



How much is too much? Estimating APCs and questioning sustainability

Leigh-Ann Butler

Scholarly Communications Librarian, uOttawa Library

5 December 2024

PCI Webinar series



Overview

- Background
 - Open access models
 - Article processing charges (APCs)
 - Other types of author fees
- APC datasets & studies
 - Methodology
 - Results
- Conclusions

BOAI 20th Anniversary Recommendations

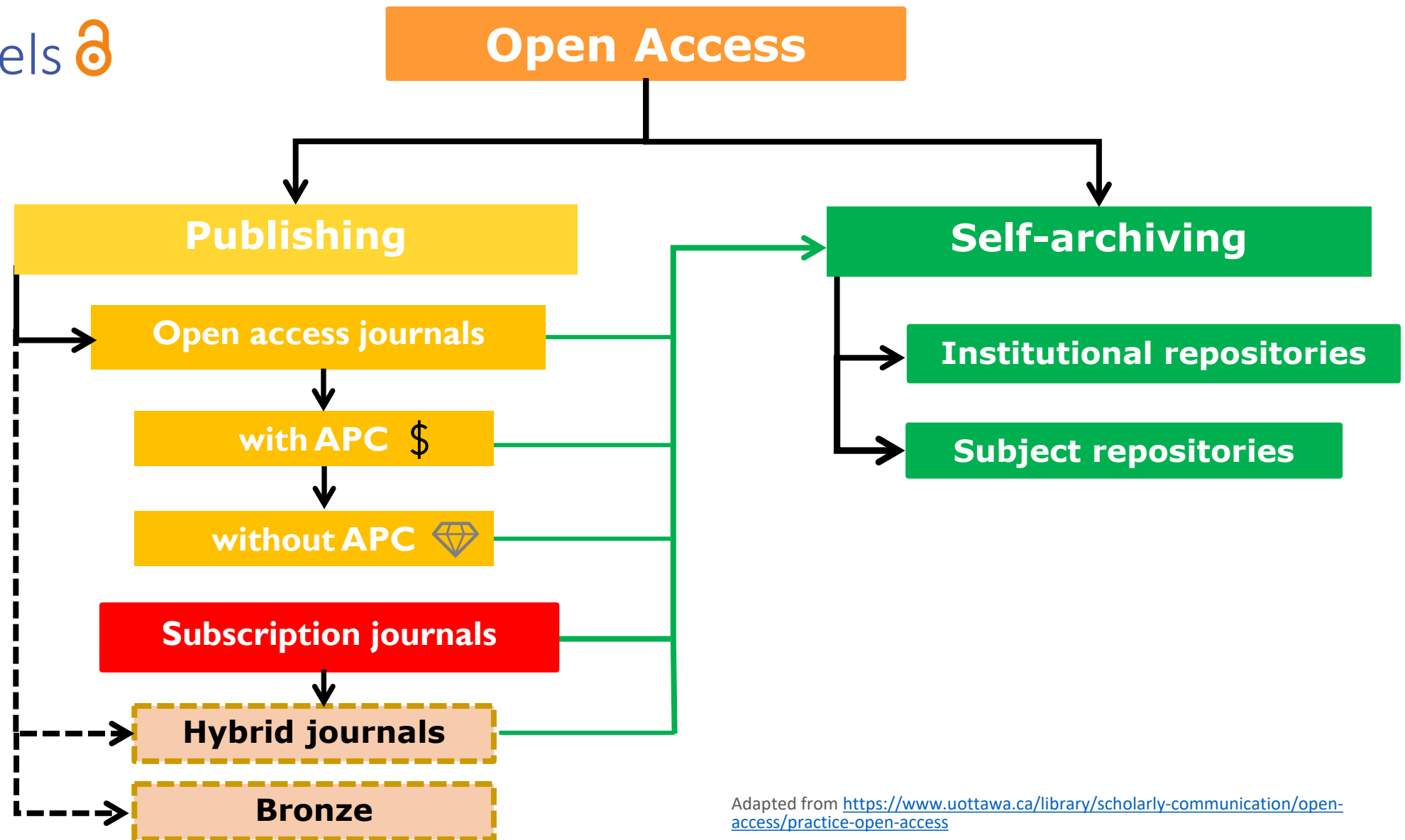
1. Host OA research on open infrastructure
2. Reform research assessment and rewards to improve incentives
3. Favor inclusive publishing and distribution channels that never exclude authors on economic grounds

*Take full advantage of OA repositories and no-APC journals (“green” and “diamond” OA).
Move away from article processing charges (APCs).*

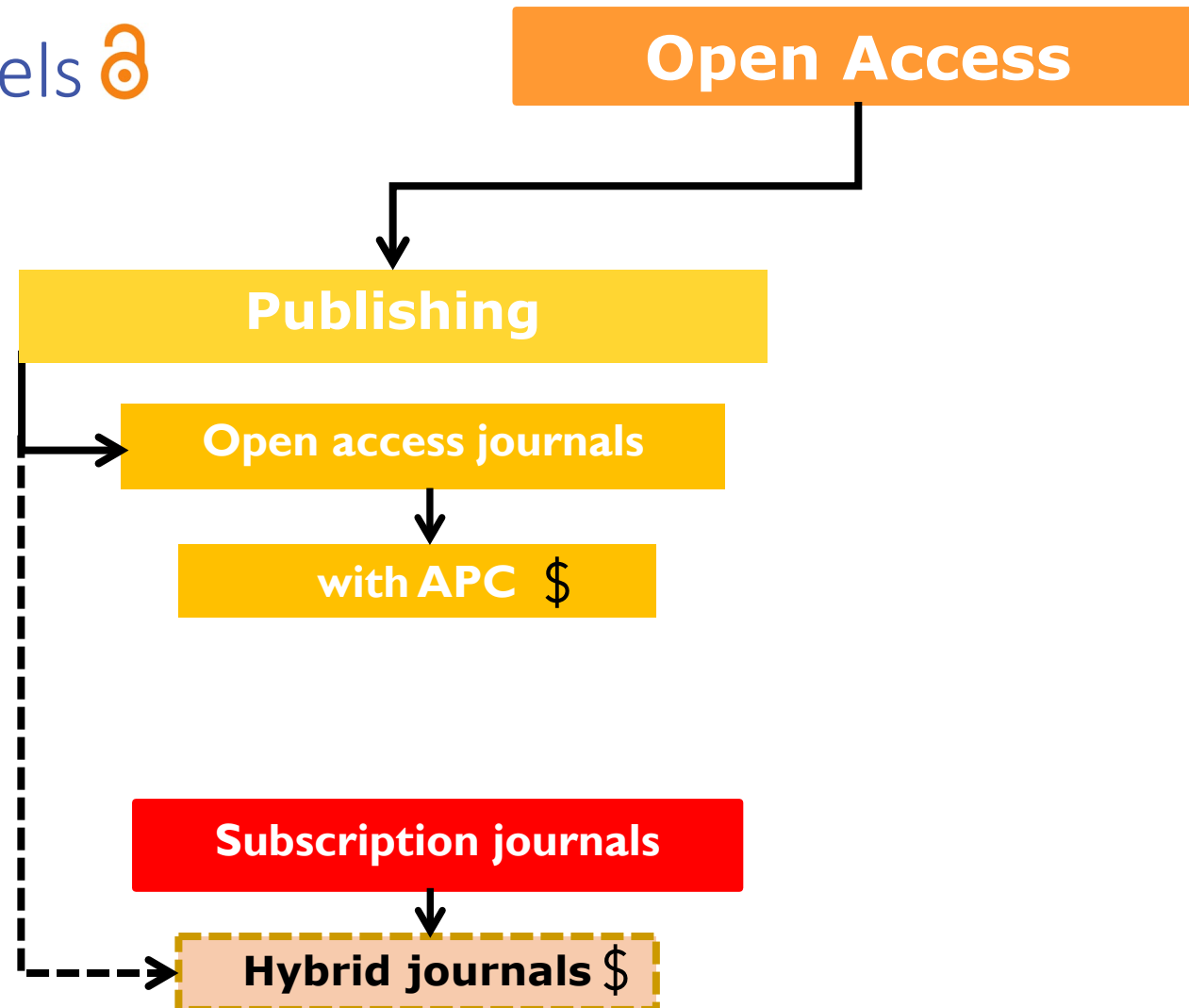
4. When we spend money to publish OA research, remember the goals to which OA is the means

*Favor models which benefit all regions of the world, which are controlled by academic-led and nonprofit organizations, which **avoid concentrating new OA literature in commercially dominant journals**, and which **avoid entrenching models in conflict with these goals**. Move away from read-and-publish agreements.*

OA models



OA models



Article Processing Charges (APCs)

How much APCs *should* cost

- \$200 to 1,000 based on publishing costs (Grossmann & Brembs, 2021)
- Up to \$1,000 (Fair Open Access Alliance)

“The ability and willingness of consumers to pay for products influences supply-side pricing decisions.” (Siler & Frenken, 2020)

Article Processing Charges (APCs)

How much APCs *actually* cost

→ Average/median gold APC

Journal level

- \$889 (Siler & Frenken, 2020)
- \$958 (Morrison et al., 2021)
- \$1,068 (Simard et al., 2022)
- \$1,977 (Butler et al., 2024)
- **\$2,000** (Haustein et al., 2024)

Article level

- \$1,800 (Solomon & Björk, 2016)
- \$1,626 (Morrison et al., 2021)
- \$1,989 (Butler et al., 2023)
- **\$2,450** (Haustein et al., 2024)

→ Average/median hybrid APC

Journal level

- \$3,137 (Butler et al., 2024)
- **\$3,230** (Haustein et al., 2024)

Article level

- \$3,000 (Solomon & Björk, 2016)
- \$2,600 (OpenAPC, 2022)
- \$2,905 (Butler et al., 2023)
- **\$3,600** (Haustein et al., 2024)

Article Processing Charges (APCs)

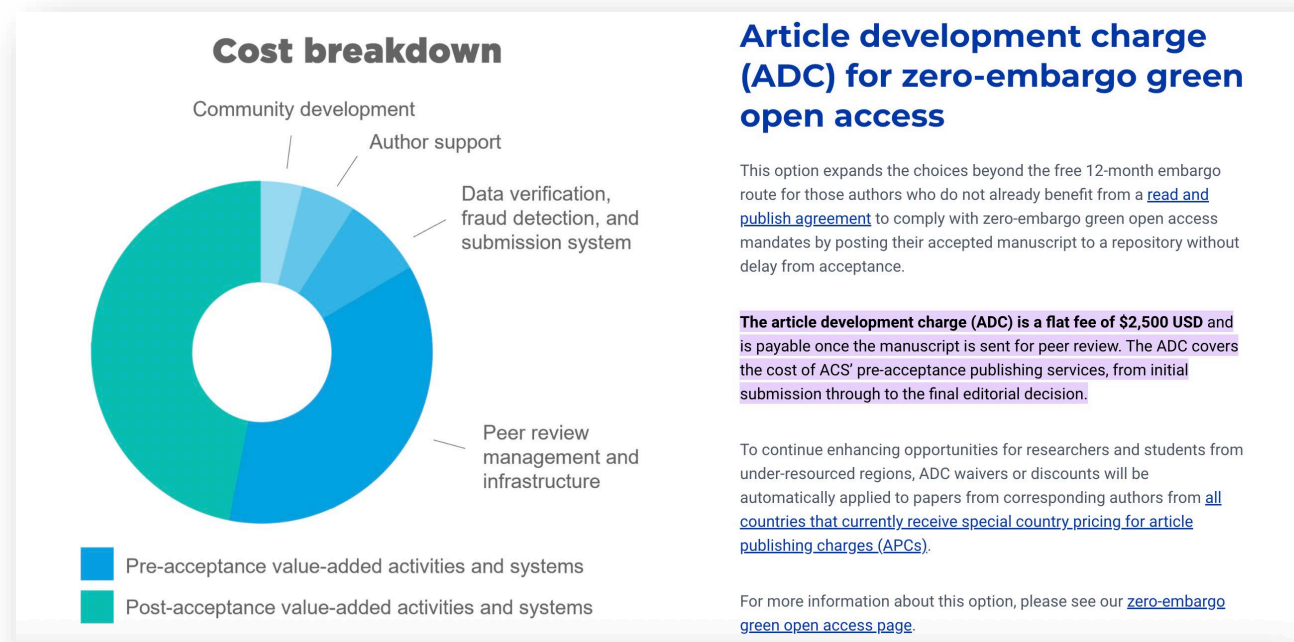
“In general, the more researchers in a country who pay APCs from institutional or own research funds, the higher the average APC paid in that country. Conversely, the more researchers from a country pay from own funds or rely on APC waivers, the lower the APCs paid...”

Gallardo et al., (2024)

Other types of author fees

Article Development Charge (ADC)

- *American Chemical Society* introduces \$US 2,500 ADC fee
- Enables authors to immediately deposit accepted manuscript (green OA)
- Published version (VoR) remains paywalled



Other types of author fees

Accelerated Review Fees

- Some publishers are introducing charges for accelerated review times, e.g.:
 - Springer-Nature, *Advances in Therapy*: \$US 7,800 (hybrid journal)

The screenshot shows the 'Advances in Therapy' journal website. The page title is 'Advances in Therapy' and the publishing model is 'Hybrid'. A 'Submit your manuscript' button is visible. A callout box highlights the 'Rapid Service Fee' information:

Publication fees: Upon acceptance of an article, authors will be required to pay the mandatory **Rapid Service Fee of €6250 / \$7800 / £5600**. The journal will consider fee discounts and waivers on the Rapid Service Fee for developing countries and this is decided on a case by case basis. If you would like to request a discount or waiver, please do so either ahead of submission or at the very start of the submission process. Requests made after this stage will not be considered.

Open access option: *Advances in Therapy* offers an open access option for all articles submitted to the journal. If you choose open access publication you **will be required to pay a fee of €3590 / \$4590 / £2890 (in addition to the mandatory Rapid Service Fee)**, upon acceptance of your article.

Overview

Advances in Therapy is an international, open choice, peer-reviewed (single-blind), and rapid publication journal. The scope of the journal is broad, covering the use of therapies, devices, and surgical techniques across all therapy areas. The key features of the journal are:

Rapid publication: The journal aims for a 2-week peer review, 3-4 weeks from acceptance to online.

Inclusivity: All scientifically sound research considered be it positive, confirmatory or negative data. Research is considered from clinical phase, real-world and health economics outcomes studies. Submissions are welcomed

Other types of author fees

Accelerated Review Fees

- Some publishers are introducing charges for accelerated review times, e.g.:
 - Springer-Nature, *Advances in Therapy*: \$US 7,800 (hybrid journal)
 - *Dermatology and Therapy* \$US 6,850 (fully OA)

Home > Advances in Therapy

Advances in Therapy
Publishing model
Hybrid

Submit your manuscript →

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[Editorial board](#) [Aims and scope](#)

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Home > Dermatology and Therapy

Dermatology and Therapy
Research, treatment and aesthetic interventions in dermatology

Publishing model
Open access

Submit your manuscript →

Publication fees: Upon acceptance of an article, authors will be required to pay the mandatory **Rapid Service Fee of €5500 / \$6850 / £4700**. There is an additional fee for podcast articles. The journal will consider fee discounts and waivers for developing countries and this is decided on a case by case basis. If you would like to request a discount or waiver please do so either ahead of submission or at the very start of the submission process. Requests made after this stage will not be considered.

[Editorial board](#) [Aims and scope](#)

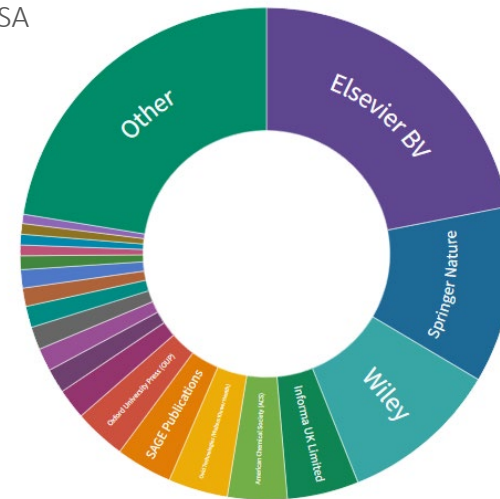
Overview

Dermatology and Therapy is an international, open access, peer-reviewed (single-blind), and **rapid publication journal**. The journal is dedicated to the publication of high-quality clinical (all phases), observational, real-world, and health outcomes research around the discovery, development, and use of dermatological therapies. The key features of the journal are:
Rapid publication: The journal aims for a 2-week peer review, 3-4 weeks from acceptance to online.
Open access: All articles published open access (CC-BY-NC)

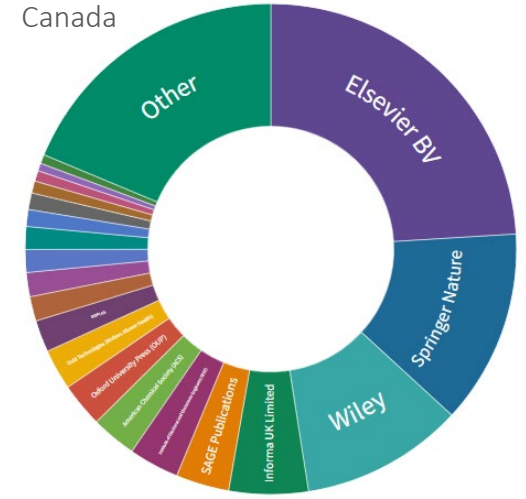
Read-and-publish agreements (“transformative” agreements)

- Negotiated contract between institution and publisher
 - Library or consortium pays annual fee, eliminating or reducing author fees
 - Combines reading and publishing for a fixed price
- Original intention was to “transform” subscription journals to OA
 - Plan S Transformative Journals program failed
 - Hybrid OA had the same goal
- New “Big Deal”

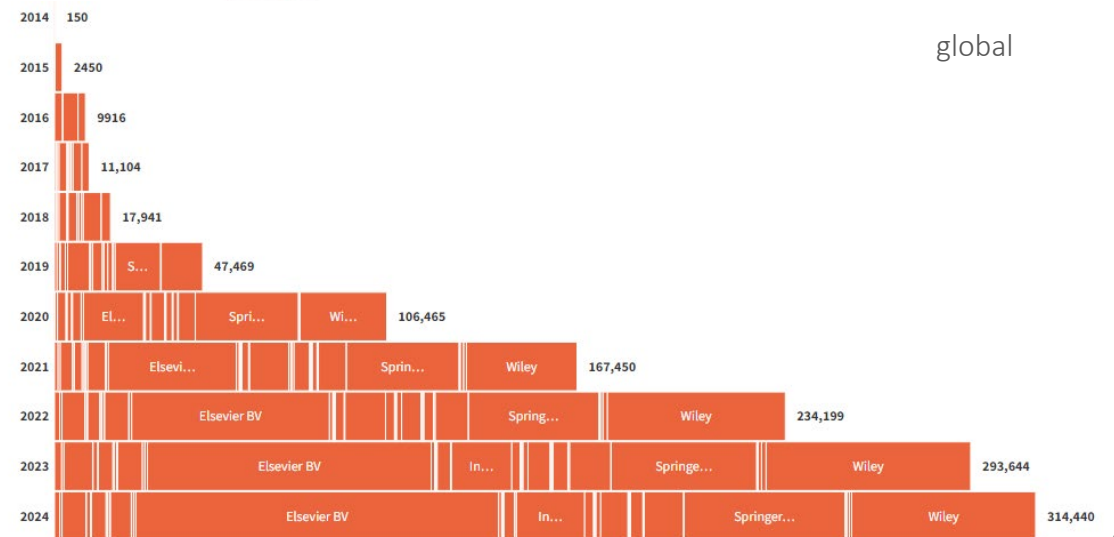
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Canada



global

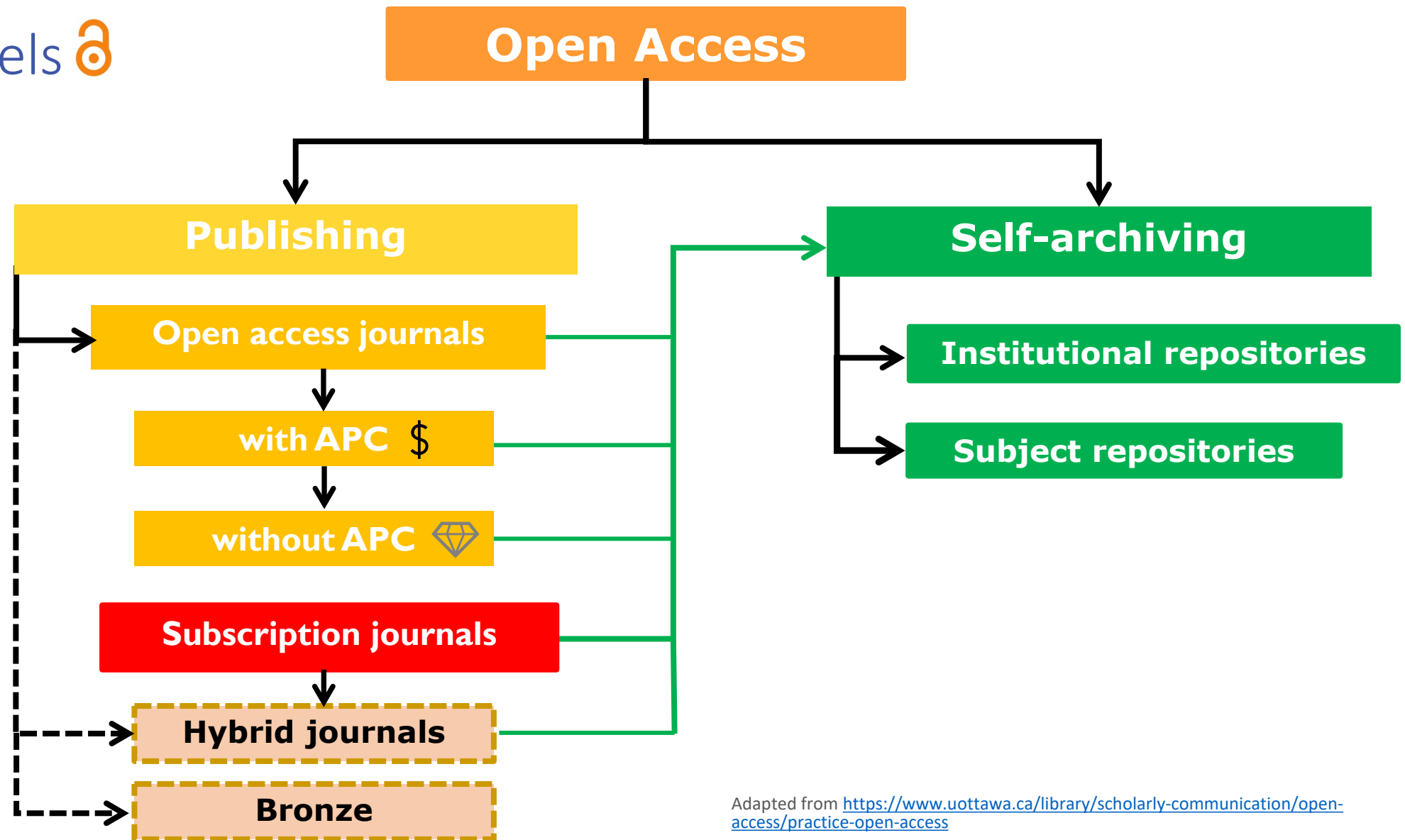


Read-and-publish agreements (“transformative” agreements)

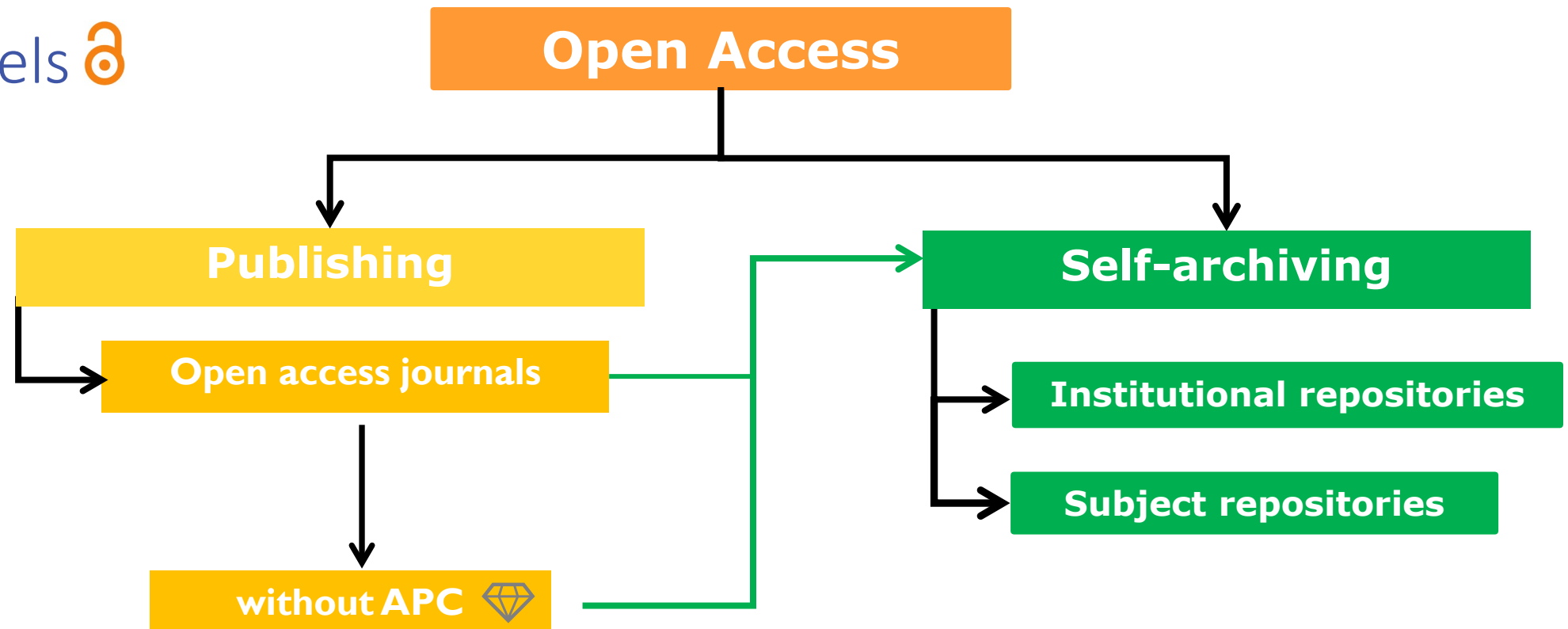
“The speed at which this transition is (barely) happening at the very large commercial (hybrid) publishers is so slow that the whole strategy is very likely to be abandoned despite its non-negligible advantages.”

De Castro et al.(2024)

OA models



OA models



Open access without author fees

*“systematically under-noticed, under-discussed, under-appreciated, under-funded and under-used”
(BOAI, 2022)*

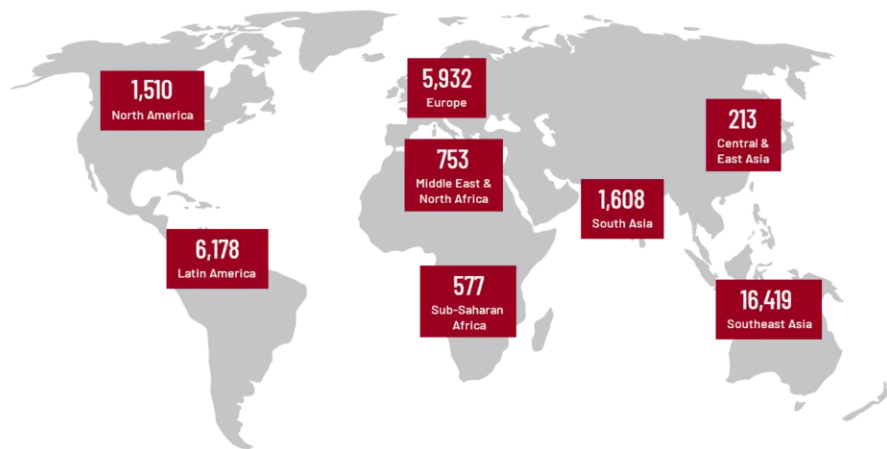
Open access without author fees

And yet...diamond and green are well-established open access models in many areas around the globe...

Open access without author fees

GLOBAL USAGE OF OJS

More than 8 million items have been published with Open Journal Systems, our open-source publishing software trusted by more than a million scholars in almost every country on the planet.



We found 34,072 journals that published 5 or more items in 2021 using OJS. [View source.](#)

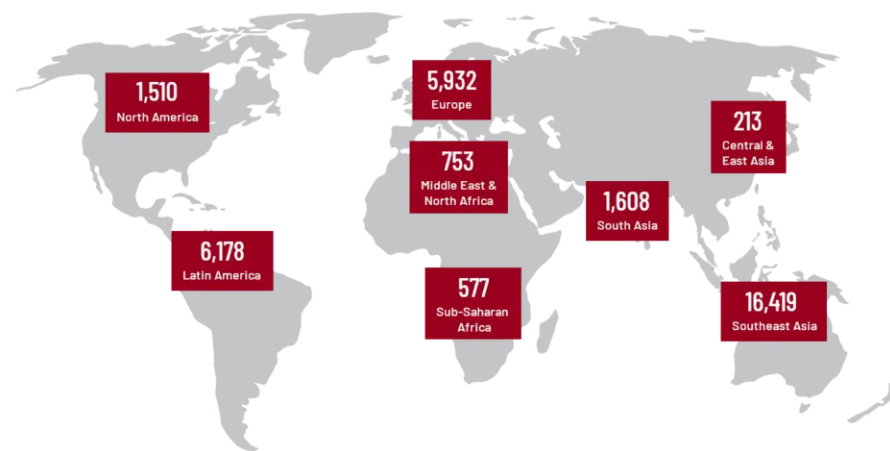
Khanna, S., Raoni, J., Smecher, A., Alperin, J. P., Ball, J., & Willinsky, J. (2021). *Details of publications using software by the Public Knowledge Project* (Version 5.0) [Dataset]. Harvard Dataverse. <https://doi.org/10.7910/DVN/OCZNVY>

Background

Open access without author fees

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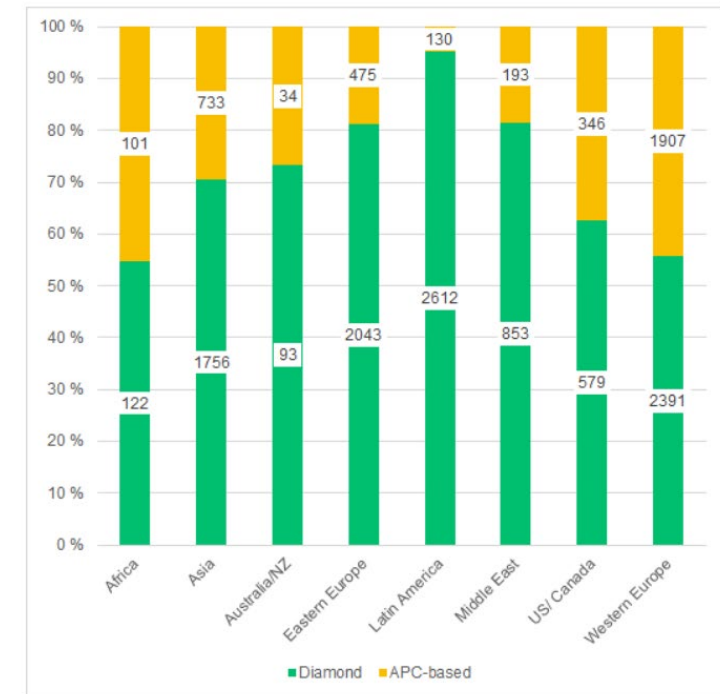


Figure 12. Shares of OA diamond and APC-based open access models in DOAJ-listed journals. Source: DOAJ

Khanna, S., Raoni, J., Smecher, A., Alperin, J. P., Ball, J., & Willinsky, J. (2021). *Details of publications using software by the Public Knowledge Project (Version 5.0)* [Dataset]. Harvard Dataverse. <https://doi.org/10.7910/DVN/OCZNVY>

Bosman, J., Frantsvåg, J. E., Kramer, B., Langlais, P.-C., & Proudman, V. (2021). *OA Diamond Journals Study. Part 1: Findings*. Zenodo. <https://doi.org/10.5281/ZENODO.4558704>

→ Studies show Canada's publishing landscape is largely non-commercial – diamond OA an important presence

Les revues savantes canadiennes en sciences humaines et sociales

Portrait quantitatif et qualitatif

Juin 2021



UAlberta Research Data Collection
(University of Alberta)

Borealis > University of Alberta Dataverse > UAlberta Rese

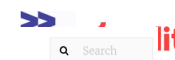
Préparée par :

Vincent Larivière



the journal of
electronic
publishing

Library publishing and
to a 2022 questionnai



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Article

What Are the Characteristics of Canadian Independent, Scholarly Journals? Results from a Website Analysis

Abstract

The dominance of commercial publishers (Larivière, Haustein, and Mongeon 2015) has led to a discussion in Canada focusing on alternative models for supporting independent, non-commercial, scholarly journals. Although small in number, these journals represent an important contribution to Canadian and global scholarship. They also act as a counterbalance to the increasingly for-profit nature of scholarly publishing. Despite their importance, there exists no definitive list of journals of this nature in Canada, making analysis and understanding of their characteristics difficult.

Authors

- Jessica Lange (McGill University)
- Sarah Severson (University of Alberta)

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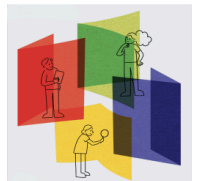
ISSUE

Volume 24 · Issue 1 · 2021

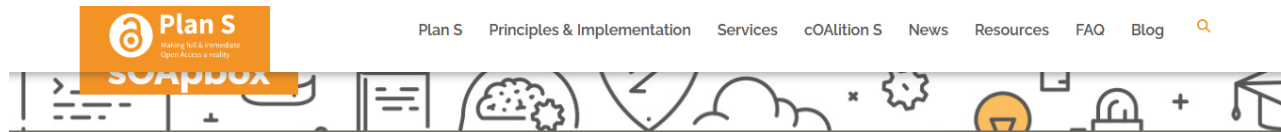
Reconnaître, valoriser, renforcer

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Recommandations issues
du Symposium québécois
des revues savantes



Open access without author fees



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Peer-reviewed preprints and the Publish-Review-Curate model

28/10/2024

The traditional scientific publication model, characterized by gate-keeping editorial decisions, has come under increasing criticism. Opponents argue that it is too slow, opaque, unfair, lacking in qualifications, and in response to these critiques, two alternatives have gained traction: peer-reviewed preprints (e.g., [O'Shea, 2019](#) and [Liverpool, 2023](#)). Both models share two common steps:

Step 1: Authors decide when to make their articles publicly available in open archives.

Step 2: These preprints are then formally reviewed by specialized peer reviewers (PCRs), etc., and the reviews are made publicly accessible.



Inside eLife

Open Science: What is publish, review, curate?

Publish, Review, Curate (PRC) solves some of the challenges in research communication today. We take a look at the range of organisations working to make PRC a bigger part of scholarly publishing.

454 views • Oct 15, 2024

By George Currie, Content Manager at eLife

Much of what we take for granted in today's publishing structures and systems result from the practical needs of print publication. While research publishing is now primarily digital and online, the underlying process of article review and publication is fundamentally the same. Research is submitted, reviewed, revised, and then published in what is often a slow process that leaves a lot of uncertainty for authors.

Print publication and physical dissemination of research meant it was prudent to have multiple checks and barriers ahead of publication. Once



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Peer Community in

PCI, a free recommendation process of scientific preprints based on peer reviews and a journal

FACTS & FIGURES

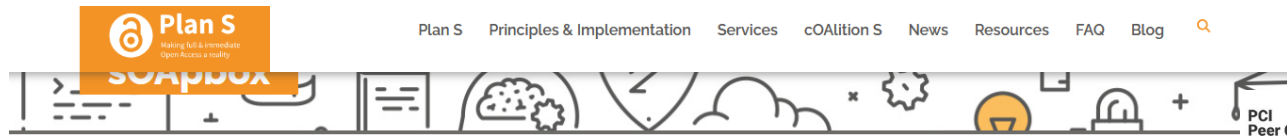
- 2000 RECOMMENDERS
- 17 PCIs
- more than 90 PCI FRIENDLY JOURNALS
- 1,283 SUBMISSIONS (31/12/2023)
- 4,088 PEER-REVIEWS (31/12/2023)

- Submit a preprint
- Read latest recommendations
- Read the Peer Community in Manifesto

PCI is a non-profit organization of researchers offering peer review, recommendation and publication of scientific articles in open access for free.

Sign the PCI Manifesto

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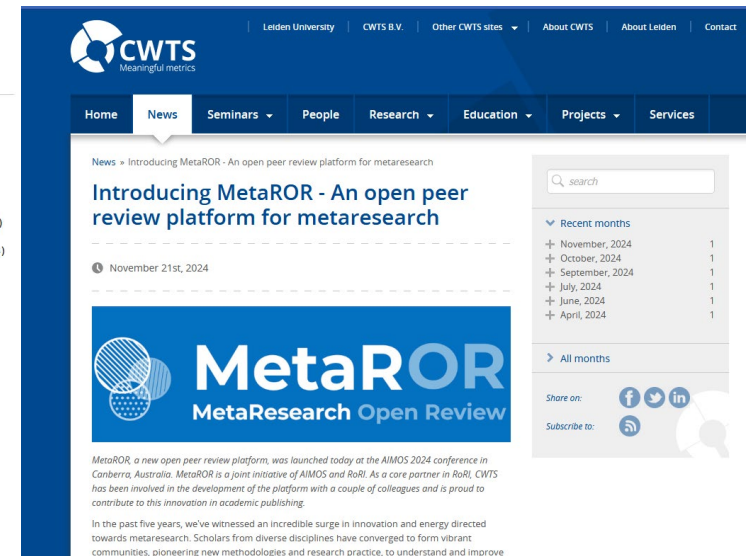
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Much of what we take for granted in research publishing is now in question. The process of article review and publication is slow, often a slow process that leads to frustration.

Print publication and physical distribution to have multiple channels.

Peer Community in
PCI, a free recommendation process of scientific preprints based on peer reviews and a journal

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Peer review platform for metaresearch

metaROR - An open peer review platform for metaresearch



metaROR was launched today at the AIMOS 2024 conference in Leiden. As a core partner in RoRI, CWTS is proud to be part of this platform with a couple of colleagues and is proud to be part of this platform.

The incredible surge in innovation and energy directed towards these disciplines have converged to form vibrant research communities and research practice, to understand and improve

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Estimating APCs paid to the Big 5 Publishers 2015-2018

Motivation

- Lack of transparency around the payment of APCs
- Need for reliable data to support evidence-based decision-making
- Unsustainability of the author-pays model
- Resources intended to support research are leaving academia to maximize shareholder profits

“If you end up paying [APCs], then you’re losing funds for other things, like laboratory chemicals,” says Kowaltowski, who this year received a L’Oréal-UNESCO For Women in Science International Award for her research. And she wasn’t eager to tap her monthly paycheck of about \$3500 after taxes.” Science.

Brainard, J. (2024). Is the pay-to-publish model for open access pricing scientists out? Science. <https://doi.org/10.1126/science.zp80ua9>

Methods

Global data (Butler et al. 2023)

- Articles with DOI 2015-2018 (Web of Science)
 - Number of publications per journal per year
 - Big 5 (Elsevier, Springer Nature, Sage, Taylor & Francis, Wiley) publishers and associated imprints and/or subsidiary publishers
- Article-level OA status (Unpaywall)
 - Gold or hybrid journals
- APC list prices

Estimating APCs

Internet Archive Wayback Machine

Annual list price: 2015

The screenshot shows the homepage of the journal *Developmental Science* as it appeared in 2015. The page is viewed through the Internet Archive Wayback Machine, with the URL <http://onlinelibrary.wiley.com/journal/10.1111/%28ISSN%291467-7687/homepage/FundedAccess.html> and a date of 27 Jul 2012 - 25 Dec 2018. The journal title "Developmental Science" is prominently displayed in a red banner. Below the banner, the journal is identified as being published by John Wiley & Sons Ltd. The page lists the editors: Charles A. Nelson, Michelle de Haan, and Paul C. Quinn. It also provides the Impact Factor (3.808) and ISI Journal Citation Reports rankings for 2014 (7/68 in Psychology Developmental) and 2015 (8/85 in Psychology Experimental). The Online ISSN is 1467-7687. A section titled "OnlineOpen" explains Wiley's Open Access Option, stating that the cost for OnlineOpen is US\$3,000, which can be paid by the author, their funding agency, or their institution. The page also mentions that authors choosing OnlineOpen will retain copyright and be offered a choice of creative commons licenses. On the left side, there are navigation menus for "JOURNAL TOOLS", "JOURNAL MENU", "FIND ISSUES", "FIND ARTICLES", "GET ACCESS", "FOR CONTRIBUTORS", and "ABOUT THIS JOURNAL". A search box is located on the right side of the page.

Estimating APCs



Internet Archive Wayback Machine

Annual list prices: 2015 vs 2022 vs 2023

INTERNET ARCHIVE
Wayback Machine
37 captures
27 Jul 2012 - 25 Dec 2018

1 December 2015:
\$3,000

Wiley Online Library
University of Ottawa

Developmental Science

HOME ABOUT CONTRIBUTE BROWSE

Gold Open Access

This journal offers authors the chance to publish their articles available to read, download and share.

Submissions will be subject to an APC if accepted and published in the journal: GBP/ 3,250 EUR.

Payment must be received for the article to be made open access by their authors via a Wiley Open Access Account.

27 September 2022 :
\$3,900

Wiley Online Library
University of Ottawa

Developmental Science

HOME ABOUT CONTRIBUTE BROWSE

Article Publication Charges

Developmental Science offers authors the ability to publish their articles available to read, download, and share.

If the Open Access option is selected, submissions will be subject to an APC if accepted and published in the journal: \$4020 USD / £2730 GBP / €3350 EUR

23 May 2023 :
\$4,020

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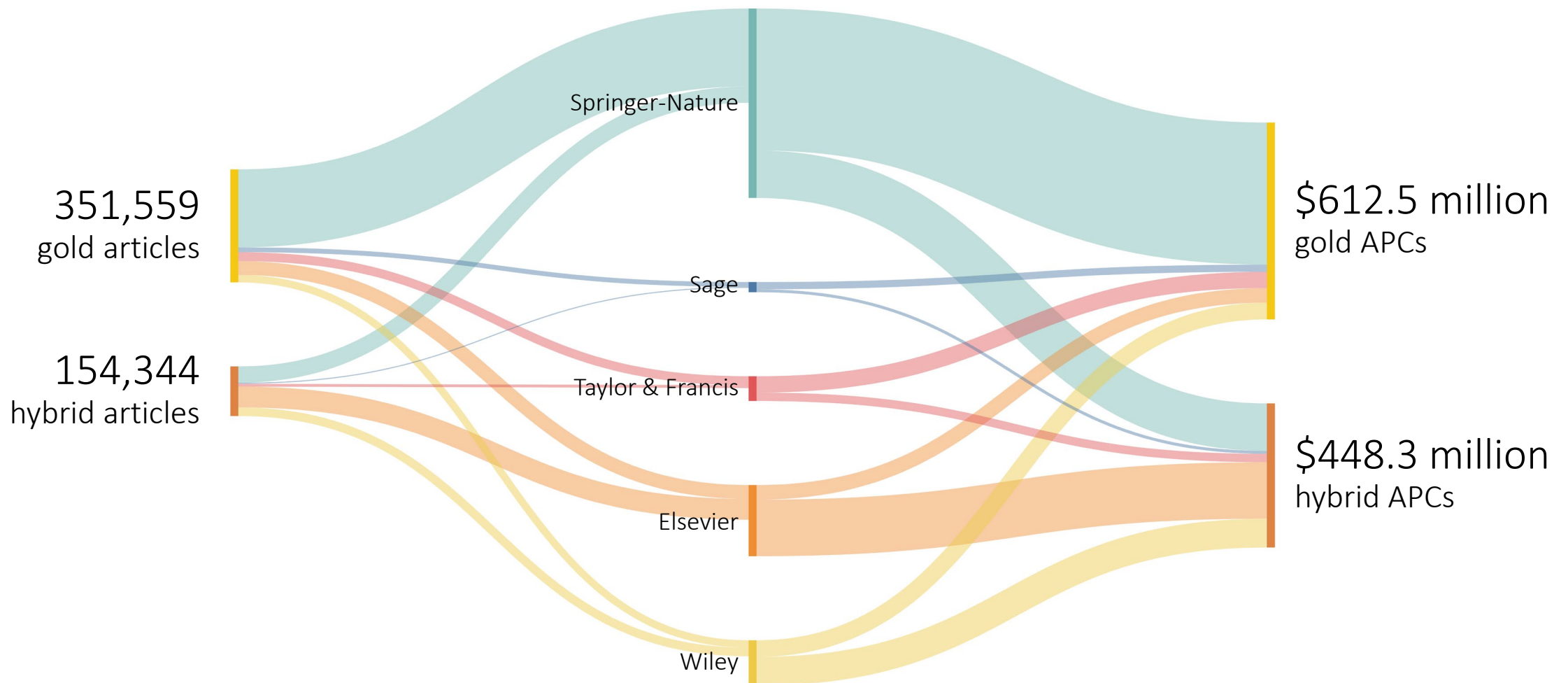
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Estimating APCs

Estimation of global APCs paid to Big 5 publishers 2015-2018





Annual APC dataset for six scholarly
publishers (2019-2023)

Annual APCs

Building the open dataset

APC list prices from

→ *annual pricelists*

→ *scraped from journal web pages*

Collated into dataset

→ *manual and automated methods used to combine files*

→ *process of data cleaning and metadata enrichment*

Publisher	OA status	Number of journal-year combinations	APC in USD		
			Min	Max	Average
all publishers		36,618	0	11,690	2,859
	Gold	8,499	0	8,900	1,977
	Hybrid	26,993	0	11,690	3,137
	No OA status provided	16	1,250	3,400	2,288
	No APC provided	1,110		<i>n/a</i>	
Elsevier		12,478	150	10,100	2,736
	Gold	2,515	200	8,900	1,891
	Hybrid	9,582	150	10,100	2,959
	No OA status provided	16	1,250	3,400	2,288
	No APC provided	365		<i>n/a</i>	
Frontiers	Gold	618	0	3,295	2,093
MDPI		1,676	0	2,895	1,383
	Gold	1,676	0	2,895	1,383
	No APC provided	32		<i>n/a</i>	
PLOS	Gold	50	1,595	6,300	2,740
Springer Nature		13,422	0	11,690	3,041
	Gold	2,312	0	6,850	2,348
	Hybrid	10,398	0	11,690	3,195
	No APC provided	712		<i>n/a</i>	
Wiley		8,374	0	6,100	3,106
	Gold	1,360	0	5,740	2,139
	Hybrid	7,013	950	6,100	3,294
	No APC provided	1		<i>n/a</i>	

Annual APCs

Open dataset

Average gold and hybrid APC prices per publisher



Butler, L.-A., Hare, M., Schönfelder, N., Schares, E., Alperin, J.P., & Haustein, S. (2024). *An open dataset of article processing charges from six large scholarly publishers (2019-2023)*. arXiv. <https://arxiv.org/pdf/2406.08356>

Butler, L.-A., Hare, M., Schönfelder, N., Schares, E., Alperin, J.P., & Haustein, S. (2024). *Open dataset of annual Article Processing Charges (APCs) of gold and hybrid journals published by Elsevier, Frontiers, MDPI, PLOS, Springer-Nature and Wiley 2019-2023 (Version v1)* [dataset]. Harvard Dataverse. <https://doi.org/10.7910/DVN/CR1MMV>

Annual APCs





Open dataset

Butler, L.-A., Hare, M., Schönfelder, N., Schares, E., Alperin, J.P., & Haustein, S. (2024). *An open dataset of article processing charges from six large scholarly publishers (2019-2023)*. arXiv. <https://arxiv.org/pdf/2406.08356>

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Open dataset


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ScholCommLab's Dataverse (Simon Fraser University) Research on how knowledge is produced, disseminated, and used

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Open dataset of annual Article Processing Charges (APCs) of gold and hybrid journals published by Elsevier, Frontiers, MDPI, PLOS, Springer-Nature and Wiley 2019-2023

Version 1.0



Butler, Leigh-Ann; Hare, Madelaine; Schönfelder, Nina; Schares, Eric; Alperin, Juan Pablo; Haustein, Stefanie, 2024, "Open dataset of annual Article Processing Charges (APCs) of gold and hybrid journals published by Elsevier, Frontiers, MDPI, PLOS, Springer-Nature and Wiley 2019-2023", <https://doi.org/10.7910/DVN/CR1MMV>, Harvard Dataverse, V1

[Cite Dataset ▾](#) Learn about [Data Citation Standards](#).

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Dataset Metrics ⓘ

1,883 Downloads ⓘ

Description ⓘ

This open dataset of annual Article Processing Charges (APCs) was produced from the price lists of six large scholarly publishers (Elsevier, Frontiers, PLOS, MDPI, Springer-Nature and Wiley) from 2019 to 2023. APC price lists were downloaded from publisher websites each year as well as via Wayback Machine snapshots to retrieve fees per journal per year. The dataset includes journal metadata, APC collection method, and annual APC list prices in several currencies (USD, EUR, GBP, CHF, JPY, CAD) for 8,712 unique journals and 36,618 journal-year combinations. The dataset was generated to allow for more precise analysis of APCs and can support library collection development and scientometric analysis estimating APCs paid in gold and hybrid OA journals.

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Estimating global APC expenditure

Research Questions

- How much was paid in APCs to these six publishers for the 2019–2023 period?
 - How did the estimated spend differ between gold and hybrid OA?
 - How did the estimated spend differ between publishers?
 - How did the estimated spend develop over time?

- How do gold and hybrid APCs paid (article level) compare to the APCs listed (journal level)?

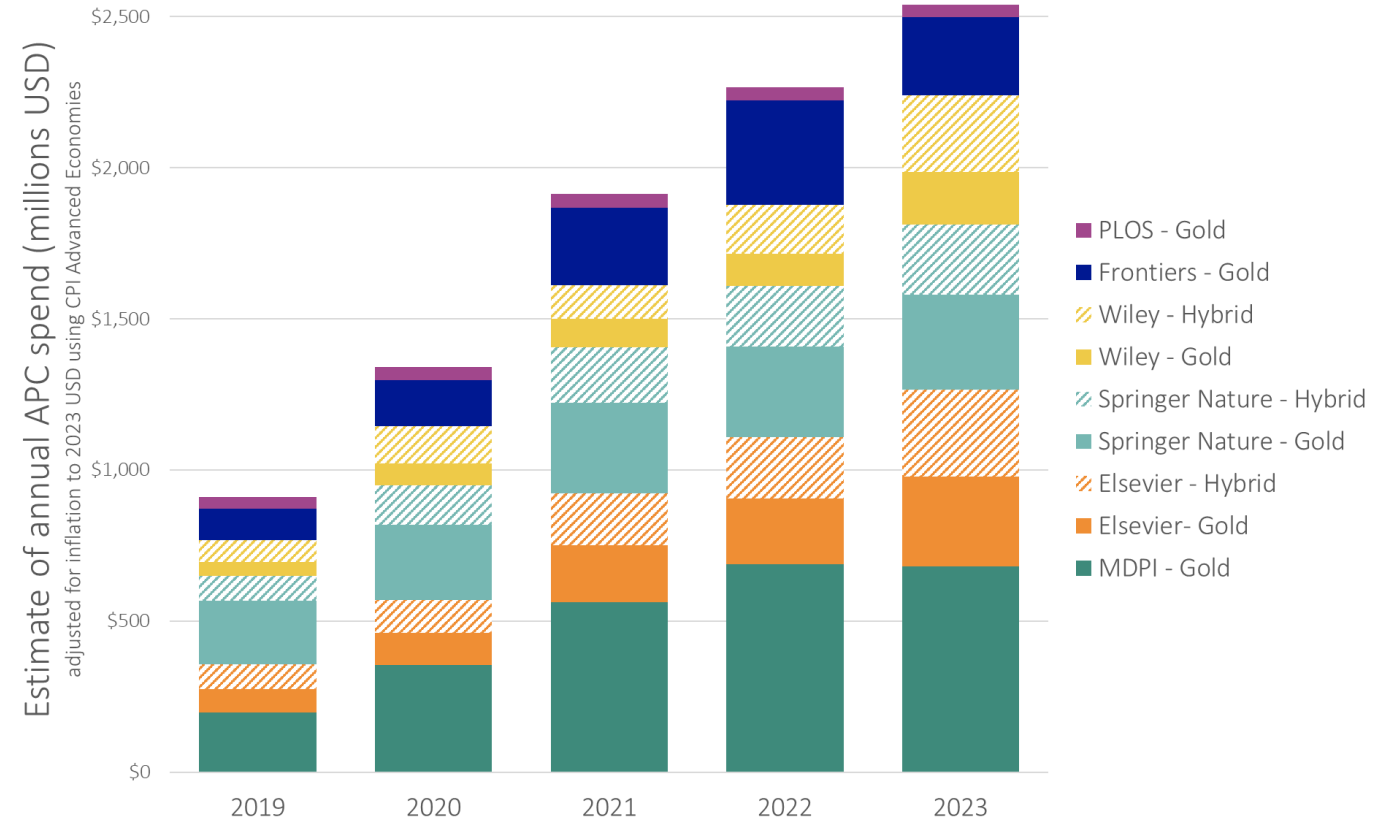
Methods

- Number of “APC-able” papers per journal per year 2019-2023
 - Data from **OpenAlex**
 - Comparisons to **Dimensions**
- Determining hybrid and gold OA paper
 - Gold: all “APC-able” papers in a journal
 - Hybrid: those with a CC-BY license (excluding delayed OA)
OpenAlex/Unpaywall improved OA status based on our feedback
- Estimating spent based on number of papers per journal per year with respective annual APC, adjusted for inflation to 2023 USD
- Considering 100% waivers in list price, but no individual waivers

Estimating global APC expenditure

Estimating global APC spend 2019-2023

- Over **\$US 8 billion** paid globally to six large publishers for APCs
- Hybrid spend grew faster than gold

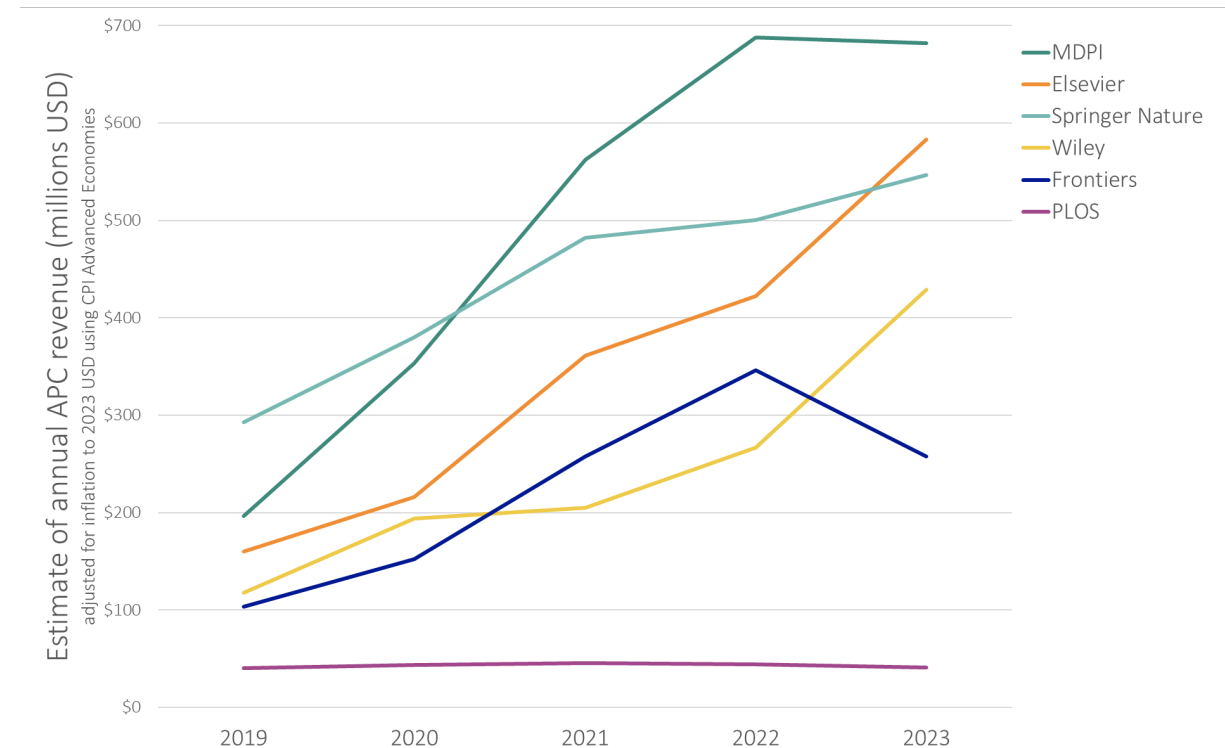


Estimating global APC expenditure

Estimating global APC revenue 2019-2023

Largest increases of revenues from OA fees from 2019-2023 (adjusted for inflation):

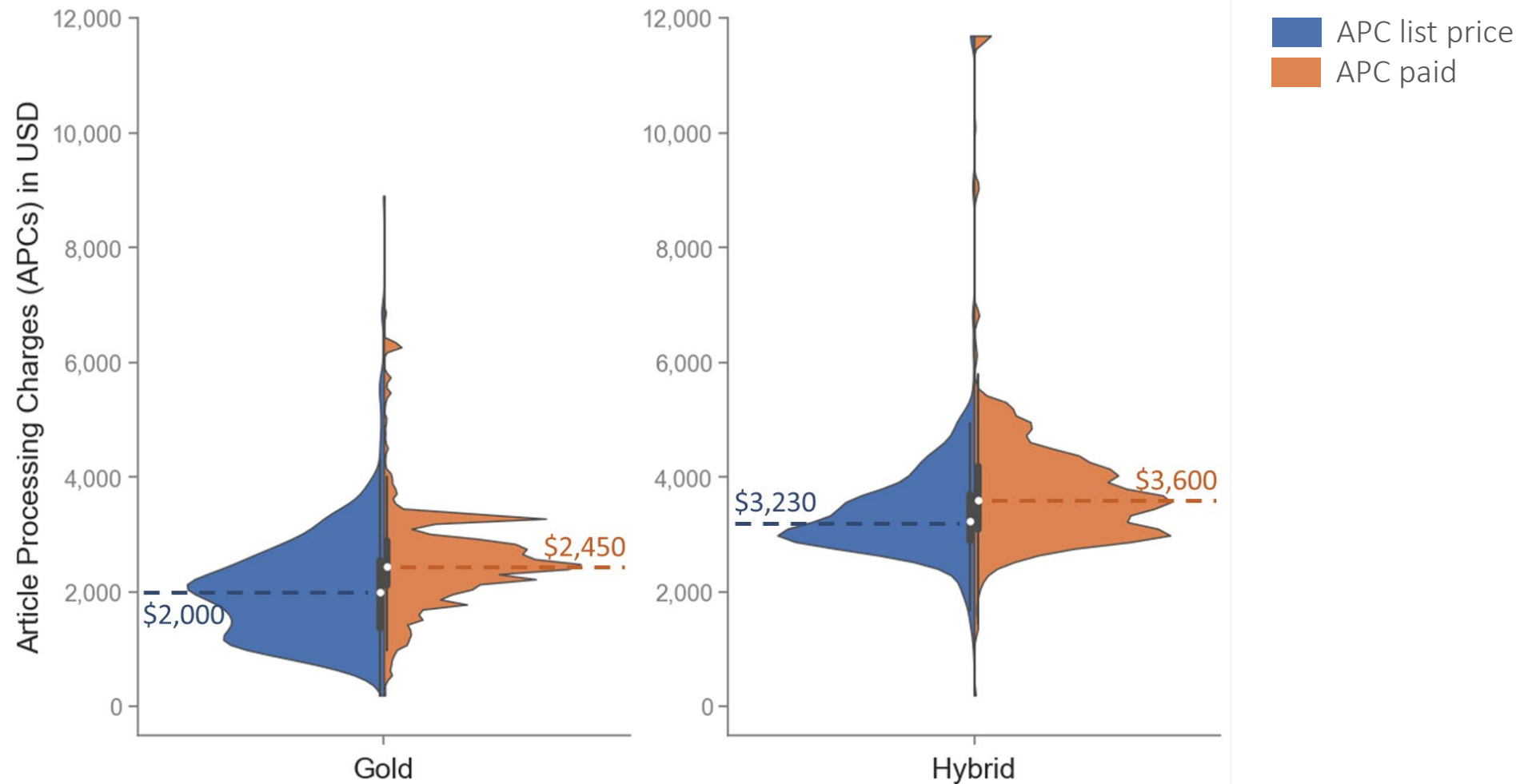
- Elsevier (265.0%)
- Wiley (263.7%)
- MDPI (247.2%)



Estimate of annual APC revenue (in millions USD) by publisher adjusted for inflation for 2023 USD using CPI Advanced Economies

Estimating global APC expenditure

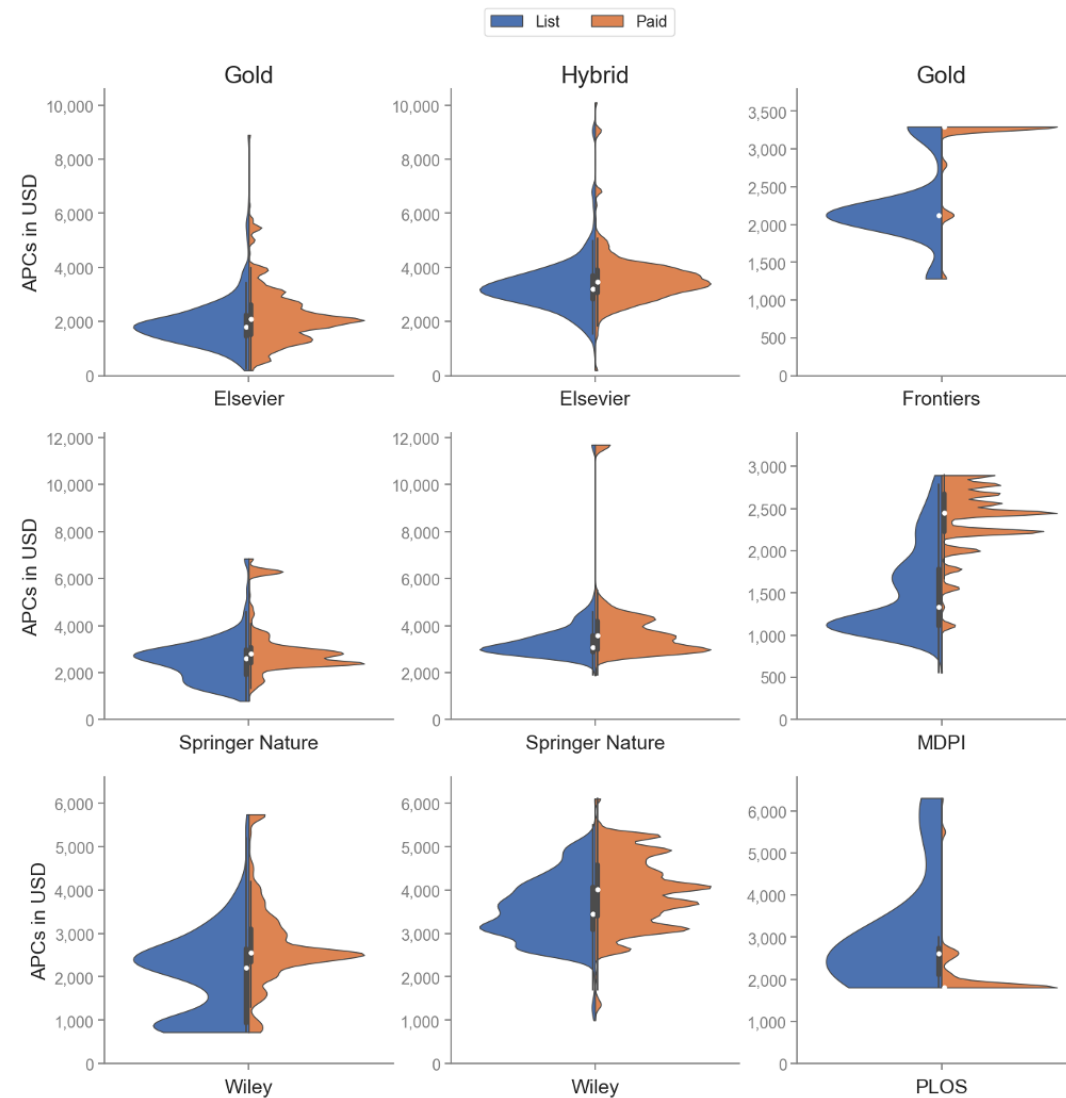
Listed vs paid APCs 2023



Estimating global APC expenditure

Results

2023 listed vs paid



Limitations

- Dataset collates information provided by publishers
- Results are an estimate due to a lack of transparency around APCs
- Do not consider individual and institutional discounts and waivers due to limits in publicly accessible information
- Do not consider read-and-publish agreements



Conclusions

Conclusions and outlook

- Studies estimating APC expenditure shows us that:
- a massive amount of money is spent on APCs
 - APC expenditure is growing at an unsustainable rate
 - there is a disconnect between APC pricing and the cost to publish

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- Various publishing models and initiatives:
 - OA with no APC
 - Community-based models
 - Open infrastructure

Conclusions and outlook

- Studies estimating APC expenditure shows us that:
 - a massive amount of money is spent on APCs
 - APC expenditure is growing at an unsustainable rate
 - there is a disconnect between APC pricing and the cost to publish
- Various publishing models and initiatives:
 - OA with no APC
 - Community-based models
 - Open infrastructure
- Change the system:
 - Untangling academic reward system from publisher prestige
 - Financial support of publishing, not companies



Merci | Thank you!

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