JOURNAL SYSTEM LOOK? A SCENARIO ANALYSIS

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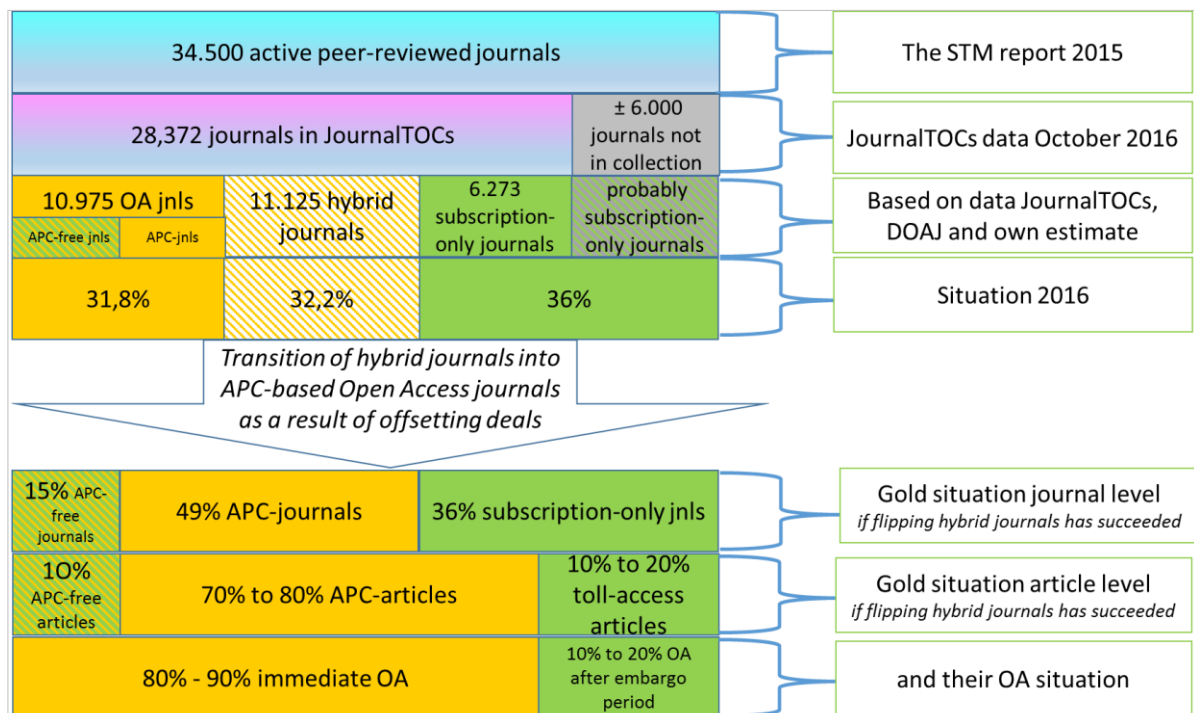
PREAMBLE

Ralf Schimmer’s [blog](#) “Making the moves for large scale transition toward Open Access” makes the case to achieve such a transition by means of offsetting deals. The urgency for such a transition is emphasized by the recently announced ambition of the EU to have “Open Access to scientific publications as the best option by default by 2020”ⁱ. This should be done “in a cost-effective way, without embargoes, or with as short as possible embargoes”.

In this blog, we explore and analyse the scenario whereby this transition will be brought about by successful offsetting deals, meaning that ultimately all articles in the hybrid journals will become Open Access by changing the business models of these journals into APC-based Open Access journals. Success means also that the offsetting deals will be transformed in pay-as-you-publish pre-finance-agreements. What effect would such a success have on the scholarly journal system. How would it look like in terms of numbers and type of journals? Which preconditions and drivers would be needed to achieve such a success? And finally, we speculate about possible next steps and their cost-effectiveness.

SKETCH OF AN OA SCHOLARLY JOURNAL SYSTEM

In the figure below, we have used data about the scholarly journal system from STMⁱⁱ and data from the [JournalTOCs](#) collection (which makes a distinction between OA journals, hybrid journals and subscription-only journals) to sketch a possible future system that could develop if recent offsetting deals would result in flipping the hybrid journals into APC-based OA journals.



The explanation of the figure is as follows: the journal collection of JournalTOCs consisted (at 10 October 2016) of 10.975 OA journals, 11.125 hybrid journals and 6.273 subscription-only journals. STM estimates that the total number of active peer-reviewed scholarly journals at 34.500 titles. Based on these figures, we make the following assumptions and estimates:

- **Around 12.000 subscription-only journals:** JournalTOCs compiles the journal titles from over 2700 publishers. The 6000 journal titles that are not part of their collection will be for the larger part published by smaller journal publishers. We assume that those titles are smaller, mostly subscription journals that rely for a large part of their revenue stream on individual subscriptions by professionals in the field, such as law professionals, medical professionals, or consultants. We foresee that, for a longer period, these subscriptions will remain in place. Our estimate is that this concerns 10% to 20% of the articles. Open access to these articles will be embargoed.
- **Around 15% APC-free OA journals:** The [Directory of Open Access Journals](#) states that about half of these journals are APC-free.
- **If the flipping of hybrid journals to OA journals succeeds:** in this case, the journal landscape would consist of about half (49%) APC-based journals.
- **Estimation of number of articles published by the resulting three journal types:**
 - The number of articles published by APC-free OA journals in comparison to the APC OA journals is lowerⁱⁱⁱ. This led to the estimate of 10% of all articles are published in APC-free journals.
 - The present hybrid journals are for the larger part published by the six largest publishers, who publish 50% to 60% of all articles published per year. Together with the articles published in APC OA journals, the number of APC-articles is estimated to become 70 to 80% of all articles published.
 - Although in this estimate the proportion of subscription-only journal titles remains high (36%), most of those journals will be published by (very) small publishers and therefore the number of articles published by these journals is lower than the proportion in titles would indicate: We estimate this at 10% to 20% of all articles published in a certain year.

A CLOSER LOOK AT THE JOURNAL TYPES

The flipping of the business model of present-day hybrid journals into APC-funded OA journals is the leading idea behind this sketch of an OA scholarly journal system. For this to happen, we foresee the following:

- **Purpose of offsetting deals:** the various types of offsetting deals, originally developed to prevent the so-called 'double dipping' phenomenon, must be seen as a means for publishers to change the business model for their subscription journals to APC-based OA journals. The white paper from the MPDL^{iv}, the OA policy of FWF^v and the description of administrative procedures around offsetting deals from [INTACT](#) reflect various aspects of this process. The number of so called hybrid journals is already in the same order of magnitude as the OA journals.
- **Window of opportunity for 5 to 10 years:** we believe there is a window of opportunity for offsetting deals of about 5 to 10 years in reaching a critical mass worldwide that will induce the desired change in the business models of hybrid journals. As most offsetting deals are set up for a three-year period, there should be in our view a clear outlook on the realisation of this transition when the third-generation offsetting deals are being negotiated. If there will be no realistic outlook at that time, the will of academic institutions to pay the surcharge of about 5% of the offsetting deals will fade^{vi}.

- **Tipping point for flipping the hybrid journals:** From a certain level of hybridity onwards, libraries without offsetting deals will start claiming lower subscription fees, because they have access to a substantial part of the journal anyway as a result of the combination of immediate OA (Gold) and the embargoed OA (Green) to its articles. The subscription model of the journal will then be severely undermined and the risks for the publisher to switch to an APC-based model will look to be lower than maintaining the subscription model. We speculate that this might happen when 30% to 40% of the income from a journal will be based on APCs provided by offsetting deals.
- **High-impact journals with a submission fee:** The APC-model does not seem to be applicable to high-impact journals, where a large part of the costs is taken by the organisation of the review of many articles, of which most will be refused. If the APC for accepted articles would have to bear all those costs, it will be tens of thousands of euros per article. A submission fee will probably be necessary to cover the costs of the organisation of the peer review for this type of journals ^{vii}.
- **The combination of hybrid and OA journals:** effectively the offsetting deals are a mechanism to earmark library funds for established subscription publishers. OA publishers and new entrants to the market, of course, will dispute this approach as a distortion of the market. As it is improbable that the hybrid journals return to their subscription origin, two possible ways forward remain: hybridity as an intermediate stage on the way to full OA, or offsetting deals with all publishers.
- **Price mechanisms for APCs:** if library budgets and funds from research funding organisations are used to (partially) pay APCs for journal articles, what kind of pricing mechanisms need to be in place to avoid a price spiral for APCs? At the moment, many APC-funding mechanisms use price-caps. A recent study^{viii} showed that price-caps appear to work both ways: lower APCs are raised towards the level of the price caps (as the APC will be compensated anyway) and higher APCs are decreased to match the price-caps. In the longer run, we think that the academic community needs a mechanism to compare the price level of the APC with the quality of the services of a journal. In fact, one of us is setting up a [Quality Open Access Market](#).
- **APC-free journals:** Most APC-free journals rely on direct subsidies from scholarly societies, research funding organisation and/or library consortia such as [SCOAP3](#), [Open Library of Humanities](#) or [Knowledge Unlatched](#). This type of journals appears to be especially relevant for the domain of humanities and social sciences. However, we think that there is an important role for these APC-free journals in an OA scholarly journal system in all disciplines by providing a publishing platform for researchers who have practically no access to APC-funds (for example citizen scientists). In addition, the existence of APC free journals will have a restraining influence on the pricing of APCs.

PRECONDITIONS AND DRIVING FACTORS

For the transition to a stable OA scholarly journal system we think that the following preconditions and driving factors should be in place:

- **Collective action:** for offsetting deals to succeed in flipping the business model of hybrid journals, collective action is needed: the majority of the academic libraries in the higher income countries will have to negotiate offsetting deals with the (larger) publishers to reach the above-mentioned tipping point. Transparency of these offsetting deals appears to be crucial for such a collective action, which will be difficult but in our view not impossible.
- **Level playing field for existing APC-Gold OA journals and hybrid journals:** a potential downside of offsetting deals is that it will give hybrid journals a competitive edge over existing APC-Gold OA journals. This can be avoided by APC-funds managed by libraries that

compensate (partially) the APCs of all APC-Gold journals to authors on an equal basis. This approach is promoted by the Pay it forward study ^{ix}.

- **Monitoring OA essential:** the monitoring of Open Access at the institutional level (by CRIS systems) and accurate monitoring mechanisms at national and global level (e.g. transparent offsetting deals) are crucial for decision-making during the transition period in order to find out which stimuli work and which don't, what is the real price paid etc.
- **Driving factors for researchers:** OA requirements by research funding organisations (such as implemented by the Wellcome trust) and OA criteria in research evaluation (such as envisaged in the next Research Excellence Framework in the UK) will facilitate OA publication choices by researchers. Another desideratum - but probably more difficult to realise - would be a movement away from journal metrics towards article metrics in the assessment of academic prestige.

CONCLUSIONS

- **Synergy of Gold and Green:** This scenario analysis shows that an Open Access future will consist of a mixture of gold and green, as a significant percentage of the journals will remain subscription-based. Also, green Open Access will support reaching the above-mentioned tipping point for flipping the business model of hybrid journals. In other words, the Green approach supports the Gold approach in changing the scholarly journal system towards Open Access.
- **In a next step, two possible APC markets: an 'institutional market' or an 'author market':** as estimated above, the majority of the articles (70 to 80%) would be APC-based if the transition is successful. How can such a market develop further?
Existing APC-based journals are presently moving increasingly towards so-called membership deals, i.e. pre-financed agreements with the institutions. Together with the offsetting deals, an 'institutional market' is emerging, where academic institutions are the buyers of open access publishing. This type of market is interesting both for publishers, guaranteeing them upfront paid annual revenues, and for authors, who may select the best journal to publish in irrespective of the price. Would such an 'institutional market' be more cost-effective as the present subscription model? As long as offsetting deals appear to be price preserved continuations of the actual subscription deals and memberships come on top of this, the result will be more expensive. In addition, such a market is rather closed for new entrants and will favour the present oligopoly of the six large publishers. However, this model may give more purchasing power to academic institutions than they had in the subscription era, for instance by introducing price caps and demanding price transparency. Currently, the Freedom of Information Act is used in several countries to gain this transparency. In addition, up-to-date information about the production costs of APC-free journals also will form an important negotiating tool.
Alternatively, institutions could break down the offsetting deals by calculating the effective publication fee per article and pass it on to their authors. In combination with the existing APC-based journals this will create an 'author market', where the authors will make the purchasing decisions. Such a market will be more open to new entrants and more sensitive to market forces such as competition on prices. The payoff is that authors must become price-sensitive in their publication decisions, which will require a cultural change.
- **APC-free journals:** When, ultimately, a market approach fails to bring the publication fees down to a level that academia deems acceptable, substantial parts of scholarly publishing will move to the public academic domain. Today, some APC-free journals in the humanities form an interesting illustration of the possibilities of this route.

One of the most important features of an OA scholarly journals system will be that journals (and thus publishers) will primarily compete for authors' manuscripts instead of library budgets, which seems to us more in line with the nature of science. Overall, we hope that the above-sketches OA scholarly journal system will stimulate the discussion about the development of policies that will facilitate and accelerate the transition towards Open Access.

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ⁱ [Outcome](#) of proceeding of the Council of the European Union, 27 May 2016

ⁱⁱ [The STM Report](#). M. Ware, M. Mabe, March 2015

ⁱⁱⁱ [Open-Access Journals](#); Library Technology Reports, 2015; W. Crawford

^{iv} [Disrupting](#) the subscription journal business model for the necessary large-scale transformation to Open Access; Schimmer R.; Geschuhn K.K.; Vogler A.; Max Planck digital library

^v Open Access policy for [FWF-funded](#) projects

^{vi} Principles for offset agreements, [jisc](#)

^{vii} [A quick tour around the world of scholarly publishing](#) Crotty D.; The Scholarly Kitchen; August 18, 2016

^{viii} [Article processing charges \(APCs\) and subscriptions](#). May 2016; Katie Shamash; Jisc

^{ix} [Pay it Forward](#); investigating a sustainable model of Open Access article processing charges for large North American research institutions; university of California libraries; 6-30-2016