UK COMPUTING RESEARCH COMMITTEE

BIS inquiry into Government's Open Access Policy

UKCRC Response

The UK Computing Research Committee (UKCRC), an Expert Panel of BCS The Chartered Institute for IT, the Institution of Engineering and Technology and the Council of Professors and Heads of Computing, was formed in November 2000 as a policy committee for computing research in the UK. Its members are leading computing researchers from UK academia and industry. Our evidence reflects the experience of researchers who each have an established international reputation in computing.

This response has been considered by the BCS Academy Research Committee which notes that the response represents the views of the BCS Academy. It has also been endorsed by the Council of Professors and Heads of Computing.

The Current Position in Computing Science

Computing Science research has a strong tradition of open access publication. For many years the typical model of publication for individuals working in academic CS research labs has been to make available, via a personal or institutional Web repository, a copy of each author's "accepted manuscript" (or some other version, normally after peer review).

This makes each paper globally accessible and the costs of maintaining personal/institutional Web portals of this sort are absorbed as part of the normal baseline of research activity within a well founded laboratory. The accepted manuscript is also, typically, published in a journal or conference proceedings (in CS, major international conference proceedings are at least as important and impactful as journals). The value of this second stage of publication is not primarily dissemination (since the manuscript is on the Web anyway) but is a means of improving and endorsing the quality of the paper, through the process of independent peer review and quality control that a prestigious conference/journal provides. The cost of this second stage is met either (for conference papers) by the fees paid by conference attendees or (for journal papers) by the subscription paid by those receiving the journal. Some of our journals are produced via our learned societies (such as ACM or IEEE) and for these the cost of publishing is partly funded through membership subscriptions and partly through subscription from university libraries. Overall, the effect is that the Computing Science community has Green open access as its dominant style of publication with an element of Gold where subscriptions allow.

The Cost of a Shift to Gold Open Access

One might imagine that Government requirement for Gold open access across the board would be optimal for science. We disagree, for the following reasons:

The cost of transition from Green to Gold. Most of the key international journals in Computing Science are supported through (international) subscription by those buying the journal or through (international) subscription by participants at the relevant conferences or members of the relevant learned societies. These vehicles for publication will not immediately change through UK Government intervention so we can expect a lengthy transition period in which a dual system operates and we pay twice for open access (once for the international Green access and once for UK Gold). For-profit publishers will, naturally, take advantage of this to maximise their profits (e.g. by offering "package deals" on Gold access institutionally or nationally). On top of that, universities will also have to bear

the (substantial) cost of administering a mandatory Gold scheme. The funding to close this gap seems likely to come from some combination of RCUK block grant and University contribution so, assuming the overall funding pot remains constant, that cost has to be subtracted from funding for new research.

The challenge to publishing autonomy of individual researchers. Although we would not claim that our current approach to open access publication is ideal, it does (on the whole) give a great deal of freedom for individual researchers to publish where they choose. The mechanisms currently proposed for Gold open access will cause universities to set up new processes to administer (RCUK and internal) funding for publication and (however one might hope that this does not impinge on academic freedom) it is very likely that universities will use these processes to optimise factors other than pure dissemination of research results. Some optimisations may weaken research; for example, if a university chose to suppress publication of early career research or preliminary results so as to get the "biggest bang per buck" of REF return per unit cost of Gold access or if it chose to focus on prestige general journals and reduce scientific interchange in specialist workshops that could be more productive.

Marginalisation of Green open access. Green open access has been shown to be effective for our community - indeed it is difficult to go against this trend and many traditional publishers have adapted to it. Some of the international outlets for our publications do not currently provide Gold but support (or tolerate) Green. Others are converting to a hybrid Gold model, whereby there is a subscription for the journal but also a Gold open access option for those who want to take that route. A focus on Gold in the UK will drive our researchers to take Gold routes through journals with Green routes being either additional (duplicating cost and effort) or exceptional (forcing out Green routes that are of service to the community). This situation becomes even more confusing when a paper is co-authored internationally (where the co-authors are not subject to the UK publication policy and may have different Gold/Green pressures).

UK fixed policy in an adaptive international market. Although the UK punches well above its weight in international publications, we are only a component of the global research community. That wider community operates a mixture of Green and Gold open access, and it is unlikely to change simply as a result of unilateral UK policy. It would be more helpful in this respect for the UK to adopt a policy of pragmatic open access that rewards international societies/conferences/journals for cost-effective open access policies (either Green or Gold) and discourages "milking the system", for example by charging twice (for adding Gold access to a publishing outlet where the community already employs Green open access) or by charging inflated prices for Gold open access for journals operating in niche sub-areas (where authors have little option of where best to publish). A UK policy that sets a specific means of open access rather than promoting a policy of open access whatever the means is open to this sort of game playing by publishers.

The elusive benefit of indexed research results. At first sight, a key advantage of Gold over Green publishing might be that the uniformity of process associated with a standard publishing structure across UK universities would allow better "knowledge management" for UK research (with relevant papers more easily discovered; results propagated, etc). Gold open access, however, does not by itself provide the indexing, markup or machinery to do this job better than systems operating on the open Web. On the contrary, we should take care to avoid the increasing amounts of data surrounding publications becoming locked into publishing companies, despite open access arrangements for the publications themselves.

Open Access in a Changing Research Landscape

Many in the Computing Science community voted with their feet several years ago to make their principal written work available openly on the Web. This has involved unilateral action by individual research-

ers combined with institutional action to set up Web repositories (e.g the DBLP repository of computing research). It has also led to powerful search engines, such as CiteSeer (one of the earliest and most influential public search engines for academic publications). We are, on the whole, ahead of the game in this respect but the game is rapidly changing. Our written results are only part of the evidence base for our science; we also are beginning to make data, software tools and specifications of our experiments available on the internet (with greater promotion of open data and open source program code). The media in which scientific results are disseminated is also becoming more varied, with audio, video and virtual environments replacing/augmenting text-based narratives. Perhaps even more radically, disruptive technologies are making inroads into the familiar "peer review then publish" routine, with more researchers choosing to publish results through social media and new enterprises challenging traditional publishers through the use of social media, recommender systems, post-publication review, etc. Meanwhile, those traditional publishers are themselves adapting to the opportunities offered by new technologies and their embedding in society. In the face of such broad and radical change in the landscape, we caution against a uniform policy of Gold access and would instead encourage the Government to foster greater engagement with the many technical (and socio-technical)
innovations that are enhancing access to scientific knowledge.

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