The 3rd SPARC Japan Seminar 2018

Roadmap for Open Access : The Road to OA2020

The OA2020 Roadmap to Open Access

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Abstract

Over the last 20 years, "open access" has been adopted as an underlying principle in a vast number of national and international research and funding policies. In this time, many new institutional and disciplinary repositories have been established and new open access journals and publishing platforms have been created. However, despite these important and worthy efforts, over 80% of today's scholarly journals are still locked behind paywalls, with enormous implications for science and for the funds invested in scholarly communication: restrictions on use and re-use of scholarly articles severely limit the potential of research in today's digital environment and the money invested in scholarly communication remains locked in big deal subscriptions and cannot flow to the publishing services today's scholars want and need. Based on data analyses conducted by the Max Planck Digital Library and described in their widely-read White Paper, "Disrupting the subscription journals' business model for the necessary large-scale transformation to open access" (http://dx.doi.org/10.17617/1.3), a rapid transformation of the subscription system is possible without compromising the academic freedom of researchers, without weakening publishing services and without further monetary investment. The Open Access 2020 Initiative (OA2020) is an opportunity for individual institutions and national library consortia to align strategies on a global scale, and the OA2020 roadmap provides an evidence-based approach to the open access transition in which libraries play a vital role today and in the future. Already national library consortia, with the full support of authors and administration, are making significant progress in their roadmaps, paving the way for others to join in OA2020 and be part of the transformation.

Ralf Schimmer

Ralf Schimmer leads the licensing strategy of the Max Planck Digital Library, serving the Society's 80+ advanced research institutes. A champion of open access in scholarly communications, he chaired the Governing Council of SCOAP^3 (2014-2016), serves on many international boards and is project lead for the Open Access 2020 Initiative.

Thank you for the honor and privilege to be able to speak about the Open Access 2020 Initiative (OA2020). It is a great pleasure to be in Japan and have a community represented by a wide variety of all the stakeholders; librarians, researchers, publishers, that are involved in making the transition to more open access happen.

Promise of Open Access

The idea of the promise of open access exists for at least 15 years. The declarations of Budapest in 2002 and Berlin in 2003 clearly describe the prom-

ise of open access as a world where the articles' dissemination and access would be much easier compared to the print world, for everybody to enjoy broad access and use and reuse the material, publications, and all other documents.

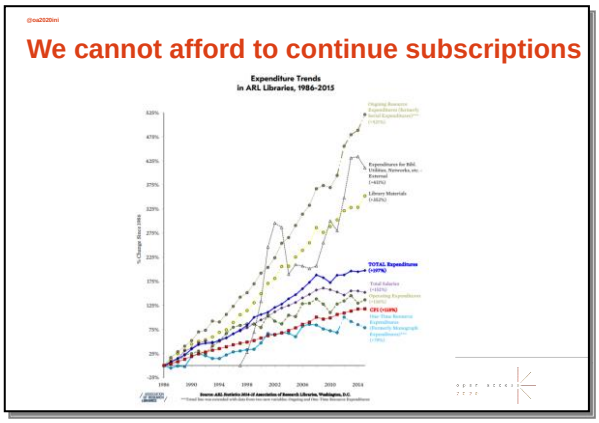
Even after 15 years since those declarations, the reality is still different. We are still confronted with a paywall system and have restrictions in access and also in reuse of articles. I am sure you have all heard about Sci-Hub, the pirate website supposedly somewhere in Kazakhstan. In 2016 *Science* magazine publication, author, John Bohannon, had access to Sci-Hub's log file showing usage. This opened the eyes for all of us.

With the graphics (Figure 1) from that article, we learnt that our researchers and users go to Sci-Hub, even in centers with good libraries who invest a lot of money in the subscription to the journals of the major publishers. This lesson was learnt in the Max Planck Society in Germany. The American libraries also learnt this lesson. Also this happened in Tokyo, Osaka, and all of Japan as well. The lesson we learnt through those facts is that the system we are confronted with is really not tolerable anymore. It is not working to the effects of the researchers. They clearly want a different system.

You all factually know that we also have the so-called serials crisis. The graphic from the Association of Research Libraries (ARL) shows that the subscription price for serials for journals has gone up consistently over the years on a much higher rate compared to all the consumer price index developments (Figure 2). People in the libraries know all about this pressure. We are confronted with higher costs and have to diminish our services. This is also a negative spiral and not a positive signal to our users.

Open Access Dilemma

We are confronted with the open access dilemma. Open access is clearly exceptionally strong as a principle. Many research councils of the world have signed up in one form or the other to the principle of open access. There are policies, guidelines,



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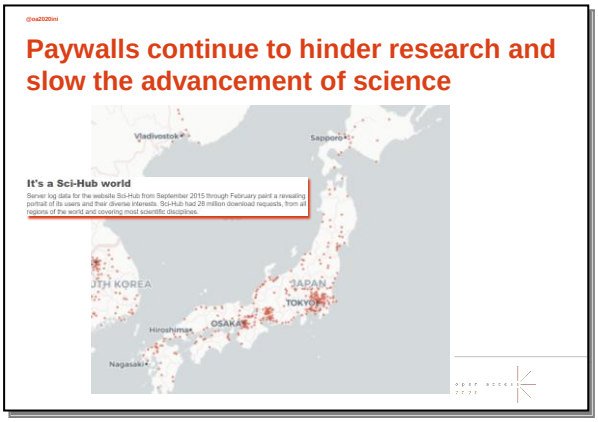

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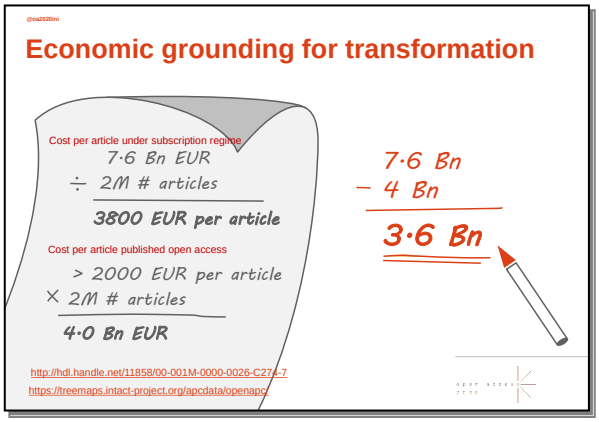


(Figure 3)

open access representatives. We cherish the international Open Access Week. This is also a theme that is prevalent in Japan, so that open access as a principle is very well established.

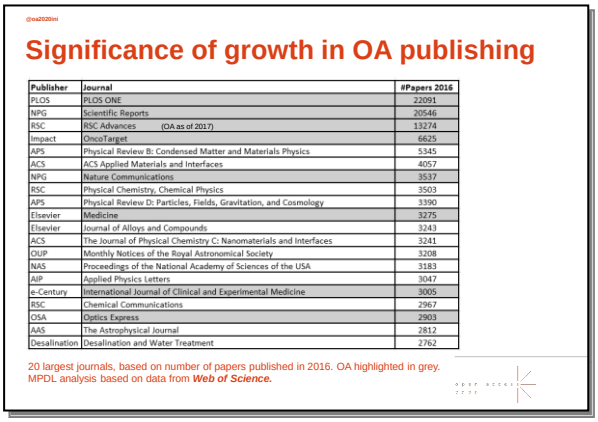
On the practical side, things look quite different. It is very disappointing that after 15 years of intense campaigning for open access, we are still very far away from open access. The deposit rate in the institutional repositories around the globe is still very low and disappointing. When it comes to immediate open access publications, we only have about 15% of the research that is immediately open access. What counts perhaps even more is that the subscription system is also as prosperous as ever before. No changes, no shift in spending, at least not in a significant way, have ever happened.

Spending Shift Toward Open Access

This all has led us to look into the economic foundation of the current system and what this all would mean for a transformation. We have published this data in a White Paper in 2015 (Figure 3). These figures are very essential and the ultimate financial benchmarks in the current publishing system. We know from financial reports that in the range of €7.6 billion are spent globally through all the subscriptions in the libraries of the world for the publications.

We can calculate the number of articles being published in the academic journals of the various fields at two million articles per year. For the money calculation, if we divide these two figures, then the economic truth is that we pay as much as €3,800 per research article on average through our subscription spending. This is a very fundamental financial figure that was unknown until recently. It is visible now and should be known by all librarians and also every university administrator at the rector's level or the vice-rector's level.

When we contrast this with all the evidence that we have from a pure open access publishing world and publishing industry, we can assess that the publication costs in these domains are typically on average below €2,000 per research article. When we multiply such a cost figure by our annual output of two million articles, we come to the assessment that the total cost of an open access system could be in the range of €4 billion. When we contrast the total current subscription cost of €7.6 billion versus the anticipated cost of €4 billion in an open access world, then we can safely say that there is enough money in the system to make a transition to open access without risk, without fear of paying more, and perhaps with the potential to



Publisher	Journal	#Papers 2016
PLOS	PLOS ONE	22091
NPG	Scientific Reports	20546
RSC	RSC Advances (OA as of 2017)	13274
Impact	OncoTarget	6625
APS	Physical Review B: Condensed Matter and Materials Physics	5345
ACS	ACS Applied Materials and Interfaces	4057
NPG	Nature Communications	3537
RSC	Physical Chemistry, Chemical Physics	3503
APS	Physical Review D: Particles, Fields, Gravitation, and Cosmology	3390
Elsevier	Medicine	3275
Elsevier	Journal of Alloys and Compounds	3243
ACS	The Journal of Physical Chemistry C: Nanomaterials and Interfaces	3241
OUP	Monthly Notices of the Royal Astronomical Society	3208
NAS	Proceedings of the National Academy of Sciences of the USA	3183
AIP	Applied Physics Letters	3047
e-Century	International Journal of Clinical and Experimental Medicine	3005
RSC	Chemical Communications	2967
OSA	Optics Express	2903
AAS	The Astrophysical Journal	2812
Desalination	Desalination and Water Treatment	2762

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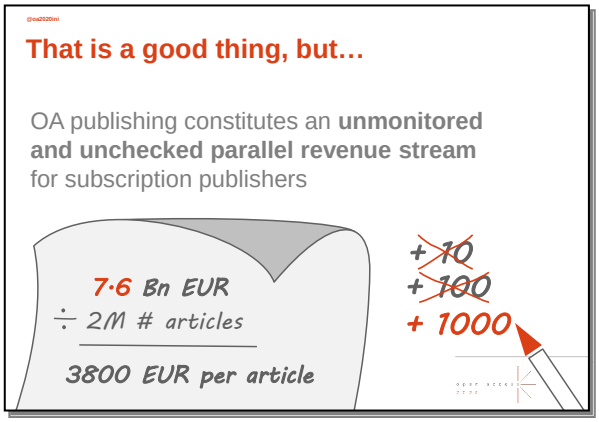


(Figure 5)

invest in new services or perhaps to secure some savings.

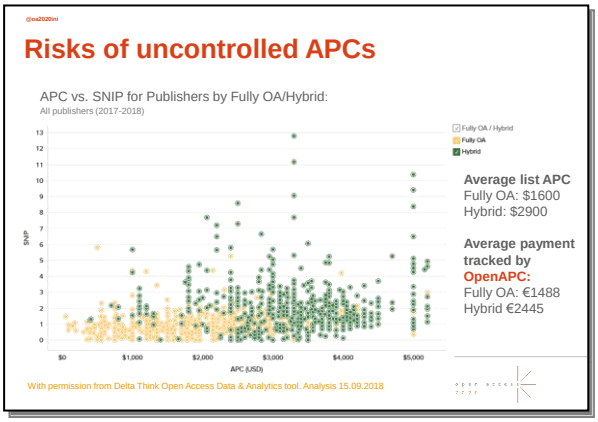
Figure 4 shows the relevance of open access. This in particular is a message to librarians to see and to understand that open access journals are very significant and relevant in the market and that libraries really cannot afford not to develop a strategy towards these journals. What you see here are the journals on a global scale with the largest numbers of papers in 2016. The open access journals are in gray in the darker fields and the four largest journals are pure open access journals.

The *Scientific Reports* on the global scale is at number two. It was already number one in Japan, last year. This is the single most important journal for the Japanese researchers. In Japan also, open access journals are very relevant for the researchers. To reiterate, it is important for libraries to understand this and develop a strategy to support their researchers in the field of open access publishing.

Having good and important open access journals is a positive thing. In many ways, this is what we want but it comes with a challenge. Libraries have to understand that there is a second significant money stream to the publishers besides our subscription budgets (Figure 5). Since we just had the example of *Scientific Reports*, it is essential for the libraries to not only see their subscription agreement with the Nature Publishing Group but also be aware that there is additional money flowing to the Nature Publishing Group for the open access journal *Scientific Reports* and also for the other open access journal that is very strong, *Nature Communications*.

There is the risk of uncontrolled article processing charge (APC) (Figure 6). Those who have watched the developments closely have developed a clear sense that hybrid open access publishing is significantly more expensive compared to direct and pure so-called gold open access publishing. The green dots are all hybrid journals, meaning subscription journals with an open access publishing option for individual articles. The yellow or golden ones are pure open access journals. The green dots are clustering in higher price ranges between $3,000 and $5,000, whereas the yellow ones cluster in the lower price ranges. This summarizes the average prices. Full open access journals average around US $1,600, whereas hybrid comes with almost the double price of US $2,900.

There is a second initiative called Open APC that records open access spending, both hybrid and



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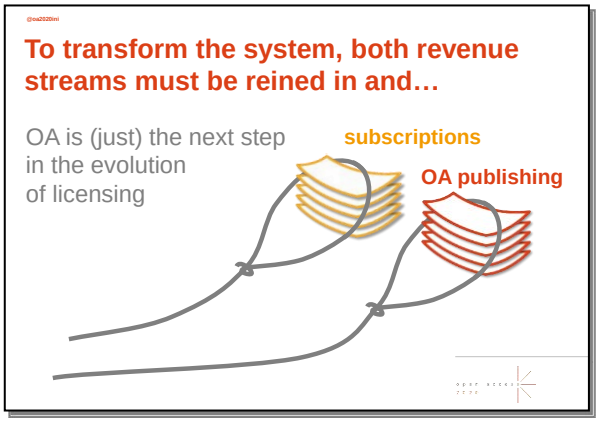


(Figure 7)

gold. They come to very similar data points and conclude that fully open access is significantly cheaper compared to the hybrid price points.

The conclusion of the previous messages is that the two cost streams have to be considered together (Figure 7). It is not enough, especially for libraries, to look only at the cost they have been familiar with, that is the subscriptions. Open access is as relevant as subscriptions and the two spheres have to be looked at together. They have to be combined and taken together. Open access is just the next step in the evolution of licensing.

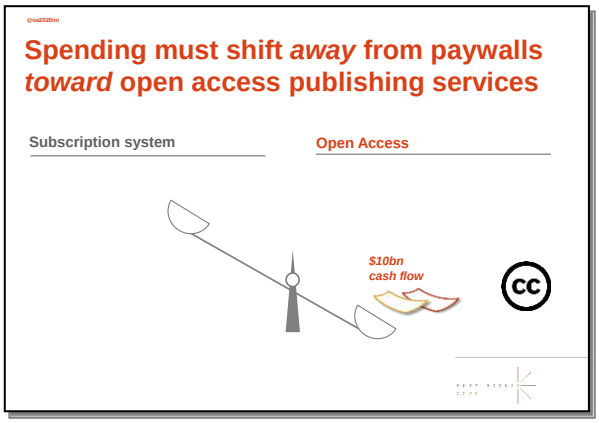
The key challenge that we need to accomplish through the OA2020 is to shift our spending away from the paywall system and the subscriptions towards open access publishing services.

Figure 8, Figure 9 symbolizes what has to happen. We have to shift the money and also the restrictive copyright to open access and transform and turn it into an open access business model. We use the same money that we invest in journals under the subscription system to finance the same journals but just with an open access business model.

What is OA2020?

The approach that we are trying to propagate through the OA2020 is forming a global alliance because we have to work together. None of the institutions or a single country is ever strong enough to bring about this change. We all have to work together. It must be truly global in order to be successful.

The global output shows that it is only 20 countries that already account for 80% of the global research output (Figure 10). Not surprisingly, Japan is among the most important research-producing and research-performing countries in the world with a corresponding author share of a bit more than 4%. If we get those 20 countries onboard and organize ourselves together, the transition to open access will be very possible and will not take a very



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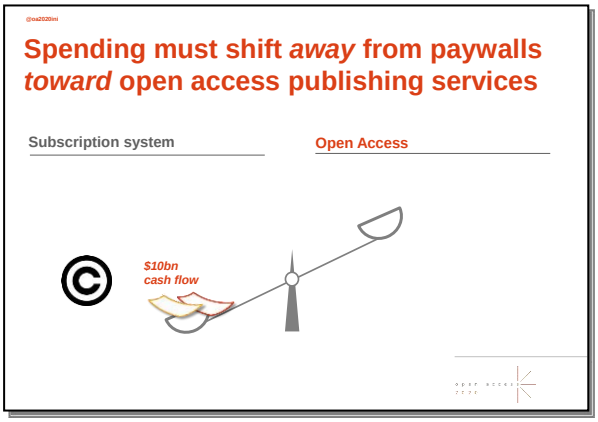

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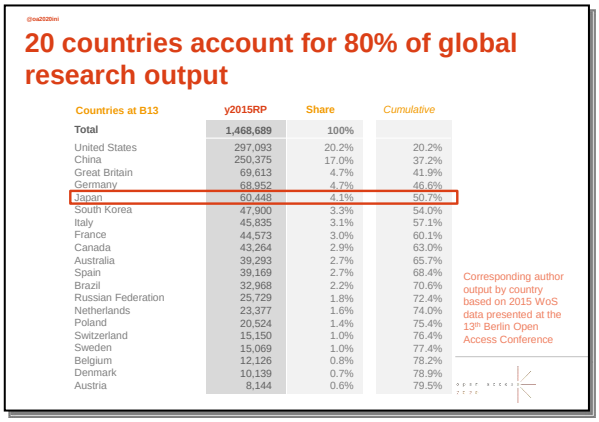


(Figure 10)

long time.

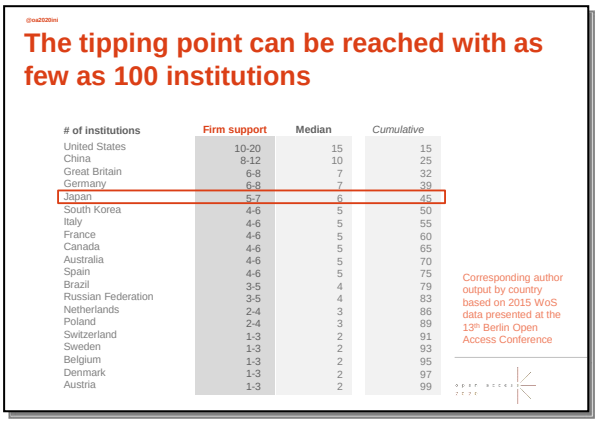
When we break it down to the institutional level in all these 20 countries, we recognizably do not need to convince all the hundreds of research institutions that you may have in your countries, but even if we only have the most important lead research institutes in the country, we could bring this change about in the end with less than 100 institutions on a global scale, but they have to come with a fair geographic distribution (Figure 11).

If we have an average of 6 or 7 institutions from countries like Germany and Japan, that would add up to maybe 100 around the globe. If we could have full support of those institutions, we could make the transition to open access happen.

OA2020 has reached out to organize a network of willing institutions that are ready and prepared for transformative action (Figure 12). Currently, we have 110 signatories to the expression of interest of OA2020. They come from 35 countries and represent 5 continents.

OA2020 is an initiative to align the forces to meet the publishers at eye level and bring the call for open access to the negotiating table with the publishers and our license agreements that we have with them. Figure 13 lists a small number of our partners that have all reached out to negotiate open access components in their agreement with the publishers.

OA2020 is grounded in the wish and the request of the researchers for more open access. For example, the University of California system in the United States has come out with the Declaration of Rights and Principles to Transform Scholarly



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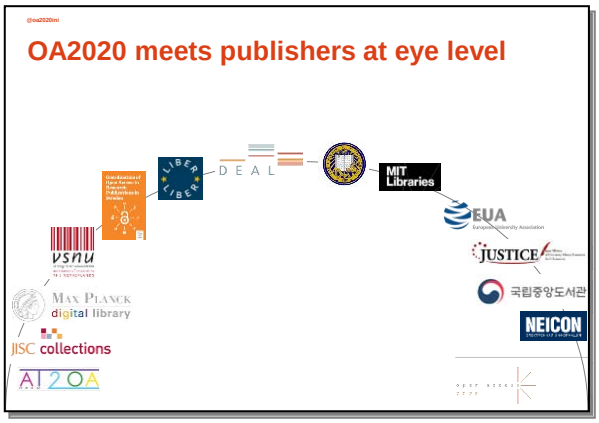

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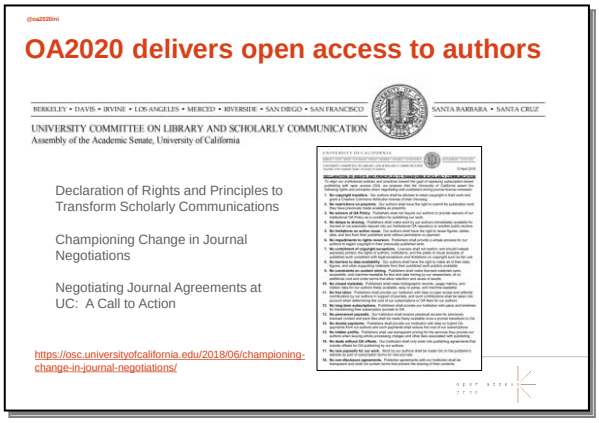


(Figure 14)

Communication (Figure 14). The document has 18 principles on one page that are very relevant. I would recommend you to read it in case you have not consulted this document.

The researchers want to publish in their favorite journals and want their work to be widely read and cited. They want the rights to reuse and share their works and maintain their existing workflows. They want to access all the existing journals and make sure that there are no publication barriers. OA2020 wants to deliver on the principles expressed in this document.

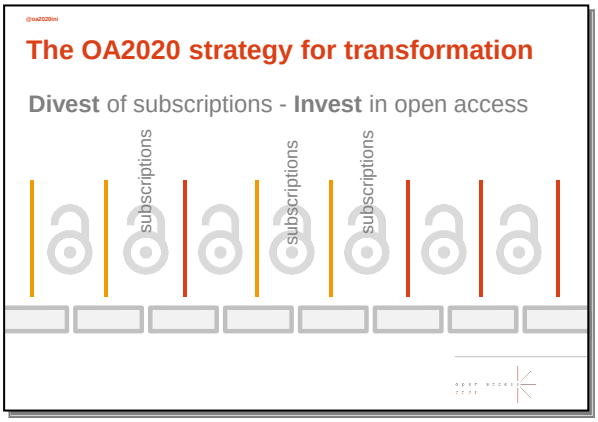
At the same time, OA2020 also aligns with the funders. A little more than a month ago the introduction of Plan S or cOAlition S was publicized. How the two initiatives are aligned with each other has been addressed on OA2020 homepage. Plan S is an expression that the funders are really getting serious about their request for open access. They want to initiate more robust mandates and rules to govern the transaction with the publishers so that open access must come as a consequence much more quickly and massively than we have seen so far.

Figure 15 is about the key strategy of OA2020 for the transformation. Our key idea is relatively simple. We know that the system has enough, which we are currently spending through our subscriptions to the publishers and convert this money into funds for open access services and continue invest the money only if it comes with open access as a consequence. Importantly, OA2020 is not prescriptive in any specific or particular approach.

We are not propagating the APC model as the one-and-only solution. We also support many other varieties of business, community business and collective funding models as we know from the SCOAP[3] example for instance from Knowledge Unlatched and other community activities that are just coming into existence in a variety of flavors around the world.

We want to leave the journals intact and have them function in the same way as before at least for the authors, so the authors are not required to change their behavior and are free to go to their favorite journals. We only want to reorganize the money flow, not paying for reading anymore but paying for publication services that the publishers are providing.

When we look at how our costs are typically distributed across the publishers, then we see that it is typically only a relatively small number that combined the vast majority of our spending. The analysis in the Netherlands showed that for them it



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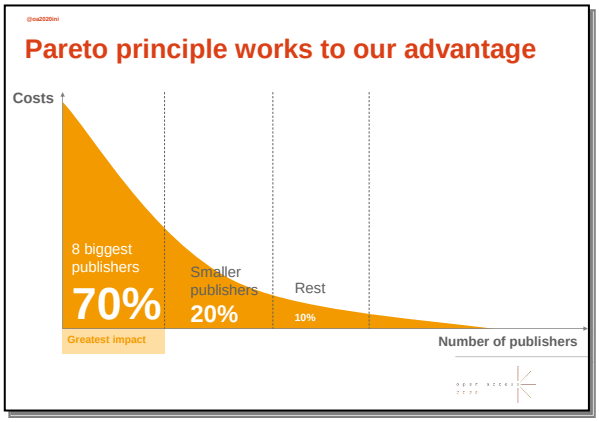
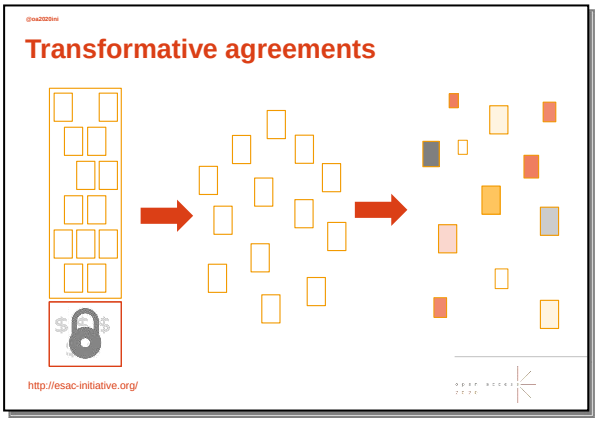


(Figure 16)

is only eight publishers that make up for 70% of their spending (Figure 16). We can all look at who the most relevant publishers are for your country, institution or consortia. Then, we can target just the most relevant ones for us and make it manageable and not be confronted with hundreds of publishers at the same time.

The key instrument for the transition that has been identified in several countries is what can be called transformative agreements (Figure 17). The key element of a transformative agreement is that it combines the logic of the subscription world with the logic of open access publishing and starts to shift the cost from reading to publishing. This graphic is only a schematic representation. We have the agreements with a reading fee component and an open access publishing component. The future goal must be to remove the big deal bundling of the service agreements to move to article-by-article processing, pay as we publish, and to come up with a system of differentiated pricing across the many publishers.

These transformative agreements are typically called offsetting agreements or Publish and Read (PAR) agreements and have been piloted particularly in Europe. Austria was the first country to do this. Austria and IOP was the very first offset agreement four years ago. Then, the UK, the Netherlands, the Max Planck Society, and some other countries are preparing and entering in these kinds of negotiations as well.



(Figure 17)

Recently also, the first transformative agreement was signed in the United States between MIT and the Royal Society of Chemistry. In the press release, MIT made it very clear that these agreements are really only transitional and temporary. This is particularly important for librarians to understand. These models are not meant to be the new standard permanent agreements that we will have with the publishers. They are only transitional. They pave the way into an open access future; otherwise they would not make much sense.

We can here draw the analogy to the car, the automobile industry. We have the normal carbon engine. We know that the future will be electric cars. We need to have a hybrid approach that has carbon as well as electric at the same time. They are the hybrid model, but the future shall be electronic only. Here, it is the same. We start with subscriptions and built in a hybrid element that is subscription and open access, but the goal is only open access, like with electric cars.

OA2020 Roadmaps

In order to participate, it has to be grounding in all the regions and countries of the world. For that, each participating country has to develop a local action plan, a Local OA2020 roadmap.

Since I cannot prescribe any roadmap for the Japanese communities, I want to share our own roadmap that we have developed for the Max Planck Society in Germany. This pie chart (Figure 18) shows our total article output of the Max Planck Society in the year 2016 and how it is dis-

tributed across the publishers.

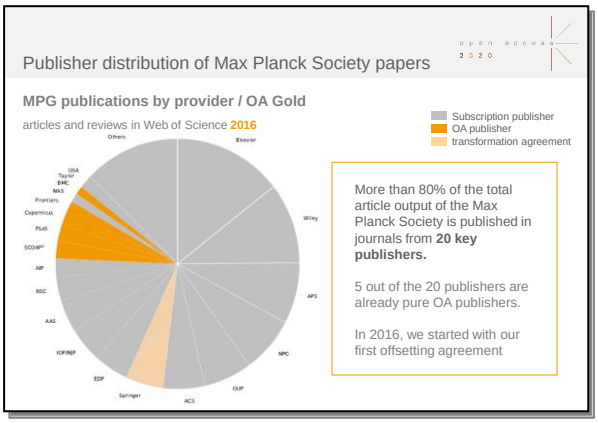
The key lessons we learnt are: Only 20 publishers publish 80% of our total output. Among those top 20 publishers, we already have 5 pure open access publishers. This is our own Max Planck specific data, but we have done analysis and looked at the publishing output of many other institutions. We have recognized that this is a very familiar pattern that most institutions have.

If you are a representative from one of the Japanese universities, University of Tokyo or any other university and you would generate a similar graphic for your institution, you might have a different order of publishers, but you would also probably have 20 that capture 80% of your output. You will also have several open access publishers among them. Open access is already relevant. It is not a very large number of publishers you would have to target.

I will now draw your attention to the color code. The gray are the subscription agreements that we have. The golden ones are our open access agreements that we have with open access publishers. In 2016, we started with our first offset agreement with Springer Compact, represented in light gold.

Figure 19 is how our situation is in year 2018. Since 2016, we have enlarged our offset agreements. We have Taylor & Francis, the Royal Society of Chemistry, IOP and Springer Compact. Our goal is to extend this approach further.

Figure 20 is how the development will look like in 2019. We will add Oxford University Press, the American Chemical Society, EDP Sciences, Cambridge University Press, and Sage. We will signif-



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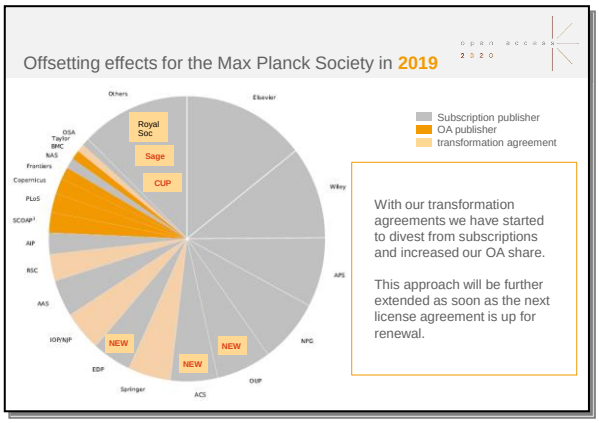

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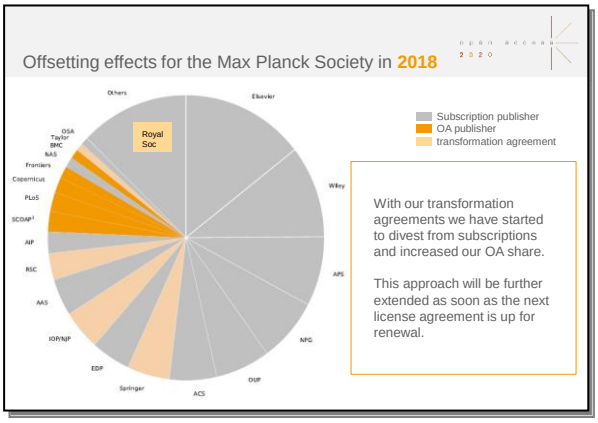

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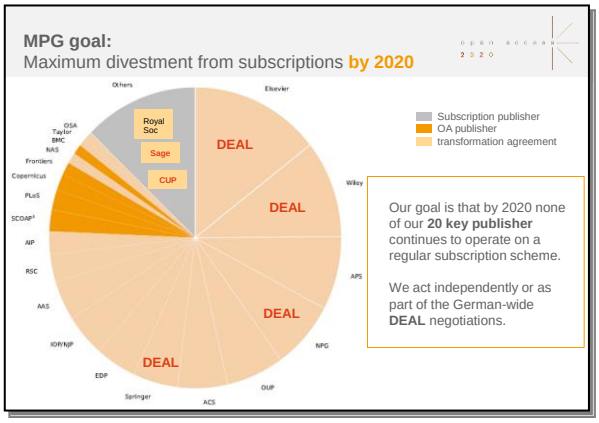


(Figure 21)

icantly enlarge our transformative agreement approach with several other publishers.

As we approach 2020, our goal is to have none of the previous traditional subscription publisher on a pure subscription contract anymore (Figure 21). We want to have only transformative agreements with all of them. In our activities, we negotiate for our own organization or we work through the DEAL negotiations in Germany, which is the nationwide license agreement, the license negotiations, that are currently underway and which I will address in the next section.

Projekt DEAL

I assume that most people here have heard about the DEAL negotiations in Germany (Figure 22). Specifically, these negotiations are an expression of an OA2020 roadmap for the entire country of Germany. It is important to know that all German research organizations have signed up for the Berlin Declaration on Open Access back in 2003 and they have also joined the OA2020 in 2016, when it was launched.

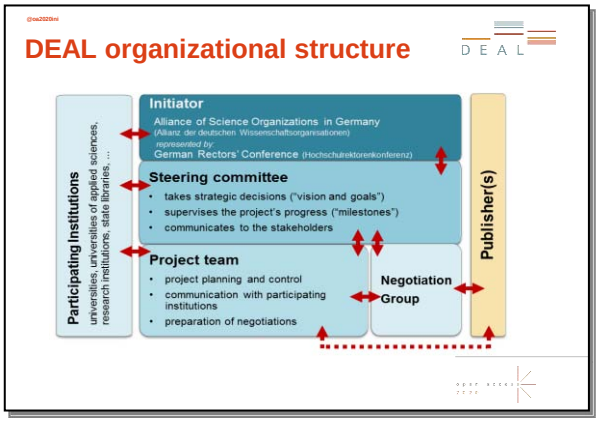
The DEAL network is currently negotiating with the big three commercial publishers; Springer Nature, Wiley and Elsevier. These negotiations reflect a collective demand in Germany for more open access and transparent pricing. The model proposed to the three publishers is the Publish and Read model, which is nationwide licenses to the entire portfolio of electronic journals of the publishers, that all publications by corresponding authors of eligible institutions become open access immediately upon publication with the CC-BY license and that the entire arrangement is based on fair pricing that is ultimately based only on the number of papers published.

The activities in Germany are aligned with the activities in our neighboring or regional countries such as the UK, the Netherlands, Austria, Sweden, Norway, Switzerland is coming, and several other countries are also lining up. These countries and representatives always inspire and learn from one another and try to work together as much as they can.

Figure 23 shows the organizational structure behind the DEAL network. Firstly, it is important to understand that DEAL is a self-organized network of research communities in the countries. It is not mandated by our government. There is no involvement of government body or ministry.

At this initiator layer, this is the Alliance of Science Organizations in Germany. This is a network of all our research organizations. Important-

(Figure 22)



(Figure 23)

ly, this is the president level of our research organizations. This is where the highest representatives of the research communities in the countries come together three, four, five times a year. This is where the President of Max Planck Society personally sits.

The steering committee is an important group that also convenes a lot of high-level representatives from the research organizations or from major libraries in the country or library service providers. We are here in the building of NII. The equivalent of NII in our country would be represented in that committee that takes the strategic decisions and does supervising.

The project team is where the actual work is done, the negotiations are prepared. This is the team of the best, most-talented and most-experienced librarians of the country to steer and to do all the day-to-day operations.

Then, the negotiating team interfaces and negotiates with the publishers. In that team, we have the President of the German Rectors' Conference as the lead negotiators. There are several senior researchers from Germany who are presidents of universities or of the Berlin-Brandenburg Academy of Sciences and also one or two of the librarians from the project group.

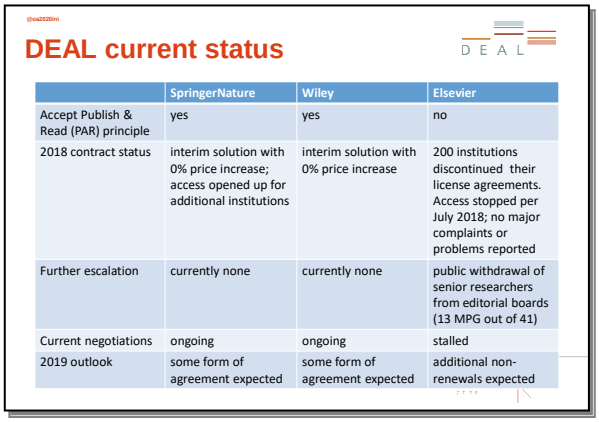
The key message is that for negotiations in such a dimension, on such a scale, it is insufficient to have only librarians prepare and negotiate. It inevitably requires the high-level administrators to be represented in a very meaningful and powerful way. Otherwise, it is not possible to accomplish what has to be accomplished.

Figure 24 explains a little bit about the current status of the negotiations. Firstly, we can say that the PAR (Publish and Read) principle is the key element, whether or not the publishers are willing to accept this. Various public announcements state that Springer Nature and Wiley have accepted this. That is why the negotiations are generally on a positive track. But to this very day, Elsevier is not really willing to accept that model, at least not in a fair and reasonable format.

As we approach 2019, all the libraries in the country are desperately waiting to know what will happen for them in the next year. We are working with the two publishers almost on a day-to-day basis, but we are all very positive that some form of agreement will soon be announced, the minimum would be another interim solution for the next few months or the next year. With Elsevier, the situation is different and is much more unpleasant. This has been widely discussed on a global scale that 200 of our institutions have discontinued their agreement in 2018; several were without a contract in 2017.

Elsevier had left the access open for those institutions for a significant time, but they stopped the access in July this year. The interesting thing is no major complaints or problems have been reported from the institutions with no access to the ScienceDirect platform.

Additionally, there is a further escalation. A



	SpringerNature	Wiley	Elsevier
Accept Publish & Read (PAR) principle	yes	yes	no
2018 contract status	interim solution with 0% price increase; access opened up for additional institutions	interim solution with 0% price increase	200 institutions discontinued their license agreements. Access stopped per July 2018; no major complaints or problems reported
Further escalation	currently none	currently none	public withdrawal of senior researchers from editorial boards (13 MPG out of 41)
Current negotiations	ongoing	ongoing	stalled
2019 outlook	some form of agreement expected	some form of agreement expected	additional non-renewals expected

(Figure 24)

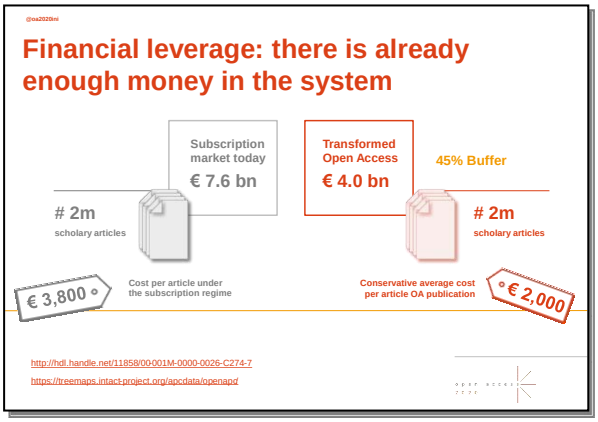
growing number of senior editors have resigned from their role as editor for Elsevier journals. They are listed by names publicly on the DEAL homepage. It is more than 40 at this time.

The outlook for Elsevier for 2019 is that it is unlikely that any of the 200 universities will go back to contract with Elsevier. On to the contrary, it is expected that additionally other institutions, whose agreement would be up for renewal, will not continue.

As seen from examples in Germany at the Max Planck Society and also from some other countries, maybe it is time for Japan to consider their own roadmap for their own institutions at the local or consortia level, with the JUSTICE Consortium or even at a higher level with political backing, whatever is most appropriate.

To Drive Open Access into the System

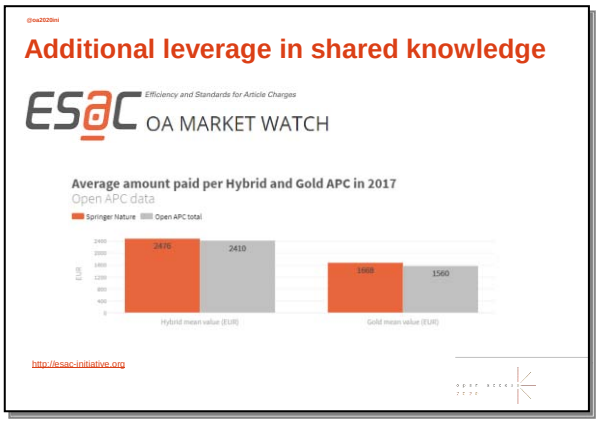
Again, the starting point is going back to the financial data that there is enough money in the system (Figure 25). Please be aware yourself and remind your administrator of the massive money that the libraries in Japan are already investing in the subscription system. JUSTICE has already done analysis to show that indeed there is enough money on the table in the Japanese library system.



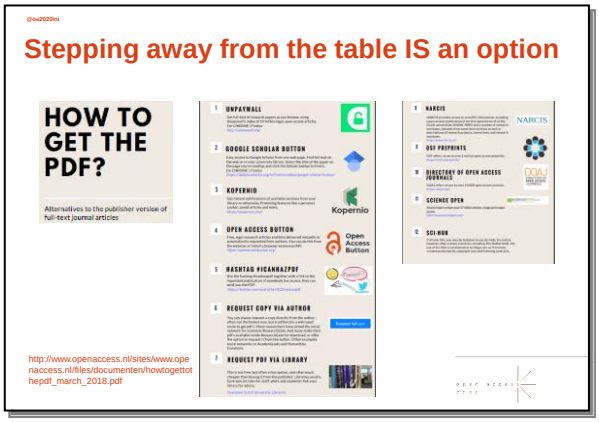
(Figure 25)

When you create your roadmap in the country, please be advised that you are not alone. There is an increasing corpus of shared knowledge and evidence documented in various places (Figure 26). The ESAC Initiative is now transforming itself, expanding its mission, and developed into an OA Market Watch with a lot of documentation on offsetting agreements, on publisher-related information targeted towards transformative questions and data. There is a rich corpus of information available that can be reused by the communities in Japan. You could also then contribute your data, experience and valuable support.

Another interesting phenomenon that we could see also perhaps as a result from that is there is no protest in Germany, even though these institutions do not have access to Elsevier (Figure 27). It real-



(Figure 26)



(Figure 27)

ly seems to be a situation where we can move away from the negotiating table because there are alternative ways to find the publisher content available. Therefore, the situation and our dependency have clearly changed over the last years.

In conclusion, if we work together and are convinced and determined to bring change to open access, we can make it happen. We can create a system, where the money can finally follow our researchers and that the money is where they request the services and it is not locked in to legacy-based subscription agreements on the large scale as we have them nowadays.

●Floor 1 I am Itsumura from Tsukuba University (a member of the Steering Committee for SPARC Japan). What do you think is the reason why there were no major complaints from German researchers when even Elsevier stopped access to it in July?

●Schimmer We had a workshop of librarians a month ago where we asked this question and discussed it. We had like 40 librarians, who reported about the occurrence of document order request, and they all had very low numbers. For three months; July, August, and September together, in most cases they did not even have 100 taken together, a total of less than 100 in three months, 60-70 was the reported number.

When you compare this to the counter data, the gap is huge. Presumably, either it is not that relevant or they find other ways of asking their colleagues in their networks, so they sent them a PDF quickly. They find a green version somewhere when they go to Google Scholar. We cannot exclude that Sci-Hub also plays a role, but this is not something that we would propagate as it is not part of our strategy.