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Scientific societies worry Plan S will make them shutter journals, slash services

By [Jeffrey Brainard](#) | Jan. 23, 2019, 12:05 PM

An existential threat. That's what scientific societies supported by journal subscriptions call Plan S. Introduced in September 2018 by European research funders and endorsed by others since then, the plan will require that grantees' papers be immediately available free of charge. All publishers that charge subscriptions will be affected, but scientific societies fear they could be hit especially hard. One, the Genetics Society of America (GSA) in Rockville, Maryland, predicts worldwide adoption of Plan S could cut its net revenue from publishing by a third. Less drastic impacts on societies' bottom lines might still force them to sell their journals to commercial publishers and cut back on activities supported by publishing, such as professional training and public outreach.

"We're not seeing a sustainable, viable, nonprofit open-access model" if all funders back Plan S, says Tracey DePellegrin, executive director of GSA, which publishes two journals.

After accepting comments through 8 February, the plan's architects expect to firm up details this spring. But the bottom line is clear: By 2024, Plan S funders **will allow grantees to publish papers only on platforms that offer immediate open access** and cap the fee that open-access publishers can charge a paper's authors. Many journals now follow a hybrid model, publishing individual papers open access for a fee but deriving most of their income from subscriptions.

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Scientific publishing needs "a radical program" to promote full and immediate open access because progress has been too slow, argues Robert-Jan Smits, the European Commission's open-access envoy in Brussels, who is one of the architects of Plan S. The open-access movement began about 15 years ago, but by 2016, only about 20% of newly published research articles were open access.

Plan S's requirements will disproportionately hurt the selective journals that many societies publish, says Fred Dylla, former executive director of the American Institute of Physics (AIP) in College Park, Maryland, who still advises AIP about its journals. Such journals typically have high costs per article, reflecting expenses for reviewing papers that are rejected; publishers worry Plan S's fee cap, which has yet to be set, will be too low to cover the average cost per paper. What's more, the societies typically have lower profit margins and a smaller economy of scale than do the commercial publishers that publish the majority of all journal articles. The largest, Elsevier, based in Amsterdam, publishes more than 2500 journal titles; scientific societies each publish at most a few dozen. (*Science* is published by a nonprofit scientific society, AAAS in Washington, D.C.; *Science's* news section is editorially independent of the journal and AAAS.)

Comprehensive data aren't available, but a 2017 study by Universities UK, an advocacy group in London, estimated that for life science societies, publishing income funded about 40% of spending on other activities, whereas for physical science societies, the figure was closer to 20%. GSA's two journals provide about 65% of the society's total net revenues, financing other GSA programs that don't make money. These include efforts to advocate for science funding and help early-career scientists, activities that could help researchers outside of the society's members.

So far, 16 funders, most of them in Europe, have embraced Plan S, not enough to transform journal finances. U.S. government funders remain cool to the approach. But Plan S's international momentum grew—along with the threat it poses to traditional publishing—in December 2018, when [officials in China backed its open-access goals](#). If China follows through, Plan S could reduce publishers' income by perhaps 15% under certain conditions,

according to an estimate published last week by Delta Think, a consulting firm in Philadelphia, Pennsylvania. That analysis doesn't include the effect of the cap on author fees (also called article-processing charges), which could cut revenues further. The average fee for papers published in purely open-access journals in 2018 was about \$1600, Delta Think has estimated.

GSA produces such a journal, *G3: Genes, Genomes, Genetics*, and is "actively preparing for an eventual open-access publishing landscape" for all articles, DePellegrin says. GSA's other journal, *Genetics*, is hybrid. The society has already reduced costs. The revenue loss from global adoption of Plan S would force GSA to cut its services or sell the journals to a commercial publisher, she says. "The trade-offs are hard," adds Mark Johnston, editor-in-chief of *Genetics* and a molecular geneticist at the University of Colorado in Denver.

One way society publishers could adapt to Plan S's requirements: Publish more papers to bring in more author fees. But that strategy may not succeed. The PLOS family of open-access journals, which published nearly 25,000 papers in 2017, reported a \$1.7 million operating loss that year. Another prominent open-access journal, *eLife*, was also in the red in 2017 despite its author fee of \$2500 and subsidies from foundations including the Wellcome Trust, a medical charity in London.

Besides, increasing the volume of papers inevitably decreases selectivity and lowers quality, some publishers say. "We and other societies are worried about where [Plan S] puts incentives," said Brooks Hanson, an executive vice president who oversees publishing at the American Geophysical Union in Washington, D.C., which produces 20 journals, five of them purely open access. "It actually incentivizes publishers to go after more and more papers."

Science's publisher, Bill Moran, says the journal doesn't want to pursue what he calls "a volume play." He wants Plan S to carve out an exemption for *Science* and similar selective journals that reflects their unusual circumstances and roles in scholarly communications. *Science* accepts only about 7% of manuscripts submitted and publishes, in addition, a variety of news, perspectives, and other nonresearch articles. The journal wouldn't be sustainable if author fees had to cover all publication costs, Moran says.

"*Science* is unique," Moran says. "Not all journals are the same. If your goal is to maintain quality, there has to be an exception" to a one-size-fits-all approach like Plan S.

Still, if more funders demanded solely open-access publication, *Science* might have to make adjustments, he adds. An option might be to charge subscription fees only for nonresearch content, he says.

Smits places the onus on journals and societies to create new business models to adjust to Plan S's requirements. But the Plan S funders also want to cooperate with societies to move away from subscriptions while maintaining quality. "We are very much interested in having an [author fee] that is fair enough to allow many organizations to flip their journals" to open

access, he says.

The Wellcome Trust, one of the Plan S funders, and other groups have said they will publish a report by July on strategies and business models through which scholarly societies in the United Kingdom could make that transition. In addition, Smits met this month with representatives of the Royal Society, based in London, and 10 other midsize scientific societies to discuss how Plan S funders could help them switch. He says the societies are "keen to make the transition. They identified, however, a number of challenges."

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