

OpenAPC – transparent reporting on article processing charges reveals the relative costs of open access publishing



*OpenAPC compiles a dataset aggregating all available institutional reporting on article processing charges paid for open access publications. **Dirk Pieper** describes how this openly available data can provide greater transparency and context to discussions around the overall costs of academic publishing, and also potentially set in motion cost-limiting mechanisms.*

A powerful publishing infrastructure, maintained by actors such as publishers, professional societies, and libraries, is essential to the effective functioning of academic communication. However, since the late 1990s, the publication infrastructure has been in a state of increasing crisis, largely due to the disproportionate price increases of scientific journals, imposed by a handful of large publishers and academic societies.

A 2015 Max Planck white paper – [“Disrupting the subscription journals’ business model for the necessary large-scale transformation to open access”](#) – used a simple macroeconomic observation to reveal academic institutions and libraries were paying, through subscriptions and license fees, approximately €5,000 for each journal article indexed in the Web of Science database. Extending this analysis to consider the full total of two million articles estimated to publish each year, the white paper finds the cost to be €3,800 per article. At present, around [85% of these articles are not immediately freely accessible to science and society](#), are only partly available to academic communities, and cannot be shared freely due to license restrictions imposed by publishers.

With the establishment of the first open access publishers such as BioMed Central and the Public Library of Science at the beginning of the 2000s, a business model was introduced which required a fee to be paid for each published journal article in return for that article being made available open access – the so-called article processing charge (APC). By 2017, eight of the [20 largest journals](#) worldwide, as measured by the number of articles published per year, were operating according to this APC model. Yet APCs continue to be controversial among some academics and parts of the open access community. Academics fear they will not have sufficient funds to publish, while open access advocates complain that APCs paid for open access publication of individual articles in otherwise subscription-model journals (so-called “hybrid” open access) are too expensive and actually serve to frustrate efforts to transition to a universal open access future.

However, the transparent presentation of the costs of open access articles has its advantages. For instance, it quickly becomes clear that libraries and academic institutions across the world invest enough money into the publication system to be able to make all articles published in academic journals available open access. Furthermore, transparency around the costs per article can set in motion cost-limiting mechanisms, with APCs for journals of similar standing able to be compared within particular academic disciplines or subject categories.

The [OpenAPC](#) dataset provides an essential basis for such an analysis, with 190 academic institutions and libraries reporting their open access publishing costs at the level of individual journal articles. Cost data for more than 55,000 journal articles, amounting to more than €105m, is currently available. Though this represents only part of all APC-funded open access articles worldwide, OpenAPC will become increasingly statistically relevant and valid as the dataset grows. The data already allows for a number of interesting insights into the market for paid open access journal articles.

An examination on the level of APC funding within academic institutions shows which research organisations and universities are already investing heavily into the visibility and availability of their own academics’ publications:

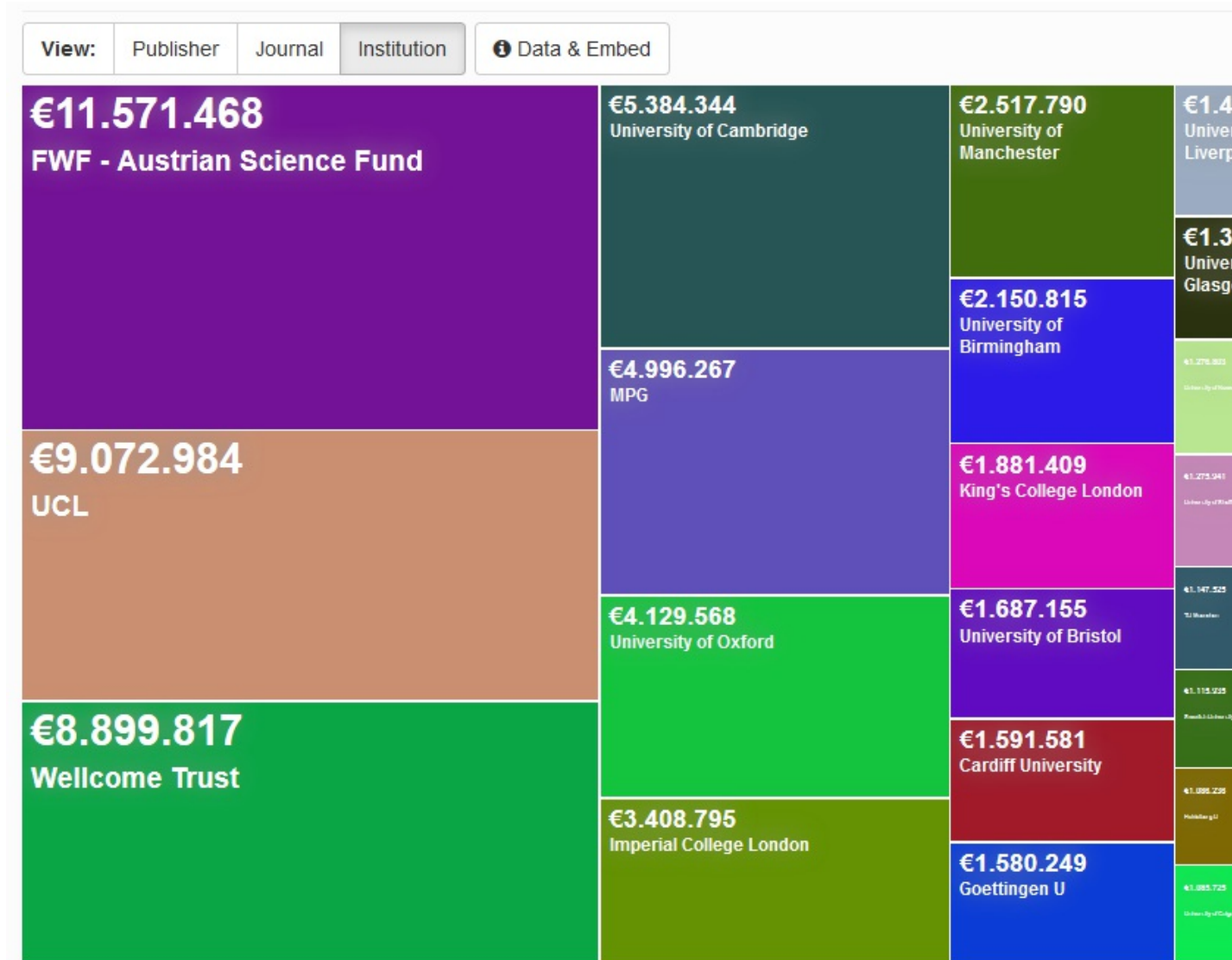


Figure 1: OpenAPC treemap visualisation for all data-contributing institutions. A dynamic, interactive version of this visualisation is available from the [OpenAPC website](#). Click to enlarge.

Payments are currently spread across 5,194 journals, of which around 32.5% are now “pure”, solely open access journals. The treemap representation for journals shows which titles have received the largest amounts of academic institutions’ expenditure so far. At first glance we can see that the top five titles are all pure open access journals:

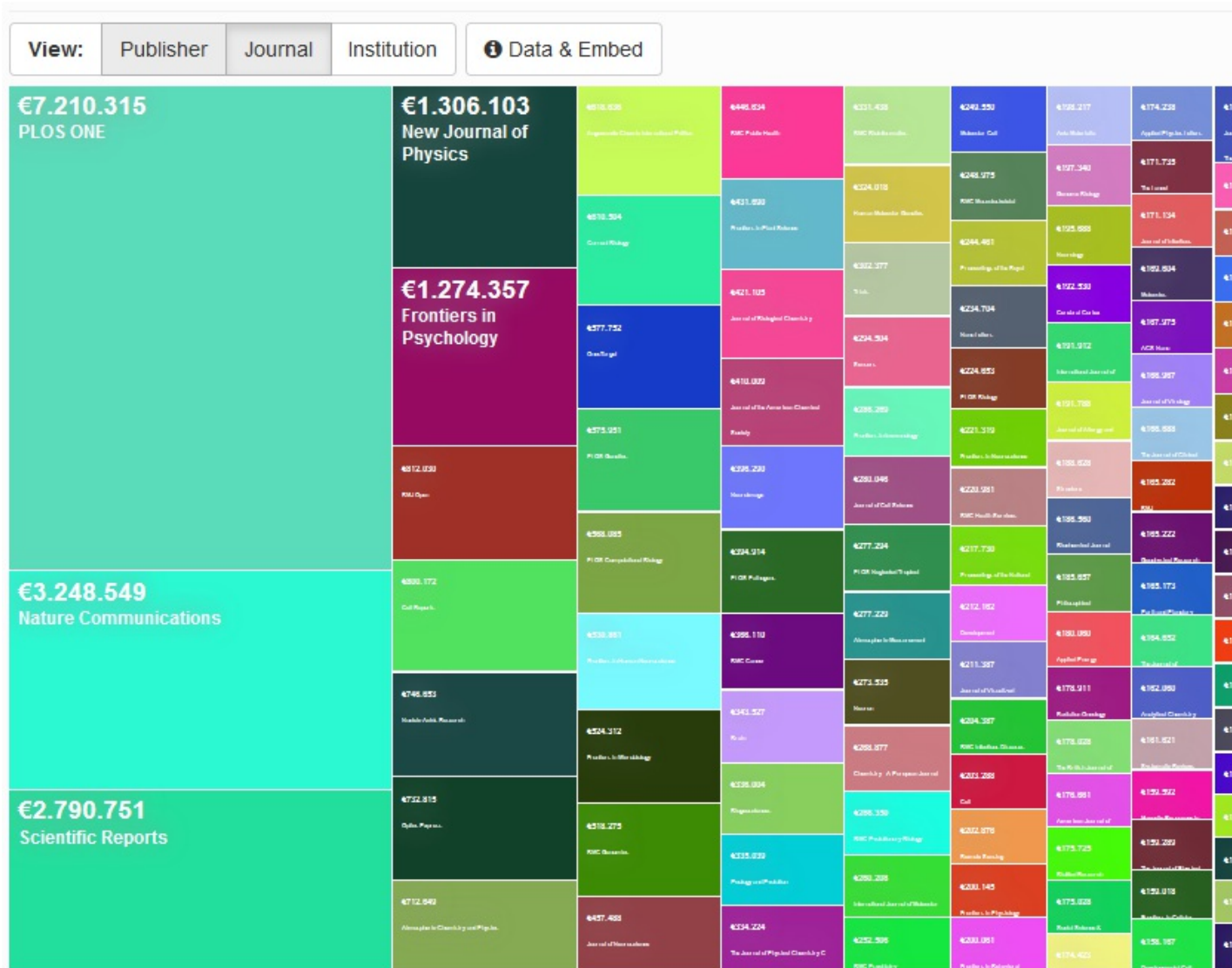


Figure 2: OpenAPC treemap visualisation for expenditures on all journal titles (pure open access and hybrid). A dynamic, interactive version of this visualisation is available from the [OpenAPC website](#). Click to enlarge.

The OpenAPC dataset demonstrates how academic communication might be transformed by wider transparency of APC costs. The average cost per article to publish in a pure open access journal is now €1,485 – significantly lower than the Max Planck white paper’s calculated costs per article under the subscription model. By announcing [Plan S](#), national research funders throughout Europe have already signalled their intent to make open access publishing mandatory from 2020 onwards, for the benefit of science and society. If research funders, academic institutions, and libraries work together to redirect budgets currently spent on subscription-model journals towards open access publications, not only would the costs of the publication infrastructure be reduced, but the dysfunctional system of academic communication might deliver benefits to science and society once again.

*This blog post is based on the author’s co-written article, “[OpenAPC: a contribution to a transparent and reproducible monitoring of fee-based open access publishing across institutions and nations](#)”, published in *Insights* (DOI: 10.1629/uksg.439).*

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About the author

Dirk Pieper is deputy director of Bielefeld University Library. He studied political science and economics and is head of the OpenAPC initiative and the National Open Access Contact Point in Germany (OA2020-DE).