

From coalition to commons: Plan S and the future of scholarly communication

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Abstract

The announcement of Plan S in September 2018 has triggered a wide-ranging debate over how best to accelerate the shift to open access. The Plan's ten principles represent a call for the creation of an intellectual commons, to be brought into being through collective action by funders and managed through regulated market mechanisms. As it gathers both momentum and critics, the coalition must grapple with questions of equity, efficiency and sustainability. The work of Elinor Ostrom has shown that successful management of the commons frequently relies on *polycentricity* and *adaptive governance*. The Plan S principles must therefore function as an overarching framework within which local actors retain some autonomy, and should remain open to amendment as the scholarly communication landscape evolves.

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Introduction

The announcement in September 2018 by a coalition of European research funders ('cOAlition S')¹ that they will require immediate open access to all their scientific publications from 1 January 2020 has triggered a wide-ranging debate over how best to accelerate the shift to open access.

'Plan S' sets out ten principles,² many of which have been foreshadowed in previous policy documents and developments.³ Nevertheless, when taken together they represent a bold statement of intent from the founding group of European funders, which collectively support around 3% of the world's research articles.⁴ Of particular note are the Plan's requirements that authors retain copyright in their works (while granting most or all copyright prerogatives to the general public, in the form of an open license), that publication in subscription and hybrid journals be prohibited, and that article publication charges (APCs) be capped.

The Plan is the brainchild of Robert-Jan Smits, the European Commission's special envoy on open access, together with the Heads of the participating Research Funding Organisations and the President of Science Europe. A key driver was the European Union's announcement in 2016 that it would pursue immediate open access by 2020⁵ – a target which had looked highly unlikely to be met.⁶ The Plan's supporters have emphasised the need for faster progress towards OA as the primary reason for its conception,⁷ but concerns over the rising cost of the transition to open access and the impasse in subscription negotiations within some European countries have also played a part.⁸ 11 funders were original signatories to the Plan, with several others joining since, and more, including the European Commission itself, expected to formally adopt it in time.

A disruptive development

The principles are potentially disruptive to the current scholarly communication system as a result of both their 'radical' nature⁹ and the sheer speed with which they are due to be implemented. Within the UK context, Plan S can also be seen as the 'end of the post-Finch consensus',¹⁰ as the recently-formed UK Research and Innovation (UKRI) elected to sign up to the Plan independently of the Universities UK Open Access Coordination Group, and prior to the completion of its ongoing review of its own OA policy.¹¹ With UKRI accounting for as much as half of the publications within the scope of the Plan,¹² and the UK home to a large number of scholarly publishers and learned societies, the response from stakeholders on these shores and beyond can tell us much about its wider prospects. The majority of these responses centre on three key assumptions that underpin the Plan:

1. That the research literature should be treated as an intellectual commons;
2. That collective action by funders can be effective in creating such a commons; and
3. That scholarly publishing services should be delivered, at least in part, by a 'regulated market'.

The basis for each of these assumptions is considered below, followed by the Plan's prospects for creating an equitable, efficient and sustainable scholarly communications system.

Knowledge as a commons

There is a growing body of evidence to suggest that open access offers economic and societal benefits,¹³ yet it is notable that the Preamble chooses to present open access as 'foundational' to the scientific enterprise itself, rather than an obligation placed on science by society at large.¹⁴ By combining author retention of copyright with open licensing and no embargo periods, the Plan seeks

to create what Suber has termed ‘an intellectual commons’, and Chan et al ‘a global knowledge commons’.¹⁵

A commons is simply ‘a resource shared by a group of people that is subject to social dilemmas’,¹⁶ and so is by no means incompatible with neoliberal economic models.¹⁷ Yet determining where and how the intellectual commons meets the market is a fraught question, since while ideas are public goods, scholarly journals are not.¹⁸ In mandating open licensing in line with the Berlin Declaration,¹⁹ cOAlition S asserts that the rights of authors, as copyright holders, to choose how their work is used are subordinate to the broader interests of the scientific community. Similarly, the role of publishers, to whom copyright in scholarly outputs is frequently assigned, is to be limited to the provision of ‘services that help scientists to review, edit, disseminate and interlink their work.’²⁰

Open access has hitherto meant many different things to many different people.²¹ In adopting the Berlin Declaration as a reference point, the coalition has sought to base its approach on a consensus definition.²² Yet the extent to which the Berlin Declaration represents the will of the research community remains hotly disputed.²³ The insistence on open licensing extends the scope of the commons, and limits the role of the market. It is also one of a number of key elements that distinguishes Plan S from the ‘public access’ policies pursued to date by the United States.²⁴

The need for collective action by funders

The failure to capitalise on digital technologies to maximise the availability and usage of scientific knowledge has been described as a ‘tragic stalemate’,²⁵ and a ‘tragedy of the anticommons’.²⁶ As Wenzler has observed, ‘Every librarian and scholar clearly see that an OA system is preferable to the current system and may even see how their own actions could contribute to creating it but still fail to successfully coordinate their efforts to achieve it.’²⁷

Plan S therefore represents an attempt to address the type of a ‘collective action dilemma’ outlined in Mancur Olsen’s *Logic of Collective Action: Public Goods and the Theory of Groups*.²⁸ A key finding of Olsen’s work was that ‘small groups will further their common interest better than large groups’.²⁹ This principle accounts for the difficulties faced by libraries globally in negotiating with a small group of well-funded, highly organized commercial publishers,³⁰ and for the inability of academics and universities to reform the scholarly publishing system.³¹ Smits himself reached a similar conclusion: ‘I thought about why the traditional system had been able to exist for such a long time: because the funders have not intervened,’ he is quoted as saying. ‘The ministers made it quite clear that by 2020 we need full open access, but they left it to the universities and the libraries to negotiate with the big publishers.’³²

The creation of a small but powerful group of research funders who can act in concert thus represents an attempt to break the impasse, through the creation of what Ostrom has termed an ‘institution for collective action’.³³ With the UK government and Research Councils UK having faced heavy criticism post-Finch for leading where the rest of the world didn’t follow,³⁴ the political value of a collective approach for the funders themselves should also not be underestimated. The addition of new members, including Wellcome and the Bill and Melinda Gates Foundation, suggests momentum is building.³⁵ Yet Germany’s reluctance to join the coalition leaves a sizeable gap in the ranks of European funders,³⁶ while the level of appetite for the Plan amongst US Federal funders and the Chinese authorities remains unclear.

An issue is not only whether other funders, as well as libraries, will join, but also whether the coalition is seen to be acting in the collective interest of the research community, and science as a whole.

Disciplinary communities display widely varying attitudes towards open access,³⁷ with researchers in the humanities and social sciences particularly vocal in their concerns about the Plan's implications.³⁸ Nevertheless, the case for funders intervening in the OA marketplace has been boosted by a recent study by Larivière and Sugimoto, which notes: 'the rhetoric surrounding disciplinary barriers might be more a myth than a reality: when the proper structure and incentives are in place, researchers comply'.³⁹

The case for market regulation

The system of scholarly publishing has been widely derided as 'broken', with the levels of profits generated by commercial publishers frequently cited as evidence of this.⁴⁰ There is indeed good evidence to show that the subscription market is not functioning effectively, due to non-substitutability, excessive concentration, lack of transparency and perverse incentives.⁴¹ The development of funder platforms, such as Wellcome Open Research and the European Commission's own publishing platform, can be seen in part as an indictment of market-based mechanisms. Yet the work of Elinor Ostrom on common-pool resources has demonstrated that there is no single 'best way' of managing a commons, and that successful institutional arrangements are often rich mixtures of public and private instrumentalities.⁴²

The need for commercial publishers to play an active role in implementing Plan S is clear, with the five largest publishers alone accounting for more than 50% of all published papers.⁴³ Yet by removing support for subscription and hybrid journals ('a government mandated boycott' as one commentator puts it)⁴⁴ and placing a cap on the level of article publishing charges it will fund, the coalition has indicated it wants to see a 'regulated market'. Analysis by consultants Deltathink suggests that Plan S will take revenue out of the scholarly publishing market,⁴⁵ so it is perhaps unsurprising that the wisdom of these measures has been called into question by scholarly publishers.⁴⁶ Others, meanwhile, have emphasised the need to support OA initiatives that do not charge authors, which are especially important in the humanities and for researchers, institutions and countries unable to pay APCs.⁴⁷

Smits has been at pains to emphasise that the coalition's intention is not to prescribe particular business models, and that it is up to publishers to come forward with compliant offerings – which could seemingly include repository-based solutions ('green OA').⁴⁸ Nevertheless, much will depend on whether authors are willing to forego hybrid and subscription journals, which still account for 85% of the total,⁴⁹ and the level at which the proposed APC cap is set. Here, Ostrom's work should sound a note of caution. As she has shown, regulatory authorities often lack knowledge about the specific character of the assets to be managed and the nature of the incentives facing resource users and therefore find it difficult to devise an effective set of rules.⁵⁰

Evaluating the Plan

Plan S therefore represents an attempt to use regulated market mechanisms and an institution of collective action to create and govern an intellectual commons. Recognising this, we can assess the Plan's prospects by reference to the essential questions for any commons analysis, namely equity, efficiency and sustainability.⁵¹ Equity in this context represents the ability of researchers both to read research outputs, and to publish them. Efficiency deals with optimal production, management and use of the scholarly literature, while sustainability looks at outcomes for scholarly communication, and the institution of science, over the long term.

Equity

In 2009, Shieber argued that the publishing system was inequitable, as publishers and authors perceived an 'unlevel playing field' in choosing between the subscription and APC-business models. He disavowed the hybrid approach as subject to a 'tragedy of the commons', and his proposals for achieving 'equity for open-access journal publishing' have much in common with the Plan S principles, including a guarantee to underwrite the cost of APCs, and the use of price caps.⁵²

Proponents of Plan S further argue that it will make knowledge itself more equitable.⁵³ Yet many of the critiques of the Plan centre on the fact that it could perpetuate or even exacerbate inequalities within science and scholarly publishing. A key bone of contention is the Plan's apparent preference for immediate, or 'gold', open access, which often involves the payment of APCs. Various commentators have expressed fears that this could lead to a two-tier publication system,⁵⁴ that it fails to commit to open infrastructure,⁵⁵ and that a large-scale shift to the APC model would create new barriers for participation in the system for many regions and researchers.⁵⁶ Still others have taken issue with the coalition's willingness to work with commercial publishers, arguing that academic-led publishing is 'inherently more equitable' than traditional journals.⁵⁷

While some researcher groups have commended the coalition on a 'bold and ambitious step towards Open Access',⁵⁸ the decision to restrict the venues in which authors may publish has elsewhere been termed both 'unethical' and 'a violation of academic freedom'.⁵⁹ The debate on this point is not new,⁶⁰ and the charge of infringement of academic freedom has been disputed by other researchers,⁶¹ but it could prove a lightning rod for dissent as awareness of the Plan's implications grows amongst the academic community.

Efficiency

At a macro-level, the existing system of scholarly publishing has proven remarkably efficient and resilient as a means of sharing knowledge, despite concerns over delays in publication and peer review processes. As Stephan has observed, the reward system in science is built on 'priority' - being the first to communicate a finding - which in turn encourages the production and sharing of knowledge.⁶² Academic journals and other scholarly publications enable researchers to establish priority through their function of registration, while also disseminating findings to their intended audience, certifying their validity through peer review, and preserving them in the form of an archival record.⁶³

Open access is intended to maximise the impact, visibility, and efficiency of the whole research process.⁶⁴ Yet the same reward system that has been so efficient in encouraging the historic sharing of knowledge now fails to recognise, value, and reward efforts to open up the scientific process.⁶⁵ Accordingly, the coalition have stated their intention to fundamentally revise the incentive and reward system of science, using the San Francisco Declaration on Research Assessment (DORA) as a starting point.⁶⁶ While few would disagree with the need for reform, questions have been raised as to how it can be delivered in practice, given the global nature of the scientific reward system.⁶⁷ Wellen observed in 2013 that policymakers appeared to be interested in reforming the traditional publishing model 'without necessarily disrupting the academic commons which that model is meant to serve'.⁶⁸ Plan S signals a newfound willingness to disrupt the commons in the interests of reforming publishing.

Sustainability

The long-term future of Plan S depends on many factors, including its adoption by other funders, the response from institutions and libraries, the nature of transitional arrangements, and the willingness of researchers themselves to comply with the Plan's provisions. Commentators have been quick to forecast a gloomy future, under which Plan S succeeds only in increasing costs,⁶⁹ damaging learned

societies,⁷⁰ undermining the quality and reliability of the scholarly record,⁷¹ and eroding the scientific standing of those countries who participate.⁷² The Plan's assumed preference for APC-based models lies behind much of this criticism, with commentators variously asserting that it should give greater credence to green (self-archiving in repositories),⁷³ diamond (journals with neither APCs or subscriptions)⁷⁴ or hybrid (combined subscription and APCs)⁷⁵ models. Further questions abound, including how the Principles will be applied to monographs and to unencumbered funding mechanisms like the UK's quality-related (QR) funding.

What is clear is that monitoring and feedback mechanisms will be essential both to assess the Plan's effectiveness and to ensure the continued sustainability of the scholarly communication system. The work done to date by the EC's Open Science Monitor⁷⁶ and the Universities UK Open Access Co-ordination Group,⁷⁷ among others, provides firm foundations for this. In light of Plan S, these existing mechanisms should be extended to consider:

- access to publishing, both within Europe and beyond, with a particular focus on researchers in the social sciences and humanities and in developing nations;⁷⁸
- the availability of compliant publication venues at disciplinary level;
- the development of underpinning infrastructures, with a preference for these to be open wherever possible;
- the evolution of incentive structures for researchers, including evidence of adverse impacts on researcher recruitment, retention and international collaboration for researchers and institutions falling within the scope of Plan S; and
- the continued development of a competitive open access market, with an emphasis on the potential for market distortion due to the proposed cap on APCs.

Moving from principles to practice

As pressure builds on the coalition and its implementation task force to rule on a myriad of implementation questions, they may wish to keep two findings from Elinor Ostrom's work on governing the commons in mind.

The first is the value of *polycentricity*, which can be defined as the coexistence of many decision centres with autonomous and sometimes overlapping prerogatives, some of them organised at differing scales, and operating under an overarching set of rules.⁷⁹ Anyone who has sought to navigate the varying and potentially conflicting open access requirements of funders, institutions and publishers will recognise the 'overlapping prerogatives' of current actors in the open access landscape, and the 'mandate messiness' that results.⁸⁰ Harmonisation is a desirable goal, but the intention should not be to impose a homogeneous approach which fails to take account of varying national and disciplinary cultures. Instead, the principles must operate as an overarching framework within which local actors - funders, institutions, publishers and learned societies - remain free to build trust and create a diverse environment favourable to discovering better solutions to problems.

The second is the need for *adaptive governance*, meaning that the system of rules is able to evolve and adapt over time.⁸¹ The doomsday scenarios envisaged by some commentators as a result of Plan S assume a blind adherence to a set of principles which, if followed to their logical conclusion, might indeed have a range of adverse consequences. It is all but inevitable that publishers will find innovative ways to protect their margins, learned societies will struggle to adapt their business models, and some researchers will find funder mandates to be at odds with career incentives. Yet this does not mean the Plan must fail. The establishment of an equitable, efficient and sustainable academic commons is an

ambitious goal. Its successful governance will require that, as circumstances change, rules – and even principles – are adapted accordingly.

Competing interests

The author has declared no competing interests.

¹ Science Europe, 'COALition S: Making Open Access a Reality by 2020: A Declaration of Commitment by Public Research Funders', 2018, <https://www.scienceurope.org/coalition-s/>.

² Science Europe.

³ Danny Kingsley, 'Most Plan S Principles Are Not Contentious', *Unlocking Research* (blog), 12 September 2018, <https://unlockingresearch-blog.lib.cam.ac.uk/?p=2145>.

⁴ Dan Pollock and Ann Michael, 'News & Views: Potential Impact of Plan S', *Delta Think* (blog), 25 September 2018, <https://deltathink.com/news-views-potential-impact-of-plan-s/>.

⁵ Martin Enserink, 'In Dramatic Statement, European Leaders Call for "Immediate" Open Access to All Scientific Papers by 2020', *Science | AAAS* (blog), 27 May 2016, <https://www.sciencemag.org/news/2016/05/dramatic-statement-european-leaders-call-immediate-open-access-all-scientific-papers>.

⁶ Rob Johnson et al., 'Towards a Competitive and Sustainable OA Market in Europe - A Study of the Open Access Market and Policy Environment' (Zenodo, 28 February 2017), <https://doi.org/10.5281/zenodo.401029>.

⁷ Carlos Moedas, 'Statement by Carlos Moedas: "Plan S" and "COALition S" – Accelerating the Transition to Full and Immediate Open Access to Scientific Publications', European Commission, 4 September 2018, https://ec.europa.eu/commission/commissioners/2014-2019/moedas/announcements/plan-s-and-coalition-s-accelerating-transition-full-and-immediate-open-access-scientific_en.

⁸ David Matthews, 'Huge Rise in Subscription Costs despite Open Access Switch', *Times Higher Education (THE)* (blog), 5 December 2017, <https://www.timeshighereducation.com/news/huge-rise-subscription-costs-despite-open-access-switch>; D. Matthews, 'Deal Impasse Severs Elsevier Access for Some German Universities', *Times Higher Education (THE)*, 6 January 2017, <https://www.timeshighereducation.com/news/deal-impasse-severs-elsevier-access-some-german-universities>.

⁹ Holly Else, 'Nature – Radical Open-Access Plan Could Spell End to Journal Subscriptions', 4 September 2018, <https://www.nature.com/articles/d41586-018-06178-7>.

¹⁰ David Prosser, 'RLUK – Plan S – A Major Shift for Open Access in Europe', 5 September 2018, <https://www.rluk.ac.uk/plan-s-a-major-shift-for-open-access-in-europe/>.

¹¹ 'UK Research Funders Target Hybrid Open Access Charges | THE News', accessed 1 November 2018, <https://www.timeshighereducation.com/news/uk-research-funders-target-hybrid-open-access-charges>.

¹² Bianca Kramer, 'Funders Plan S - Dimensions/Unpaywall - Sept 2018', *Google Docs*, accessed 4 November 2018, <https://tinyurl.com/cOAlitionS-OA-2017>.

¹³ Jonathan P. Tennant et al., 'The Academic, Economic and Societal Impacts of Open Access: An Evidence-Based Review', *F1000Research* 5 (April 2016): 632, <https://doi.org/10.12688/f1000research.8460.1>.

¹⁴ Marc Schiltz, 'Preamble by Marc Schiltz: Science Without Publication Paywalls: A Preamble to: COALition S for the Realisation of Full and Immediate Open Access', 4 September 2018, https://www.scienceurope.org/wp-content/uploads/2018/09/cOAlitionS_Preamble.pdf.

¹⁵ Peter Suber, 'Creating an Intellectual Commons through Open Access', in *Understanding Knowledge as a Commons: From Theory to Practice* (Cambridge, Mass.: MIT Press, 2007), <https://dash.harvard.edu/handle/1/4552055>; Leslie Chan, Barbara Kirsop, and Subbiah Arunachalam, 'Towards Open and Equitable Access to Research and Knowledge for Development', *PLOS Medicine* 8, no. 3 (29 March 2011): e1001016, <https://doi.org/10.1371/journal.pmed.1001016>.

¹⁶ Charlotte Hess and Elinor Ostrom, 'Introduction : An Overview of the Knowledge Commons', in *Understanding Knowledge as a Commons* (Cambridge, Mass: MIT Press, 2007), 3.

¹⁷ Richard Wellen, 'Open Access, Megajournals, and MOOCs: On the Political Economy of Academic Unbundling', *SAGE Open* 3, no. 4 (November 2013): 215824401350727, <https://doi.org/10.1177/2158244013507271>.

¹⁸ Wellen.

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- ¹⁹ Max Planck Society, 'Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities', 2013, <https://openaccess.mpg.de/Berlin-Declaration>.
- ²⁰ Science Europe, 'COAlition S: Making Open Access a Reality by 2020: A Declaration of Commitment by Public Research Funders'.
- ²¹ Rick Anderson, 'Diversity in the Open Access Movement, Part 1: Differing Definitions - The Scholarly Kitchen', *The Scholarly Kitchen* (blog), 23 January 2017, <https://scholarlykitchen.sspnet.org/2017/01/23/diversity-open-access-movement-part-1-differing-definitions/>; By, 'Diversity in the Open Access Movement, Part 2: Differing Goals', *The Scholarly Kitchen*, 24 January 2017, <https://scholarlykitchen.sspnet.org/2017/01/24/diversity-open-access-movement-part-2-differing-goals/>.
- ²² Marc Schiltz, 'There Is No Such Thing as the "One True Definition of OA". That Is Why We Use a Consensus Definition.', Tweet, @marcschiltz1 (blog), 11 October 2018, <https://twitter.com/marcschiltz1/status/1050473424357867525>.
- ²³ Leonid Schneider, 'Response to Plan S from Academic Researchers: Unethical, Too Risky!', *For Better Science* (blog), 11 September 2018, <https://forbetterscience.com/2018/09/11/response-to-plan-s-from-academic-researchers-unethical-too-risky/>.
- ²⁴ Office of Science and Technology Policy (OSTP), 'Increasing Access to the Results of Federally Funded Scientific Research', 2013, http://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf.
- ²⁵ Suber, 'Creating an Intellectual Commons through Open Access'.
- ²⁶ Michael A. Heller, 'The Tragedy of the Anticommons: Property in the Transition from Marx to Markets', *Harvard Law Review* 111, no. 3 (1998): 621–88, <https://doi.org/10.2307/1342203>.
- ²⁷ John Wenzler, 'Scholarly Communication and the Dilemma of Collective Action: Why Academic Journals Cost Too Much | Wenzler | College & Research Libraries', February 2017, 189, <https://doi.org/10.5860/crl.78.2.16581>.
- ²⁸ Mancur Olsen, *The Logic of Collective Action: Public Goods and the Theory of Groups, Second Printing with New Preface and Appendix*, Revised Edition (Cambridge, Mass.: Harvard University Press, 1971).
- ²⁹ Olsen, 52.
- ³⁰ Wenzler, 'Scholarly Communication and the Dilemma of Collective Action', 194.
- ³¹ Tim Crane, 'The Peer Review Industry: Implausible and Outrageous', *The TLS*, 23 October 2018, <https://www.the-tls.co.uk/articles/public/peer-review-industry-implausible-outrageous/>.
- ³² Antoaneta Roussi, 'Robert-Jan Smits, the Open-Plan Architect', *Research*, 9 April 2018, <http://www.researchresearch.com>.
- ³³ Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action*, Reissue edition (Cambridge, United Kingdom: Cambridge University Press, 2015).
- ³⁴ 'Government Mistaken in Focusing on Gold as Route to Full Open Access - News from Parliament', UK Parliament, accessed 28 October 2018, <https://www.parliament.uk/business/committees/committees-a-z/commons-select/business-innovation-and-skills/news/on-publ-open-access/>.
- ³⁵ Else, 'Nature – Radical Open-Access Plan Could Spell End to Journal Subscriptions'.
- ³⁶ 'DFG, German Research Foundation - DFG Statement on the Establishment of "COAlition S" to Support Open Access', accessed 1 November 2018, http://www.dfg.de/en/research_funding/announcements_proposals/2018/info_wissenschaft_18_56/index.html.
- ³⁷ Thomas Eger and Marc Scheufen, *The Economics of Open Access: On the Future of Academic Publishing* (Cheltenham: Edward Elgar, 2018), <https://www.e-elgar.com/shop/the-economics-of-open-access>.
- ³⁸ Schneider, 'Response to Plan S from Academic Researchers: Unethical, Too Risky!'
- ³⁹ Vincent Larivière and Cassidy R. Sugimoto, 'Do Authors Comply When Funders Enforce Open Access to Research?', *Nature* 562, no. 7728 (October 2018): 483, <https://doi.org/10.1038/d41586-018-07101-w>.
- ⁴⁰ Jon Tennant, 'Scholarly Publishing Is Broken. Here's How to Fix It', *Aeon Ideas* (blog), accessed 1 November 2018, <https://aeon.co/ideas/scholarly-publishing-is-broken-heres-how-to-fix-it>; George Monbiot, 'Scientific Publishing Is a Rip-off. We Fund the Research – It Should Be Free | George Monbiot', *The Guardian*, 13 September 2018, sec. Opinion, <https://www.theguardian.com/commentisfree/2018/sep/13/scientific-publishing-rip-off-taxpayers-fund-research>.

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- ⁴¹ Johnson et al., 'Towards a Competitive and Sustainable OA Market in Europe - A Study of the Open Access Market and Policy Environment'; Jonathan Tennant and Björn Brembs, 'RELX Referral to EU Competition Authority' (Zenodo, 26 October 2018), <https://doi.org/10.5281/zenodo.1472045>.
- ⁴² Ostrom, *Governing the Commons*, 182.
- ⁴³ Haustein S Larivière V Mongeon P, 'The Oligopoly of Academic Publishers in the Digital Era', *PLoS ONE* 10, no. 6 (2015): e0127502–e0127502, <https://doi.org/10.1371/journal.pone.0127502>.
- ⁴⁴ David Wojick, 'David Wojick's Writings and Stuff: Euro Funders Float Radical Rules', *David Wojick's Writings and Stuff* (blog), 24 September 2018, <https://davidwojick.blogspot.com/2018/09/euro-funders-float-radical-rules.html>.
- ⁴⁵ Pollock and Michael, 'News & Views: Potential Impact of Plan S'.
- ⁴⁶ Steven Inchcombe, 'The Best Laid Plan S...', *The Bookseller* (blog), 10 October 2018, <https://www.thebookseller.com/blogs/best-laid-plan-s-872011>; Claire Redhead, 'OASPA Offers Support on the Implementation of Plan S', *OASPA* (blog), 2 October 2018, <https://oaspa.org/oaspa-offers-support-on-the-implementation-of-plan-s/>; STM Association, 'STM Statement on Plan S: Accelerating the Transition to Full and Immediate Open Access to Scientific Publications.', September 2018, https://www.stm-assoc.org/2018_09_04_STM_Statement_on_PlanS.pdf.
- ⁴⁷ Fair Open Access Alliance, 'The Fair Open Access Alliance (FOAA) on Plan S', *FOAA* (blog), accessed 26 October 2018, <https://www.fairopenaccess.org/2018/09/20/the-fair-open-access-alliance-foaa-on-plan-s/>.
- ⁴⁸ Richard Poynder, 'Open and Shut?: "It Is for Publishers to Provide Plan S-Compliant Routes to Publication in Their Journals."', *Open and Shut?* (blog), 10 October 2018, <https://poynder.blogspot.com/2018/10/it-is-for-publishers-to-provide-plan-s.html>.
- ⁴⁹ 'Monitoring the Transition to Open Access: December 2017', accessed 19 October 2018, <https://www.universitiesuk.ac.uk/policy-and-analysis/reports/Pages/monitoring-transition-open-access-2017.aspx>.
- ⁵⁰ Elinor Ostrom et al., 'The Future of the Commons - Beyond Market Failure and Government Regulation', SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, 10 December 2012), 31, <https://papers.ssrn.com/abstract=2267381>.
- ⁵¹ Charlotte Hess, 'The Unfolding of the Knowledge Commons', *St Antony's International Review* 8, no. 1 (2012): 13–24.
- ⁵² Stuart M. Shieber, 'Equity for Open-Access Journal Publishing', *PLOS Biology* 7, no. 8 (4 August 2009): e1000165, <https://doi.org/10.1371/journal.pbio.1000165>.
- ⁵³ 'Open Access to Scientific Publications Must Become a Reality by 2020 - Robert-Jan Smits', *Horizon: the EU Research & Innovation magazine*, accessed 26 October 2018, <https://horizon-magazine.eu/article/open-access-scientific-publications-must-become-reality-2020-robert-jan-smits.html>.
- ⁵⁴ Schneider, 'Response to Plan S from Academic Researchers: Unethical, Too Risky!'
- ⁵⁵ Peter Suber, 'Thoughts on Plan S', *Peter Suber* (blog), 4 September 2018, <https://plus.google.com/u/0/+PeterSuber/posts/iGEFpdYY9dr>.
- ⁵⁶ COAR, 'COAR Response to Plan S', 12 September 2018, <https://www.coar-repositories.org/files/COAR-response-to-Plan-S-Sept-2018.pdf>.
- ⁵⁷ Brian Cody, 'Plan S[How Me the Money]: Why Academic-Led Initiatives Represent a More Equitable, Less Costly Publishing Future', *Impact of Social Sciences* (blog), 24 October 2018, <http://blogs.lse.ac.uk/impactofsocialsciences/2018/10/24/plan-show-me-the-money-why-academic-led-initiatives-represent-a-more-equitable-less-costly-publishing-future/>.
- ⁵⁸ Gareth O'Neill, Matthew DiFranco, and Marcel Swart, 'EuroDoc - Joint Statement on Open Access for Researchers via Plan S', 24 September 2018, <http://eurodoc.net/joint-statement-plan-s.pdf>.
- ⁵⁹ Schneider, 'Response to Plan S from Academic Researchers: Unethical, Too Risky!'
- ⁶⁰ Rick Anderson, 'Mandatory Open-Access Publishing Can Impair Academic Freedom (Essay) | Inside Higher Ed', accessed 28 October 2018, <https://www.insidehighered.com/views/2015/12/15/mandatory-open-access-publishing-can-impair-academic-freedom-essay>.
- ⁶¹ Stephen Curry, 'Academic Freedom and Responsibility: Why Plan S Is Not Unethical', 1 October 2018, <http://occamstypewriter.org/scurry/2018/10/01/academic-freedom-and-responsibility-why-plan-s-is-not-unethical/>.
- ⁶² Paula Stephan, *How Economics Shapes Science* (Cambridge, Mass.: Harvard University Press, 2012), <https://www.amazon.co.uk/Economics-Shapes-Science-Paula-Stephan/dp/0674049713>.

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- ⁶³ Harriet Zuckerman and Robert Merton, 'Patterns of Evaluation in Science', 1971, <http://www.garfield.library.upenn.edu/classics1986/A1986D405000001.pdf>; M. Mabe, 'Does Journal Publishing Have a Future?', in *In R. Campbell, E. Pentz, & I. Borthwick (Eds.), Academic and Professional Publishing*. (Oxford: Chandos, 2012).
- ⁶⁴ Schiltz, 'Preamble by Marc Schiltz: Science Without Publication Paywalls: A Preamble to: COAlition S for the Realisation of Full and Immediate Open Access'.
- ⁶⁵ James Wilsdon et al., 'Next-Generation Metrics Responsible Metrics and Evaluation for Open Science.' (Luxembourg: European Commission, 2017), <https://ec.europa.eu/research/openscience/pdf/report.pdf>.
- ⁶⁶ Schiltz, 'Preamble by Marc Schiltz: Science Without Publication Paywalls: A Preamble to: COAlition S for the Realisation of Full and Immediate Open Access'.
- ⁶⁷ Suber, 'Thoughts on Plan S'.
- ⁶⁸ Wellen, 'Open Access, Megajournals, and MOOCs', 12.
- ⁶⁹ 'DFG, German Research Foundation - DFG Statement on the Establishment of "COAlition S" to Support Open Access'.
- ⁷⁰ 'Plan S "Could Prove Fatal" for Learned Societies | Times Higher Education (THE)', accessed 3 November 2018, <https://www.timeshighereducation.com/news/plan-s-could-prove-fatal-learned-societies>.
- ⁷¹ STM Association, 'STM Statement on Plan S: Accelerating the Transition to Full and Immediate Open Access to Scientific Publications.'
- ⁷² Schneider, 'Response to Plan S from Academic Researchers: Unethical, Too Risky!'; Henrik Urdal, 'Free Access at a High Price', *PRIO Blogs* (blog), 20 September 2018, <https://blogs.prio.org/2018/09/free-access-at-a-high-price/>.
- ⁷³ Jon Tennant, 'Full Comments about "Plan S" and the Future of Open Access in Europe', *Green Tea and Velociraptors* (blog), 6 September 2018, <http://fossilsandshit.com/full-comments-about-plan-s-and-the-future-of-oa/>.
- ⁷⁴ 'Young Academies Release Statement in Response to "Plan S" on Open Access of Scientific Output', Global Young Academy, accessed 3 November 2018, <https://globalyoungacademy.net/young-academies-release-statement-in-response-to-plan-s-on-open-access-of-scientific-output/>.
- ⁷⁵ Inchcoombe, 'The Best Laid Plan S...'
- ⁷⁶ 'Open Science Monitor', Text, European Commission - European Commission, accessed 5 November 2018, https://ec.europa.eu/info/research-and-innovation/strategy/goals-research-and-innovation-policy/open-science/open-science-monitor_en.
- ⁷⁷ 'UUK Open Access Coordination Group', accessed 5 November 2018, <https://www.universitiesuk.ac.uk/policy-and-analysis/research-policy/open-science/Pages/uuk-open-access-coordination-group.aspx>.
- ⁷⁸ 'Rich "Should Pay to Help Poorer Nations Make Open Access Switch"', Times Higher Education (THE), 2 November 2018, <https://www.timeshighereducation.com/news/rich-should-pay-help-poorer-nations-make-open-access-switch>.
- ⁷⁹ Ostrom et al., 'The Future of the Commons - Beyond Market Failure and Government Regulation', 60.
- ⁸⁰ Stephen Pinfield, 'Making Open Access Work: The "State-of-the-Art" in Providing Open Access to Scholarly Literature', *Online Information Review* 39, no. 5 (14 September 2015): 604–36, <https://doi.org/10.1108/OIR-05-2015-0167>.
- ⁸¹ Thomas Dietz, Elinor Ostrom, and Paul C. Stern, 'The Struggle to Govern the Commons', *Science* 302, no. 5652 (12 December 2003): 1907–12, <https://doi.org/10.1126/science.1091015>.