THIS WEEK

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Access all areas

To create a sustainable, open research literature, governments need to find the finances to make it viable — and recognize that adding value to diversifying research outputs has its own costs.

The past week has seen several twists and turns along the road towards a truly open research literature. But the underlying questions have hardly been touched on: who needs whom to add what value to what literature, and who is willing to pay for it?

Consider first a ridiculous distraction: the US Research Works Act. Proposed late last year in the House of Representatives, this seeks to stop US federal funders from mandating that research papers be made freely available. The current policy of the US National Institutes of Health — a policy supported and assisted by *Nature* and its publishers — is that authors' final versions of papers should be deposited in the freely accessible PubMed Central database within a year of publication. That policy would be prohibited by the Research Works Act. The proposal has provoked an outcry, stimulating several publishers to state their opposition (including, last week, ours; see go.nature.com/myil4g).

Why is this a ridiculous distraction? Because it tries to reverse a slow but strong political tide that is in favour of access, and because even its supporters believe that it has no chance of passing.

Next, consider the more serious and necessary debate about online theft of copyrighted content. In 2002, *Nature*'s publishers resolved that the authors of original research papers should retain copyright while giving our journals an exclusive licence to publish, but there remain justified concerns in science publishing and more generally that unlicensed online distribution threatens the viability of producers of valued content.

Two draft measures introduced to Congress last year — the PROTECT Intellectual Property Act and the Stop Online Piracy Act — intended to counteract such threats, but triggered huge opposition because of the threat of collateral damage to Internet activity. This climaxed last week with a day-long blackout of Wikipedia and hostile statements by several publishers including *Nature*'s (see go.nature.com/kttyax). Both proposals have been put on hold, and the piracy act will be redrafted.

Despite these skirmishes, the vision of an open research literature has both scientific merit and strong international political support. But there are still substantive issues regarding the future of the primary research literature, which are unlikely to be resolved for years.

ADDING VALUE

No one disagrees that a publisher of review articles deserves to charge for access to them. After all, the publisher's staff have contributed value in various ways: identifying the author and the article's aim, assessing and editing the draft, selecting peer reviewers, working with the author to build on their advice, developing illustrations, rendering the article into print and online forms, maintaining it online and including links, citation statistics and other enhancements.

A publisher of research papers also does all of these things, except that authors voluntarily submit the article, the editors undertake careful assessment of scientific significance, and the refereeing stage involves much deliberation, occasional debate and revisions that significantly enhance the robustness and scientific impact of the paper.

The publishers and editors of *Nature* and its related journals remain committed to sustaining and developing these components of added value. For example, we organize researcher meetings to review our acceptance and technical standards in fast-moving fields, we upgrade the online search and other facilities surrounding our papers, and we are investing in improved presentation of online data and illustrations. As for the business model, anyone who wishes to preserve these modes of added value should favour a publishing evolution with a mixed economy of author-pays open access and subscriptions, with some journals, such as *Nature Communications*, allowing both options (see go.nature.com/slwrt3).

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But the literature itself is changing. It no longer consists of only static papers that document a research insight. In the future, online research literature will, in an ideal world at least, be a seamless amalgam of papers linked to relevant data, stand-alone data and software, 'grey literature' (policy or application reports outside scientific journals) and tools for visualization, analysis, sharing, annotation and providing credit.

And 'publishers' will increasingly include organizations or individuals who are not established journal publishers, but who host and provide access and other added value to this online edifice. Some may be research funders, such as the National Institutes of Health in its hosting of various databases; some may be research institutions, such as the European Bioinformatics Institute. Others may be private companies, including suppliers of tools such as the reference manager Mendeley and Digital Science, sister company to Nature Publishing Group.

This literature will need to be readable and computable not only by people but also by machines, which will, in turn, require publishers to develop new standards.

In short, the literature is becoming ever more multifaceted, and intermediaries will be needed to supply added value and usability. It is hard to imagine such a primary literature and all of those seeking to add genuine value to it thriving when its key results are behind subscription firewalls. But a vision for open access in which all results — text, data, grey literature and so on — are immediately available in their published versions requires the costs of that added value to be paid for.

None of this will occur until the tide in its favour becomes unstoppable. The only way that can happen is for governments to recognize the complexities of this terrain, and the damage that can be done to the providers of added value and to research itself as a result of poorly considered prohibitions or compulsions. Above all, they need to find the money to make the vision viable. Only then will the open research literature truly come to fruition, and only then will those wishing to provide added value be able to invest confidently in doing so. ■