
Briefing Paper: Article Processing Charges

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September 2015
Updated May 2016

Article Processing Charges (APCs) are the fees that some scholarly publishers charge authors of academic papers to publish their papers in Open Access journals.

This briefing paper provides an overview of basic issues regarding APCs, an important component of the business model of Open Access publishing. It reviews how APCs are levied, the frequency of their use and APC practices among publishers and funders. It also considers the development of Open Access publication funds led by institutions, funders and disciplines. The paper ends with a review of future questions and trends.

An Overview

Article Processing Charges (APCs) or Article Processing Fees are the most widely used commercial method for financing Open Access publishing. APCs can be charged by Open Access publishers and by subscription-based journals. However, not all Open Access journals charge APCs: the majority publish articles for 'no fee'. APCs are more likely to be charged for publishing of science articles.

Traditional journal publishing is financed through subscriptions and subsidies from institutions. The system was created because production prices were dependent largely on the number of readers: printing and mailing costs heavily depend on circulation volume. Since the advent of computers and the Internet the production cost of journals have come to depend primarily on the number of articles/volume of published material (pages, figures etc.) and are largely independent of the number of downloads or reads. In recent years scholarly publishing is gradually moving away from subscriptions and towards Open Access. Publishers explore different models for financing publishing in Open Access. One of the ways of financing it is by charging authors (and their institutions and/or funders) at publication time through APCs. Other means of financing will be detailed later on in this paper.

Author-side fees existed in the print-era, through these were called page charges (as they were charged by the number of pages in the article). In the cost model page charges covered partly the (then) minor component of production costs proportional to the publication volume. Surcharges were often applied for oversized papers and for colour figures.

APCs are levied in 2 ways:

- **Open Access journal:** Authors charged to publish.
- **Subscription-based journal:** Authors charged to make their publication Open Access in an otherwise subscription-based collection. Known as the hybrid model.

A detailed study by Kozak and Hartley in 2013 found that of 9,000 Open Access journals investigated only 28% charged authors for publishing. This figure was found to be “highest in various disciplines in medicine (47%) and the sciences (43%) and lowest in the humanities (4%) and the arts (0%)”¹. A 2014 survey² found that 26% of journals listed in the Directory of Open Access Journals (which does not accept hybrid Open Access or embargoed journals) charge APCs and that at least 61% of publishers of these journals were commercial in nature, with the remaining percentage not-for-profit or unknown types. In May 2015 Peter Suber indicated that in the DOAJ³ data showed that 32% of listed journals charged a fee while 67.9% charged no publication fee⁴. Since costs exist for Open Access publishing as well, it is assumed that these are covered in ways other than APCs⁵.

APC practices among publishers

APCs vary from publisher to publisher. One major area for concern is the lack of transparency in the process for deciding on an APC fee.

¹ Kozak, M., and Hartley, J. (2013) Publication fees for open access journals: Different disciplines—different methods: <http://onlinelibrary.wiley.com/doi/10.1002/asi.22972/abstract>

² Open Access Article Processing Charges: DOAJ Survey May 2014: <http://www.mdpi.com/2304-6775/3/1/1>

³ Directory of Open Access Journals (DOAJ): <https://doaj.org>

⁴ Peter Suber APC research: <https://plus.google.com/+PeterSuber/posts/Cqv4oq3LuFr>

⁵ Other models for financing Open Access publications are the so-called collective models, such as for example the Open Library of the Humanities model (<https://about.openlibhums.org/>).

APCs are primarily charged for published articles, but some journals apply other methods including submission fees or offer membership or bulk payment options for institutions, reducing the costs⁶.

While many publishers have fixed prices, others charge different fees for different types of articles (such as full articles or shorter research notes). There may also be discounts for authors whose institution participates in the publisher’s membership programme, or for those who have negotiated a discount (these usually involve block money transfers and advance payments). Some Open Access publishers have schemes for waiving APCs for authors from developing or low-income countries (e.g. BioMed Central waives APCs⁷; the Public Library Of Science offers Publication Fee Assistance⁸). The extent of fee waiving among the largest toll access and Open Access publishers is measured in a report written by Stuart Lawson of Jisc⁹.

While APC costs vary, Walt Crawford¹⁰ found that 25% of the journals (roughly) fall into each of the four ranges indicated in figure 1.

⁶ Examples include: PLOS Institutional Account: <https://www.plos.org/about/get-involved-2/institutional-account-program/>

and SpringerOpen Membership: <http://www.springeropen.com/libraries>

⁷ BMC waiver country list: <http://www.biomedcentral.com/authors/oawaiverfund/>

⁸ PLOS Publication Fee Assistance <https://www.plos.org/publications/publication-fees/plos-publication-fee-assistance/>

⁹ Lawson, S. (2015) Fee waivers for open access journals http://figshare.com/articles/Fee_waivers_for_open_access_journals/1415955

¹⁰ Universal survey of Open Access (OA) journals: <http://walt.lishost.org/2015/03/the-open-access-landscape-1-background/>

High: \$1,451 or more	Low: \$201 to \$600
Medium: \$601 to \$1,450	Nominal: \$8 to \$200

Figure 1: Range of APC Costs

According to the comprehensive Study of Open Access Publishing (SOAP)¹¹, APCs are paid by the article author only 12% of the time, hence the conscious move away from the use of the term author-side fees or author pays. . The majority of payments are made by funders (59%) or by universities (24%). Researchers with a funded research project can, in principle, cover APCs from their grants and funders often support this approach. However in countries where the average grant sizes are low, there is simply no way to cover APCs from grants.

Björk and Solomon found that APCs for hybrid Open Access journals tend to be significantly higher than APCs for Open Access journals¹² at a cost of \$2,727 on average per article rather than \$1,418. A different study looking at the relationship between APC cost and the prestige of a journal was carried out at the University of Edinburgh. They found that some journals (both hybrid and Open Access) with high impact factors applied significantly higher article processing charges¹³.

¹¹ Open Access Publication Funds: Study of Open Access Publishing (SOAP): <http://arxiv.org/abs/1101.5260>

¹² Björk, Bo-Christer; Solomon, David, 2014, "Developing an Effective Market for Open Access Article Processing Charges" Final Report to a consortium of research funders comprising Jisc, Research Libraries UK, Research Councils UK, the Wellcome Trust, the Austrian Science Fund, the Luxembourg National Research Fund and the Max Planck Institute for Gravitational Physics (London, Wellcome Trust). http://www.wellcome.ac.uk/stellent/groups/corporatesite/@policy_communications/documents/web_document/wtp055910.pdf

¹³ Andrew, T. "Gold Open Access: Counting the Costs ". November 2012, Ariadne Issue 70 <http://www.ariadne.ac.uk/issue70/andrew>

Many funders and institutions are less keen to pay Open Access fees for hybrid journals, and are concerned about paying for the same content twice (known as 'double dipping') by paying both a subscription to the journal and APCs for articles to be published Open Access. The Norwegian Research Council has made grant money available for APCs but only for purely Open Access journals. It should be noted that page charges (mentioned earlier) do still exist and can be levied on top of APCs or Open Access fees, though some funder policies may specify that where an Open Access cost is charged no other publication costs should be paid on top. In another strategy, the Austrian Science Fund (FWF) (Austria) funds hybrid APCs, but applies a lower price cap than applied for Open Access journals¹⁴.

Work is still taking place to investigate the best 'value for money' approach for funders and institutions. In the aforementioned paper, Björk and Solomon outline three combined (full Open Access and hybrid) scenarios believed to be the most beneficial for APC-funding policies:

- APCs are refunded at list prices, with mechanisms put in place on the local level for hybrid Open Access in order to ensure savings on subscriptions and avoid "double dipping";
- APCs are funded according to value-based price caps set for each journal and based on the journal's relative "value";
- Funders cover a fixed percentage of the APCs' costs up to a certain maximum and the remaining portion is covered by universities/authors through other sources.

¹⁴ Austrian Science Fund (FWF) Publication Cost Data 2014: http://figshare.com/articles/Austrian_Science_Fund_FWF_Publication_Cost_Data_2014/1378610

Developing Open Access publication funds

In response to the increasing requirement for APCs by large commercial publishers, funders and institutions have been developing Open Access publication funds to assist their researchers. A publication fund is a pool of money set aside by an institution to pay APCs or reimburse money spent on Open Access publishing. The Open Access Directory provides a list of APC supporting funds or assistance schemes¹⁵ and Taylor and Francis online offer a list of institutions which will offer Open Access prepayment¹⁶.

SPARC provides information for institutions planning to implement a publishing fund¹⁷. The Open Access working group of the Alliance of Science Organisations in Germany published a recent hand-out on Open Access Publication Funds¹⁸. The guide suggests a number of key policy decisions to be made when establishing the fund including:

Who manages the fund? Where do the funds come from? What charges should the fund cover? What content types are eligible? Are any access restrictions acceptable? Who within your community is eligible to receive support from the fund? How are intramural collaborations handled? Are there restrictions on repeat usage?

Another approach is centralising funds. SCOAP3¹⁹ (Sponsoring Consortium for Open Access Publishing in Particle Physics) is a pioneering project looking at covering APCs centrally for a particular scientific field: particle physics. The APC level can be collectively negotiated resulting in agreed-upon APCs for SCOAP3 participating journals. Negotiation can take place as a country, institution or as a discipline.

In the Netherlands – the Association of Dutch Universities (VSNU) and the Koninklijke Nederlandse Akademie van Wetenschappen (KNAW) have established a countrywide agreement with Springer that covers the open access charge for affiliated corresponding authors in subscription-based journals²⁰.

An analysis of the financial background to the transition from subscription-based to Open Access publishing has recently been published by the Max Planck Digital Library²¹. The report provides insights in to what institutions can do to move towards Open Access publishing as an alternative to subscriptions.

APCs and Funders Policies in EU

APCs are becoming a more acceptable and understandable component of the business model of Open Access publishing.

As mentioned earlier a number of European funders now allow the payment of Open Access article fees or accept that research grant funding could be used to pay for APCs. These include

¹⁵Open Access Directory: Open Access Journal funds:
http://oad.simmons.edu/oadwiki/OA_journal_funds

¹⁶Taylor and Francis Open Access information:
<http://www.tandfonline.com/page/openaccess/funders>

¹⁷ SPARC Funds FAQ: <http://www.sparc.arl.org/initiatives/funds>

¹⁸ Open Access working group of the Alliance of Science Organisations in Germany Open Access Publishing Funds:
<http://doi.org/10.2312/allianzoa.007>

²⁰ Springer Agreement with the Association of Dutch Universities and Academy Institutes:
<http://www.springer.com/gp/open-access/springer-open-choice/agreements/42388>

²¹ Disrupting the subscription journals' business model for the necessary large-scale transformation to open access. Max Planck Digital Library Open Access Policy White Paper.
<http://dx.doi.org/10.17617/1.3>

RCUK, Deutsche Forschungsgemeinschaft (DFG), the Dutch NWO, the Norwegian Research Council, the Swiss National Science Foundation and the Swedish Research Council. A list of these funders is provided in the information section. Another interesting approach is demonstrated by the Hungarian Scientific Research Fund (OTKA), which earmarks a part of the institutional overhead to be used for funding APCs.

One area of work funders have been involved with is providing guidance to publishers introducing offset systems and to academic institutions in evaluating proposals for such systems²².

In the future funder mandates and APC funding policies may well affect the pricing of publishers. As Richard Poynder points out: the indication of ample funding might encourage publishers to raise APCs²³. It is possible some funders may try to orient the market and influence the APCs with appropriately adjusted price caps²⁴.

For Horizon2020 researchers are encouraged to publish in Open Access journals or in hybrid journals that offer the possibility of making individual articles openly accessible. When applicable the APCs incurred by beneficiaries are eligible for reimbursement during the duration of the action. It is advisable to indicate anticipated costs for publishing Open Access in grant proposals²⁵.

As part of OpenAIRE2020²⁶ a Gold Open Access Pilot was launched supporting FP7 projects finished after 2013. The pilot will make 4 million Euro of funding available to cover the cost of publications arising from FP7 projects up to 2 years after the project has ended. In this pilot hybrid APCs are not eligible for funding.

Future Trends and Conclusions

Use of APCs by publishers continues to be diverse and often opaque. However, while APCs often present a burden for both researcher and the publisher, both financially and bureaucratically, they do provide a compelling opportunity as a mechanism to ensure that researchers are aware of costs in the publishing process. Further, this supply-side model entails the full disclosure at the outset of the costs per article, which lends transparency to the process of charging for the publication of literature on the side of the publishers.

It is possible that this engagement will bring hitherto often undiscussed elements of the scholarly publishing environment to a new audience, and allow opportunities for discourse and feedback.

This paper has shown that there is growing recognition that financial help could be provided for APCs from funders and institutions alike. One suggestion might be that funders coordinate their APC support policies to achieve larger impact on publishers, and that they remain aware of the possible effect of such policies on publishing costs. The PASTEUR4OA regional meetings offer a venue for developing coordinated APC funding policies.

²² Jisc Collections principles for offset agreements: <https://www.jisc-collections.ac.uk/Global/News/files/docs/Principles-for-offset-agreements.pdf>

²³ Emerald Group Publishing tests ZEN, increases prices: what does it mean? <http://poynder.blogspot.hu/2015/07/emerald-group-publishing-tests-zen.html>

²⁴ Open Access policy for FWF projects: <https://www.fwf.ac.at/en/research-funding/open-access-policy/>

²⁵ ROARMAP: Horizon2020 policy: <http://roarmap.eprints.org/680/>

²⁶ OpenAIRE2020: <https://www.openaire.eu/news-events/openaire2020-press-release>

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Working Together to Promote
Open Access Policy Alignment in Europe



It is clear that there is a political and economic question about who pays for scholarly publication. However, scholarly communication should be viewed in the context of what society pays for when it funds research, rather than just seen as a cost for academics to shoulder. Effective future policy will need to consider what is required for scholarly communication to work effectively and think more imaginatively about the opportunities available.

The Max Planck Digital Library Open Access Policy White Paper cited earlier in this briefing document begins to look at alternate options in

more detail. It argues that a true transformation of scholarly publishing will be achieved by *“converting the existing library acquisition funds into a budget for publication services, which can be expected to be eventually rather more stratified than article processing charges (APCs) as we know them today.”* It might be that APCs are only an interim measure on the road to Open Access.

Further Information

Papers and articles

Björk, B.-C., Solomon, D., 2012, "Pricing Principles used by Scholarly Open Access Publishers", *Learned Publishing*, 25(3): 132-137.
<http://dx.doi.org/10.1087/20120207>

Curb, L. A., & Abramson, C.I., 2012, "An examination of author-paid charges in science journals. *Comprehensive Psychology*", 1, 4.
<http://www.amsclpub.com/doi/pdf/10.2466/01.17.CP.1.4>

De Castro, Pablo (2016) The OpenAIRE2020 FP7 Post-Grant Open Access Pilot: Implementing a European-wide funding initiative for Open Access publishing costs" has now been published in *Information Services & Use* 31(4): 235-241.
<http://dx.doi.org/10.3233/ISU-150786>

Eve, Martin (2014) All that Glitters: Investigating Collective Funding Mechanisms for Gold Open Access in Humanities Disciplines
<http://jisc-pub.org/cgi/viewcontent.cgi?article=1131&context=jisc>

LSE & HEFCE (2015) Economic analysis of business models for open access monographs
<http://bit.ly/1g9d3vh>

King D.W., Alvarado-Albertorio F.M., 2008, "Pricing and other means of charging for scholarly journals: a literature review and commentary", *Learned Publishing*, 21(4): 248-272.
[doi:10.1087/095315108X356680](https://doi.org/10.1087/095315108X356680)

Schimmer, R., Geschuhn, K. K., & Vogler, A., 2015, "Disrupting the subscription journals' business model for the necessary large-scale transformation to open access",
<http://dx.doi.org/10.17617/1.3>

Solomon, D.J.; Björk, B.-C., 2012, "A study of open access journals using article processing charges", *Journal of the American Society for Information Science and Technology*, 63, 8, 1485
<http://dx.doi.org/10.1002/asi.22673>

SPARC, "Income Models for Open Access: Article Processing Fees",
<http://www.sparc.arl.org/resources/papers-guides/oa-income-models/guide2-1>

Which subjects are most likely to charge article processing charges? by Heather Morrison
<http://sustainingknowledgecommons.org/2015/05/05/which-subjects-are-most-likely-to-charge-article-processing-charges/>

Suber, P., 2006, "No-fee open-access journals", *SPARC Open Access Newsletter*, November 2.
<http://dash.harvard.edu/handle/1/4552050>

Working Group Open Access of the Priority Initiative Digital Information of the Alliance of Science Organisations in Germany, "Open Access Publication Funds"
<http://doi.org/10.2312/allianza.007>

Efficiency and Standards for Article Charges
<http://esac-initiative.org>

Some funders that support the payment of APCs

Austria: Austrian Science fund (FWF)
<https://www.fwf.ac.at/en/research-funding/open-access-policy/>

Germany: Deutsche Forschungsgemeinschaft (DFG)
<http://bit.ly/1FygSPR>

Netherlands: Dutch Organisatie voor Wetenschappelijk Onderzoek (NOW)
<http://bit.ly/1gAnR0>

Norway: Norwegian Research Council
<http://bit.ly/1GndIFc>

Sweden: Swedish Research Council
<http://bit.ly/1EYqvGX>

Switzerland: Swiss National Science Foundation
<http://www.snf.ch/en/theSNSF/research-policies/open-access/Pages/default.aspx>

UK: Research Council UK (RCUK)
<http://www.rcuk.ac.uk/research/openaccess/>

APC information can also be found through a search on ROARMAP
<http://roarmap.eprints.org/>
See Advanced search > Funding for APCs where charged by journals

This publication was produced by Open Knowledge and Hungarian Academy of Sciences, PASTEUR4OA Project partners. PASTEUR4OA is an FP7 project funded by the EUROPEAN COMMISSION.

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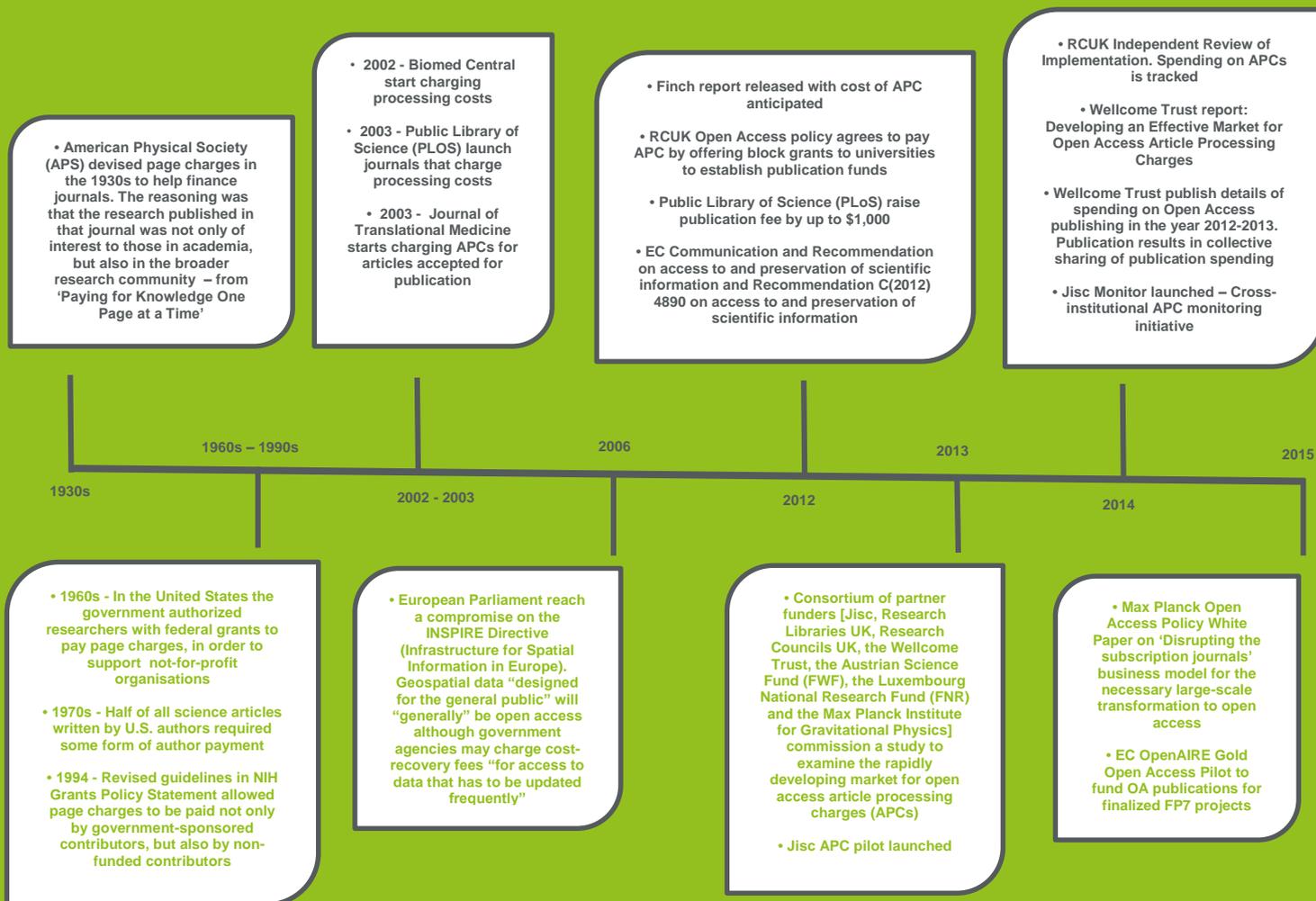
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Annex 1 – Article Processing Charges Timeline

Article Processing Charges Timeline



A more detailed version of this timeline is available on the Open Access Working Group blog: <http://access.okfn.org/2015/05/18/apcs-timeline/>