



**OSI POLICY PERSPECTIVES**

# **COMMON & GROUND**

**IN THE GLOBAL QUEST FOR  
OPEN RESEARCH**

OSI POLICY PERSPECTIVE 2  
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## ABOUT OSI POLICY PERSPECTIVES

The OSI Policy Perspectives series offers broad, common ground perspectives on key issues in scholarly communication. Each report summarizes the current state of a particular issue and what we know about it, and also attempts to articulate the perspectives and lessons of experience from all stakeholder groups in scholarly communication on this issue (particularly but not exclusively as expressed in OSI conversations) and identify what common ground might exist for building broadly acceptable policy.

OSI is not a democratic body that speaks with one voice on any particular issue. Trying to reconcile the views, intentions, and motivations of all the different actors, communities and groups in the scholarly communication space—which are very rarely entirely aligned—is challenging. We acknowledge, therefore, that these reports may be (and in fact, probably are) an imperfect reflection of the many perspectives and ideas in this group. The fact that these reports sometimes need to be published in a rush, in response to policy commenting deadlines and other pressures only makes this imperfection more likely.

We also acknowledge, however, that OSI often considers a wider range of perspectives than established policy making bodies in scholarly communication, and that our relative strength is showcasing this range of perspectives and noting how they differ, and importantly, how they share common ground. To this end, we hope it is valuable to produce these reports, however imperfect, and share them with the scholarly communication community and beyond.

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**DISCLAIMER:** In this report, the author has attempted to accurately represent the perspective and ideas of OSI participants, alumni and observers. However, it is possible that this attempt is incomplete and/or inaccurate. Any responsibility for errors, omissions and/or misrepresentations rests solely with the author. Also, the findings and recommendations expressed herein also do not necessarily reflect the opinions of contributors, or individual OSI participants, alumni, or observers, or any institutions, trustees, officers, or staff affiliated with these individuals.

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# COMMON GROUND

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In memory of our colleague Jon Tennant, who believed passionately in open, but also in the need for us to work together across our differences.





# COMMON GROUND

## IN THE GLOBAL QUEST FOR OPEN RESEARCH

Scholarly communication is incredibly important to modern research—a vast field where many different organizations, interest groups and experts tackle a dizzying array of issues related to how research gets communicated. These organizations, interests and issues overlap and intersect in important ways but they most often exert separate and distinct forces on the function and evolution of the scholarly communication ecosystem.

### ABOUT OSI

The Open Scholarship Initiative (OSI) is a diverse, inclusive, global network of high-level experts and stakeholder representatives working together in partnership with UNESCO to develop broadly accepted, comprehensive, sustainable solutions to the future of open scholarship that work for everyone everywhere. This document reflects the input of the individuals listed here as well as contributions from other OSI participants who are not listed. The findings and recommendations expressed do not necessarily reflect the opinions of these individuals, OSI participants, OSI participant institutions, or the agencies, trustees, officers, or staff of these institutions.

OSI is managed by the Science Communication Institute (SCI), a US-based 501c3 nonprofit charity. OSI serves as the Network for Open Access to Scientific Information and Research (NOASIR) for the United Nations Educational, Scientific and Cultural Organization (UNESCO). For more information about OSI, please visit [osiglobal.org](http://osiglobal.org).

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In OSI we have been observing and debating this activity since late 2014 with specific regard to one important challenge in scholarly communication: developing the best global solutions for the future of open research. Over this time many of the participants in OSI have concluded that four main beliefs define the scholarly communication community's common ground on open research:

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

These insights are unique and compelling and have withstood years of scrutiny in OSI debates. Therefore, some in our group advocate that going forward the scholarly communication community should begin building the future of open research on this common ground instead of continuing our current practice of trying to integrate a multitude of narrower, less inclusive, go-it-alone approaches to open research.

To make the case for global, inclusive action on common ground this paper will begin by reviewing why common ground matters in this case. It will then briefly review the history of scholarly communication debate; the

dynamics of our community's current relationship; what "common ground" means from a policy approach; possible areas of common ground; policy approaches that might help get us where we want to be; and what our common goals might be.

The goal of this paper isn't to completely and perfectly recount all sides of the various arguments and issues that exist in this space but to illustrate the scholarly communication and open research challenges in broad brushstrokes so it's easier to see the contours of our community's common interests. Any omissions, mischaracterizations and other imperfections are solely the responsibility of the author and not OSI.

## EXECUTIVE SUMMARY: WHY FINDING COMMON GROUND MATTERS

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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; identifying the best possible, most effective, most sustainable 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 basic questions that every policy process tries to unearth. They are also, however, questions that have never been asked by the scholarly communication community in any global, inclusive, 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 led 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 research so we can accelerate discovery, improve education and public policy and help make 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 actions and inactions are real.

First and foremost among these challenges may be overcoming our own hubris. The open research debate has for years been driven by claims that we know with certainty that open access as envisioned by some is an absolute good that clearly conveys benefits to research and society. This certainty makes for a compelling sales pitch but at the moment it is founded more in ideology than hard evidence. Working to find common ground doesn't mean questioning the potential of open or questioning motives or solutions but it does mean being open to the possibility that we don't have all the answers, and that to get these answers we need to work together. With these answers in hand we can then build a stronger foundation for moving forward and for achieving the full potential of open. Our default position in OSI is that we need to be more willing to embrace the diversity of thought, evidence and practice in this space—there's a lot of it—and embrace all efforts that help create a more open world (at least to the extent they don't squash this diversity in the process).

There has also been hubris from many stakeholder groups—publishers who have at times seemed somewhat tone-deaf to complaints about their profit margins; funders who think they understand enough about the scholarly communication ecosystem to reform the entire system in a way that everyone must follow; open advocates who can sometimes seem more concerned with punishing publishers than protecting the needs of interests of research; and so on. Our inability and unwillingness in this community to listen, learn and treat each other with respect has been more common than not.

Complicating this task, our 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 actively working on a wide variety of 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. 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 immediately freeing research information that could cure diseases 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 widespread changes; and others—perhaps more realists than worriers—advise that universities in all their diversity are really the ones in control of these reforms and that short of global action by university provosts themselves, no other stakeholder group working alone is going to change the global scholarly communication system any time soon.

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. Other broad issues include making peer review demands more sustainable, reforming the publish or perish culture of academia (which affects promotion and tenure practices everywhere in the world), understanding whether embargos can be reduced or eliminated, reforming our misuse of journal impact factors, better understanding the impacts of open research so we can better target our reforms and innovations, and much more.

So what do we do? What can we do? Solutions to these questions are critically important to the future of research and society.

Fortunately there’s a way forward. Rebuilding our quest for open research on solid, common ground instead of on narrow and fractured ideological ground is both possible and promising. Ample common already ground exists in this community and the need for a common ground approach to address this complex system’s many challenges is compelling. Also, a future built on common ground will be far richer and stronger than the future we are currently pursuing.

OSI has spent the past five years cultivating high level, global, multi-stakeholder perspectives on this challenge. While we don’t speak as a group with regard to the opinions and recommendations presented in this paper the general opinion of many OSI participants has been and remains that the future of open research is a critical challenge the world needs to address, and that the only way to address this challenge effectively to work together.

## BACKGROUND

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### THE SCHOLARLY COMMUNICATION ECOSYSTEM

As mentioned in the introduction, scholarly communication is incredibly important to modern research—a vast field where many different organizations, interest groups and experts tackle a dizzying array of issues related to how research gets communicated. These organizations, interests and issues can overlap and intersect in important ways yet they are also often distinct. The skills involved in scholarly communication range from journalism, marketing and teaching, to policy development, grant writing, technical writing, editing, informatics, copyright oversight, institutional repository management, tech transfer and research design. Interests and concerns run the gamut from interdisciplinary discovery to outreach, advocacy, education, peer review, collaboration, open access, open data, predatory publishing, public faith in science, impact assessment, academia’s publish-or-perish culture, journal indexing, citations, standards, curation, preservation, embargo policy, funder mandate compliance, research analysis, research transparency, replicability, and beyond. And all of this multitude varies widely by region, institution, clients, audience, career stage and field of study when it comes to perspectives, goals, strategies and best practices.

Not surprisingly then the scholarly communication field often appears quite disjointed—less a “field” than a loose assemblage of related activities. No groups have succeeded to-date in pulling together all these different threads into one tapestry that might enable the field to grow and act together, and the field that isn’t can’t speak with one clear voice to funders about common needs and goals for the future, which has resulted in relatively poor visibility and funding. It has also resulted in funders themselves setting scholarly communication agendas based on their own understanding, vision for the future and sense of priorities.<sup>1</sup> As a result, a wide variety of goals, agendas and definitions have emerged which are sometimes incompatible, even conflicting.

### SCHOLARLY JOURNALS IN CONTEXT

In the midst of this vast ecosystem are scholarly journals (also known as academic journals and research journals). To most people these journals are boring—dry, dense publications that try to explain complicated subjects in a short amount of space by 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 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 numbers continue to grow (to somewhere between 40,000 and 90,000 today; see Hampson 2019a). The imminent demise of this form of scholarly communication has been predicted for years but journals are still here and still as important as ever—arguably the single most important communication tool in research next to academic conferences. 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.

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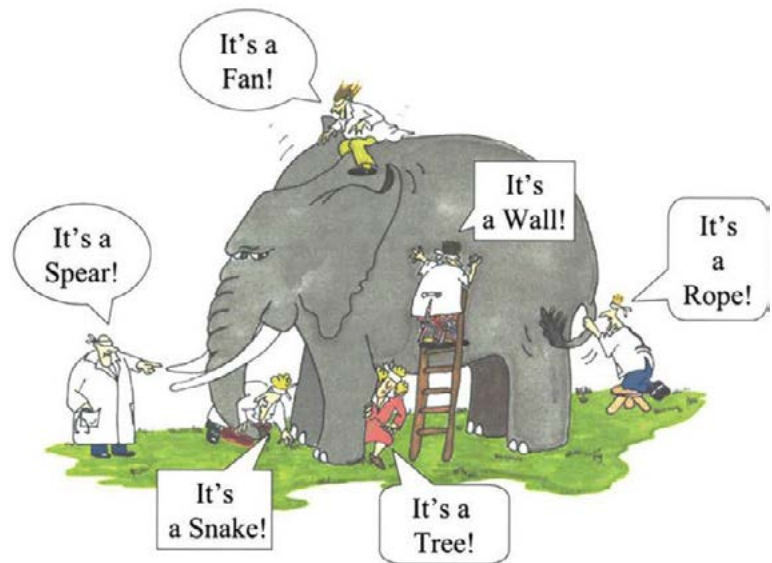
1. The Science Communication Institute (SCI), which is the parent body of OSI, attempted to create a Science Communication Network for several years but the response was lackluster. Everyone in science communication recognizes common elements across the field, but they are also more focused on their current strategies and constituencies than looking for commonalities. The teaching of science communication is similarly hamstrung—different course and degree programs around the world focus on widely differing offerings (some, for instance, just teach writing whereas others delve into issue like public policy, and still others focus just on helping scientists communicate more effectively). Robust funding for this type of field unification effort will go a long way, however. As with any “movement,” it’s important to build up a core of participants, benefits, and results before the movement really begins to build—for the community to see this alliance as real before they commit to joining it. For a deeper discussion the challenges of uniting the science communication field, see the SCI website at [sci.institute](http://sci.institute).



## EVALUATING THE FUTURE

Given all these interconnected and intertwined perspectives—with a specific emphasis on journals since this is where most of OSI's work has been focused—how we evaluate the evolution of scholarly communication in general and journals in particular really depends on what we do for a living. To the journalist, scholarly communication means writing and reporting about research (which means not just science, but HSS as well—humanities and social sciences). To the Alan Alda Center for Communicating Science it means trying to improve the way scientists talk to the public. To a scholarly communications specialist at a university it means improving access to research materials and ensuring these materials can be widely shared and disseminated. To a special interest advocate whose concern may be 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.

All of these perspectives are equally valid and important but the needs and priorities advocated by these different groups can be wildly divergent. It's the proverbial case of the blindfolded trying to describe an elephant: Scholarly communication and journals mean different things to different people. There is no single all-encompassing description and no right answer for how to improve this "field" that isn't.



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

Fortunately however, all these interests and perspectives 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.

## THE OPEN REVOLUTION

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.<sup>2</sup> 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.

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2. See Tennant 2020 for a good discussion of the evolution of open source code and how this evolution overlaps with the open access movement in journals.

Underlying this tension is a fundamental difference in philosophy: whether the entire scholarly communication marketplace, driven by the needs and desires of researchers, should determine what kind of open it wants and needs; or whether this marketplace should be compelled to adopt open reform measures developed primarily by the scholarly communication system's main billpayers—funders and libraries. There is no widespread difference of opinion in the community whether open is worth pursuing. The debate is mostly over what specific open solutions are best and at what pace open reforms should occur.

The evolution of this philosophical gap is complex and fascinating but unfortunately beyond the scope of this paper to explore in detail.<sup>3</sup> The short version of this history 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>4</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<sup>5</sup>; 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 website for examples).<sup>6</sup>

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>7</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 “maximally” open—CC-BY licensing and

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3. However, Richard Poynder’s recent essay on this topic does a very thorough job of this—see Poynder 2019.

4. 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.

4. That is, 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

5. <https://www.coalition-s.org/>

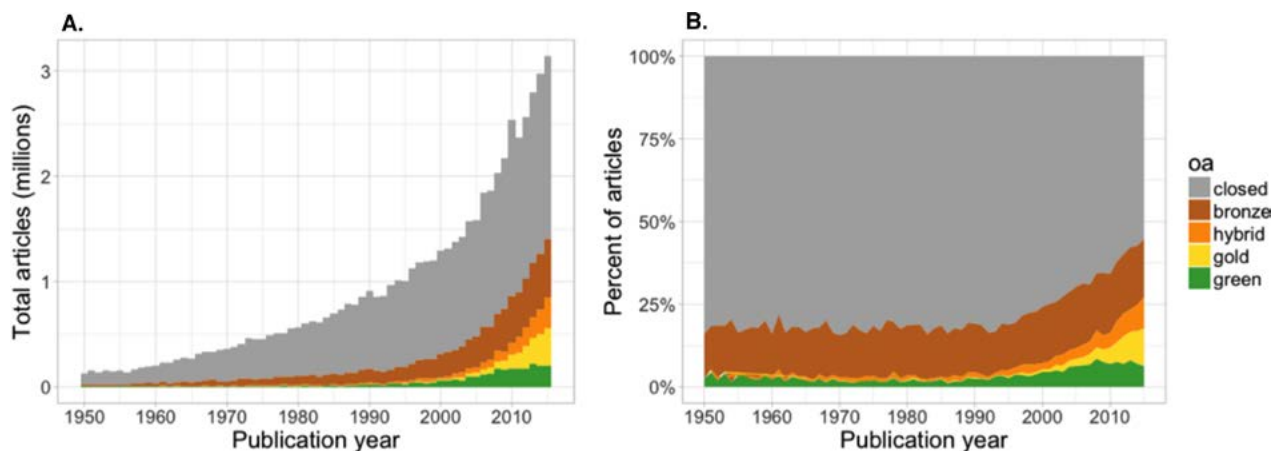
7. Over the years, the scholarly communication community has used colors to represent different kinds of open. “Green” open mostly refers to preprints—the pre-published version of articles—but it can also refer to collections of articles that are free to read but otherwise not compliant with BOAI (e.g., 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).

so on. On the other side of this debate, other open advocates note that 2002 was basically the Stone Age in Internet years and that clinging to a 2002 definition of open in 2020 is neither necessary nor advisable.

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 features 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.<sup>8</sup> “Hybrid” open is also robust. In this type of publishing (which is very popular with scholarly societies), some articles in a journal are free to read while other articles are others are only available to subscribers.<sup>9</sup>

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:

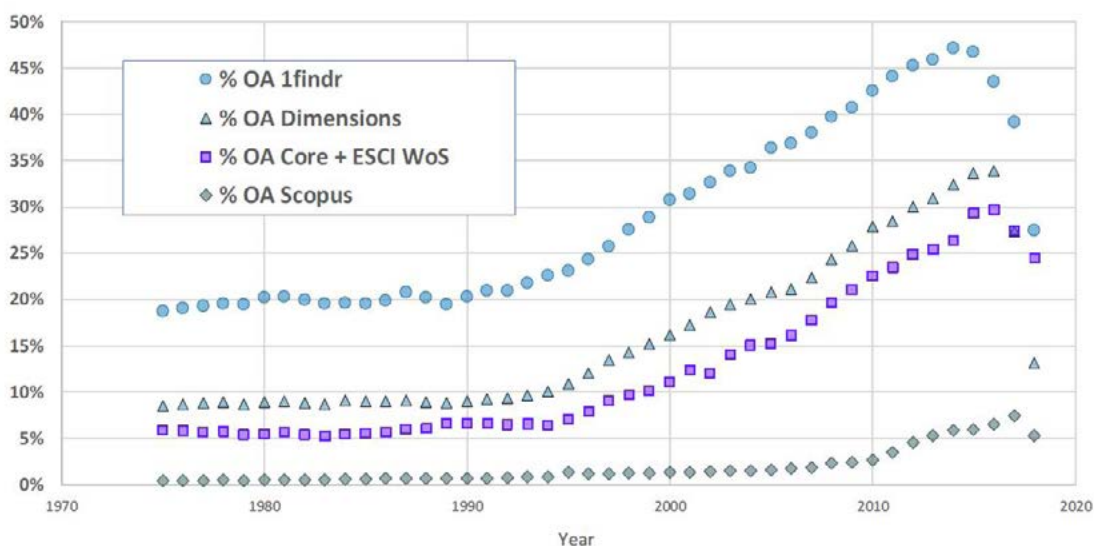
1. **Open is growing strongly** (see Archambault 2018, below graph). How strongly depends on which indexes we're measuring, which time periods, which disciplines, and what we mean by “open.” As you can see from the above graphs (from Piwowar 2019), however, not all open is

8. Bronze 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.

9. In the case of scholarly societies, subscription revenue helps support the society and helps the society keep their publishing fees down (in service to their smaller members who cannot afford high fees).

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. 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 such as 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.
4. **The open movement has fractured.** Different groups are now advocating different 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 main 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, unable to influence the trajectory of this debate.



Source: Archambault 2018

## GROWTH PRESSURES

The growth of journals is another issue pressuring this information ecosystem. As mentioned earlier, there are currently somewhere around 40,000-90,000 indexed, peer reviewed scholarly journals that publish around 3.5 million articles per year.<sup>10</sup> 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

10. No one knows the exact number of all journals—estimates go as high as about 90,000 (see Hampson 2019a).



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).<sup>11</sup>

It's also leading to a situation where lower resource areas and institutions are tempted by workaround solutions like SciHub, the modern day Napster of research papers. By stealing university login credentials and illegally downloading and archiving copyrighted materials, SciHub is creating a huge trove of free to read articles. Some herald this action in the name of openness as being necessary and morally just while others worry that embracing this brazenness could lead to the collapse of the publishing industry as we know it (as well as pose a security threat to universities).

## GOING FORWARD

So what now? How do we reconcile these competing pressures and perceptions? There are anxieties, misgivings and alternative facts on all sides. One way is to look more closely at the common concerns underlying this debate. The top three involve costs, impacts, and access:<sup>12</sup>

- 1. Costs:** Cost is the concern 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 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 may end up being just as expensive as the subscription model, increasing overall costs to the system (Pollock and Michael, 2018; Jubb et al 2018). More study is needed.
- 2. Impacts:** If our concern is that more open will mean higher citation rates, the data here are also inconclusive at present. BOAI-compliant "gold" outputs may have the lowest citation rates across all kinds of open—lower than even "closed" outputs (locked behind a paywall,

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11. Predatory publishers use trickery to get submissions (like spoofing the name of a well-known journal or falsely claiming to conduct peer review). Everything gets published for a price, regardless of merit.

12. Some might also add dislike of the subscription model and/or dislike of commercial publishers to this list of motives (for example, the EU's Plan S is quite explicit about eliminating 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 do 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—that is, 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 cited). 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.

copyrighted, etc.; see Piwowar 2019). We're not sure 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 perceived to be less prestigious than subscription journals—an attitude that may change over time). For now, more research is needed here too—not only to better understand citation impacts but the impact of open research in general.

- 3. Access:** If our concern is increasing 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 possible that an all-APC system will be unaffordable for much of the world, which means this approach is trading one problem for another: more research work will be free to read and reuse but researchers from the less resourced institutions will be unable to publish their own work (at least not in venues their colleagues from wealthier institutions will be likely to read; see Scaria and Shreyashi 2018, INASP 2018, Minai 2018, Green 2019, Siler et al 2018, Ellers 2017).

All this isn't to suggest we stop trying to improve open outcomes, of course. The scholarly communication community is unified in its resolve to improve the future of open, and there are dozens upon 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 is problematic with our current approach to the many challenges involved here, however, purely from a multi-stakeholder perspective, is that in our rush to implement specific open policy solutions 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 these questions. Nor are we taking seriously the concerns that have emerged from many parts of this community such as what happens if commercial and/or scholarly society publishers collapse as a result of pending transformations? Or if financial pressures cause publishers to withdraw from supporting organizations like Research4Life (which currently supports access for low resource institutions around the world)? Or if existing publishers simply get replaced by new funder-based publishers? Or if libraries collapse (replaced by publisher-run systems that are more closely allied with researcher needs than libraries)? Or if we end up with a world where Europe conducts, publishes and archives research one way, China does it another, the US does what works for the US, and every other part of the world similarly adopts solutions that meet their own needs with their own solutions? These sorts of possible, however unlikely outcomes have real potential global consequences for researchers, research communication systems, the integrity of information and our global research evaluation and funding processes.

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 how to achieve more openness in research has taken us down the rabbit hole more so than any other issue in this commu-

nity.<sup>13</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 quite effectively on this issue: Lots of brilliant people and organizations are working hard on it; there is increasing awareness of the need for change, thanks in no small part to the tireless work over the years of SPARC 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; and we are witnessing a growing impatience (which can be both a pro and a con) with the relatively slow growth of open over the last 20 years.

There are also many concerns we all share in this debate. While we may not necessarily share a common concern of reducing costs, for example, we do share a common concern of making 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.

We also share a common need. As Joyce Ogburn and Clifford Lynch have noted “Successfully navigating the creative and scholarly environments requires knowledge of applicable practices, norms, standards, technologies, and laws,” (Ogburn 2017) and yet “..we need to be profoundly mindful that for virtually all faculty and graduate students, the dissemination of their scholarly work has become a complex, confusing, time-consuming morass of funder mandates, institutional policies, choices about publishing venues, article processing charges, and questions as to whether or not to release preprints at various stages of the development of their work” (Lynch 2017).

Instead of celebrating and building on our common ground and recognizing our common needs and concerns, 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 interconnectedness of issues in this debate, or all of the above—become accustomed to focusing on the things we disagree about, which is just about everything: Who do we blame for the current state of affairs? What issues and solutions do we focus on? When do we think change should happen? Where should change occur? Why are we trying to achieve more open anyway? And how do we accomplish all this change, 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 final point since we haven't agreed upon or even discussed the more foundational answers to 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 global progress on this issue:

1. **Trust:** Different factions in the open space don't trust each other. The rhetoric is heated, and often dismissive and disrespectful.
2. **Frustration:** Boiling over from this lack of trust this space is plagued by frustration, acrimony (see also, Twitter) and hyperbole, all of which prevents us from working together effectively.

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13. “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 these points were first made in the opening address of the 14<sup>th</sup> Berlin Debate on Science and Science Policy (see Hampson 2019).

3. **Lack of engagement:** Researchers aren't involved in these reform conversations in any meaningful way.<sup>14</sup>
4. **Ignorance:** We're missing key pieces of the puzzle (for instance, what kind of open is most effective, how necessary are embargoes, how big is predatory publishing and so on).
5. **Lack of funding:** We need funding to develop new systems and structures but this is a poorly funded space.
6. **Inertia:** The culture of communication in academia is highly resistant to change. There's also the inertia of our own long-held positions and courses of action (of publishers, open advocates, universities, funders, governments and other groups).
7. **Tunnel vision:** We have tended to focus on finding prescriptive solutions instead of developing general frameworks for progress that will allow for adaptation, competition and creativity.
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.

The most aggressive and influential policy attempts we are seeing today in this space also tend to lack humility: They know the answer and don't particularly worry about the concerns of fellow stakeholders (because these policies have grown out of this environment of frustration, lack of trust and tunnel vision).<sup>15</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 make sweeping, lasting change all by themselves.

## FINDING COMMON GROUND

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So far this paper has been a somewhat demoralizing description of how complex and thorny the scholarly communication environment has become—particularly regarding the issue of open research. We are now ready to emerge from this thicket into the sunlight where a vast meadow of common ground awaits. Before we can do this, though, a few instructions are in order.

First, the central premise of this paper is that by building on the common ground we have in this community we have a better chance of developing the right solutions for the future of open research in the right order and for the right reasons, and that these solutions will have a better chance of being adopted and sustained and will allow the full potential of open to flourish. From this common ground, and with common global action we can not only realize the full potential of open but also solve all the connected issues in this space, from affordability to predatory publishing to academia's publish or perish culture.

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14. This is due to several reasons, as discussed later in this paper: 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."

15. 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.



## A LEAP OF FAITH?

Does it require a leap of faith to agree with this premise? Yes, most definitely. There are many brilliant and passionate experts in this community who believe common ground is a mirage—that only limited or unilateral actions will lead to global open reforms in the near future; or that global action has no chance of happening so it's better to take what we can get; or that global action will only achieve “watered down” open that doesn't immediately satisfy our most ambitious plans. Jon Tennant summarizes other perspectives on this leap of faith (Tennant 2020):

First, [there is such a diversity of principles, practices and outputs involved that] a single, unified, comprehensive and widely-accepted consensus definition [of open scholarship] is probably not sufficient (or even desirable), unless such a definition readily embraces this diversity (e.g., as the Open Scholarship Initiative seems to do). Second, there remains a need to rigorously define and enforce the philosophy, values, and principles of Open Scholarship, and explore how these underpin the practices, and to have consensus reached on this within the scholarly community.

This would address the lack of common understanding, which has impeded the widespread adoption of the strategic direction and goals behind Open Scholarship, prevented it from becoming a true social ‘movement’, and separated researchers into disintegrated groups with differing, and often contested, definitions and levels of adoption of openness (Tennant, Beamer, et al. 2019). Rebecca Willen has also identified that there might be two, perhaps three, different sub-movements that intersect in different ways, involving ‘open science’, ‘replicable science’, and ‘justice-oriented science’.... Alternatively, it could be the case that now, open research is diffused in such a wide variety of ways that there cannot plausibly be a single, cohesive community and set of practices that define it.... Instead, Open Scholarship, Open Research, and Open Science might best be thought of as overlapping/intersecting ‘boundary objects’ (Moore 2017) that represent this inherent diversity.

Broadly speaking, then, the difference in approach between the leapers and the non-leapers is that we can be inclusive or exclusive with our efforts—inclusive if we want to reach a broad, global, sustainable agreement; or exclusive if we believe that narrow, focused efforts are more practical, desirable and/or achievable. In the international scholarly communication community today, we see a large number of exclusive arrangements—from bilateral agreements between universities and publishers; to government mandates for domestically-funded research; to coordination between similarly focused advocacy groups or infrastructure groups (like those working to improve institutional repositories or editorial standards). These efforts are in addition to a vast multitude of unilateral reform efforts, from institutions creating their own one-off open access policies to publishers launching new open products and services to a new business ideas emerging featuring new approaches to peer review management (like F1000), pre-print standardization (using a framework created by the Center for Open Science), the brilliant SciELO network in South America (whose origins actually predate the open movement but which is constantly updating itself to stay robust and cutting edge), and more. This constellation of passion and energy in this community to improve the future of open is truly something to behold.

So why leap? Because this community's effort to reform open research has for decades now been working backward from these exclusive, unilateral and/or specific solutions, trying to defend them, rationalize them, and/or knit them together. By design or circumstance, however, these solutions are often rigid and inflexible, meaning that integrating them—most often as an afterthought—into a tapestry of policies and solutions that work for broader audiences becomes effectively impossible. There has never been an inclusive, global effort to bring everyone together first—broadly, at scale and at a high, policy-making level—to identify common ground needs and interests, then collectively brainstorm options, and only then design specific policies and solutions that work within this globally operational and sustainable framework.<sup>16</sup>

Our failure to work systematically like this as a community on the global issues and challenges of scholarly communication has led to a unique twist on the tragedy of the commons, where it isn't our

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16. OSI is such a group but our design is to share information and perspectives, not be a deliberative body focused on developing solutions.

inaction on common challenges that has led to problems, but the fact that we continue to act on these challenges in our own interests, or from our own limited perspectives, or with the sense that this is the best we'll be able to do. Of course, practically speaking, taking a broad global approach to scholarly communication may not even be practical or prudent if large stakeholders—think the EU or the University of California system—are of the mindset that they have a legal and fiduciary obligation to do what's best for their constituencies and not worry about the rest. But in this case, “the rest” can end up meaning the majority of the scholarly communication world that doesn't have the power to craft such sweeping publishing agreements. So far in this debate, what happens in Vegas isn't staying in Vegas but causing ripple effects throughout the scholarly communication environment. And again this isn't so much of an issue if we're certain these ripple effects will have positive impacts. We don't know this, though. We do know that impacts are rippling everywhere. Where the system finds a new equilibrium is anyone's guess as well as whether this new equilibrium is better than before (for everyone) or worse.

This exclusivity and the resulting lack of inclusivity of ideas about the future of open has been perhaps the defining deficiency of most of the collaborative actions that have happened in our community to-date. Most of the discussions about open reforms have just involved libraries, publishers, a few funders, and a few active scholars, and have revolved around what open means and what policies we'll need to get there from here. But there are many other facets to this conversation, and many other stakeholders affect and are affected by changes in the ecosystem; the scholarly communication ecosystem differs in significant ways across the globe and between researchers, institutions and fields of study; and there are many questions that exclusive action can't address. Issues aside there are also broader ecosystem-level questions that need answering, such as what is our collective goal in pursuing open policies? What are we going to do with this information we're collecting (and why)? Who is asking and answering these questions and are we sure the questions and answers we're providing (via our narrow group of debate participants) actually represent the best interest of global research and global researchers?

To be clear the scholarly communication community's limited and exclusive groups have collaborated over the years 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 cooperation and collaboration has helped push forward progress on open and raise the profile of the need for open. Also, as Şentürk (2001) noted, there is power in the fact that different parts of the scholarly communication community understand and adopt their own understanding of openness in different ways depending on their norms and processes. Neither of these dynamics—limited engagements or a variety of adoption paths—should change.

What is missing is that it's unlikely only limited engagement and/or varied adoption paths will ever by themselves result in broad and comprehensive solutions to scholarly communication's systemic issues. And these dynamics certainly won't result in off-the-shelf global, universally-acceptable solutions or solutions that work for groups whose needs differ from those of the negotiating groups. It's hard to envision a system more global and more integrated than research; global approaches are needed.

There's also a systems argument for a global approach that is more grounded in optimization theory than diversity. When we assume we know the ideal orientation of a complex system like scholarly communication and impose that orientation on the system we are effectively preventing this system from finding its optimal alignment. We are saying “we know what the best outcome looks like so our intervention is just creating that outcome and the side effect of our intervention on other components of the system are irrelevant.” Modern system optimization theory says otherwise—that we need to “look beyond viewing the system as background noise, and toward engaging with a broader range of evidence focused on the functioning of those systems we seek to change” (see Moore 2019). Static changes made to a dynamic system will eventually wash out and become ineffective. Affecting real and lasting change to a such a system requires engaging all stakeholders and considering all changes over time—a complex challenge but a necessary one.

This isn't to say that a complex system like the scholarly communication community can't reach optimal alignment on its own with or without some kind of external intervention (or multiple separate and disparate interventions) because not all components have equal weight and power in the current system. Completely left alone the current system has no real pressure to reform. Nor is it to say that we can't nudge the system in one direction or another to good effect. What the systems approach is saying is that by imposing our will on the system without regard for how this affects the entire system, we are creating short-lived and unpredictable outcomes. We can't push it to optimal efficiency without understanding the full system and we may in fact short-circuit its potential to reach this optimal state.<sup>17</sup>

So, what might this diverse, "optimal" system of scholarly communication look like? The next few sections will go into this in more detail. For now, for the sake of argument let's first examine what common ground looks like and what common ground approaches might be ready and waiting.

## DEFINING THE TERM "COMMON GROUND"

The next step in this exploration 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 just recognition that certain concerns and interests are shared, which can form the basis for conversation about specific solutions.

The kind of common ground being sought 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. 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 negotiating, conflict resolution and even sales to some degree), while diplomats and other experienced negotiators have their own training materials 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 realistic undertaking grounded in theory, practice and evidence. Examining negotiation 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 on this topic.

The clearest way to introduce this concept here might be to give a few examples of what common ground looks like in other actual negotiations:<sup>18</sup>

### 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.

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17. The suggestion here isn't that we should let the market determine the best outcome, but that demand and innovation should be as free of constraints as possible so that system benefits are maximized. By creating just one choice in a system, demand is constrained, along with the innovation to respond to that demand and the competition that arises from new innovation to meet new demand.

18. This first example is from the San Diego Tribune, cited in *Expand the Pie*, a negotiating handbook (see Magee 1998 and Lum 2003).

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, 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:<sup>19</sup>

#### 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.

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19. Also from Expand the Pie (Lum 2003)



## 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 small and focused and provide a clear sense of what “common ground” means in practice. 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; or international trade agreements, nuclear disarmament agreements, and environmental agreements. The complexity of these undertakings are orders of magnitude more complex than the two examples given here. But the basic principles are 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.

Stakeholder group	Number of participants (Dec 2019)	Percent of OSI group
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%
TOTAL	394	100%

## CONVENING THE GROUP

If we accept that developing truly common ground perspectives and solutions will require convening all stakeholders—ideally a broad range of high-level decision makers so these conversations can proceed at a policy-making level and not just at an awareness-raising level—then we need to figure out who should be at the table. There are a lot of groups to invite to a prospective international scholarly communication meeting—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—not just like-minded stakeholders or those with clearly overlapping needs and perspectives. The table to the left shows the stakeholder groups represented in OSI and the approximate number of participants from each group.

A key related note here is that while all these stakeholder groups 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.

This is easier said than done, though, because just as multi-stakeholder engagement on the issue of open research reform has been woefully lacking, significant researcher engagement (at least on a broad, global and interdisciplinary scale) has never happened either. Why? 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.<sup>20</sup> 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 homogeneous 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, what we see in this debate is that 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.

## DEFINING THE PROCESS

We've seen what common ground means in a general sense and what a possible global stakeholder group might look like. What comes next? A forum where participants talk issues to death? A camping trip where everyone holds hands and makes all their problems and disagreements magically disappear? Well, no.

The next step in our journey out of the thickets is agreeing to convene. Fortunately, the potential for this kind of engagement exists. Many stakeholder groups and organizations in scholarly communication 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.

What comes after this—from the process to the format to the agreements—really depends on the will and vision of the group. If we see a future that is brighter together than apart then the rest is easy. But this vision can't be imposed—it needs to emerge from the group and be owned by the group. There are no shortcuts.

## FINDING OUR COMMON GROUND ON OPEN

It's important to note again at this juncture that common ground is a unique, "expanded pie" state. It isn't a grand compromise where we manage to divide a static pie into smaller, less satisfying slices, but creating a larger pie where new value is available throughout the system. In this case, then, common ground doesn't mean seeking a compromise between embargoes and immediate release; or between APCs and subscriptions; or between publish or perish culture in academia and something a little kinder

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20. See T&F survey, Solomon, Tenopir, and others. There are, however, definitely emerging pockets of interest—see Rousseau-Hans 2020. Interest and participation in open research varies widely by region, field, career stage, and other factors.

and gentler. It means thinking beyond, focusing not on picking specific solutions but on understanding how our interests overlap lest we get weighted down by too many solutions or too many solutions we don't like. By identifying the broad contours of common ground that exist in this conversation we can build the guardrails and mileposts for our collaborative efforts and then allow the finer-grained details of community-developed plans more flexibility and guidance to evolve over time.

So what are these overlapping interests? We're at the meadow now (finally). First, as stated earlier in the "Down the rabbit hole section," the people in this community overwhelming share a common concern for making research better able to serve the public good. We also 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; we want to ensure that everyone everywhere has equitable access to knowledge; and we all see common problems with the system and have similar needs to improve the way it works. To reiterate, considering the

Problem/issue	General approaches we all agree on	Disagreement about specific solutions	Common ground interests and concerns that should govern our development of solutions
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 and should not distort publishing choices in academia
Open access isn't growing fast enough	Consider ways to accelerate open adoption rates	Are different kinds of open equally valid and valuable? Is open actually growing slowly?	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. Can we do this?
Embargos may be too long	Study what embargo period is just right	Are all embargos bad? What if some are necessary for industry health?	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 to determine solutions.	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. So do more futuristic repositories. Let's keep developing all our options and see where it takes us.

many organizations working in this space, the overlap in their missions, and the overlap in their passions and needs, this is an incredible amount of common ground.

How does this discussion proceed? The following table lists a few issues and our community's common interests, concerns and solutions regarding these issues. Focus on the common interests and concerns sections. Just because we disagree on the solutions doesn't mean we don't all see the same problems. Broad statements of interest and broadly stated options for addressing these interests are where we start. They're impossibly vague, but they are essential starting points for discussions.

Take a look at the "peer review" row, for example. When it's properly filled out with the right people at the table and not just in "sample" form like this we might find that we all favor different peer review systems but that we also share a common interest in ensuring peer review is authoritative and adds value to research. In our community we often become divided over our allegiance to specific solutions—in this case, signed peer review versus blind, the speed and visibility of different approaches (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 specific solutions nor is it even necessary to pick just one solution. What we don't want to do—but have done too often—is throw up our hands and say that just because we can't agree on solutions then there is no common ground, even though we're all clearly trying to solve the same problem and have the same common interests and concerns at heart.

Now take a look at row three where we outline our common concern that open isn't growing fast enough. Here, this may be 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 and not just 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 this 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 open 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 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 ban hybrid open)—especially since doing so would end up dramatically reducing the amount of open content currently available to researchers.<sup>21</sup>

In our quest for common ground we also need to engage in a far broader and deeper way than we have to-date. For example, the people in this community share a common passion for the future of open but only in a fuzzy sense. Do we have any specific views or aspirations about the future of open that overlap? Can we agree that we need more open now to help cure cancer and combat climate change? Do we see a future where discovery will accelerate and new fields of study will emerge due to massive troves of standardized and interconnected data? Or a future where public policy is better informed by research that is more easily accessible, transparent and understandable? 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? Can we put the open research challenge into context with regard to other external factors like trends in higher education, incentives that motivate scholars to particular actions and a host of other intertwined social and economic factors?

Working together on answers to these questions will clearly reveal just how connected this community is and should be. At its root the conversation we are having is really about creating a better future for

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21. 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.

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 research is just a means to an end, not an end in itself. Our focus, therefore, might 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 open strategies are “right” and “wrong.” Our common devotion to this broad challenge of improving research and society is our incredibly rich common ground.

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, and more. Policy-makers have led with some of this work (such as protecting the rights of study subjects), and the community has led with other work. None of these challenges have been simple. Our perception is that the open challenge is more difficult because it involves so many connected issues and so many stakeholders, 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. In OSI we have found, in fact, that there are many points of agreement.

The boxes on the following pages (and to the right) contain some of the observations from our group that represent what common ground perspectives might look like in the open research debate and what researchers and policymakers might want to keep in mind as future reforms are debated. Also, included in the annex of this paper (to help realize what's possible, and to catalog and prioritize our possible to-do list) are common ground recommendations made by participants in OSI's 2016 and 2017 conferences and our 2018 and 2019 summit group conversations. The common denominator is this: common ground isn't a complex, solution-riddled landscape but a simple framework where the scholarly communication community sees common interests, criteria, purpose and goals, and identifies ways to work together across divides on solutions that help every member of the community succeed through better understanding, better support, and recognition of a multitude of different efforts aimed at advancing the community's needs.

## 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.\*

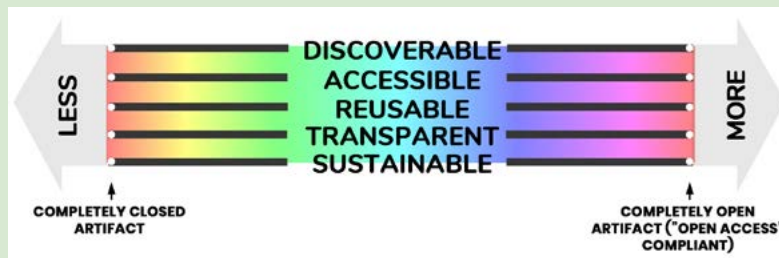
1. **Infrastructure groups:** Help push for more global standards, integration, and global implementation
2. **Journal editors:** Improve global journal standards through mentoring and networking, reducing the influence of impact factors, and improving indexing
3. **Libraries:** Support, engage and/or 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 from researchers, support more author choice, help establish better standards, and encourage “exchange” programs where leaders can get out of their silos
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.

\* 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 (see the OSI2017 report for more detail):



- 1. Open isn't binary.** The terms "open" or "open access" (OA) are used in a wide variety of ways. For instance, some open advocates see open access as an optimal, singular state meeting specific conditions. Others (including many researchers in this field) will call any kind of open information "open access," as long as it is free to read. This flexibility is a natural outcome of how open has evolved in the scholarly communication community. Therefore, we have concluded that instead of being a rigid, binary concept, open actually exists along a spectrum of outcomes, with wide variation according to discoverability, accessibility, reusability, transparency, and sustainability (DARTS).<sup>\*</sup> Keeping the DARTS spectrum in mind can help the community recognize that open and open access are highly variable terms—that when two groups advocate for more open, they may actually be supporting 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>\*</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 defining terms (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 practices 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.\*

- 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 is 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, many in OSI encourage 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 universities and public sector institutions, better address the wide variety of research-related needs and concerns that emanate from the vast diversity and asymmetries of the scholarly communication environment (such as indexing, standards, and promotion and tenure practices), and narrowing the affordability gap.

\*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.

## BOX 5: COLLABORATIVE STUDIES PROPOSED BY OSI\*

**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). 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.

**IMPACT FACTORS:** Impact factors are one of the most destructive 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. This study will focus on rethinking the mathematical foundation of impact factors. 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.

**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 study with the cooperation of publishers, reducing or eliminating embargoes for a select number of publications and monitoring this impact of this action on revenues.

**OPEN NEEDS & IMPACTS:** 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. 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 are different types of open (gold, bronze, etc.) received by different researchers? 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?

**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?

**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), and more. There is also increasing sloppiness in the system wherein publishing in predatory journals may not always be noticed or questioned (Shamseer 2016). We need 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.

**Other: Peer review, global flip, publisher profit margins, global publishing standards, more**

\* This list is summarized from the annex section of Plan A (see this paper’s annex section)

## BOX 6: COLLABORATIVE OPEN INFRASTRUCTURE PROJECTS PROPOSED BY OSI\*

**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 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.

**OPEN IMPACT FACTOR + OPEN INDEXES:** One of the consequences of our uneven progress toward open is the unavailability of legitimate impact factors for all journals (because not all journals are indexed), 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. Among the possible solutions to this problem are: (1) Creating an open impact factor measure, (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.

**APC PRICE COMPARISON TOOL:** 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 a number of recent, high-profile, APC-centric reform initiatives. However, 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). Developing an APC price comparator tool might therefore be of service to the global scholarly communication community.

**YELP SITE FOR SCHOLARLY PUBLISHING:** The core purpose of the Yelp site for scholarly publishing will be 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.

**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.

**Other: Predatory publisher blacklist, iTunes single-article article shopping/download system, annual “state of open” survey.**

\* This list is summarized from the annex section of Plan A (see this paper’s annex section)



## ALL ABOARD

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The lesson from the previous section is that don't need to agree on every solution right away or dwell on the years of divisions in this space in order to make progress. Focusing instead on the positives and the common elements in this space—the tremendous energy and enthusiasm for reform, the number of people and organizations working on reform, our common commitment to solving pressing issues, and our common vision for the future—it is clear that this community has the capacity to build for the future on common ground.

But wait. If it's so necessary and advantageous to take an inclusive, global, common ground approach to designing the future of open research, then why hasn't this happened already? What's stopping the common ground open research train from leaving the station right now with all the world's researchers aboard, heading into the future?

There are several perspectives on this. One is that with the current train, there is:

1. **Confusion and uncertainty:** Many researchers appear to be interested and willing to get on board with open. Many others are confused and uncertain, though: There's no simple boarding plan to follow, no universally accepted standards for what open looks like, no one-size-fits-all explanation of benefits, and no single researcher-led organization saying what to do.<sup>22</sup>
2. **Dislike of solutions:** There has historically been significant dislike of the CC-BY licensing solution pushed by most open plans. Similarly, scholarly societies have pushed back on open solutions that ban hybrid journals, and commercial publishers have pushed back on open solutions that ban subscriptions (AAP 2019, AHA 2018). The way we are currently pursuing open there's something for everyone to dislike.
3. **Utility and inertia:** Many researchers feel they're getting what they need from the system as is—peer review, recognition, career support and so on—and that publishing in a major, well-known journal is still the best choice for their research and careers, and the easiest and safest choice. Why fix what isn't broken?
4. **Destinations unknown:** It isn't entirely clear where we're going with all this. Open for what? For the sake of open? More clarity will help drive adoption.
5. **Conflicting trains:** Some researchers are boarding private trains run by their exclusive negotiating groups for destinations and reasons that differ from other groups. Is the common ground train the right train? How is it better or worse than other trains?
6. **Proof:** Open doesn't always work best.<sup>23</sup> This isn't to say the net benefits of open aren't compelling on the whole, just that researchers can't easily conclude that publishing in an open format is always in the best interest of their particular research and career paths.

As a result of this lack of attractiveness, coordination and incentive, not enough researchers are hopping aboard and the excitement about boarding is not self-sustaining but needs to be prodded and cajoled through mandates, journal cancellations and industry upheaval. If these open trains were departing to exciting destinations and travelers were raving about the places they'd been, and the ease

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22. To-date, scholarly societies have generally been ambivalent about one-size-fits-all changes to the scholarly communication environment (see, for instance, AAP 2019 and AHA 2018). Most of the guidance and mandates on this issue are coming from libraries and funders instead.

23. The open access citation advantage is often cited as proof that open materials are cited more frequently than other materials, but in fact subscription and hybrid journals are still cited more frequently than gold OA journals (Piwowar 2018).

of the trip, and how the costs were worth it, and how the food was fantastic, and how they couldn't wait to go back, and other trains were heading to even more picturesque destinations with even fancier accommodations, then open research would be a formidable train system indeed and passengers would be lining up to board, and there would be pressure to expand lines to carry more passengers to more destinations with an even wider array of accommodations.

What we have instead is a failure of the current system to innovate and inspire, and a failure of researchers to buy what's being sold—a system with one destination (“open”) traveling in one 1850s-vintage vehicle at one speed, that has no real perks other than conveying a sense that travelers have done the right thing by not driving their car and contributing as much to climate change. How long will researchers keep boarding? That is, what if the benefits of open don't start to become clearly self-evident to the majority of the world's researchers? And then once our research travelers get off this train will they ever get back on?

The need is real and urgent to find new, more exciting, more rewarding ways to get to the many lands of open, to build tools now that begin to deliver on some of the promise of open, and to start focusing now on what open can do so we can help the open movement grow by example and incentive instead of by fiat. This will take time, but in the end our lands of open “destination board” will be filled with stops we couldn't have even imagined at the outset.

So, to that end, what if our train station was built on a common ground foundation instead of an ideological one? In the Venn diagram world, this common ground won't necessarily be neatly overlapping at just one point. There will be multiple, irregularly-shaped points of intersection on multiple points of common interest. But suppose for the sake of argument our common ground foundation looked something like this:



1. **Work together to get all research materials somewhere onto the DARTS open spectrum** (see box 2). Seventy percent of the world's research is closed and entirely off the open spectrum. Let's work together to get this number down to 10% in 10 years. We can do this by valuing all open outcomes and not judging which of these are superior to others. Step one is to just get as much research as possible somewhere onto the spectrum.
2. **Work together to improve all open outcomes.** Getting more information onto the open spectrum is just a first step. From there we can work together to improve open outcomes (for instance, an institution or an information artifact can begin its open journey at one open level and improve over time). From this inclusive and non-judgmental approach, open adoption will become the norm and improvements over time will incentivize change and adoption, which will incentive more improvements and more adoption.
3. **Work together to immediately improve access where it's most needed.** What kinds of outcomes are wanted by researchers and where? Where are improvements needed and why? Let's be focused and thoughtful and not fall for easy one-size-fits-all explanations and solutions. The access holes we're looking to fill and the outcomes we're looking to improve may be fairly discrete—for instance, improving access to medical research for low resource institutions. Can these needs be solved quickly and effectively through innovative, targeted reforms instead of through major and untested systemic changes?

4. **Work together to improve open clarity and standards.** What's the simplest way to participate in the future of open research? We need solutions that are easier for researchers to understand and value and easier for universities to implement. We also need better standards. What are the neon bright guidelines that all researchers and publishers should know and follow with regard to open research?<sup>24</sup>
5. **Work together to address urgent needs.** There are many such needs to choose from but none more urgent and global than climate change. Many of the research disciplines connected to climate science are too closed. What if the international open community—including commercial publishers—worked together to not only open climate research but to actively integrate this work, make connections, and facilitate discovery?<sup>25</sup> We can prove the concept of open and at the same time work together to save our planet.
6. **Pilot open solutions.** Let's build things with open—combine, curate and standardize data, make new connections, bridge the gaps between disciplines, see new fields, make new discoveries—in short, do work that proves open is the future.
7. **Look beyond.** As a community, let's look beyond the journal article and figure out what we really need. What tools and systems should we build? To what end (specifically)? What role will artificial intelligence have in being able to synthesize research? What forms of research communication might be more efficient than articles in today's research environment (the answer will differ from one field to the next)? Rather than expending so much time and effort figuring out how to turn a horse and buggy into a rocket ship, maybe we should just build a rocket ship?

How is all this different than our current approach? It's different because there are exactly zero policy agencies and instruments in the open movement today that incorporate a truly diverse set of views and perspectives. Instead of relying on one-size-fits-all approaches and solutions to open powered by ideology we can create an inclusive open movement that is informed and empowered by diversity and opportunity.

The train metaphor is just one among many, of course. It's also possible to look at this challenge more conventionally where we start small to build confidence, pick the low-hanging fruit, and then over time move on to more complicated and challenging collaborations. Here's what the next 15 years would look like in this conventional scenario:

- **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, 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.

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24. There are international conventions in this space with regard to copyright law, universal digital object identifiers, and so on, but no international standards describing, for instance, how journals should conduct peer review, or what constitutes a legitimate and credible journal. Not all emerging open formats are created equal; standards can help ensure a baseline of quality and reliability. COPE and other organizations have created strong first drafts of this kind of work (see COPE 2018). The next step is for the international community to review (and modify as needed) these proposals and build the capacity of publishers worldwide.

25. There are already programs and procedures, both at the publisher level and the international level to help researchers respond to global health emergencies like Ebola, Zika and the Coronavirus. See, for example, NIH's Emergency Access Initiative, or Elsevier's information resource centers (Reller 2020). It's important to note here that we're not suggesting daylighting private health information from studies or discounting studies where this information can't be publicly evaluated. These are both bad ideas, and don't do anything to help science or science policy.



Source: Hampson 2018.

After 15 years of working together, 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 market
- 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 surpass today (including improved literacy, public engagement, and public policy impact), knowledge becomes more of a global public good, and society reaps the benefits.<sup>26</sup>

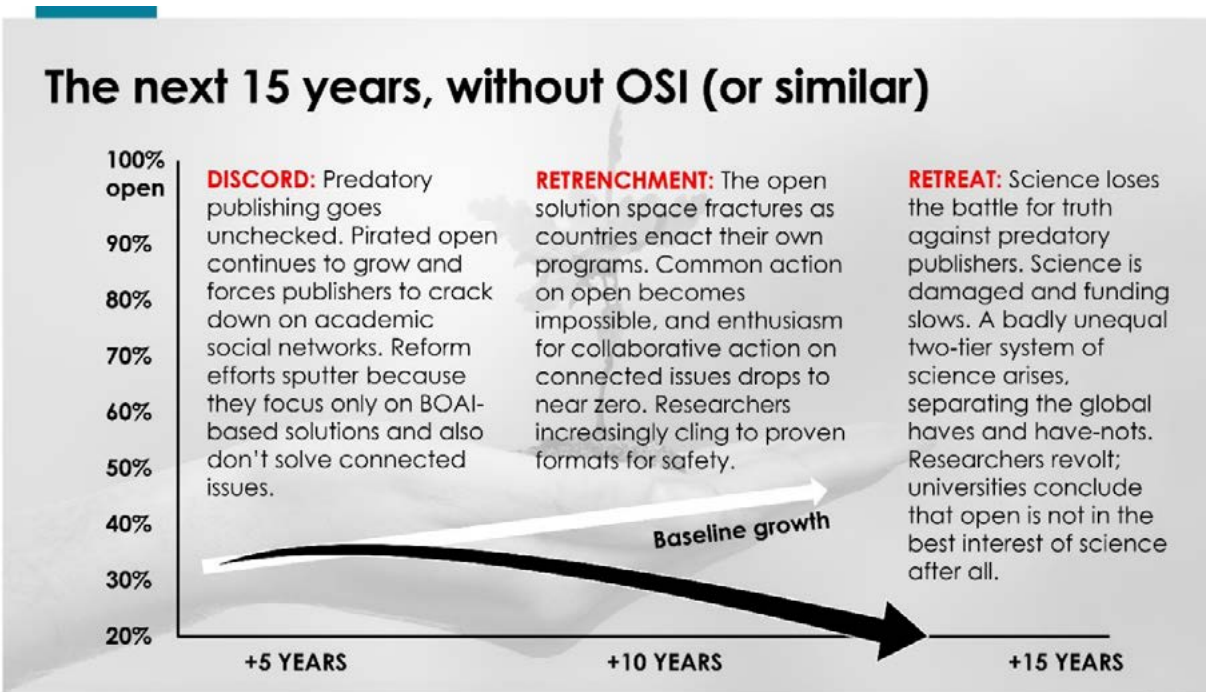
And what if we don't work together on the challenges ahead? Maybe we'll reach our goals more slowly, maybe we won't reach them at all, or maybe the solution space will fracture. Continuing with our go-it-alone approach, for example, may eventually result in competing regional solutions where we end up with one open future for China, another for the EU, and still other futures for South Amer-

26. This section is verbatim from Hampson 2018



ica, Africa, and other regions, each working to solve its own unique concerns and perspectives. This approach may also force changes across diverse disciplines that may not work well (for example, open solutions that work in physics generally don't work at all in history), causing researchers in some fields to lose interest in an open future. Or it may lead to unintended consequences that don't necessarily benefit research, again causing a drop in interest.<sup>27</sup>

A go-it-alone approach also fails to address the significant concerns in government offices around the world that there are intellectual property and security ramifications of a vastly more open research world (see Poynder 2019 for a lengthy list of examples)—not just sharing data freely but collaborating on research projects and even allowing certain foreign nationals to study at certain universities. Can we proactively address concerns like these by working together more effectively, or do we wait and react to future legislation that directs researchers to collaborate and share on the basis of nationality rather than merit? There are larger, distinctly modern currents at work here that have the potential to utterly reshape our answers to the many questions posed by open research. If we work together, our ability as a community to deal with these currents will be informed, unified and strong. If we are a fractured community, however, where every country and stakeholder group is just in this for their own benefit and is pursuing their own national agenda and vision of the future then there will be no bulwark against these nationalistic tides and the global effort to make research more open may suffer as a result.



Source: Hampson 2018.

In summary, good reasons exist for working together as a global community on the many challenges of open research— from a wealth of common ground interests to a need for common ground solutions to systemic problems; from making open research more attractive and coordinated, to aligning incentives, removing obstacles, better understanding national needs and interests and charting a course for a much more exciting and robust open future. Still, there are those in the scholarly communication

27. One example here is that if we replace subscription paywalls with “play-walls” where authors need to pay to have their articles published, this is arguably a worse outcome since we’re now dealing not just with research that’s hard to access, but with research that doesn’t get published in the first place.



community who disagree with the necessity or desirability of this approach—experts who believe limited solutions are the best we can hope to achieve; open advocates who think trading one evil (like subscription prices) for another (like author fees) will produce the greater good; or observers who believe our disjointed system as it’s currently evolving will eventually get us to the right point without the need to deliberately seek broader solutions. These perspectives are all valued and valuable. Many such perspectives inform this debate—there are no black and white answers. Indeed, there are a wealth of questions that have no answer at all.

And this is precisely why, considering what’s at stake, it is so critically important that we put our differences aside in this community and summon the will to look thoughtfully and carefully at how we are approaching the common challenges we face. Are we certain our current efforts are truly the best we can do as a community or are some of our approaches more expedient than thoughtful, inclusive, robust, effective and sustainable? And if they are more expedient then we need to ask ourselves whether these shortcuts are wise. The potential that an open future holds for research and society is vast. It behooves all of us to work together to develop this future the right way. Exactly how we do this is the question we should be trying to answer.

## AN IMPROVED PLAN

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### PLAN A

OSI has proposed a plan of action for working together to rebuild the future of scholarly communication on a strong, common ground foundation. This plan—which we’re referring to as Plan A—is included in the annex to this paper and is also online at [Plan-A.world](http://Plan-A.world). In summary, Plan A calls for joint action on studies, scholarly communication infrastructure improvement, and open outreach/education.<sup>28</sup>

To begin, 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 (see next section).

Plan A will strive 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 need to benefit research. While the argument to improve the benefits of research to society is palpable, these benefits need to be matured carefully, deliberately and realistically in order to ensure societal benefits are indeed being conveyed as intended, and that research is not being harmed in the process.

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28. There are some in OSI who lament that Plan A doesn’t call for more aggressive action. Finding a suitable, common ground starting point for action is key, however. Assessing the wealth of recommendations from OSI2016 and OSI2017 workgroup participants (see the OSI2017 report for details), the most frequently mentioned crosscutting issues were the need for more studies and the need to reform the culture of communication in academia. The most frequently mentioned approaches for reforming scholarly communication were studies, coordination and collaboration, outreach, new tools and programs, improved standards, pilots, resource development, and policy leadership. Plan A’s focus is derived from these recommendations, overlaid with what the OSI group learned and observed in 2018 and 2019 about our internal strengths and about the environment for global reform.

## THE UNIFIED UN ROADMAP, VIA UNESCO

Our hope is that OSI's Plan A will tie in seamlessly with a global open roadmap currently being developed by UNESCO. The open scholarship 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.<sup>29</sup> 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).

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29. 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."

## CONCLUSION

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The scholarly communication community needs to come together on common ground to build the future of open research. This matters for three main reasons: to understand the full scope of the challenges in this space; to identify the best possible, most effective, most sustainable solutions; and to avoid unintended consequences. 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 and solutions.

These conclusions are supported by the following facts:

- There are many different types of open.
- Open is being used and adopted in a wide variety of ways.
- Still, the scholarly communication community shares many of the same fundamental interests and concerns about open, such as lowering costs and improving global access.
- And the scholarly communication community recognizes the importance of many of the same connected issues in this space such as impact factors and the culture of communication in academia.
- Despite this common ground (of which there is much more), the open solution space has become ideological, and has fractured along ideological lines.
- Our progress toward better open outcomes is being hampered by this infighting.
- Broad, inclusive approaches are the only way to produce globally workable solutions.
- The OSI community has demonstrated that many such solutions are possible.
- Common grounds solutions expand value for everyone — they are not “compromises.”
- A common ground foundation will be stronger and produce more optimal outcomes than the current ideological approach.
- Only a common ground foundation will lead to an Open Renaissance, where open research can truly begin to evolve and create maximum benefit for both research and society.

Common ground solutions are not being sought today. Instead, at best our community continues to engage in limited, exclusive efforts (as separate institutions or as small groups of like-minded institutions) that will not lead to optimal, global, sustainable solutions. This constellation of community engagement is admirable and should be embraced and nurtured. At worst, however, our community continues to react and adjust to a unilateral policy solutions imposed by major regions or funders without broadly consulting the global stakeholder community or research community. This dynamic 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 we rarely agree on anything. But we don't even 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?). Finding this common ground has meant that OSI participants, alumni and observers have been willing to collaborate for almost five years now (for many since late 2014) to develop a foundation for building the future of scholarly communication on common ground. These individuals — over 400 high-level scholarly communication leaders in all, representing 18 different stakeholder groups from 250 institutions and 28 countries — share many common interests and perspectives, but often disagree on the details of solutions. These disagreements have been embraced as learning opportunities, and have helped this group achieve a broad and deep understanding of the scholarly communication landscape. The group's continued engagement has also demonstrated that there are indeed many people, institutions and stakeholder groups who remain interested in working together in this effort. UNESCO also remains a key partner and is working to help OSI succeed, and vice versa.

It is also important to remember that many common needs and interests already exist in this community. OSI's Plan A has been created to build on these common needs and interests, and to lead by example. Through Plan A, the scholarly communication community can work together to discover the critical, missing pieces of information needed to arrive at global solutions for open research; build the infrastructure needed to facilitate the movement toward this goal; work together to improve outreach and education; and apply these lessons of experience on critical needs like climate change research. As we do all this work together, we can build trust and a record of accomplishment, and the way forward can become increasingly clear. Stakeholder groups don't want more talk. They are ready for action.

Plan A gets us action while we continue to talk. While the time for action is now, it is also imperative that we build a new, common ground foundation as a natural and necessary next step in the evolution of our community's engagement. This approach and the solutions that eventually flow from it will support a future for 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 quest by working together.

In closing, it bears repeating here that at its root, the conversation we are having in this community is really about creating a better future for and 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

research is just a means to an end, not an end in itself. Our focus, therefore, might be better 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 open strategies are “right” and “wrong.” Our common devotion to this broad challenge of improving research and society is incredibly rich common ground, and as good a spot as any to begin building our new, stronger foundation for the future of scholarly communication, 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
What is publishing? 1	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.
What is publishing? 2	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.
What is open?	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 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.
Who decides?	<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>
Moral dimensions	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.
Usage dimensions	<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>
Evolving open 1	<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 funding, tenure, and promotion decisions are made and the role of research outputs and activities within this decision making process.</li> <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>

Evolving open 2	<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>
Open impacts	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.
Participation	<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>
Overload & underload	<ol style="list-style-type: none"> <li>1. Increase information literacy efforts toward understanding the behavior of information systems and economies, which can in turn prepare students and scholars to make both more understandable to others.</li> <li>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.</li> <li>3. To address the overabundance of information that causes overload, filtering systems are needed to identify, sort, select, and summarize relevant information.</li> <li>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.</li> <li>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.</li> <li>6. Convert more content into a machine-shareable form and continue promoting openness through responsible curating, archiving and discovery of raw data.</li> <li>7. Advocate for mandatory copyright exception for text mining and encourage publishers and vendors to remove obstructions to mining content.</li> </ol>
Repositories & preservation	<ol style="list-style-type: none"> <li>1. Clarify opportunities for UNESCO and WSIS to engage in this effort</li> <li>2. Coordinate action among meta-organizations (e.g., COAR, CLIR/ DLF)</li> <li>3. Raise funds for improved sustainability and stewardship through investments and endowments in repositories</li> <li>4. Support aggregation driven by preservation concerns, such as: <ol style="list-style-type: none"> <li>a. Electronic legal deposit (UK)</li> <li>b. Portico, Chronopolis, APTrust, and DuraSpace</li> <li>c. DPN, MetaArchive Cooperative, CLOCKSS</li> </ol> </li> <li>5. Build workflows and an ecosystem in order to ensure long-term access and preservation.</li> </ol>
Peer review	<ol style="list-style-type: none"> <li>1. Pre-publication peer review: <ul style="list-style-type: none"> <li>o We encourage the use of preprint servers</li> <li>o We also encourage the facilitation of a flexible, nonlinear process of peer review outside of and supplementing journal-based peer review</li> </ul> </li> <li>2. Traditional peer review: <ul style="list-style-type: none"> <li>o We recommend that all disciplines work toward a culture of openness in peer review.</li> <li>o We encourage the exploration and addressing of the problems, real and perceived, with transparency in peer review.</li> </ul> </li> <li>3. Post-publication peer review: <ul style="list-style-type: none"> <li>o We recommend the facilitation of post-publication review of traditionally reviewed publications.</li> <li>o We recommend experiments with crowd systems that incentivize broad, representative participation—for example, with a currency, rating, or credit system.</li> <li>o Any credits or ratings should be acknowledged by employers or funders of those doing the reviews as valid metrics in career progression.</li> </ul> </li> <li>4. Overall, more study, pilots and standards are recommended, as detailed in the report.</li> </ol>
Embargoes	<p>A project is proposed to study and reform the current embargo system. The stages of this project are as follows:</p> <ol style="list-style-type: none"> <li>1. funder identification (already begun) and brief (drafted)</li> <li>2. literature review (already begun)</li> <li>3. case studies analysis</li> <li>4. employing researcher(s) and surveying stakeholders</li> <li>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</li> </ol>

Impact factors	<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>
At-large	<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 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.</li> <li>3. Improve composition and representation for OSI2017, begin focusing on action instead of ideas</li> </ol>

## TAKEAWAY (SUMMARY)

- **Acknowledging:** Scholarly communication is changing and this change presents opportunities and challenges.
- **Describing:** 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.
- **Doing (general guidelines for action):**
  - 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.)
  - 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 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.
  - 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.
  - How do we make these 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)?
  - 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?
  - How do we reform the system without losing its benefits?
  - 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?
  - Developing standards and norms would be helpful as we move forward, as well as answers to a number of key questions.

## TOOLS (SUMMARY)

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).
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).
3. Pilot new spectrum measures for "open" and impact (see the reports from the "Open Impacts" and "What is Open?" 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.
4. Develop and recommend new tools to replace the journal impact factor.
5. Fund studies or pilots that will help:
  - a. Identify which publishing services can/should be better handled by others (disaggregated).
  - b. Assemble and supplement as needed an evidence base to better inform our policies regarding embargoes.
  - 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?).
  - d. Identify the economic impacts of open.
  - 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.



6. Identify which scholarly publishing stakeholders can work together on these and other efforts and how (multiple stakeholders require a convening power).
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”).
8. Propose radical new repository interoperability and infrastructure solutions.
9. Develop a broader and clearer description of peer review that takes into account the different needs for different stages.

## OSI2017 WORKGROUP RECOMMENDATIONS

WORKGROUP	GOAL	KEY RECOMMENDATIONS	TOOLS	TAKEAWAY
Culture of Communication	Improve the culture of communication around open access inside academia, particularly inside research	<ol style="list-style-type: none"> <li>1. Clarify the message about OA. Identify what OA is, and what it is not</li> <li>2. Create and communicate 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
Funding	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.
Global flip and other studies	Create a broad action plan for the 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>1. Support development and dissemination of tools to increase understanding of the potential impact of a Global Flip on library budgets.</li> <li>2. Commission a third-party study to analyze the financial and scholarly implications of the flip on both publishers and the academic community,</li> <li>3. Identify, support, and share information about cooperative models that align with the Global Flip strategy to increase trust and transparency among stakeholders</li> </ol>	Website (gathering more understanding about concerns, impacts, and showcasing global flip as a path and not a destination)	More understanding needed, followed by broad sharing of best practices
HSS & Science	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>1. Disciplines need to find their own solutions from within. Pilot an OA program in HSS or social science.</li> <li>2. Promote areas of interest/benefit convergence between HSS &amp; science:               <ol style="list-style-type: none"> <li>a. Visibility</li> <li>b. Public engagement</li> <li>c. Preservation</li> <li>d. Text and data mining</li> <li>e. 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
Impact factors	Improve ways to measure research impact	<ol style="list-style-type: none"> <li>1. Interview journal editors to find out what's working, what's not, and what's missing</li> <li>2. Get behind effort to share information on metrics best practices and drive innovation across disciplines and outputs</li> <li>3. 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
Open IP	Develop recommendations relevant to improving the discovery, access and use of patent data and closely-related IP	<ol style="list-style-type: none"> <li>1. Promote guiding principles for Open IP as detailed in workgroup report and explain how this ties in to the open spectrum</li> <li>2. Work with WIPO to help establish international standards for open IP</li> <li>3. 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.

Peer review	Develop a broader and clearer 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.	<ol style="list-style-type: none"> <li>1. Work as a community (coordinating with partners 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.</li> <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>	Coordination with partners	The best course of action for this community will be to support continued investigation and experimentation with new methods and weigh the pros and cons of each
Institutional repositories	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.
Rogue solutions	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.
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	<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). Connect DARTS to the Open Science Framework and also a new Open Standards Matrix (as described in the report)</li> <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>	Promote DART, collaborate with many partners, marketing/outreach (website)	Creating a more transparent scholarly ecosystem requires 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.

Promotion & tenure reform	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?	<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>	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&t guidelines	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.
Underserved	What are the unique challenges in scholcomm faced by the global south?	<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 of OA with science policy agendas, expansion of LMIC aggregator platforms, more south-south networking and collaboration</li> <li>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.</li> </ol>	Partnerships, broad policy development and implementation, standards and best practices initiatives	There is much bias in the current global system of scholarly publishing. Unless corrected, this bias will continue to widen the gap between the global north and global south with regard to scholarly publishing opportunities and outputs.

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
Infrastructure	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 supports it needs to do the same.	<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 secure global implementation/adoption</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 the global community
Journal editors	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.
Libraries	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</u> continue to build out the framework for more open (3)</li> <li>2. <u>Support, engage and/or collaborate on actions that</u> continue connecting resources and efforts to make more open possible (3)</li> <li>3. <u>Support, engage and/or collaborate on actions that</u> continue to improve the capacity of existing open resources and efforts (3)</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.
Open knowledge groups	What are the common interests and perspectives of open knowledge groups?	<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>	Communication, clarity, standards, agreements, outreach	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.

Commercial publishers	What are the common interests and perspectives of publishers with regard to open?	<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>	More funding, more discussion. Also more joint ventures in the development of common frameworks for storage, common definitions for open, etc.?	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.
Research universities	What are the common interests of research universities in advancing open?	<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>	Dialogue (plus a convening party) to expand into creative solutions at local and consortia levels, and openness to a variety of solutions and approaches	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).
Scholarly communication experts	What are the common interests that scholcomm experts have with regard to open?	<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 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.</li> <li>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</li> </ol>	More dialogue, engagement, involvement, bridge-building, participation, flexibility—more of everything	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 interest in more clearly fostering and articulating the incentives for OA publishing to effectuate behavioral changes.



Scholarly societies	What are the common interests of scholarly societies and how can they work together to advance open?	<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 meta-data, 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>	Conversation, collaboration, pilot programs	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.
Summit group	What are the high-level take-aways from OSI2018?	<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 across stakeholder groups, throughout the year.</li> </ol>	Communication	Even more important than governance structure, OSI needs to put new communication tools and processes in place.

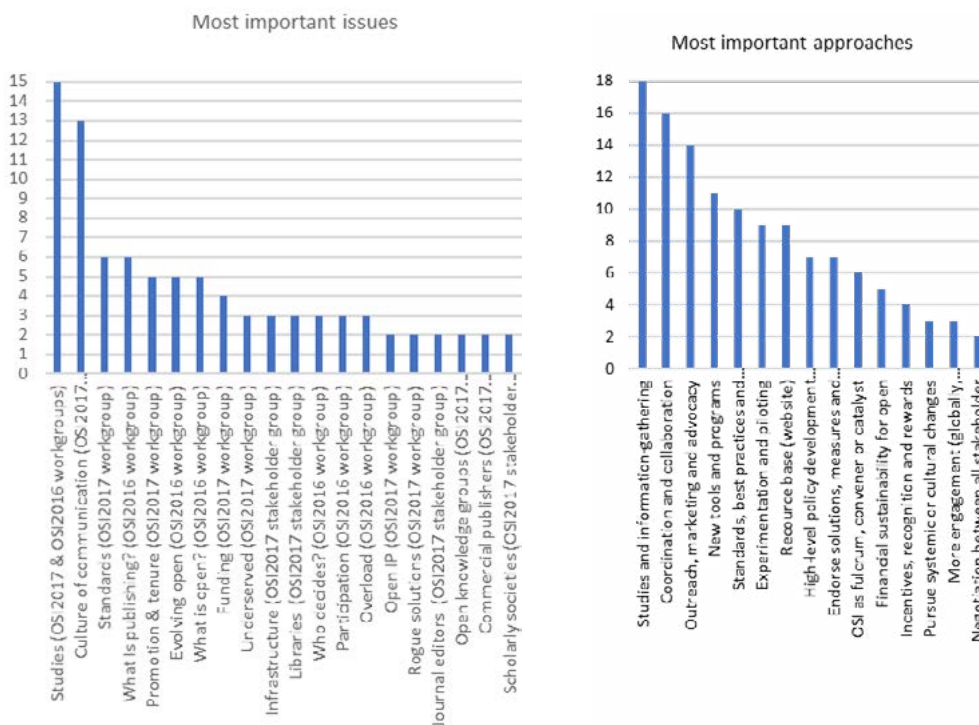
Notes:

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 re-



searchers 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 things 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: OSI's Plan A

March 30, 2020 version

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

### INTRODUCTION

OSI is a diverse, global group comprised of many of the world's most knowledgeable and trusted experts on open access. These experts are advising the world's most influential institutions, and as a group, OSI is advising the United Nations Educational, Scientific and Cultural Organization (UNESCO).

In service to these institutions, and to the global research community, OSI's Plan A will help advance the world toward greater open access. Plan A participants will:

- Conduct much needed studies to fill in gaps in our understanding of the open research challenge
- Create new and needed infrastructure tools and resources to help accelerate our progress toward open
- Develop and distribute open educational materials, and conduct outreach in the research community to help familiarize researchers with open concepts and resources
- Convene, survey, and communicate with all stakeholders, and work in partnership with UNESCO to help build our community's common ground, and
- Lead ambitious efforts to open more climate change research and health/medical research.
- Who is this effort for and why does it matter? The movement to “free” our information is a global phenomenon that has been transforming culture for decades now. These pressures have led to massive innovation, but also unintended consequences, like the rise of fake news and the death of newspapers. It is therefore vital that the changes we make to research communication are well considered—that we fully understand the facts behind our reform proposals, that we work on reforms as a community since there are so many different and equally valid interests and stake, and that we understand our common interests and so we can work together toward our common goals and strive for an open research future that is rich, robust, and sustainable.

Plan A is a necessary first step toward making real and lasting improvements to the future of research communication. From this strong foundation, the sky's the limit.

### THE PROPOSAL

#### OVERVIEW

The Open Scholarship Initiative (OSI) is the world's only large-scale, high-level, multi-stakeholder effort focused on developing an inclusive, achievable, sustainable approach to global scholarly communi-

cation reform. Over 400 top leaders in scholarly communication have participated in OSI since 2015, representing 250 institutions from 27 countries and 18 stakeholder groups.

Plan A is a synopsis of the main themes and recommendations that have emerged in OSI during this group's examination of the scholarly communication landscape. Over this period, OSI participants have shared, analyzed, promoted, criticized and debated detailed perspectives and information through conferences, summit meetings, dozens of reports, and thousands of emails. In accordance with the group's goals and conversations, Plan A sets forth that the international scholarly communication community should begin immediate and significant joint action to:

1. **DISCOVER** critical missing pieces of the open scholarship puzzle so we can design our open reforms more effectively;
2. **DESIGN**, build and deploy an array of much need open infrastructure tools to help accelerate the spread and adoption of open scholarship practices;
3. **WORK TOGETHER** on finding common ground perspectives solutions that address key issues and concerns (see OSI's "Common Ground" policy paper for more detail); and
4. **REDOUBLE OUR COLLECTIVE EFFORTS** to educate and listen to the research community about open solutions, and in doing so design solutions that better meet the needs of research.

In pursuing these actions, our community should:

1. Work and contribute together (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 evidence-based;
4. Embrace diversity. No one group has a perfect understanding of the needs and challenges in this space, and different groups have different needs and challenges.
5. Develop big picture agreement on the goals ahead and common ground approaches to meet these goals; and
6. Help build UNESCO's global open roadmap (described herein).

Plan A also recommends that the community's work in this space be common-goal oriented, accountable, equitable, sustainable, transparent, understandable, and responsive to the research community. While it is important to make research more open so society can benefit more from research, our approaches to this challenge must be developed carefully and in close collaboration with the research community. By doing so, we can ensure that research is protected during this transition, and that it is well-served by the outcome of our efforts.

## MAIN ITEMS

Plan A proposes that beginning in mid-2020 and continuing for a period of five years, the global scholarly communication community cooperate and collaborate on four main categories of action: studies, infrastructure development, common ground work, 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 find needed answers to questions such as (but not limited

to): What are the exact dimensions and implications of so-called “predatory publishing” (how fast is it growing, how is it changing, how is it impacting research, and more)? How can we reduce misuse of the impact factor (is inventing a different impact factor the answer, and if so, what does this look like in practice)? Can embargos be reduced or eliminated (and if so, how; we need to generate actual data on this)? What are the demonstrable impacts on research and society of openness (the open access citation advantage is just one such measure; how else are impacts being measured and what kind of quantitative comparisons can we make)? What kinds of open are most effective in what fields and for what purposes (are CC-BY-licensed studies and studies with data used everywhere as intended, how does this use compare with other kinds of study formats, and more)? What global approaches will succeed at shifting the culture of communication in academia toward more openness? OSI has identified 12 such studies that should be considered, and that are foundational to designing approaches to open research that are evidence-based. OSI’s study recommendations are flexible. Plan A participants will decide which studies to fund and in what order.

2. **Infrastructure development:** The global scholarly communication community needs new infrastructure items—products, services, tools, websites, and other resources—that will help encourage, achieve, sustain and monitor reforms in this space. Our community should develop these items together, and reasonably quickly, so reforms can be more easily adopted and the scholarly communication landscape can be more quickly and easily improved and maintained. OSI has identified seven infrastructure items for potential development, including an all-scholarship repository (possibly built using CERN’s Invenio), an APC discount/subsidy database, an open index of all scholarly publications, an APC price comparison tool, a Yelp site for scholarly publishing, repository upgrades, publisher standards, and an annual “state of open” survey. OSI’s recommendations are flexible. Plan A participants as a group will decide which infrastructure items to develop and in what order.
3. **Common-ground work:** There is vast common ground in the scholarly communication community. Most of the groups in this space from across the regional and stakeholder spectrum recognize and respond to many of the same challenges and issues. This commonality exists both within and between stakeholder groups. As a broad, global community, though, we have never taken time to work through our differing perspectives and identify specific ways we can work on these challenges and issues together at scale (there have been many instances of limited sharing and collaboration, including OSI itself, but nothing approaching a global movement to work together). OSI conference delegates have done this kind of work—their ideas and perspectives are summarized in OSI’s “Common Ground” policy paper. These ideas and perspectives might be helpful seeds of a broader, global conversation. What are our common goals for the future of open? Can we create a common framework for understanding 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? Are there specific common ground solutions identified by OSI that we can move forward with right away? Building on the 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.
4. **Education/outreach:** The scholarly communication community has overestimated the degree to which researchers are informed and convinced about open scholarship. There is, in fact, a great deal of misinformation and lack of information in this space which is hindering progress. In order to make more and faster progress on open reforms, our community needs to be better informed with regard to “open” definitions, opportunities, impacts, processes, options, and so on (note that some of this information will come by way of new studies that more clearly



identify the impacts of open). Our community also needs a better system in place for listening to stakeholder feedback, and for creating and adjusting to solutions accordingly. Of particular focus on the listening side, we need a clearer and more detailed understanding of exactly what researchers want and need, what they will use, and what we hope to accomplish with reforms so we can make sure to ask the right questions, collect the right data, and pursue the right solutions. OSI has identified three key education/outreach programs to pursue, including international meetings where all stakeholders can discuss the outlines of a new global roadmap for open scholarship (both independently and as part of UNESCO’s global roadmap effort), combating predatory publishing through improved awareness and standards, and working together to better understand the needs, goals and concerns of researchers in different disciplines, fields, labs, regions and institutions, and career stages.

In addition to these four main categories of action, Plan A also proposes that, in parallel, we begin taking immediate action as a community to improve the relevance of open research to researchers, and the value of open research to society, by:

1. Opening and centralizing all climate change-related research (to the extent it can be without compromising private health information);
2. Creating zero-embargo compassionate use access portals for patient families and for researchers combating health crises (whether through a new program or by strengthening and expanding the existing Emergency Access Initiative);
3. Creating a more robust Research-4-Life program for lower-resourced regions and institutions; and
4. Considering how to modify current openness programs to improve researcher use and engagement.

## FUNDING DETAILS

The following funding details are flexible. Plan A funders will work together to decide which studies to fund at what level and in what order. Plan A funders are welcome to earmark their contributions for specific deliverables listed below, or request that their funding go toward different deliverables (subject to the approval of Plan A’s advisory board):

BUDGET FOCUS						
Plan A annual revenue (US\$)	Studies	Infrastructure	Outreach & Education	Common ground work	Climate change focus	Compassionate use focus
\$0				☑	☑	
\$50,000			☑	☑	☑	
\$150,000	☑	☑	☑	☑	☑	☑
\$250,000	☑☑	☑☑	☑	☑☑	☑☑	☑☑
\$500,000	☑☑	☑☑☑	☑☑	☑☑☑	☑☑☑	☑☑☑
\$1 million +	☑☑	☑☑☑☑	☑☑☑	☑☑☑☑	☑☑☑☑	☑☑☑☑

STUDIES				
Priority	Subject	Summary	Estimated cost (US\$)	Estimated time required
1	Predatory publishing	What are the exact dimensions and implications of predatory publishing—how fast is it growing, how is it changing, how is it impacting research, and more? This will be a novel analysis using proprietary data. The findings will help guide policy response on this issue.	\$75,000	1 year from funding
2	Impact factors	How can we reduce misuse of the journal impact factor? Is inventing a different impact factor the answer? If so, what does this look like in practice? This will be a novel examination involving statistical critiques of the JIF. The findings will help guide development of better tools and practices for assessing impact.	\$50,000	2 years from funding
3	Embargos	Can embargos be reduced or eliminated? If so, how? This will be the first effort to generate actual data on embargos via a blind study conducted with cooperation from major commercial publishers. Researcher surveys will also be conducted. The findings will help inform policy decisions regarding how quickly journal articles can be made publicly accessible.	\$50,000	2 years from funding
4	Open spectrum	What kinds of open are most effective in what fields and for what purposes? What kinds of open are most desired by field and type of study? How are open and closed data being used today and what are the real-world pros and cons? Research team surveys will be conducted, alongside an extensive literature review. The findings will help align open policies with what researchers need and/or are able to use.	\$100,000	2 years from funding
5	Culture of communication in academia	What global approaches will succeed at shifting the culture of communication in academia toward more openness? This study will involve a meta-analysis of existing work in this field, supplemented with surveys of university provosts. The findings will help inform the design of policies geared toward improving the acceptance and adoption of open practices at research universities.	\$75,000	2 years from funding
6	Open impacts	What are the demonstrable impacts on research and society of openness? The open access citation advantage is just one such measure; how else are impacts being measured and what kind of quantitative comparisons can we make? This study will involve a meta-analysis of existing work on this topic, including interdisciplinary scholarship on systems. Combined with the understanding derived from other studies, this work will help policy makers and research administrators better understand exactly what impacts are being sought by open policies, what impacts can be reasonably expected, and how policies should change to improve impact.	\$100,000	3 years
7-50	Other	Open roadmap development; global flip analysis; global publishing standards development; replicating the SciELO model in specific regions; improving scholarly publishing research; a closer look at publisher profit margins; other	\$50,000 each	1 year each

INFRASTRUCTURE				
Priority	Subject	Summary	Estimated cost (US\$)	Estimated time required
1	APC discount/subsidy database	There are no databases of article processing charges (APCs) or subscription discounts or subsidies. Research4Life leaders have noted that building such resources would be immensely helpful to authors. 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.	\$20,000	6 months
2	APC price comparison database	APC price shopping may not exist yet simply because there is no tool to help facilitate this (price is a factor, but surveys have shown that authors care more about quality and impact than price). An APC price comparator tool might therefore be of 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.	\$20,000	6 months
3	Global open indicators + annual survey of open	Our community needs some way to better assess, on a regular and comparable basis, how much open exists and where, and where we need to focus our efforts for more improvement. This task can be triangulated upon from several angles, including an annual survey of the state of open (current surveys are irregular and don't have a common baseline or common methodology), and a global open indicators tool that can measure open more granularly and by region, country, field, etc. (the indicators tool may be developed in collaboration with UNESCO).	\$75,000	12 months to develop + 2 months/year thereafter
4	Journal whitelist/blacklist lookup	This system-wide lookup tool will be used to verify whether a journal is listed on a particular index, and will 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.	\$50,000	18 months to develop pilot

5	Yelp site for journals	OSI will build a few tools that have wide “category-killer” appeal and real paradigm-shifting potential for scholarly communication. A Yelp site for journals is one such tool. The core purpose of the Yelp site is to provide an easy-to-use, familiar-looking interface where customers (authors, editors, reviewers, funders and more) can rate scholarly journals 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. 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.	\$100,000	18 months to develop pilot
6	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. 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 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).	\$350,000	2 years to develop pilot version
7-50	Other	There are many good ideas floating around the scholarly communication community—developing an open impact factor, a global journal index, an iTunes-like single article download site, or global publishing standards; better funding existing infrastructure like DOAJ; and more. The Plan A funding group will decide which of these projects to prioritize.	Approx. \$20,000-\$200,000 each	Approx. 2 years for each pilot

OUTREACH/EDUCATION				
Priority	Subject	Summary	Estimated cost (US\$)	Estimated time required
1	Global Open Access Portal (GOAP)	Built in collaboration with UNESCO, this portal will be a comprehensive resource for all open-related information, organizations, definitions, processes, and so on.	\$25,000 annually	6 months for pilot, 10 hours/week to maintain
2	OSI briefs & reports	OSI has accumulated a wealth of knowledge over its four years of operation. We are publishing readable two-page issue summaries (briefs) and longer policy papers that consolidate and translate this knowledge for lay audiences. A few of these have been published to-date; many more are planned. These materials will be a central component of UNESCO’s GOAP.	\$15,000 annually	1-2 months per report
2	Misc. education	A variety of one-off education efforts are needed for specific purposes—for instance, to combat predatory publishing through improved awareness of this issue.	Varies	Varies
3	Misc. engagement	A variety of “engagement resources” are needed for bringing together the scholarly communication community (not events, which are described in the “Common Ground” section). For instance, our community needs an annual report similar to what the STM Association publishes annually on the state of STM publishing.	Varies (at the high end, \$50,000 annually for survey or report)	Varies
4-50	–	There are a number of high priority needs in this space. The Plan A funding group will decide which of these to prioritize, with a focus on funding projects that provide broad and nonpartisan background on open (not projects teaching that open looks like x, or trading in negative stereotypes about publishers or other stakeholder groups, but projects that teach what open means to various constituencies, the benefits of open, ways to engage in open, etc.)	–	–

COMMON GROUND WORK				
Priority	Subject	Summary	Estimated cost (US\$)	Estimated time required
1	UNESCO open roadmap	Continue helping/advising UNESCO in creating a UN-wide roadmap for the future of open science	–	18 months

2	Meetings	Meetings are needed all stakeholders can discuss the outlines of a new global roadmap for open scholarship (both independently and as part of UNESCO's global roadmap effort), and where diverse groups can work together to better understand the needs, goals and concerns of researchers in different disciplines, fields, labs, regions and institutions, and career stages.	\$50,000 per meeting	4 months planning and follow-up per meeting
3	Surveys	We need a clearer and more detailed understanding of exactly what researchers want and need, what they will use, and what we hope to accomplish with reforms so we can make sure to ask the right questions, collect the right data, and pursue the right solutions.	\$20,000 per survey	6 months
4-50	–	The OSI2016 and 2017 workgroups came up with a long list of recommendations for collaborative actions in the scholarly communication space. These should be carefully looked at by the Plan A group as possible projects. See the OSI2017 report (on the OSI website) for details.	–	–

CLIMATE CHANGE FOCUS				
Priority	Subject	Summary	Estimated cost (US\$)	Estimated time required
1	Open policy meetings	Climate science is closed relative to many other fields. Figuring out how to make it more open is critical—to enable scientists from all countries and from all fields related to climate science to share their data more freely on everything from atmospheric carbon removal technology to methane capture to temperature modeling.	\$50,000 investment per meeting (net invest is \$0)	4 months planning and follow-up per meeting
2	Education conventions	Conventions are needed to educate business and policy groups about the range of existing tech options for carbon and methane capture. Presentations should also take place at these meetings on barriers to action, risks of uncoordinated action, forming international networks for investment and action, etc.	\$100,000 investment per meeting (net invest is \$0)	4 months planning and follow-up per meeting
3	Action frameworks	Once the data is clear and the barriers and risks have been assessed, action frameworks can begin taking shape. Openness will be key in this—establishing frameworks built on discoverable information, communicated clearly to policy makers and the public, with clear, sound, accountable objectives in mind and strong sustainability.	\$75,000 annually	6-12 months to begin making measurable progress
4	Replicability	Once developed, OSI's climate change model can be replicated to other research challenges.	–	–

COMPASSIONATE USE FOCUS				
Priority	Subject	Summary	Estimated cost (US\$)	Estimated time required
1	Open policy meetings	Compassionate use access to medical research is spotty. Publishers have some one-off mechanisms in place for daylighting research during times of global health crisis (such as COVID-19 research. Several international conventions also exist. However, there are no turn-key procedures or resources in place. Figuring out how to make critically needed health and medical research available to researchers and policy makers (as well as individuals researching cures for loved ones) will fill an important needs gap in the scholarly communication space. The first step is to meet to talk about needs, gaps, barriers, possible solutions, etc.	\$50,000 investment per meeting (net invest is \$0)	4 months planning and follow-up per meeting
2	Action frameworks	Once the challenge is clear and the options have been assessed, action frameworks can begin taking shape. Openness will be key in this—establishing frameworks built on discoverable information, communicated clearly to policy makers and the public, with clear, sound, accountable objectives in mind and strong sustainability.	\$75,000 annually	6-12 months to begin making measurable progress

## WHY?

Scholarly communication tools and practices have been evolving for decades now. Where they end up decades from now is truly anyone's guess. Until then, there are many issues that need to be resolved, and many reforms that should be pursued.

So what's the holdup? Nothing really. 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. Others are convinced that not nearly enough progress has been made to-date, which isn't wrong—they're just measuring progress differently. There are fundamental disagreements in scholarly communication about what kind of reforms we should be making. Some 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*).

Plan A isn't advocating one particular approach or time frame, but rather a necessary and inclusive process. By working together—however quickly and aggressively we decide to do this as a community—on realistic, robust, collaborative solutions that improve the capacity of research for all researchers everywhere, Plan A's vision is that we will arrive at solutions that are both sustainable and highly effective—much more effective than any “solutions” imposed by outside groups with their own biases and agendas.

Indeed, Plan A's vision is that by working together, and only by working together, we will eventually—maybe 15 years from now, maybe less, maybe more—arrive at an “Open Renaissance” where the research ecosystem will grow exponentially more powerful as more open and connected data catalyzes more innovation and improvement. New fields and directions will emerge based on “connecting the dots,” funding efficiency will improve, and discovery will accelerate; the social impact of research will exceed today's levels (including improved literacy, public engagement, and public policy impact); and knowledge will become more of a global public good, with society reaping the benefits.



## GUIDING PRINCIPLES

This work will be guided by 12 general 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 and 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 a great many interconnected issues in scholarly communication. We can't just improve the openness of information without also addressing issues such as the current functioning of 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 that have not yet been conceived or deployed. Diversity, creativity and flexibility in this undertaking should be encouraged, at the same time noting that we should try to maximize adherence to the other principles represented here.
- 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. Common goal oriented.** 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. By doing this, we focus on and strive for our community's common goals.
- 8. Equitable.** Researchers everywhere need to be able to access and contribute information to the global body of research information with minimal barriers. To the extent practicable, research information—particularly 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 specific with regard to publishing requirements, for example, 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 central, 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.

## ENACTMENT

It is important to note that the global “scholarly communication community” addressed by this Plan A is vague and amorphous. However, this community also has much in common, and it shares common goals and interests (see OSI’s “Common Ground” paper for more detail). It is in this broad sense that we speak of community—not with the unrealistic expectation that every organization currently working in this space will or should stop what they are doing, leave their disagreements aside, abandon their own priorities and join hands, but with the knowledge that ample common ground exists in this community to support common action that benefits everyone everywhere. The vast majority of stakeholders in this space are not, after all, ideologically attached to any one particular approach—most are simply trying to figure out what to do with regard to open policies. In addition, even groups who may be invested in one particular approach or perspective share a common desire to improve open. The contributions to openness supported by this plan—studies, infrastructure development, common ground collaborations, and education/outreach—will help all groups in this space and will help advance open for everyone.

With regard to enacting this plan, participants will decide how best to jointly manage Plan A and its activities. OSI will be the initial manager until such time as decided otherwise by the group, under a governance plan to be released at a later date. The goal is for Plan A to be fully operational by mid-2020 (i.e., beginning to work on targeted projects, studies, outreach, and other to-do items), with work continuing for as long as funding and interest continue.

## FEEDBACK

Feedback on this plan from the global scholarly communication community is welcome. Comments should be sent to [info@osiglobal.org](mailto:info@osiglobal.org). This plan will be revised over time in response to this feedback, and also in collaboration and consultation with UNESCO’s open research roadmap effort.

## FAQS

1. Where’s the beef? I’m looking for a bold plan with lots of action.
  - Finding a common ground starting point for action is vital. What the scholarly communication community needs is a respectful, collaborative effort to work together on solutions that everyone has a say in developing and that will benefit everyone everywhere. Assessing the wealth of recommendations from OSI2016 and OSI2017 workgroup participants (see the OSI2017 report for details), the most frequently mentioned crosscutting issues were the need for more studies and the need to reform the culture of communication in academia. The most frequently mentioned approaches for reforming scholarly communication were studies, coordination and collaboration, outreach, new tools and programs, improved standards, pilots, resource development, and policy leadership. Plan A’s focus is derived from these recommendations, overlaid with what the OSI group has learned and observed since these meetings about our internal strengths and about the environment for global reform. Specifically, what can realistically be

accomplished and has the greatest chance of serving as a foundation for real and lasting improvement? Plan A is it, and from this effort, trust, accomplishments and progress will build and grow.

2. Is this a manifesto or a plan?

- It's both—a description of the need to come together to solve a very important problem, and the mechanism for doing so.

3. This is for the benefit of publishers, right?

- Wrong. Publishers need to know what to do. Plan A provides a framework for action that allows everyone to work together instead of everyone rowing in different directions.

4. Is OSI pro-publisher?

- OSI is pro-stakeholder. Everyone deserves a seat at the table, even publishers, who have been targeted for years as being somehow culpable for not providing more information free of charge. The reality is that “free” isn't a sustainable business model. If we value what publishers bring to the table—gatekeeping, evaluation, editing, structure, organization, dissemination, and global integration—then we need to work with them to create effective and sustainable change. If we prefer to wipe the slate clean and start all over again, that's an okay perspective too, bearing in mind that this approach has risks and may result in simply reinventing the wheel and ending up with the same costs and issues as before, just different players.

5. This is a lot of work. Who pays for it?

- No one yet. OSI is currently (as of March 2020) seeking support for this plan. Our hope is that at least some of the larger signatories will be willing to each contribute a small amount of support to help get the ball rolling.

6. A lot of Plan A hinges on having adequate support. Is this a problem?

- Yes and no. There is plenty for us to do in the short-term absence of full funding (see funding section for details)—continuing to write grants, write briefs, plan studies, build alliances, advise UNESCO, and more. This said, funding may be on the horizon for specific deliverables. Also, as Plan A gets promoted, funders may come on board (whereas if they haven't supported OSI in the past, this may be because OSI itself wasn't proposing to build anything).

7. What's the relationship between OSI and Plan A?

- Plan A is an invention of OSI, representing the collective wisdom of OSI participants. However, in order to ensure that Plan A can grow and evolve in accordance with the wishes of the organizations who sign this plan, the current intent is for Plan A to become an independent group by the end of 2020, with its own management structure and governance rules. OSI will retain a seat on the Plan A board, and will likely continue to provide the bulk of Plan A's financial support.

8. Why 5 years? Why not now?

- The open access movement has been pushing for “now” solutions for the past 20 years. They don't work, because “now” is not an acceptable substitute for appropriate consultation. The scholarly communication community has many stakeholder groups with a stake in the outcome of reform measures. It is essential, both for the success of these reforms and for their long-term sustainability, that the first step in these efforts involves bringing everyone together. From

there, who knows? Maybe real reform will take only four years? But continuing to pursue “now” solutions for another 20 years isn’t the right approach.

## SIGNATORIES

Groups that sign Plan A indicate a willingness to working together to fulfill the plan's goals. A current list of signatories will be available online.

# 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), 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)	Eric for new material, Glenn for rest

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 new fields), or if journals are born and quickly die?	Glenn et al
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 (dissembling 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 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 op-

posed 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 multifac-

eted: 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 publish-

ers 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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# ANNEX 3: THE UNESCO OPEN ROADMAP PLAN



## General Conference

40th Session, Paris, 2019

# 40 C

United Nations  
Educational, Scientific and  
Cultural Organization

Organisation  
des Nations Unies  
pour l'éducation,  
la science et la culture

Organización  
de las Naciones Unidas  
para la Educación,  
la Ciencia y la Cultura

Организация  
Объединенных Наций по  
вопросам образования,  
науки и культуры

منظمة الأمم المتحدة  
للتربية والعلم والثقافة

联合国教育、  
科学及文化组织

Item 5.20 of the provisional agenda

40 C/63

8 October 2019

Original: English

### PRELIMINARY STUDY OF THE TECHNICAL, FINANCIAL AND LEGAL ASPECTS OF THE DESIRABILITY OF A UNESCO RECOMMENDATION ON OPEN SCIENCE

#### OUTLINE

**Source:** 206 EX/Decision 9

**Background:** This initiative is inscribed in the continuity and follow-up of the UNESCO Recommendation on Science and Scientific Researchers, approved by the General Conference at its 39th session in 2017, and the UNESCO Strategy on Open Access to scientific information and research, approved by the General Conference at its 36th session in 2011.

The objective of this document is to present the preliminary findings of the study of the desirability for UNESCO's action, programmatic and regulatory, in the field of Open Science. A possible UNESCO Recommendation on Open Science is presented as an option, to affirm UNESCO's normative and standard-setting role in this regard.

**Purpose:** Following 206 EX/Decision 9, and according to the Rules of Procedure concerning recommendations to Member States and international conventions covered by the terms of Article IV, paragraph 4, of the Constitution, the present document contains a copy of the preliminary study, as presented at the 206th session of the Executive Board, and the Executive Board's observations and decisions thereon.

**Decision required:** paragraph 8.



Job: 20191120x

## INTRODUCTION

1. The Executive Board, at its 206th session, considered document 206 EX/9 containing the preliminary study of the technical, financial and legal aspects of the desirability of a UNESCO recommendation on open science.

2. The Executive Board subsequently decided (206 EX/Decision 9) to include an item on the technical, financial and legal aspects of the desirability of a standard-setting instrument on Open Science in the provisional agenda of the 40th session of the General Conference, and invited the Director-General to submit to the General Conference at its 40th session the preliminary study on the technical, financial and legal aspects of the desirability of a standard-setting instrument on Open Science contained in document 206 EX/9, together with the relevant observations and decisions of the Executive Board thereon, in particular the need to overcome the digital, technological and knowledge divide existing between developed and developing countries, especially regarding least developed countries and small island developing States.

3. Having examined the abovementioned document, the Executive Board expressed general support for an enhanced engagement of UNESCO on the programmatic and normative actions related to Open Science. The Member States highlighted the important links between Open Science and the achievement of the 2030 Agenda for Sustainable Development and the potential of Open Science in bridging the scientific knowledge divide.

4. While there was interest in a possible UNESCO Recommendation on Open Science, several issues were raised during the debate. These include:

- the need for a clear definition of Open Science and its scope;
- the need for a multistakeholder global and regional consultative processes, including with Member States, the scientific community as a whole, the key scientific international and national institutions and entities, other relevant United Nations agencies; citizens and traditional knowledge holders;
- the need to address issues of intellectual property rights and copyright;
- issues regarding the implementation of the legal framework;
- issues relating to data protection and data privacy;
- the need to share and build on lessons learned from existing Open Science initiatives;
- the need to ensure that open science truly benefits developing countries, LDCs and SIDS in particular;
- the importance of working across all the UNESCO sectors, and links to the relevant existing UNESCO programmes and initiatives, such as the draft Recommendation on Open Education Resources, the work on artificial intelligence and the follow-up of the updated Recommendation on Science and Scientific Research;
- the need for adequate funding from extrabudgetary sources.

5. The Board also invited the Director-General to continue holding intergovernmental consultations *in presentia*, with a view to the possible elaboration of a Recommendation on Open Science, and requested the Director-General to present a consolidated roadmap to its session. In this context, an information meeting on the draft Roadmap with Member States was held on 20 June 2019 at UNESCO Headquarters in Paris and the draft consolidated roadmap, including the comments from the abovementioned information meeting, will be discussed at the 207th session of the Executive Board.

6. In addition, a meeting with the African Union and the scientific community is planned before the end of 2019.

7. The original document submitted to the Executive Board at its 206th session (206 EX/9), along with the Executive Board related decision (206 EX/Decision 9), is presented in the Annex to this document.

8. In light of the above, the General Conference may wish to adopt a resolution along the following lines:

The General Conference,

*Recalling* the Rules of Procedure concerning recommendations to Member States and international conventions covered by the terms of Article IV of the Constitution,

*Having examined* document 40 C/63,

1. *Recognizes* the need for a new standard-setting instrument on open science, in the form of a recommendation;
2. *Invites* the Director-General to continue holding intergovernmental consultations in praesentia for the elaboration of the recommendation;
3. *Also invites* the Director-General to submit to it for consideration at its 41st session a draft text of a UNESCO recommendation on open science, provided the resources are available.



## ANNEX

### **206 EX/Decision 9 – Preliminary study of the technical, financial and legal aspects of the desirability of a UNESCO recommendation on open science (206 EX/9; 206 EX/ 47.I)**

The Executive Board,

1. Having examined document 206 EX/9,
2. Decides to include an item on the technical, financial and legal aspects of the desirability of a standard-setting instrument on open science in the provisional agenda of the 40th session of the General Conference;
3. Invites the Director-General to submit to the General Conference at its 40th session the preliminary study on the technical, financial and legal aspects of the desirability of a standard-setting instrument on open science contained in document 206 EX/9, together with the relevant observations and decisions of the Executive Board thereon, in particular, the need to overcome the digital, technological and knowledge divides existing between developed and developing countries, especially least developed countries and small island developing States;
4. Also invites the Director-General to continue holding intergovernmental consultations *in praesentia* with a view to the possible elaboration of a recommendation on open science;
5. Requests the Director-General to present a consolidated roadmap to it at its 207th session.



United Nations  
Educational, Scientific and  
Cultural Organization

# Executive Board

Two hundred and sixth session

PARIS, 8 March 2019  
Original: English

Item 9 of the provisional agenda

## **PRELIMINARY STUDY OF THE TECHNICAL, FINANCIAL AND LEGAL ASPECTS ON THE DESIRABILITY OF A UNESCO RECOMMENDATION ON OPEN SCIENCE**

### **SUMMARY**

This initiative is inscribed in the continuity and follow-up of the UNESCO *Recommendation on Science and Scientific researchers*, approved by the General Conference at its 39th session in 2017 and the UNESCO *Strategy on Open Access to scientific information and research* approved by the General Conference in its 36th session in 2011.

The overall objective of this document is to present the preliminary findings of the study of the desirability for UNESCO's action, programmatic and regulatory, in the field of Open Science. A possible UNESCO Recommendation on Open Science is presented as an option to affirm UNESCO's normative and standard-setting role in this regard.

Action expected of the Executive Board: proposed decision in paragraph 39.

## INTRODUCTION

1. The objective of this document is to present the desirability and options for UNESCO action – normative or other action – in the field of Open Science.
2. *UNESCO Recommendation on Science and Scientific Researchers (2017)* states that ‘open communication of the results, hypotheses and opinions – as suggested by the phrase “academic freedom” – lies at the very heart of the scientific process.’ In close relation to this underlying tenet of the Recommendation on Science, Open Science is the name of a movement to make scientific research and data accessible to all (see UNESCO Global Open Access Portal (GOAP)).
3. More specifically, Open Science calls for practices and institutions that:
  - (a) ensure that published scientific research is easily and timely accessible to the global community of scientists and the public while maintaining high quality;
  - (b) ensure all research results, methods and data are published or accessible in ways that facilitate other scientists to review, replicate, and avoid unproductive duplication of research, while respecting privacy, copyright and other regulations;
  - (c) make it easier and affordable to publish and communicate scientific knowledge especially through education systems;
  - (d) facilitate accessibility and other practices relating to the Open Science ideals for tools, processes and contents of scientific research;
  - (e) make science transparent, for example through open science notebook;
  - (f) establish and ensure long-term sustainability of data repositories and platforms and set standards for co-creation and collaboration;
  - (g) spread scientific culture, encourage participation and access in science communication mechanisms such as science centres and museums;
  - (h) foster citizen science organizations; widespread formal and informal science education;
  - (i) promote open source software and crowd-funded research projects.
4. Open Science practices and initiatives also relate to the movement on Open Educational Resources, which promotes openly licenced teaching and learning resources and with the broader Open Education movement.
5. Open Science, once established, is expected to strengthen scientific culture and promote equal opportunities for all including through enhanced involvement of citizens in research activities and an increased access to scientific data and information and open education resources. Open Science has also the potential to foster aspects of democratic governance by spreading knowledge and capacity for understanding that allows informed democratic engagement by a wider public. It further improves access to science for the sake of science journalism and countering fake news.
6. Increased access to and participation/engagement in science, technology and innovation also allow people to adapt new practices and technologies that are appropriate to their conditions. Open Science could be a game changer for achieving the Sustainable Development Goals, particularly in Africa, least developed countries, landlocked developing countries, and small island developing States (SIDS), if it significantly increases scientific discovery and facilitates adoption of the well-adapted technologies.

### ***The Open Science Transition***

7. Recent years have seen significant increase of Open Science practices and institutions at national, regional and international levels and an increasing political commitment for investment to ensure the transition to more inclusive, participatory, accessible and transparent science, technology and innovation systems. Notable political commitments include the Amsterdam Call for Action on Open Science, the Budapest Open Access Initiative, the Panton Principles, or the Jussieu Declaration for Open Science and bibliodiversity.

8. To present some examples:

- (a) In the European Union, the Open Science goal is materialising in the context of the European Open Science Policy Platform and through the development of a European Science Cloud, new requirements for EU-funded research, and open access to scientific data generated by a number of Horizon 2020 projects, in particular in the context of guidance from an international initiative called GO-FAIR. Open access to scientific literature is promoted through initiatives such as Plan S, which join the open access movements from other parts of the world, namely La Referencia, in Latin America, Asia OA – Open Access, COAR – Confederation of Open Access Repositories, and others. Because some of the world's highest-scoring innovating economies are demonstrating that this transition offers returns on this investment, Open Science may be at the brink to change practices globally, if the widest possible community of scientists adopt the practices. It also has the potential to enhance science and citizen led approaches to responsible research and innovation to bring transparency across the science, technology and innovation system.
- (b) In Africa, the African Open Science Platform has recently been launched demonstrating the importance of Open Science for Africa and for countries that need to strengthen their scientific systems and benefit from the results of science produced worldwide. The Platform is expected to raise awareness about the importance of Open Science and open data for Africa.
- (c) In the United States, the Federal Crowdsourcing and Citizen Science Act was signed into law in January 2018 and Open Science Prizes are being established to promote open science research in different fields, including health and environment.

9. There are also numerous other initiatives at led by governments, science foundations or universities.

### ***Implications and Significance of Open Science***

10. Open Science practices have been found to yield benefits to economic and social development. Because they also point toward improved access to scientific knowledge and enable widened participation in science as well as encouraging publication, the Open Science model applied internationally is fully coherent with advancing human rights, and internationally agreed development goals. Many of the actions taken by Member States will be compliant to the specific norms set out in the UNESCO Recommendation on Science and Scientific Researchers. The Open Science concept is therefore one meriting more examination by UNESCO Member States.

11. Open Science fosters science as an enterprise that is inclusive and of highest quality. The methods are conducive to scientific collaboration and discovery across scientific fields, taking fullest advantage of the proliferation of data, instantaneity of communications, and digitalization of knowledge storage systems (globalization and digitalization). Open Science is expected to significantly improve the capacity and efficiency of national science and technology systems, and may quickly lead to adjustments to the global science enterprise as a whole, particularly affecting science publishing. The transition to Open Science practices may also require re-training, new

protocols and possibly regulation and institutions. The methods, good practices and institutions at international level are in the process of being defined.

## OPEN SCIENCE AND UNESCO

12. As the United Nations specialized agency dedicated to science cooperation, UNESCO holds a particular responsibility to advocate the internationally agreed human right to science<sup>1</sup>. This right places emphasis on participation in science as well as accessibility of the knowledge which science produces. How Open Science will be implemented raises important questions in these very areas. UNESCO has taken consistent positions favourable to open scientific exchange across borders and across ideological divides and its programming and legal instruments have remained consistent in this area over its 70 years of existence.

13. Open Science in the future will build upon the Organization's leadership role on World Summit on Information Societies processes, where it has been responsible for the action line (C3 and C7) on e-Science and access to information since 2003. This work will also build upon the 10-year Strategy on Open Access to Scientific Information and Research, approved by the UNESCO's General Conference at its 36th session, and the internationally-agreed normative framework for science in the UNESCO Recommendation on Science and Scientific Researchers.

14. Since taking a lead in the WSIS process and e-science, UNESCO has been advocating Open Science by providing support to Open Access policy development, improving awareness and utility of Open Science, and providing various solutions to institutionalize Open Science. UNESCO's Communication and Information Sector has identified a policy vacuum on scientific communication, and provides upstream technical advice to its Member States and their scientific institutions on their development of Open Science policies. This involves, *inter alia*, building the capacity of national decision-makers and personnel of research institutions to draft and implement policies. UNESCO also mobilizes its convening power to regularly organize regional consultations on open access to scientific information and research.

15. UNESCO's Open Access to Scientific Research initiative, through its Global Open Access Portal (GOAP) is at present promoting Open Science concepts. Because the Open Access (OA) to scientific information is a global endeavour, UNESCO has strengthened it through partnerships and collaborations with publishers, universities, research institutions, libraries and specialized national and international non-governmental organizations (NGOs). UNESCO has established a Network for Open Access to Scientific Information and Research (NOASIR) currently rolled out as the Open Scholarship Initiative. It initiative supports institutionalizing OA archives and journals in various disciplines; encourages researchers and scientists to publish in OA journals and to deposit their works in OA repositories; encourages publishers to offer more journals and articles in OA; supports research and development in OA technologies, policies and practices; provides access to scientific journals to developing countries; and serves as a laboratory for innovation and catalyst for international cooperation.

16. UNESCO has played a key role of standard setter in OA by developing curricula and courses for Library and Information Science Schools in Member States. UNESCO has recently endorsed Ameli CA, as yet another mechanism on Open Science dedicated to Sustainable Development and South-South cooperation.

17. In addition, Open Science policy instruments are incorporated into the UNESCO GO-SPIN Platform. UNESCO has advocated for keeping Open Science high on the agenda of the international

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<sup>1</sup> See e.g. Article 27 of the Universal Declaration of Human Rights (1948): "Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits".



Forums co-organized by UNESCO, such as the World Summit on the Information Society, the World Science Forum and the United Nations Multistakeholder Science Technology and Innovation Forum.

18. Two recent initiatives deserve noting: the UNESCO 2018 celebrations of the World Science Day for Peace and Development, with a roundtable consecrated to “Open science: barriers, benefits, enabling conditions and the role of policies”; and the official visit to UNESCO of the European Commissioner for Science, Research and Innovation, Carlos Moedas, in December 2018, with the main objective of promoting Open Science and strengthening links between the European Commission and UNESCO in this line of action.

19. In her response to the 205th session of the Executive Board, the UNESCO Director-General welcomed the call for UNESCO to play a strong role in this area and confirmed that an Open Science initiative was in line with the standard-setting role of the organization, as a way of making scientific research and data accessible to those who still lack them, while recognizing the fundamental role of inclusive science for democracy, sustainable development, and the fight against poverty and inequality.

20. Any strengthened action by UNESCO in the area of Open Science would be inscribed in its efforts to implement the *UNESCO Recommendation on Science and Scientific Researchers (2017)* and would also enhance the efforts of the Organization to promote and reinforce Article 27 of the Universal Declaration of Human Rights. It would also strengthen UNESCO’s contribution to the achievement of Sustainable Development Goals, in particular target 9.5 on scientific research and target 12.a on science capacities.

## **THE POTENTIAL FOR UNESCO’S PROGRAMMATIC AND REGULATORY ACTION**

### ***The Existing Legal Framework***

21. Open Science touches on different activities of scientists guided by a variety of international legal frameworks such as their collaborations and travel, publishing, their application of various regulations and codes (data management, privacy, data sharing, chemicals transport and biopiracy, ethics, environment) their application of rules in the contexts of their employment contracts and funding regimes, etc. Clearly, the legal framework is complex, and evolving. There is at present no single and unique global agreement covering all aspects of Open Science. Nevertheless, there is one recent legal instrument that sets out some general principles and norms of Open Science. This instrument is the *UNESCO Recommendation on Science and Scientific Researchers (2017)* (hereinafter, the Recommendation on Science).

22. During the four years of consultations leading to the adoption of the latter, numerous Member States and collaborators evoked the transition to Open Science as one of their great challenges. Because they did, the 2017 internationally-agreed norms set out in the Recommendation on Science were specifically designed to address not just Member States, scientists and their employers, but also institutions and individuals responsible for research and development and other aspects of science, including such as science education, science communication, regulation and policy, oversight, funding, recruitment, peer review and scientific publishing.

23. For example, the Recommendation on Science requires that Member States establish and facilitate mechanisms for collaborative open science and facilitate sharing of scientific knowledge and benefits, in the name of specific human rights (paras. 21, 22). It requires Member States “to do everything possible to help scientific researchers” in relation to international aspects of the conduct of science.

24. Recognizing that there will be changes for scientific publishing and international collaboration and sharing of data as well as in science education, the Recommendation on Science also recalls that Member States should establish firmly as the norm for all scientific publishing, including

publishing in open access journals, that peer review based on established quality standards for science is essential (para. 26). It further calls on Member States to look upon science “as a public good, and to promote it as such ...” and specifically indicates that Member States should promote broadly STEM education (para 14 (a)), and “take measures to ensure equitable and open access to scientific literature, data and contents including by removing barriers to publishing, sharing and archiving of scientific outputs” (para 13 (e) ). Indeed, Member States are tasked to “ensure equal access to science and knowledge derived from it” (para. 18 (b)).

25. Finally, the Recommendation on Science says it is a responsibility of each scientific researcher “to promote access to research results and engage in the sharing of scientific data between researchers, and to policy-makers, and to the public wherever possible, while being mindful of existing rights”. Institutions are called on to support the researchers in this specific regard (para. 16). The Member States are tasked to promote and support this open scholarship of scientific researchers, to promote open access to literature and research data (para. 27), to adjust appraisal systems to ensure that there are incentives for Open Science (para. 34), to ensure all research is published and that the data, methods and software that were used be made accessible (para. 35), and to encourage that scientists participate in the international scientific community, sharing and open access publishing (paras 31, 35-37, 39).

26. Yet, more specific Open Science norms protocols and regulation may still be needed at the international level to ensure the transition to Open Science advances smoothly and balances in appropriate ways the respect for data privacy, confidentiality and intellectual property.

### ***Towards Enhanced Regulatory Action on Open Science***

27. Some of the world’s most innovative economies have invested in and are beginning to demonstrate that Open Science practices can fulfil high aspirations, helping them build human and institutional capacity in their science, technology and innovation systems. While the international scientific community increasingly embraces open science approaches, there is still a pressing need to foster links between knowledge holders/producers and users, to foster fair and equitable international North-South, South-South and triangular cooperation, and to support an Open Science transition in all parts of the globe by offering support to some countries. Open science is fuelling innovation, but there remain global divides.

28. International level protocols and institutions may be needed to address the data/knowledge sharing challenges inherent to Open Science. Appropriate infrastructure, including trusted web-based repositories and storage capacity are equally important in making data publicly accessible and useable.

29. Open Science raises very important issues from the legal point of view at international level. Mismatched practices already pose challenges for international scientific cooperation. Sharing results and data requires legal protections for (e.g. for personal privacy and intellectual property) yet there remain disparities in access to justice that make the application of protections uneven and uncertain. Open Science in practice will require Open Science literacy and skills training, the participation of citizens and whole countries in the global enterprise of science, and may raise issues of how to protect human rights, and how to best ensure professional ethics and productivity.

30. In light of a proliferation of Open Science operational, policy and legal frameworks, there may be a need to reach a global consensus on Open Science and to establish more clearly and specifically the shared values, norms, principles and standards at the international level, aiming at a framework conducive to an Open Science transition.

## **DESIRABILITY OF A RECOMMENDATION ON OPEN SCIENCE**

31. According to the UNESCO Constitution, the Organization should realize its purpose, namely maintaining, increasing and diffusing knowledge: (i) by assuring the conservation and protection of the world's inheritance of books, works of art and monuments of history and science, and recommending to the nations concerned the necessary international conventions; (ii) by encouraging cooperation among the nations in all branches of intellectual activity, including the international exchange of persons active in the fields of education, science and culture and the exchange of publications, objects of artistic and scientific interest and other materials of information; (iii) by initiating methods of international cooperation calculated to give the people of all countries access to the printed and published materials produced by any of them. Although written more than seventy years ago, these tasks are still highly up-to-date, especially in light of the issues raised by Open Science.

32. In the Article IV of the aforementioned UNESCO Constitution, two normative instruments are envisaged to be approved by the General Conference: recommendations and international conventions.

33. Declarations are another means of defining norms, which are not subject to ratification. Like recommendations, they set forth universal principles to which the community of States wished to attribute the greatest possible authority and to afford the broadest possible support.

34. Taking into account the current aspects of Open Science debates and previous actions taken by UNESCO, a Recommendation on Open Science could be the most appropriate form of the instrument to be used. In this way, UNESCO can affirm on the international scene its comparative advantage over other international organizations.

35. It is important to note that the adoption of a normative instrument can be of the utmost importance. However, as important as the text itself is the discussion process leading to its drafting and approval, as well as the subsequent process of follow-up and implementation. It is very important that this process be exemplary, involving all the people who, within and outside UNESCO, are concerned with this issue and getting all Member States involved. The success of this initiative on Open Science depends on the quality and involvement of all stakeholders in this process. Also, the process will have to take into account the ongoing movement toward defining international norms in the Open Educational Resources area.

36. A possible UNESCO Recommendation on Open Science might address issues such as:

- definition and description of the main components and key stakeholders of Open Science at national, regional and international levels,
- discussion of impacts of Open Science on the scientific endeavour and society at large, particularly in the context of emerging science systems in Africa,
- proposals for alternatives for the establishment of adequate legal and policy frameworks for Open Science, as well as instruments for its implementation in Member States,
- tools for monitoring the implementation of the recommendation by Member States and UNESCO.

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.

38. It is estimated that broad outreach and global consultations as part of the preparatory work for delivery of a draft regulatory instrument, such as a Recommendation would have an overall cost of US \$1.95 million. Given UNESCO's financial situation, the budget would need to be fully covered by extrabudgetary contributions (see Annex for a Draft Roadmap).

39. In the light of the above, the Executive Board may wish to adopt a decision along the following lines:

The Executive Board,

1. Having examined document 206 EX/9,
2. Decides to include an item on the technical, financial and legal aspects of the desirability of a standard-setting instrument on Open Science in the provisional agenda of the 40th session of the General Conference;
3. Invites the Director-General to submit to the General Conference at its 40th session the preliminary study on the technical, financial and legal aspects of the desirability of a standard-setting instrument on Open Science contained in document 206 EX/9, together with the relevant observations and decisions of the Executive Board thereon;
4. Recommends that the General Conference at its 40th session invite the Director-General to submit, provided the resources are available, a draft text of a new standard-setting instrument on Open Science, in the form of a recommendation, for consideration by the General Conference at its 41st session.

## ANNEX

### DRAFT ROADMAP FOR A POSSIBLE UNESCO RECOMMENDATION ON OPEN SCIENCE

1. The implementation of this initiative would involve SC, CI, and SHS, through a joint coordination team led by SC. A team of Open Science experts would be established to:
  - (i) Elaborate an inventory of ongoing work on Open Science across UNESCO;
  - (ii) Identify the existing mechanisms and documentation on Open Science within the United Nations and relevant regional groupings of states;
  - (iii) Organize a large consultation with Member states, National Commissions, networks of young and experienced researchers, academics, public and private scientific institutions;
  - (iv) Develop studies, preparatory briefs and a Roadmap for the Recommendation, between 2019 and 2021.
  
2. The work would involve the participation of a large network of partners, *inter alia*:
  - (i) UNESCO Chairs and Centers; and university associations such as AAU;
  - (ii) The International Council for Science;
  - (iii) Institutions like SESAME, and CERN, with whom UNESCO developed the free digital library *Invenio* used in Africa for capacity building;
  - (iv) The Global Young Academy, which is the voice of young scientists all around the world;
  - (v) The United Nations Technology Facilitation Mechanism, in particular its Inter Agency Task Team on Science, Technology and Innovation for SDGs;
  - (vi) The African Open Science Platform, developed by the International Council for Science with the support of UNESCO.
  
3. The timeline for the development of this initiative would be as follows:
  - A. Project preparation phase: January to October 2019**
    - (i) Inventories of the existing mechanisms and documentation on Open Science;
    - (ii) Preparation of the preliminary study on the technical, financial and legal aspects on the desirability of a standard-setting instrument on Open Science, including a draft Roadmap, based on the *Rules of Procedure concerning recommendations to Member States and international conventions covered by the terms of Article IV, paragraph 4, of the Constitution*;
    - (iii) Submission of the preliminary study and the draft Roadmap to the Executive Board at its 206th session (April 2019);
    - (iv) Setting up of a large partnership on Open Science;
    - (v) Organization of a large electronic consultation with UNESCO Chairs, C2Cs, external partners, National Commissions and Member States;
    - (vi) Consolidation of the Roadmap;



- (vii) Consideration of the consolidated Roadmap by the Preparatory Group;
- (viii) Organization of an Information meeting for Member States on the consolidated Roadmap (September 2019).

**B. Consolidation and deployment phase: October 2019 to February 2020**

- (i) Submission of the preliminary study on the technical, financial and legal aspects on the desirability of a standard-setting instrument on Open Science, including its consolidated Roadmap, to the General Conference at its 40th session (November 2019);
- (ii) Publication of a brochure for the general public on the initiative, based on the preliminary study and observations of UNESCO's governing bodies (December 2019).

**C. Implementation phase and adoption of the Recommendation: March 2020 to February 2022**

- (i) Preparation of the first draft text of the Recommendation (March 2020);
- (ii) Consultation with stakeholders on the first draft text of the Recommendation: (a) UNESCO centres and Chairs, and key science partners; (b) Open consultation to key scientists, young researchers, university professors, academicians and intellectuals, engaged citizens, and relevant public and private entities (April 2020);
- (iii) Organization of six regional meetings (one in each region). This will nurture the work with region-related considerations and the regional scientific cultures (from May to October 2020);
- (iv) Communication of the Director-General's preliminary report on the proposed recommendation, accompanied by the first draft of the recommendation, to the Member States (September 2020) for their comments by end January 2021;
- (v) On the basis of the comments received by Member States, communication of the Director-General's final report containing a draft of the recommendation to the Member States (April 2021);
- (vi) Submission of the final report to the special committee consisting of technical and legal experts appointed by Member States (category II meeting) (July 2021);
- (vii) Submission of the draft recommendation to the General Conference at its 41st session with a view to its adoption (November 2021);
- (viii) Organization of a Global Conference to present the Recommendation adopted by the General Conference at its 41st session (February 2022).



## General Conference

40th Session, Paris, 2019

United Nations  
Educational, Scientific and  
Cultural Organization

Organisation  
des Nations Unies  
pour l'éducation,  
la science et la culture

Organización  
de las Naciones Unidas  
para la Educación,  
la Ciencia y la Cultura

Организация  
Объединенных Наций по  
вопросам образования,  
науки и культуры

منظمة الأمم المتحدة  
للتربية والعلم والثقافة

联合国教育、  
科学及文化组织

Item 5.20 of the agenda

# 40 C

40 C/63 Add.  
14 November 2019  
Original: English

### PRELIMINARY STUDY OF THE TECHNICAL, FINANCIAL AND LEGAL ASPECTS OF THE DESIRABILITY OF A UNESCO RECOMMENDATION ON OPEN SCIENCE

#### ADDENDUM

#### CONSOLIDATED ROADMAP FOR A POSSIBLE UNESCO RECOMMENDATION ON OPEN SCIENCE AND DRAFT TERMS OF REFERENCE FOR THE OPEN SCIENCE ADVISORY COMMITTEE

#### OUTLINE

**Source:** 207 EX/Decision 7.

Further to the Executive Board decision, 207 EX/Decision 7, this document proposes the draft Terms of Reference for the Open Science Advisory Committee for consideration by the General Conference at its 40th session as addendum to document 40 C/63.

**Decision required:** paragraph 5.



Job: 201914018

## INTRODUCTION

1. Following up to 206 EX/Decision 9, the Director-General presented to the Executive Board at its 207th session, the requested “Consolidated roadmap towards a possible UNESCO recommendation on open science” (see Annex I to this document).
2. In its decision (207 EX/Decision 7)<sup>1</sup> the Executive Board took note of the consolidated roadmap presented in the above-mentioned document.
3. While noting “the importance of ensuring an open and transparent process based on a proper geographical gender balance for the selection of the members of the Advisory Committee”, in their decision, the members of the Executive Board have also:
  - requested the Director-General “to ensure a broad and geographically representative Open Science Partnership, with relevant stakeholders and institutions from all regions and from all branches of Basic and Applied Sciences, including Natural Sciences , and Social and Human Sciences, particularly taking into account local and indigenous peoples and their traditional knowledge”;
  - recommended that “the specific challenges of scientists in developing countries in regards to weak Science Technology and Innovation (STI) policy and legal systems, and the digital, technological and knowledge divides, be adequately addressed within the consolidated Roadmap and future recommendation to enable the scientists to fully participate and reap the benefits of the Open Science framework”;
  - recommended that the General Conference, at its 40th session, “request the Director-General to hold at least one category II intergovernmental meeting *in presentia* with a view to the elaboration of a recommendation on Open Science”;
  - recommended to the Director-General “to elaborate a draft Terms of Reference of the Open Science Advisory Committee to be presented at the 40th session of the General Conference, for its consideration”.
4. Further to the request above, the draft Terms of Reference are presented in Annex II to this document.

### Proposed draft resolution

5. In view of the above, the General Conference may wish to adopt a decision along the following lines (this draft resolution replaces the one contained in paragraph 8 of document 40 C/63):

*The General Conference,*

*Recalling* the Rules of Procedure concerning recommendations to Member States and international conventions covered by the terms of Article IV, paragraph 4, of the Constitution,

*Having examined* documents 40 C/63 and 40 C/63 Add,

1. *Recognizes* the need for a new standard-setting instrument on open science, in the form of a recommendation;
2. *Takes note* of the terms of reference of the Open Science Advisory Committee, as contained in Annex 2 to document 40 C/63 Add.;

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<sup>1</sup> 207 EX/Decision 7 is available in its entirety in Annex III to this document.

3. *Invites* the Director-General to initiate, in accordance with the applicable rules and provided the resources are available, the process of elaborating a draft text of a new standard-setting instrument on open science, in the form of a recommendation;
4. *Requests* the Director-General to hold at least one category II intergovernmental meeting *in presentia* with a view to the elaboration of a recommendation on open science;
5. *Also requests* the Director-General to take all necessary measures to ensure an inclusive consultative process leading to a recommendation on open science;
6. *Also invites* the Director-General to submit to it at its 41st session the draft text of a UNESCO recommendation on open science in accordance with the Rules of Procedure concerning recommendations to Member States and international conventions covered by the terms of Article IV, paragraph 4, of the Constitution.

## ANNEX I

### CONSOLIDATED ROADMAP TOWARDS A POSSIBLE UNESCO RECOMMENDATION ON OPEN SCIENCE<sup>2</sup>

#### ***The organization of the process leading to the possible adoption of the UNESCO Open Science Recommendation***

1. The three-year (2019-2021) consultative, inclusive and transparent process leading to the possible adoption of the Recommendation will be led by UNESCO Member States and:
  - Facilitated by an internal multisectoral UNESCO Open Science Team;
  - Supported by a broad Open Science Partnership;
  - Steered by an Open Science Advisory Committee;
2. The internal multisectoral UNESCO Open Science Team, coordinated by SC, will include representatives from the five programme sectors (SC, CI, ED, CLT and SHS). Its objectives will be to:
  - Elaborate an inventory of ongoing work on Open Science across UNESCO;
  - Identify the existing mechanisms and documentation on Open Science within the United Nations and relevant regional groupings of states;
  - Develop the relevant studies, preparatory briefs and a draft Roadmap for the Recommendation, as presented in this document, for the consideration of the UNESCO Member States;
  - Organize large consultations with Member states, National Commissions, networks of young and experienced researchers, academics, public and private scientific institutions on:
    - the definition of Open Science;
    - the Scope of the draft Recommendation;
    - the Provisions of the draft Recommendation;
  - Organize the consultations among the Member States leading to the possible adoption of the Recommendation by the UNESCO General Conference in 2021.
3. The broad **Open Science Partnership** will bring together all the relevant and interested Open Science stakeholders across the world. The Partnership will be open ended and include interested Member States, scientific community, public and private science, technology and innovation institutions, relevant private sector and industry, United Nations agencies. *Inter alia* the Partnership will include:
  - UNESCO Chairs and centres; and university associations such as the Association of African Universities;
  - The World Academy of Sciences (TWAS) and the International Centre for Theoretical Physics (ICTP);

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<sup>2</sup> This document was presented to the Executive Board in the Annex to document 207 EX/7.

- The International Science Council (ISC);
  - Institutions such as the Synchrotron-Light for Experimental Science and Applications in the Middle East (SESAME) and the European Organization for Nuclear Research (CERN), with whom UNESCO developed the free digital library Invenio used in Africa for capacity-building;
  - The Global Young Academy, which is the voice of young scientists all around the world and has a Working Group on Open Science;
  - The United Nations Technology Facilitation Mechanism, in particular its Inter Agency Task Team on Science, Technology and Innovation for SDGs;
  - The World Intellectual Property Organization;
  - The African Open Science Platform, developed by the International Council for Science with the support of UNESCO;
  - European Union Open Science;
  - The Confederation of Open Access Repositories;
  - The African Academy of Science.
4. The **Open Science Advisory Committee** will be established to guide and advice on the process leading to the Recommendation. The 15 members will include, inter alia, representatives of Member States from the six electoral groups of UNESCO and representatives of key scientific bodies/institutions dealing with Open Science and interested donors. Its role will be to steer the consultative process leading to the Recommendation by:
- providing expert and strategic advice;
  - ensuring delivery of the process milestones;
  - providing support with fundraising.

### **Timeline**

- A. Project preparation phase: January to October 2019 (already achieved)
- (i) Preliminary study prepared on the technical, financial and legal aspects on the desirability of a standard-setting instrument on Open Science, including a draft Roadmap, based on the *Rules of Procedure concerning recommendations to Member States and international conventions covered by the terms of Article IV, paragraph 4, of the Constitution*;
  - (ii) Preliminary study and the draft Roadmap submitted to the Executive Board at its 206th session (April 2019);
  - (iii) Bibliographic study on the definition(s) of Open Science initiated;
  - (iv) An information meeting organized for Member States on the draft consolidated Roadmap (June 2019).



- B. Consolidation and deployment phase: October to November 2019
- (i) Submission of the draft consolidated Roadmap to the Executive Board at its 207th session (October 2019);
  - (ii) Multi-stakeholder workshop on Open Science in Africa (October 2019-TBC);
  - (iii) Submission of the preliminary study and of the consolidated Roadmap, with the observations and decisions of the Executive Board at its 206th and 207th sessions, to the General Conference at its 40th session (November 2019).
- C. Implementation phase and adoption of the draft Recommendation (depending on the decision by the General Conference): December 2019 to February 2022
- (i) Publication of a brochure and other communication material (e.g. short video) for the general public on the initiative, based on the preliminary study, the roadmap and including observations of UNESCO's governing bodies (December 2019).
  - (ii) Establishment of the Open Science Partnership (December 2019)
  - (iii) Establishment of the Open Science Advisory Committee (December 2019)
  - (iv) Mobilization of Open Science Partnership and organization of an electronic consultation with UNESCO Chairs, C2Cs, external partners, National Commissions and Member States on the draft definition of Open Science and the scope of the Recommendation (January-February 2020);
  - (v) Based on the inputs received, preparation by the Secretariat of the first draft text of the Recommendation (March 2020);
  - (vi) Consultation with relevant stakeholders to collect inputs for the drafting of the Recommendation: (a) UNESCO centres and Chairs, and key science partners; (b) Open consultation with key scientists, young researchers, university professors, academicians and intellectuals, engaged citizens, and relevant public and private entities (April 2020);
  - (vii) Organization of six regional multistakeholder meetings (one in each region), including representatives of Member States (from May to September 2020) to collect comments on the first draft of the recommendation;
  - (viii) Communication of the Director-General's preliminary report on the proposed recommendation, accompanied by the first draft of the recommendation, to the Member States (September 2020) for their comments by end January 2021;
  - (ix) On the basis of the comments received by Member States, communication of the Director-General's final report containing a draft of the recommendation to the Member States (April 2021);
  - (x) Submission of the final report to the special committee consisting of technical and legal experts appointed by Member States (category II meeting) (July 2021);
  - (xi) Submission of the draft recommendation to the General Conference at its 41st session with a view to its adoption (November 2021);
  - (xii) Subject to adoption of the Recommendation by the General Conference at its 41st session, organization of a Global Conference to present the Recommendation will be foreseen in February 2022.

## ANNEX II

### DRAFT TERMS OF REFERENCE OF THE OPEN SCIENCE ADVISORY COMMITTEE

#### 1. Background

Recognizing the potential of Open Science to democratize science and close the gaps in science technology and innovation, the Executive Board recommended the General Conference to invite the Director-General to initiate the process of elaborating a draft text of a new standard-setting instrument on Open Science in the form of a Recommendation, to be submitted for consideration by the General Conference at its 41st session (206 EX/Decision 9 and 207 EX/Decision 7).

In this context and further to the request of the Executive Board, the Director-General also presented a consolidated roadmap for a possible UNESCO Recommendation on Open Science (as contained in the Annex of the Executive Board Document 207 EX/7) describing the organization and the timeline of a consultative process leading to the adoption of a UNESCO Recommendation on Open Science in 2021.

As noted in the above-mentioned consolidated roadmap, the organization of the process leading to the possible adoption of the UNESCO Recommendation on Open Science in 2021 will be led by UNESCO Member States and:

- facilitated by an internal multisectoral UNESCO Open Science Team led by the Natural Sciences Sector;
- supported by a broad Open Science Partnership;
- guided by an Open Science Advisory Committee.

The current document provides the draft Terms of Reference of the Open Science Advisory Committee.

#### 2. Role of the Open Science Advisory Committee

The Open Science Advisory Committee will be established by the Director-General of UNESCO to provide guidance and advice on the overall implementation of the Consolidated Roadmap for the UNESCO Recommendation on Open Science as contained in the Annex of the Executive Board Document 207 EX/7.

Its role will be to guide the consultative process leading to the Recommendation by:

- providing expert and strategic advice;
- ensuring delivery of the process milestones;
- providing support with fundraising.

In addition, the Advisory Committee will be invited to:

- propose relevant institutions and stakeholders to join the Open Science Partnership so as to ensure its geographical representativeness and broad scope covering all scientific disciplines and systems of knowledge;
- propose experts to take part in the regional and thematic consultations taking into account gender and geographical balance;

- contribute to and review any documentation that will be produced to accompany the consultative process leading to the Recommendation;
- communicate broadly on the importance of the Recommendation and the related work of UNESCO.

### **3. Membership of the Open Science Advisory Committee**

#### **3.1 Members**

It is proposed that the Open Science Advisory Committee be composed of 15 members including:

- representatives of Member States from the six electoral groups of UNESCO;
- representatives of key scientific bodies and institutions dealing with Open Science;
- representatives of the private/business sector;

#### **3.2 Guiding principles**

The selection of the members of the Advisory Committee will be done by the Director-General of UNESCO based on an open and transparent process taking into account the following principles:

- geographical balance;
- gender balance;
- expertise and competence in the field of Open Science.

#### **3.3 Co-chairs**

At their first meeting, the Advisory Committee members will elect two co-chairs with the following responsibilities:

- setting the agenda for the meetings in consultation with the Secretariat;
- making sure that each meeting is planned effectively and that matters are dealt with in an orderly and efficient manner
- encouraging participation of all members of the Advisory Committee in the discussions;
- summarizing the conclusions of discussions, the decisions taken and the agreed follow up actions.

#### **3.4 Observers**

Observer(s) will be permitted to attend the meetings of the Advisory Committee. The observer should inform the Secretariat about its intention to attend the meeting no less than five business days before the scheduled meeting.

#### **4. Operating procedures**

##### **4.1 Secretariat of the Advisory Committee**

The Secretariat will consist of the internal multisectoral UNESCO Open Science Team.

##### **4.2 Frequency of the Meetings**

The Advisory Committee meetings will be organized at least twice a year in line with the key steps of the implementation phase of the consultative process as foreseen in the Consolidated Roadmap. Depending on the funds available and/or the willingness of the Members of the Advisory Committee to self-fund, meetings will be conducted face-to-face or virtually.

##### **4.3 Documents for the Meetings**

The Agenda of the meetings will be set by the Advisory Committee Co-chairs in consultation with the Secretariat. The Secretariat will prepare and distribute the Minutes of the meetings. Any other documents to be considered by the Advisory Committee will be decided by the Advisory Committee Co-chairs in consultation with the Secretariat and the members of the Advisory Committee.

##### **4.4 Quorum and Decision-Making**

Quorum for meetings will be attendance by a simple majority of Advisory Committee members. All decisions will be taken by consensus.

##### **4.5 Reporting of the decisions of the Advisory Committee**

The results of the discussion of the Open Science Advisory Committee are reported to the Director-General of UNESCO, via the Chair of the Committee.

### ANNEX III

#### 207 EX/Decision 7 – Consolidated Roadmap for a possible UNESCO Recommendation on Open Science

The Executive Board,

1. Having examined documents 207 EX/7 and 207 EX/PG/1.INF.3 and Corr.,
2. Takes note of the consolidated Roadmap towards the adoption of a possible UNESCO Recommendation on Open Science contained in the Annex to document 207 EX/7;
3. Notes the importance of ensuring an open and transparent process based on a proper geographical and gender balance for the selection of the members of the Advisory Committee;
4. Requests the Director-General to ensure a broad and geographically representative Open Science Partnership, with relevant stakeholders and institutions from all regions and from all branches of Basic and Applied Sciences, including Natural Sciences, Life Sciences, and Social and Human Sciences, particularly taking into account local and indigenous peoples and their traditional knowledge;
5. Recommends that the specific challenges of scientists in developing countries in regards to weak Science Technology and Innovation (STI) policy and legal systems, and the digital, technological and knowledge divides, be adequately addressed within the consolidated Roadmap and future recommendation to enable the scientists to fully participate and reap the benefits of the Open Science framework;
6. Recommends that the General Conference, at its 40th session, invite the Director-General, to initiate, in accordance with the applicable rules and provided the resources are available, the process of elaborating a draft text of a new standard-setting instrument on open science, in the form of a recommendation, to be submitted for consideration by the General Conference at its 41st session;
7. Also recommends that the General Conference, at its 40th session, request the Director-General to hold at least one category 2 intergovernmental meeting *in presentia* with a view to the elaboration of a recommendation on Open Science;
8. Also recommends the Director-General to elaborate a draft Terms of Reference of The Open Science Advisory Committee to be presented at the next General Conference, for its consideration.



OPEN SCHOLARSHIP INITIATIVE