

From library budget to information budget: fostering transparency in the transformation towards open access

The discussion on the transformation of scholarly journals to open access (OA) increasingly concerns financial aspects. Considering the variety of funding strategies for article processing charge (APCs), the array of cost types for scientific information and the need for data monitoring to promote cost transparency, an integrated view of the financial dimension of the OA transition is needed. This commentary describes the need for implementing an information budget that looks beyond just the library budget and comprehensively targets all financial flows from universities and other research performing organizations to publishers. An information budget promotes an integrated perspective on the distributed costs at a given institution. This centralized approach of assessing financial flows can be used to strengthen the position of research institutions when negotiating with publishers.

Keywords

open access; scholarly communication; library management

Introduction

With the increasing influence of commercial publishers on open access (OA) publishing,¹ research performing organizations are faced with the urgent task of addressing the affordability of OA. At the local level, an academic institution's financial relationships with publishers need to be reflected, and a strategy for dealing with OA-related costs needs to be developed. This strategic approach is essential for shaping the transformation towards OA in the interests of science and the spirit of open collaboration. To this end, a research institution can, for example, set maximum limits for the (complete or partial) coverage of article processing charges (APCs) and formulate further requirements for dealing with OA publication costs.²

Thus, the library of a research institution especially can make a significant contribution to shaping the OA transformation by reallocating its funds from subscription contracts to OA publishing. Schimmer defines this reallocation of funds as a 're-contextualization of the library acquisitions budget' (translated by the author).³

Since the 2010s, aspects of the financial dimensions of the OA transformation have been discussed widely. The study 'Modelling Scholarly Communication Options: Costs and benefits for universities' by Swan is of great importance in this respect.⁴ In this study, the author looks at the financial implications of the OA transformation for four universities in Great Britain. Swan and Houghton build upon this analysis and include, among other aspects, the number of journal publications produced via third-party funding.⁵ The white paper 'Disrupting the subscription journals' business model for the necessary large-scale transformation to open access' by the Max Planck



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'the library ... shaping the OA transformation by reallocating its funds'

2 Digital Library concludes that the transition from a subscription-based business model to APCs would mathematically be possible on a global level for research institutions without additional costs; the white paper further holds out the prospect of potential savings. For Germany, according to the study, 'a large-scale open access transformation without much pain' would be possible with an average APC of €2,000.⁶

However, since the values of APCs depend on the respective profiles of research institutions, particularly the publication volume of the institutions' researchers as well as other parameters, each institution must be considered individually.

In the German National Contact Point Open Access (OA2020-DE) project, Schönfelder analysed the financial needs of five universities and one non-university institution in 'transformation calculations'. The author finds that the institutions could fund all members' publications that arose in the context of research not funded by third parties through the acquisition budgets of their libraries.⁷ However, a prerequisite for this assumption is that the funding organizations have sufficient funds for the APCs of publications in their programmes.

'the values of APCs depend on the respective profiles of research institutions'

Following the logic of Laakso et al.,⁸ who divide developments within gold OA into three phases – pioneering years (1993–1999), innovation years (2000–2004) and consolidation years (2005–2009) – currently, we are probably in the ensuing phase of the commercialization years. This can be illustrated using the changes in publication fees at a global level: while the average APC was €1,261 in 2010, it was €1,684 in 2020. In the hybrid option, the average APC in 2010 was €2,318; in 2020, it was €2,373.⁹

Universities and other research performing institutions have begun to establish OA publication funds against the backdrop of the APC model gaining momentum within gold OA. Thus, publication funds are understood as a financing and control instrument for institutions meeting the costs of APCs.¹⁰ Publication funds serve the practical implementation of the goals – declared in the respective OA policies or strategies – in coping with publication charges at research institutions.

In Germany, the establishment of these funds at universities was supported by the 'Open Access Publishing' funding programme of the German Research Foundation (DFG), which ran from 2010 to 2020.¹¹ In addition, individual German states have set up funding programmes to finance OA publication fees.

Between 2010 and 2020, funders also started to reimburse APC costs in their project funding, for example, the European Commission in the Seventh Framework Programme.¹²

In Project DEAL, German research institutions are – for the first time on a national level – jointly negotiating with the three major publishers, Elsevier, Springer Nature and Wiley, under the premise of 'Publish and Read' agreements.¹³ Since the DEAL contracts with Wiley¹⁴ and Springer Nature,¹⁵ there has been an intense discussion in Germany about the costs of the OA transformation.

The association of German U15, a network of 15 research-intensive universities, has expressed its concern about 'financial ... additional burdens for universities with strong research and publication activities'¹⁶ (translated by the author) and called for 'comprehensive publication funding by third-party funders to be established immediately'¹⁷ (translated by the author). This demand is shared by the TU9 association, an alliance of nine technical universities in Germany. The association warns, 'There is a risk that publication intensive institutions will not be able to participate in DEAL contracts in the future unless there are binding agreements with the federal government, the states and the research funders on how the financial impact of the desired paradigm shift can be absorbed.'¹⁸ (translated by the author).

'there has been an intense discussion in Germany about the costs of the OA transformation'

The appeals of these two associations point to some of the unanswered questions that research institutions face regarding the costs of the OA transformation.

Variety of funding

The results of the German Options4OA Study from 2018¹⁹ show that APCs for OA articles are financed by various means. Of the 701 German institutions contacted – including universities, universities of applied sciences and non-university research institutes – 403 took part in this comprehensive survey of OA practices in Germany.

- 46.65% (n = 188) of the institutions state that they use third-party funds to finance OA publication fees provided by funding organizations (e.g. DFG, Federal Ministry of Education and Research (BMBF) and the European Commission)
- 44.17% (n = 178) organize the financing of OA APCs via central service facilities (e.g. via the library budget)
- 43.18% (n = 174) pay OA APCs using funds from the respective authors' organizational units
- 36.48% (n = 147) state that they have not yet organized the financing of publication fees (see Figure 1).²⁰

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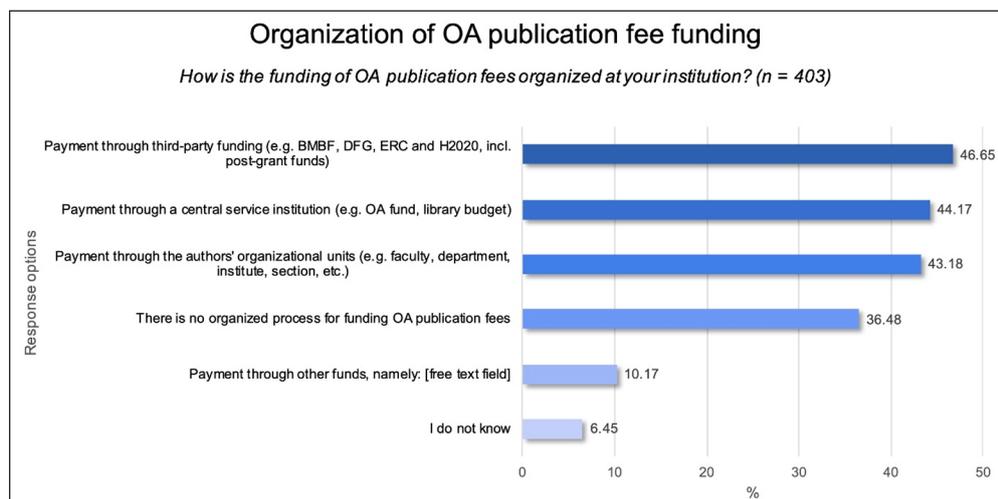


Figure 1. Organization of OA publication fee funding

Variety of expenditure

In addition, the different cost types for scientific information must be considered. Analyses at the research centres of the Helmholtz Association reveal the types of expenses that are incurred in addition to subscription and OA publishing.²¹

There are at least seven categories of cost types:

1. Expenditure on subscriptions
These funds are mostly raised centrally by the institutions' libraries and are geared to the information needs of the respective institution. Depending on the institution and its organizational structure, subscriptions paid directly by units (and thus not organized by the libraries) must also be considered in addition to the central library subscriptions.
2. Expenditure on publication fees for gold OA
Since the funds for APCs are not only paid via central publication funds but also via the scholar's units or through funding organizations, there should be central recording of this cost type.

3. Publication fee expenditures for hybrid options
Even though many research institutions exclude the financing of hybrid APCs, funders such as the German Federal Ministry of Education and Research (BMBF) do cover these costs; thus, it is necessary to monitor them centrally at an institution.
4. Expenditure on publication fees for closed access
Some journals also charge publication fees in the subscription area, e.g. colour charges (for coloured illustrations), excess charges (for excess length) and cover charges (for images on journal covers). If an institution has subscribed to the journal in question, these APCs need to be calculated in addition to subscription costs. Such expenses are usually not recorded by libraries and are therefore not monitored centrally. This gap emerges because libraries are usually only involved in the submission processes when researchers raise queries. Thus, the need for the centralized and comprehensive recording of these costs arises, as well.
5. Expenditures for licensing of illustrations
Costs are incurred for the subsequent use of images in publications, which are licensed in the STEM field, for example, via the Copyright Clearance Center, or in the field of art history via the VG Bild-Kunst, an association for the collective administration of copyright in art in Germany. There is a need for central monitoring of these expenditures because these costs are also usually paid directly by the scholars' units.
6. Expenses for consortial OA infrastructures
Costs are also incurred for consortial OA infrastructures such as arXiv or the Directory of Open Access Journals (DOAJ). These costs should be recorded on a central level so that they can be taken into account when considering the total expenses of OA.
7. Expenses for local OA infrastructures
The costs of operating OA repositories and other publication platforms at an institution need to be considered along with every other type of expenditure. These expenses seem to be given little consideration in the ongoing discussions about the costs of OA transformation.

This list – extensive while perhaps not exhaustive – illustrates the complexity of the costs incurred by research institutions for scholarly information.

The need for cost transparency

Recording and analysing the types of costs and the variety of funding strategies described above at research institutions are central prerequisites for promoting cost transparency. This transparency is necessary to negotiate the prices of the OA transformation with publishers in a fair manner and on an equal footing. The creation of cost transparency is thus a central prerequisite for discussions and evaluations of the financial dimension of the OA transformation. Therefore, besides monitoring costs, the disclosure of expenditures should also be aimed for.

In its 'Appeal for the Disclosure of Publication Fees' from 2016, the Alliance of German Science Organizations advocated for the disclosure of APCs to promote transparency. To this end, according to the Alliance, confidentiality clauses in contracts with publishers should be waived.²² This appeal is also formulated at the European level by Science Europe in the 'Recommendation by Science Europe for the Disclosure of Publication Fees'.²³ This request was included, too, in the 'Amsterdam Call for Action on Open Science'.²⁴ Additionally, the European Commission considered that topic in the 'Recommendation on Access to and Preservation of Scientific Information', in which the EU member states are encouraged to disclose financial information.²⁵

'The creation of cost transparency is ... prerequisite for discussions and evaluations of the financial dimension of the OA transformation'

5 As of March 2022, 351 academic institutions worldwide are participating in the OpenAPC initiative, through which information on paid publication fees is made openly available.²⁶ This data enables analyses of the costs of OA publishing.

At the level of a single institution, exemplary practices at the Deutsches Elektronen-Synchrotron DESY²⁷ and Forschungszentrum Jülich²⁸ demonstrate the potential of these analyses in the area of OA cost trends. At Jülich, for example, the 'Open Access Barometer' is used to provide information on the funds used.²⁹ This barometer includes cost information for 13 publishers that are relevant to Jülich authors.

Internationally, the topic of cost transparency is gaining momentum due to a growing number of freedom of information laws. For example, initiatives to create cost transparency in scholarly communication have been launched in Finland,³⁰ the United Kingdom,³¹ New Zealand³² and Switzerland³³ using freedom of information laws.

It is also necessary to discuss the disclosure of costs in line with the EU recommendation mentioned above.³⁴ However, a prerequisite for this is a paradigm shift in the institutions, leading to a rejection of non-disclosure clauses in their business relationships with publishers. The disclosure of the Project DEAL contracts seems to be a first and promising step in this direction.³⁵

The need for data monitoring

With the slow but steady progress of the OA transformation, it will be essential to take a broad view of the financial dimension of scholarly publishing.

The above-mentioned study Options4OA shows that:

- only 20.84% (n = 84) of research institutions in Germany state that they centrally monitor expenses for OA APCs
- 36.97% (n = 149) of the institutions neither currently record these costs nor plan to do so in the future
- 22.33% (n = 90) of the institutions do not know whether OA fees are recorded
- 19.85% (n = 80) of the institutions plan to collect data in the future (see Figure 2).

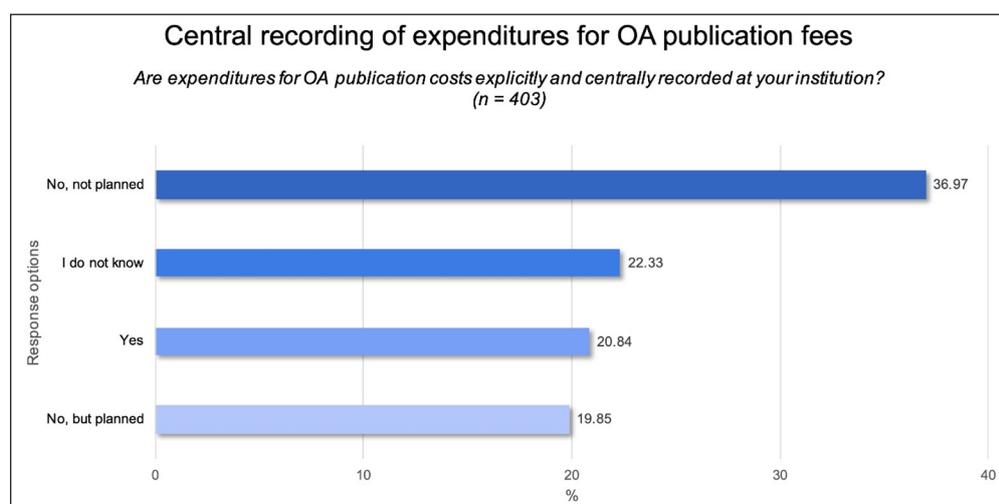


Figure 2. Central recording of expenditures for OA publication fees

The cost of non-OA APCs is usually not tracked:

- only 12.19% (n = 49) of the institutions report that they monitor expenditures on page charges or colour charges
- 44.78% (n = 180) of the institutions state that they neither currently record these expenses nor plan to do so in the future

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- 34.58% (n = 139) of the institutions have no information on this expenditure (see Figure 3).³⁶

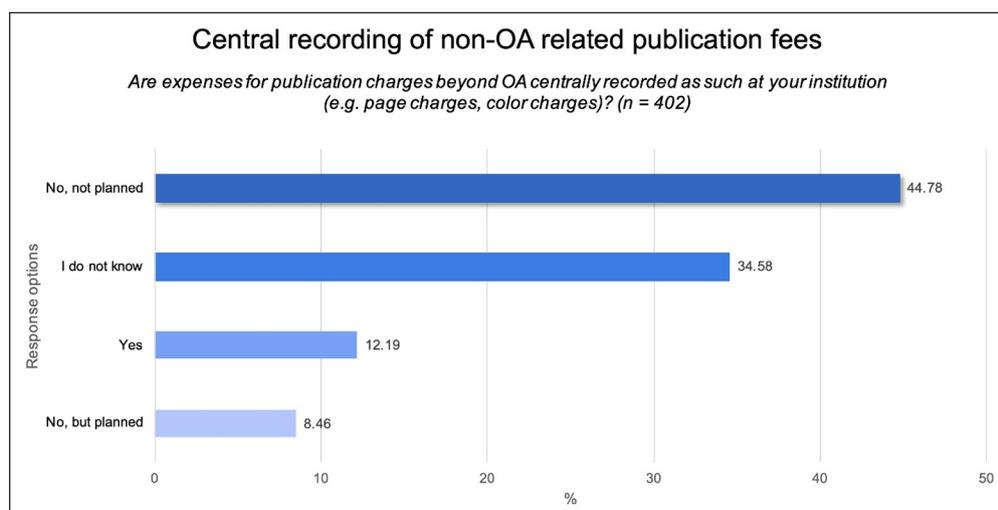


Figure 3. Central recording of non-OA related publication fees

For a sustainable transformation, research institutions face the challenge of creating cost transparency. This means that research institutions and their libraries need to create a comprehensive overview of the financial flows between them and publishers as well as other service providers.

To estimate the costs, encompassing analyses of the expenditures for scientific information are necessary. These costs need to be set in relation to an institution's publication output.

This task highlights the interplay between current research information systems (CRIS) and institutional OA repositories. Data held in these systems need to be linked. Activities in this field can also be used to support researchers in complying with the OA policies of funding agencies.

'costs need to be set in relation to an institution's publication output'

To approach cost transparency and to obtain a central overview of all costs pertaining to scientific journals, the development of corresponding monitoring procedures is necessary. In addition to bibliographic metadata, the following metadata needs to be collected for an article:

1. Legal metadata

To record the legal situation of an OA publication in a standardized manner, information on the licence is particularly necessary. For green OA publications, the legal basis of the repository version needs to be documented (e.g. information on the embargo period specified by the publisher, information on further contractual agreements, or a reference to another legal basis of OA, such as the statutory secondary publication right of German copyright law).

2. Technical metadata

Information such as the date of submission of an article and the date of its publication should be recorded. Since the technical reuse of publications, e.g. for text and data mining procedures, is essential, information about the article formats (HTML, PDF, PDF/A, JATS-XML, etc.) should also be recorded. It is also advantageous to record the publication type (scientific article, contribution to a periodical, part of a book, etc.) and the type of article (research article, review article, etc.).

3. Contractual assignment

If the article is to be assigned to a contractual agreement between the institution and a publisher (e.g. consortial agreement or local framework agreement), the attributes available for this must be recorded as well as the usual invoice information (contracting parties, name of the deal, terms of the agreement, invoice date, invoice number, etc.).

4. Financial metadata

In this section, an article's type of publication fee should be recorded. This can be, for example, publication charge for OA, publication charge for a hybrid option, publication charge for submission, excess charge, cover charge, colour charge, publication charge for rights acquisition, publication charge for associated research data (data publication charge). Information on the amount of the publication charge in gross and net, the currency of the invoice amount, the possible conversion rate and the date of conversion, and possible information on the reduction of the APC (waiver) should also be recorded.

5. Organizational Metadata

To be able to assign publications to the organizational units of the researchers and, if applicable, to projects, further information is required, e.g. the units of the participating scholars, the project in which the publication originated, the funding organization of the project (e.g. the grant number) and, in the case of cost reimbursement by a funding organization, information on the cost accounts.

The need for an information budget

Considering the variety of funding strategies for APC, the array of expenditure types of costs for scientific information and the need for cost transparency and data monitoring, an integrated view of the financial dimension of the OA transition is required. So far, many research performing institutions do not have an overview of the distributed costs. Against this background, the idea of an information budget³⁷ is proposed as follows.

The term information budget refers to a financial management tool used to manage all income and expenditure attributable to the publishing and reception of literature at a research performing organization.

As part of the organization's budget, the information budget enables the management of all financial resources for services and products of scientific information. Depending on a research institution's profile, these financial resources can consist of the library budget, third-party funded OA publication funds, publication grants in third-party funded projects and publication funds in organizational units like departments or sections of a university or laboratory.

Establishing an information budget allows an academic institution to centralize monitoring, administration and control of all expenditures for scientific information. The information budget allows an integrated view of the financial relationship with publishers and other publication service providers.

Creating an information budget serves to establish full cost transparency at the institution. It also strengthens the role of libraries within the OA transition.

In practice, this requires the creation of central business processes that ensure that all expenses related to scientific information are recorded. Libraries should take on this task and use their competencies in literature acquisition, scholarly communication and information management to establish information budgets at and for scientific institutions. Depending on the organizational structure and the level of centralization within that, there are many challenges to be overcome in creating information budgets. These challenges have to be addressed in a collaboration between the administrative units (e.g. financial administration), the library, the office for operations, and the individual departments and sections. Only with such co-operation can research performing institutions build up sufficient traction to challenge the current dominance of publishers in cost negotiations.

Information budgets should be operated in a service-oriented way. The publication cultures in the given disciplines should be taken into account, and the distribution of funds should be organized transparently.

'So far, many research performing institutions do not have an overview of the distributed costs'

'Information budgets should be operated in a service-oriented way'

- 8 The practical implementation of an information budget can be executed differently depending on the institution and in response to the existing level of centralization within it.

Outlook

The promotion of cost transparency is central to the further development of the publication system and should be pursued in an open, transparent and sustainable manner. Creating an information budget that allows for the financial management of all resources for scientific information is essential in fostering transparency of the financial flows from research performing organizations to publishers.

The German Council of Science and Humanities (Wissenschaftsrat) has recently recommended the creation of information budgets in its 'Recommendations for the Transformation of Scientific Publishing to Open Access'.³⁸

The considerations described in this commentary show that there are still unresolved issues in the practical implementation. However, given the particular nature of scientific institutions, many of these issues will need to be resolved locally.

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Abbreviations and Acronyms

A list of the abbreviations and acronyms used in this and other *Insights* articles can be accessed here – click on the URL below and then select the 'full list of industry A&As' link: <http://www.uksg.org/publications#aa>.

Competing interests

The author has declared no competing interests.

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