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# Accessibility, sustainability, excellence: how to expand access to research publications. Executive summary

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Working Group on Expanding Access to Published Research Findings

This report tackles the important question of how to achieve better, faster access to research publications for anyone who wants to read or use them. It has been produced by an independent working group made up of representatives of universities, research funders, learned societies, publishers, and libraries. The group's remit has been to examine how to expand access to the peer-reviewed publications that arise from research undertaken both in the UK and in the rest of the world; and to propose a programme of action to that end.

We have concentrated on journals which publish research results and findings. Virtually all are now published online, and they increasingly include sophisticated navigation, linking and interactive services. Making them freely accessible at the point of use, with minimal if any limitations on how they can be used, offers the potential to reap the full social, economic and cultural benefits that can come from research.

Our aim has been to identify key goals and guiding principles in a period of transition towards wider access. We have sought ways both to accelerate that transition and also to sustain what is valuable in a complex ecology with many different agents and stakeholders. The future development of an effective research communications system is too important to leave to chance. Shifts to enable more people to have ready access to more of the results of research will bring many benefits. But realising those benefits

*This article is a summary, by the authors, of a 140-page report prepared in 2012 by the UK Working Group on Expanding Access to Published Research Findings, chaired by British sociologist and academic administrator Janet Finch, DBE. The Working Group was charged with recommending how to develop a model that would be effective and sustainable over time, for expanding access to the published findings of research. The whole report, which can be accessed at http://www.researchinfonet.org/wp-content/uploads/2012/06/Finch-Group-report-FINAL-VERSION.pdf [http://tinyurl.com/d2lxqks], has been published under a Creative Commons License Attribution 3.0 Unported. CONTRIBUTIONS TO SCIENCE publishes now the whole series of articles devoted to the Open Access Initiative appeared in 2013 in INTERNATIONAL MICROBIOLOGY [Int Microbiol 16:125-132].

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in a sustainable way will require co-ordinated action by funders, universities, researchers, libraries, publishers and others involved in the publication and dissemination of quality-assured research findings.

## The issue

Communicating research findings through journals and other publications has for over 350 years been at the heart of the scientific and broader research enterprise. Such publications have been remarkably successful in enabling researchers to build on the work of others, to scrutinise and refine their results, to contribute additional ideas and observations, and to formulate new questions and theories. They play a key role in the complex ecology of research, both for researchers themselves and for all those in society at large who have a stake or an interest in the results of their work.

The internet has brought profound change across all sectors of society and the economy, transforming interactions and relationships, reducing costs, sparking innovation, and overturning established modes of business. Researchers and journal publishers were quick to embrace the digital and online revolutions. But there is a widespread perception, in the UK and across the world, that the full benefits of advances in technologies and services in the online environment have yet to be realised.

Most researchers in the higher education (HE) and related sectors and in large research-intensive companies have access to a larger number of journals than ever before, at any time of day, and wherever they can connect to the internet. But in the rapidly-developing online environment they want more: online access free at the point of use to all the nearly two million articles that are produced each year, as well as the publications produced in the past; and the ability to use the latest tools and services to analyse, organise and manipulate the content they find, so that they can work more effectively in their search for new knowledge. Better, faster communication can bring better research.

Most people outside the HE sector and large research-intensive companies –in public services, in the voluntary sector, in business and the professions, and members of the public at large –have yet to see the benefits that the online environment could bring in providing access to research and its results. For many of them, the only way in which they can gain access to quality-assured research publications is to pay up to £20 or more as a 'pay-per-view' (PPV) fee in order to read a single journal article.

The issue we are addressing, therefore, is how to expand and improve access to research publications for the benefit of all who have a stake or an interest in research and its results. Barriers to access –particularly when the research is publicly-funded – are increasingly unacceptable in an online world: for such barriers restrict the innovation, growth and other benefits which can flow from research.

The principle that the results of research that has been publicly funded should be freely accessible in the public domain is a compelling one, and fundamentally unanswerable. Effective publication and dissemination is essential to realising that principle, especially for communicating to non-specialists. Improving the flows of the information and knowledge that researchers produce will promote:

- enhanced transparency, openness and accountability, and public engagement with research;
- closer linkages between research and innovation, with benefits for public policy and services, and for economic growth;
- improved efficiency in the research process itself, through increases in the amount of information that is readily accessible, reductions in the time spent in finding it, and greater use of the latest tools and services to organise, manipulate and analyse it; and
- increased returns on the investments made in research, especially the investments from public funds.

These are the motivations behind the growth of the world-wide open access movement. For it is clear that many benefits could result if we were to move world-wide to an open access regime, complete with peer review and with effective search, navigation and other value-added services currently provided by publishers, libraries and others. Moves towards open access have achieved a momentum that we believe will continue. The key policy questions are how to promote and manage the shift in an ordered way which delivers the benefits but minimises the risks. These are particularly important issues for the UK, whose researchers are world-leading in the quality as well as the quantity of the research they produce.

## The current environment

Research publishing already shows the influence of open access. There are now three principal interlocking channels for publishing, disseminating and gaining access to research findings.

• *Subscription-based journals* predominate, published by a wide range of commercial and not-for-profit publishers, including many learned societies. These include the most prestigious and highly-ranked journals, others that play a major role within the disciplines they cover, and yet others that have a more niche market. Many publishers provide "big deals" under which institutions can subscribe to most if not all of their publications on discounted terms. But no single organisation can afford licences for all the 25,000 peer-reviewed journals currently being published; and people who do not belong to an organisation that can afford large packages of licences have at best very limited access through this channel.

• *Open access journals* turn the subscription-based model on its head: instead of relying on subscription revenues provided by or on behalf of readers, most of them charge a fee to authors, generally known as an article processing or publishing charge (APC)(1), before an article is published. Access for readers is then free of charge, immediately on publication, and with very few restrictions on use and re-use. The number of journals operating in this way has grown fast in recent years, albeit from a low base.

• *Repositories* do not act as publishers themselves. Rather, they provide access to some version of papers *either* before they are submitted for publication in a journal *or* at some point after they have been published, usually subject to an embargo period. Most universities in the UK, and in many other countries, have established repositories, but the rates at which published papers have been deposited in them so far has been disappointing. In a few areas such as physics, however, subject-based repositories have become an important element in the daily workflow for researchers.

The variations within and the relationships between these three channels are complex. Some subscription-based journals, for instance, operate a hybrid model under which they also offer an open access option for individual articles; and subscription-based journals have developed relationships with some repositories. But the pace of the transition to open access has not been as rapid as many had hoped, for a number of reasons.

First, there are tensions between the interests of key stakeholders in the research communications system. Publishers, whether commercial or not-for-profit, wish to sustain high-quality services, and the revenues that enable them to do so. Funders wish to secure maximum impact for the research they fund, plus value for money. Universities wish to maximise their research income and performance, while bearing down on costs. Researchers themselves wish to see speedy and effective publication and dissemination of research results, but also to secure high impact and credit for the work they have done.

Second, there are potential risks to each of the key groups of players in the transition to open access: rising costs or shrinking revenues, and inability to sustain high-quality services to authors and readers. Most important, there are risks to the intricate ecology of research and communication, and the support that is provided to researchers, enabling them to perform to best standards, under established publishing regimes. Concern about these risks may restrain the development of wider access if it is not managed in a measured way.

Third, research and its communication is a global endeavour. Measures to promote open access need to be similarly international in scope if they are to deliver their full potential. The UK has played a leading role in promoting open access, but there are limits to what the UK can achieve alone. Although researchers in the UK are among the best and most productive in the world, they produce only 6% of the research papers published in journals each year.

Fourth, is the question of cost. Current funding regimes focus on providing access to research literature through libraries, via payments for subscription-based journals. Arrangements to meet the costs of APCs for open access publishing tend to be ad hoc and unsystematic. In the period of transition there are bound to be additional costs as both systems exist side by side.

All four groups of issues need to be tackled if the transition to open access is to be accelerated in an ordered way.

## Our recommendations

Our view is that the UK should embrace the transition to open access, and accelerate the process in a measured way which promotes innovation but also what is most valuable in the research communications ecosystem. The process itself will be complex, since as the transition develops over the next few years, no single channel can on its own maximise access to research publications for the greatest number of people.

We therefore recommend that:

i. a clear policy direction should be set towards support for publication in open access or hybrid journals, funded by APCs, as the main vehicle for

the publication of research, especially when it is publicly funded;

ii. the Research Councils and other public sector bodies funding research in the UK should – following the Wellcome Trust's initiative in this area but recognizing the specific natures of different funding streams- establish more effective and flexible arrangements to meet the costs of publishing in open access and hybrid journals;

iii. support for open access publication should be accompanied by policies to minimise restrictions on the rights of use and re-use, especially for non-commercial purposes, and on the ability to use the latest tools and services to organise and manipulate text and other content;

iv. during the period of transition to open access publishing worldwide, in order to maximise access in the HE and health sectors to journals and articles produced by authors in the UK and from across the world that are not accessible on open access terms, funds should be found to extend and rationalise current licences to cover all the institutions in those sectors;

v. the current discussions on how to implement the proposal for walk-in access to the majority of journals to be provided in public libraries across the UK should be pursued with vigour, along with an effective publicity and marketing campaign;

vi. representative bodies for key sectors including central and local Government, voluntary organisations, and businesses, should work together with publishers, learned societies, libraries and others with relevant expertise to consider the terms and costs of licences to provide access to a broad range of relevant content for the benefit of consortia of organisations within their sectors; and how such licences might be funded;

vii. future discussions and negotiations between universities and publishers (including learned societies) on the pricing of big deals and other subscriptions should take into account the financial implications of the shift to publication in open access and hybrid journals, of extensions to licensing, and the resultant changes in revenues provided to publishers;

viii. Universities, funders, publishers, and learned societies should continue to work together to promote further experimentation in open access publishing for scholarly monographs;

ix. the infrastructure of subject and institutional repositories should be developed so that they play a valuable role complementary to formal publishing, particularly in providing access to research data and to grey literature, and in digital preservation;

x. funders' limitations on the length of embargo periods, and on any other restrictions on access to content not published on open access terms, should be considered carefully, to avoid undue risk to valuable journals that are not funded in the main by APCs. Rules should be kept under review in the light of the available evidence as to their likely impact on such journals.

## What needs to be done

Implementing our recommendations will require changes in policy and practice by all stakeholders. More broadly, what we propose implies cultural change: a fundamental shift in how research is published and disseminated. A new shared understanding needs to develop of the interlocking roles of the various parties: researchers, policy-makers, funders, university managers, librarians, publishers and other intermediaries.

Our recommendations are presented as a balanced package, so it is critical that they are implemented in a balanced and sustainable way, with continuing close contact and dialogue between representatives of each of the key groups, and regular assessment of key indicators of progress. In the list of key actions below, we indicate where we believe primary responsibility lies.

*Key actions: overall policy and funding arrangements*

i. Make a clear commitment to support the costs of an innovative and sustainable research communications system, with a clear preference for publication in open access or hybrid journals (*Government, Research Councils, Funding Councils, universities*).

ii. Consider how best to fund increases in access during a transition period through all three channels –open access publications, subscriptions, and repositories– and the balance of funding to be provided through additional money from the public purse, by diversion of funds from support of other features of the research process, and by

seeking efficiency savings and other reductions in costs from publishers and other intermediaries (*Government, Research Councils, Funding Councils, universities*).

iii. Put in place arrangements to gather and analyse reliable, high-quality and agreed indicators of key features of the changing research communications landscape, and to review those indicators and the lessons to be drawn from them (*Government, Research Councils, Funding Councils, universities, publishers*).

iv. Keep under review the position of learned societies that rely on publishing revenues to fund their core activities, the speed with which they can change their publishing business models, and the impact on the services they provide to the UK research community (*Government, Funding Councils, Research Councils, learned societies, publishers*).

v. Renew efforts to sustain and enhance the UK's role in international discussions on measures to accelerate moves towards open access (*Government, Research Councils, Funding Councils, universities, publishers*).

*Key actions: publication in open access and hybrid journals*

vi. Establish effective and flexible mechanisms to enable universities and other research institutions to meet the costs of APCs (*Government, funders*); and efficient arrangements for payment, minimising transaction costs while providing proper accountability (*universities, publishers*).

vii. Discuss with other funders in the commercial and charitable sectors how best to fund and promote publication in open access and hybrid journals (*Government*).

viii. Establish publication funds within individual universities to meet the costs of APCs, making use of dedicated moneys provided by funders for that purpose, as well as other available resources (*universities*).

ix. Develop in consultation with academic staff policies and procedures relating to open access publishing and how it is funded (*universities*). The issues to be considered should include:

a) Whether to promote open access publishing as the principal channel for all research publications.

b) How much funding should be provided to support the payment of APCs each year, the sources of that funding, and how the funds are to be administered.

c) How to work together with researchers, and in line with the principles of academic freedom, in making judgements about the potential for publication in journals with different levels not only of status, but of APCs.

d) How support for publication should be integrated with other aspects of research management, for example the development of research capacity, and support for early-career researchers.

e) Policies relating to payment of APCs when articles are published in collaboration with researchers from other institutions.

x. Extend the range of open access and hybrid journals, with minimal if any restrictions on rights of use and re-use for non-commercial purposes; and ensure that the metadata relating makes clear articles are accessible on open access terms (*publishers, learned societies*).

xi. Provide clear information about the balance between the revenues provided in APCs and in subscriptions (*publishers, learned societies*).

*Key actions: licensing*

xii. Rationalise and extend current licence arrangements for the HE and health sectors, so that as many journals as possible are accessible to everyone working or studying in those sectors (*Government, Funding Councils, universities, publishers, learned societies*).

xiii. Work together to find ways to reduce the VAT burden on e-journals (*Government, universities*).

xiv. Discuss with representative bodies in the public, business and voluntary sectors the feasibility of developing licence agreements that provide access to relevant journals and other content across key parts of those sectors; and possible ways of funding such agreements (*Government, publishers*).

xv. Examine the feasibility of providing licensed access to journals for small research-intensive enterprises with which universities have close relationships (*universities, publishers, JISC Collections*).

xvi. Continue to work with representatives of public libraries to implement the proposal to provide

walk-in access to the majority of journals in public libraries across the UK, and to ensure that the initiative has the maximum impact (*publishers, British Library*).

*Key actions: repositories*

xvii. Continue to develop the infrastructure of repositories and enhance their interoperability so that they provide effective routes to access for research publications including reports, working papers and other grey literature, as well as theses and dissertations; a mechanism for enhancing the links between publications and associated research data; and an effective preservation service (*funders, universities, JISC, publishers*).

xviii. Consider carefully the balance between the aims of, on the one hand, increasing access, and on the other of avoiding undue risks to the sustainability of subscription-based journals during what is likely to be a lengthy transition to open access. Particular care should be taken about rules relating to embargo periods. Where an appropriate level of dedicated funding is not provided to meet the costs of open access publishing, we believe that it would be unreasonable to require embargo periods of less than twelve months (*Government, funders, universities*).

## Costs

There will be additional costs during a period of transition which may last for several years; but we cannot be certain about the total costs of all the measures we recommend, particularly with regard to open access publishing. Our estimates are best available evidence at present, including average levels of APCs currently being paid by the Wellcome Trust. But any calculations as to costs for the future depend on a series of assumptions as to

- the pace of change towards open access publishing, and in particular the extent to which the UK is on average ahead of the rest of the world;
- the average level of APCs as more journals adopt the open access model;
- the number and proportion of articles with overseas as well as UK authors for which UK funders and institutions would be required to pay a full APC and
- the extent to which during the transition universities and other organisations are able to reduce their expenditure on subscriptions even as their expenditure on APCs rises.

We recognise that there is considerable room for debate about assumptions on all these issues; and that variations in them could bring significant changes in our estimates, both upwards and downwards.

Much depends on how quickly the rest of the world moves towards open access. There are good reasons to believe that there is international momentum in this direction, but it is difficult to predict how fast or comprehensive it will be. It is clearly in the interests of the UK to enhance its role in international discussions on these issues.

Much also depends on levels of APCs and also of the amounts that continue to be paid to publishers in subscriptions, and it is important that in the context of the mixed model we recommend for the medium term, both should be looked at together. Hence the importance of publishers' providing clear information about the balance between the revenues provided in APCs and in subscriptions. But one of the advantages of open access publishing is that it brings greater transparency about the costs, and the price, of publication and dissemination. The measures we recommend will bring greater competition on price as well as the status of the journals in which researchers wish to publish. We therefore expect market competition to intensify, and that universities and funders should be able to use their power as purchasers to bear down on the costs to them both of APCs and of subscriptions.

Taking all these factors into account, our best estimate is that achieving a significant and sustainable increase in access, making best use of all three mechanisms, would require an additional £50-60m a year in expenditure from the HE sector: £38m on publishing in open access journals, £10m on extensions to licences for the HE and health sectors and £3-5m on repositories, plus one-off transition costs of £5m.

The uncertainties we have outlined clearly mean that there is a risk that the costs could be higher than we estimate. But that risk can be managed by slowing the pace of transition. Moreover, the costs are modest in relation to total public expenditure on research (£5.5bn from the Research Councils and Funding Councils alone). Indeed, we believe meeting the costs of transition is essential in order to manage in an ordered way the move from a research communications system which is becoming increasingly unsustainable as a result of the economic, technological and social changes we have highlighted. While any estimates of the benefits that will accrue to the UK economy and society

are similarly subject to much uncertainty, it is clear that the benefits will be real and substantial. In short, we believe that the investments necessary to improve the current research communications system will yield significant returns in improving the efficiency of research, and in enhancing its impact for the benefit of everyone in the UK.

## What will change

The measures we recommend should begin to make a difference quickly but the whole transition process will come to fruition over a number of years.

*Open access publication*
Our recommendations and the establishment of systematic and flexible arrangements for the payment of APCs will stimulate publishers to provide an open access option in more journals. Most universities will establish funds for the payment of APCs, along with policies and procedures which will in some cases moves towards open access as the default mode of publication. That will give universities a greater role in helping researchers to make judgements, in line with academic freedom, about how they publish their work. Different universities may develop different ways of handling this in consultation with their staff. The result will be that a much higher proportion of the publications produced by researchers in the UK will be freely accessible to everyone in the world, with minimal restrictions on their use and re-use.

*Subscriptions and licences*
Subscription-based journals will remain a key channel for the publication of research results from across the world for some years to come. Implementation of our recommendations will mean that staff and students in universities and in the health sector will enjoy a much more integrated information environment.

Access to the great majority of journals and articles for walk-in users of public libraries across the UK will make a real and substantial difference to many people and organisations, especially if it is accompanied by effective marketing, training for librarians, and guidance for users. It will also bring a significant enhancement of the role of public libraries in their local communities.

For people and organisations in the public, business and voluntary sectors, exploration of the scope for extensions to licensing for online access will be a step towards wider availability, providing evidence of its value. We hope that some test beds will be established by consortia of organisations in specific sectors.

*Repositories*
The further development of repositories will make them better integrated and interoperable, and higher standards of accessibility will bring greater use by both authors and readers. Institutional repositories will develop the roles they perform for their universities, both in providing a showcase for their research and in supporting research information management systems. In the wider scholarly communications sphere, repositories will develop their roles in preserving and providing access to research data, to theses, and to grey literature.

Subject-based repositories will continue to develop refine their roles alongside publishers and their platforms, especially in those areas where such repositories operate effectively already, and have an established position in researchers' regular workflows.

*Overall*
Implementation of the balanced programme we recommend will mean that more people and organisations in the UK have access to more of the published findings of research than ever before. More research will be accessible immediately upon publication, and free at the point of use. Our recommended programme will accelerate the progress towards a fully open access environment in the UK, and we hope that it will contribute to similar acceleration in the rest of the world. We believe that such movement will bring substantial benefits in transparency and accountability, engagement with research and its findings, closer linkages between research and innovation, and improved efficiency in the research process itself. Our work has shown how representatives of the different stakeholder groups can work together to find ways to achieve those ends.

## NOTES

1) Other terms are used, including article publication charge and publication fee. We use the abbreviation APC throughout this report.

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