

EDITOR'S PAGE

# What Are the Off-Target Effects of Plan “S” For Translational Investigators?



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*“There are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns—the ones we don’t know we don’t know.”*

—Donald H. Rumsfeld (1)

On September 4, 2018, a coalition of European and national research funding agencies announced the cOAlition S initiative, which will require all of the investigators they fund to make their papers free to read immediately upon publication by 2020. This ambitious plan, termed Plan “S,” has the noble goal of maximizing the impact of research by allowing new research findings to be freely accessible to the public. Under the proposed framework of this plan, researchers will be required to publish their findings in pure open access (OA) journals (referred to as Gold OA). Plan “S” will specifically prohibit researchers from publishing in subscription journals (referred to as paywalled or toll access), and after a transition period, will also prohibit investigators from publishing in so-called hybrid journals that have both subscription and free content. Currently, the majority of scientific journals employ a hybrid business model, which allows authors to pay an additional fee if they want to publish their research OA immediately. Plan “S” will also preclude investigators from archiving their research in data repositories sponsored by universities or professional societies that allows the investigators to make their research OA after a prespecified period of time has passed (referred to as Green OA). Although some green OA journals permit immediate public archiving, many high-impact journals, such

as *Nature*, *Cell*, and *Science*, do not permit public archiving until at least 6 months after the date of publication. Last, Plan “S” proposes that all gold OA research papers will have a liberal publishing license that allows anyone to download, translate, or otherwise reuse their work. As might be expected, publishing companies have pushed back on Plan “S,” which they feel will undermine their business model and disrupt the entire research publishing system (2). Aside from the negative impact of Plan “S” on the publishing world, Plan “S” also has a less obvious, but potentially equally disruptive effect on investigators, particularly those investigators who engage in translational research, as will be discussed in the following text.

The most obvious concern is that Plan “S” will restrict the academic freedom of investigators by preventing them from publishing their research findings in the journals of their choice. As currently written, Plan “S” will bar researchers from publishing in ~85% of the existing journals, including high-impact journals such as *Cell*, *Nature*, or *Science*. Apart from the issue of publishing in high impact factor journals, Plan “S” may also prevent investigators from reaching their intended audience. As a translational investigator, I have had the liberty of publishing my research in journals that have either a clinical readership or a basic science readership, depending on the scope of the research project. It is unclear at the time of this writing whether this flexibility will exist under Plan “S.” Plan “S” may also disrupt the collaborative nature of science, insofar as the publishing restrictions imposed by the plan may isolate European investigators by preventing them from publishing their findings with investigators who are not restricted to publishing in gold OA journals. As we have emphasized previously on these pages, translational research is, by its nature, team science (3).

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Plan “S” may also ultimately increase the cost of publication for investigators. Although the architects of Plan “S” have indicated that they would pay for reasonable article-processing charges for gold OA journals, it is: 1) not clear how long this commitment will last; and 2) highly unlikely that this type support will last in perpetuity. Moreover, having lived through the painful research cuts to the National Institutes of Health budget following the 2007 to 2008 global financial crisis, it is not clear whether Plan “S” will be able to support publication charges when the next financial crisis comes. It is also not apparent, absent the economic margins provided by subscription fees and copyright licensing, that OA journals will be able to develop a sustainable business model without raising their article-processing fees. When the cOAlition S funding agencies withdraw their commitment to pay for article processing charges, these escalating costs will, by necessity, shift to the investigators.

However, the most potentially devastating aspect of Plan “S” from the perspective of investigators is that it may negatively affect the quality of scientific publishing. High-quality peer review and scientific rigor remains the cornerstone of subscription, hybrid, and pure OA publishing. Currently, many print and hybrid journals publish a limited number of papers with each issue, which allows the Editorial board to be selective with respect to the quality of the scientific papers that they publish. The economics of this model are possible because of the margins provided by subscription, advertising, and licensing fees. Given that Plan “S” will cap the article-processing charges, OA journals will need to publish more papers to remain financially viable. This poses a serious risk that the increase in the number of papers may lead to publication of papers that are of lower quality and originality. Further, it will be difficult to maintain the high quality of external peer reviewers and editorial boards if the reviewers and editors are asked to place finances before rigorous scientific review. Gold OA publishing

may give new meaning to the expression publish or perish. Last, it is unclear what will happen to the research that is archived in the servers of gold OA journals that go out of business. Will the archived research disappear if the gold OA journal cannot sustain itself, or will the cOAlition S funding agencies agree to pay for the research to be publicly archived indefinitely?

### IS PLAN “S” A STEP FORWARD OR A MISSTEP?

As the editor-in-chief of an OA journal, I would be completely hypocritical if I did not acknowledge the benefits of the OA publishing format. The pace of scientific discovery has increased so rapidly over the past decade that the transition to some form of OA publishing for print journals is inevitable. Indeed, this is the reason why most journals have adopted a hybrid publishing model. Plan “S” will, undoubtedly further hasten the transition to full OA publishing, and thus has the appearance of being a step forward for science. However, as I have tried to articulate in the foregoing Editor’s Page, there are too many “unknown unknowns” with respect to the potential off-target effects of Plan “S,” particularly for translational scientists. Given this uncertainty, perhaps the smart move would be to hit the pause button on the roll-out for Plan “S” until after we have a clearer understanding of the full societal impact of this ambitious plan. As always, we welcome comments and suggestions from investigators in academia and industry, patients, societies, and all of the governmental regulatory agencies to share your thoughts about the best models for scientific publishing, either through social media (#JACC:BTS) or by e-mail ([jaccbts@acc.org](mailto:jaccbts@acc.org)).

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