The University of Vienna, in partnership with other organisations across Austria, has been at the forefront of the open access (OA) movement in Europe and has been actively broadening the OA publishing opportunities for its researchers for well over half a decade. Although the launch of Plan S in September 2018 by a group of funding bodies that includes the Austrian Science Fund (FWF) brought its unique challenges, it has also provided the international research community with a much-needed impetus, jolting publishers into action and raising awareness among university administrators and faculty in general. The announcement also prompted the Vienna University Library to perform a mapping exercise, with a view to assessing how well the current publishing agreements match the needs of the University’s researchers in light of the Plan S requirements. This article presents the results of this analysis and shares some of the challenges encountered through the negotiation and implementation of OA publishing agreements and how these, together with the revised Plan S implementation guidelines, have been informing the University’s strategy.

**Keywords**

open access; Plan S; transformative agreements; negotiations; workflows

**Background**

Once the dust had settled following the announcement of the Plan S initiative on 4 September 2018, many institutions across Europe and beyond may have been left wondering how their researchers will be able to continue with their publishing activities without major disruptions come January 2020, the original start date of Plan S. While the start has been postponed by one year, and the requirements somewhat refined in the
one thing is certain: it is no longer business as usual. With effect from 2021, cOAlition S funded researchers will be required to publish in Plan S compliant venues, such as ‘in Open Access Journals, on Open Access Platforms, or made immediately available through Open Access Repositories without embargo’. The implementation guidelines provide further details on the three main routes for being compliant with Plan S:

- open access (OA) publishing venues (journals or platforms)
- subscription venues (repository route): authors publish in a subscription journal and make either the final published version (Version of Record [VoR]) or the Author’s Accepted Manuscript (AAM) openly available in a repository without embargo
- transition of subscription venues such as transformative arrangements and transformative journals.

Open access at the University of Vienna

The University of Vienna, along with other institutions in Austria, is perhaps in a better position than many, thanks to an early start in this field and a co-ordinated approach to OA. The country as a whole has benefited from the Austrian Science Fund’s (FWF) long-standing commitment to OA, deployed through a multi-pronged approach: funding comes with increasingly stringent mandates, while FWF supports transformative agreements and provides funding for OA publishing. This includes a new funding pot for the establishment or modernization of scientific/academic journals, with the aim of ensuring Plan S compliance. FWF has further strengthened its leading role in OA by being one of the founding members of cOAlition S. Moreover, Austria’s active support for Plan S is enshrined in its government’s programme, released in January 2020.

Many of the agreements in which FWF participates have been facilitated by another key player, the Austrian Library Consortium (KEMÖ). KEMÖ is a truly bottom-up organization that brings together the country’s higher education institutions, research institutes and FWF and negotiates transformative agreements on behalf of its members. Data-driven negotiations and a sector-wide approach are further supported by the Austrian Transition to Open Access (AT2OA) project, which is led and hosted by the University of Vienna.

As a result of these concentrated efforts and local initiatives, the University can now offer a large pool of OA publishing venues to its circa 7,000 academic staff, active across all research fields, with new agreements added each year and thereby giving the opportunity to authors to publish at no cost to them. The agreements, both local and consortium deals, range from contracts with large and medium-sized publishers, such as Wiley, Springer Nature and Taylor & Francis, through society publishers (IOP, AIP, RSC) and university presses (OUP, CUP) to some niche publishers, such as the International Water Association. These agreements are implemented by the University Library’s dedicated Open Access Office, which also manages the Institutional Repository that satisfies all current Plan S requirements and provides training and helpdesk services to anyone wishing to launch their own OA journal using Open Journal Systems (OJS). The Library supports wholly OA initiatives as well, such as the Open Library of Humanities and SciPost. Furthermore, researchers who do not have access to external funding can request to have their author processing charges (APCs) covered when publishing in fully OA journals.

Mapping exercise 1: funders’ requirements: share of articles resulting from cOAlition S funded research

Despite the Library’s relatively advanced status in all things OA, the Faculty’s reaction to the launch of Plan S was rather mixed. While the University’s researchers are supportive of OA and open science, there are concerns that with the introduction of this new, stricter
policy many journals relevant to their fields will be off-limits. At the same time, ever since the launch of Plan S, publishers keep reminding us that cOAlition S funded papers represent but a small share of their output. While this may well be the case on a global level for now, estimated to be under 7% in 2017, the authors had an inkling that, knowing FWF’s prominence across the Austrian research landscape, a significant portion of our papers will have resulted from cOAlition S funding.

We quickly came to the conclusion that if we wanted to be able to provide reliable answers to the Faculty and to engage with publishers on this topic, we had to delve into our publishing data and map these against our publishing agreements and funding sources. The data used for this macro-level analysis came from a number of sources. The AT2OA project team gathers bibliographic data on behalf of the 24 participating institutions from Web of Science (WoS) and Scopus, going back as far as 2015, which, after a thorough data cleansing and normalizing exercise, are enriched with information extracted from other sources. These sources range from DOAJ, Open APC, Crossref and Unpaywall and authorship types (e.g. corresponding author, co-author) are then established for each institution. At the time of writing this article, the most recent and complete AT2OA dataset available comprises articles published in 2018. In line with current APC funding policies, we narrowed the dataset down to research and review papers where at least one of the corresponding authors was affiliated with the University of Vienna.

We then had a closer look at the funding information provided in the articles. As we had anticipated, there is a significant need for Plan S compliant venues: FWF is mentioned in the funding acknowledgment fields of around 32% of our articles, while a further 2% mentions other Plan S funders as well (Figure 1). If we include papers with EU funding, around 40% of the articles with University of Vienna corresponding authors will need to satisfy Plan S rules, not to mention the requirements other funders may have.

![Figure 1. Share of articles resulting from Plan S funded research in 2018 at the University of Vienna](image)

Mapping exercise 2: Plan S-ready publishing venues

As part of the second mapping exercise, the status of each journal with relevant publications was assessed against a simplified version of the Plan S criteria: are these journals fully open access and listed in the DOAJ? Or are they part of one of the University’s transformative agreements? It should be noted that some journals listed in the DOAJ and thus included in this study will have more work to do than others to be fully Plan S compliant by 2021: approximately 77% of the University’s DOAJ-indexed OA articles were published in journals that offer CC BY licences to its authors, a key Plan S requirement. This does not include journals that accommodate grant holders as required by their funding body on a case-by-case
basis. Other areas, such as the waiver policy or author’s copyright, appear to have patchier coverage in our sample, 53% and 72% respectively. However, for the purpose of this macro-level analysis it was assumed that fully open access journals that are currently listed in the DOAJ will make any necessary adjustments required to be Plan S compliant by 2021, and that the University’s transformative agreements will also be brought in line with the new policies.

The results of this analysis are illustrated in Figure 2.

![Figure 2. Plan S-ready routes in 2020 – summary based on 2018 bibliographic data at the University of Vienna](image)

Nearly three-quarters (74.44%) of the University’s 2018 research and review papers appeared in either a fully open access journal or in a hybrid publication that is part of a transformative agreement. The remaining articles belong to one of the ‘long tail’ of nearly 200 publishers where there is no agreement in place or where they were published in one of the few journals that are excluded from the transformative agreements. It will be interesting to see how many of these publishers will opt for the Transformative Journal or the repository routes, the latter option already offered by some. The Journal Checker Tool, once available, will play a crucial role in providing an authoritative source for determining the status of each journal, as currently this task is somewhat challenging, even for OA practitioners.

**Mapping exercise 3: data in the University’s Current Research Information System (CRIS)**

While combining WoS and Scopus data yields a greater coverage than just relying on a single source, some fields are better represented than others in these databases. With the view to filling in some of these gaps, we turned to the University’s Current Research Information System, called ‘u:cris’, that researchers are required to keep up to date with their publications’ details. This is a particularly important database as it forms the basis of the institution’s ‘Intellectual Capital Report’ (‘Wissensbilanz’), which the University must submit by law each year to the Federal Ministry of Education, Science and Research, for its sector-wide performance monitoring process. Therefore, the University puts great emphasis on reminding the Faculty of their obligations to populate the u:cris database with details of their publications, and the purpose of the database is a driver for authors’ compliance with these requirements. As such, u:cris presents the most comprehensive picture of the University’s publishing output.
We looked at the publishing output of two faculties, the Faculty of Physics and the Faculty of Psychology and checked the journals in which faculty members most frequently publish (five articles or more in the last three years). A similar picture has emerged: with the new agreements, approximately 83% of the psychology articles examined are already published in Plan S-ready venues (based on our simplified set of requirements), whereas in physics, the current rate is around 68%. In the latter field, the American Physical Society (APS) offers a relatively liberal repository route, which nevertheless needs further changes to its copyright policies to be compliant. Should APS decide to go down this route, we could claim around 90% coverage.

Ongoing challenges

Setting aside discussions around the global relevance of cOAlition S, transformative agreements continue to gain in popularity, as evidenced by the growing number of agreements added to the Efficiency and Standards for Article Charges (ESAC) registry. As of 5 June 2020, ESAC lists over 100 agreements, spanning four continents and 18 countries, which cover content from 25 publishers. However, despite all the progress made to date, it is fair to say that it has not been plain sailing and we continue to encounter challenges along the way. Some of these challenges may be resolved over time by improvements in data reporting and by fine-tuning some of the technology used, others require greater structural changes. We have grouped these challenges under the following main headings:

1) Negotiating transformative agreements
2) Implementation, workflows and monitoring
3) Financing OA publishing.

Negotiating transformative agreements

As if negotiating subscription agreements were not difficult enough, once we add OA publishing into the mix a whole new level of complexity emerges. In addition to the ‘traditional’ building blocks of an agreement, such as previous holdings, archiving rights and usage, a number of other aspects must be considered, such as various Creative Commons licences and copyright, publishing patterns over the last few years, associated costs and funding information – and more. In our experience, article level data provided by publishers very rarely match those we source locally from the University’s CRIS system or what we find in bibliographic databases. As institutional publishing trends in particular play a deeply influential role in the overall structure and costs of an agreement, it is usually well worth investing the time and effort to disentangle any discrepancies and gain a reasonably good overview of the recent publishing output. The University and all AT2OA project participants have benefited in this regard from the project’s strong focus on bibliographic data.

However, even with good quality data, negotiations tend to be labour- and time-intensive, which in itself may act as a barrier for individual institutions or indeed, smaller publishing houses. The Transformative Agreement Toolkit, developed as part of the Society Publishers Accelerating Open Access and Plan S (SPA-OPS) project and launched in autumn 2019 by Information Power, provides a useful template to work with and will feed into Phase 2 of the AT2OA project (2021–24), where the plan is to negotiate agreements with smaller publishers and fully open access publishers on behalf of project partners.

Implementation, workflows and monitoring

A core, but often neglected feature of a successful transformative agreement is a well-thought-out workflow that successfully identifies eligible authors (in our case, these would be corresponding authors affiliated to the University of Vienna) and takes them through
the publishing process, resulting in OA articles. It is expected that such a workflow also offers a degree of adaptability to accommodate local needs. The ESAC guidelines\textsuperscript{27} form a very important point of reference for all parties and several articles have been published on the topic,\textsuperscript{28} including the authors’ previous article in 2018.\textsuperscript{29} While incorporating the requirements into negotiations and capturing them in licence agreements may well lengthen the overall licensing process, the reward is a tangible increase in OA publishing.

As is perhaps to be expected, the monitoring of these agreements brings its own challenges. While usage statistics continue to play an important role in the analysis of the reading patterns, the timely assessment of the publishing element, namely the share of OA articles published under the terms of the agreement, is heavily reliant on article-level metadata reports delivered by publishers. These often lack the required parameters or are inconsistent,\textsuperscript{30} turning monitoring into a very time-consuming exercise. The data provided by the AT2OA project team enables at least a retrospective analysis, while the collaborative spirit among our colleagues in Austria has already yielded some innovative results, such as an OA monitoring tool currently being developed by Patrick Danowski.\textsuperscript{31} There is certainly a gap to be filled here and we follow with interest the new technical solutions that make the implementation and monitoring of agreements easier.

**Financing OA publishing**

Financing OA publishing is possibly the biggest challenge we are all facing. It is expected that any transformative agreement in which the University participates will be cost neutral. What exactly ‘cost neutrality’ entails is often debatable. Depending on each individual publisher, it may be based on a combination of the University’s historic spend, previous publishing output and, in some cases, APCs paid to date. We have not tried to align the costs or the structure of the agreements with the publishing and read (PAR) fees negotiated, for example, in Germany,\textsuperscript{32} as each consortium and institution has its own publishing profile, budgetary constraints and strategic approach – what works for one country might not be feasible for others.

By bundling the reading and publishing fees into a single payment, the costs associated with publishing in hybrid journals can be quite reliably budgeted for and kept under control at least for the duration of a contract. However, this cannot be said of the fully open access publishing costs which are, for the time being, purely pay-as-you-publish based. Short of cancelling subscriptions to resources required for our users, we need to find ‘fresh money’ for funding gold OA (GOA) publishing, which, in keeping with international trends,\textsuperscript{33} is becoming ever more popular among our researchers. The ten journals in which the University’s authors publish most often include six GOA journals, with Scientific Reports leading the way.

**Where do we go from here?**

In the first few years the initial focus was on building up a critical mass with large and medium-sized publishers and with those open to testing innovative models, such as the Institute of Physics. More recently, and benefiting from the additional impetus provided by Plan S, we have turned our attention to smaller and fully OA publishers. The Library has assumed a leading role in negotiating local transformative agreements as well, each of which has the potential to be rolled out across the consortium in the coming years. We have recently signed agreements with Brill Publishing, the American Institute of Physics and Oxford University Press and we are exploring agreements with others, including several fully OA publishers.

At the same time, we are alarmed by the fact that our GOA publishing expenditure is growing at a higher rate than expected, with both fully OA publishers and those offering a mixture of hybrid and GOA journals. In order to mitigate the impact on our budget we have been pursuing all-inclusive agreements, whereby hybrid and GOA articles by the same publisher are integrated into a single arrangement. Thus far these efforts have yielded
mixed results, as most publishers appear to be keen to keep these revenue streams firmly separated. Nevertheless, we believe that we can develop a mechanism where the Library or the consortium can negotiate for a set number of OA articles with publishers working with a mixed business model, no matter what the status (GOA or hybrid) of the journal in which these papers are published and thus rein in the costs associated with OA publishing. We have yet to find a solution for containing the ever-increasing APC expenditure with ‘pure’ OA publishers, beyond capping the number of articles that can be funded by the Library.

Overall, as outlined above, researchers at the University are well served by the Institutional Repository and the various publishing arrangements. However, we are not under the illusion that we can offer compliant venues to all our researchers within the ambitious timelines set by cOAlition S. On the one hand, we do believe that in the medium term it is possible to transform the output of the majority of Austrian institutions’ research and make comprehensive OA publishing a reality. This is supported by the interim results of an AT2OA project study, which demonstrate that the share of OA articles has significantly increased across hybrid journals where there is an agreement in place. On the other hand, we are less optimistic about the global outlook, and, despite our best efforts, find it particularly challenging to engage with the ‘long tail’ of nearly 200 publishers without agreements, where a quarter of our publications appear.

Due to these uncertainties, we are not entirely sure how to best prepare for the post-2024 period, when cOAlition S funding will cease for hybrid OA publishing. For now, the most appropriate approach seems to be to accept that this is a dynamic field with changes occurring on a regular basis, where remaining flexible and seeking out new solutions wherever possible and reasonable is key to moving forward. Setting firm plans beyond the next few years is difficult in this context; in addition to the challenges described above we need to align our initiatives with the University’s strategic goals and financial planning. As much as we are committed to OA and have the track record to prove it, we, librarians employed by the University of Vienna, serve first and foremost our large and heterogeneous community of students and faculty. It is our duty to support their information and publishing needs to the best of our ability, within budget and without unduly interfering with how they conduct their research and publishing activities.

Abbreviations and Acronyms
A list of the abbreviations and acronyms used in this and other Insights articles can be accessed here – click on the URL below and then select the ‘full list of industry A&As’ link: [http://www.uksg.org/publications#aa](http://www.uksg.org/publications#aa).

Competing interests
The authors have declared no competing interests.

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