This paper makes the case for stronger engagement of libraries and consortia when it comes to negotiating and drafting offsetting agreements. Two workshops organized by the Efficiencies and Standards for Article Charges (ESAC) initiative in 2016 and 2017 have shown a clear need for an improvement of the current workflows and processes between academic institutions (and libraries) and the publishers they use in terms of author identification, metadata exchange and invoicing. Publishers need to invest in their editorial systems, while institutions need to get a clearer understanding of the strategic goal of offsetting. To this purpose, strategic and practical elements, which should be included in the agreements, will be introduced. Firstly, the Joint Understanding of Offsetting, launched in 2016, will be discussed. This introduces the ‘pay-as-you-publish’ model as a transitional pathway for the agreements. Secondly, this paper proposes a set of recommendations for article workflows and services between institutions and publishers, based on a draft document which was produced as part of the 2nd ESAC Offsetting Workshop in March 2017. These recommendations should be seen as a minimum set of practical and formal requirements for offsetting agreements and are necessary to make any publication-based open access business model work.

Introduction

Many new big deal agreements between research institutions and scientific publishers are now being negotiated as ‘offset agreements’. Besides access rights to the publisher’s content, these agreements entitle authors (usually corresponding) affiliated with the research institution to make their articles available as an open access (OA) publication. Offset agreements attempt to link article publishing charges (APCs) with subscription charges, looking to increase one while the other reduces. Some such agreements reduce the APC charge, some allow unlimited OA publishing for a capped amount and others provide a refund or publishing credit. Offsetting is therefore an advancement of the publishers’ hybrid model, which has been criticized because of its ‘double-dipping’ practice.1

In their 2015 white paper, making the case for a large-scale transformation of subscription journals to an OA business model, Schimmer, Geschuhn and Vogler2 see the hybrid model as an evolutionary step. They regard the offsetting model as representing the early days of the evolution of the hybrid model, taking it into a ‘creative new space’ where money can ultimately be repurposed to transform the underlying business model to open access. Also in 2015, Jisc published its Principles for Offset Agreements in which the attributes of individual agreement types were detailed in terms of their contribution to a transition to open access, affordability, ease of administration and transparency.3 Earney discussed the challenges and opportunities for offsetting agreements with reference to cost, administration efficiency, transparency and the transition to open access.4 While there is some evidence that some offsetting agreements are potentially reducing the total cost of ownership5,6, Earney argues that the case for offsetting agreements is ‘clearly far from proven’ and that they ‘have far too easily come to be regarded as “business as usual” and even contradictory to the objective of open access’.7 The inherent danger in this approach is that libraries may substitute one unsustainable business model with another. However, an alternative approach to offsetting would be for libraries to use this transformational phase in order to actively shape the new model according to their needs and to the benefits of researchers.
Therefore, offsetting agreements represent an opportunity to rethink traditional negotiation strategies by introducing new contractual mechanics and administrative workflows and processes between publishers and institutions. Moreover, in order to prevent the current offsetting pilots becoming the new ‘business as usual’, it is essential that offsetting customers (library consortia and institutions) get involved in drafting these new workflows and processes.

A number of European countries have been conducting separate pieces of work in this area over the past few years. In the UK the Jisc OA Pathfinder project, run by the GW4 libraries of the universities of Bath, Bristol, Cardiff and Exeter, has published a set of recommendations for institutions and publishers regarding voucher codes and discount schemes. In addition, Jisc has published a draft set of recommendations for the use of standards on OA compliance. The Netherlands UKB Working Group has also issued a check-list for big deals and OA clauses. These recommendations show a clear need for international collaboration. In Europe, this has been taken forward on two fronts: firstly, the Knowledge Exchange workshops in Utrecht and Copenhagen, which have resulted in the Knowledge Exchange consensus on monitoring Open Access publications and costs data report and secondly, the Efficiencies and Standards for Article Charges (ESAC) initiative, hosted at the Max Planck Digital Library (MPDL), which held two workshops in Munich and Vienna. These ESAC workshops, held in 2016 and 2017, brought European customers of offsetting agreements and publishers to the table.

Based on the outcomes of the workshops, this paper will propose some strategic and practical elements, which should be included in new offsetting agreements. Firstly, the Joint Understanding of Offsetting, launched in 2016, will be discussed. This introduces the ‘pay-as-you-publish’ model as a strategic goal of the agreements. Secondly, this paper proposes a set of recommendations for article workflows and services between institutions and publishers, based on a draft document which was produced as part of the 2nd ESAC Offsetting Workshop in March 2017. These recommendations should be seen as a minimum set of practical and formal requirements for offsetting agreements and are necessary to make ‘pay-as-you-publish’ work.

### Basic mechanisms for offsetting: ESAC’s Joint Understanding of Offsetting

Offsetting as a working concept was first introduced in Austria in 2014 by IOP Publishing. This agreement offset APCs for articles published in one year against institutions’ expenditure subscriptions in the following year. The current offsetting offers are more akin to a ‘Read and Publish’ agreement such as those used by Springer Compact and the Royal Society of Chemistry, which basically converts former subscription charges of institutions into a publishing fee, often also supplemented by a reading fee.

However, a clear strategic approach for a real switch from subscription to a truly publication-based business model is not yet visible in either agreement type. The publishers’ models still reflect an experimental stage in search of a way to maintain and ensure their revenues and growth while trying to move the business to an OA environment. Institutions, on the other hand, want to comply with OA mandates whilst, at the same time, needing to reduce the overall costs.

Even where publishing charges are used as the basis for an agreement, there are still many elements which relate to the subscription business, such as price increases, fixed article contingents, arbitrary growth rates and guarantee amounts. In addition to that, the current APC levels have not yet been challenged and discussed, for example, in terms of how they relate to production costs and services.
Therefore, with regard to the continuation of these agreements, there must be a clear goal in sight towards a true transition to open access and libraries must play a proactive, rather than reactive role. The current pilot phase should provide a framework for a step change where both publishers and institutions can take advantage of this opportunity and creatively work on improved agreements.

The aim of the 2016 ESAC workshop on offsetting was to exchange experience amongst the negotiators and institutional customers from different European countries and to work on a shared vision for the offsetting model. As a result, the Joint Understanding of Offsetting paper was published in consultation with the participants. The key element of the paper refers to the expected target of the current agreements. Ideally, offsetting should lead to a ‘pay-as-you-publish’ model where research institutions will cover the costs for their publishing output only – primarily, articles by corresponding authors affiliated with the research institution. Thus, the number of articles invoiced by the publisher will result exclusively from the authors’ publishing activities. There would be no upfront payments, lump sums, or agreements based on a fixed number of articles to be purchased by the institution. In contrast to the current subscription logic, expenses under the pay-as-you-publish model will be driven by the authors’ demand only. Consequently, the model implies the total omission of any access-based cost components.

In order to achieve the transition to a pay-as-you-publish model, an offsetting model must also be based on actual publication figures. There is an obligation for publishers to identify eligible articles and to co-operate with institutions when establishing efficient business processes and de facto standards. Service levels must be defined in order to agree the number of articles that need to be processed correctly by publishers and the extent of compensation for articles that have been incorrectly processed.

The need for better workflows

In 2015 Sikora and Geschuhn described some of the hurdles faced by the MPDL in processing APCs with a variety of publishers, particularly at the article submission stage where ‘the foundations are laid for correct assignment for centralized invoice processing’. A number of studies have argued that efficient infrastructures and automated procedures are needed in order to provide a scalable solution for APC management. In addition, institutions have also expressed concern over the amount of time engaging with each of the deals might take; even the ones generally deemed to be “easy to use” or “easy to communicate”. Automation of workflows would also help to reduce costs, which have been estimated for these processes by a number of studies. It should also be noted that a complete transition to a ‘pay-as-you-publish’ model would eliminate staffing costs for the subscription model.

Issues surrounding the need for a better infrastructure to handle APCs have been discussed for some time. For example, the Jisc Collections Workshop, ‘Open Access Fees and the Hybrid Journal’, addressed this requirement as early as 2011, although funding issues were considered to be more important at the time. In 2013 Emery called for librarians to be proactive regarding standards and said that librarians ‘should not expect the standards to be used by any given publisher and should ask for them to be included. In the case of hybrid OA this means asking that FundRef, ORCID … be employed by all significant publishers’.
Although institutions have praised offsetting deals as being ‘better than nothing’, each of the various pilots is administered in a different way and although some standards exist, there is a lack of a coherent set of standards being adopted by each publisher. With the increasing uptake of the offsetting model, it becomes clear that handling issues are still to be fully resolved. Some of the challenges that were mentioned in 2011 still hinder OA publication-based business models from becoming accepted and trustworthy.

**ESAC customer recommendations for article workflows**

The 2nd ESAC Offsetting Workshop, which took place in Vienna in March 2017, was attended by libraries, funders and publishers from seven European countries, the United States and Japan. The aim of the workshop was to provide an opportunity for the exchange of ideas and discussion between institutions and publishers participating in offset agreements.

The workshop focused on three topics:

1. Author and article identification and verification
2. Funding acknowledgement and metadata
3. Invoicing and reporting.

Discussion on the topic of author identification focused on issues that many publishers have with the automation of the process. Institutions regard the current manual system used by many publishers as unscalable if a full transition to open access is going to happen. Publishers and institutions present at the workshop supported the implementation of a three-parameter approach to identify authors: IP address, affiliation statement by the author at submission and institutional e-mail suffixes.

It was also noted that authors find the process burdensome. Publishers are working to streamline their processes. However, providing authors with the required information while keeping the process simple was a great challenge. The growing importance of standardized identifiers such as ORCID and Ringgold/ISNI was also discussed and publishers were looking into making these mandatory for authors. However, the data quality of these identifiers is not yet as reliable as it needs to be. For example, authors changing affiliation during the publishing process can cause severe problems for institutions. To this extent it was thought that the development of notification processes would be beneficial in order to enable authors to be contacted in a timely manner. Therefore, the workshop considered the role of vendor or third parties in the automation of the validation process.

Consideration was also given to the ever more complicated funding situation (institutional, grant, research funding), which could endanger the establishment of efficient and consistent systems.

As part of the discussion on funder acknowledgement and metadata which followed, it became apparent that there was an issue with the definition of the term ‘funder’ itself. Institutions reported that a funder acknowledgement in the context of APC workflows should reference the funder of the article charge and this should be separated by the funder(s) of the research itself. It was suggested that new metadata fields were required for APC funding. The need for this to be adopted by organizations such as Crossref in order to create a standard field was seen as an important requirement. In addition, publishers were asked to deliver open access information to Crossref as a matter of urgency in order to be able to distinguish OA content in hybrid titles.
The discussion on invoicing and reporting acknowledged that many offsetting agreements operated with lump sum payments upfront. However, institutions also required article-based invoicing. Currently, most workflows require an approval step before invoicing, rather than confirming the eligible institution at the moment of invoicing. It became evident that there were complexities at the institutional level, with many institutions having different procedures and financial requirements. The participants drew up a list of information that should be included in an invoice. It was also suggested that a real-time dashboard system providing invoicing and reporting data was a requirement and that this might provide the flexibility required by institutional systems. However, it was noted that very few parties had systems that could be changed in the short term.

A working copy of the ESAC Recommendations for article workflows and services for offsetting/open access transformation agreements was tabled at the workshop and this was further refined as the day went on. A draft version was made available in time for the 13th Berlin Open Access Conference.\textsuperscript{29} In conjunction with the Vienna workshop attendees, the authors have further refined the document in preparation for this article. The final draft is included as Appendix 1 to this article. The authors would welcome further feedback from libraries, publishers and intermediaries.

**Conclusion**

This article has shown that, if offsetting is to assist with the transition to open access and a pay-as-you-publish model, there is an urgent need for an improvement of OA agreements and for better workflows between publishers and their customers. Although the APC model is now some years old, relatively few publishers seem to have really invested in a scalable solution for publication-based business processes, while many others depend on external suppliers of editorial management systems, which are not flexible enough to create new workflows. However, the literature and recent workshops have shown that there is growing and continued demand from libraries for a more automated and efficient system.

Discussions at the ESAC workshops have shown that due to the varying needs of the different stakeholders involved in the process, a one-size-fits-all solution may be unlikely to be achieved. The existence of different pricing schemes for different OA licence types, discounts, and the variety of funder requirements also add complexity to the whole process. However, first steps need to be taken now to automate and harmonize as much of the APC workflow as possible in consideration of already existing metadata standards, such as ORCID. The ESAC workshops were able to bring libraries, publishers and intermediaries together to agree a first set of recommendations for improvements (Appendix 1), but more work on this will be necessary in the future.

Just as libraries cannot fall back to the subscription model, offsetting is not the new default. Libraries must carefully monitor whether offsetting agreements really work as transitional models. If the APC workflows cannot be made to work soon, other financial models, such as co-operative models, which allow more efficient processes, need to be evaluated in order to move towards a fully OA model.

**Abbreviations and Acronyms**

A list of the abbreviations and acronyms used in this and other Insights articles can be accessed here – click on the URL below and then select the ‘Abbreviations and Acronyms’ link at the top of the page it directs you to: http:/\textvisiblespace/www.uksg.org/publications##aa

**Competing interests**

The authors have declared no competing interests.
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Appendix 1
ESAC Recommendations for article workflows and services for offsetting/open access transformation agreements

Offset deals are pilot agreements

The open access article workflows and services are conceived as a pilot to develop an article-based open access pay-as-you-publish business model. The parties agree to use reasonable efforts to develop streamlined author identification and verification workflows as well as efficient invoicing and reporting processes.

A) Author & article identification & verification

The publisher, in collaboration with the paying institution, shall use reasonable efforts to develop an efficient and reliable author identification and verification process. The workflow process should be confirmed during the negotiation process.

Eligible authors

Institutions need to be able to define eligibility criteria due to different funder agreements.

The publisher shall check whether or not the underlying research published in an article was sponsored by a funding agency and if an agreement with one of the funding agencies mentioned in the acknowledgement section exists (see Funding acknowledgement, below). Publishers should support the following eligibility criteria:

- Eligible authors must be corresponding author and must be affiliated with the paying institution, and the affiliation must be stated in the article.

or

- In some case eligible authors may be co-authors in receipt of research funding. Affiliation for all authors must be stated in the article.

Author identification

The publisher shall be responsible for the identification of eligible authors as part of the submission and publication process.

Workflows should be designed to ensure, given identification and approval has occurred, articles are published open access in the first instance with the appropriate license, not published as closed access and retrospectively converted to open access. Institutions may agree with publishers to make retrospective conversions to OA on a case by case basis.

\[^1\] As described in the ESAC 'Joint Understanding of Offsetting' http://esac-initiative.org/joint-understanding-of-offsetting/.
Preferably, workflows should be automated using the parameters described below.

The publisher must take steps to ensure that any changes of the details of the affiliated institution (during correction of his/her proofs, or as a post-publication correction) come to the publisher’s notice.

The publisher must be able to accommodate different funder requirements. For example:

- At the moment of publication (see metadata delivery below), the corresponding author’s affiliation must match the paying institution.

- Publishers should be able to accommodate funder acknowledgement requirements (see Funding Acknowledgement and metadata below)

### Parameters for author identification

Affiliation to the paying institution as stated in the paper to be published shall be the decisive parameter to determine eligibility.

- In addition, the publisher shall identify eligible authors through at least one of the following parameters:
  a) Authors stating their affiliation(s) at article submission
  b) IP ranges specified by the paying institution and/or
  c) E-mail domain(s) defined by the paying institution

- Identifiers, such as Ringgold, ORCID or other recognized institutional identifier as provided by the author and published in the article metadata should be integrated in the workflow and they should be provided to the paying institution.

### Article verification

- The paying institution will verify the eligibility of an article as quickly as possible to ensure the timely production and publication of the article.

- In order to verify the author eligibility criteria noted above as quickly as possible at the paying institution, the publisher shall provide the institution with all author affiliations (if there are more than one) as stated by all authors as well as all necessary metadata.

### Author involvement

- The publisher shall inform authors about the availability of institutional agreements, which secure the coverage of open access publishing fees.

- Open access publishing should be the default route for eligible authors under an agreement. Authors should not be required to take further action in order to publish open access (i.e. opt-out, opt-in, signing of open access licenses etc.).

### B) Funding acknowledgement & metadata

#### Funding acknowledgement

It must be noted that a free text funding acknowledgement may make reference to either the research funding source or the funder of the APC for the article itself. For example, the statement ‘[author] acknowledges funding from the [funder] grant [grant number]’ does not indicate whether the funder supported the research, the APC or both.
• The publisher shall label OA articles as funded by the paying institution or a respective associated institution in the paper itself
  ◦ For example, the footnote of the OA article shall state the following ‘Open access funding provided by [name of paying institution/funding organisation]’

• The funding note must appear in the article itself (e.g. PDF and Rich HTML and any future format). Additionally it could also be placed on either the CrossMark information or the article landing page

• Ideally, this information should appear as part of the article metadata using Funder Registry.

**Metadata delivery**


• Publishers should follow NISO guidance regarding free_to_read and license_reference metadata fields

• Publishers should follow NISO recommendations for ‘Mechanisms for Distributing Metadata’, which includes delivering metadata to Crossref and other relevant third parties

• It is desirable for publishers to include Funder Registry metadata.

In order to assist customers with funder compliance, the following key dates are highly desirable:

• Date of acceptance: The point at which all necessary changes have been made following peer review and the author is notified that their output will be published

• Date of article verification: The point at which the paying institution can approve funding for an article

• APC payment date: Date fee is paid to a publisher by the author’s institution for Gold open access

• Date published online: The date on which the article first becomes available online at the publisher’s website, e.g. ‘early online’ or similar arrangements

• Date of Publication: The date on which the article first becomes available to the journal’s general subscriber base, e.g. in a Volume/Issue (this may be the same as date published online).

See also the Casrai Open Access Glossary working group (https://casrai.org/uk/open-access-glossary-wg-2017)

It is important that publishers refer to ‘Using Crossref metadata to enable auditing of conformance to funder mandates: a guide for publishers’ for further information (https://github.com/CrossRef/rest-api-doc/blob/master/funder_kpi_metadata_best_practice.md)
C) Invoicing and reporting

Invoicing

Invoicing may not be appropriate to every form of current offsetting deal. However, in order to develop an article-based open access pay-as-you-publish business model, the following is recommended:

- Publisher will not directly charge authors whose eligibility has been confirmed. The corresponding author shall not be involved in the invoicing process.

- Publisher will only invoice for open access articles that have been accepted for publication (article acceptance) and have been confirmed as eligible by paying institution.

- Besides general invoice information (VAT, due date etc.), an APC invoice/pre-invoice statement shall include the following machine readable details:
  - Name and email address of the author who is affiliated to the paying institution (must be the corresponding author)
  - Complete statement of the author's affiliation to the paying institution (e.g. university, institute, department)
  - Funding organisation (research funder and grant ID)
  - Date of acceptance
  - Date of publication
  - Journal title
  - ISSN
  - Article title
  - Article type
  - DOI and link to the published article
  - Amount due
  - Discounts and discount group (if applicable)
  - CC license

Or

The publisher will enable a link on the invoice to verify this information.

Reporting

- The publisher shall provide reports to the paying institution on a monthly or quarterly basis. The delivery can also be done via a reporting tool to be developed by the publisher providing machine readable reporting data, including e.g. a list of eligible, rejected and opt-out articles.

- Reports should include how many eligible articles have been published and APC payment dates.

- Reports should include all necessary metadata.

- It is desirable that this information is available as a dashboard with download option.