



ELEPHANT

IN THE LAB

OPINION

Do we need an Open Science coalition?

Short title	Do we need an Open Science coalition?
Long title	Do we need an Open Science coalition?
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Open Science is a strange concept. Depending on who you speak to, it can be a set of scientific practices, a social justice issue, a complete fad, part of a political capitalist regime, or just a different but undefinable form of traditional science.

This variety in thought is at once both a strength of Open Science, and its greatest weakness. Clearly a diversity of views on whatever Open Science is helps us to create a vision of what it is in reality as a [boundary object](#)– something that is universally understood and immutable only in part, so as to be taken up by diverse communities in a range of ways; something befitting from the great diversity of the scientific enterprise while retaining its integrity.

However, a lack of appropriate and common definition and understanding also opens Open Science up to exploitation. For example, if Open Science is just defined as a set of research practices, then providing services to support them can be deemed as Open Science. Indeed, the fact that many commercial entities consider Open Science to be a business model is quite divergent from the original purposes and intents, for example outlined in the Budapest Open Access Initiative (Richard Poynder, [2012](#)). Similarly, much of the political motivation for Open Science in Europe sees it as a mechanism for innovation and economic growth (European Commission, [2017](#)). However, if one deems Open Science to include value-based dimensions such as equity, justice, as well as technical factors like open source, then many services that superficially appear to support open scientific practices are divergent from it in other ways. In fact, the Open Science community has yet to appropriately decide on what these core values behind (open) research are, and how this translates from good scientific practices and norms established in a non-digital age.

One example of this is the transition from subscription-based models to an author-pays model, which essentially just flips around the financial discrimination from readers to authors. Open Access has therefore not achieved much disruption of the present journal system, as the ‘marketplace’ around academic value creation is still largely dependent on the same main players and their services. When definitions or understanding of terms about Open Science differ, this can create conflicts between different stakeholder groups. One consequence of this is that different groups often end up talking past or against each other, rather than finding common ground to work from. Therefore, we have to be mindful of our current actions and consider the implications that they might have on the whole global research ecosystem.

This lack of consensus leaves room for Open Science to become co-opted, as the ideology behind it can become diluted by political and/or economic influences. Open Access, a key part of Open Science, demonstrates this nicely in many respects, being based originally on foundations of knowledge freedom and equity, but now has become something academics are largely forced into with it becoming a complex maze to navigate, and which many publishers exploit for additional revenue streams. In Germany and Sweden, this lack of reconciliation between researchers/institutes and some publishers has now led to national-level cancellations of journal subscriptions due to a failure to agree on the appropriate costs and services (Else, [2018](#)).

This divergence is something that is currently happening more broadly too. Open Science is not something under control of either the public (who largely indirectly funds research), as part of a

democratic operation, it is not under the control of academic institutes, and it is not under the control of academics themselves.

A perfect example of this problem can be found with the largest scholarly publisher, Elsevier. Much of the motivation behind Open Science came from years of frustration aimed at the practices of Elsevier and its kin; yet now, they confusingly label themselves as promoting Open Science (Tennant, [2018a](#)) to academics (Fowler, [2018](#)) and [policymakers](#), when the reality is that they are a corporate entity whose job it is to make as much money out of science as possible to increase shareholder value – a simple product of having commercial intentions manifest throughout the scientific endeavour.

There is little point beating around the bush here, and researchers must be absolutely aware that Elsevier are trying to dominate the total scientific landscape, to the detriment of virtually everyone else on this planet besides their shareholders. They do this through a clever strategy combining several key things:

1. [PR campaigns](#) illustrating how supportive of Open Science they are, while in reality only ever making tiny steps
2. Twisting and cherry-picking published statistics to fit this superficial narrative (Tennant, [2018a](#))
3. Simultaneously fighting against Open Science in the public and political arenas, through active lobbying (Center for Responsible Politics, [2018](#))
4. Making sure that they are involved in virtually every progressive initiative in Open Science, in order to make sure they can control the flow of ideas and practices, while at the same time saying that they serve the needs of the same research community which they are controlling (Tennant, [2018b](#))
5. Investing in all key parts of the scientific enterprise/infrastructure to gain ultimate control over research and their potential competitors (Posada & Chen, [2017](#))

Now, there are probably more things to add to this list. Elsevier will also vehemently deny these things, and upon reading this, if they should, I predict in advance that they use terms like ‘misleading’ or ‘malicious’ to describe these statements as they have done before, while they remain objectively true. No one is blaming the people who work or volunteer for Elsevier, they are simply greasing the capitalist machine.

So, what is the solution here? Who is going to direct the future of Open Science? Who is doing the educational, political, and practical work to support sustainable Open Science across all nations, disciplines, and demographics? It is not Elsevier, or any other publisher. They tend to do the opposite, or at least their own version of it, which is ultimately a corrupt form of the intentions or values of Open Science.

We have to acknowledge that this is a problem. If the challenges and issues of Open Science, or scholarly communication and collaboration more broadly, are not addressed, then this leaves them open to being co-opted. The inherent goals of Open Science also remain unclear, and what the roles of the different actors are. Many of the actors use the identity of ‘stakeholders’, a term

corrupted by the fact the stake for some is financial, and for others it is not. Is Open Science a community, a set of values, or a movement? Or all of these things?

Many of these questions arise due to the simple fact that whatever Open Science is, it is not organised. It is not strategic, and it is not holistic. Even at a technical level, the fact that Open Science is what the Web was developed for almost 3 decades ago now, yet has failed to attain, should be ringing alarm bells everywhere. We live in a networked world where information dissemination is virtually cost-free, where social tools and services provide researchers with untold power in knowledge generation and communication. Yet we, as a collective, are not using this, and have not yet even agreed on a set of appropriate values and new technical norms. And we are letting humanity down in doing so. Many people reading this might not want to hear this, but this does not mean that you do not need to. A general attitude of apathy, rather than introspection, does little to push scientific progress forward.

Inarguably, things have changed in the last 30 years. But the questions of who is controlling the flow of change, what the implications of these changes are, and what the fundamental roles of science in our modern society are, remain poorly understood. Academies and publishers as core economic organisations have not been disrupted beyond slow, incremental, and poorly-managed changes; copyright law remains focused on a print-based world; research is still governed by academic hiring practices and the ideology that international economic competition and growth is the ultimate goal for much of research. The rich are certainly still getting richer, and the consumption and communication of research knowledge still remains focused on ideas developed more than 2 centuries ago.

Often this phenomenon is termed the 'hegemony' of scholarly communication, meaning that despite the innovation of the Web, and the social motivations behind open science, much of the control remains enclosed by an increasingly concentrated number of powerful key players, such as Elsevier, Clarivate Analytics, and Springer Nature (Larivière et al. [2015](#)). There are several commonalities among these key players which demonstrate that they have little truthful relationship to Open Science:

- They are demographically and geographically homogeneous, being based almost exclusively in 'western' nations
- Their primary motivation is profit and growth by default
- Their business models are based on discrimination against the least privileged (status, financially, geographically) (Mak [2018](#))
- They are in control of virtually all aspects of the modern research environment
- They operate based on a branding system that perverts the research process (Brembs [2013](#))

So, how does one truly disrupt this? It is difficult not to be overwhelmed when looking at the scale and scope of scholarly communication players, processes, and power dynamics. It is a complex world out there, and we do not yet fully understand how Open Science can, and will, impact upon our wider world.

That being said, there are several things that could be done here based on collective action, once the global community has established a common set of values and understanding of Open Science.

1. Weakening of the position and power of present negative actors
2. Strengthening the position and power of those who call for reform
3. Inclusion of the socio-political, economical, and legal issues within Open Science
4. Cross-pollination by the global research community across present silos
5. Development of a true movement or community surrounding Open Science

All of these have one ultimate goal, irrespective of how we define Open Science, and that is to build the environment where scholarship becomes a sustainable public and societal good, and not a private commodity.

Additional dimensions of this could include the simple act of communal learning and transparent sharing and accessibility of our collective knowledge; being broadly inclusive of a broad set of regions and traditions; being deeply self-critical and introspective; and providing an incubator to help foster and scale-up ideas and services. These core functions can all be decided on based on as broad community engagement as possible.

Given the enormous implications of this transformation towards ‘science for society’, the solutions need to be fairly ambitious. What I believe is needed is a body that is at the same time politically and publicly active, educational, and reaches across all nations, to provide the framework for the development of sustained global Open Science. So, something like a federated international (i.e., all nations) Open Science coalition, which is actively progressive in its system-wide implementation of Open Science as a public good. Such a coalition could be based in part on existing international organisations, such as the EU-focussed [OpenAIRE](#). This could really help to establish a stable and global Open Science community, while simultaneously pushing forward on all fronts needed (including funding).

Several nations have already identified themselves as key members of this vision by establishing early Open Science policies (e.g., [Serbia](#), [Mexico](#)). However, what is missing is a centralised body that unifies and connects these ‘silos’, yet remains fully accountable to them. Think of something, for example, like the [Electronic Frontier Foundation](#) or [Open Source Initiative](#).

The UN seems like a likely candidate place for such a body to form and coalesce existing supranational initiatives, with the added bonus that it can then be internationally consultative. Elements of this are already beginning to fall into place, such as with the development of the [Open Scholarship Initiative](#), the [Foundations for Open Scholarship Strategy Development](#), the [Joint Roadmap for Open Science Tools](#), [OCSDNet](#), and the [Open Science MOOC](#). These are all just pieces of a larger puzzle, but the unification of them all together under the banner of Open Science as a human good is the ultimate picture.

The ultimate challenge is synergising education, political activism, and policy development in a sustained international way, that is also accepted or supported by the global research community. Open science at its core is about connectivity, and I feel the time has come to embrace this at a new level.

The real question is, who is going to start this?

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