[Also publicly cross-posted at:
https://www.protocols.io/groups/protocolsio/news/funder-mandates-for-open-access-are-imperfect-but-necessary]

As a disclaimer, I am a longtime advocate for full open access. I joined Michael Eisen's lab in 2003, in part because of his passion for open access (Eisen is the co-founder of the Public Library of Science). As a condition of joining his lab, I promised to publish exclusively open access. My belief in the importance of open access has only strengthened over the past fifteen years.

At the same time, I am not one of the people who think that publishing is a scam or that journals bring no value to research communication. I have written before about the many important functions of good journals. However, I do feel very strongly that if we are spending $7b-$10b on biomedical publishing each year, we must find a way to pay it for a system that results in open access papers.

Below are my thoughts on why funder mandates requiring grantees to publish immediate open access are essential and worthy of support. Specifically, my thoughts on why the new initiative (Plan S) from the European Commission to accelerate the transition to full open access is good for science and society. This plan was announced in September 2018 and is going into effect in January of 2020; it requires grantees of the funders participating in the plan to publish their research in fully open access journals only. This initiative is the result of a struggle from the late 1990s to get publishing to change. Plan S started with 11 national funding agencies in Europe, but has since been quickly expanding with Wellcome Trust, The Bill and Melinda Gates Foundation, and other funders joining it recently.
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I acknowledge that funder mandates are not ideal. They are a top-down approach and in a perfect world, this revolution would come from scientists themselves demanding open access (OA). In reality, this is unlikely to happen because of the quirks of the subscription publishing system that has been established over the last 350 years. There will also be impact on academic societies which often use publishing margins to subsidize their advocacy, conferences, and educational work. In an open access world, the margins from publishing will be lower and societies will have to find new business models and revenue sources.  Moreover, the pay-to-publish model is a burden on labs around the world that do not have sufficient funding to cover the fees. These are real drawbacks of Plan S and a transition to author-pays publishing.

Given the negatives above, why do I support Plan S so strongly? Well, of course, there is a huge moral dimension to it. Most of the published research is funded by taxpayers who then cannot access the papers describing the research results. (If you are thinking, 'Does the public really read papers?' or 'Don't people who need access already have it?' please see this powerful video from PHD Comics.) The moral argument is an important one, but it's hard to balance it against the concerns above. So, let's set it aside and focus on the concrete benefits of open access to society and the progress of science. I started the social media hashtag #OpenIsBetter to crowdsource some of these and will summarize many of the answers below.

- Open Access gives policy makers access to research. That's right: politicians, NGOs, government employees do not typically have subscriptions and have trouble getting papers that they need.
- OA helps biotechs, startups, all companies without access because they're outside of university campuses.
- Pay-to-publish may be hard for authors in less wealthy institutions, but any single student or postdoc only publishes once every few years; reading papers and access are a daily activity for scientists. It's a particularly acute problem in the Global South. So barriers to reading hurt orders of magnitude more than barriers to publishing.
- Teachers often need access but do not have it.
- Even scientists at wealthy universities struggle with access to papers, particularly if off campus and trying to get a paper when at a conference or at home.
- '#OpenIsBetter because as a librarian I can focus more on facilitating understanding of knowledge & not access - I didn't become a librarian to act as a gatekeeper to information, nor to manage IP addresses, nor negotiate contracts.'
- OA allows medical providers to read the results of the latest studies, helping them to better diagnose & treat their patients. Most doctors cannot see most of the papers that they typically need.
- Journalists, just like doctors, often cannot access the papers they are reporting on.
- Program officers at countless philanthropic foundations spend billions on funding decisions annually, yet they don't have access to most research articles. Their job is to know where the field is and where it's going, but paywalls block even them (more discussion here).
- OA helps tools which speed up science.'Only a huge company can get access to full content in the closed system and build a search tool (google scholar).' For example, CiteAb, Bioz, BenchSci are great platforms that rely on open access to tell us which reagents to trust. They help more than a hundred thousands scientists each month to figure our which reagents are likely to work, based on how many times they are cited in a published paper. Unfortunately, these tools can only access a fraction of the literature which is OA. How much more powerful would they be if they had access to the entire cannon? How much time would it save scientists?
- The above tools are just examples. Similarly, our protocols.io service is handicapped by subscription publishing. Scientists are often asking us if we show papers that cite a given protocol as that is an important signal. Alas, we don't know when something from protocols.io is cited, unless it is in an open access article. In addition, without OA, we cannot experiment with automatically analyzing method sections to pre-populate protocols.io and let the papers' authors then turn these easily into formal protocols.

I am always wondering: which tools and services do not exist today because we are mostly publishing in paywalled journals? How many tools are weaker due to this? How much more efficient would our medicine, research, policy-making, and grant-funding be if the people who needed access had it? Aside from the billions of dollars that we pay to publish, only to have the papers locked up behind paywalls, what is the full cost of subscriptions to science and society?

Given the many benefits of transitioning to all-OA publishing, it becomes very difficult to justify the subscription status quo that we have today. Of course, subscription publishers will claim that they are in favor of open access, but not Plan S because it's a funder mandate. They advocate for more brainstorming to find a way to open up literature so that everyone, including them, is happy.This is not how change happens. The publishers have been arguing that for fifteen years, successfully stalling progress on open access. There is no solution that makes everyone happy.

I have been waiting for something like Plan S for a long time and I do not see any other initiative or plan that can get us away from subscriptions in 5-10 years. This is why I helped Michael Eisen launch a petition in support of funder mandates and I hope you will consider the many benefits and add your signature to it. http://michaeleisen.org/petition/