



## OSI Policy Brief 2

# Common Ground

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# OSI Policy Brief 2: Common Ground

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# OSI POLICY BRIEF 2: COMMON GROUND

## INTRODUCTION

Scholarly communication is a broad field. Many different organizations operate in this space, tackling a dizzying array of connected issues from open access<sup>1</sup> to peer review to impact factors, institutional repositories, capacity building in the global south, and research replicability.

Some of this work is coordinated, much is not. As a result, a wide variety of agendas and definitions have emerged which are sometimes incompatible, even conflicting, meaning a community that could be working in common cause to improve the future of research is instead often at odds, debating whose definitions are the most legitimate, which groups are welcome (or not), and whose vision should rule.

In OSI, we have been observing and debating this diversity since late 2014. Over this time, most of the participants in this group have concluded that four main beliefs define the common ground in this space:

1. Research and society will benefit from open done right
2. Successful solutions will require broad collaboration
3. Connected issues need to be addressed, and
4. Open isn't a single outcome, but a spectrum.

This paper will focus on why there is common ground in the first place—why the themes identified by OSI are part of something larger and more than the sum of their parts. Rather than drive readers toward OSI's conclusions, this paper will attempt to illustrate that common ground exists and is important to build upon, rather than spell out exactly what common ground looks like and which solutions are the best way to solve our problems.

This exploration is a delicate task, first reviewing why common ground matters in this debate, and then examining the history of scholarly communication debate; the dynamics of our community's current relationship; what "common ground" even means from a policy

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<sup>1</sup> The terms "open" and "open access" are often used interchangeably. There is no universal agreement on what either of these terms mean, as is discussed in this paper. Also, you will note that the word "open" is used in this paper as an adjective, a verb and a noun—in the immortal words of Dan Aykroyd from Saturday Night Live (the early years), it's a dessert topping and a floor wax. When we use this word we can be speaking of a condition of information (an adjective), the act of freeing information (a verb), and/or the name of the movement that embraces both (a noun).

approach; possible areas of common ground; policy approaches that might help get us where we want to be; and what our common end goal might be.

There's a lot in this paper that scholarly communication experts already know, a lot that may be omitted, and a lot that may be stated in a way that doesn't do justice to one perspective or another. The goal here isn't to completely and perfectly balance all sides of the various arguments and issues that exist in this space—any omissions and imperfections are solely the responsibility of the author and not OSI.

Rather, the goal of this paper is to try to portray the scholarly communication landscape in broad brushstrokes and in doing so make the case that common ground exists, and that the scholarly communication community can and should begin the conversation of what to do next, together.

## **EXECUTIVE SUMMARY: WHY FINDING COMMON GROUND MATTERS**

Finding common ground in our collective effort to bring about the future of open research matters for three main reasons: understanding the full scope of the challenges in this space, finding the right solutions, and avoiding unintended consequences. Do we know enough about the challenges of open research, are we confident the solutions we're pursuing are the right ones, and are we accurately gauging the potential risks and benefits of our action and inaction?

These are very basic policy questions that any basic policy process tries to unearth. They are also, however, questions that have never been asked by the scholarly communication community in any broad, high-level, large-scale sense. Instead of working together to change the global future of open in a way that benefits everyone equally, we have been working for years—for the most part—as factions, with each faction pursuing its own separate goals based on its own separate sense of reality.

Certainly the potential exists to create a world with vast troves of open data so we can accelerate discovery, improve education and public policy, and help the world a better place. This is the goal of all research, and it's the goal of the open movement to help research succeed. But figuring out the right way to do this is key. Many challenges are involved, and the consequences of our inaction or of taking the wrong actions are real.

Consider fake research publishing, for instance—most often known in the industry as “predatory” publishing because these publishers use trickery to get submissions (like spoofing the name of a well-known journal). This kind of publishing is a direct outgrowth of the search for lower cost publishing alternatives, and a lot of it—no one is sure exactly how much—is just bad. Everything gets published for a price, regardless of merit. The result is a growing pile of research articles that may threaten the integrity of modern research and potentially squander billions of dollars annually as our scarce research dollars are spent chasing the wrong goals.

Or consider that there are currently several competing plans to quickly transform research communication in one direction or another (the EU launched such a plan in early 2019; the US is currently considering whether to require major changes starting around next year). These plans are resulting in massive financial tensions in the global research publishing industry, and also in the global research community since so much is tied to our current processes—from gatekeeping work like peer review, to impact evaluation measures, to promotion and tenure processes.

What happens if commercial and/or scholarly society publishers collapse as a result of these pending transformations? Or if these publishers are simply replaced by new funder-based publishers (like the National Institutes of Health) who think they can do publishing more cheaply and efficiently than the private sector?

What happens if libraries collapse?—if researchers ally themselves with scholarly societies instead of libraries and simply ask these entities to manage their information needs instead of libraries? Or if the whole communication system transforms in such a way that we can no longer tell the difference between good and bad research?

What happens if we end up with a world where Europe does research one way, China does it another, the US does what works for the US, and every part of the world similarly adopts solutions that meet their own needs, with their own solutions for publishing, repositories, openness, and more?

We can be oblivious to concerns like these and just keep pushing for solutions we find ideologically attractive, but these outcomes are not abstractions. They are real, and have real potential consequences for researchers, research communication systems, the integrity of information, our research evaluation and funding processes, and more.

So, it matters for all of society that we do this right—that we thoroughly understand the pros and cons of our scholarly communication reform proposals. The most obvious way to do this is to work on these reforms together as a community since there are so many different and equally valid interests and stake, and so many facts that no one stakeholder alone can understand.

Is this just a fancy way of saying that nothing should ever change? Not at all. In fact, scholarly communication tools and practices have been evolving for decades now, and there are a large number of organizations in the scholarly communication space who are working on reforms. Some of these groups are working together, most are not. Overall, our progress toward a more open research world has been growing steadily, although much progress remains to be made.

Or at least some people see it this way. Some groups are convinced that not nearly enough progress has been made to-date (which isn't wrong—they're just measuring progress differently). They may also feel quite strongly that commercial publishers have no place in

the future of research and that no reforms are complete unless publishers are excised from the picture.

Others feel quite strongly that publishers have a centuries-long track record of serving the research community and that the tools and processes put in place by publishers are essential to retain because they facilitate good research and are valued by the research community. Still others are caught somewhere in between—yes, publishing is valuable, but exactly what is “publishing” in the digital age, and can’t we do things more efficiently today than in years past?

There is also a wide range of disagreement over how fast needed reforms can and should happen. “Right now” is too slow for some, and “ten years from now” is too fast for others. On the fast side, advocates see the need for the immediate daylighting of research information that could cure cancer and reverse climate change. On the slow side, advocates see the need to move with caution lest we damage research with rash and ill-considered changes.

Aside from issues directly related to open access reform—what kind of open and how fast—there are also many persistent issues in this space that will require global cooperation to solve. The misuse of impact factors is one such issue, for instance. Impact factors at their most innocent simply tell researchers which journals are more important than others. At their most sinister they are used as a proxy for quality and drive publishing behavior that works at cross purposes to a more open world (what researcher, after all, wants to publish in a small start-up journal that is free to read if the real credit and glamor comes from publishing in the *New England Journal of Medicine*).

So what do we do? What can we do? Do we support the world’s scholarly societies (think the American Association for the Advancement of Science—AAAS) or let them fail because the solutions we choose will drive them out of business? Do we help the multi-billion dollar scholarly publishing industry transform into the digital age—an industry whose products and procedures are deeply interwoven into the fabric of research—or do we put this industry out of business as well (believing that the potential benefits of this move will outweigh the risks) and come up with something better?

Do we create interoperable repositories for the world’s research data, or do we create thousands of different walled off repositories? Do we work together to protect the integrity of the published research record or do we leave it up to the free market to provide this protection? Do we work to ensure that researchers from all parts of the world have equal ability to participate in research and to access research information, or do we let the divide between the haves and have-nots grow larger? Do we work with researchers everywhere to reform the culture of communication in academia so more information can be shared more easily, or do we create blanket solutions for academia and try to control the outcomes and the unintended consequences?

Finding solutions to these questions is not an esoteric exercise. Rather, these issues and solutions are critically important to the future of research and society. And that's why all this matters.

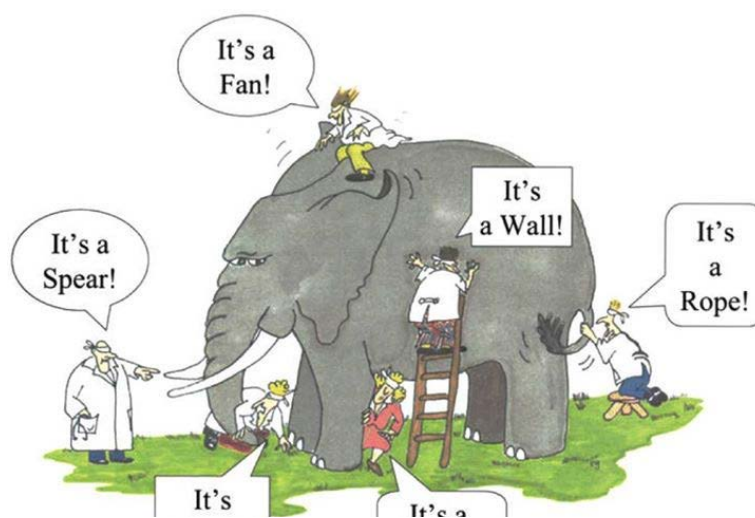
## BACKGROUND

To most people, scholarly journals (also known as academic journals and research journals) are really boring—dry, dense publications that try to explain complicated subjects in a short amount of space using big words and convoluted prose. The best of these publications—think the *Journal of the American Medical Association* or the *Lancet* (the ones you most often see quoted in news articles) are expensive to subscribe to, and appeal to very few readers. These publications are also, however, must reading for researchers in the field (generally not across fields, with a few exceptions like the journals *Science* and *Nature*), and they form the bedrock currency for registering credit for discovery, sharing knowledge with colleagues, and establishing qualifications for promotion and tenure. They've been around for over 350 years now, and their imminent demise has been predicted for years, but they're still around and still as important as ever in research—the single most important communication tool in research alongside academic conferences.

### The journal ecosystem

There are currently tens of thousands of journals currently in existence, inhabiting a large, complex, and poorly integrated and understood scholarly communication ecosystem. This ecosystem—which consists of study design, writing, editing, peer review, marketing, press, tech transfer, data sharing, information repositories, informatics, policy consultation, conferences, and a dozen other tendrils—is evolving through a variety of disconnected influences, efforts and initiatives.

How journals will continue to evolve depends on how the scholarly communication ecosystem evolves and vice versa—it's impossible to affect one without affecting the other. And how you evaluate the evolution of scholarly communication really depends on what you



Source: Image from patheos.com but copyright is variously attributed.

do for a living. If you're a journalist, scholarly communication means writing and reporting about research (which means not just science, but HSS as well—humanities and social sciences). If you're the Alan Alda Center for Communicating Science, it means trying to improve the way scientists talk to the public. If you're a scholarly communications specialist at a university, it means improving

access to research materials produced at your institution and ensuring these can be widely shared and disseminated. If you're a special interest advocate—maybe your concern is climate change or medical research—it means working to ensure critical information is shared quickly and effectively in science and with policymakers and the public.

It's the proverbial case of the blindfolded trying to describe an elephant: Scholarly communication means many things to many people. There is no single all-encompassing description, no one course of study that prepares someone for a career in scholarly communication, and no right answer for how to improve this "field" that isn't (yet).

Fortunately, all these endeavors are connected. They all have a common goal of improving communication so research can improve, become more effective and efficient, and make a larger contribution to society. As you will see in this paper, there are also many points of connection between the people and institutions working in these related fields, and many areas of common interest.

### A rapidly changing environment

While scholarly communication itself is growing and transforming, it is also struggling to adjust and respond to a society that is creating massively more information than ever before in its history; to adjust to a loss of faith that research is always reliable and above reproach (and therefore needs to be more transparent and replicable); and adjust to pressure to become more free and open.

This pressure for more openness is something that's been happening everywhere, not just in research but in government, data, source code, protocols, educational resources, and so on. However, in at least in one of these areas—the open publishing of research—the scholarly communication world has been wrestling for 20 years now with a tension between a push to see more open content in the world, and the reality of how this is going to happen on a large scale when so many different stakeholders with different perspectives need to agree before large scale progress can happen.

Underlying this tension is a fundamental difference in philosophy: whether the scholarly communication marketplace—driven by the needs and desires of researchers—should determine what kind of open it wants and at what levels; or whether this marketplace should be forced to adopt a specific roadmap to open on a specific timetable. There is no real difference of opinion in the scholarly communication community as to whether open is a good thing that should be pursued. The debate is mostly about how we should go about pursuing it.

The evolution of this philosophical gap is complex and fascinating, but unfortunately beyond the scope of this paper to explain in too much detail (however, Richard Poynder's recent essay on this topic does a very thorough job of this—see Poynder 2019). The quick version of this story is that the open movement itself started gradually in the early 1990s. The year 2002 marked the start of the organized idealism of this movement, when a small group of visionaries assembled to sign the Budapest Open Access Initiative (BOAI). BOAI



recommended that “open” resources should be free to access also free to reuse— licensed such that information can be remixed and repurposed without restriction or permission (the specific license type is known as CC-BY, one of the least restrictive forms of copyright licensing).<sup>2</sup>

This BOAI ideal has been evolving since 2002. Today, a number of influential groups now posit that in addition to CC-BY licensing, “true” open should also be embargo-free (i.e., available without delay; some amount of delay is a normal part of the subscription journal process—otherwise people wouldn’t subscribe to something they can get immediately for free); deposited in an information repository that meets specific conditions; follow certain standards to ensure that research is findable, accessible, interoperable and transparent (FAIR); and include a dataset. Other “conditions” may also apply (see the cOAlition S websites for examples).

The American Library Association, Scholarly Publishing and Academic Resource Coalition (SPARC), and other leaders in the open space have vigorously promoted the BOAI version of open access for many years, but it has proven to be a hard sell. Even today, less than 20% of the world’s research material is being produced in a BOAI-compliant format.<sup>3</sup>

What is happening, though, is that an additional 30% of the world’s research materials (i.e., for a total of approximately 50%) are being produced in some other kind of open format which is not compliant with BOAI—maybe copyrighted and embargoed for 12 months, for instance, but free to read after the embargo expires (Archambault 2018). The world has been listening to appeals for more open, but regions, governments, institutions have been adapting open solutions to suit their needs as the reality of the information market has evolved over time.

Whether this evolution is right or wrong, good or bad, has become a matter of intense, ideological debate. On one side, proponents of what they consider to be an ideal form of open contend that open won’t convey its maximum benefits to the world unless it’s

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<sup>2</sup> In author surveys, CC-BY licensing has been persistently unpopular, more so in some fields than others (especially the humanities, where books are the norm instead of articles). It’s also important to note that “fair use” provisions of copyright law allow work and data to be cited and findings to be quoted, without permission, so long as these references are cited, which is standard practice in research.

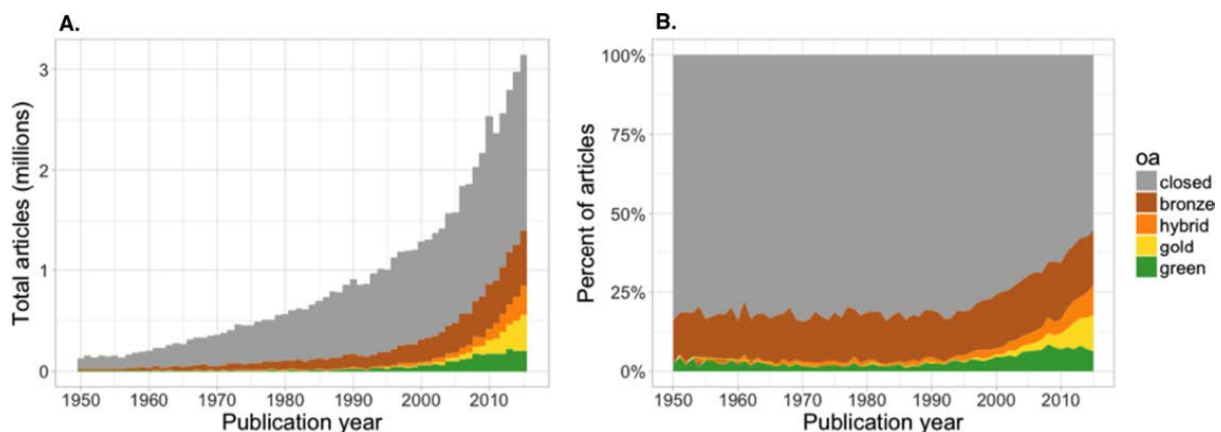
<sup>3</sup> Over the years, the scholarly communication community has used colors to represent different kinds of open. “Green” open mostly refers to preprints—the pre-published version of articles—but it can also refer to collections of articles that are free to read but otherwise not compliant with BOAI (e.g., copyrighted or formerly embargoed). “Gold” open refers to articles that are published in a free, CC-BY format (usually but not always supported by a publishing fee paid by the author). BOAI compliant material can be green or gold. It’s unsure how much green is compliant, but it’s a minority share. Estimates of the amount of gold open in existence generally varies between 5 and 23 percent (Science-Metrix 2018), depending on the sample and time period; 20% is a reasonable rough estimate. This number hasn’t grown substantially over time. This said, the aggregate figure isn’t exactly helpful because gold open works better in some fields than others—biomedical fields, for instance, which account for the largest number of journal articles overall. In such fields, gold open might account for around a third of all the open, whereas in other fields gold accounts for just a sliver of the total open output (Piwowar 2019).

“maximally” open—CC-BY licensing and so on. On the other side of this debate, other open advocates note that 2002 was basically the Stone Age in Internet years. Clinging to a 2002 definition of open in 2020 doesn’t seem reasonable.

In the meantime, the growth of BOAI-compliant open has been mostly stagnant, but other kinds of open have gained traction. Preprint servers have been gaining in popularity—publishing solutions that basically bypass the traditional publishing route and allow researchers to simply post their papers online and worry about the other stuff later (like peer review; most such papers don’t carry a CC-BY license—the author simply retains copyright). Physics pioneered this approach long before the Budapest meeting—its arXiv preprint server is still the model for how science can be more open.

Other kinds of open are also growing fast. The most popular kind is so-called “bronze” open wherein the publisher hosts the open content on its own website (this content may or may not be behind some kind of registration wall, but it is still free and CC-BY licensed for minimal encumbrance with reuse).

So-called “green” open is the Wild West of publishing, including preprints, institutional repository content, arXiv—pretty much everything. The category-killer for green is the US government’s PubMedCentral, which hosts so-called “public access” content—a mishmash of green, gold, subscription, and other kinds of content which is all free to read after a 6-12 month embargo (where applicable). Most of this material carries traditional copyright. Since 2013, all research funded in whole or part by the US government (including from federal agencies) is required to be deposited in PubMedCentral after its embargo period has expired (a concession to publishers to allow their subscription products to still have value).



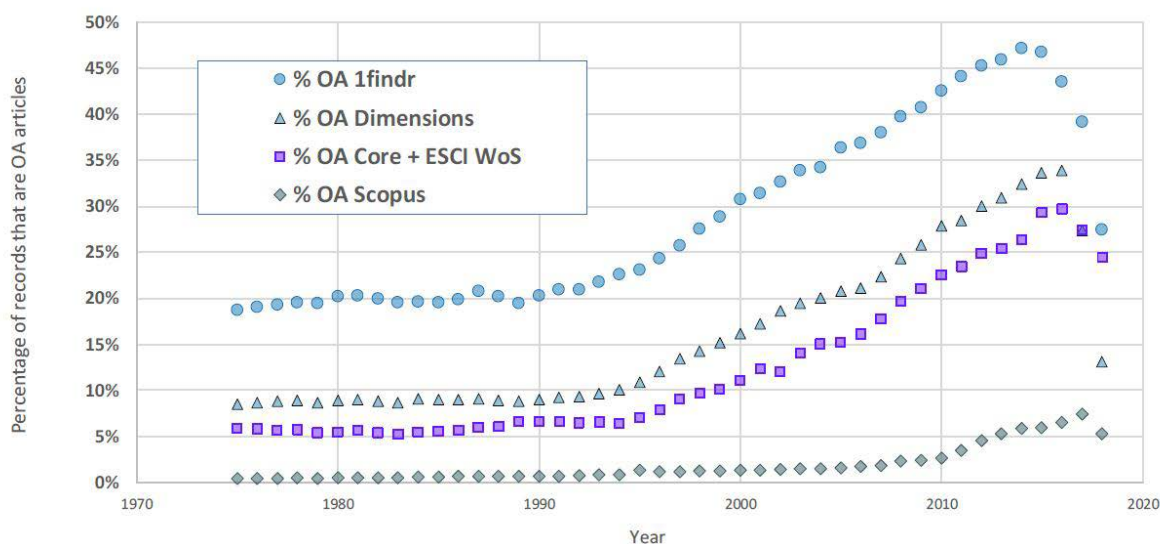
Source: Piwowar et al. 2018

Fast-forwarding to today and summarizing the history of the open movement over the last 20 years, these are the most salient points for our discussion here:

1. Open is growing strongly (see Archambault 2018 and below graph). How strongly depends on which indexes we’re measuring, which time periods, which disciplines, and what we mean by “open.” As you can see from the above graphs (from Piwowar

2019), however, not all open is doing well—especially not the kind of open we may be rooting for—and lots of information is still closed. But in aggregate, the growth of open is starting to pick up steam.

2. Open has evolved considerably since its earliest years, as has the Internet and the information environment, and the truths about information we once thought immutable are no more. We can still be passionate, for instance, about our belief that information should be free, but we have a better understanding today of how this dynamic can create (and has created) unanticipated side-effects, like the rise of disinformation and fraud, and putting subscription content providers (like newspapers) out of business.
3. We haven't controlled the evolution of open. Different stakeholders and institutions in the scholarly communication community have appropriated this concept— from education to software to scholarly publishing —meaning that over time the evolutionary tree of open terms and practices has branched outward instead of maintaining a unified set of meanings and practices. And finally,
4. The open movement has fractured. Different groups are now advocating different unilateral solutions and policies, valuing different outcomes, and even disparaging each other's right to be part of the open community. The most visible fault lines separate the producers of information (publishers and researchers) from the financiers and consumers of this information (government funders and university libraries), but the actual fault lines are much more nuanced, with many groups on the outside looking in (including much of the global south), unable to influence the trajectory of this debate. While this is a sad state of affairs for some, not all agree and seemingly look forward to the day when the system collapses and gets rebuilt from scratch.



Source: Archambault 2018

So what now? How do we reconcile all these competing perceptions? There is anxiety, acrimony, and concern on all sides.

One way is to look more closely at the motives that seem to be driving this debate. The top three seem to be concerns about costs, impacts, and access:<sup>4</sup>

1. **Costs:** This is the motive that seems to come up most often. Quite frequently, it takes the form of accusing the major commercial publishers of profiteering, but underlying this accusation (or accompanying it) is an expression of concern about how the cost of access is unsustainable for university libraries. This, combined with the financial stress these libraries have been under for decades as the cost of serving their research clients continues to mount and their business model evolves in the digital age makes for a powerful cocktail of discontent. Publishers counter that the cost per article has actually gone down over the years—it's the massive expansion of research itself that's driving the costs. Either way, what is becoming evident is that costs are not being reduced by the move to open. Efforts to abolish the subscription model and/or create more open publishing alternatives have led to the rise of author-pays publishing models (APCs, which stands for “article processing charge” or “article publication charge”). Around 70% of all open articles today are published via APCs—costs which for the most part are borne by authors and their institutions (Pinfield 2017, Crawford 2015, Bjork 2018, Parsons 2016). This cost shifting has been just as expensive as the subscription model, and has increased overall costs to the system (Pollock and Michael, 2018; Jubb et al 2018).
2. **Impacts:** If our motive is that more open will mean higher citation rates, the data here is also mixed at present. BOAI-compliant “gold” outputs may have the lowest citation rates by far of all kinds of open—lower than even “closed” outputs (locked behind a paywall, copyrighted, etc.; see Piwowar 2019). We're not sure of the reason why—it may have more to do with what's being published in gold journals than the nature of gold itself (although this type of journal is generally seen as being less prestigious than subscription journals—an attitude that may change over time). For the time being, most of the highly cited research work is still published in subscription journals.
3. **Access:** If our motive is increased access to research by those who need access, it's unclear whether a one-size-fits-all approach is the best way to achieve this. It's quite

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<sup>4</sup> Some might also add dislike of the subscription model and/or dislike of commercial publishers to this list of motives (e.g., Plan S is quite explicit about the need to eliminate subscription journals). However, and however deeply felt, these are only attitudes and conclusions derived from concerns about the costs and accessibility of the subscription model. Other concerns that are often mentioned include morality—to what degree we have a moral obligation to ensure science knowledge is equitably shared with the world—and ethics. With regard to the ethical dimension, one question is whether research funded by the public should be freely accessible to the public—e.g., is it ethical to “double dip” and charge taxpayers once to produce science, and again to access that same science (as a side note, this interpretation is vigorously disputed even though it's often used). Both of these arguments may well be foundational motives, but they most often seem to be subsets of or used in conjunction with concerns about cost, impacts, or access.

possible that an all-APC world will be unaffordable for the global south, which means that this approach is trading one problem for another: more research work will be free to read and reuse, but researchers from the global south will be unable to publish their own research work (at least not in venues that their colleagues in the north will be likely to read; see Scaria and Shreyashi 2018, INASP 2018, Minai 2018, Green 2019, Siler et al 2018, Ellers 2017).

All of this isn't to suggest we shouldn't try to improve open outcomes—the community is, in fact, unified in this resolve, and there are literally dozens of good ideas worth thoroughly exploring and testing, from new publishing partnerships to new global information repositories to rethinking the nature of publishing itself.

What's problematic here, purely from a multi-stakeholder perspective, is that in our rush to implement a specific open solution we may be blurring the lines between advocacy and policy. In the words of one OSI participant, we aren't being very scientific about our efforts to reform science.

Still, change is coming. More and more funders are mandating BOAI-ish policies, as are governments and a growing number of universities. There is, in fact, a seeming rush to change—shoot first, ask questions later. How can these mandates be managed so we're certain these new communication requirements will work well for researchers, have good adoption rates, and end up making the communication system better, not worse? No one is asking this question.

The growth of journals is another issue pressuring this ecosystem. There are currently somewhere around 40,000 indexed, peer reviewed scholarly journals (no one knows the exact number of all journals—estimates go as high as about 90,000; see Hampson 2019) that publish around 2.5 million articles per year. The growth rate of articles published in these journals had for centuries been a constant 3% per year, on average—a rate that resulted in a doubling of the amount of published content every 20 years. Today, this growth rate has doubled to around 6% (STM 2018), probably driven by a mix of factors, including but not limited to more researchers, the rise of open access publishing, the increasing specialization of science, the internationalization of research, and the emergence of the Internet and desktop publishing (which lowered barriers to entry).

What challenges does this increase pose for the future of journal publishing? For one, it makes it increasingly hard to vet all this new information. This explosion in content poses at least an existential threat to science in terms of outright fraud and replicability issues (see Anderson 2019 on the rise of predatory publishing).

And then there are the more mundane concerns, such as how do we make sense of everything, and how do we combat information underload, where lower resource areas and institutions aren't getting the information they need to succeed? And what do we do about costs, as more journals means more funds are needed (for both remaining subscription journals and for increasing APC costs)?

Where we stand on all this depends on where we sit. Scholarly communication is a big enterprise with a wide array of stakeholders and perspectives. Many people are feeling a different part of the elephant and reacting accordingly.

### Down the rabbit hole

Considering the entire cornucopia of scholarly communication issues, the issue of open has taken us down the rabbit hole more so than any other issue.<sup>5</sup> On the one hand, this doesn't seem like it should be so because we have the energy, interest, and potential to work together in this space quite effectively. For example:

- There are lots of brilliant people working hard on this issue (and related issues), from Science Europe to SPARC to AJOL, SciELO, Amelica, DORA, Force11 and more. The odds of us doing something big together are good. (Of course, whether this “something” ends up being good remains to be seen.)
- There is increasing awareness of the need for change, thanks in no small part to the tireless work over the years of SPARC, OSF, and other open pioneers.
- We are seeing a growing commitment by major global agencies to push for change (including UNESCO and other UN agencies, the governments of India and China, and more)
- There is a growing expectation among early career researchers that open is the future—they are ready to figure out what it looks like and get started
- We are witnessing a growing impatience (which can be both a pro and a con) with the slow progress in this space that has taken place over the last 20 years. This community isn't willing to wait another 20 years for additional incremental progress.

There are also many broad motives we all share in this debate. While we may not all necessarily share a common motive of reducing costs, for example, we do share a common motive—idealism—to make research better able to serve the public good; we share a common desire to unleash the power of open to improve research and accelerate discovery; we are all willing to fix issues now instead of waiting for market forces or government intervention to do this for us; and we want to ensure that everyone everywhere has equitable access to knowledge. Considering the many organizations working in this space, the overlap in their missions, and the overlap in their passions, this is a lot of common ground.

However, instead of celebrating and building on all this, we have for whatever reason—adherence to BOAI ideology, belief in a moral imperative of open, disgust with the profit margins of major commercial publishers, the corrosiveness of Twitter, the complexity and

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<sup>5</sup> “Rabbit hole” seems to be an apt description but it may not be common enough to use without a definition. Webster defines it as “a complexly bizarre or difficult state or situation conceived of as a hole into which one falls or descends,” especially “one in which the pursuit of something (such as an answer or solution) leads to other questions, problems, or pursuits.” With regard to the content in this section of the paper, the majority of the points were first made in the opening address of the 14<sup>th</sup> Berlin Debate on Science and Science Policy (see Hampson 2019a).

interconnectedness of issues in this debate, or all of the above—become accustomed in this space to focusing instead on the things we disagree about, which is just about everything: the who, what, when, where, why and how. Who do we blame for the current state of affairs? What do we fix or focus on (do we just tweak the current system at the margins or tear it down)? When do we think change should happen (gradually or now; there are pros and cons to both approaches)? Where should changes occur (should they be global or should we start first with specific solutions by region, institution, field, high-priority areas of study, etc.; what are the risks and rewards of taking narrow or broad approaches)? Why are we trying to achieve more open anyway (is our motive cheaper access or improved research, are we motivated by moral arguments for open or sustainability arguments, or all of the above)? And finally, how, which is where most of the debate in this space occurs—the last stage of the decision process—but there is very little agreement on this point since we haven't agreed (or even discussed much) the more foundational questions of who, what, where, when and why.

As a byproduct of all this uncertainty and disagreement, our strong opinions about right and wrong, our different needs and perspectives, and the general factionalism that has pervaded this conversation for most of the last 20 years, we have ended up with roadblocks that now stand in the way of open progress:

1. **Trust:** Different factions in the open space don't trust each other. The rhetoric is heated, and often dismissive and disrespectful. For real and sustainable progress to be made toward a global future for open, it's critical to welcome groups with different ideas about the future of open to work together.
2. **Frustration:** Boiling over from a lack of trust, this space is plagued by frustration, acrimony (see also, Twitter), and hyperbole, all of which prevents us from working together effectively. Why haven't we made more progress already? Surely someone is to blame.
3. **Lack of engagement:** Researchers aren't adequately involved in most of the big conversations to change the way research will be communicated in the future. This is due to several reasons, as discussed elsewhere in this paper (for instance, wildly differing opinions by field, career stage, and other factors; a lack of concern about open relative to other concerns like quality, peer review and impact; and many different definitions of "open").
4. **Ignorance:** We're missing key pieces of the puzzle (e.g., what kind of open is most effective, how necessary are embargoes, how big is predatory publishing, etc.). More information is needed—better internal communication as well.
5. **Lack of funding:** We need funding to develop new systems and structures, but this is a poorly funded space.
6. **Inertia:** The most commonly blamed culprit here is the culture of communication in academia, which is highly resistant to change. But there's also the inertia of our own long-held positions and courses of action (of publishers, open advocates, universities, funders, governments, etc.).
7. **Tunnel vision:** We tend to focus on finding prescriptive solutions instead of developing general frameworks for progress that will allow for adaptation,

competition, and creativity. Some of this tunnel vision is due to ideological grounding and some is due to business practices set in stone. There is no broad sense that we're all in this together and should work together on real and sustainable solutions.

8. **Unilateralism:** The scholarly communication community has grown accustomed to reacting to unilateral policy initiatives and proclamations. The result has been a lurching, divisive sort of progress—or at least attempts at progress—that may end up achieving certain limited objectives over the short term (such as banning hybrids or embargos) but may also end up constraining the future potential of an open world by codifying solutions that may not be optimal, and by further exacerbating tensions between the stakeholders in this system described in roadblocks 1-7 (heightening distrust, increasing frustration, and so on). You might say that unilateralism isn't necessarily bad but it isn't necessarily necessary, either, because we haven't really ever given working together a serious chance of succeeding.

The most aggressive and influential policy attempts we are seeing today in this space tend to lack humility (they know the answer—they aren't seeking the answer) and care (for the concerns of fellow stakeholders) because they have grown out of this environment of frustration, lack of trust, and tunnel vision.<sup>6</sup> Policies like these also lack long-term focus and comprehensiveness because as a community we don't have a clear sense of what we're looking at, let alone a coordinated plan for improving it.

Still, oddly juxtaposed with this reality is the general realization by this community that widespread change is going to require widespread engagement and participation. There are simply too many stakeholders with different interests and perspectives who influence different decision points. No single stakeholder or group will be able to affect sweeping change unilaterally.

## THE CASE FOR COMMON GROUND

So, if we are inclined, how can we reform the scholarly communication system in response to the needs and concerns of all stakeholders rather than in spite of each other's concerns? How can we get past our ideological positions and talk instead about what we have in common?

### Defining "common ground"

The first step in this process is to understand what "common ground" means. One misconception is that this term means "average"—a middle point between one offer and another that neither side finds truly acceptable. This isn't common ground—it's just haggling. Also, "common" doesn't have the same meaning here as in "scholarly commons"—it doesn't mean agreement on principles and practices. Rather, "common" is

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<sup>6</sup> The EU's Plan S is only the latest example of such a policy for now but it isn't the only example and won't be the last.



just recognition that certain concerns and interests are shared, which can form the basis for more conversation about specific solutions.

The kind of common ground being illustrated in this paper is arrived at by taking time to understand an issue from all perspectives, and then brainstorming solutions that not only solve the issue, but improve outcomes for everyone and for everything connected to the issue. Examples abound in real life—water rights agreements between countries and communities, labor agreements, business agreements and more. Step one is to seek out common concerns and interests. It's only after this first step that parties should start thinking through options and criteria, and together, not unilaterally.

There are highly developed and thoroughly documented approaches for conversation like these—business people looking for an orientation on the subject might want to refer to any number of reasonable guidebooks on the subject (on negotiating, conflict resolution, and even sales to some degree), while diplomats and other experienced negotiators have their own training and years of experience to draw upon. In other words, looking for common ground isn't an idyllic quest based on fairy tale aspirations, but a real and substantive undertaking thoroughly grounded in theory, practice and evidence. Examining the theory and practice elements is beyond the scope of this paper, so a separate reference section has been included at the end of this paper containing additional reading recommendations on this topic.

For our purposes here, it may suffice to simply include a few examples of evidence of what common ground looks like in other disputes. Consider this passage from the San Diego Tribune, cited in *Expand the Pie*, a negotiating handbook (see Magee 1998 and Lum 2003):

#### The Challenge

In 1996, relations between the San Diego Teachers Association and San Diego City School District were spiraling downward. There had been numerous demonstrations of anger and personal attacks at meetings. The traditional concessional bargaining process used by the union and district administrators was simply not working. In February, negotiations imploded and the teachers' union called members to strike. The strike lasted five anguished days before the union and management announced a settlement. Parents, taxpayers, and the business community were vocal about their disgust with the situation. Parents formed their own union, charges of racism were leveled at parties, and people on all sides felt attacked, victimized and hurt.

In 1998, parties returned to the table for a new round of contract negotiations. One especially difficult topic was what to do about underperforming schools, which had a myriad of problems including poor performance on standardized testing. The difficulty was that the positions of teachers and administrators seemed far apart. Management historically asked for merit pay for teachers working at underperforming schools. The union said "no merit pay," and would not talk about the issue further. Using traditional negotiation methods, the conversation would have ended there.

The situation was exacerbated by the fact that the activist parents who had formed a "union" were outraged that underperforming schools were being ignored, citing race and class concerns. Some parents demanded to be at the collective bargaining table so their voices could be heard.

### The Solution

In the 1990s, labor and management parties increasingly sought more collaborative problem-solving approaches for labor relations. Following the 1996 strike, the San Diego Teachers Association and management turned to this approach for their 1998 contract talks. While the negotiation teams did not give in to parents' demand to be seated at the negotiation table, they heard the importance and urgency of their voices.

Both sides were able to acknowledge their shared problems and articulate their common interests to each other. They recognized that underperforming schools were hard to staff, meaning they had chronically high turnover rates, leading to a disproportionate percentage of new and inexperienced teachers in those schools. "We (had) something like 2,000 new teachers who needed support and assistance," said Marc Knapp, president of the teachers' union. Experts say there is a positive correlation between teacher experience and student performance.

After a good deal of brainstorming, the parties came up with the concept of a mentorship program. Experienced teachers would be able to apply for three-year mentorships and agree to transfer to a hard-to- staff school and work with new teachers. The mentor teachers were given \$4,500 in additional pay per year and the option of a second three-year mentorship. Both sides knew they would be criticized for not providing mentor programs at all schools, but, in the words of one union representative, "We had to put the limited funds to the best use and we had to do something about these specific schools because if we didn't, these negotiations would just have been another waste of time."

San Diego City Schools Superintendent Bertha Pendleton was thrilled with the solution. "Our mentor teachers have invaluable experience which can be focused on helping these schools improve student achievement. The amazing thing is that neither side had these ideas in mind before negotiations started."

On April 1, 1998, after three months of intense negotiating, the parties agreed to the terms of a new three-year contract. This was the first time in the school district's history that the two sides signed a contract before the previous one had expired. The contract was praised as fiscally responsible and fair. Parents who had protested loudly now stood and cheered the innovative solutions to improve teaching at the most difficult schools.

Here's another example from *Expand the Pie*, this one describing how a common ground approach helped resolve a dispute between farmers in northern California and city dwellers in San Francisco over how to share scarce water supplies:

### The Challenge

In California, drinking water is a precious commodity, often in short supply. Residents of San Francisco and the surrounding area obtain most of their drinking water from a distant mountain dam built on a major river. Other rural and farming communities also draw water from this river, including several large agricultural water districts. Because of the reduced water flows resulting from so many groups drawing water from the river, the fish habitat began deteriorating and the federal government, at the urging of environmental groups, directed all the entities to reduce the amount of water they pumped from the river.

San Francisco argued that its share should not be reduced because doing so would cause major economic harm to the region, and because other affordable water sources were unavailable. The agricultural districts, although able to reduce their water draw without significant impact, balked at giving up any water because this surplus served as a cushion during droughts. Further, the agricultural

districts felt that giving up water would set an unwanted precedent and could harm their state water rights. All parties were ready to go to court to fight any reduction.

### The Solution

By digging at underlying interests and developing "expand the pie" options, a creative deal was fashioned. San Francisco had few affordable water resource alternatives, but it did have financial strength. The agricultural districts needed additional funds to finance their growth, but had water to spare. As a solution, San Francisco entered into long-term contracts to pay agricultural districts to decrease their water draw by an amount equal to San Francisco's required reduction. This solution included a provision that in the event of a drought, agricultural districts would be released from their contract requirements and have their original share restored.

This innovative agreement allowed San Francisco to maintain its water draw from the river, thus protecting its economy. San Francisco also avoided having to buy high-priced water from alternative sources. Agricultural districts received needed funds by selling their surplus water, and were protected from future droughts. Because less water overall was being drawn from the river, the fish habitat improved, and environmental groups and the federal government were satisfied.

These two examples are intentionally small and focused in order to provide a clear sense of what "common ground" means. Obviously, the world is filled with much more complex agreements—for instance, the Columbia River Treaty, which balances everything from international rights to farming rights, fishing rights, tribal rights, city needs, environmental needs, and more; to say nothing of international trade agreements, nuclear disarmament agreements, and environmental agreements. The complexity of these undertakings are orders of magnitude more complex than the examples shown here. But the principle is the same. The first step is always to bring all parties together to listen to each other's concerns and find common needs and interests.

In the international scholarly communication community, there has never been such an effort to bring everyone together—broadly, at scale, and at an official, diplomatic level—to identify common ground needs and interests and collectively brainstorm options. Quite to the contrary, this debate has instead been characterized for years by different sides insisting their positions are immutable and immovable, forcing through and resisting unilateral policy reforms and then negotiating changes to these policies through "agreements."

This lack of diversity has been perhaps the defining deficiency of most of the collaborative actions that have happened in our community to-date. Most of the discussion about open reforms have just involved librarians, people in publishing, some funders and a few active scholars. But many other stakeholders affect and are affected by changes in the ecosystem. Also, the discussion has almost exclusively been focused on activities in North America and Europe, while scholarly communication in the global south across both hemispheres differs in significant ways.

Developing truly common ground perspectives and solutions will require convening all stakeholders—libraries, commercial publishers, scholarly societies, research universities, non-university research institutions, faculty organizations, funders, government policymakers, industry, journalists, open advocates, and more, from all parts of the world

and all fields of study—and not just like-minded stakeholders or those with clearly overlapping needs and perspectives. The table below shows the stakeholder groups who are represented in OSI and the approximate number of participants from each group.

<b>Stakeholder group</b>	<b>Number of participants (Dec 2019)</b>	<b>Percent of OSI group</b>
Research universities	56	14%
Libraries & library groups	51	13%
Commercial publishers	39	10%
Open groups and publishers	37	9%
Industry analysts	36	9%
Government policy groups	35	9%
Non-university research institutions	21	5%
Scholcomm experts	20	5%
Scholarly societies	19	5%
Faculty groups	16	4%
University publishers	16	4%
Funders	14	4%
Active researchers	9	2%
Editors	8	2%
Journalists	6	2%
Tech industry	5	1%
Infrastructure groups	3	1%
Other universities	2	1%
Elected officials	1	0%
<b>TOTAL</b>	<b>394</b>	<b>100%</b>

A key related note to this point is that while all of these stakeholders are important, none are more important than the researchers themselves. We need to be more researcher-centric in our approach to this issue, and ensure what we’re doing is for the benefit of researchers first and foremost—that we involve more researchers in these conversations, listen to their concerns, and design solutions that work for their disciplines and institutions.

But just as multi-stakeholder engagement has been woefully lacking, significant researcher engagement on the issue of open reforms (at least on a broad, global and interdisciplinary scale) has never happened either. Why is this? Part of the problem is that as a group, researchers just aren’t that interested in this issue. In survey after survey, “open” ranks well below other concerns like quality, peer review and impact (see T&F survey, Solomon, Tenopir, and others). Also, there are many different definitions of “open.” How SPARC defines open might be different than how a particular researcher defines it. Asking a researcher “do you support open access?” is not a specific enough survey question. And finally, researchers aren’t a homogenous group—they have wide differences of opinion that vary by field, career stage, and other factors, so developing any generalizations about “researcher behavior” is impossible.

Therefore, while some who are outside the research system claim journals are broken, and advocate for radical reforms, there are also researchers inside the system who—while welcoming minor improvements—think major changes are neither warranted nor desired. This isn't to say these researchers are right—just that we need to consider their opinions lest we make changes that make research and society worse off instead of better.

To be clear, the scholarly communication community has tried to collaborate to affect positive change, and has done so with vigor and success. There has been broad cooperation and collaboration between aligned interest groups, advocacy groups, groups with similar regional interests, groups with similar ideological bents, and so on. This kind of “limited” cooperation and collaboration has helped push forward progress on open and raise the profile of the need for open. However, it's unlikely this type of engagement will result in broad and comprehensive solutions to connected systemic issues such as peer review and impact factors. And it certainly won't result in global, universally-acceptable solutions.

This segmented approach may, in fact, eventually result in competing regional solutions where we end up with one open future for China, another for the EU, and still other futures for South America, Africa, and other regions, each region working to solve its own unique concerns and perspectives. This approach may also force changes across diverse disciplines that may not work well (e.g., open solutions that work in physics don't work at all in history), or lead to unintended consequences. For example, doing away with subscriptions may eliminate paywalls, but it may also lead to “play-walls” where affording APC fees becomes the new barrier to participating in research.

Comprehensive reforms in scholarly communication also can't be addressed without considering the evaluation of research, trends in higher education, incentives that motivate scholars to particular actions, and a host of other intertwined social and economic factors. What we lack is a clear and comprehensive understanding of the current state of the scholarly communication ecosystem—one that takes a broad global look and identifies what is and isn't working, what improvements are possible and what tradeoffs they might require.

This isn't to say these limited engagements are useless—far from it—just that when it comes to comprehensive reform, they aren't a substitute for truly broad, multi-stakeholder collaborations that try to grasp the big picture and identify common ground interests—not one-size-fits-all solutions, but frameworks for action owned by all stakeholders and regions and empowering the global community to pull in the same direction toward the same general goals. It's hard to envision a system more global and more integrated than research; global approaches are needed.

The desire and potential for this kind of engagement exists. What is abundantly clear to those who have followed the changes happening in scholarly communication over the years is that a lot of tension and uncertainty exists in the system. People want to know what to do and how, but they aren't sure who to follow and why, what the long-term implications of change will be for faculty and researchers, how much change needs to be made and how

quickly, who will pay for this progress and how, and a whole slew of other critical questions that don't have simple black and white answers. Having a forum where these issues can be thoughtfully discussed across stakeholder groups is critical for making more rapid progress on this issue, and for making the right kind of progress.

## **A NEW HOPE**

Recognizing our common ground can help us move forward. We don't need to agree on every policy detail or dwell on the years of divisions in this space in order to make progress. Believing instead in the positives in this space—the tremendous energy and enthusiasm for reform, the number of people and organizations working on reform, and our common concern for pressing issues and our common vision for the future—it is abundantly clear that this community has the raw materials to create something new and amazing. Whether it also has the will to do so is a different matter, and one that may be more tied to the age we live in than the particulars of this debate. But if we can find the courage to move forward, there is hope.

### OSI's approach

OSI and UNESCO are committed to developing a common ground approach to the future of open. As a global intergovernmental body, UNESCO uses this approach by design. OSI was designed, with support from and in partnership with UNESCO, to work on scholarly communication issues collaboratively and deliberatively, in a way that involves input from all stakeholders in the community, and always with an acute awareness that the new world of scholarly communication being designed needs to be accepted by the research community and be of benefit to this community. This new design also needs to work in every country, institution and field of study, and needs to be reliable and effective over the long term.

OSI's mission statement condenses all these sentiments and more into one, not-so-easy-to-read paragraph:

The principles and practices of scholarly communication are critical to the advancement of research and knowledge. OSI's mission is to build a robust framework for communication, coordination and cooperation among all nations and stakeholders in order to: improve scholarly communication; find common understanding and just, achievable, sustainable, inclusive solutions; and to work collectively toward these solutions that increase the amount of research information available to the world, as well as the number of people who can access this information regardless of location or financial capability. The guiding principles of OSI are to involve the entire stakeholder community in a collaborative effort; to value all stakeholder voices and perspectives; to thoughtfully consider the consequences of all approaches; to coordinate and collaborate on developing joint solutions and efforts; and to pursue and continue refining solutions over time to ensure their implementation, effectiveness, and success.

### Leaping to conclusions

We can imagine based on our own experiences with negotiations that common ground approaches to the future of open might involve looking for the best balance point between

embargoes and immediate release; between designing data repository schemas that scientists actually want and those they will use; between curbing the unintended consequences of publish or perish and entirely dismissing the importance of publishing in academia; between improving access to scholarship for underserved regions of the world and unintentionally making the access problem worse for them by swapping pay-to-read solutions for pay-to-participate solutions; and so on.

But it's important to resist the temptation of picking divide-the-pie solutions, or leaping straight to solutions focused on trying to solve one part of the scholarly publishing puzzle or solve it from just one perspective and/or for one region. By themselves, these kinds of actions aren't going to achieve global buy-in—and they haven't. We need a broader group of stakeholders at the table, and we need to work together on solutions that work for everyone everywhere, and that involve everyone's input.

Reaching immediately for divide-the-pie solutions—tempting and familiar as this approach may be—also contributes to the continued fracturing of the scholarly communication solution space. This fracturing has implications for the progress of research, for the economic development that is so closely tied to research, and for global equity and opportunity. It also has implications for the issue space connected to open. Issues such as peer review and impact factors, for instance, also need to be solved, and solving them requires coordinated, global action. By continually reacting to unilaterally-designed one-size-fits-all solutions in this space, we are not only pre-empting progress on broad and sustainable solutions, we are also pre-empting solutions that need to be developed on these connected issues.

As an intellectual exercise, OSI participants in our 2016 and 2017 conferences, and our 2018 and 2019 summit group conversations, came up with some common ground recommendations for action that are detailed in this paper's annex tables. They are included here as starting points for discussion, and are important for helping us realize what's possible, to catalog and prioritize our to-do list, and to evaluate what's realistic and has broad appeal. But they are only starting points for discussion.

At this juncture, what's more important than these policy ideas is to first understand how our big-picture perspectives fit together—lest we get bogged down under the weight of too many detailed ideas, or too many ideas we don't like. By identifying the broad areas of agreement that exist in this conversation, we can erect the guardrails and mileposts for our efforts and then allow the details of a community-developed plan more flexibility and guidance to evolve.

### Common interests

Generally speaking, for example, there is very broad agreement in this community about which problems in scholarly communication need to be fixed. Just because we disagree on the solutions doesn't mean we don't all see the same problems. Broad solutions like the ones described in the table below are okay—they're impossibly vague, but they are good starting points for discussions about interests.

How does this discussion proceed? Drill down on the first item listed in the table, for instance. While we might all favor different peer review systems, the more important realization is that we all have a common interest in ensuring peer review is authoritative and adds value to research. We might disagree on specific solutions like signed versus blind formats, speed, visibility (hidden or published as part of the research record), getting academic recognition for peer review work (which can be substantial) and so on. But this kind of debate comes as part of the effort to define options. It's not a sign of weakness we don't agree on these options now, nor is it even necessary to pick just one solution now. What we don't want to do is throw up our hands and say that just because we can't agree on options then there is no common ground, even though we're all trying to solve the same problem and have the same interests at heart.

<b>Problem</b>	<b>General solutions we agree on</b>	<b>Concerns about solutions</b>	<b>Common ground interests that should govern our development of solutions</b>
Peer review is struggling	Experiment with different peer review systems	What kind of peer review is best	Preserve the value of peer review
Impact factors have a corrosive effect on publishing	Experiment with other ways to measure impact	Different stakeholders have different needs for impact measures	Impact factors should not be the tail that wags the dog
Open access isn't growing fast enough	Consider sweeping measures to accelerate adoption rates	Are different kinds of open equally valid and valuable?	Let's keep working for more open of all kinds (70% of info out there is still closed). We can improve open outcomes over time.
Journal subscription costs are increasingly unaffordable	Experiment with different subscription formats, disaggregating publisher services, non-subscription options like APCs, etc.	Should subscriptions and hybrids should be eliminated altogether?	Cost and access are the underlying concerns here, not the particular format. If subscriptions were more affordable and accessible they wouldn't be targeted for elimination. Let's keep figuring out how to improve access and lower costs.
Embargos may be too long	Study what embargo period is just right	Are all embargos bad? What if some are necessary to ensure the health of the industry?	We're operating in an information vacuum. Study this before deciding.
Does increased digitization put preservation of science information at risk?	Invest in systems such as LOCKSS to ensure the digital record is preserved	No argument	No argument. Preservation is essential, and of particular concern for non-established journals
Fraud and replicability issues in science and publishing	Improve systems and oversight	No argument	No argument
Information overload	Improve information literacy and build better filters	No argument	No argument



Information underload	Create better access systems	Yes, but how. Open access is the most obvious system.	Better access is the common denominator—how we get there from here can involve multiple tools.
The culture of communication inside academia is broken	Identify unmet author needs, and gaps in evidence and knowledge, develop disciplinary approaches, and use pilots rather than one-size-fits-all approaches.	Okay. Or just blow it up and start over.	The current system serves a purpose and is strongly resistant to wholesale change. Change will take time, and will need to create outcomes that are better than before.
Institutional repositories are not living up to their promise	Increase focus on these resources and improve interoperability through better systems and “domes” like CHORUS and OpenAire.	Or just move to a pre-print world.	Pre-prints have tons of potential and tons of challenges. Let’s keep focusing on this and see where it takes us.

Another interesting example is our common concern that open isn’t growing fast enough (table row 3). Here, this is a matter of perspective. As discussed earlier, the most recent research by Eric Archambault (Archambault 2018) shows that in fact, open is growing quite well indeed, but only if we consider all publication indexes and all forms of open, not just the BOAI-compliant open listed on the most restrictive (and STM-centric) indexes. So, it’s possible that at least part of our disagreement on the rate of open growth is due to differing research estimates on this rate of growth.

And of course, part of our disagreement is also ideological, centered around what is and isn’t a “valid” open outcome. One area of common ground on this point is that we can all work together to daylight more and more of the 70% of information artifacts that are still closed or dark. Then, over time, we can work together to improve open outcomes so that more and more materials become optimally open. In the meantime, we needn’t necessarily limit our quest to only one type of open outcome, and at the same time work to banish other types of open (Plan S is a case in point here, which would outlaw hybrid open)—especially since doing so would end up dramatically reducing the amount of open content available to researchers (unless all the publishers of hybrid content were somehow able to transition to nonhybrid publishing in a short amount of time—an issue which has been at the forefront of publisher discussions for the past several years now).

In our quest for common ground, we also need to ask even more general questions—our common ground runs deeper than just issues. For example, do we have any common views or aspirations about the future of open? Can we visualize how open publishing practices overlap with open data, open education, and open code? Can we learn from the open movement writ large to inform and guide what we’re trying to accomplish in academia and where we want this work to ultimately lead us? The answer is yes to all of the above.

Building on this immense and fertile common ground we have in this community, we have a better chance of developing the right detailed solutions together, in the right order, and for the right reasons, and these solutions will have a better chance of being adopted, sustained, and bearing fruit.

It may also help to recognize that this community has managed to successfully collaborate on other challenges over the years, including reducing fraud and improving replicability, reducing study bias, improving tech transfer, improving research communication, and more. Policymakers have led with some of this work (such as protecting the rights of study subjects), and the community has led with other work (like research communication). None of these challenges have been simple. Our perception is that the open challenge is more pernicious because it involves so many connected issues, and so many stakeholders need to weigh in with their opinions, all of which multiplies the difficulty of finding common points of agreement.

This may or may not be true, but in any case this complexity isn't fatal. We have found in OSI that there are in fact many points of agreement.

The following boxes contain observations from our group that represent what some of these common ground perspectives look like, and what researchers and policymakers might want to keep in mind as future reforms in this space are debated.

#### **BOX 1: STAKEHOLDERS WORKING TOGETHER**

Stakeholder groups agree amongst themselves that there are issues they can focus on to make improvements to the open environment.<sup>7</sup>


1. **Infrastructure groups:** Help push for more global standards, integration, and global implementation
2. **Journal editors:** Improve global journal standards through mentoring and networking, reducing the influence of impact factors, and improving indexing
3. **Libraries:** Support, engage and/or collaborate on building a framework for action, connecting resources, and improving the global capacity for open
4. **Open knowledge groups:** Help reduce the jargon, deliver more content to communities who need it, and establish financial sustainability for a diverse open environment
5. **Commercial publishers:** Improve the ability of coordinating groups (like OSI) to engage in this issue and cultivate common ground perspectives and solutions, and be willing to adapt in a way that is responsive to and respectful of the community's input
6. **Research universities:** Think critically and creatively about developing programs and platforms that explore open in ways that meet the needs of researchers. Support innovation and experimentation along these lines from many different stakeholders
7. **Scholarly communication experts:** Get more input and involvement from researchers, support more author choice, help establish better standards, and encourage a "fellows" program where we can get out of our silos and experience firsthand what's involved at a library, at a publisher, and so on
8. **Scholarly societies:** Educate constituencies on the benefits of open, explore consolidation and other ways to increase efficiencies, and explore the redistribution of funds to better support open.

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<sup>7</sup> This list of recommendations is from OSI2017 participants. As with the issues list, there are other lists like this, and other recommendations. See the OSI2017 report for more detail.

## BOX 2: OSI'S COMMON GROUND PERSPECTIVES ON THE OPEN CHALLENGE

It was stated on the first page of this paper that most of the participants in OSI have concluded that four main beliefs define the common ground in this space: (1) Research and society will benefit from open done right; (2) Successful solutions will require broad collaboration; (3) Connected issues need to be addressed, and (4) Open isn't a single outcome, but a spectrum. These four beliefs are a summation of the nine common beliefs that OSI2017 participants identified:<sup>8</sup>

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1. **Open isn't binary.** Open exists along a spectrum of outcomes, with wide variation according to discoverability, accessibility, reusability, transparency, and sustainability (DARTS).<sup>9</sup> There is no widespread agreement between stakeholder groups of what "open" or "open access" (OA) mean in practice. Some open advocates prefer to think of open access as being an optimal, singular state or range on the open spectrum (see below). Others prefer to call any kind of open "open access"—gold OA, green OA, and so on. There is no broad agreement that these terms are similar, interchangeable, or mean the same thing to everyone. Therefore, keep the DARTS open spectrum concept in mind and recognize that open and open access are highly variable terms—that when two groups advocate open or open access, they may be advocating entirely different outcomes.
  2. **Open isn't free.** The focus of open cannot be only about cost-savings. Open is going to cost money—the jury is still out on exactly how much.
  3. **Open isn't easy.** Achieving open outcomes can be complicated. The easy solution isn't necessarily going to be the correct solution.
  4. **Publishing is critical.** Without publishing, there is no modern, reliable scientific record. This isn't to say that publishing as-is is infallible or indispensable, just that we need to make changes with care and respect for the vital role that publishing plays in research.
  5. **We're more alike than unlike.** There are wide differences of opinion in this community but also significant overlap in our perspectives.
  6. **Convergent needs are everywhere.** Convergent needs and aspirations are everywhere in this community. This can be difficult to recognize when we spend most our time arguing about what color of open access is best. From a 10,000 foot level, however, this convergence is obvious.
  7. **We need more information.** There are significant gaps in our community's understanding of many key issues in scholarly communication. More study is needed.
  8. **Accountability.** We all have a stake in the outcome.
  9. **Trust.** This conversation needs trust to move forward. There is a lot of mistrust in the scholarly communication system which has been so polarized for so long.

<sup>8</sup> See the OSI2017 report for more detail.

<sup>9</sup> **DISCOVERABLE:** Can this information be found online? Is it indexed by search engines and databases, and hosted on servers open to the public? Does it contain adequate identifiers (such as DOIs)? **ACCESSIBLE:** Once discovered, can this information be read by anyone free of charge? Is it available in a timely, complete, and easy-to-access manner (for instance, is it downloadable or machine-readable, with a dataset included)? **REUSABLE:** Can this information be modified? Disseminated? What conditions (both legal and technical) prevent it from being repurposed or shared at will? **TRANSPARENT:** What do we know about the provenance of this information? Is it peer reviewed? Do we know the funding source (are conflicts of interested identified)? What do we know about the study design and analysis? **SUSTAINABLE:** Is the open solution for this information artifact sustainable? This may be hard to know—the sustainability of larger, more established solutions may evoke more confidence than new, small, or one-off solutions.

### BOX 3: IMPROVING THE CONTRIBUTION OF RESEARCHERS

As noted in box 1 (item 7), more research in this field is critical to developing a better understanding of the challenges we face (see annex Plan A for some of the needed studies OSI has identified). Improving the quality of research is also important. Too much of it is subpar, using bad data sets (like Beall's list), making unwarranted extrapolations (e.g., drawing conclusion about all journals based on a sample from Scopus), or inadequately define measures (e.g., "open" means different things to different people). Therefore, in order to help improve our knowledge of this field, researchers should endeavor to make their data more usable and comparable. Some of the recommended improvements include:

1. **Avoid Beall's list.** Do not use this list when conducting research into predatory publishing. This list is not now nor was it ever transparent. In addition, what passes for Beall's list nowadays is an anonymous update of an old, flawed list. Use Cabell's list instead. It isn't free, but it is transparent. (On a related note, "deceptive" publishing is a more accurate name than "predatory"; see Anderson 2019).
2. **Define open.** Carefully define what you mean by "open" and "open access" in your research work. These two terms have a wide variety of definitions and uses—there is no consensus definition and/or use that holds up in all parts of the scholarly communication community (see Plutchak 2018 for more detail).
3. **Follow best research practices.** Doing so in this field can be challenging for several reasons—bias, missing information, a rapidly-changing information landscape, and more.
  - a. **Try to find the most definitive figures** when talking about how much open exists. Work by Eric Archambault, and by Heather Piwowar and Jason Priem, is among the best to-date. See Archambault 2018 and Piwowar 2019 for more information.
  - b. **Be careful not to generalize** from one field to another with regard to the impact of open, the suitability of open practices, and more. Similarly, recognize that different fields and institutions have different characteristics, norms, missions, needs, and so on. One-size-fits-all measures and analyses are too broad—the devil is in the details.
  - c. **Beware of bias.** Quite a few analyses in this field suffer from confirmation bias and read more like position papers than research. Many analyses also bias the reader by using inflammatory language, or by twisting data. This happens on both/all "sides" of the open debate—reader beware.
  - d. **Be honest about uncertainty**—there's a lot of it in this field.
  - e. **And of course, be scrupulous about other research practices.** Some of the more relevant ones include making sure your measures don't discriminate against organizations by size, disciplinary mix, language, wealth, age and geography (e.g., many good, non-Western journals are not indexed in Scopus, open practices vary by field and career stage, and so on); making sure that collection and analysis methods pass tests of scientific rigor; and making sure that indicators have a clear relationship with and are sensitive to what's being measured.
4. **Be wary of data from predatory journals.** There are a many more journals today than just 20 years ago, but obviously, not all are of equally high quality. While some of these journals may contain acceptable research, don't conclude that just because a journal claims to be peer reviewed, indexed, or have a high impact factor that it must be quality—there are many different types of indexes (many which serve no gatekeeping function), different interpretations of peer review (some akin to just copyediting), and several bogus impact factor measures that predatory publishers use.
5. **Be careful when comparing samples between different indexes.** Different indexes are different. Scopus has a different product concentration than WoS, which is different than DOAJ, and so on. So, for instance, don't conclude that since x% of journals in Scopus are open, that therefore x% of all journals are open.

The European Commission's February 2019 report entitled "Future of Scholarly Publishing and Scholarly Communication," lists several other recommendations for how and where the research community can work together (see EC 2019). Two recommendations in this report relevant to improving research quality are to (1) make more research contributions open, discoverable, and reusable according to community standards (including the FAIR principles); and (2) "Develop, use, and support interoperable tools (including open source software wherever possible) and services not only to facilitate access and reuse of scholarly outputs, but also to facilitate innovative interventions of new entrants."

## BOX 4: CENTRAL ISSUES WE ALL RECOGNIZE

There is significant agreement amongst all stakeholders on which scholarly communication issues need to be addressed and why.<sup>10</sup>

1. **Culture of communication in academia:** We need to clarify messages about open and break down barriers and simplify pathways to more open adoption. We also need to engage universities and scholarly societies in a conversation to encourage new advancement pathways that include more use of open, and that can help untangle publish or perish attitudes and metrics like the impact factor from promotion and tenure considerations.
2. **Funding:** There is no single model of open that works for all stakeholders and institutions everywhere. As a community, we need to stop aligning our funding primarily behind one-size-fits-all solutions, and instead fund a wider variety of approaches for a variety of actors and audiences.
3. **Studies:** There are many gaps in our understanding of scholarly communication, from predatory publishing to the global flip to embargos, citation advantages, the economic benefits of open, and more. We should work as a community to fund and conduct studies to fill in these information gaps.
4. **HSS & Science:** The fact there are no one-size-fits-all solutions is nowhere more apparent than comparing the different needs of HSS disciplines (like history) with disciplines in the natural sciences. This said, while we can develop better tailored solutions (or disciplines can develop their own), we should also continue to promote areas of mutual interest and benefit.
5. **Impact factors:** Impact factors are loved by some stakeholders, despised by others. They are a net positive for some, and a terrible scourge for others. We need to reform the use of impact factors—this much is clear. Exactly how another matter.
6. **Open IP:** The global community should work with WIPO, NISO, and other relevant organizations to establish new global standards for open IP and create IP literacy materials for the research community.
7. **Peer review:** We need to work as a community to develop new global standards for journals. We also need to study the effectiveness of different models and support the community as it experiments.
8. **Institutional repositories:** Repositories are a crucial tool in the custody chain of research preservation. We need to better understand the challenges ahead and ensure we're asking the right questions and pursuing the best solutions.
9. **Rogue solutions:** Our community must take a stand against Sci-Hub types of solutions that violate copyright laws and are off the open spectrum, while also supporting new and entrepreneurial approaches to open.
10. **Standards:** There are many issues in this space that would benefit from a standards-based approach—from what we consider to be “open” (here again, OSI encourages recognition of the entire open spectrum) to what publishers should do, what best practices researchers should follow (beyond DORA), and much more.
11. **Underserved:** There is much work we can do as a community to encourage more openness in global south universities and public sector institutions, better address the research-related needs and concerns emanating from the global south (such as indexing, standards, and promotion and tenure practices), and narrowing the affordability gap.

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<sup>10</sup> This list from OSI2017 conference participants and is just a starting point for discussion—there are other lists, and other issues in common. See the OSI2017 report for more detail.

## Beyond open

At its root, this conversation is really about creating a better future for research, and a better world through research. The research communication challenges of today will be solved and replaced with new challenges we can't even envision yet and that have nothing to do with open—evolving educational models, changing roles for universities, an increasing role for artificial intelligence and machine learning and much more. So in this broader perspective, open is just a means to an end, not an end in itself.

Our focus, therefore, should be directed toward what we are all trying to do for knowledge and society, and how we can get there from here, even if this means changing our positions on what kinds of strategies are “right” and “wrong.” Our common devotion to this broad challenge is our incredibly rich common ground.

## **OTHER WORK TO BE DONE**

### Plan A

OSI has proposed a plan of action for working together on scholarly communication issues from a strong, common ground foundation. This plan—which we're referring to as Plan A—is included in the annex and will be published in a separate OSI brief. In summary, the plan calls for joint action on studies, scholarly communication infrastructure improvement, and open outreach/education.

To get there from here, we should:

1. Work together (this means everyone, including publishers)
2. Work on all pieces of the puzzle so we can clear a path for open to succeed
3. Discover missing pieces of information to ensure our efforts are grounded in fact
4. Adapt. No one group has a perfect understanding, plus the world keeps changing.
5. See the big picture — the common ground
6. Help build UNESCO's roadmap.

With regard to this final point, Plan A calls for working together with UNESCO to develop a unified global roadmap for the future of open, and for striving to ensure that the community's work in this space is researcher-focused, collaborative, connected (addressing connected issues like peer review), diverse and flexible (no one-size-fits-all solutions), informed, ethical and accountable, directed toward the future (directed at achieving goals we set out for what we want to do with open), equitable, sustainable, transparent, understandable and simple, and beneficial.

Beneficial means these reforms we seek need to benefit research first and foremost. While the argument to improve benefits to society is palpable, these benefits need to be matured carefully, deliberately, and realistically in order to ensure these societal benefits are indeed being conveyed as intended, and that research is not being harmed in the process.

## The unified UN roadmap, via UNESCO

The policy work being conducted by UNESCO began in the early years of open— UNESCO has been a pioneer and leader in this space for many years. Starting in 2015, OSI and UNESCO began collaborating on efforts to create a global, inclusive solution to the future of open research. UNESCO’s efforts entered a new phase in the fall of 2019, gaining official approval from UN General Conference to develop a global open science roadmap on behalf of all agencies of the United Nations.

The next steps are long and involved. As stated in the annex of the General Conference statement in support of UNESCO’s effort (see UNESCO 2019, page 6, item 37), “By virtue of its mandate and normative role, UNESCO now invites this debate on Open Science within the international community and consults Member States on possible courses of action, including programmatic and regulatory action. Should new standard-setting activities be decided, based on lessons learned from previous related experiences and on the ongoing discussions on Open Science, it would be strongly recommended to establish a wide multi-stakeholder consultative mechanism on the topic of Open Science. Such a consultative mechanism should invite the input of all Member States, as well as their scientists’ and young researchers’ communities, academics, intellectuals, and civil societies at large. Such an initiative would require financial means. The process could result in the submission of a standard-setting instrument to the General Conference in 2021.”

OSI will play a role in this effort, with our exact responsibilities to be determined (OSI is named on page 3 of the annex of the General Assembly document, item 15). For now, we have been contacting research leaders from WHO, the UN Library, UNDP and elsewhere in the UN system and connecting them to UNESCO, as well as encouraging leaders of major non-UN roadmap efforts to align their work with UNESCO so the world can end up with one highly influential map instead of a half-dozen competing maps.

OSI will provide whatever input and assistance UNESCO needs in this effort, including but not limited to hosting and attending meetings, providing technical feedback and consultation, and helping with marketing and outreach. In parallel with this work, OSI will also continue to develop our Plan A, which is also geared toward creating a global roadmap for open. Our goal is that these two plans will overlap and/or complement each other at some point, so continuing to work on this will help us better understand where we’re going, and will also help us continue to align support for a global, collaborative, inclusive approach.

Given that we’re also focusing on “scholarship” and not just “science,” our work will also be important in expanding the conversation (and potential solutions) beyond just the future of STM. We will also continue to support the other related work of UNESCO (which in addition to the inter-agency roadmap effort includes supporting efforts like GLOALL, SciELO, and Amelica).

The proposed timeline for UNESCO’s work is described in the annex of the General Conference document, p. 19. The current goal is to finish this roadmap by early 2022.

## THE GOAL

With common, global action, we can realize the full potential of open and solve all the connected issues in this space, from affordability to impact factors to embargoes, peer review, predatory publishing, and more. Here's what the next 15 years can look like by working together:

- **Pick the low-hanging fruit (next 5 years):** Work together on common ground solutions to the easiest and most pressing issues. Doing so will build a record of success, build confidence in our potential, and attract more institutions to this approach.
- **Solve the toughest issues (5-10 years):** Reform our use of the journal impact factor, improve promotion and tenure systems, and raise the bar (significantly) for data inclusion and interoperability and repository function.
- **Open Renaissance (10-15+ years):** Universal open is achieved, including archives and data. Integrated repositories and standardized data create new fields of research based on connecting the dots. Research spending efficiency improves, and discovery accelerates.



Source: Hampson 2018.

After 15 years, what does this full potential look like?

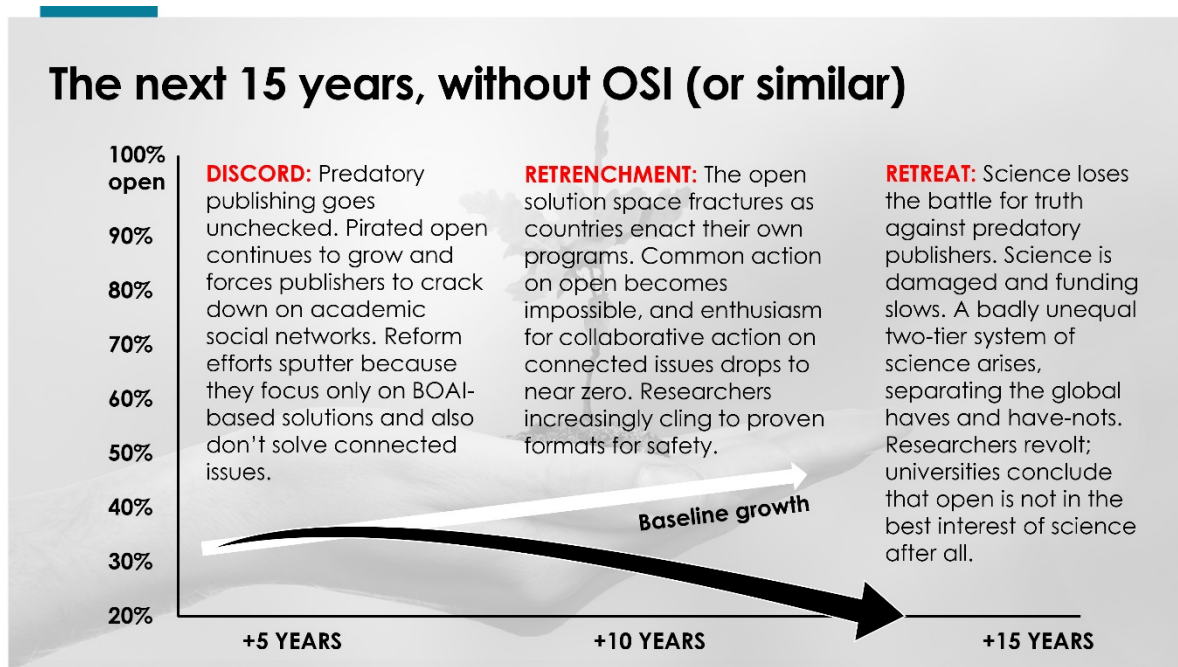
- Open is clearly defined and supported
- Open is the standard output format
- Open solutions are robust, inclusive, broad, scalable and sustainable
- Almost all knowledge is discoverable
- The global access gap is nonexistent



- Solutions for the humanities are built-in
- Connected issues are resolved
- Incentives are aligned so scholars embrace open because they want to
- Open is simple and clear so scholars know what it means and why they should do it
- Predatory publishing is defeated so it no longer threatens knowledge integrity
- Standards and global guidelines are clear for all journals, which helps the marketplace
- The marketplace remains competitive so open products remain cutting edge
- Repositories are integrated, not just connected
- Data standardization is widespread and robust.

All of this leads to an Open Renaissance in research where many kinds of improvement happen to research, the research ecosystem grows exponentially more powerful, new fields and directions emerge based on easier and more robust interdisciplinary work, funding efficiency improves, and discovery accelerates. The social impacts of research will surpass today (including improved literacy, public engagement, and public policy impact), knowledge will become more of a global public good, and society will reap the benefits.<sup>11</sup>

Of course, it's anybody's guess what will happen if we don't work together on the challenges ahead. Maybe we'll reach our goals more slowly, maybe we won't reach them at all, or maybe the solution space will fracture. It's this last scenario that is most worrisome. We should take care to ensure that in our zeal to develop solutions in isolation we don't damage the very thing we're all working to improve.



Source: Hampson 2018.

<sup>11</sup> This section is verbatim from Hampson 2018

## CONCLUSION

The scholarly communication community needs to come together on common ground to help build the future of open research. Every phase of this work needs to be done together, from the decision to unite to the search for common interests to the development of options. OSI and UNESCO are poised to help, but any effort will do, so long as it is truly inclusive and respectful of the diversity of needs and perspectives in this space.

Common ground solutions are not being sought today. Instead, our community continues to react and adjust to a policy solutions imposed by major regions or funders, never in broad consultation with the global stakeholder community or research community. This doesn't need to happen, but the fact it continues to happen is diverting attention away from efforts to create solutions that are more reflective of the global community, and creating tensions in this community that are going to be difficult to overcome.

Exploring and developing our common ground isn't going to be easy. Case in point: this common ground doesn't even exist in OSI. Of course, we are a group representing many different points of view and rarely agree on anything. Even so, we don't have total agreement on the idea of searching for common ground, let alone what this looks like. A few years ago OSI proposed launching a declaration of common ground that read like this. It expresses the right details and sentiments, but didn't get enough support to be officially announced:

**WHEREAS** the principles and practices of scholarly publishing and communication are critical to the advancement of research and research knowledge;

**WHEREAS** scholarly publishing and communication have been in a state of transition for many years now;

**WHEREAS** no consensus exists across stakeholder groups regarding the pace, direction, solutions, global suitability, or decision authority for evolving scholarly publishing and communication policies;

**WHEREAS** no formal mechanism exists whereby stakeholder groups can regularly communicate and work together on solutions in a broad, collaborative, global way; and

**WHEREAS** developing a broad, collaborative, global approach is critical for the future of research and discovery, as well as for the continuity and predictability of scholarly publishing and communication and the impacts of these practices on research funding, public policy, economic development, and global information access and equity,

**LET IT BE RESOLVED** that the global Open Scholarship Initiative (OSI) should be supported. OSI's mission is to build an effective framework for direct, high-level communication and cooperation among all nations and stakeholders in order to improve scholarly publishing and communication—to find common understanding and just, achievable, sustainable, inclusive solutions, and to work toward these solutions together in order to increase the amount of research information available to the world, as well as the number of people everywhere who can access this information.

**LET IT BE FURTHER RESOLVED** that the guiding principles of OSI are to involve the entire stakeholder community in this process in a collaborative effort to improve scholarly publishing and communication; to value all stakeholder voices and perspectives in this process; to thoughtfully consider the consequences of all approaches; to collaborate on developing joint solutions and efforts that are carefully considered and widely accepted; and to pursue and continue refining scholarly publishing and communication solutions over time to ensure their implementation, effectiveness, and success.

The fact that an organization like ours devoted to finding common ground solutions couldn't itself agree on a statement of purpose is ironic. But it's also an object lesson, because in the final analysis, issuing this statement with whatever wording would have been irrelevant. What is important is that OSI participants have continued working together to accomplish the sentiments expressed in this statement, despite our disagreements. We share common interests, but disagree on the details (sound familiar?).

Finally, what is both comedic and tragic in all of this is that the scholarly communication stakeholder community is clearly, obviously a family, and clearly, obviously shares a tremendous amount of common ground beliefs, interests, opinions, and goals for the future of research. The infighting that has consumed this community isn't necessary, and several of the careless solutions we're proposing and considering today threaten to damage research and stunt the growth of real solutions that can truly usher in the global future of research.

If we can pause a moment to really look carefully at what we're trying to accomplish, and look past the acrimony that has so clouded our vision, maybe we can begin working together as a community. Our common ground approach and solutions will support a future of open that aligns the full potential of all stakeholders in this community, and will lead to open outcomes that are far more robust, exciting, creative, and sustainable than any other outcomes could possibly be.

Step one is to reach across the aisle and allow for the possibility that we are all allies, and that we will be stronger in our common cause by working together.

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# ANNEX 1:

## OSI PARTICIPANT RECOMMENDATIONS

The following tables summarize key recommendations from workgroups at OSI’s 2016 and 2017 conferences, as well as from OSI’s 2018 summit group conference. The workgroups at OSI2016 and OSI2017 were multi-stakeholder and ranged in size from 8-13 participants. Each workgroup was sequestered for about eight hours over two days and challenged with developing a common ground set of recommendations for presentation to and consideration by the full OSI group (OSI2017’s stakeholder groups were the exception, meeting for just two hours).

The OSI2018 meeting was attended by about 20 leaders in OSI representing multiple stakeholder groups. Their challenge was to synthesize the work of 2016 and 2017 meeting delegates and put together the initial framework of a common ground action plan for OSI. The 2018 group’s work was fine tuned in the 2019 summit groups (who met virtually). OSI’s “Plan A” is the end result of this work—a high-level, multi-stakeholder, common ground proposal for moving open forward starting in 2020.

### OSI2016 WORKGROUP RECOMMENDATIONS

WORKGROUP	KEY ACTION ITEMS	TOOLS (SUMMARY)	TAKEAWAY (SUMMARY)
<b>What is publishing? 1</b>	Explore disaggregating the current services provided by publishers (such as filtering, editing, dissemination, registration, and so on) and how current scholarly publishing stakeholders might be incentivized to embrace these changes.	1. Develop partnership agreements to work together to change the culture of communication inside academia (and as part of this effort, clarify messaging with regard to benefits and impacts of open).	<ul style="list-style-type: none"> <li>• <b>Acknowledging:</b> Scholarly communication is changing and this change presents opportunities and challenges.</li> </ul>
<b>What is publishing? 2</b>	Explore ways to change the publishing culture inside of academia, including systems of academic recognition and reward. Identify unmet author needs, and gaps in evidence and knowledge, develop disciplinary approaches, and use pilots rather than one-size-fits-all approaches.	2. Lay the groundwork for promotion and tenure reform (a framework agreement with stakeholder partners to disentangle the influence of journal publishing and make evaluation more transparent).	<ul style="list-style-type: none"> <li>• <b>Describing:</b> Some of the change that is happening involves shaking up the current system to utilize publishing tools and approaches that may be better suited to an Internet-based information world. But not all current and needed changes fall into this category. Indeed, some of the most needed changes do not.</li> </ul>
<b>What is open?</b>	The scholarly community’s current definition of “open” captures only some of the attributes of openness that exist across different publishing models and content types. We suggest that the different attributes of open exist along a broad spectrum and propose an alternative way of	3. Pilot new spectrum measures for “open” and impact (see the reports from the “Open Impacts” and “What is Open?”	

	describing and evaluating openness based on four attributes: discoverable, accessible, reusable, and transparent. These four attributes of openness, taken together, form the draft “DART Framework for Open Access.” This framework can be applied to both research artifacts as well as research processes.	
<b>Who decides?</b>	<ol style="list-style-type: none"> <li>1. Evaluation: Re-assess the criteria for academic tenure and promotion <ol style="list-style-type: none"> <li>a. Fully consider OA publications on the same footing as all other outlets in research assessment</li> <li>b. Research and validate the use of altmetrics</li> <li>c. Reward greater openness</li> </ol> </li> <li>2. Incubation: Nurture alternative, community-driven publishing models</li> <li>3. Transformation: Facilitate a “global flip” of research journals from subscription-based to OA.</li> </ol>	<ul style="list-style-type: none"> <li>workgroups). Also assess the routes by which such measures might come into common use and the lessons to be learned from previous attempts that have not been taken up.</li> <li>4. Develop and recommend new tools to replace the journal impact factor.</li> <li>5. Fund studies or pilots that will help: <ol style="list-style-type: none"> <li>a. Identify which publishing services can/should be better handled by others (disaggregated).</li> <li>b. Assemble and supplement as needed an evidence base to better inform our policies regarding embargoes.</li> <li>c. Develop a stronger underpinning (economic modeling?) for the discussion surrounding the idea of pushing a global flip to open using APCs (e.g., how might this affect access in the global south?).</li> <li>d. Identify the economic impacts of open.</li> <li>e. Get a better understanding of how the system works now, and then identify scholarly publishing standards, norms, best practices, exit strategies, incentive systems, and a future ideal.</li> </ol> </li> <li>6. Identify which scholarly publishing stakeholders</li> </ul>
<b>Moral dimensions</b>	In this transition period, we need to encourage a period of exploration and grace in the search for new models, while being prepared to judge such efforts by the highest moral standards. We must consider, for example, whether a particular invention maximizes the new digital affordances in order to increase universal access. We consider it our responsibility to make judgments about the morality of acts, artifacts, systems, and processes, but not on the morality of people and organizations.	<ul style="list-style-type: none"> <li>• <b>Doing (general guidelines for action):</b> <ul style="list-style-type: none"> <li>○ We don't have a clear, coordinated action plan for improving open. What needs to happen today, tomorrow and the day after? Who are the actors, what are the mileposts, what are the likely impacts, and how do we measure success? (Note that these concerns don't necessary suggest that OSI itself should create and evaluate specific programs of work. Rather, this is a commentary on the need for OSI to identify what it can do and how it will operate, and then farther down the road, what kinds of synergies OSI can encourage.)</li> <li>○ Some change will need to involve reforming the communications culture inside academia, where old publishing methods, measures and perceptions can drive author choices and be used as proxies for merit when evaluating grant awards and tenure decisions. And some will need to involve examining our</li> </ul> </li> </ul>
<b>Usage dimensions</b>	<ol style="list-style-type: none"> <li>1. Perform a landscape assessment of scholarly communication and workflow tools to categorize current best practices, standards and norms.</li> <li>2. Create an issue brief concerning funder support of open access. OSI should identify conversations that are already happening in this area, looking for synergies and potential partnerships, and facilitate knowledge sharing in this area.</li> </ol>	
<b>Evolving open 1</b>	<ol style="list-style-type: none"> <li>1. We need a better understanding of how the system works now. Specifically, we need a comprehensive study that shows in detail, country by country, how</li> </ol>	

	<p>funding, tenure, and promotion decisions are made and the role of research outputs and activities within this decision making process.</p> <ol style="list-style-type: none"> <li>2. As a community and at a high level, define an ideal future across all issues—peer review, impact factors, etc.</li> <li>3. Ensure that any new impact system adopted be transparent.</li> </ol>	<p>can work together on these and other efforts and how (multiple stakeholders require a convening power).</p> <ol style="list-style-type: none"> <li>7. Develop new funding models such as a venture fund that can allow more support for joint efforts, or improve the flexibility of library budgets (e.g., by examining the efficiency of “big deals”).</li> </ol>	<p>own biases that publishing is a binary proposition involving either open or closed, subscription or APC-based, right or wrong. Open, impact, author choices, peer review and other key concepts all exhibit a range of values. Identifying non-binary measures for some of these values (as proposed by several workgroups) may be helpful insofar as allowing stakeholders to focus on improving areas most in need of change and comparing progress and best practices across disciplines, institutions, publishing approaches, funders and so on.</p>
<p><b>Evolving open 2</b></p>	<ol style="list-style-type: none"> <li>1. We recommend that OSI commission the development of a comprehensive set of resources and messaging efforts, targeted to specific audiences, to increase the profile of open access across stakeholder groups.</li> <li>2. We recommend that OSI appoint a Task Force to develop a strategy for the establishment of an open access venture fund, and deliver a report at OSI 2017.</li> <li>3. We recommend that the topic of liberating subscription budgets (and the dissolution of “big deal” models) be a future OSI Working Group, with representation from both libraries and publishers.</li> <li>4. We recommend that an OSI Working Group identify and seek ways to close gaps within the OA infrastructure, beyond STM journals (the lack of developed infrastructure beyond STM journals and the fragmentation and lack of interoperability of systems and processes.</li> </ol>	<ol style="list-style-type: none"> <li>8. Propose radical new repository interoperability and infrastructure solutions.</li> <li>9. Develop a broader and clearer description of peer review that takes into account the different needs for different stages.</li> </ol>	<p>Identifying non-binary measures for some of these values (as proposed by several workgroups) may be helpful insofar as allowing stakeholders to focus on improving areas most in need of change and comparing progress and best practices across disciplines, institutions, publishing approaches, funders and so on.</p>
<p><b>Open impacts</b></p>	<p>Openness scores should be developed, as well as utilization and economic impact measures. Ideas are proposed for what would be included in the baselines of each such evaluation. More research is needed and proposed, perhaps as standing (ongoing) OSI efforts.</p>		<ul style="list-style-type: none"> <li>o Any widespread change is going to require a widespread effort. There are simply too many stakeholders with different interests and perspectives who influence different decision points. No single stakeholder or group will be able to affect this kind of change unilaterally.</li> </ul>
<p><b>Participation</b></p>	<ol style="list-style-type: none"> <li>1. Cultural change</li> <li>2. Consistent messaging</li> <li>3. More and better open publications</li> <li>4. Institutional commitments to scholcomm efforts (including adjusting incentive and reward systems)</li> <li>5. Support more research into solutions and sticking points</li> </ol>		<ul style="list-style-type: none"> <li>o How do we make these</li> </ul>
<p><b>Overload &amp; underload</b></p>	<ol style="list-style-type: none"> <li>1. Increase information literacy efforts toward understanding the</li> </ol>		

behavior of information systems and economies, which can in turn prepare students and scholars to make both more understandable to others.

2. Expand information literacy to include knowledge about the nature of computation and its control over what is accessible from and delivered to our devices.
3. To address the overabundance of information that causes overload, filtering systems are needed to identify, sort, select, and summarize relevant information.
4. To address the problem of underdelivery of or lack of access to information, known as information underload, remove widespread sociopolitical, technological, educational, geographic, and financial barriers.
5. Apply more open metadata, social media, digital tools and networked expertise to advance discovery. Better exposure and discovery options for scholarly products are still needed, as well as the means to understand and apply them.
6. Convert more content into a machine-shareable form and continue promoting openness through responsible curating, archiving and discovery of raw data.
7. Advocate for mandatory copyright exception for text mining and encourage publishers and vendors to remove obstructions to mining content.

reforms in response to the needs and concerns of authors rather than in spite of authors (authors are not a homogenous group with common interests or opinions, of course, but there was some sense among delegates that reform efforts could be better attuned to what authors needed)?

- o How do we make changes across disciplines (which have different needs) and that also effectively build on the efforts of the many stakeholders in this space?
- o How do we reform the system without losing its benefits?
- o How do we move from simply repairing dysfunction to creating a more ideal publishing world and reaping the benefits that such a world could provide in terms of participation, efficacy, efficiency, and discovery?
- o Developing standards and norms would be helpful as we move forward, as well as answers to a

**Repositories & preservation**

1. Clarify opportunities for UNESCO and WSIS to engage in this effort
2. Coordinate action among meta-organizations (e.g., COAR, CLIR/DLF)
3. Raise funds for improved sustainability and stewardship through investments and endowments in repositories
4. Support aggregation driven by preservation concerns, such as:
  - a. Electronic legal deposit (UK)
  - b. Portico, Chronopolis, APTTrust, and DuraSpace
  - c. DPN, MetaArchive Cooperative, CLOCKSS
5. Build workflows and an ecosystem in order to ensure

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long-term access and preservation.

number of key questions.

- Peer review**
1. Pre-publication peer review:
    - We encourage the use of preprint servers
    - We also encourage the facilitation of a flexible, nonlinear process of peer review outside of and supplementing journal-based peer review
  2. Traditional peer review:
    - We recommend that all disciplines work toward a culture of openness in peer review.
    - We encourage the exploration and addressing of the problems, real and perceived, with transparency in peer review.
  3. Post-publication peer review:
    - We recommend the facilitation of post-publication review of traditionally reviewed publications.
    - We recommend experiments with crowd systems that incentivize broad, representative participation—for example, with a currency, rating, or credit system.
    - Any credits or ratings should be acknowledged by employers or funders of those doing the reviews as valid metrics in career progression.
  4. Overall, more study, pilots and standards are recommended, as detailed in the report.

**Embargoes** A project is proposed to study and reform the current embargo system. The stages of this project are as follows:

1. funder identification (already begun) and brief (drafted)
2. literature review (already begun)
3. case studies analysis

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4. employing researcher(s) and surveying stakeholders
  5. analysis of survey data and presentation at OSI 2017 (by the OSI 2016 Embargo Workgroup). The OSI Embargo Workgroup has prepared a set of draft survey questions and will analyze the survey data and present it to OSI 2017

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| <b>Impact factors</b> | <ol style="list-style-type: none"> <li>1. DORA recommendations should be implemented. Future OSI workgroups should assess the initial response of research funders, especially in the biomedical field, to this proposed action and amend the following actions accordingly.</li> <li>2. Create templates for universities / disciplines, to facilitate the development of appropriate tenure and promotion frameworks to implement DORA</li> <li>3. Create an international metrics lab, learning from prior attempts to do this, and staffed with a coalition of groups already in this space (as identified in the report).</li> <li>4. Share information about the JIF, metrics, their use and misuse, via a resource page on the OSI website and partnerships with institutions as identified in the report</li> <li>5. Improve the validity of the JIF as one indicator of journal quality (OSI workgroups focused on indicators or impact factors should draft a list of improvements required to the JIF)</li> </ol> |
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| <b>At-large</b> | <ol style="list-style-type: none"> <li>1. Promotion and tenure was discussed at some point in most, if not all, workgroups. Notably, there was no team expressly designated to tackling the question of promotion and tenure. There is recognition that while promotion and tenure is a key component of the publishing ecosystem, there is perhaps little that publishers themselves can do to influence the process. In this sense, OSI could conceivably work with other stakeholders throughout the academic system to express perspectives and positions on this evolution.</li> <li>2. More focus on impact is another idea. The at-large committee's</li> </ol> |
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observations lend credence to the idea that a “spectrum of impact” measure might be developed by OSI to parallel the spectrum of open proposal. Specifically, a theme running as an undercurrent in many workgroup discussions was a greater need to focus on assessment of the value of research and scholarship. Notably, nearly all participants in the OSI2016 conference, and most stakeholders in the entire scholarly publishing ecosystem, have an interest and need to measure the impact of research and scholarship.

3. Improve composition and representation for OSI2017, begin focusing on action instead of ideas

## OSI2017 WORKGROUP RECOMMENDATIONS

WORKGROUP	GOAL	KEY RECOMMENDATIONS	TOOLS	TAKEAWAY
<b>Culture of Communication</b>	Improve the culture of communication around open access inside academia, particularly inside research	<ol style="list-style-type: none"> <li>1. <u>Clarify</u> the message about OA. Identify what OA is, and what it is not</li> <li>2. <u>Create and communicate</u> messages for particular communities regarding the benefits and impacts of Open</li> <li>3. Determine what resources and information are needed before this messaging can be effective (1)</li> </ol>	Website, plus partnerships, awards, workshops, stories, social marketing, communication mapping (for each institution), OSI as fulcrum or catalyst	Better communication needed to advance open
<b>Funding</b>	Identify and/or design new funding models for open, or propose ways to improve existing funding by improving the flexibility of library budgets	<ol style="list-style-type: none"> <li>1. One model of open will not work for all communities. Stop pursuing one-size fits all.</li> <li>2. Share lessons from different communities (blogs, case studies, etc.) and set and track goals to increase OA</li> <li>3. More research: Find more info on APC costs and spending, identify income-generating possibilities in scholarly publishing, identify economies of scale to reduce access costs</li> </ol>	Website	Need better OA tech, coordination, communication, incentives, rewards, and more. Address these issues first and more money for OA will follow.
<b>Global flip and other studies</b>	Create a broad action plan for the	<ol style="list-style-type: none"> <li>1. Support development and dissemination of tools to</li> </ol>	Website (gathering more understanding	More understanding

	global flip. Other studies were acknowledged but not addressed (embargos, publisher services disaggregation and an assessment of open impacts)	<ol style="list-style-type: none"> <li>increase understanding of the potential impact of a Global Flip on library budgets.</li> <li>Commission a third-party study to analyze the financial and scholarly implications of the flip on both publishers and the academic community,</li> <li>Identify, support, and share information about cooperative models that align with the Global Flip strategy to increase trust and transparency among stakeholders</li> </ol>	about concerns, impacts, and showcasing global flip as a path and not a destination)	needed, followed by broad sharing of best practices
<b>HSS &amp; Science</b>	What are the universal solutions for both HSS & STEM with regard to open? HSS and STEM have different challenges and much more focus and funding) is available for STEM than HSS.	<ol style="list-style-type: none"> <li>Disciplines need to find their own solutions from within. Pilot an OA program in HSS or social science.</li> <li>Promote areas of interest/benefit convergence between HSS &amp; science: <ol style="list-style-type: none"> <li>Visibility</li> <li>Public engagement</li> <li>Preservation</li> <li>Text and data mining</li> <li>Interdisciplinarity</li> </ol> </li> </ol>	Website, more funding for HSS (legislation), common solutions	OA models are not strong in HSS. More communication is needed about the different needs of HSS & STEM
<b>Impact factors</b>	Improve ways to measure research impact	<ol style="list-style-type: none"> <li>Interview journal editors to find out what's working, what's not, and what's missing</li> <li>Get behind effort to share information on metrics best practices and drive innovation across disciplines and outputs</li> <li>Encourage disciplines to own their own assessments (work with societies to get this effort stated)</li> </ol>	Website, studies, collaborations	Measuring the impact of the broad range of scholarly communication output isn't happening with current tools
<b>Open IP</b>	Develop recommendations relevant to improving the discovery, access and use of patent data and closely-related IP	<ol style="list-style-type: none"> <li>Promote guiding principles for Open IP as detailed in workgroup report and explain how this ties in to the open spectrum</li> <li>Work with WIPO to help establish international standards for open IP</li> <li>Create IP literacy materials for the research community</li> </ol>	Partner with WIPO	Open IP is an emerging issue with many needs and challenges. OSI can help coordinate these needs and challenges with respect to scholarly communications.
<b>Peer review</b>	Develop a broader and clearer	<ol style="list-style-type: none"> <li>Work as a community (coordinating with partners</li> </ol>	Coordination with partners	The best course of action for this



	description of peer review that takes into account the different needs for different stages of review, as well as discuss possibly emerging issues such as the need to promote uniform interpretation and enforcement of peer review definitions, and develop proposals for moving forward.	<p>like COPE) to define more clearly what is and isn't peer review, in order to impose an accepted standard that all journals will need to follow.</p> <ol style="list-style-type: none"> <li>2. Support or conduct studies that investigate the effectiveness of different modalities of peer review (open vs. closed, two-person vs. many, etc.) to help provide support and direction to the scholarly communication community as it experiments with different peer review systems</li> <li>3. Investigate the feasibility of publisher services disaggregation, whereby peer review (and other services such as editing) can be offered as discrete services</li> </ol>		community will be to support continued investigation and experimentation with new methods and weigh the pros and cons of each
<b>Institutional repositories</b>	Propose a way forward for repository and infrastructure solutions, detailing what's needed before action to be taken, what this action should look like and what actors should be involved	<ol style="list-style-type: none"> <li>1. Step 1: Study and map the current IR network. Identify the nodes, as the potential networks and sub-networks.</li> <li>2. Step 2: Convene a conversation with major and globally diverse IR stakeholders under the auspices of UNESCO to ask what problems we're trying to solve, etc. (2)</li> </ol>	UNESCO-led global meeting	Institutional repositories mean many different things to different people. Finding common ground on the future of IRs is important—aligning incentives that will result in more interoperability and sustainability.
<b>Rogue solutions</b>	What are the impacts of Sci-Hub and other rogue solutions on open access and what is the future of this approach?	<ol style="list-style-type: none"> <li>1. Sci-Hub and any other service that acts in blatant violation of copyright laws, does not fall within the definition of open access and is not a solution to be considered by the workgroup</li> <li>2. To get away from the solely negative connotations of "rogue," we decided to coin a more expansive term and asked, what can we learn about scholarly communication from the rise of New and Entrepreneurial Approaches to Open or...NEATOs</li> </ol>	Observe and educate	NEATOs highlight pain points in the current scholcomm system. They are less effective at addressing the large-scale problems in scholcomm or advancing the cause of open.
<b>Standards</b>	Identify existing relevant standards, evaluate areas of overlap or perhaps	<ol style="list-style-type: none"> <li>1. Modify DART spectrum from OSI2016 to become the DARTS spectrum (adding "sustainability") and officially endorse this as a group (3).</li> </ol>	Promote DART, collaborate with many partners, marketing/outreach (website)	Creating a more transparent scholarly ecosystem requires

	<p>conflict, which can be used to foster increased collaboration, and areas where relevant standards do not yet exist, which can be used to focus future effort</p>	<p>Connect DARTS to the Open Science Framework and also a new Open Standards Matrix (as described in the report)</p> <ol style="list-style-type: none"> <li>2. Work toward standardization across many other issues and questions in scholcomm, from peer review to data deposits by coordinating with other actors in this space and connecting related efforts</li> <li>3. Advocate for tools that make every part of the research workflow more connected, efficient, and preserved, such as the Open Science Framework.</li> </ol>		<p>rethinking how each individual and institution is rewarded and recognized for their roles in knowledge creation and dissemination, so that transparency becomes a key metric of success and accountability. Furthermore, it requires careful attention in order to design a system that is sustainable, just, and responsive to new evidence.</p>
<b>Promotion &amp; tenure reform</b>	<p>How can professional advancement practices—including and beyond promotion and tenure review standards—be realigned to encourage researchers' adoption of open access, open research, and open educational practices?</p>	<ol style="list-style-type: none"> <li>1. Research the existing landscape to better understand open research recommendations and requirements in professional advancement materials (P&amp;T guidelines, job advertisements, university contracts, annual appraisal guidelines, etc.) at leading universities worldwide.</li> <li>2. Engage scholarly societies and high-level university research administrators and provosts to learn more about the challenges of promoting openness in promotion and tenure from their perspective.</li> <li>3. Most debate around open research practices and professional advancement only address STEM use cases. OSI delegates should conduct a thorough literature review and interview and survey faculty from across all disciplines, career levels, and institution types to find answers to key questions (4)</li> </ol>	<p>Research, partnerships (to aid in both research and outreach/promotion), and then carry out a plan to present recommendations, gather feedback, and promote piloting and adoption of new p&amp;t guidelines</p>	<p>Academia needs: A closer reading of research by committees charged with evaluation, rather than relying on the surrogates of publication venue and impact factor; a broader view of the types of scholarly outputs that committees should consider as evidence of productivity and impact; an explicit acknowledgement of the benefits of publishing in open access venues; and incentives that encourage openness.</p>
<b>Underserved</b>	<p>What are the unique challenges in scholcomm faced by the global south?</p>	<ol style="list-style-type: none"> <li>1. Build an APC-finder tool</li> <li>2. Policy shifts needed: Encourage more public sector shifts toward openness, more incentives for universities to publish in in-country journals, strengthen regional OA publishing systems, linking</li> </ol>	<p>Partnerships, broad policy development and implementation, standards and best practices initiatives</p>	<p>There is much bias in the current global system of scholarly publishing. Unless corrected, this bias will continue to widen the gap between the</p>

		<p>of OA with science policy agendas, expansion of LMIC aggregator platforms, more south-south networking and collaboration</p> <p>3. Development of visible displays of verified, appropriate, and objective standards is needed to showcase excellent journals from developing countries and mentor young emerging ones, dispelling stereotypes and excluding fake journals.</p>		<p>global north and global south with regard to scholarly publishing opportunities and outputs.</p>
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Notes:

- (1) including showing the benefits of Open to a skeptical research community; addressing the many concerns of stakeholders; clearly explaining the pros and cons; and demonstrating the case for why the transition to Open is worth the trouble
- (2) These questions include: What problems are repositories trying to solve? What repository behavior would we like to see and why? How can we work together to incentivize it? How can we attend to different scholcomm needs across different fields? How can we make everyone accountable: publishers, libraries, funders, researchers? How can we achieve a sustainable, decentralized, networked system while gaining efficiency through higher levels of aggregation? How do we minimize waste and maximize value in the repository ecosystem?
- (3) Proposed: The Opens Scholarship Initiative envisions a scholarly community where all parts of the research lifecycle are openly available. In order to achieve this vision, OSI adopts the following principles in order to evaluate policy proposals and actions: research products must be made more Discoverable, Accessible, Reusable, Transparent, and Sustainably supported. Policies that increase openness among one or more of these dimensions, while having no net decrease on any other, are aligned with the mission and purpose of OSI delegates and member institutions.
- (4) These questions include: Where are the pain points for researchers with respect to Open Access and open research practices? How many researchers worldwide have funding requiring open publishing and open research mandates? What are the pain points for those researchers? How do institutional OA policies impact tenure-track faculty that are also required to follow promotion and tenure requirements that disincentivize open research practices? Do funder requirements for Open Access positively affect open research practices in the tenure and promotion process, where such P&T requirements weigh research funding into P&T cases? What can we learn about researcher evaluation from research institutes or academic libraries that don't have tenure (e.g. Scripps or HHMI)? What are the best parts of research evaluation practices worldwide, which we can borrow from to promote openness? What are the worst evaluation practices that should be avoided?

## OSI2017 STAKEHOLDER GROUP RECOMMENDATIONS

STAKEHOLDER	GOAL	KEY RECOMMENDATIONS	TOOLS	TAKEAWAY
<b>Infrastructure</b>	More collaboration and cooperation amongst infrastructure groups is needed to advance goal of open. Given that research transcends disciplines, geography, institutions and stakeholders, the infrastructure that	<ol style="list-style-type: none"> <li>1. Scan the current bits and pieces of infrastructure and evaluate their adoption on a global scale</li> <li>2. Engage with the "owners" of the infrastructures to push for measures that can</li> </ol>	Collaboration, partnerships with and between infrastructure groups, negotiation with and between other stakeholder groups	Infrastructure is critical to open but these structures originated and are oriented toward the North/West, and most developed without sufficient consultation with

	supports it needs to do the same.	secure global implementation/adoption		the global community
<b>Journal editors</b>	What are the common issues across all journals in all regions that can be improved, particularly with regard to journals in the global south?	<ol style="list-style-type: none"> <li>1. Pursue systemic changes regarding standards, indexing and language access (1)</li> <li>2. Educate the academic community about the importance of journals to research culture and open publishing (including editors, peer reviewers, editorial boards); the role of impact factors in P&amp;T in undermining smaller, more specialized journals and those in the global south; the importance of mentorship; learning from global south journals, many of which are already OA and publishing at low cost; and addressing academic culture change to improve research standards (2).</li> </ol>	International collaboration and agreement across disciplines on new standards and approaches	Journals in the global south face unique challenges. These are partly the result of having to try to fit into an expensive and rigid “northern” system, and partly because of lack of funding and training and a less developed research and academic infrastructure.
<b>Libraries</b>	What are the common interests and perspectives of libraries and how can they work together to help advance open?	<ol style="list-style-type: none"> <li>1. <u>Support, engage and/or collaborate on actions that continue to build out the framework for more open (3)</u></li> <li>2. <u>Support, engage and/or collaborate on actions that continue connecting resources and efforts to make more open possible (3)</u></li> <li>3. <u>Support, engage and/or collaborate on actions that continue to improve the capacity of existing open resources and efforts (3)</u></li> </ol>	Outreach, discussion, and collaboration efforts/tools	Despite wide differences in resources, definitions and more, there is broad support amongst libraries everywhere for open—to provide stewardship in discovery, preserve and disseminate the scholarly record, ensure the efficient and effective use of budgets, and to advocate for equitable access.

<p><b>Open knowledge groups</b></p>	<p>What are the common interests and perspectives of open knowledge groups?</p>	<ol style="list-style-type: none"> <li>1. <u>Address question 1:</u> OA jargon is a barrier to understanding amongst stakeholders. What can we do to reduce the jargon?</li> <li>2. <u>Address question 2:</u> We need to deliver more content to the communities who need it. How do we do this?</li> <li>3. <u>Address question 3:</u> How do we establish financial sustainability for a free-free environment (free to publish, free to consume)?</li> </ol>	<p>Communication, clarity, standards, agreements, outreach</p>	<p>There's a lot of diversity in the open knowledge stakeholder group. This is an exciting time to innovate, and there are lots of good solutions emerging.</p>
<p><b>Commercial publishers</b></p>	<p>What are the common interests and perspectives of publishers with regard to open?</p>	<ol style="list-style-type: none"> <li>1. <u>Address question 1:</u> There is little engagement from funders at the OSI meetings and there is virtually no attendance from the Global South. Will we fix this?</li> <li>2. <u>Address question 2:</u> It is unclear what the exact impact of the initiative can be, particularly as it will be very difficult to unite all stakeholders in recommendations or even opinion statements. How will this work with regard to commercial publishers?</li> <li>3. <u>Address question 3:</u> Publishers are concerned about the vulnerability of the organization, as it is basically a one-man-show in its current form. Will this be fixed?</li> </ol>	<p>More funding, more discussion. Also more joint ventures in the development of common frameworks for storage, common definitions for open, etc.?</p>	<p>Open access is an important subject for virtually all publishers. Publishers are also important drivers of innovation in scholarly communication, and are committed to serving their clients and customers. However, there are wide variety of publishers with a wide variety of business models, not to mention different opinions, policies and strategies. Also, because many of them compete with each other, it is in many cases forbidden by law and/or unwanted (for competitive reasons) to share opinions, policies and strategies.</p>

<p><b>Research universities</b></p>	<p>What are the common interests of research universities in advancing open?</p>	<ol style="list-style-type: none"> <li>1. <u>Thought exercise:</u> If we were reinventing the modern research university library from scratch, what would it look like?</li> <li>2. <u>Thought exercise:</u> Think critically and creatively about the development of programs and platforms that explore open in ways that meet the needs of our scholars. Can we imagine and realize, for example, university-supported platforms for open data sharing that invite peers in as collaborators rather than competitors? Can we incorporate commercialization into our vision of open scholarship as one of a number of modes of dissemination?</li> <li>3. Real advancement requires support for the innovation and experimentation of our scholars, structures tolerant of failure and admitting of a new range of techniques and approaches. Solutions will come from the many, many stakeholders that comprise our institutions – our scholars, libraries, computing support, offices of sponsored projects and our information technology and high performance computing infrastructure.</li> </ol>	<p>Dialogue (plus a convening party) to expand into creative solutions at local and consortia levels, and openness to a variety of solutions and approaches</p>	<p>Research universities are committed to exploring ways to advance open research, but also sensitive to the reality that one-size-fits-all approaches do not reflect the needs and concerns of all scholars (without whom there would be very little intellectual product to debate).</p>
<p><b>Scholarly communication experts</b></p>	<p>What are the common interests that scholcomm experts have with regard to open?</p>	<ol style="list-style-type: none"> <li>1. <u>Internal to OSI:</u> Get more input and involvement from authors, researchers, research offices and administrative leaders.</li> <li>2. <u>Between OSI and the broader scholcomm community:</u> Create/facilitate an OSI fellows program that helps share insight between scholcomm silos by seconding staff from libraries to publishers, research admin offices to</li> </ol>	<p>More dialogue, engagement, involvement, bridge-building, participation, flexibility—more of everything</p>	<p>This stakeholder group shares a perspective of OA that reflects both the need for clarity in communicating about what open scholarship means, and a richer underlying landscape enabling a spectrum of openness for different scholarly objects. This group also shares an</p>

		<p>scholcomm offices and so on. Also, ask OSI participants to serve as ambassadors to their respective communities to facilitate the broader exchange of ideas and perspectives.</p> <p>3. <u>In the scholcomm community</u>: Establish open norms and standards to make it easier for everyone to participate in the open ecosystem. Also, support more author choice in this ecosystem</p>		<p>interest in more clearly fostering and articulating the incentives for OA publishing to effectuate behavioral changes.</p>
<b>Scholarly societies</b>	<p>What are the common interests of scholarly societies and how can they work together to advance open?</p>	<ol style="list-style-type: none"> <li>1. Socialize concepts of open more within communities, including by educating constituencies on the benefits and requirements of open. Additionally, offer platforms and recognition for those making the shift by managing member metadata, connecting, tracking, and rewarding contributions to open, offering discipline-specific awards for open, building scholarly communication networks, and offering micro-credentialing in open.</li> <li>2. Bring together independent society publishers to determine if collaborations can be made. Determine how to increase efficiencies across the ecosystem.</li> <li>3. Determine how the funds in the system can be redistributed (institutionally, nationally, internationally) to provide a more transparent economic relationship among producers, consumers, and publishers of information.</li> </ol>	<p>Conversation, collaboration, pilot programs</p>	<p>Societies are in a unique position to influence the move toward open because they represent large groups of professional constituencies. This said, society publications are self-sustaining and fund other society programs and services, and traditional society publishing take care to steward and advance research, so there's a disincentive to change models.</p>
<b>Summit group</b>	<p>What are the high-level takeaways from OSI2018?</p>	<ol style="list-style-type: none"> <li>1. OSI needs to put new communication tools and processes in place in order to continue to engage people productively, particularly</li> </ol>	<p>Communication</p>	<p>Even more important than governance structure, OSI needs to put new communication</p>

		across stakeholder groups, throughout the year.		tools and processes in place.
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Notes:

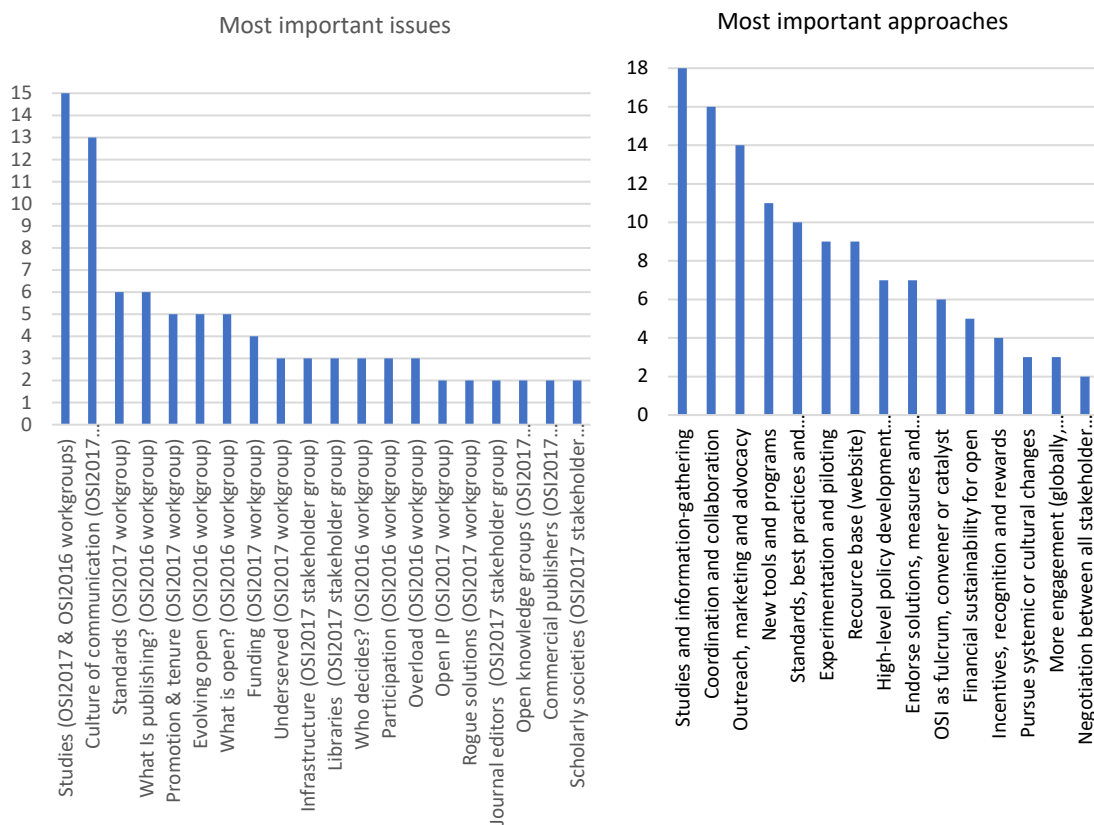
1. Proposed systemic changes include:
  - a. Standards:
    1. Establish (with global representation) clear, achievable, evidence-based journal standards focused on improving the quality, transparency, and reproducibility of research, rather than the appearance of the journal. Standards should have few out-of-pocket financial requirements and means for journals to pay for them should be addressed.
    2. Contact CrossRef and CLOCKSS regarding how to achieve (markedly) reduced costs for Global South and other small under-resourced journals
    3. Develop (with global representation) data policy standards regarding authors' retaining and sharing data
    4. Identify free or nearly free data repositories such as Figshare for author and editor reference
    5. Develop (with global representation) standards for data privacy for Global South authors, institutions, and editors to use
    6. Develop (with global representation) approaches for Global South institutions to develop institutional repositories – funding and best practices
    7. Study why some journals may cease to adhere to standards and determine ways to prevent declining standards
  - b. Indexing:
    1. Catalog requirements of major indexes for editors to easily reference; synthesize requirements into standards to improve likelihood of indexing; identify issues with Global South journal practices that impede indexing, and causes and ways to alter their practices
    2. Identify liaisons at major indexing organizations to turn to when editors have questions
    3. [Until truly global indexing is available] Strengthen regional journal indexes that national research evaluation systems, institutions and researchers (including systematic reviewers) can use to ensure that they are capturing all relevant research
    4. Evaluate standards of “international” indexes to determine why Global South journals are preferentially not indexed
    5. Approach indexing organizations regarding requirements that may not be essential and inequality practices that may introduce bias against Global South journals
    6. Approach Google Scholar re: increasing the likelihood that Global South journals and articles will appear in search results
  - c. Language Access:
    1. Identify (with global representation) ways to encourage journals to publish in the main language of the country (with English abstracts provided by the author if the journal cannot afford professional translation)
    2. Convey (with global representation) the importance of publishing in the country's language to academic institutions within the country
    3. Convey to Google (with global representation) the importance of improving automated translations of research (particularly medical research) to at least improve the first pass of research translation before professional translators or authors refine translations.
2. Proposed culture changes include:
  - a. Importance of Journals to the Research Culture
    1. Convey to academic institutions and funders the importance of journal editors to the culture of academic scholarship
    2. Encourage institutions to recognize the services that peer reviewers and editorial boards provide as important academic achievements
  - b. Impact Factor
    1. Convey to Global South academic institutions and funding organizations the problems that use of impact factor and publication in Global North journals as criteria for research impact create for Global South journals and the fostering of academic culture in the Global South; explain the limitations of the impact factor and the alternative means of judging impact set out by DORA and implemented by some funding organizations such RCUK/MRC
    2. Examine incentives for Global South researchers and how incentives might be changed to promote open publishing and publishing in Global South journals
  - c. Importance of Mentorship



1. Examine with potential funders ways in which a Global South network might be developed, incorporating existing standards such as ORCID
2. Contact scholarly societies to determine feasibility of new programs pairing specialty societies in the Global North and South
- d. Learning from the “South”
  1. Create a clearinghouse for ways in which journals, publishers, and indexers in the Global South and North are improving quality, implementing standards, streamlining publishing, evaluating journals, or otherwise improving the publishing process. The clearinghouse should be available for researchers to evaluate the efficacy of particular approaches for different regions of the world.
- e. “Open” questions
  1. Develop (with global representation) best practices for journals based on their funding model, including those funded by government, institutions, and other funders, to preserve editorial freedom and prevent conflicts of interest
  2. Involve stakeholders in various regions in discussions around how to change academic culture to value openness and to value publishing regionally in the research language
  3. Involve stakeholders to identify ways in which institutions and funders can incentivize ethical research and detect and prevent research misconduct.
3. Library-identified efforts for support, collaboration and/or engagement include:
  - a. Shared training and teaching resources
  - b. OERs as a means to promote more open practices on campus
  - c. Optimization of open source repository platforms
  - d. Improve discovery of what is already made available
  - e. Engage with projects such as Initiative for Open Citations (I4OC)
  - f. Identify opportunities for cross-institutional OA publishing
  - g. Exploration and investment into the different models of Open Access from a library perspective that recognizes institutional diversity (i.e. Pay it Forward project)
  - h. Journal Assessment (possibly addressing white/black lists of journals)
  - i. Advocacy efforts that push a need for greater transparency in the pricing of OA journals
  - j. OSI facilitation of more communication and information sharing across stakeholder groups (i.e. Tenure reform and Impact Factor groups)

## SYNTHESIS OF OSI2016 AND OSI2017 RECOMMENDATIONS

OSI2016 and 2017 reports were analyzed for their “connectedness” to try to develop a quantitative take-away to supplement our gut feeling assessment of which issues and methods were most important to the OSI group. The following data provided a foundation for the OSI2018 summit group meeting’s work.



## OSI2018 SUMMIT MEETING

Our first OSI summit group meeting (our only in-person summit meeting) focused on laying the groundwork for our 2020-25 work. Our first order of business was to look inward and question ourselves: What is OSI and how do we work? Are we to be a convener, a synthesizer, a framework for action? Is synthesis the first stage, or would representing diversity be more valuable? Are we a RAND Corporation-like think tank? A scholarly communication “observatory”? A coalition of the willing? Should our approach be to first understand and educate, then develop a plan? UNESCO believes a resource base would be very useful for most of the world and indeed already considers OSI as fulfilling its mandate to support a Network for Open Access Scholarly Information Resources (NOASIR).

And what is OSI’s reason for being? Are we a hammer looking for a nail or does this need really exist? Does open matter to researchers? Do most researchers think the system is fine as is? The short answer, as noted in the OSI2017 report annex (SciELO presentation) really depends on:

- *who* you ask (different disciplines, institutions and stakeholder groups can have markedly different views of what should and will happen)
- *when* you ask (the answer is changing almost constantly)
- *what* you ask about (some parts of publishing are changing, some aren’t)

- *why* you ask (different problems—saving money, for instance—have different solutions)
- *where* you ask (different regions and institutions have different approaches), and
- *if* you ask this as a realist or an idealist (realists will say that nothing will change without publishers leading the way, idealists will say that publishers are the problem and that society has a moral obligation to reform publishing).

What is perfectly clear from OSI's work is that there is a broad diversity of perspectives and solutions. The summit group agreed that to the extent possible, it behooves OSI to embrace all efforts toward open and try to, at minimum, serve as an "honest broker" for these ideas. We also discussed whether working toward international synergy on open policies should be a goal of OSI—whether it's best to move gradually toward interoperable scholarly communication policies across nations and funders. Institutions and disciplines should still experiment at the local level, but at the macro level it may not be ideal to have some major funders (government and private) mandate one kind of open access and other major funders mandate another.

Also, while we aspire to represent a community, is there even a community? Scholarly communication involves lots of different people with lots of different interests. Maybe "ecosystem" is a more accurate word than community. Stakeholders across the scholarly communication ecosystem need to participate in reform for improvement to occur. Interconnectedness of issues needs to be emphasized and addressed. Getting people to broaden their thinking is job one.

In terms of specific action items, the key proposals covered in the day-and-a-half of summit discussions were OSI issue briefs, the OSI website, OSI structure and governance, regional meetings, official statements and side projects.

**1. Issue Briefs:** OSI will begin writing and publishing a series of short (1200-1500 word) papers that distill the key findings from the OSI conferences and online discussions to date. Our primary reference will be the dozens of conference papers authored to-date by OSI participants, the thousands of emails we've exchanged on a wide variety of topics, and the deeper dives we've made via Slack and other means. These briefs will all have a similar structure, including a concise statement of the topic, and a summary of previous work done, work that still needs to be done, organizations working on the topic, key stakeholders and policy makers, and strategies for collaboration (see the Annex section for a more detailed description of the issue brief philosophy and format). Some of the possible paper topics (all of which have been covered at some point by OSI listserv conversations or by OSI conference papers) include:

1. The open spectrum
2. What should we (or can we) do about deceptive publishing?
3. The future of Beall's list & blacklists
4. Author attitudes toward CC-BY
5. What do we really know about embargos?

6. How fast is open growing?
7. Can we measure the economic impact of open?
8. How much profit do commercial publishers really make (and why do we care)?
9. Disaggregating publisher services
10. Workable models of peer review
11. The moral case for open
12. The OA2020 global flip pros/cons
13. Cash incentives in scholarly publishing
14. The open access citation advantage—fact or fiction?
15. The impact factor scourge
16. Information underload in the developing world
17. SciHub
18. Open IP
19. The central role of scholarly societies
20. P&T reform and why this is a necessary for the future of publishing
21. Working together on common infrastructure solutions
22. Including HSS in the reform conversation
23. What is publishing anyway?
24. Journal article retraction facts and figures (how much of this is driven by reproducibility, fraud, or a few bad actors, how is this changing over time, what is being done to address this, etc.)
25. Can OA publishing hurt your career?
26. Can society afford open access (the pros and cons of open policies unfolding in the EU)?
27. Who decides what is open?
28. Evolving open solutions
29. Readability in journals—is this an issue (does it really help anyone to make a lot more unreadable articles open)?
30. Why researchers use ResearchGate (and should they?)
31. How much research spending is allocated to publishing anyway?
32. Can scientists help combat the spread of fake science news?
33. Why academics might find “new wave” journals appealing
34. The US Federal Trade Commission’s ruling against OMICS
35. Does junk publishing pose a threat to science?
36. The structure of publishing (for-profit, nonprofit, etc.)
37. global journal editing standards
38. global peer review standards
39. Has the time come for journal accreditation standards?
40. Are open protocols doable?
41. Is an iTunes model workable?
42. Issues at the intersection of open access and open data
43. The open matrix—taking the spectrum into more dimensions
44. A scholcomm definitions/glossary

45. A scholcomm how-to resource list: How to start an IR, how to publish in OA, etc.
46. Comparing regional issues and perspectives in OA (what's most important in Africa, Latin America, Europe, China, etc.)
47. The culture of communication in academia: Overview
48. How to recognize predatory publishers & publishing
49. Misc stats/facts (how many journals, what percent open, etc.)
50. Journal methodology myths and facts (Is methodology important in evaluating research papers? Do some journals do a better job of evaluating the methodological aspects of submitted papers than others? Do some journals think "novelty" is more important than "rigor"? Is journal prestige a real thing? Are some journals better than others? Is a journal's impact factor a good proxy for the rigor of its evaluation process?)
51. What are the open policies of different funding institutions, by funder, stakeholder group, institution, discipline, size, etc.

The summit group also established an editorial process for developing and evaluating these briefs.

OSI participants acknowledge the complexity of the issues we're working on and have validated our approach and effort. They have also noted that perhaps because of this dialogue (or perhaps in spite of it), it's becoming increasingly common to hear people in scholarly communication talk about how open isn't necessarily clearly defined and how open solutions aren't necessarily a no-brainer. When OSI first started airing these kinds of perspectives back in 2014, such talk was almost heretical—the blowback we received from a number of key leaders in scholcomm was significant and often personal. Now, however, three-plus years down the road, these kinds of concerns are expressed fairly widely. This isn't necessarily an OSI impact, but OSI may have had a limited role in helping make these conversations more allowable. The next step is to figure out what to do, of course—hand-wringing over the current state of affairs is not a stopping point.

2. **Improve outreach and education:** Reforming the culture of communication in academia will be the key focus point of this effort. How to get there from here will require many different approaches and groups. The scope of culture of communication issue looks like this:
  1. Structural: There's a need for clarifying definitions (e.g., what exactly is open?), providing lessons of experience and best practices examples, providing a resource base for open efforts, tailoring messages to each community, and so on. This is the space staked out by the OSI2017 Culture of Communication workgroup. You can read the details of their proposal at <https://journals.gmu.edu/osi/article/view/1933/1354>.
  2. Global impacts: Scholarship and scholarly publishing are not owned by the global north and west. They are dominated by the north and west, however. Therefore, as we contemplate changes to the global scholarly communication

system, we need to make a new system that works for everyone everywhere and doesn't marginalize or discriminate against the global south and east. Science has a long tradition of reaching across borders. We need to work on behalf of science to ensure that our mechanisms for sharing and promoting science uphold these same critically important culture of communication values.

3. Quality control: How do we balance the changing publishing landscape with the need to maintain quality and accuracy?
4. Ownership control: Even more fundamentally, if we shift "too far" into open, what does this mean for the need for "secrecy" and "ownership" in research—ensuring that researchers have adequate time and space to finish their research before publishing and get credit for their discoveries. "Open" and ownership are seen by some as being in fundamental tension. Are technical or procedural adjustments the answer? Maybe provenance changes (like using blockchain)? Some will advocate that we even need legal changes (government-funded work belongs to the public—hence, no "private" ownership), or moral/ethical changes along these same lines.
5. Incentives: How do we address incentive structures that have intertwined publishing acumen, impact factors and citation scores with tenure and promotion measures and funding success (without damaging the value these systems have)?
6. Politics and perceptions: There are pressures and misunderstandings on all sides in this conversation. Libraries, provosts, publishers, researchers, and funders all have their own unique perspective on what constitutes good scholarly communication and why. Who's calling the shots (and why)?
7. Inertia: Everything is built around doing thing the way they've always been done. If there's a reason to change, we need to make the case, and we need to slowly and surely build the case for changing, beginning with a few pilots and partnerships here and there, testimonials and evidence, advocacy by societies and universities, and enthusiasm by funders and publishers. It's going to take time, but if we're on to something good here, and if everyone is part of the solution, and if we can establish realistic guideposts and milestones, change can be self-guiding in this community.

Regional and local meetings will also play an important role in this work. These meetings will:

- Engage more experts from specific regions (particularly non-US regions), disciplines, institutions, or stakeholder groups in OSI's work. This will allow us to dig into and better understand specific challenges, and then help narrowly tailor specific solutions.
- Focus on one evaluating, fine-tuning, and broadly adopting solutions (with the backing of UNESCO) for specific key issues in scholarly communication—for instance, impact factors, peer review, or embargoes.

- Work in more ad-hoc fashions—for instance, by creating side panels at conferences, or holding one-off meetings with policy makers—on a variety of issues and proposals. This might take the form of identifying 3-4 key people from each region who are familiar with OSI and are willing to speak on behalf of OSI, and/or creating “tiger teams” that are equipped with (and trained in the use of) branded materials to talk about OSI at various conferences and meetings during the course of the year (using talking points, a slide deck, brochure, print-on-demand signage, etc.)
3. **Conduct studies and build open infrastructure tools:** A number of studies and projects need to be developed to help the cause of advancing the openness of research information. OSI doesn’t have the resources to pursue all of these. However, we should begin considering these projects all the same:
- a. **APC grabber:** A website that pulls in data on APCs for easy comparison or where publishers can self-post pricing info (granted there would be lots of caveats) would be a valuable resource for this community.
  - b. **Blacklist:** Should a new blacklist be developed? A whitelist? Some other solution? Various ideas have been discussed at length both on and off list and in a side group but a final decision hasn’t been reached yet.
  - c. **Cash incentives:** What are the cash incentives to publish in academia? There is anecdotal evidence from some parts of the world that this is a significant and corrosive phenomenon.
  - d. **Itunes:** Would an iTunes model work for scholarly journals? Would providing a-la-carte access to journal articles at 99 cents apiece be attractive to scholars and publishers?
  - e. **Open data:** Is there a role OSI should play in the open data conversation? There is much overlap on the core challenges facing the open access and open data movements. Sharing insights and collaborating on efforts might be helpful to both.
  - f. **Open protocols:** Open study protocols is an important and under-researched area. There are a few open protocol sites but none for major clinical work. What are the challenges? Is this a solvable problem?
  - g. **Profit margins:** The profit margins of commercial publishers has long been cited in debates about scholarly communication reform. Facts, however, are in short supply. A group of industry leaders and analysts is willing to pull together an authoritative on this topic.
  - h. **Standards:** Identify existing relevant standards, evaluate areas of overlap or perhaps conflict, which can be used to foster increased collaboration, and areas where relevant standards do not yet exist, which can be used to focus future effort
  - i. **Studies:** A wide variety of studies has been recommended by OSI participants, including embargo and global flip studies. What's the complete list, what are the priorities, and how can we start doing these (grant applications, more funding, partnerships, etc.)?

## **2019 SUMMIT WORK**

2019 summit participants narrowed OSI's to-do list to three main areas—studies, infrastructure projects, and outreach/education—and also expanded on study and project ideas. Specific studies and projects were identified, and progress was made on prioritizing this work, developing rough protocols, and identifying research leads. A number of major grant proposals were also submitted to fund this work. The outcome of the 2019 group's work is what is presented in this paper and in OSI's Plan A (see annex).



# ANNEX 2

## Plan A (v.3.0)

December 27, 2019

### **An inclusive, rapidly achievable, sustainable approach to global scholarly communication reform**

#### INTRODUCTION

The Open Scholarship Initiative (OSI) is the world's only large-scale, high-level, multi-stakeholder effort focused on developing an inclusive, rapidly achievable, sustainable approach to global scholarly communication reform. OSI is comprised of top leaders in scholarly communication from over 250 institutions around the world, representing 27 countries and 18 stakeholder groups. OSI's initial plan presented here—Plan A—is a starting point for discussion on developing a global roadmap for reform. Partners in Plan A are needed for funding, development, and implementation; feedback from the global stakeholder community is also welcome. This plan will be revised over time in collaboration and consultation with the open research roadmap effort currently underway at the United Nations (of which OSI is also a part).

#### PROPOSAL

Plan A proposes that beginning in 2020 and continuing for a period of five years, the global scholarly communication community will cooperate and collaborate on three main categories of action, in this order of priority: studies, infrastructure development, and education/outreach:

1. **Studies:** We need to develop a better understanding of the scholarly communication landscape. Our community's lack of understanding about key issues has, for the last 20-plus years, made it difficult to create effective reforms. To this end, we propose working collaboratively to support and conduct studies that will help us understand the scope of predatory publishing, create a viable alternative to the impact factor, test whether embargos can be reduced or eliminated, measure the impacts of open research, model how to change the culture of communication in academia, understand definitively whether a global flip to APCs will work, and more. OSI has identified 12 priority studies that need to be conducted, has already mapped out protocols for some of these studies, and has lined up world-class researchers to help

manage some of this work. See the annex section for details—additional recommendations are welcome.

2. **Infrastructure development:** The global scholarly communication community needs new products, services, tools, websites, and other innovative resources to help encourage, achieve, sustain and monitor reforms in this space. Some of these items include a common infrastructure solution (possibly an all-scholarship repository built using CERN's Invenio; the precise details of this solution need to be more thoroughly investigated), an APC discount/subsidy database, an open index of scholarly publications (along with an open impact factor), an APC price comparison tool, a Yelp site for scholarly publishing, repository upgrades, publisher standards, an annual "state of open" survey and more. We propose working together to develop these and other needed items so reforms can be more quickly and easily adopted, and so the scholarly communication landscape can be more quickly and easily improved and maintained. Seven priority projects have been identified, as detailed in the annex section. Additional recommendations are welcome.
3. **Education/outreach/:** The scholarly communication community needs to be better informed with regard to opportunities, impacts, processes, options, and so on, and also needs to have better systems in place to listen to stakeholder feedback and create/adjust solutions accordingly. Of particular focus on the listening side, we need a much clearer and more detailed understanding of exactly what we hope to accomplish with reforms so we can make sure to answer the right questions, collect the right data, and build the right systems. New international meetings are part of the needed approach here; so too is greater alignment between various existing roadmap efforts (which OSI has been working on; this is called out below as a separate action item since it is a distinct subset of education and outreach). The education and outreach needs in this space are vast and the actors are numerous. Specific recommendations for capacity building, collaborative action, new initiatives and so on are welcome.

In addition to these three main action items, Plan A also proposes that together, we:

4. Pilot open solutions in one area of urgent need like climate change research
5. Develop sustainable solutions for meeting urgent needs, such as (but not limited to) zero-embargo compassionate use programs for patient families, and a more robust R4L program for lower-resourced regions and institutions
6. Hold meetings where all stakeholders can discuss the outlines of a new global roadmap for open scholarship
7. Continue to advise and collaborate in UNESCO's global roadmap effort (including hosting and participating in meetings).
8. Combat predatory publishing through education, improved standards, and other means (some but not all of which are covered in the first three action items).
9. Work to better understand the needs, goals and concerns of researchers in different disciplines, fields, labs, regions and institutions, and at different career stages (researcher perspectives vary widely, meaning that one-size-fits-all solutions are unlikely beyond establishing some fundamental common-ground agreement).

10. Plan for and begin building a future that meets these varied needs and goals and integrates open in such a way that it is embraced by researchers, advances research, and increases the value of research to society.

This work will be guided by 12 principles that represent a global, multi-stakeholder, common ground perspective on the future of scholarly communication. Plan A's work and work products will be:

1. **Researcher-focused.** Research communication tools, services and options need to be developed with heavy input from the research community, with solutions/approaches driven by researcher needs and concerns
2. **Collaborative.** Successful and sustainable solutions will require broad collaboration, not just to ensure that all perspectives are considered, but also to ensure there is broad ownership of ideas.
3. **Connected.** There are great many interconnected issues in scholarly communication. We can't just improve "open," for instance, without also addressing impact factors, peer review, and predatory publishing. Reforming scholarly communication will require a systemic approach.
4. **Diverse and flexible.** There are no one-size-fits-all solutions to scholarly communication reform. Instead, there are many different pathways to reform, including many pathways that have not yet been conceived/deployed. Diversity, creativity and flexibility in this solution space should be encouraged so we can focus on our community's common goal of improving scholarly communication instead of insisting on common strategies or philosophies for improvement.
5. **Informed.** We need a better understanding of key issues in scholarly communication before moving forward. For instance, what is the impact of open research? The more accurate and honest our assessments, the more accurate and honest our reform efforts can be, the easier these efforts will be to promote, and the more successful they will be.
6. **Ethical and accountable.** We need enforceable, community-developed/driven standards to ensure the integrity of journal publishing, repositories, and other related activities/products, and to ensure that unethical approaches are not embraced.
7. **Directed.** We must discuss and plan for what the future of scholarly communication means, beyond just having access. For instance, we need to identify precisely what we plan to do with open information, where we will need data interoperability, what tools and procedures we will need to achieve this interoperability, and so on.
8. **Equitable.** Researchers everywhere need to be able to access and contribute information to the global research corpus with minimal barriers. To the extent practicable, research information—particular information central to life and health—should not be unreasonably constrained by issues such as high access costs, poor journal indexing, and a lack of capacity-building programs.
9. **Sustainable.** Scholarly communication reform approaches need to be sustainable, which flows from all the other elements in this list. That is, the reform solutions we design need to be achievable, affordable, popular, effective, and so on.

10. **Transparent.** This community needs to maintain as much transparency as possible in this effort (with regard to pricing, usage, ownership, and so on) in order to address the trust issues that have plagued this space for so long.
11. **Understandable and simple:** This community needs to agree on a few simple, high-level, common-ground goals for scholarly communication reform—not anything terribly specific with regard to gold this or CC that, but a general set of goals that are understandable, achievable, and adaptable. By setting out general goals that can be easily achieved, participation can be made simple and easy, with low barriers to entry.
12. **Beneficial:** In the end, these reforms need to benefit research first and foremost. While the argument to improve benefits to society is palpable, these benefits need to be matured carefully, deliberately, and realistically in order to ensure that societal benefits are indeed being conveyed as intended, and that research is not being harmed in the process.

**It is proposed that the international research stakeholder community jointly manage Plan A through OSI.** A detailed governance structure for this plan will be developed over time in consultation with participants and funders. Our hope is that this plan will be fully launched by mid-2020, continuing for as long as funding and support persists.

By working together on realistic, robust, collaborative solutions that improve the capacity of research for all researchers everywhere, Plan A's vision is that we will arrive within the next 20 years at an "Open Renaissance" where many kinds of improvement happen to research and the research ecosystem grows exponentially more powerful (with more data, more connections, and more apps), which will further catalyze innovation and improvements in research. New fields and directions will emerge based on "connecting the dots" (thanks to data and repositories), funding efficiency will improve, and discovery will accelerate; the social impact of research will surpass today (including improved literacy, public engagement, and public policy impact); and knowledge will become more of a global public good, with society reaping the benefits.

## **BACKGROUND**

The Open Scholarship Initiative is a global, multi-stakeholder effort that has been working in the scholarly communication space since 2015. OSI's overarching goals are to improve the openness of research and scholarly outputs, lower the barriers for researchers and scholars everywhere to engage in the global research community, and increase opportunities for all countries and people everywhere to benefit from this engagement. OSI is managed by the Science Communication Institute, a US-based 501c3 nonprofit public charity.

OSI fills the "NOASIR" role for UNESCO, serving as this agency's Network for Open Access to Scientific Information and Research. What this means is that UNESCO is relying on OSI to support and cultivate the international open environment and connect stakeholders, support research and development in open technologies, policies and practices, defend access to scientific journals to developing countries, and serve as a laboratory for innovation

and a catalyst for international cooperation. OSI is also consulting with UNESCO's Natural Sciences Directorate, assisting the directorate in its effort to develop a UN-wide approach to the future of open science at the ministerial level.

OSI currently includes around 400 high-level representatives from 27 countries, 250 institutions, and 20 stakeholder groups in research and scholarly communication.

# ANNEX

## STUDIES

OSI will begin conducting studies that target key issues in scholarly communication where a lack of firm understanding is making it difficult to create effective policy reforms. These studies will be “leveraged” through OSI, not outsourced. That is, OSI has enough internal and volunteer capacity to do all the study design, oversight, writing and analyses in-house. Grant funds will be used mostly for data-gathering and statistical analyses. The OSI team will identify and hire researchers as needed (some may end up being OSI participants already) who can conduct original research work as needed, and hire statisticians as needed to crunch numbers and maybe take a first pass at analysis, but the final writing and analysis will be done in-house by OSI participants. In this way, we can get the most studies possible with the smallest outlay of time and money. The studies we will conduct are as follows:

- DECEPTIVE/PREDATORY PUBLISHING:** Exactly how fast is deceptive/predatory publishing growing, how much of it exists, and what are its dimension (by region, discipline and so on)? Very little definitive is known about this phenomenon, and yet it is perhaps the single most disruptive influence in publishing today (Anderson 2019; Strinzel 2019). As more emphasis is placed by libraries and funders on open access publishing, more open access publishing options are becoming available to authors. Some of these options are legitimate, some are not. This study will describe what we already know about predatory publishing, and will also enlist the aid of leading researchers who are part of OSI to suss out long-term data about the growth of predatory titles over time. A rough outline of this study is as follows:

**Title: Using new and improved data to assess the academic journal landscape**

Section	Description	Pages	New or novel?	Notes	Lead author?
Intro	Overview	0.5	No	Why can't we just do a count in Google? Well, for one, they won't let us. Second, there's no accounting for quality. The future needs to be built on systems that are reliable and accountable.	Glenn Hampson
What is a journal?	Essay	1	No		Rick Anderson
The growth of journals and journal articles	Statistics	2	Yes	This is a known concept but will use new/better data from 1findr	Eric Archambault
Breaking down the nature of this growth	Statistics	3	Yes	Same as above. Focus on regions, disciplines, rates, and types (open, subscription, hybrid, other; predatory, indexed, non-indexed),	Eric for new material, Glenn for rest

				plus—from other studies—how this compares to growth rates for “other” types of science communication like white papers, blog posts, preprints; who is publishing and why; etc. (from other studies)	
Discerning legitimacy	Overview	0.5	No	A quick case for how we define real science publishing and how evolving publishing norms are making it easier to push these boundaries	Rick
The statistics of legitimacy	Stats	4	Yes	A detailed look at what Cabell’s is doing, plus a detailed breakdown of the predatory landscape (rates, regions, disciplines, etc.), as well as a breakdown of what kinds of “violations” exist. How much of this “predatory” work is mixed in with real work, and how does this change the growth estimates that Eric came up with? This will need to be broken down by region and discipline—the aggregate numbers won’t be revealing.	Simon Linacre
Testing assumptions	Stats	4	Yes	Random sample Google search results in various topics from different parts of the world to if what comes up in Google searches matches what “should” come up in terms of significance and legitimacy. [This is important insofar as GS is the primary search mechanism for a majority of the world’s researchers.] For instance, does searching for “cancer vaccine research” return real work more often than not, or lots of predatory work? Understanding this will help us understand how worried we should be about fake science corrupting our knowledge base.	Not sure
Re-thinking the landscape	Informatics	2	Yes	How else can we visualize what’s happening in scholarly publishing? For instance, would it make more sense to group journals into “read” and “not read” (and/or relevant and not relevant, compliant and/or noncompliant, etc.)? By audience saturation? Etc. In other words, is it necessary to think in terms of the growth of articles and journals if what’s actually being used/read is remaining essentially unchanged (save for new journals covering	Glenn et al

				new fields), or if journals are born and quickly die?	
Issues and recommendations	Policy	3	Yes	What are the issues that are important in this landscape (like inclusion and preservation), and what issues are preventing us from tracking academic scholarship more closely (ISSN errors, naming differences, indexing problems, completeness issues like poor inclusion of SciELO journals, etc.), how prevalent are these, and what can/should we do to remedy these? Is a global open index a solution (plus a global open impact factor)? These ideas will be explored more fully in a forthcoming OSI project.	Glenn et al

- IMPACT FACTORS:** Impact factors are one of the most destructive, most corrosive measures used in science today (OSI 2016a, Bosman 2013). They are also one of the most important and widely used. How can both of these statements be true? Because impact factors are the statistic we love and hate—we know they are more or less meaningless (Lozano 2012), but we also know that high impact factor work translates into promotions and grants. And so we turn a blind eye to their shortcomings and keep using them. Much has been written about the use and misuse of impact factors (i.e., explaining what they were intended to measure versus how they are promoted), alternatives to the impact factor, and calls for broadening the metrics we use in assessments (particularly RPT). But nothing has ever been written about the statistical validity of this measure. In fact, the impact factor isn't mathematically valid at all for the purposes of measuring "impact" (for several reasons—the most significant of which are that this is an aggregate journal level metric and not an article level metric; also, citation counts are just aggregate, not positive or negative, so a bad article could be highly cited as an example of what not to do. After disassembling the mathematical foundation of impact factors, this study will propose how to remake the impact factor to improve its use. It will also rethink policies regarding how we use future impact factors in order to avoid perpetuating the "arms race" situation we have now where publishing in high impact factor journals is seen (incorrectly) as a proxy for quality, relevance and impact (disassembling this narrative will require evidence). Finally, this study will review the existing literature for an explanation of why we use these measures in the first place (plus an overview of who uses them and how), and review other proposed means of measuring impacts (existing tools, new tools, etc.). One final approach that may also be explored as part of this paper, depending on how far along the development of a proposed product has progressed (see "open impact factor + open index") is a new "open impact factor" measure (built on the new math but using a global index) that everyone can have/use and that doesn't discriminate against small/new publishers. Currently, only journals indexed by Clarivate (representing a narrow and elite set of



journals) can have an actual impact factor calculated; everyone else needs to use a fake impact factor (like the Global Impact Factor) or invent one out of thin air.

Creating an open impact factor will first require creating a global index, which is described in more detail in the open impact factor + open index product proposal.

- **EMBARGOES:** How necessary are embargoes? Publishers insist that a 6-12 month delay is necessary between publication and free public access in order to protect subscription revenues. Critics contend that this time could be shortened—that there are other ways to protect revenue streams that don't involve long paywalls. To-date, the only estimates of ideal embargo length have come from citation half-life studies. In order to generate more “real” data on this matter that directly answers the question of how long is too long (instead of inferring this from half-lives), we will conduct a blind with the cooperation of publishers (Elsevier volunteered to participate in this study in 2016; we will revisit this offer and see if we can also include other publishers). This study will reduce or eliminate embargoes for a select number of publications and will monitor this impact of this action on revenues. If the impact is negligible, the evidence may suggest that embargoes can be shortened (or that revenue loss can be offset through other value-added access means—e.g., increasing access to the article but not the dataset, which will lead to more purchases of the dataset). The need for embargoes remains a major sticking point in open debates. Figuring out how to make progress on this issue is important to the future of open.
- **IMPACTS:** Not to be confused with “impact factor,” understanding the actual impacts of open in research, education and society is vitally important. This is more of a meta study than anything, but it's needed to better “sell” the advantages of open (or to better understand why open is not selling and what we really need in open—more standardization of data, for instance). The OA citation advantage is the most visible attempt so far to quantify open impact, but studies trying to measure even this one statistic have reached different conclusions to-date. Eric Archambault's most recent study (Science-Metrix 2018) is the most authoritative, but even this study didn't look at the full spectrum of open products, just “gratis” (which crosses several categories of open). What we need to know is much more granular: what kinds of green open are the most effective (for instance, the green in institutional repositories, or on preprint servers, or where?), how well is gold received by researcher (and what type), bronze, public access, and so on? In other words, exactly what kind of open is needed to improve visibility and reuse? What kind of open works best and why (what factors are most important—readability, findability, reusability, all of these, or none of the above)? What measures other than citation might we use to triangulate on actual impact (since citations can be influenced by press coverage, topic salience, etc.). What correlates can we note between open and research uptake, R&D investment, and more? The entire corpus of open work to-date has taken it as an article of faith that all open is created equal and that open itself—vaguely defined as it is—is meritorious. We need to get a clearer idea of what we're working to achieve and why, beginning with understanding how the current constellation of open outcomes are being received in the marketplace. (Possible OSI

research leads: Rob Johnson, Caroline Wagner, Eric Olson; Rob's possible time frame for working on this is June-Aug 2020)

- **PUBLISHER PROFIT MARGINS:** A major point of contention in this space is how much profit Elsevier makes. Critics say 37 percent. The company (in correspondence with the OSI list) says much less—that Elsevier's income and expenses are entangled with those of its parent company RELX and that revenues come from many sources not related to academic publishing. A clearer picture is simple enough to arrive at by hiring auditors to examine the books (not just of Elsevier but other major publishers as well) and issue an authoritative analysis, and also by reviewing the scholarship on how to properly interpret profit margins within and across industries. We will also review the landscape of funding and costs for universities to see how publishing fits into all of this. Charges of profit-mongering and double-dipping have fueled attacks on commercial publishers or at least 15 years now and these attacks have been used as an excuse to keep publishers from participating equally in global conversations about the future of open. To the extent we can help shed more understanding on these numbers, it will help provide a firmer foundation of transparency and realistic expectations for open reforms. In order to develop a fuller understanding of the underlying tensions in this debate—it's largely just a push and pull between libraries and publishers, with each accusing the other of financial misdeeds—we may also find merit in expanding this study to include a look library finances as well. The publishers with whom we have spoken are willing to participate in this study insofar as providing requested data.
- **CONNECTEDNESS/STANDARDS/ROADMAP:** How related are different concepts and applications of open (across coding, books, journals, etc.), and where can we merge these concepts, applications and even open efforts? As we (not just OSI, but the United Nations, scholarly societies and others) begin developing new roadmaps for the future of open, it behooves all of us to collaborate not just within scholarly publishing, but between journal publishing, book publishing, data science, and so on. OSI is actively pursuing partnerships in the roadmap effort on several fronts but needs to have a roadmap of its own showing who is working on what, what concepts overlap, what concepts differ, and how this landscape of interests and perspectives fits together. From this work, it should be possible to create a new global conversation around global open standards and a global open roadmap built on common ground and connectedness and that applies broadly to all fields and all open efforts. From this position, we can establish policies that are flexible and adaptable and that all pull in the same direction toward more open. A study like this hasn't been conducted before—this would be a first attempt to define the full landscape of open.
- **NEEDS:** Tying in closely to our impact study, the scholarly communication community also needs a study that looks at how much open is needed by field (for instance, is CC-BY licensing always necessary everywhere)? As noted in the impact study description, open efforts have long proceeded from the assumption that we know what works and what the market needs, but in fact we have no idea. This study would first survey existing literature to get a fuller picture of what we already know with regard to researcher wants (primarily various author surveys conducted

over the years by publishers and universities). Information gaps would then be filled via new, global surveys, facilitated with the assistance of Editage/CACTUS and others in OSI who have volunteered to help. Getting a broad sense of this demand across regions and institutions, as well as across disciplines and faculty types (as is usually done) is critical insofar as trying to ascertain global needs and perspectives and not just Northern/Western needs. Getting a better sense of what kind of open we should be working toward is also critical. The impact study will look at this from a market perspective, assessing what's being used. The needs study will look at this from an aspirational perspective—what needs are present that are not being met? Do current solutions align with marketplace options? Is there alignment between what researchers are asking for and what the marketplace looks like?

- **PUBLISHING IN RPT:** Publish or perish has been the norm in academia for decades now. This dynamic is not abating; indeed, it's accelerating (Plume 2014). Around the world, we see a wide variety of influences that are causing the number of research articles to stay high, including requiring publishing for a PhD (India), awarding cash bonuses for publishing in high-impact journals (in China; Montgomery 2018), having journal articles ghost-written for you to improve resumes (Russia), and everywhere, having more opportunities available to publish (faster, at lower cost, as part of large multi-author teams, as part of grant requirements—regardless of whether study findings are complete or meritorious, as salami-sliced articles, as a consequence of increased specialization, and more. Concurrent with this avalanche of paper, there is also increasing sloppiness in the system wherein tenure committees aren't necessarily valuing the quality of publications—that is, publishing in predatory journals may not always be noticed or questioned (Shamseer 2016). OSI has debated this issue at length and there aren't any good answers. Do we expand the scope of what "counts" in publishing to include blog posts, videos, press interviews and more? Do we lower the bar and allow preprints to count for more? Do we create professional standards such that publishing in a non-indexed journal (see tech project on indexing) is disallowed. Or even more aggressively, do we create standards that say publishing in such journals is unethical? OSI isn't the only group that has debated this issue. What is needed is a landscape analysis of RPT practices worldwide with regard to publishing. From this analysis, we will develop a set of best practices recommendations for UNESCO and national departments of education. Once we lower the pressure to publish in academia, it will become easier to rationally discuss and implement solutions aimed at improving the quality and quantity of research publishing. Until then, and without addressing this systemic issue, reform measures will simply be reactive.
- **PEER REVIEW:** Peer review is what separates vetted science from non-vetted science. It's a critical part of the current scholarly publishing ecosystem. Peer review is also unpaid labor and an incredible burden to many in academia. To this end, different methods of peer review are evolving and being tested—for instance, post-publication peer review, which allows articles to be quickly shared and then refined via broad feedback in real time online. Peer review is also being faked—deceptive journals promise peer review but deliver only a cursory editorial review instead, if that. OSI has debated this issue at length and is well-positioned to author a

landscape analysis of the current state of peer review, along with best practices recommendations for UNESCO and national departments of education. Without figuring out the right way forward for peer review, our open efforts will flounder—we can't create more open without ensuring the scientific integrity of these articles. We also need to develop and share best practices with the global community in an authoritative way, which this landscape analysis will facilitate. This effort will be focused on settling the highest priority concerns in peer review (Tennant 2019): what is peer review anyway, what value does it add, how do we define expertise, how do we protect diversity and more. These questions will be answered through broad stakeholder polling and consensus. This study will be part fact-finding, part survey, part consensus cultivating, and will involve meetings, email discussions, proposal drafts floated to institution heads, and collaboration with standards agencies like NISO and editorial agencies like WAME (which all participate in OSI).

- **GLOBAL FLIP:** California's library system, cOAlition S, MPDL's OA2020 Initiative, and other influencers in global scholarly communication system all believe quite firmly that a global "flip" to open is economically feasible, wherein closed subscription publications convert to APC-funded open publications. This belief is grounded at least in part in a 2015 study from the Max Planck Digital (Schimmer 2015) suggesting that the world has enough capacity to make this flip possible and that costs will come down as a result of APC competition. These data have never been examined closely in another research piece (they have been challenged in numerous blog posts since then) but they need to be so the global community can assess this strategy more objectively. Mounting evidence suggests that authors do not comparison shop for APCs (Tenopir 2017), so there is no downward pressure on prices. What we have instead are escalating prices, and a shifting of the cost burden from institutions to authors, all of which is only widening the gap between haves and have-nots. Are APCs the way to go? Maybe, maybe not. The fact is we don't know. More research is needed. This study will go back to square one and re-examine the data and assumptions of the original global flip study, updating data points and re-examining assumptions such as price competition based on new studies. It will then look at the variety of pricing models that have emerged in the global publishing system over the last 10 years (such as PAR) and estimate what may actually be possible—that is, estimate what the market may actually be looking for and what reforms may be achievable. Based on this analysis, this study will search for the "sweet spot"—maybe, for instance a global flip to PAR in 10 years bracketed on the high and low end by layers of subscriptions and preprints, or whatever the case may be. This analysis is important insofar as trying to visualize the end-zone for reforms. We know what problems exist and what changes need to be made. What we don't know is where the market is headed. Having a better idea of this will allow the global community to start pulling in the same direction and improve collaboration on measures that aim for the same goal.
- **GLOBAL RESEARCH PUBLISHING STANDARDS:** Figuring out how much deceptive/predatory publishing exists, what it looks like, who is using it and why (see previous study proposal on deceptive/predatory) is just part of the effort to improve global research publishing. Another critical part is to figure out what research

publishing standards we need. Several organizations in scholarly communication have discussed best practices over the years (most notably editorial and umbrella groups like NISO, WAME, COPE, and OASPA), but these discussions have stopped short of creating and issuing internationally-backed recommendations for publishing standards and the methods for enforcing these standards. This study will first gather together best practices recommendations that have been discussed to-date, update these with input from the organizations represented in OSI (which includes editorial and umbrella groups plus over 200 other organizations), and then evaluate realistic measures for creating and enforcing standards for the global research publishing community which will be observed not just by publishers but by others as well—most notably funders and universities. The goal of these standards will not be to erect barriers to publishing, but to map out the boundaries of what we mean by “open,” “publishing,” “peer review,” and other terms that lack a clear definition. These standards will also define the minimum expectations we should have for publisher competency so that the global research publishing enterprise as utilized by universities in particular is consistent and well-defined. Since this study will rely on findings from several other OSI studies, it will need to wait until these other studies are complete before beginning. Creating thoughtful, fact-based, widely-adopted standards for global research publishing is critical to ensuring that research publishing grows in a way that represents the needs of researchers and not just market forces (e.g., less deceptive publishing, less pressure to publish in journals, etc.).

- **REPLICATING THE SCIELO MODEL:** SciELO is one of the most unique organizations in the world of scholarly communication. It is a soup-to-nuts provider of everything from publisher training to editorial services to data management and repository management, serving as a pioneering open access network and hub for dozens of journals across Latin and South America. It is a model for how the publishing industry should evolve in the global south to ensure improved focus and better access. We will undertake a study to determine the feasibility of expanding SciELO from Latin and South America to CAMENA (Central Asia, the Middle East and North Africa), Sub-Saharan Africa, and SE Asia. Is there a need in these regions? Interest? Potential financial support? Should these new SciELO’s operate independently or in cooperation with one another? Based on the outcome of our study, we will then approach UNESCO and other possible funders and partners with financing and development proposals (note: an initial version of this plan was raised last year at SciELO-20 with the heads of SciELO and its parent body FAPSEP, as well as UNESCO).
- **IMPROVING SCHOLARLY PUBLISHING RESEARCH:** The majority of research into scholarly publishing-related issues and reforms isn’t adequate. This is an impossible statement to corroborate—it’s an observation based on the volumes of research the OSI group has reviewed over the past four years. Too much of this research exhibits a fundamental misunderstanding of the nuances in this field. In an effort to promote better research, we will research and publish a paper that describes the conditions researchers need to keep in mind when doing open research. For instance, when researching predatory journals, Beall’s List should not be used as a starting point

since this list is not transparent and is no longer supported (i.e., the criteria for inclusion on this list were always taken on faith—Beall never made these criteria public—which is not how science should be done). Also, we cannot assume “open” means the same thing as open access. Too much research tracks “open” without understanding that it exists in many variations, and gold/green CC-BY open is just one such variation. Also, we cannot treat databases like Scopus as being representative of all journals. This database is, in fact, narrow and highly selective. There are many more observations about scholarly publishing research we’ve noted over the years; publishing this as guidance will help improve the quality of future research work in this area.

- **OTHER:** The OSI group is constantly talking. It’s quite likely that other study ideas will be raised. If some of these ideas are meritorious, they will be added to this grant proposal with permission and pursued if possible.

## INFRASTRUCTURE

OSI will also begin developing tech products and solutions that fill key needs in the scholarly communication ecosystem where a lack of government and/or private sector action has hindered the progress of open reforms. As with OSI studies, these products and solutions will be “leveraged” through OSI, not outsourced. That is, OSI will design and oversee development in-house, and NSF funds will be used for certain programming and other work that cannot be handled in-house. The OSI team will identify and hire personnel as needed (some may end up being OSI participants already) who can conduct this work as needed, but the final design decisions and assessments will be done in-house by OSI participants. All of these products and solutions will fully deploy before 2025. Grant funds (if available) will be used to maintain these products and solutions over grant periods, but all solutions will become self-supporting through various combinations of advertising, sponsor fees, and member fees for content providers (none of these products/solutions will have user fees for basic access, although premium access models may emerge as a means of support). The products/solutions OSI will consider building are:

- **APC DISCOUNT/SUBSIDY DATABASE:** There are no databases of article processing charges (APCs) or subscription discounts or subsidies. Researchers looking for charges, discounts or subsidies need to search for these one at a time. Research4Life leaders (who are part of OSI) have noted that building such resources would be immensely helpful to authors, particularly those from the global south where discounts and subsidies are most needed, and also where price comparisons are more needed. OSI researchers will collect and input initial APC and discount/subsidy data over a period of six months, after which point publishers and discount/subsidy providers will be given instructions on how to keep their data current. This data from this system will feed into other systems we develop (see, for instance, the Yelp product).
- **OPEN IMPACT FACTOR + OPEN INDEXES:** Our uneven progress toward open is having unintended consequences. Among these consequences are the unavailability of legitimate impact factors for all journals (because not all journals are indexed),

uncertainty about the number and growth of so-called deceptive/predatory journals (see deceptive/predatory study proposal), and the growing incidence of citations from non-indexed journals. Regarding this first problem, because the need exists for thousands of journals to get some sort of legitimate impact factor (whether this uses the same math as the current impact factor is a separate question—see the impact factor study, which will precede the development of this tool), because most journals will never earn a legitimate impact factor through Clarivate (since these journals don't pass rigorous tests for index inclusion), and because the alternatives (such as “global impact factor” or “universal impact factor”) aren't legitimate, there is a need in the marketplace for new solutions that are legitimate. OSI has discussed developing three possible solutions to these challenges: (1) Creating an open impact factor measure (described below), (2) creating an all-inclusive open index, and (3) creating an index of indexes. All three products/services have unique audiences and all three will be developed/piloted together. The first solution—the open impact factor—simply decouples Garfield's impact factor calculation from the private management and ownership of it by Clarivate—decoupling the algorithm from the data source so we can have as many lowercase "impact factors" with as many algorithms as we want. (Clarivate has trademarked “impact factor” and “journal impact factor” in the US but does not own the mathematical concept. This move is not wresting control of the impact factor away from Clarivate since the product they provide has substantial independent merit. Rather, it is simply providing legitimate alternatives to the “universal impact factor” and “global impact factor” for journals that do not qualify for a Clarivate-issued impact factor.) To do this will first require a developing a global index of journals, which is proposed solution number two. Current indexes are limited in scope and focus primarily on English-centered indexes. In order to improve the identification of deceptive journals it is necessary that we have a universal indexing system that overcomes the natural or operational exclusion of current indexes. Today such indexing is provided only by Google Scholar. Idea number three is to create an automated journal whitelist look-up, whereby a program will make an API call to a look up and return a list of whitelists on which a given journal appears (with cooperation from Cabell's, this call could also include blacklists). This system will return a finding like: “Journal X is indexed by WoS, JCR, Scopus, DOAJ, and MEDLINE.” The lookup will also include subject lists (like EconLit, PsycINFO, MLA, and so forth) as well as regional titles. This system will be used to help dissuade citing non-indexed and possibly suspect work. Journals will be encouraged to adopt an editorial policy whereby if a referenced journal does not appear on a whitelist, then authors must justify the citation. This approach does not require much in the way of new infrastructure or the creation of new lists. It will, however, require various whitelist publishers to agree to allow such an API look-up (akin to Indeed or Monster scraping various job boards to provide one meta job board). The look-up would not contain any additional information from the white lists—only an indication of whether a journal appears on it.

- **APC PRICE COMPARISON TOOL:** As noted earlier, several recent studies have confirmed (Tenopir 2017) that scholars do not shop around for the best prices on APCs. And yet price shopping is behavior is assumed to exist and is fundamentally

important to the success of the University of California's position with regard to cancelling access to Elsevier journals and hoping that alternative publishing options will not only take hold but save the system money (as enunciated by the UC's lead negotiator Jeff Mackie-Mason; see Mackie-Mason 2016), and also to the MPDL's OA2020 effort (which underpins the EU's Plan S initiative). APC price shopping may not exist yet simply because there is no tool to help facilitate this (to be clear, price is a factor, but surveys have shown that authors care more about quality and impact than price; the argument here is that if it was easier to compare prices, then maybe price would factor more in decisions). Although many in OSI are opposed to the carelessness of Plan S, we are not opposed to the idea of helping contain costs in publishing; developing an APC price comparator tool would therefore be of great service to the global scholarly communication community. No such tool currently exists. The development and deployment of this tool would need to proceed with care. While providing price information is valuable, we don't want to help promote fake journals either. Therefore, with help from Cabell's, DOAJ, SSP, and other relevant organizations in OSI, we will begin by creating a self-populating database of APCs from currently indexed journals only (seeded with initial data as available, at which point publishers will be emailed and instructed how to self-update information). Non-indexed journals with egregiously bad behavior (plagiarism, fake peer review, etc.) will not be listed in this database; non-indexed journals with smaller question marks (new, no street address, broad subject coverage, regional interest, etc.) may be listed with asterisks (indicating that authors should seek input from their library officials before publishing in it).

- **YELP SITE FOR SCHOLARLY PUBLISHING:** OSI will build a few tools that have wide “category-killer” appeal and real paradigm-shifting potential for scholarly communication. A Yelp site for publishers is one such tool (an All-Scholarship Repository is another). Both of these tools will have significant overlap with other tools we build and that exist on the market today—that is, they will incorporate some of the same data, but they will have broader audiences and fill more needs at once. The core purpose of the Yelp site for scholarly publishing is to provide an easy-to-use, familiar-looking interface where customers (authors, editors, reviewers, funders and more) can rate scholarly publishers (not just commercial journals but university presses, scholarly society journals and more) and where publishers can provide important contact and product information—a link to their website, a summary of their products and services, links and credentialing badges that verify data such as indexing and impact factors, and much more. Customers will be able to search this database for publishers in their field, price range, region and more—like the actual Yelp site, searches can be filtered in a wide variety of ways. Customers will also be able to provide reviews regarding their experiences with publishers, which will help round out the data provided by Cabell's blacklist and other information sources. For instance, customers might report that their peer review experience with a particular blacklisted publisher was perfectly acceptable, or conversely, that it was entirely inadequate with a highly-ranked publisher. The reviews that get posted on this website will take a few years to become accurate. At first they will be dominated by people who are either trying to mask bad products or punish good ones, but over



time we suspect that this will become the go-to resource for all authors looking to publish their research and funders looking to identify reliable open access publishing options. As such, it will be heavily trafficked (at least relative to other products in the scholarly communication space) and a good revenue-generator. Ad revenue will help support the upkeep and sustainability of this product, with excess revenues accruing to OSI toward the development of OSI's other products (and studies); sponsorship support will also be important. This will be a complicated product to develop, launch and fine-tune, and very labor intensive as well. If we are able to begin product development in early 2020, it will take six months to work out the architecture, six more to populate with starter data, and six months after that to beta test and refine—a total of 18 months before the first iteration of this site is up and running. Due to its complexity, the vast majority of this product will be hired out—very little of the programming work will be conducted in-house.

- **ALL SCHOLARSHIP REPOSITORY:** The All-Scholarship Repository (ASR) is the ultimate game changer in scholarly communication. Rather than continuing to rely on (and expand) our global network of institutional and national repositories, and then exert herculean and ultimately inadequate efforts to connect the meta data in these repositories (which ends up only providing a glimpse into the contents of each repository, not full access to the contents themselves—at least at the moment), ASR jumps over this step and instead creates a single warehouse for all scholarly research content. The advantages of this global preprint server concept are multifaceted: full-text searches across all articles, the potential for widescale database standardization and integration, the potential for vastly expanded cross-discipline integration, the potential to implement widescale online peer review solutions, real-time and transparent impact measurement (via downloads, views, comments and reader scores), instant open for all content, and more. ASR, in essence, solves a hundred pressing issues in scholarly communication in one fell swoop. It's a leap, though, and will require widespread buy-in in order to succeed, including from publishers whose content is needed for this system. Where would publishers end up with this system? The same as now, publishers would identify the best and most promising research and publish these articles in their journals. They would also put their own interface on the ASR (a public resource) and curate contents as they see fit, adding value by analyzing trends, highlighting significant new discoveries in fields of interest, and more. The only difference would be that the preprint world would be “unshackled” from the print world, and would be free to grow at its own pace and direction. This may eventually mean fewer print journals and more reliance on the ASR, but a possible decline in publisher subscription revenues would be offset by an increase in value added revenues. In terms of architecture, ASR would be single database with many spokes—many independent owner/operator channels through which data can be added and outputs can be customized. The Digital Public Library of America is the best example of how this system would operate. The central ASR database would be replicated and archived continuously; it would also be cloned by owner/operators. A fuller description of the ASR concept and operation is available in the appendix of OSI's February 2015 report (OSIWG 2015). The time frame for developing and launching ASR is longer

than for our Yelp site since we will need about a year to discuss and arrange collaborations with major pre-print and government servers about data scraping and integration (we aren't expecting that ASR will replace any existing services until it is very populated, although the prospect of replacement will be promoted; US government agencies in particular, if directed by OSTP, might be keen to explore repository replacement instead of long-term and costly upkeep and modernization). If funding for ASR is secured by early 2020, our goal is to have an initial version of this repository running by end-2022. Like the Yelp site, this site will have revenue generating potential, but on a much more massive scale—not only advertising and sponsor revenue channels, but also percentage revenue arrangements with publishers who provide data for the site and resell data from the site. Excess revenues will be directed to OSI to ensure the continued full funding of OSI operations, in accord with the NSF's guidelines on this matter.

- **PREDATORY PUBLISHER BLACKLIST:** In collaboration with other organizations in this space OSI will create a free, publicly available list of the largest, most prolific predatory publishers. Curating and maintaining the full list is a labor-intensive endeavor and will remain a retail product of Cabell's, but the OSI list will serve as an initial "quick check" for potential authors, highlighting the most egregious and prolific predatory journals who account for the most of this kind of output and/or the most blatantly fake outputs (like OMICS). This site will also provide background information on predatory publishing, links to resources like Think-Check-Submit and Cabell's (for the full list of predatory publishers), and case studies on why this kind of publishing should be avoided (due to risks it poses to careers and science). There is no other resource like this on the market.
- **ITUNES SINGLE ARTICLE DOWNLOAD:** The idea of having an iTunes-type of tool for single-article downloads has been kicked around for years in publishing but never pursued. Various experts have dismissed it out-of-hand for various reasons, with criticisms like we shouldn't have to pay anything for these articles, and customers won't pay when they can find them for free with a little digging (interlibrary loans, etc.). These criticisms have never been tested though. Our hypothesis is that, in fact, creating a model where consumers can legally access the latest work (or close to it—maybe downloads from this system would be embargoed only briefly but not for as long as free articles) would be extremely well received by both publishers and the marketplace, creating new revenue pathways for publishers and cheaper access for customers. As with some of the other tech solutions we're proposing, this one may end up being a "module" of the ASR, so it will be developed with this in mind. That is, eventually the ASR may feature access to various categories of articles and products—free, cheap, PPV and subscription, for instance—and inasmuch, the architecture of this iTunes site should integrate seamlessly with the ASR. Ultimately, we view the iTunes site as a transitional tool—as a way to allow publishers to daylight a hundred years of backlisted articles now but in such a way as to still generate revenues from these assets. Careful modeling will need to take place first to determine price points, catalog, frontlist integration and more. Over time, as the ASR becomes richer and more populated, it may become more advantageous to de-monetize more and more of this backlist. Like the

ASR and Yelp sites, the iTunes site will have significant revenues accruing from ads and sponsors. It will also accrue revenues from percentage sales. As with ASR, excess revenues from this site will be directed to OSI. Development and deployment will be on the same schedule as the ASR site, with full operation by end-2022.

## EXISTING WORK/PRIORITIES

In addition to studies and tech products, OSI's existing work/priorities will also be supported by this grant. This includes:

- **CONSOLIDATION AND IMPLEMENTATION OF OSI RECOMMENDATIONS:** OSI has accumulated a wealth of knowledge over its four years of operation. We are in the early stages of publishing materials that consolidate this knowledge into issue briefs and policy perspectives. A few of these have been published to-date; many more are planned (around 50 have been identified), to be written by OSI participants. In terms of priorities, the next most needed publication is OSI's "Plan A" for open—a summary paper that captures the general sense of the OSI group with regard to what steps the global community should take next in order to ensure the rapid, collaborative and sustainable development of global open science. We expect this Plan A document to be issued by year-end 2019. Plan A will, in essence, be OSI's roadmap for the future of open science. A number of different stakeholder groups (including IGO's, led by UNESCO; scholarly societies, led by the NAS; the AAU, representing university provosts; and others) also realize that broad, collaborative action is needed now. What we are seeing as a result are parallel, high-level efforts happening around the world to create a new roadmap for the future of open. However, there is no convergence of activity and no central point. OSI will fill this role and communicate this convergence perspective in Plan A—as an observatory to keep these similar and important efforts connected, aware of each other's existence and activities, and coordinated so actions and policies can have more impact. We need this central hub to ensure that we can have reasonable, sustainable, global, inclusive action—a group to inform, coordinate and share policies that will lay the groundwork for the future of open research/data and open science in particular.
- **ANNUAL GLOBAL SURVEY OF STATE OF OPEN:** How is open changing? The fact is we just don't know. Studies measuring open aren't conducted at regular intervals and don't use the same methodology. In order to measure global progress toward open, we need a baseline and consistent, comprehensive, global measurements. Several OSI participants have volunteered to help develop this product and implement it. The Center for Open Science is once such partner; Editage/CATCUS is another (who will help translate this and disseminate it to global audiences). This annual survey will be an important tool in helping us better understand current needs and perspectives, understand where we need to focus our open efforts, and track our progress toward achieving our objectives.
- **EDUCATION/OUTREACH:**
  - One of OSI's goals is to help countries understand open and understand how this issue (and current global proposals) impacts their equity, education and

development goals. Our issue briefs (which UNESCO has promised to help co-brand and promote) are one tool in our education arsenal. Our studies and tech products are other tools. In addition to these, we will improve/enrich the OSI website with the goal of making it more of a hub/resource for open and a more useful teaching tool.

- There are many ways to learn about open, far fewer ways to collaborate on global actions to improve open that aren't biased toward set end-points (e.g., "let's do a global flip," or "let's remove publishers from the process"). There are a great many groups looking for constructive ways to engage in realistic measures. An important approach OSI will cultivate beginning in 2020 is to bring organizations together to help pick the low hanging fruit—to create a global environment of cooperation for solving the most urgent problems together and in doing so build a track record of success. We don't need a Plan S that changes everything for everyone tomorrow without regard for the consequences. We do need a Plan A that describes what needs to be addressed and describes realistic and sustainable ways to begin tackling these issues together in ways that are easy and make sense for everyone, and importantly, that have incentives aligned such that partners will be joining in this effort out of self-interest and not due to threat or obligation.
- **EVENTS:** OSI has hosted two full-group meetings to-date (in 2016 and 2017), one executive team meeting (in 2018), and helped sponsor several other meetings in this space (such as SciELO-20 in 2018). We will need to hold and sponsor a number of other meetings in the coming years. There is no better way to get solid input from a diverse range of participants than to hold meetings. Email works okay to continue the conversation, but there is simply no substitute for breaking down walls and making progress than in-person meetings. OSI participants will also participate as speakers and panelists in other global meetings, communicating OSI's lessons of experience and also forging partnerships with universities, publishers, research institutions, governments, funders, societies and policy groups interested in moving forward with workable, global solutions to open research. By November of 2019, OSI will have marked four such efforts: (1) A presentation about OSI on the opening panel of the SciELO 20<sup>th</sup> Anniversary conference; (2) A presentation about OSI in the keynote portion of this year's Charleston conference, and (3) Inclusion of OSI and key OSI outputs (such as the DARTS open spectrum) in the 50<sup>th</sup> Anniversary addition of the STM Report, a key resource for the scholarly publishing community; and (4) Inclusion of OSI in a debate at the 2019 Falling Walls conference about the future direction of open science.

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