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## PATHWAYS TO OPEN ACCESS

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# PATHWAYS TO OPEN ACCESS

Approved  
27 February 2018

Prepared by  
the University of California Libraries

UNIVERSITY  
OF  
CALIFORNIA

# PATHWAYS TO OPEN ACCESS

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# INTRODUCTION

Pursuant to the University of California (UC) Council of University Librarian’s (CoUL)<sup>1</sup> 3 August 2017 charge, this *Pathways to OA Working Group*<sup>2</sup> has identified the current universe of Open Access (OA) approaches, and has analyzed the suite of strategies available for effectuating those approaches. Each approach described within this *Pathways* document offers unique and, in some cases, overlapping challenges, opportunities, and room for experimentation. The strategies examined here create space and freedom for the campuses to pursue both individualized and connected paths toward a large-scale transition to OA—though as we highlight below, collective action on implementing the strategies is likely to bear greater fruit. To help guide such a path forward, we identify possible next steps that each or all of the UC libraries can pursue to advance each approach.

## Definitions

In the Charge document, the terms “strategies” and “approaches” might be construed fluidly. For the sake of clarity, this *Pathways* document adopts the following definitions of “approach” and “strategy”:

- **Approaches** to OA mean underlying models or frameworks intended to effectuate OA. For instance, a “Green OA” approach connotes a model of OA based upon the submission to repositories of preprint or postprint versions of journal articles, or final prints following an embargo period if permitted by the publishers.
- **Strategies** to achieve approaches mean the specific actions or experiments that UC libraries can undertake in an effort to achieve a given approach. For example, for a Gold OA – APC-based approach, one strategy might be to negotiate transitional offsetting deals with hybrid journal publishers such that, in the period between hybrid publishing and full OA, the cost of university-affiliated authors’ APCs are offset against the overall subscription price that the library pays to a publisher. Another strategy might be to implement or manage a library fund to reimburse or directly pay APCs for university-affiliated authors. Accordingly, multiple strategies or actions may exist to accomplish any given approach—and university libraries can choose between various strategies.

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<sup>1</sup> CoUL members: Steven Mandeville-Gamble, UCR (Chair); M. Elizabeth Cowell, UCSC (Vice-Chair); Jeffrey MacKie-Mason, UCB; MacKenzie Smith, UCD; Lorelei Tanji, UCI; Virginia Steel, UCLA; Haipeng Li, UCM; Tammy Dearie, UCSD; Chris Shaffer, UCSF; Alan Grosenheider, UCSB; and Günter Waibel, CDL.

<sup>2</sup> Working Group members: Rachael Samberg, UCB (Chair); Michael Wolfe, UCD; Kerry Scott, UCSC; Anneliese Taylor, UCSF; Donald Barclay, UCM; Martha Hruska, UCSD; Jennifer Chan, UCLA; Ivy Anderson, CDL. Original *Pathways* document submitted to CoUL on 6 November 2017. This revised version submitted and subsequently endorsed on 27 February 2018.

# APPROACHES & STRATEGIES

For each approach to OA, we systematically analyze below:

- Nature of approach
- Prevalence and impact
- Strategies to achieve approach (including specific challenges and opportunities of each strategy)
- Systemic challenges
- Systemic opportunities

## Green OA

### Nature of Approach

Green open access is repository-based open access. Green OA models are agnostic about publisher open access behaviors, relying instead on institutions and authors to take steps to make otherwise toll-access works freely available in online repositories that may be (and often are) managed by institutions.<sup>3</sup> In essence, successful green open access requires: the right to share a given scholarly output, a copy of it, the motivation to share it, and a location for sharing it (i.e., a repository).

The transfer of a work's copyright from the author to the publisher has long been a common practice within academic publishing. Such transfers often relinquish some or all relevant rights governing the author's permission to post or reuse work. Without reservation of license rights, copyright transfers mean the author no longer retains the necessary rights to publicly share the final publication. Three major shifts have cleared the way for Green OA despite the challenge of copyright transfers. First, many publishers now provide authors with permission to self archive.<sup>4</sup> Second, institutional policies preemptively (but, typically, waivably) secure the rights to institutions to host faculty work notwithstanding the language of author publication agreements. Finally, funder mandates have been largely successful at either changing publisher or author behaviors to realize Green OA availability regardless of the absence of other applicable policies.

Green OA repositories may be maintained and operated by various entities, including funders, institutions, consortia, business, and non-profits. Many repositories observe certain access and preservation standards, such as those supported by [OpenDOAR](#), which include recommendations on retention period, functional preservation, file preservation, withdrawal policy, withdrawn items, version control, and closure policy. These policies are set by the maintaining authority for the repository and thus vary.

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<sup>3</sup> Publishers do sometimes offer automated deposit of articles into Green OA repositories, and might be expected to do so more often in the future. Nevertheless, these behaviors typically follow institutional or author action, with the leading driver being funder mandates.

<sup>4</sup> [SHERPA/RoMEO](#), which aggregates publisher policies on publication sharing, provides that 80% of the 2422 publishers currently recorded were found to formally allow Green OA. Provisional and special policy exceptions may increase this number slightly.

Most Green OA efforts have focused on journal literature. While nothing about the basic mechanism would appear to preclude the inclusion of monographs, in practice monographs have not been core to Green OA efforts. There are any number of substantial roadblocks that appear to preclude Green OA as a transformative force in monograph publishing: there do not appear to be existing cultural norms among authors buttressing the practice; university presses and faculty alike would be extremely unlikely to tolerate the passage of OA policies granting institutions rights to faculty monographs; and the “author’s final version” of a monograph manuscript might not be an acceptable alternative for readers.

The Green OA approach has a number of benefits that cut across strategies, including:

*Distributed costs and infrastructure.* As a collective information resource, the thousands of Green OA archives around the world have spread the costs of preserving content among many institutions and organizations rather than leaving a few to shoulder the burden of the many. And assuming Green OA repositories follow standard metadata practices, they work with or on top of other scholarly communications infrastructure. Rather than becoming siloed, the content of Green OA repositories can be discovered via any number of search interfaces and delivery of content is agnostic.

*The repository’s potential as a data source.* The collection and centralization of bodies of work in Green OA repositories create opportunities to utilize the repositories as data sources. Green OA repositories could be made available for data mining by academics conducting research in their fields of study without the payment of subscription costs.

*Author equity.* For the author, Green OA is a costless option for making research publicly available, perhaps making it a more equitable approach to OA for authors than those contingent on the author’s (or the author’s institution’s) ability to pay. Nevertheless, author equity concerns persist even in the green model, as not all green-compatible, toll-access journals are run without author fees (typically in the form of “page charges”).

*Sustainability.* Green OA, built alongside the legacy publishing system, has the virtue of being, in its more modestly funded versions, at least as financially sustainable as the status quo. Moreover, to the extent publisher market power depends on exclusive control of access to the literature, a sufficiently robust Green OA environment might be expected to lower the costs of the legacy system.

## **Prevalence & Impact**

Green OA is now firmly rooted in the scholarly communication landscape. Green OA sharing is a routine and expected author behavior in many disciplines, an enforced requirement of an increasing number of funders, and widely encouraged through institutional open access policies like UC’s Senate and Presidential policies. Nevertheless, overall rates of Green OA availability vary between disciplines and institutions and, taken as a whole, Green OA provides access to a [relatively small minority of the literature](#). According to a [July 2016 article published in the Chronicle of Higher Education](#), only 25% of

UC faculty are depositing articles in eScholarship. Low participation rates and compliance rates bear on the transformative potential of the approach, but they do not necessarily correlate precisely with its impact, [as the California Digital Library's \(CDL\) Catherine Mitchell has argued](#). In spite of the large number of Green OA repositories, Green OA is being outperformed by reference management software sites and academic social networks (e.g. Mendeley, Academia.edu, ResearchGate).

Green OA has been taken up by the Federal government with somewhat mixed results. The release of the [White House Office of Science and Technology Policy Memorandum](#) in February of 2013 directed Federal agencies with more than \$100M in R&D expenditures to develop plans to make the published results of federally funded research freely available to the public within one year of publication. Researchers receiving federal grant funding from these agencies therefore had to comply with these requirements to maintain funding. It should be noted that the National Institutes of Health (NIH) has [required funding recipients](#) share published research in its PubMed Central repository since January of 2008; voluntary submission into PubMed Central began in 2005. Despite these advances, legislation designed to root public access requirements in law has [repeatedly stalled in Congress](#).

Looking forward, Green OA could potentially reach a point where a sufficient amount of the literature is lawfully available in green repositories to be considered transformative. And the existence of sufficiently significant Green OA repositories could provide bargaining power for libraries or institutions pursuing other approaches to open access. For instance, resources that formerly fed subscriptions could support and enhance Green OA repositories, including funding Green OA entities that perform publication services (see, e.g., the discussion of Scholar-owned OA, which appears as *Universal Strategy #1, infra*). Or, similarly, the threat of such a movement might help persuade publishers to transition journals to Gold OA approaches.

## Strategies

Green OA operates on the following strategies:

### 1. Creation of institutional repositories

The institution (typically a college or university) offers a repository platform for the use of its affiliates. This repository may be a locally developed platform (e.g. UC eScholarship), open-source software (e.g., DSpace), or it may be a commercially available platform (e.g., bepress).

The provision of an institutional platform is now de rigueur for modern research universities.<sup>5</sup> It is the most basic step toward Green OA for a given campus, and has a great deal of added value for institutional actors beyond simply the provision of free access to the public. For instance, institutional

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<sup>5</sup> The [Directory of Open Access Repositories](#) counts 380 institutional repositories in the United States, and almost 3,000 worldwide.

repositories enable institutional researchers seeking information about research interests and productivity of their campuses, making it easier and less costly for an institution to “know itself.” Similarly, the creation of Green OA repositories has created new opportunities for institutions to promote their brand names around the world. Whereas thirty years ago a university might brag about the number of books on the shelves of its libraries, today the size of its institutional repository has become a point of pride. Making the connection between the institutional repository and the institution’s brand name could be used as a way of garnering additional institutional support for the repository.

Mere provision of a repository, while a necessary enabling step for institution-driven OA movements, it is far from sufficient. While a repository alone provides a location for publisher-policy-supported Green OA to take place, it leaves open the question of securing the necessary rights, a copy of the work, and participant motivation. In addition to implementing OA policies (discussed below) the repository can be supported by negotiating self-archiving rights directly with publishers as part of the license negotiation process.<sup>6</sup>

Meanwhile, repository maintenance and user support impose significant costs. Besides the costs of hardware, software, and the technical staff required to keep repositories up-to-date and functioning, there are the costs of outreach (informing scholarly researchers about the existence of the repository, deposit protocols, licensing options, copyright matters, etc.) as well as the cumulative cost of the author and staff time involved in depositing content.

It remains an open question as to whether it is possible for libraries to sustainably spend their way to full participation, particularly without resolving some of the other fundamental challenges to the approach. Investments in faculty support, as with Symplectic Elements, have driven measurable results, but at significant cost and without promising full participation.

## **2. Establishment of institutional policies**

The institution implements a policy encouraging the submission of publication content to the local/institutional repository, ideally backstopped by a license allowing the university to host the works at issue (i.e., a “Harvard-style” OA policy, such as the UC OA policies). Many universities have expressed support for Green OA through the adoption of institutional open access policies and mandates. To date, more than 650 institutional policies have been registered on the [ROARMAP](https://roarmap.org/), an international registry of research institutions and research funders that require or request their researchers to provide open access to their peer-reviewed research article output by depositing it in an open access repository.

A Harvard-style policy is a highly desirable augmentation to the approach as it enlarges the scope of the literature available for inclusion and, in theory, simplifies the rules around what may be posted and

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<sup>6</sup> The California Digital Library has negotiated several such agreements, discussed at <https://osc.universityofcalifornia.edu/open-access-policy/publisher-communications/>.



when. In practice, however, the conflict between the rules of when and how works can be shared under a Harvard-style policy and how they can be shared pursuant to publisher requirements remains a source of confusion. The purpose of the university license under a Harvard-style policy is to obviate the need to rely on, or indeed, comply with publisher policies. Nevertheless, authors often default to the most restrictive stated practice, even in the face of institutional OA policies. Fully realizing the implementation of a Harvard-style policy requires overcoming and clarifying the mixed messaging authors receive regarding their right to post.

And, even with a strong OA policy, authors will be limited as to what they may post pursuant to the policy. Simply put, author uncertainty regarding rights and versioning leads to the posting of final publisher versions that often are not licensed for sharing in repositories. Posted items might, depending on the repository, be vetted for subject matter relevance and scholarly content, but rights determinations are typically left (properly<sup>7</sup>) with the posting authors. As a result, many authors post published versions of articles despite policies that might not allow such versions. Or authors might post versions that predate the relevant policies providing the necessary rights, or otherwise lie outside a given policy's scope.

Most repositories manage the imperfect nature of repository collections by adopting “notice and takedown” procedures in accordance with (or, where not applicable, mirroring) those set out in the [Digital Millennium Copyright Act](#). These publisher-friendly policies largely require that repository managers remove hosted articles on receipt of a publisher's claim that they are unlawfully posted. While the potential damage to the completeness of a Green OA repository can be mitigated by carefully implemented takedown procedures, responses in this regard will be highly variable across institutions. The University of California can afford a [thorough, careful, individualized review](#) of takedown notices addressed at eScholarship in part because we receive so few. In commercial fields, [bulk takedown requests](#) can identify tens of thousands of items, and [commercial academic sharing sites do receive these requests at volume](#). There is a very real risk that imperfectly assembled Green OA collections (as when they are built by author submissions) could be compromised by future mass takedown activities.

### **3. Creation of discipline-based and subject-matter repositories**

A repository in which scholars working in a given field may deposit their work. These might be created by funders, institutions, societies, commercial providers, or other third parties. Examples include discipline-based repositories (e.g. arXiv) or funder-managed repositories (e.g. PubMed Central).

Certain disciplines have long-standing support for the practice of archiving article manuscripts in repositories. Researchers in the disciplines of mathematics, physics, astronomy, computer science, quantitative biology, statistics, and quantitative finance commonly post to the preprint repository arXiv

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<sup>7</sup> While authors make mistakes about rights when participating, institutions are not better positioned to vet the rights status of postings. First, and most importantly, institutions are not privy to the relevant details of the contractual arrangements between authors and their publishers. But it should also be noted that a rights review approach would be difficult, if not impossible, to scale, or would sacrifice quantity in favor of quality.

with deposits rising steadily since the platform's founding in 1991. [Monthly submissions to arXiv](#) now regularly exceed 10,000. Many papers in economics and, to a lesser degree, law are now first published as preprints on SSRN and/or other paper distribution networks such as Research Papers in Economics (RePEc) or bepress before submission to a journal.

Disciplinary repositories, where widely adopted, illustrate what a successful Green OA transformation might look like and provide insight into what facilitates broad participation. While response to institutional repositories has been tepid, and bolstering participation can be costly, certain fields have opted, organically, to participate overwhelmingly in disciplinary repositories, helping drive the success of related, non-Green OA strategies such as the SCOAP<sub>3</sub> initiative.

## **Challenges**

### **1. Barriers to posting**

Authors face a varied set of barriers to deposit that hamper participation rates and, ultimately, the transformativeness of Green OA. Authors' reasons for not depositing their work include: opposition or indifference to OA; unfamiliarity or discomfort with OA; the lack of time for deposit, or the necessary support to do so properly; and the lack of meaningful incentives rewarding deposit or penalizing non-participation. And even where authors participate, the process and its demands can be complicated enough to lead to the posting of versions not covered by the relevant policies or licenses. So long as Green OA relies on voluntary author participation, observed author indifference, confusion, and inertia will serve to prevent full participation. Indeed, even when publication management software layers, like Symplectic Elements, are added to repository services to facilitate deposit, author uptake remains limited due to the burdens imposed by even the most streamlined and accurate claim-and-upload systems.

### **2. Dependence on publisher forbearance**

Green OA as practiced today depends in large part on publisher forbearance from enforcing posting policies. Except where green availability is funder mandated, policies facilitating the practice are generally soft: Harvard-style institutional policies are waivable and publisher sharing policies are gratuitous, variable, and shifting—for all practical purposes, ephemeral. Even when these arrangements hold, imperfect execution leaves them open to publisher-driven takedown efforts. While recent trends have favored Green OA availability, these are dependent on the continued cooperation of publishers, which might be less forthcoming if, for instance, the model were successful in reducing publisher revenues.

### **3. Versioning complications**

Publisher self-archiving policies, funder mandates, and institutional open access policies typically limit the version of the manuscript that can be posted to a Green OA repository. Although the exact

terminology varies, manuscript versions can be separated into preprint (where the work that has not been peer reviewed), postprint (where the work has been peer reviewed), and published versions (the final, copyedited version of record). Of these, it is most common for the postprint, or author's final version, to be acceptable for Green OA sharing.

The creation of multiple versions of the same document can cause confusion and uncertainty for authors asked to undertake deposits. Many authors (perhaps observing that there may be little to no change between the earlier and published versions<sup>8</sup>), may not perceive there to be a meaningful distinction between the various versions. Others lose or misplace their final versions, and look to the published version for compliance with applicable policies or mandates. There is not an easy way of measuring compliance with these policies nor have we identified any rigorous third-party review of existing compliance figures, but anecdotal experience with eScholarship suggests that a substantial percentage of archived items are the “wrong” version. While these mistakes may be pervasive, they have only very rarely resulted in the receipt of takedown notices, [as earlier this year with the American Psychological Association](#) (which even then targeted only very few articles).

#### 4. Competing services

Any individual author looking to post articles online will likely be faced with the choice of several competing options, including institutional repositories, subject-matter repositories, and academic social networks. Some authors may resist depositing their articles in Green OA repositories as they see this duplication as “download dilution,” or may focus only on a single repository of choice in order to bolster potentially valuable metrics—most typically a disciplinary or subject-matter repository. Author behavior follows the needs of individuals and their cultures and fields. Where disciplines have a culture of repository usage, there may be very powerful network effects that draw authors toward the exclusive use of preferred repositories. Where a Green OA strategy relies on author participation in a particular repository or kind of repository (as opposed to *any* repository) these author behaviors will create a powerful obstacle.

#### 5. Duplication

The coexistence of many Green OA repositories makes likely the duplication of hosted articles, particularly with co-authored articles, perhaps in different versions. It remains an open question as to whether such duplication represents an unsustainable expense or an *ad hoc* LOCKSS approach to preservation. A study of the extent of duplication among Green OA repositories may be in order.

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<sup>8</sup> [As noted in this comparison between arXiv preprints and the corresponding published versions.](#)

## 6. Deleterious effects of competing with toll-access versions

Green OA versions typically exist alongside toll-access versions of the very same articles. These toll-access versions have significant advantages in discoverability and are largely viewed as more authoritative. Open access versions that are not findable, or not considered reliable by would-be readers, would fail to realize the full promise of OA. While discoverability issues are real, they appear overcomeable through observing best practices in repository management and through the availability of free discovery tools. There are an increasing number of discovery services and portals that help facilitate the discovery of Green OA versions.<sup>9</sup>

## 7. Moving beyond gratis

Green OA often makes versions available for free public access, but typically without the use of a public license that would enable reuse (as is considered necessary for “[libre OA](#)”). The publisher sharing policies and institutional open access policies that reserve the rights necessary to make Green OA function consistently fall short of providing for the application of public licenses, leaving the question of how to facilitate and advance a more libre-friendly implementation of Green OA unresolved.

## 8. Embargoes

Green OA may be subject to publisher-imposed embargoes where access to the archived version of the article in a digital repository is restricted until the embargo period expires. [Typical embargo periods range from 6 to 24 months, though some publishers may require an embargo of up to 48 months. While supporters of embargoes argue that they should exist to ensure profitability for commercial publishers, Peter Suber writes that the evidence fails to justify demands for longer embargoes.](#) These embargoes conflict with the ideal that OA scholarship is accessible immediately upon publication. Though institutions with Harvard-style policies will typically still have the right to immediately post ostensibly embargoed articles, many authors will nevertheless choose to comply with publisher policy on the point, whether out of desire to honor contractual commitments or out of genuine confusion over the conflicting policies.

## 9. Applicability to legacy literature

While Green OA repositories could easily hold legacy literature predating contemporary mandates and policies, the approach faces substantial roadblocks when applied retrospectively. First and foremost, older literature is simply less likely to be eligible for the arrangements that allow authors to lawfully post copies in repositories—most particularly when the practice depends on an institutional policy. Similarly, given that the effort required to comply with policies prospectively appears to forestall author participation with new

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<sup>9</sup> Google scholar is particularly important and commonly used example. There are also now browser extensions, like Unpaywall and the Open Access Button, that can highlight the Green OA availability of titles for users encountering paywalls.

articles, the promise of sustained enthusiasm for depositing legacy materials is likely to be modest at best. One notable (if small) exception might be in the monograph literature, where authors are better positioned to regain or negotiate for the necessary rights to share digital copies in repositories.<sup>10</sup>

## **10. Third-party complications**

Dependence on many third-party services poses a threat to the long-term reliability of individual repositories. Transactions such as the buyouts of SSRN and bepress illustrate that repositories and repository service providers are not immune from the consolidation characteristic of other parts of the scholarly communication ecosystem. Moreover, no repository has a guarantee of continuing service, nor do service providers have any obligation to account for the continuation of service, particularly after a winding up or dissolution. Even university- or government-controlled Green OA repositories bear this risk, and their continued availability is subject to political circumstances the academy cannot control.

## **Opportunities**

There are several, potentially powerful ways we might look to enhance and advance Green OA strategies:

### **1. Automation**

We have already implemented technical infrastructure to further automate and facilitate the submission process to eScholarship through Symplectic Elements implementation, as have other institutions such as MIT's automation process with their DSpace installation. A limited number of institutions have taken the additional step of integrating these automated processes with the faculty activity recording mechanisms, resulting in higher rates of submission to the institutional repository as a result. (Faculty are drawn to participate in deposits not only where the process is easy, but also where it feeds other important reporting mechanisms like promotion and tenure, or public-facing profile pages).

More ambitiously, we might look for more possibilities to make deposit a publisher-mediated component of the publishing workflow. Such automation could potentially improve both participation rates and compliance rates, by removing unmotivated authors from the equation along with confusion about rights and versioning. It goes without saying that any service of this nature could be expected to come at a cost and/or be subject to an embargo.

### **2. Pursuing rights to the published version**

The ability to share the published version would obviate the most stubborn obstacles impeding the growth of institution-driven Green OA efforts. If authors and/or institutions had the right to share the published version, sourcing obstacles would be eliminated, efforts to automate or remove the author

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<sup>10</sup> [The Authors Alliance](#), for instance, encourages and supports this kind of work.

from the deposit process (as above) could be furthered, and repositories could have the legal certainty necessary to stand behind their collections. Institutional capacity to unilaterally achieve this objective is doubtful (arguably, current policies might be sufficient to achieve this result, but substantial uncertainty has counseled the University away from taking implementing action). In the absence of unilateral options, the best opportunity to achieve published-version ready Green OA is through subscription negotiations. It is important to note that it is unlikely that any such agreement would be gratuitous, and institutions might expect to have to pay for the privilege and/or accept limitations such as embargoes. While such a negotiated arrangement loses some of the appeal of Green OA (that is, that it can be achieved *without* active publisher involvement), the potential reward reflects the cost. To make this work across the system, any negotiated outcome on the score should be made public and widely trumpeted to encourage similar outcomes for peer negotiations.

## Gold OA

This report bisects the Gold OA approach into: 1. Article- or book processing charge-based Gold OA (APC-based / BPC-based) and 2. Non-APC/BPC-based approaches. We have discarded the common term “Platinum OA” (meaning: free to authors, free to readers) because it fails to address whether fees are levied to *someone* (author or not) on a *per-publication* basis.

Even when rejecting the platinum moniker, characterization of publishers or particular journals as APC-based or not remains both challenging and artificial. For instance, some publishers that are typically perceived to be Non-APC-based (like Online Library of the Humanities, SciELO, and eScholarship), also publish journals that charge APCs. Delineating what constitutes an “APC” or “BPC” can also prove problematic: Does the definition depend on whether an author is actually charged, or merely on whether per-publication charges are levied to someone or something?

- For example, Knowledge Unlatched (KU) is a cross-institution pooled fund supporting OA book publication; there are per-book costs for each unlatched item, but these are not passed on to authors and are instead handled by institutions. Does the fact that KU assesses institutional contributions based on the number of books KU is “liberating” into OA mean that it is, effectively, charging a BPC? We determined that it does not because the fee is set based on a collected group of materials, though we could easily have concluded otherwise.
- Similarly, institutional membership models like that of PeerJ are fully paid-up by institutions who, through such membership, effectively preclude individual article charges from being applied to institution-based authors. So, do we classify PeerJ as levying APCs if the entity paying them effectively does so collectively via membership? Because non-members must pay APCs, we believe the answer to this is “yes.”

Complicating matters further: Publisher models may represent a hybrid of APC-and non-APC

approaches. SCOAP<sub>3</sub>, for example, does not charge authors and, while per-article charges are levied, the total payments to each publisher are capped, at which point per-article fees no longer apply. That is: SCOAP<sub>3</sub> is APC-based up to a point.

Thus, while we have generally divided Gold OA into APC-based and Non-APC-based approaches, it is also essential to keep in mind that the Gold OA space as a result does not lend itself to simple categorization. There is, in reality, a continuum of Gold OA approaches, with some publishers, initiatives, and platforms bearing characteristics of both APC and non-APC models. We have accordingly endeavored to identify where APCs do and do not exist, and to highlight areas lending themselves to various interpretations.

## **Gold OA, APC-Based**

### **Nature of approach**

In a Gold OA APC-based model, the publisher charges an author (or another entity on their behalf) a fee (article processing charge, or APC) once the author's journal article is accepted for publication. There is significant variation in the amount charged for APCs—from a few hundred to several thousand dollars per article, often with STEM journals falling in the upper range. This charge opens the article to all readers on the publisher's platform, sometimes (and preferably) under a Creative Commons or similar license that allows for broad reuse rights.

In theory, the combined APC payments for all OA articles cover the journal's publication costs—either in full, or just for the percentage of articles published OA in those journals. That distinction is important because journals may be either fully open access—i.e., all content is published OA—or hybrid OA—i.e., publisher has a mix of paywalled, subscription content, and open articles paid for on an individual basis by authors. In the hybrid approach, authors are given the option at the time of manuscript acceptance to pay an APC to make their article open.

As with journal articles, some publishers of open access books have a BPC payable by authors (e.g. [Nature](#), [Springer](#), and academic presses like [UC Press](#)), and other presses such as [Open Book Publishers](#) give authors an option of paying. BPCs are much higher than APCs on average, since an individual book costs more than an article to produce (e.g., \$7,500 for books on UC Press's [Luminos](#) platform; the [AAU/ARL/AAUP Open Access Monograph Initiative](#) is modeled on a \$15,000 BPC per title.).

In the journal realm, total charges based on an all-APC OA model (based on the existing market rate of APCs) would be higher for highly prolific institutions as compared to their current subscription spends. Conversely, institutions with a lower author output could see their costs reduced with an all-APC approach when compared with subscription payments. The [Pay-it-Forward project](#) found this to be true for several University of California campuses. Offsetting agreements, a strategy discussed below, is one way to navigate the transitional period and ensure that a total APC spend would not be higher than current

subscription payments. Absent a lock-in of APC prices through an offsetting agreement, publishers could increase the APCs they charge to compensate for “lost” subscriptions.

## Prevalence & Impact

Though over 70% of OA journals indexed in the Directory of OA Journals (DOAJ) do not charge APCs, the majority (57%) of *published OA articles* (not including articles from hybrid journals) are APC-based.<sup>11,12,13</sup> To support campus authors publishing in APC-journals, many libraries have set up OA subvention funds to help authors at their institutions cover APCs.<sup>14</sup> These funds have had varying success, as they can quickly run out of funding and have to be cancelled or put on hold. Currently, they are equipped only to fund a small percentage of a large institution’s OA published articles, so clearly many scholars who are choosing OA (particularly in hybrid journals, which the subvention funds typically do not cover) are finding other means to pay the APC. Nevertheless, the funds are an important resource for scholars who wish to publish OA but lack means to pay all or most of their APCs.

APC-based Gold OA is very popular in the basic and biomedical sciences, where many researchers have grant funding that can cover publishing costs (and, often, funding policies that require immediate OA publication). It is less established in the social sciences and even less so in the humanities, due to lower research budgets and cultural norms that have been slower to embrace OA, resulting in fewer OA publishing options for affected fields. Many STEM OA publishers have been running on an APC model for quite some time. Publishers BioMed Central and PLOS initiated their APC-based framework in the early 2000s, which proved to be very popular with the disciplines they cater to (such as biology, medicine, and in the case of PLOS, computational science). Early on, the major publishing houses maligned OA and the APC model, though, following the interest of scholars and requirements of funders, they have since taken to the model and started up their own OA journals and introduced hybrid OA options. It is now more likely than not that a given subscription journal has an APC-based OA option.

As major for-profit publishers have joined the APC movement and profited from both fully OA and hybrid OA journals, within the library community there has been a significant backlash against flipping subscription journals to an APC model.<sup>15</sup> The impetus for the opposition is threefold:

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<sup>11</sup> Based on analysis of Walt Crawford’s work in *The Scholarly Kitchen*, August 2015, <https://scholarlykitchen.sspnet.org/2015/08/26/do-most-oa-journals-not-charge-an-apc-sort-of-it-depends/>

<sup>12</sup> It is also important to note that some journals that charge APCs, such as eLife, are partially subsidized by their funders. eLife started charging an \$2500 APC in 2017, compared to its ~\$4000 per article costs (<https://elifesciences.org/inside-elife/b6365b76/setting-a-fee-for-publication>).

<sup>13</sup> Impact Story’s oaDOI tool, released in late 2016 (<http://blog.impactstory.org/introducing-oadoi/>), makes it possible to capture hybrid OA publications, but to date there has been no comprehensive analysis of hybrid percentage of published articles.

<sup>14</sup> For an overview of fund prevalence and implementation, see: SPARC’s Funds in Action section at <https://sparcopen.org/our-work/oa-funds/>, Compact for Open-Access Funding Equity, <http://www.oacompact.org/signatories/>, and Open Access Directory’s OA Publication Funds listing, [http://oad.simmons.edu/oadwiki/OA\\_publication\\_funds](http://oad.simmons.edu/oadwiki/OA_publication_funds).

<sup>15</sup> Examples include Ginny Steel’s open letter about the OA2020 initiative, [https://www.library.ucla.edu/sites/default/files/Ginny-Steel\\_open-letter\\_OA2020-PIF\\_October-2016\\_o.pdf](https://www.library.ucla.edu/sites/default/files/Ginny-Steel_open-letter_OA2020-PIF_October-2016_o.pdf), and Kevin Smith’s I/O post <https://intheopen.net/2017/04/what-are-the-next-steps-for-open-access/>



1. APCs are seen as further propping up a commercial publishing industry that profits off of the free labor of academics;
2. APCs are blamed for the rise of ‘predatory’ open access journals; and
3. APCs may put low-income countries and scholars at a disadvantage, creating the risk of excluding those individuals from scholarly publishing.

Others in the library field have responded to these commentaries with countervailing economic points, arguing that in a system where the overall flow of research funds gives authors “skin in the game” to make publishing decisions, competition among publishers—and among APCs—will increase, overall driving down the individual price of APCs, potentially saving libraries money long term.<sup>16</sup>

Many new publishers have emerged in the last ten years who leverage Gold OA to capitalize on the ‘publish or perish’ imperative in academia. Unfortunately, a number of these new publishers have fraudulent practices such as not performing true scientific peer review or being dishonest about their editorial board members and business practices. These publishers, often referred to as “predatory,” have tarnished the reputation of OA in the eyes of many academics<sup>17</sup>, and have soured many librarians on the idea of the APC model for achieving widespread OA.

Predatory APC-based OA aside, the APC approach to open access has proven to be most uniformly popular in European countries, in particular the United Kingdom, the Netherlands, Germany, and Sweden. These countries are relatively small compared to the United States and have highly centralized research funding structures, making it easier to advance country-wide strategies based on APC payments for scholarly articles (though these are by no means the only approaches these countries have embraced).<sup>18</sup> There is not a lot of research to date into what an APC model would look like in the Global South and how it would impact researchers in those regions. The University of California, Davis and the California Digital Library are exploring a follow-up to their [Pay-it-Forward](#) project, to investigate this important question. Some publishers already charge a lower APC (or waive it altogether) for authors from selected countries or those who claim they lack funds, and it is likely this tiered APC model will expand as more journals opt for an APC business model.

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<sup>16</sup> See Jeff MacKie-Mason’s blog posts: [Supporting OA2020: changing the journal funding model to pre-payment doesn’t increase publisher market power](#), [Economic thoughts about “gold” open access](#), and [Authors have the power, let them use it: rebuttal to David Shulenger](#); and several comments on Kevin Smith’s I/O post above.

<sup>17</sup> As of 2014 there were 8,000 active OA journals classified as predatory through Jeffrey Beall’s now defunct list, which had published over 420,000 articles. Different studies have found different results about the concentration of authors from the Global South and from the West; Shen and Bjork’s sampling found authorship to be overwhelmingly Indian, Asian and African; whereas Moher’s 2017 study found that the U.S. ranked second after India as the country with the highest number of contributions to the predatory OA journals that were sampled#. Difficulty getting published in Western journals is cited by Shen’s research as one of the reasons Nigerian researchers chose to publish in predatory OA journals. See [Predatory’ open access: a longitudinal study of article volumes and market characteristics](#), *BMC Medicine* (2015), by Cenyu Shen and Bo-Christer Björk.

<sup>18</sup> It is also important to note that, taken as a whole, European publishing output exceeds that of the United States. <https://www.nsf.gov/statistics/2016/nsb20161/#/> (see especially figure 5-24).

## Strategies

It must be noted that APC-based Gold OA strategies require a coordinated approach in order to advance OA on a large scale. Currently there is no way to track and manage OA payments to publishers at a distributed level, hampering attempts to get better pricing based on economies of scale, or to get subscription payment reductions based on the double-dipping effect of hybrid OA. A collective approach--at least across the UCs--would enable better institution-wide accounting.

Despite potential challenges in creating such an infrastructure, a globally-coordinated approach to Gold OA flipping has the potential to significantly accelerate the transition to open access by converting a large segment, and eventually all, of a publisher's or discipline's output, rendering continued subscription payments unnecessary. SCOAP<sub>3</sub> has accomplished this for a portion of the High-Energy Physics literature, and global collaboration via offsetting (discussed below) may hold similar promise. Regional collaboration is already underway in initiatives such as Germany's Projekt Deal (discussed further below in "Universal Strategies,") but their progress is hampered by the lack of support for this approach within the US and other countries with a significant research profile and subscription portfolio. The OA2020 initiative is attempting to build such consensus worldwide. While coordination of this type is not limited to APC-based strategies, offsetting offers an approach that marries collective purpose and individual action in a way that may be more practicable than a more structured global collaboration such as SCOAP<sub>3</sub>.

With the potential impact of collective action in mind, we considered six key APC-based strategies:

### **1. Authors pay directly, out of grant, departmental, or discretionary professional funds**

In this currently dominant APC strategy, authors fold publication costs into their existing workflow: Authors have complete discretion over the use of their funds towards paying APCs for journals they submit their work to. The APCs might be discounted due to: 1. library/consortium negotiated contracts with publishers for subscription content (e.g. Taylor & Francis), or 2. library/consortium memberships with open access publishers (e.g. BMC, MDPI).

There are inherent challenges with tracking and accounting for the APCs, because payments to publishers are decentralized and therefore difficult to ascertain at the institutional level. Those who do not have awards or whose awards have run out or are insufficient cannot afford high APC costs. Double-dipping, whereby hybrid OA APCs are collected by publishers on top of institutional subscription payments, remains unchecked. Having library-negotiated APC discounts adds to the burden of negotiating contracts with publishers and membership-based discounts add expenses to libraries' collections budgets.

On the other hand, a key opportunity or reward from authors paying directly is that they become part of

the decision-making process since they see the costs to publish OA and select the journal accordingly. As funding streams shift to give authors even greater roles in managing publishing costs and payments, this could increase competition among publishers as to the amount of APC charged. In that event, author-managed payments could help regain balance in scholarly publishing.

## 2. APCs are paid on authors' behalf through a centralized fund pool

There are three iterations of this strategy:

- a. *Funders pool resources to pay APCs for all awardees (e.g. [RCUK](#), [Wellcome Trust](#), [Gates Foundation](#)).*

In the case of RCUK and Wellcome Trust, funding for OA is distributed to the institutes and research universities where the researchers are employed, and researchers' institutions pay APCs to publishers. Infrastructure is established at the institution to support this workflow, and third party systems have been developed to support these workflows, e.g. [Open Access Key](#) and [CCC's RightsLink](#). The Gates Foundation pays APCs to the publishers for their awardees. Of note, these three funding agencies all support Gold OA policies for their awardees, though immediate Green OA is also acceptable.

This model is not highly prevalent internationally, though a large number of grant funders do allow OA publication charges to be covered as part of the award. The RCUK/Wellcome approach has been criticized for being too costly and for increasing the profits of already successful commercial publishers as a result of [double-dipping](#), since the funds cover OA articles in hybrid OA journals.

The challenges of this arrangement include the need for infrastructure to support a centralized APC payment mechanism, authors being dissociated with the costs of publishing, and the risk of furthering double-dipping through payments to hybrid OA journals. In these arrangements, publication charges reduce funding available for conducting research, though publication costs are a small fraction of overall awards. The overall transformativeness of this approach is further limited because not all research is grant-funded, meaning the reach of such payments is not likely to support all of scholarly publishing.

The opportunities of such a strategy include authors being shielded from administrative tasks related to APC payment. Many people believe that publication costs are part of the costs of doing research and, therefore, placing funding agencies at the center of responsibility is fitting.

- b. *Institution or library offers subvention funds.*

University, departments, and/or library pool funds to pay OA APCs or BPCs on a per-publication basis. These funds operate on a first come, first served basis, and typically provide funding to a limited number of awardees or publications per awardee in a given year. Those set up by libraries

often have a per-article cost cap (e.g. \$2,500 for UCB's BRIL fund), and will not cover APCs for hybrid OA journals. Some also prohibit researchers with grant funds from applying, though often this is a self-reporting step by applicants. They are quite popular amongst libraries, and in some cases the funding comes from another source such as a faculty body or endowment, but the fund itself is managed by the academy's library.

OA funds bear challenges and risks. They supplement or detract from paywalled collections expenditures but are too small to completely replace them. A significant challenge with supporting these funds includes finding the resources in library budgets which are already strained due to collection costs (though if and as subscriptions are phased out in an "all APC world", the original subscription spend resources become available). Currently, the sourcing for APC funds is limited but also in high demand, funds are wont to run out and then have to be shut down or paused until more funds become available. As APCs continue to rise but library budgets remain flat, less money may free up to meet publishing output demands (again, unless subscription spends can be repurposed as journals transition to APCs). Under present constraints, these factors combine to make APC funds an unreliable resource for those who need funds in order to publish. Given that most UC campuses' APC funds support only fully OA publications, this strategy also falls short of putting enough pressure on publishers of hybrid journals to cease double-dipping and make a full transition—limiting APC funds' overall transformative potential unless the majority of authors decide they will publish only in fully OA journals for which APC funds are available.

Subvention funds also have positives. They present an opportunity for authors who want to give OA a try the chance to do so without cost or with mitigated costs. Funds run by libraries allow for engagement between scholars and librarians around scholarly communication issues. These funds also provide opportunities for institutions to experiment with centralized funding for APCs and BPCs and to identify stakeholders, workflows, and issues.

c. *Library or consortium engages in aggregated institutional memberships that pay APCs in full for authors (e.g. PeerJ, Hindawi).*

These memberships pre-pay APCs for corresponding authors at the institution based on an annual membership rate determined by the institution's size, publishing history and/or research output level. The annual rate may increase in the year following a high output year. Some memberships function more like deposit accounts from which APCs are deducted as articles are published. The publisher may provide complementary services such as IR deposit of final articles and reports of submitted/accepted/rejected/paid articles. Memberships with OA publishers like [PeerJ](#) are fairly popular amongst libraries but for others such as [Wiley's program](#), uptake by U.S. institutions is low.

The challenges with supporting these memberships include finding funds in library budgets which are already strained due to collection costs, and dedicating a chunk of funding to a single publisher. There may not be enough articles published in a year to justify paying a membership. If memberships

scale up, it could be difficult to make continual assessments about the cost/benefit ratio of paying the membership each year. These memberships can be useful, however, when a significant number of articles are published in a given journal or with a given publisher in a year, making for a good ROI.

### **3. Global partnerships to flip journals to OA**

In this strategy, a library, institute, or consortium contributes payments covering the publication costs in full for authors from their institutions. Payments are aggregated by country so that each country is contributing a share of the OA publication costs equivalent to the publication output of that country. SCOAP<sub>3</sub> is widely known for implementing this model for high energy physics articles in about a dozen journals, and is currently the only initiative of its kind. By partnering with over 3,000 libraries/institutes around the world, and getting these institutions to contribute an amount commensurate with their scholarly output, SCOAP<sub>3</sub> has successfully converted about a dozen journals to an open access model. Authors who have articles published in these journals do not have to pay an APC thanks to the institutional commitments.

The challenge of this model is the cost and effort to administer this kind of program, and to convince journals to participate. In order to be effective, the publishers must agree to flip their journals, and the institutions that publish in the disciplines/publications covered must commit to participating. Commitments for SCOAP<sub>3</sub> are for three-year periods. Publishers may decide to back out at a later date, requiring a re-do of the modeling and contribution levels. Ongoing modeling and assessment may inhibit the scalability of this strategy.

Because it was the first of its kind, SCOAP<sub>3</sub> took a long time to get off the ground, however it has demonstrated that this strategy can be sustainable. Future efforts will be able to build on SCOAP<sub>3</sub>'s groundwork. This strategy has the potential to flip journals by transitioning library budgets from paying for subscriptions to paying for open access publishing, without financial burden for authors. Libraries pay according to the scholarship generated at their institutions, which keeps things equitable, while at the same time negotiating APCs on a global scale so that they are competitive for all countries.

### **4. Supporting low-cost APCs charged by library, institutional, or mission-driven organizations**

This strategy entails diverting library funds towards lower than market rate APCs on “mission-driven” platforms such as eScholarship, UC Press's Collabra, or Ubiquity Press. There is no known systematic implementation of this strategy, though institutional subvention funds already support APCs from these platforms. For example, [eScholarship provides the online publishing infrastructure](#), and sponsoring campus departments manage their OA journals' publishing requirements/logistics (editing, peer review, call for publications, etc.) The costs of publication factor in department staff time and commitment, and, in particular during the startup periods, repository staff time.

The challenge with this strategy is attracting scholars away from expensive but high impact journals

to these lesser-known journals that don't have the same prestige. Getting buy-in on a large scale is unlikely. Nevertheless, this strategy has several attractive features: keeping costs down, and supporting operatives that are aligned with our academic and non-profit values.

## 5. Offsetting deals

In this strategy, a library or consortium negotiates offsetting deals to cover both access to publisher content and making content by institution's authors OA. Because the UC Libraries are already exploring offsetting through a dedicated task force, we have chosen to treat this strategy in greater depth in this report so that it can be more fully evaluated in context.

“Offsetting” is a term that is generally applied to a type of large-scale agreement between a library or consortium and a publisher in which subscription costs and per-article costs for OA publishing are encompassed in a single agreement, with one type of cost offsetting the other. In this type of arrangement, typically as OA publishing increases, subscription costs are reduced (thus the term “offset”), and overall costs are capped or controlled in some way. Under this definition, simple APC discount arrangements with publishers that fail to correlate APCs and subscription payments or to apply any overall cost control are not considered offsetting deals. CDL has written a brief [white paper](#) that describes these arrangements in greater detail. These arrangements are more commonly found in Europe, where they are currently a significant focus of attention.

The goal of offsetting agreements, in the view of most libraries and consortia working on them, is to facilitate an eventual transition to a fully OA model by converting publisher licenses ‘from within.’ As OA article output with a given publisher rises (both at the institution and globally), any subscription fees should eventually decline to nil. Over the course of the offsetting agreement, institutions and publishers develop the necessary process infrastructure to manage payments at the article level, with appropriate fiduciary controls and oversight. Eventually, there would no longer be any sort of ‘big deal,’ but rather a transactional relationship based purely on publishing activity, possibly with a continuing contractual arrangement that guarantees certain pricing levels and fulfillment obligations of the parties (e.g. appropriate access and preservation standards, activity reporting, etc.) However, the goal of a full transition may not necessarily be shared by the publishers entering into such arrangements, for whom a guarantee of minimum ongoing revenue is a strong motivator. Thus, although offsetting agreements are intended by the libraries entering into them to be transitional, their ultimate transition is not assured.

Offsetting agreements were first developed by Jisc in the U.K. and have become a key aspirational strategy for transitioning the existing journal literature among library consortia in Europe. In the U.K., this effort has its roots in the 2012 [Finch Report](#), the [RCUK OA policy](#), and the linkage of open access to the [Research Excellence Framework](#). Jisc has therefore developed a set of guidelines, “[Principles for Offset Agreements](#)” to help other libraries, consortia, and publishers develop appropriate agreements.

Elsewhere in Europe, offsetting arrangements have been led principally by the Netherlands and the

Max Planck Digital Library (MPDL), with additional agreements in place at the Austrian Academic Library Consortium and the BIBSAM Consortium in Sweden, while somewhat stalled negotiations are currently in process at a consortium of German institutions (Projekt Deal, discussed in “Universal Strategies,” below) and at the Finnish National Consortium (FineLib). In all, the [MPDL-hosted Efficiency and Standards for Article Charges](#) initiative (ESAC), which is attempting to develop consistent language and objectives around offset agreements and to document agreements currently in existence, lists 25 offsetting arrangements with 13 publishers across Europe. In addition to the big five commercial publishers (Elsevier, SAGE, Springer, Taylor & Francis, and Wiley), participating publishers include ACS, IOP, and RSC, among several others. Last but not least, CDL is in discussions with Springer, and more tentatively with Wiley, about a possible offsetting arrangement for UC; T&F and SAGE have also expressed interest in working with us.

MPDL authored a widely-circulated [white paper](#) that launched the [OA2020](#) initiative, aiming to foster a global consensus toward flipping the literature to OA in which offsetting would play a significant part. The OA2020 Expression of Interest (EoI) now has 94 signatories worldwide, including a number of countries outside the Western Hemisphere such as China, South Korea, Japan, Brazil, Chile, South Africa, Saudi Arabia, Qatar, Turkey, and even the Russian Federation. Within the U.S., four UC campuses (Berkeley, Davis, Merced, and San Francisco) have signed the EoI, as has CSU Northridge. While the OA2020 initiative embraces many modes of OA transformation beyond offsetting, and few of the signatory countries outside of Europe have attempted to negotiate offsetting deals to date, it is expected that the accretion of signatories will eventually lead to a broader offsetting movement. A mailing list devoted to the topic of offsetting has recently been established by the International Coalition of Library Consortia, which has discussed offsetting at its semi-annual meetings for the past several years.

There are a number of challenges that offsetting deals present:

- i. Publishers and libraries will have different goals in an offsetting agreement that require complex (and may potentially result in unsuccessful) negotiation.

Since institutional authors may have been paying APCs with these publishers for some time, the additional double-dipping revenue is typically considered a new base revenue commitment by the publishers, whereas libraries typically consider pre-existing license fees as the basis from which to negotiate. Libraries will want to offset the full APC amount against the base license fee, whereas publishers may want to offset only a portion of the APC. Publishers may wish to lock in an excessively high hybrid APC. If APCs are negotiated, the resulting fees may not be transparent and easy to benchmark against other libraries (however, the European [Open APC](#) project is an explicit effort to eliminate these transparency concerns). For an in-depth review of the difficulties faced thus far in attempted negotiations in Europe, please see the “Universal Strategies” section below, Universal Strategy 4.

While transition from offsetting to a fully-transactional OA relationship is a stated goal of most

libraries entering into offsetting arrangements, it is unclear how easy it will be to achieve this end state. It may continue to be desirable for libraries to maintain agreements with publishers that guarantee certain levels of service and possibly certain APC discounting arrangements. Likewise, institutional users will have a mix of OA and toll-access journals for some period of time, as some publishers will not be able to flip all content at once.

The offsetting model that CDL is currently exploring would involve a basic library APC subsidy (using funds diverted from the license fee) that authors would have to top up, either from their grants or from other discretionary funds (ideally, the Libraries would provide those funds to the authors). This carries the risk that authors will rebel against assuming responsibility for any fees, whether from grants or from funds the library makes available to them.

- ii. Offsetting, like any APC model, will be subject to fluctuations in author output. It will be important to establish parameters to manage and control both overall and article-based costs.
- iii. Offsetting deals will require substantial, and highly detailed agreements with individual publishers, and will necessitate the development of mechanisms for tracking that the agreement is followed and gather reports on the progress.
- iv. Likewise, there are many additional financial and workflow details to be worked out in adopting an offsetting model, including whether it's possible to make these opt-in at the campus level, how costs will be distributed, how UC authors will be identified, what kind of process infrastructure will be needed to interact with authors and manage payments, etc.
- v. If library funds are tied up with outlays for offsetting agreements with "big deal" publishers, offsetting could have the inadvertent effect of disadvantaging other OA journal publishers who have been offering APC-based Gold OA for some time, but who are not part of big deal packages.
- vi. Offsetting carries several broader social risks as well. As with any APC-based model, there is concern about whether authors in the Global South can cover the fees if their institutions (replacing subscriptions) cannot. That said, although UC envisions involving authors in the payment stream, offsetting can also be implemented in a manner that places all financial costs at the institutional level, which could be a more appropriate implementation in global south countries.
- vii. Another risk of offsetting is that institutions will subsidize and entrench arrangements with large publishers at the expense of smaller publishers, including native OA publishers, thus maintaining the current imbalance of power among these publishers and undermining new entrants. CDL plans to investigate as part of its offsetting design whether it is possible to create a more level publisher playing field by offering subsidies for native OA publishing alongside any offsetting deals.



Offsetting also presents compelling opportunities for transformative change.

- i. Offsetting offers an opportunity to facilitate large-scale systemic change. Such arrangements with major publishers will significantly increase the amount of material that is published natively as OA, especially if these arrangements are adopted across the globe. Through a combination of local action and global collaboration, it may be possible to reach a critical mass of OA within a relatively short period of time, and even bring us to an industry-wide OA tipping point.
- ii. Future double-dipping (and hopefully current double-dipping) can be eliminated. CDL estimates that UC is spending hundreds of thousands of dollars in APCs outside of its licenses with big publishers; in addition, we continue to pay full license fees for content that European countries are paying to make OA. Offsetting is an opportunity to stem this tide.
- iii. Once payments are moved to a transactional level under an offsetting agreement, and assuming that one is able to transition beyond fixed revenue arrangements, it should be easier to support innovation because money will naturally flow to where the users are publishing; as user publishing practices and preferences evolve, funding will evolve along with them. If authors have ‘skin in the game,’ their decisions will help to drive costs lower, toward a more cost-based market.

**6. Institutions establish a combination of funding mechanisms to support scholars in all disciplines, including grant funds, central pool of funds, and individual payments, publishing, etc.**

In this strategy, APCs are paid through a variety and combination of means depending on the amount and the scholar’s availability of research award. The central pool of funds would consist of the library’s former subscriptions budget, with or without supplemental funds from the institution. This pool would provide a subsidized APC amount to all corresponding authors from the institution, or to only authors without grant funds. Scholars with grant funds could dip into their award to cover any unsubsidized amount, or cover the full amount with their award. Authors without grants would either select journal APCs within the subsidized amount or supplement with departmental or individual payments. This approach is outlined in the [Pay-it-Forward](#) final report, and there are no implementations to date. However, the offsetting models currently being explored by CDL are based on this approach (see further above).

The challenges to this strategy include the costs for developing and administering centralized infrastructure—which are unknown and would need to be factored in to consideration for setting up a diversified model. The infrastructure would also need to verify which authors are eligible for a subsidy, and determine how authors without grant funding would manage. There needs to be a fallback for scholars without funds so they are not disadvantaged. Given the complexity of mechanisms being relied upon, campus stakeholders would also need to be involved in the decision process to establish this type

of arrangement.

The opportunities include diverting subscription funds to OA publishing, and giving scholars market power by putting competitive pressure on the APC market.

## Gold OA, Non-APC Funded

### Nature of Approach

In the case of non-APC funded Gold OA, the costs to produce content (articles, journals, books) are covered [without the author's financial participation](#), and—in our terminology—without fees levied on a per-publication basis. As with all Gold, the materials are open upon publication with no content subscriptions required for access. Typically, Non-APC Gold OA models pool resources from various sources: institutions and libraries (e.g. Knowledge Unlatched); funders (e.g. *Annual Reviews of Public Health*); endowments (e.g. *Americana Journal of Popular Culture*), or other sources and then redistribute these resources to manage the costs of publishing. Non-APC Gold publications may also be funded through contributions from governments (e.g. SciELO), libraries (e.g. eScholarship), grants, membership fees from entities in a collective (e.g. Open Library of Humanities), or, from pledges from supporting groups. As with APC-based Gold OA, collective action and participation is often central to the success of non-APC-based models because entities are cooperatively contributing to finance publication costs or infrastructure.

### Prevalence & Impact

Due to the multi-faceted structure and blurred boundaries of Non-APC publishing models, it is difficult to quantify their prevalence. In some cases, it is also challenging to determine if an underlying charge is even being assessed on a per-item (article or book) basis.

Non-APC Gold OA's reception within the library and scholarly community is largely positive. The model is comfortable for libraries: depending on the non-APC Gold OA publisher, the funding approach largely fits payment structures libraries are accustomed to managing. For instance, for a publishing collective like [Lever Press, costs are determined by library collection budget levels](#) and participants in the collective are asked to commit to funding for five years. Libraries can predict their expenses fairly easily with the *Lever* payment model. Donors to endowed titles face the same predictability when supporting non-APC Gold OA: they can set their donation amount according to their budgetary constraints. And, for scholars, their work is published and costs to publish (as with traditional publishing mechanisms) are not applied to the academics.

## Strategies

### 1. Society, organization, government, or endowment covers entire costs of publication

*Government-Funded:* [SciELO](#) relies on government funding (from across a variety of states and sources), and currently provides access to 1,447 open journals and more than 713,987 open articles. SciELO's success relies on what it describes as its [three part model](#): its publication methodology (electronic publication of both full text and bibliographic databases and impact of publishing measures); its promotion of “national sites and thematic sites” for its journals and its “development of alliances between national and international actors in the scientific community.” [SciELO's operational model](#) is “strongly based in national infrastructures, which contributes to guarantee its future sustainability.” Its citation level is high: [16,591,603](#) demonstrating its utility and impact.

*Endowment-Funded:* [As SPARC acknowledges](#), it is difficult to determine the prevalence of endowment-funded OA journals because “such funding is frequently channeled through the society, institute, or foundation publishing the journal.” One clear example of endowment funding is the journal *Americana: the Journal of American Popular Culture 1900 to present*. Donors are invited to contribute anywhere from \$50.00 to over \$500 to receive varying membership and newsletter access lengths. [The donations are described as “membership fees” and are used to “... build invested principal, \[where\] the interest will be used to fund such activities as scholarly research, office operating costs, a website, web design, web hosting, email services, Press Americana, Magazine Americana, and Americana: The Journal of American Popular Culture, 1900 to present.”](#) There is no reference to APC charges in the information about the journal submission process.

While any model that completely or largely insulates authors, libraries, and institutions from costs will be broadly satisfying to community stakeholders, there is not an obvious path replicating or spreading the model at scale—particularly to a point where it might prove broadly transformative. Simply put, endowments and ongoing funding commitments require the marshalling of significant resources. While government funding is substantial, it can ebb and flow depending on the priorities of shifting leadership. Grant funding is typically considerably more limited. And, establishing endowments to pay for publishing requires a substantial starting base allocation—otherwise, the main role of the publisher or collective will be to constantly fund raise to keep publishing stability. Nevertheless, some sufficiently resourced stakeholders might be incentivized to operate in this manner—particularly, and perhaps most promisingly, funders that otherwise require their grantees publish results OA (as with [Gates Open Research](#)).

### 2. Library or University funds and/or hosts third party publication

As of this writing, the [Directory of Open Access Journals](#) (DOAJ) lists 60 university- or library-sponsored

journals that do not charge APCs.<sup>19</sup> [Open Library of Humanities \(OLH\)](#) is one example of a non-APC Gold OA journal publisher that relies on pooling funding from libraries and institutions. Currently, OLH publishes 18 journals. [A review by the UC STAR team](#) indicated that OLH intends to publish a total of 23 journals in the humanities and interdisciplinary studies. Download data is not available from the OLH site, but there are well over 100 participating libraries from across North America, Europe, Australia and New Zealand. At the University of California, the California Digital Library provides a publishing platform on eScholarship that hosts roughly 70 non-APC Gold OA journals that are managed and edited by independent journal staff or volunteers.

Libraries and institutions can also support non-APC Gold OA books. For instance, the [UK's Knowledge Unlatched \(KU\) works with multiple publishers to set an unlatching fee](#) (the costs to publish the book).<sup>20</sup> Libraries pledge to open a pre-selected collection of titles (selected by librarians who sit on a 40-person decision-making board), and once the amounts per title have been fully pledged, the titles are unlocked and made open access. At this writing, with over 450 libraries contributing to the KU “unlatching,” [KU has unlatched 449 books](#) in the Humanities and Social Sciences with more than 150,000 downloads and [will begin to offer STEM collections](#) in 2018.

Where the publisher operates as an independent actor, this model fits comfortably with existing library workflows, with the basic processes resembling the subscription model. In practice, there are some potential drawbacks. Without access restrictions, library incentives to participate are more limited, and some measure of free-riding is to be anticipated. Libraries may yet be persuaded to participate out of goodwill, belief in the model, or to support campus author communities that publish in or otherwise value the outlet. Pressure on participation may be exacerbated with continued pressure on library budgets. And, should members sojourn in and out of agreements (where the publisher does not require a set commitment time, as *Lever* does) cost stability is questionable.

### **3. Journals work with libraries (as funders) and societies to support a flip (“subscription equivalent / library-funded”)**

*Libraria* (a collection of four archaeology and anthropology journals) aims to flip a specific set of journals through engaging libraries (as funders), societies, and publishers. The concept is that current library subscription fees will support the flip. [If enough libraries participate \(350\), four journals can flip and funds can additionally support three currently open access journals](#). The idea is that costs will remain steady for libraries and revenue will similarly remain constant for journal publishers. The proposal also reduces the royalty fees paid to societies by half (from 40% to 20%). [SET \(Subscription-Equivalent](#)

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<sup>19</sup> [The Library Publishing Coalition](#) presently has 70 institutional members in the United States and Canada. Of course, not all such journals are listed in DOAJ — for instance, UC alone hosts numerous APC-free journals on eScholarship as noted above, but many are not yet in DOAJ.

<sup>20</sup> The working group had difficulty categorizing Knowledge Unlatched as Gold non-APC or non-BPC (book processing charge), because in effect, Knowledge Unlatched’s pledge fees are based on the number of books being made OA, in the same way that an APC might be assessed. Ultimately, we decided that Knowledge Unlatched was more similar financially to non-APC models-- though it remains illustrative of the difficulty in categorizing emerging models.

**Transition) Co-op**, similarly seeks to create partnerships between libraries and publishers to open content. It, too, assumes that revenue maintenance is a key factor for publishers and maintaining access, preferably open access, is a goal for libraries. SET proposes a three-year trial transition period for titles giving all interested parties time to set up mutually agreeable cost-effective practices.

While short-term revenue commitments might prove to be a sensible way to transform the existing literature, it is not likely that pegging revenue generation to present-day subscription spends will prove to be an effective model in the long-term, where the needs of the model will be more similar to library-funded efforts discussed above.

#### **4. External funder supports or kickstarts transition to a collective fund of money pooled by libraries**

*Annual Review of Public Health* received funding from the Robert Wood Johnson Foundation to open up the 2017 issues: “[t]he Foundation’s support for the *Annual Review of Public Health* covers the costs of open access for one year, plus the exploration of sustainable funding mechanisms for future years.”

The journal is “establishing a collective fund to support the publication costs...to sustain long-term open access” and is asking (although not requiring, refunds or application of fees paid to another *Annual Reviews* publication are options) customers who paid for a 2017 subscription to donate their payment to the fund. While this journal is offering the potential to apply 2017 subscription payments to the OA fund, it is not specifically describing the same model *Libraria* is proposing. The fund’s final revenue source is not publicly described on their website and is certainly part of the “exploration” process described above.

#### **5. Investing in shared open commons**

David Lewis, Dean of the IUPUI University Library, has **proposed** a strategy under which every academic library commit 2.5% of its total budget “to support the common infrastructure needed to create the open scholarly commons.” He does not describe this as converting subscription funds, but rather investing in digital infrastructure such as:

1. Open source software projects that support the open scholarly commons. This would include projects like DSpace, Fedora, Hyku, the Open Journal System, ArchivesSpace or Islandora.
2. Disciplinary repositories such as ArXiv, bioRxiv, or the Humanities Commons.
3. Large repositories of open content such as HathiTrust or the Internet Archive.
4. Tools from Wikipedia to VIVO to the Open Access Button or Unpaywall.
5. Preservation organizations such as the Digital Preservation Network or the Academic Preservation Trust.
6. Open educational resources such as OpenStax.
7. Organizations that support these developments such as DuraSpace, the Center for Open Science, the Public Knowledge Project, the Open Textbook Network, Impactstory, Orchid, or Creative Commons.

## 8. Advocacy organizations such as SPARC.

The 2.5% commitment is properly considered in conjunction with other strategies to transition or create new OA publications (such as scholar-owned OA, discussed below), as the infrastructure it envisions supporting would in theory provide platforms for these kinds of initiatives. Lewis' proposal expressly excludes commercial publishers, and perhaps most significantly does not account for how authors might be courted away from publishing in their preferred, high-impact journals. As such, the 2.5% Commitment is thus unlikely on its own to yield an OA transformation unless its platforms were to outcompete legacy journals for author attention and use.

There are a number of other concerns that the 2.5% commitment proposal raises. The first is its assertion that “much of the funding for the open scholarly commons must come from academic libraries.” This may be a flawed premise. Research funding agencies already invest heavily in supporting the open commons, both via their OA policies and tools and platforms they create to support those policies. Further, these agencies have much larger budgets than academic libraries, and are better positioned to make such investments.<sup>21</sup>

On the positive side, the 2.5% commitment could—like Scholar-owned OA, discussed below—help support OA publishing while offering the opportunity to engage with researchers in changing the publication process.

### General Challenges

Gold Non-APC requires an ongoing commitment from an entity or collective (academy, funder, government) pooling their funds. In many cases, this creates a dependency upon particularly vulnerable library budgets. [Sixty percent of Association of Research Libraries](#) have reported flat budgets over the past five years and 19% have reported decreases over the same time period. A flat budget is effectively a cut budget, and both flat and cut budgets require difficult decisions about where to expend reduced allocations. While current subscription fees, or, funds allocated for monograph spending could be redirected to pay for Gold Non-APC initiatives, sustainability could still be an issue as costs seldom remain static. The question of growth (OLH's expanding portfolio of titles, for example), too, needs to be considered. If the number of titles supported continue to grow, it is possible that the overall investment needed to support them may outpace the ability to pay. In other words, the cost per title may be very low but the overall cost for all titles may not be supportable.

Compounding the precariousness of this structure is the fact that it could be harder to justify keeping a budget line item for something that is fairly invisible to authors and that is not supporting *all* authors—that is, there are limits on number of people who receive the *direct benefit* of collective funding and not all funding pledged by a library goes to *local* authors (Lever Press is open to non-member authors, in

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<sup>21</sup> Thanks also to Mathew Willmott (CDL) for sharing insights regarding the 2.5% Commitment.

difficult budgetary climates attitudes become less open to the greater good and libraries feel pressure to fund short-term, local need requests).

Additionally, the transformative potential of this model is varying—and, in certain cases, perhaps only ploddingly—impactful. If, for example, in the case of *Lever Press*, [it relies on 80 member libraries to fund an anticipated 60 frontlist titles](#), it may offer similarly deliberate progress toward opening up the backlist which is both fixed and of a much greater number.

Finally, keeping authors removed from the economics of publishing risks continued separation from their role in managing the costs of publishing and limits the likelihood of creating competition among publishing options. Gold Non-APC OA could be perceived as a more righteous continuation of the existing collection budget model: the library (or, some collection of entities) pays in full and the payment and choices about that payment are invisible to the author. While it does serve to disseminate research more broadly, it does not increase awareness about the underlying costs and related choices among the producers of research. If advancing awareness of the economics of publishing is important to sustainably achieve the greater open dissemination of research, Gold non-APC OA is not the single path for libraries to take, though in many cases it would serve as an appropriate complement to other approaches.

### **General Opportunities**

Non-APC Gold OA has the capacity to transition scholarly literature backfiles (particularly scholarly books) to open access, such as through crowdfunding to support rights repurchase or digitization.

Another way to make Non-APC Gold OA more sustainable while heightening author community awareness of publishing economics is to co-fund Gold Non-APC OA options within disciplines or campus academic divisions. If libraries select disciplinary specific Gold Non-APC options and offer to meet the relevant department or academic unit half-way with funding, this could serve to engage Deans more directly with the issues surrounding OA and publishing while creating a more stable funding stream. Doing so would also allow libraries to engage directly with a collective like OLH, or cross-institutionally, to *Lever Press*, and partner for co-funding outreach opportunities. In particular, it could be a way for the library to engage with the humanities, where OA is less of a recognized practice. While it does not engage the faculty publishers directly, it engages the faculty administrators and expands the awareness of costs to another stakeholder group. Similarly, opportunities to engage in a *Libraria* model with other society-affiliated journals could be explored.

## **UNIVERSAL STRATEGIES**

In addition to the strategies identified under each approach above, there are a number of strategies that could be utilized across approaches, or that in some cases are essential to the success of any approach.

Accordingly, UC libraries considering undertaking any approach to OA should also consider their willingness or ability to undertake the following “universal strategies”:

**1. Library-led outreach, and funding or investments, to support author communities’ preferred transition modes—as envisioned by the scholar-owned OA movement**

An ARL Working Group is exploring the possibility of building on work done by the Center for Open Science as outlined in their [Disrupting Scholarly Publishing](#) document. The aim is for libraries and open source preprint server providers to work with researchers in key disciplines who have already built momentum toward OA via preprint servers (e.g. anthropology, psychology and math); the anticipated work would entail using library professional and monetary resources to support responsive, modular transition to OA for these author communities. For some disciplines, such support may involve decoupling content management from publishing functions--such that full-service publishing services (including peer review) could be offered through a repository rather than by commercial journals. In other disciplines, the support might be in the form of library-led guidance for editorial boards in negotiating with publishers to achieve an OA outcome. Where needed for a given discipline, library funding could be used to supplement revenue streams for journals or to build out pre-print infrastructure.

The Scholar-owned OA model has taken shape in the latter part of 2017, and has continued to evolve. Originally termed “Red OA,” the project was in earlier stages described by Judy Ruttenberg, ARL’s Program Director for Strategic Initiatives, as:

Library investment in lightweight publishing functionality (principally moderation and peer review) within open access repositories, including disciplinary preprint services. The “red” indicates a stop to libraries paying redundantly for author charges (APCs) and reader charges (subscriptions) for content that is available in open access repositories; rather, the investment is made into the infrastructure, to augment their ability to handle editorial and peer review functions—with the aim of potentially replacing the need for commercial journals.

On 4 November 2017, the Red OA ARL working group (via Ruttenberg) issued an updated description, along with a [blog post](#) indicating a name-change to Academy-owned OA (which has since become Scholar-owned OA):

This strategy is designed to provide authors with high-quality, peer-reviewed publishing options through overlay journals that function as a component of discipline-specific preprint servers or other open repositories to accelerate the publishing capabilities and services of open infrastructure. As these overlay journals gain traction with authors as a preferable publishing alternative to commercial journals, research libraries will be positioned to redirect subscription and APC funds toward support for development and maintenance of preprint server overlay journals.



The language surrounding cancelling redundant payments to commercial journals was removed in this newer iteration. Further, in conversation with Judy Ruttenberg on January 19, 2018<sup>22</sup>, she expressed that Scholar-owned OA is now much broader than its initial premise of investing in building out full publishing functionality within preprint servers that would encourage overlay journal publishing to replace commercial publishers. Rather, she has confirmed that scholar-owned OA movement is evolving to promote full-service support for an OA transition in a manner that accommodates disciplinary—and author-publishing preferences—which may or may not involve opting for overlay journals.

Provided that library investment in scholar-owned OA is, indeed, responsive to author and author-community preferences as envisioned—rather than Red OA’s formerly more regimented approach—library support for and investment in a range of modular transition needs is not only a viable but potentially also a preferable universal strategy.

## **2. Engaging the campus author community, research office, and academic departments**

Libraries can work with authors, campus research offices, departments, and funding agencies to advocate for research funds, grants, and awards being redirected to advance OA publishing options and new OA publishing models. Engaging these communities may involve conducting outreach to assess awareness, understanding, and need for OA publishing and scholar support, and will likely include ongoing advisement to researchers about OA publishing options and the value of transitioning.

## **3. Support for author-led boycotts of editorial duties to compel more favorable OA terms**

In addition to general author community outreach, libraries might also consider what support or guidance they are willing to provide scholars in resigning from editorial boards until better OA publishing terms are reached.

Researchers in Finland have begun to lead boycotts of editorial and reviewer duties in order to pressure journal publishers for better open access contractual terms and transparency in consortial agreements. What is unique about this approach is that it is researchers abstaining from editorial duties in order to force better negotiated deal terms, rather than libraries or consortia leading efforts and threatening cancellations.

Currently, under an effort called “[No Deal, No Review](#),” more than 2,700 Finnish researchers are boycotting editorial and reviewer duties for Elsevier journals with the aim of, among other things, [ensuring that broader and more universal open access](#) be guaranteed in the contract between Elsevier and the Finnish Library Consortium (FinELib). Elsevier’s current offer would perpetuate status quo:

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<sup>22</sup> Conversation between Rachael Samberg (UC Berkeley Library) and Judy Ruttenberg, January 19, 2018.

- Publishing in journals behind a paywall (hybrid journals) and paying a high article processing charge (APC) per article to have the article as open access; and
- Offering the green open access model, where the accepted manuscript can be shared only following an often long embargo period (typically 12–36 months) after publication.

Accepting such terms would mean that Finnish academic organizations’ costs for accessing Elsevier journals would continue to increase significantly, and open access would continue to be paid for separately. As the boycott continues, [Elsevier has not changed its position](#).

Coordinated researcher boycotts likely are not tactics that could be relied upon with certainty in a distributed licensing environment like the United States. FinELib negotiates licensing deals on behalf of all consortial members. If the majority of researchers at FinELib member organizations participate in the boycott, they effectively emulate a single voice vis-à-vis publisher contract negotiations. In the United States, however, it could be hard to develop sufficient unity amongst researchers at each individual institution negotiating with publishers, let alone across disciplines.

Nevertheless, there may indeed be opportunities for UC libraries to engage specific author communities to consider researcher-led boycotts as a strategy to “flip” a particular discipline’s scholarship. Within a single discipline, there are a more limited number of journals by a given publisher. Provided that there is sufficient outreach and community desire for cohesiveness, a boycott by a particular discipline could potentially be a more effective negotiating strategy than a more distributed, cross-discipline boycott.

#### **4. Engagement with author societies, and editorial boards to encourage flipping**

Libraries can engage in dialogue and advocacy with society-based publishers and editorial boards to encourage a flipping to OA, and to help achieve shifts in journal structure and fund allocation to support OA publishing. Some of this outreach may be of the same sort discussed in Universal Strategies #1 and 2, and many campus authors may also serve on editorial boards, except that here: we suggest outreach expressly targeted at working with societies and editorial boards, who can help shape decision-making toward flipping.

#### **5. Back up offsetting or other OA negotiations with cancellations for publishers who refuse to engage or fail to reach terms**

An extension of outreach to publishers and editorial boards could involve following through on cancellations—including big deal cancellations—if publishers refuse to engage or negotiations do not bear fruit.

There is already precedent for this in Germany. The [Projekt Deal consortium](#) was organized to represent now more than 150 German libraries, universities, and research institutes in firm negotiations with “big deal publishers”—essentially to establish offsetting arrangements. Projekt Deal aims to yield two major

changes to “big deal” licensing terms to yield what is being called a “Publish & Read” model—essentially, an offsetting arrangement:

1. They have proposed offering publishers an annual lump-sum payment (to be negotiated) covering APCs or other publication costs for all publications for which a participating German institution’s scholar is the corresponding author. This lump-sum payment would be in lieu of a subscription for the publisher’s journals—which would instead be made available to institution-affiliated researchers at no additional cost.
2. In addition, papers authored by scholars at each participating German institution would be made available open access globally.
3. Finally, the terms of the deals would be made public to promote fairness and transparency.

Thus far, SpringerNature and Wiley have preliminarily agreed to the deal premise, though the lump sum is still being negotiated. The lower bound is based on an average article processing fee charged by existing OA journals of approximately \$1500. The German Research Foundation, the country’s main science funding agency, has indicated its desire for an upper limit of ~\$2,400 per published article.

Elsevier has declined the offsetting structure entirely, and Projekt Deal held firm in initial negotiations. As a result, [institutional access to Elsevier journal archives briefly lapsed](#) at more than 60 German research institutions between Dec. 2016 and Jan. 2017. Negotiations resumed but have since stalled again, as Elsevier has stated it will not consider allowing a lump sum for institutional authors’ publishing costs to also result in institutional access for all other literature and journals that Elsevier publishes. In October 2017, [five German researchers resigned from Elsevier journal editorial positions](#) due to the stalled negotiations for better OA terms. Projekt Deal institutions’ contracts with Elsevier are set to expire in December 2017.

Consortia of libraries and universities in the Netherlands, Finland, Austria, and the United Kingdom have rather unsuccessfully pushed for a similar offsetting deal.

In the United Kingdom, the nonprofit Jisc Collections group negotiated a deal with Elsevier on behalf of academic and research libraries, and signed in Nov. 2016. Jisc did not achieve a “publish and read” structure and, [as of Jan. 2017](#), were still negotiating issues of open access and deal transparency.

- In the Netherlands, Elsevier agreed to make only 30% of Dutch-authored papers freely available by 2018, with a significant increase in libraries’ annual sum. Further, the lump sum reflects a per-article fee of between \$1500 and \$4800 per article, with many of the most expensive subscription-based journals not included in the deal terms at all. The Netherlands did have more success, though, with regard to negotiating deal transparency. Journal fees in the Netherlands have now become public, and reveal that—when compared to the other “big deal” publishers—Elsevier charges two to three times as much per article by Dutch authors.

Importing this strategy to the United States faces additional challenges, in addition to those already elucidated for offsetting deals above:

- U.S. research institutions, libraries, and consortia face greater barriers to successful “publish and read” negotiations given how broadly distributed and disparately funded institutions are.
- Further, U.S. research funders, such as the National Institutes of Health and the National Science Foundation, have official policies that allow work to remain behind a paywall for a year after publication. Such funding policies could countervail consortial negotiation leverage.
- As a practical matter, too, mass cancellations may not be available to institutions that have already negotiated offsetting agreements that lock the institutions in for the length of the license period.

Nevertheless, there are potential upshots to holding firm on the prospect of cancellations. Projekt Deal believes a successful outcome from exerting this pressure could help trigger a “big flip” to OA, and serve as a model globally. Indeed, the Slovenian Rectors’ Conference has likewise adopted a resolution to use Projekt DEAL’s approach in negotiations with Wiley and SpringerNature beginning in 2018, and with Elsevier in 2019. Employing willingness to follow through with cancelling big deals presents an interesting possible opportunity for CDL and UC libraries, as long as clear goals are established.

## **6. Collaboration with California Digital Library and other UC campuses**

Collaboration on license agreements, deal structures, and resource commitment will allow for streamlined allocation of current subscription funds on a systemwide basis if/when appropriate, and will allow the UC system to pursue transformative arrangements at scale.

## **7. Collaboration with national and international research institutions**

As we have seen throughout this Pathways document, broad adoption of OA necessitates cross-institution and international collaboration among libraries, researchers, funders, and other stakeholders.

As such, UC libraries could consider:

- Establishing a transformation network and serve as leaders in communities of practice across U.S. higher educational and cultural institutions;
- Engaging in joint advocacy at a national level for funder or government-based OA mandates and infrastructure;
- Where permitted, participating in cross-institutional efforts to negotiate with and engage publishers in the transformation to non-subscription-based OA; and
- Collaborating with institutions to provide analysis and reports on transformation progress.

## **8. Augmenting discovery and visibility of OA scholarly outputs**

The UC Libraries Shared Cataloging Program currently catalogs all journals and ebooks listed in DOAJ and DOAB on a routine basis for distribution to local campus catalogs, as well as cataloging specific OA resources on request. Similarly, CDL has recently implemented support for oaDOI within the SFX link resolver, pointing users to open versions of articles where they exist. There exist opportunities to improve capture of other OA books, and campuses could work with CDL on identifying any workflows by which to do that.

UC libraries, in conjunction with CDL, could consider additional strategies for acquiring or leveraging the discovery of OA outputs. This could include, for instance, support for research information management systems like Symplectic's Elements or UCSF's homegrown profiling software.

## **9. Evaluation and implementation of any necessary policy or workflow changes, or staff hiring/training requirements to support sustainable OA publishing models**

It is anticipated that engaging in the above strategies to support a transition to OA may require libraries to undertake some form of self-assessment to account for any infrastructural or financial workflow changes attendant to their preferred OA approaches. For instance, UC campus libraries may consider reviewing current acquisition, budget, and licensing practices and resources to assess which existing subscription funds could be reorganized or repurposed to achieve the transition; or they may wish to determine which cooperatives or consortia may help pool allocations from subscriptions, subsidies, dues, grants, and endowments. These types of assessments may involve appraising where campus-affiliated researchers publish, and analyzing resulting scholarly publishing cost relative to output—including the percentage published with OA journals. CDL can facilitate this process, and has begun to compile publishing output data by campus.

## **10. Supporting the adoption and strengthening of funder mandates**

Public and private research funders often have an interest in seeing the outcomes of funded research made publicly available through one or another OA approach. While shifting funder mandates might not advance all approaches in this document simultaneously, funder requirements could, in theory, be made or enhanced to further most OA approaches. And the landscape remains both varied and in flux: presently, in the U.S., NIH public access policy is preeminent, and it favors the use of a government-run Green OA repository, PubMed Central. In the U.K., [the RCUK open access policy](#) requires at least Green OA, the policy has a stated preference for Gold OA, and is repository neutral. Private funders similarly may make OA requirements. Although private requirements increasingly favor Gold OA (as with [the Gates Foundation](#)), the [Wellcome Trust](#) requires a baseline Green OA deposit in PubMed Central.

Funder requirements are typically very powerful influencers of author behavior and, by their nature,

generally outside of university hands. While the trajectory has been toward more and stronger OA requirements, these gains come either as a result of the deliberative processes of private entities or through governance channels. Nevertheless, we can assist in advancing funder requirements through government relations, memberships with influential and well-positioned policy voices (e.g., ARL and SPARC), and by normalizing and advocating for OA throughout our communities.

#### **11. Advocating for campus-wide mandates that OA publishing be considered within the promotion and tenure process**

If a library deems it appropriate, advocacy could also encompass efforts to achieve OA's consideration in P&T—though we do not expect achieving such a result would be likely, and the advocacy would need to generate momentum for this to be ultimately driven by faculty, not the libraries.

## **POSSIBLE NEXT STEPS**

We have analyzed all the above approaches and strategies to develop a set of possible next steps—experiments, pilots, efforts, etc.—in which UC libraries may wish to engage either collectively or individually. For each approach, we have identified these next steps in descending order of potential transformativeness.

### **Green OA**

#### **1. Use licensing arrangements to strengthen reuse rights for and rights to deposit the publisher's final version**

A great deal of the instability, confusion, and low participation institutional green OA arrangements is tied to requirements that, in most cases, the author's final version be used as the green OA deposit copy. While achieving results might be difficult, pushing back on these terms when entering into licensing agreements with publishers could resolve this large, outstanding issue, while also creating the possibility of automated or library-mediated deposit. Similar outcomes can also be reached through offsetting agreements.

#### **2. Engage in outreach to journal publishers to streamline deposits of post-prints into eScholarship**

Currently, campus authors are responsible for managing or ensuring deposit of materials into eScholarship. CDL could work with journal publishers to facilitate automatic deposit of post-prints into eScholarship to reduce effort required by individual authors (and has already initiated such discussions in some cases).

#### **3. Continue strategic support of disciplinary and subject-matter repositories**

Disciplinary and subject-matter repositories are best positioned to leverage author engagement and goodwill into participation. Where there are opportunities for strategic support of promising repositories, these can be pursued to help disciplines come into (or stay in) the open.

#### **4. Explore licensing of additional research information management system modules, with potential integration into campus reporting mechanisms, to maximize return on investment**

CDL licenses Symplectic's Elements as a publication management software to help automate metadata-rich deposits of campus scholarship. Other Symplectic Elements modules exist that would (1) feed and populate public-facing profile pages for campus authors, and (2) feed and populate promotion and tenure tracking systems with deposited publications. Licensing these other modules would maximize return on investment in publication management software by creating a "one-stop shopping" environment for campus authors: The authors would enter publication information once, and have it serve multiple and essential purposes.

Relationships and buy-in from many campus partners (research offices, departments, etc.) would be needed to pursue larger scale implementation of a research or publication management system. Campus libraries could take the lead on facilitating those discussions.

#### **Gold OA, APC-based**

##### **1. Negotiate offsetting agreements, and/or decline renewing licenses with major publishers who do not engage in offsetting agreements**

To facilitate the transition to OA, CDL should pursue offsetting agreements for Tier 1 and 2 agreements, including with "big deal" publishers like Wiley, Springer, and Elsevier. Depending upon the appetite of ULs, CDL might consider declining license renewals from publishers who do not assent to offsetting discussions or sign offsetting terms. The work being done by the Offsetting Task Force should inform offsetting negotiations.

Individual campus libraries might also engage in offsetting negotiations for Tier 3 agreements—again potentially including rejecting renewals or subscriptions with publishers who refuse to engage in offsetting arrangements. Development of a toolkit or documentation of terms would be helpful to enable individual campuses to pursue Tier 3 offsetting arrangements.

Because the concept of offsetting and its implications is relatively new, UC libraries may also wish to undertake system-wide and local outreach to engage the library and campus-wide author communities—akin to the outreach at scale that FinELib or Projekt Deal have embarked upon across Finland and Germany, respectively.

## **2. Identify and engage with disciplines for flipping their journals to OA**

CDL and campus libraries could provide outreach and support to identify and work with author communities and publishers in particular disciplines for a transition of discipline-specific journals to OA. Support could take the form of guidance to campus-based editorial board or society members, direct discussions with publishers, and the like. In other discussions held by various campus libraries, faculty, and CDL, linguistics has been identified as a leading candidate for such experimentation.

## **3. Expand and streamline the application of campus OA funds to cover APCs**

CDL and campus libraries could expand OA funds, including by redirecting subscription budgets to support APCs. Working with CDL, they may also wish to pursue streamlining the application of APCs centrally, to improve administration and make it easier (and more visible) for researchers to have APCs covered without seeking reimbursement.

## **4. Continue to explore memberships**

Memberships like PeerJ, MDPI, and SCOAP<sup>3</sup> have proved fruitful at the journal or discipline-level, and should continue to be part of ongoing transition strategies.

## **5. Research into strategies for and impact of an APC model in the Global South**

Follow-up research to the *Pay It Forward* study could be conducted to explore the feasibility and impact of APCs for publishing in Global South journals, or by researchers in the Global South who publish in Global North journals.

### **Gold OA, Non-APC-based**

#### **1. Identify and engage with disciplines for flipping their journals to OA**

As with Gold APC-based, libraries could work with disciplines to determine whether there are possibilities for memberships or crowdfunding particular sets of journals to flip them to OA.

#### **2. Continue to explore memberships and crowd-funding**

CDL and individual campus libraries could continue to explore or negotiate with publishers to create opportunities for membership-based or crowdfunded OA publishing support.

#### **3. Explore opportunities to leverage eScholarship as a publishing platform**

CDL has developed substantial infrastructure within eScholarship to support not only deposit of scholarship, but also journal and content publishing. Additional investments could be made to build in



editorial services or new infrastructure to advance eScholarship as a publishing platform.

#### **4. Explore 2.5% commitment or similar commitment to open scholarly commons infrastructure**

Campus libraries could consider committing 2.5% of their total budgets to organizations and projects that contribute to the common digital infrastructure underlying an open scholarly commons.<sup>23</sup>

### **Universal Strategies**

#### **1. Conduct library-led outreach, and allocate funding or investments, to support author communities' preferred transition modes (e.g. as envisioned by scholar-owned OA movement)**

The Center for Open Science and ARL are organizing and investing resources in projects for which UC libraries could help develop scale by focusing on OA publishing within a particular discipline. UC libraries could also consider the relationship of services like this to our own publishing platform, eScholarship, to inform service development.

#### **2. Engaging the campus author community, research office, and academic departments in supporting an OA transition--and potentially supporting author-led boycotts**

Work can be done with authors, research offices, and departments to advocate for and support an OA transition, and for funds, grants, and awards to be redirected to advance OA publishing options. The libraries, through the Office of Scholarly Communication, can also work proactively with UCOLASC on any author- or discipline-specific strategies. While outreach should be conducted across divisions, concerted strategies for supporting the humanities--which traditionally does not have sufficient OA publishing opportunities or buy-in--should be developed.

It should also be noted that, as envisaged by Scholar-owned OA tactics, strategic engagement with author and campus groups could span the gamut from libraries offering practical guidance to library investment in journal publishing—depending on a discipline's needs and preferences.

Further, as noted above in Gold OA-APC next steps, library outreach might also include supporting author-led boycotts of editorial duties to compel more favorable OA deal terms.

#### **3. Engaging with publishers, scholarly societies, and editorial boards to support (and potentially subsidize) a transition to OA**

Proactive dialogue and advocacy with publishers, scholarly societies, and editorial boards may support or

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<sup>23</sup> Note that, as explained by Judy Ruttenberg, the 2.5% commitment is narrower than the Scholar-owned OA strategy, as it focuses predominantly on infrastructure rather than the journal content, itself.

accelerate a transition of closed journals to OA. In particular, libraries may also work with UC Press both to build relationships with campus author communities and support OA publishing practices.

#### **4. Engaging in national and international opportunities for investment in or transition toward OA**

Campus libraries could participate in regional, national, or global efforts (e.g. OA2020, ICOLC, OA Publishing Cooperative) to transition resources and financial support toward sustainable OA publishing. These endeavors could help build momentum, communities of practice, and lead to the development of shared strategies.

#### **5. Utilize STAR Team processes to evaluate and pursue shared investment in transformative publishing**

UC's [STAR Team](#) is charged with evaluating and making initial recommendations on UC consortial investment opportunities in potentially transformative scholarly communication initiatives. The STAR Team has developed [robust analytical processes and criteria](#) to evaluate such opportunities. Both its processes and the team as a whole could be leveraged to more broadly consider and report on OA initiatives.

#### **6. Augmenting discovery and visibility of OA scholarly outputs**

In conjunction with CDL, the libraries can pursue additional support for discovery layers that bring OA outputs into light. There is also synergy here with a suggested Green OA next step of licensing additional research information management modules to both highlight OA scholarship and make the depositing process easier for authors.

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