In the digital age, the model of paying to read research has been questioned, and there has been a move toward open access publishing, where content is freely available to all, including machines. The European Union and European Research Council, together with 13 European research funding organizations and 3 charitable foundations, have now accelerated the pace of change, with their Plan S [1], announced in September 2018. From 2020, all researchers receiving funds from these organizations (cOAlition S) will be required to publish their work in open access journals and on platforms that are compliant with the rules of Plan S.

For many learned societies, journal publishing is one of their most important activities. The journals provide their members with platforms to publish their research and to read the work of others. A quick look at some of the most established scientific journals shows that many of them are run through their corresponding learned societies. For example, The FEBS Journal and FEBS Letters are run by The Federation of European Biochemical Societies (FEBS), PNAS is published by the National Academy of Sciences, and the Journal of Biological Chemistry is owned by the American Society for Biochemistry and Molecular Biology (ASBMB). By selling subscriptions to these journals to the wider academic community, learned societies make an income, which supports the many other services they provide to the scientific community.

Most societies are supportive of open access. Some, like FEBS, have recently launched new open access journals while others have adopted a ‘hybrid’ model of publishing open access articles within their subscription journals, with adjustments to subscription charges to avoid so-called ‘double dipping’. However, the restrictions placed by Plan S will probably mean that hybrid journals will be off limits to authors in receipt of funds from cOAlition S members. Society publishers are faced with making rapid changes to their business models or maybe losing their journals and with them most of their income.

If Plan S was fully implemented this would have a dramatic effect upon the annual revenue income stream of FEBS. For instance, if we could maintain the current levels of papers published for each of our journals and charge the current article processing charge (APC) for each journal, then the annual income would likely be reduced to less than half, which would consequently cover less than half the current annual expenditure on our activities. Many of our current activities would need to be dramatically curtailed or even axed. The knock-on consequences will mean a severe reduction for the many hundreds of postgraduate students and early-career scientists that we currently help on an annual basis. Restricting opportunities for development and growth of the next generation of molecular life scientists, due to limited availability of funds from FEBS and those of similar learned societies, could ultimately restrict the future progress of science in Europe.

Another aspect of Plan S that is worrying society publishers is the pace of change. Flipping a journal to open access immediately is costly [2]. In further implementation guidance published in November [3], Plan S has offered a window of 3 years (to the end of 2021) for publishers to set in place transformative agreements that transition their journals from ‘pay to read’ to ‘pay to publish and read’, with the journals moving
to full open access by the end of 2024. Most societies have perhaps a handful of journals at most, and many are self-published. Societies, like FEBS, that have partnered with a commercial publisher may be able to participate in such transformative deals. However, societies that publish their own journals often do not have direct contact with their library customers, working through agents. Building relationships with all customers to enable negotiations on transformative agreements will be expensive and may not be possible within such a narrow window.

An academic freedom of choice in publishing

Progressive societies have a longstanding, basic interest in supporting scientific research, which can provide breakthrough discoveries, technological advances, and solutions to emerging challenges for the benefit of the global public good. This is made possible by using public funds to finance researchers. One of the most surprising elements of the Plan S initiative is that the funders in cOAlition S, entrusted by the public to decide how they can best use the allocated resources, did not consult the researchers of their countries or the scientific societies which represent them before announcing strict rules about how scientists are supposed to publish their results. As a consequence, there are confusions, apprehensions, and opposition among researchers, including members of FEBS, leaning toward the conclusion that implementation of Plan S in its presently known form may lead to unintended negative consequences with more damage than benefit to the scientific community and thereby would not serve the advancement of science after all. What are the major concerns of academic colleagues?

Researchers feel that the administrative mandates of Plan S restrict their academic freedom to publish where they consider it best. Although some stakeholders argue that it is entirely reasonable for funders to put restrictions on how their money is used, it seems to be the dominant view among researchers that the plan is unethical in mandating where researchers should publish [4]. Many European researchers would be especially constrained if Plan S does not reach worldwide and global implementation, a scenario which at this point is still a real possibility. They would be limited in competitiveness by being forbidden to publish in subscription journals (which currently comprise more than 80% of all scientific journals with almost all leading professional titles among them) and gradually become isolated since colleagues in other parts of the world will not collaborate with them, seeing the discriminative publishing rules forced upon most if not all potential partners in Europe. It has to be noted that in the implementation guidance [3], cOAlition S introduced the possibility to publish in subscription journals with immediate deposition of the author-approved manuscript under a CC BY license in approved open access repositories; however, it is hard to see how publishers of subscription journals will agree to this and how repositories which meet the specified requirements will be established.

In their bold move to accelerate transition to open access publishing, cOAlition S funders have decided to favor the ‘authors pay’, pure gold route with a cap on the APCs charged. While this preference for gold is excellent news to the for-profit OA publishers, it foreshadows several problematic consequences for researchers. First, to maintain the critical, quality-driven and independent evaluation of scientific claims, journals have to be selective, which is costly and eventually will result in justifiably high APCs; it is unlikely that these can be cut by arbitrary capping in a free market system. The authors will have to find additional sources to pay the difference between the limited offers from the funders and the actual figures if they want to publish their results in quality journals. Second, researchers in different countries are not equally provided with funds to pay APCs, and indeed for some researchers, including those in affluent countries, the cost of APCs can equate to a substantial amount of their research budget. Mandating the gold route for all authors undermines the principle of equal opportunity at the group, institutional, and international levels and increases the already existing gap in research output between some research groups and countries. Limiting publication of scientific work to only those who can afford it would have unforeseen knock-on consequences that may be detrimental to the future of scientific development. Third, to comply with the gold requirement with limited funds, researchers would be more tempted to publish their findings in questionable ‘predator’ OA journals, which charge low APCs but lack proper quality control. Fourth, forcing down costs of publishing would lead to homogenization of the publishing system with fewer choices to authors [2] and is likely to discourage journals from innovating to embrace Open Science [5] which is widely supported by the community. Finally, although many researchers have not realized it yet, traditional services of the scientific societies (such as FEBS) for the research community, particularly those aimed to support early stage researchers, would be severely limited after a few years of the implementation of Plan S as a result of reduced revenues from society journals.
The sustainable objective of learned societies

FEBS, like many other large learned societies across scientific disciplines worldwide, has as its primary aim ‘to help and support its community’. Many of these learned societies are also registered charities, which means that they secure tax benefits in most countries, but they must be run on a not-for-profit basis. Therefore, all profits FEBS makes from its income-generating activities are spent on its charitable aims.

FEBS has a long tradition of supporting young scientists, through a number of schemes such as its long-term fellowships and short-term fellowships. Currently FEBS is funding about 15 long-term and nearly 40 short-term fellows, who are primarily early-career scientists seeking to develop their research ideas and skills through collaborations with established groups and laboratories across Europe. Last year FEBS also funded the participation of over 440 young scientists in FEBS Advanced Courses, the FEBS Young Scientists’ Forum (YSF) or the annual FEBS Congress through travel grants and bursaries, as well as providing grants for the organization of these events. Advanced Course (20 to be funded in 2019) particularly allow postgraduate students or early-career scientists to develop their knowledge and understanding of cutting edge research, while the popular annual FEBS Congress attracts over 1500 participants, who attend lectures on the latest developments across the molecular life sciences, present their work in poster sessions and network with other scientists. For academics, FEBS runs education workshops across Europe, which highlight the latest innovative educational practices to improve student understanding and engagement within the molecular life sciences. Other activities funded by FEBS include promoting Women in Science, Science and Society, and better integration of Science across Europe.

Conscious of the opportunities learned societies create for younger scientists, and the driving role they have within the community, researchers submit their papers to society journals such as FEBS Letters or The FEBS Journal, with the double advantage of publishing in a good journal and supporting science. In a way, this is what keeps the ball rolling.

It remains to be seen what the final outcome of the Plan S process will be. While the ambition of those involved in Plan S is to be applauded, further consultation over the details is needed to ensure that the academic community worldwide does not lose the rich variety of journals in which to publish and the benefits provided by the many societies that support it. As several prominent scientists, society leaders, and organizations have suggested [2,5,6], broader, more careful, and constructive consultations are needed, involving all stakeholders, followed by proper readjustments of Plan S regulations and its timeline. Members of the scientific community have to make their critical opinions, reservations, and suggestions clear to the signatory funders and organizations of cOAlition S who should listen to them in order to agree on mutually acceptable ways of transition to full open access publishing.

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Correspondence

M. Purton, FEBS Press Coordinator, 98 Regent Street, Cambridge, CB2 1DP UK
Tel: +44 1223 227708
E-mail: purton@febs.org