

Open Science: Too much talk, too little action



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Starting this year, I will stop traveling to any speaking engagements on open science (or, more generally, infrastructure reform), as long as these events do not entail a clear goal for action. I have several reasons for this decision, most of them boil down to a cost/benefit estimate. The time spent traveling does not seem worth the hardly noticeable benefits any more.

I got involved in Open Science more than 10 years ago. Trying to document the point when it all started for me, I found posts about funding all over my blog, but the first blog posts on publishing were from 2005/2006, the [announcement](#) of me joining the editorial board of newly founded PLoS ONE late 2006 and my [first post](#) on the impact factor in 2007. That year also saw my [first post](#) on how our funding and publishing system may contribute to scientific misconduct.

In an [interview](#) on the occasion of PLoS ONE's ten-year anniversary, PLoS mentioned that they thought the publishing landscape had changed a lot in these ten years. I replied that, looking back ten years, not a whole lot had actually changed:

- Publishing is still dominated by the main publishers which keep increasing their profit margins, sucking the public teat dry
- Most of our work is still behind paywalls
- You won't get a job unless you publish in high-ranking journals.
- Higher ranking journals still publish less reliable science, contributing to potential replication issues
- The increase in number of journals is still exponential
- Libraries are still told by their faculty that subscriptions are important
- The digital functionality of our literature is still laughable
- There are no institutional solutions to sustainably archive and make accessible our narratives other than text, or our code or our data

The only difference in the last few years really lies in the fraction of available articles, but that remains a small minority, [less than 30%](#) total.

So the work that still needs to be done is exactly the same as it was at the time Stevan Harnad published his "[Subversive Proposal](#)", 23 years ago: getting rid of paywalls. This goal won't be reached until all institutions have stopped renewing their subscriptions. As I don't know of a single institution without any subscriptions, that task remains just as big now as it was 23 years ago. Noticeable progress has only been on the margins and potentially in people's heads. Indeed, now only few scholars haven't heard of "Open Access", yet, but apparently without grasping the issues, as my librarian colleagues keep reminding me that their faculty believe open access has already been achieved because they can access everything from the computer in their institute.

What needs to be said about our infrastructure has been said, both in person, and online, and in print, and on audio, and on video. Those competent individuals at our institutions who make infrastructure decisions hence know enough to be able to make their rational choices. Obviously, if after 23 years of talking about infrastructure reform, this is the state we're in, our

approach wasn't very effective and my contribution is clearly completely negligible, if at all existent. There is absolutely no loss if I stop trying to tell people what they already should know. After all, the main content of my talks has barely changed in the last eight or so years. Only more recent evidence has been added and my conclusions have become more radical, i.e., trying to tackle the *radix* (Latin: root) of the problem, rather than palliatively care for some tangential symptoms.

Besides the apparent lack of efficacy, the futility of trying to convince scholars that something needs to change was perhaps most obviously demonstrated in the almost embarrassing “[Cost of Knowledge](#)” debacle of 2012. The name implies that Elsevier was supposed to be charging too much for their subscriptions and needed to be punished by the scholarly community. The common procedure for consumers to protest corporate behavior is to actually boycott the company, which in most cases entails withholding purchases from the company. However, the few (at the time of this writing 16541 of about 700,000 Elsevier authors/reviewers out of an estimated total of about 7 million researchers world-wide) scholars who signed up, never even attempted to get their libraries to drop subscription purchases. Instead, they merely pledged to stop authoring, reviewing or editing manuscripts for the publisher giant. In other words, the “boycott” resulted in exactly zero dollars/euros loss to the multi-million dollar corporation. Inasmuch as Elsevier was able to replace some remunerated editors with cheaper individuals, the “boycott” may even have been a small net positive for the company books. There really is no such thing as bad PR.

As ineffective as such approaches obviously have been over the last decade or two, there can be no dispute that now a lot more people are talking about these issues. Given perhaps another 23 years or 50, there may even be some tangible effects down the road – as long as one assumes some sort of exponential curve kicking in at some point fairly soon. It sure feels as if such an exponential curve may be about to bend upwards. With the number of Open Science events, the invitations to talk have multiplied recently, giving me the fuzzy warm feeling that people other than myself enjoy hearing me talk, too (at least as the one who accepted after the eight previous invitees have declined). Before I got tenure, it was also helpful to add each invited presentation as a line to my resume. Now I have tenure, so I neither need yet more ego-stroking nor more lines on my CV. I'll retire in pretty much 20 years, so any change that doesn't happen within the next 2 years or so is essentially too late to invest in.

In addition to writing online and speaking publicly, I have also authored a review article on the [unintended consequences of journal rank](#) and joined organizations and initiatives where I hoped they might be a potential way towards an actual boycott, namely to start dropping subscriptions on a massive scale. In terms of tangible effects, the outcome of all of these efforts over these last dozen years or so can be reliably quantified at exactly zero, no error bars, no decimals.

In the light of this anecdotal data, it is straightforward to now change strategy. As I would expect the number of events where specific courses of actions (*see update below*) will be planned continue to remain as scarce as they are now, declining future speaking invitations should free up some significant time that I can spend back here in my laboratory. My plan is to invest this

time not only into developing new experiments, but also to make sure our lab will be outfitted with some core elements of the kind of [infrastructure](#) I hoped we may one day all buy from all that money we wouldn't be wasting on subscriptions any more.

We've already started by making some of our experiments publish their raw data automatically by default. This will be expanded to cover as many of our experiments as technically feasible. To this end, we have started to work with our library to mirror the scientific data folders of our harddrives onto the library and to provide each project with a persistent identifier whenever we evaluate and visualize the data. We will also implement a copy of our [GitHub repository](#) as well as our [Sourceforge code](#) in our library, such that all of our code will be archived and accessible right here, but can be pushed to whatever new technology arises for code-sharing and development. Ideally, we'll find a way to automatically upload all our manuscripts to our publication server with whatever authoring system we are going to choose (we are testing several of them right now). Once all three projects are concluded, all our text, data and code will not only be open by default, it will also be archived, backed up and citable at the point of origin with a public institution that I hope should be likely to survive any corporation.

This infrastructure, since we will be the only ones using it, won't contain any of the technology that would make for a significant scientific benefit, but at least there will be some personal benefit: the infrastructure will sustainably archive and make accessible all of our text, data and code without any additional workload for us. That way at least I get to enjoy a small fraction of the benefits I was hoping for when I started a little over a decade ago. Apparently, I'm one of only very few who even feel the need for such services, so why should I keep trying to convince anybody else of it?

If all goes as planned, another benefit of this change may hopefully be that I'll be able to spend more evenings with my family.

UPDATE (3/3/2017): In the light of recent exchanges, I'll attempt to clarify further:

Essentially, all I have been saying at such events can be summarized in three simple steps:

1. Journals are detrimental to scholarship in many ways, here's the evidence
2. Subscriptions to these detrimental journals are so outrageously expensive, the costs prevent us from fixing our infrastructure so we can modernize, protect and keep improving scholarship
3. Logical consequence from 1+2: cancel subscriptions to free up the funds to buy/ implement the components of our infrastructure that will help us modernize, protect and keep improving scholarship

Both 1 and 2 have been discussed and debated in many fora now so many times, by many more and much more able, knowledgeable and gifted people than me that it's hard to believe anybody beyond newcomers or the willfully ignorant could not have arrived at these insights by now.

Hence, I am still teaching 1+2 to the students here locally.

I will still try and attend any event that aims to **directly** tackle the problems towards achieving

3. Such events may define goals such as:

1. Strategies to convince libraries that it is in everybody's (especially their own) interest to cancel subscriptions now
2. Strategies to enable libraries to spend the saved subscription funds on infrastructure investments
3. Developing standards and defining necessary and desired functionalities for a modern scholarly infrastructure
4. Strategies to deploy a minimal core set of functionalities to cooperating institutions

or anything in this direction.