

**Invited Keynote:** Harnad, S (2102) [Digital Research: How and Why the RCUK Open Access Policy Needs to Be Revised](#). Digital Research 2012. Tuesday, September 12, Oxford.

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## HOW AND WHY RCUK OPEN ACCESS POLICY NEEDS REVISION

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**Abstract:** The Web is destined to become humankind's Cognitive Commons, where digital knowledge is jointly created and freely shared. The UK has been a leader in the global movement toward Open Access (OA) to research but very recently its leadership has been derailed by the joint influence of the publishing industry lobby from without and well-intentioned but premature and counterproductive over-reaching from within the OA movement itself. The result has been the extremely counterproductive Finch Committee Report followed by a new draft of the RCUK OA policy, downgrading the role of cost-free OA self-archiving of research publications ("Green OA") in favour of paying subscription publishers extra money, over and above subscriptions, out of scarce research funds, in exchange for making single articles OA ("hybrid Gold OA"). The motivation is to reform publication and to gain certain re-use rights, but the likely effect will be researcher resistance, very little OA, a waste of scarce research funds and the loss of the UK's global leadership in the OA movement. There is still time to fix the RCUK policy: Drop the 9 words that stipulate that if your chosen journal is a hybrid OA/non-OA subscription journal that offers (Libre) Gold OA, you must pay for Gold OA rather than just provide cost-free Green OA.

Since the beginning of the Open Access (**OA**) movement a decade ago, the UK has been its leader (even though it only produces 6% of the world's research output). The UK has now resolved to make all of its research output OA within two years, but it can only do this – and it can only maintain its leadership role in worldwide OA – if it fixes one subtle but fatal flaw in the new RCUK (Research Councils UK) OA policy.

To explain OA, the UK's leadership, and the RCUK's policy flaw, I have to define 10 terms. They are all simple to understand, and once defined, can be quickly put together to explain the problem with the RCUK policy, as well as the solution:

1. “**Open Access**” (OA) refers very specifically to online access to peer-reviewed research journal articles (not to other kinds of content, such as books or research data).
2. “**Gratis OA**” means free online access, worldwide.
3. “**Libre OA**” means free online access, worldwide, plus various re-use rights (such as data-mining, remix and republication rights).
4. “**Open Data**” (not the same as OA!) means free online access to research data (not journal articles) plus various re-use rights (such as data-mining, remix and republication rights).
5. An “**Open License**” can specify the re-use rights (e.g., via various Creative Commons licenses).
6. “**Gold OA**” means OA (whether Gratis or Libre) provided by the publisher.
7. “**Green OA**” means OA (whether Gratis or Libre) provided by the author, by self-archiving the final, refereed draft in an institutional repository.
8. An “**Institutional Repository**” is an online website hosted by a research institution (usually a university) in which authors can deposit their published articles as well as make them OA.
9. An “**OA mandate**” is a requirement, by a researcher’s institution or funding council (or both) to make published articles OA.
10. An “**OA embargo**” means an interval of various lengths (from 6-12 months, to many years) during which the publisher’s copyright transfer agreement may prevent authors from making their articles OA.

Now it’s easy to explain the problem as well as the solution:

The reason that research is publicly funded, conducted and published is so that the findings can be accessed, used, built-upon, and applied, to the benefit of the public that funded the research and to further research progress and productivity.

This is very different from other kinds of content, published for royalty income rather than for research impact. Researchers’ careers and funding depend on the uptake and impact of their research. Study after study has found that OA significantly increases research uptake and impact.

Yet despite its benefits, most researchers (80%) in most fields do not make their articles OA unless either their institutions or their funders (or both) mandate OA. The reason researchers don’t provide OA un-mandated despite the benefits is complex, but a big factor is fear of negative consequences from their publishers.

OA mandates from their institutions and funders quell these fears. They also overcome inertia.

OA mandates are in many ways extensions of “publish-or-perish” mandates: “You are employed and funded to conduct and publish research so it can be used and applied. Putting it in a desk-drawer instead of publishing it is a barrier to usage – and, for much the same reason, so is making it accessible only to journal subscribers rather than to all potential users.”

The only kind of OA that can be mandated by institutions and funders is Green OA (self-archiving in the author’s institutional repository). Institutions and funders cannot mandate that journals must convert from subscription publishing (currently 80%) to Gold OA publishing (20%); nor can they dictate which journal researchers should publish in based on the journal’s business model, rather than the journal’s track-record for quality. But, if extra funds are available to pay for Gold OA, funders and institutions can offer them to researchers who have a suitable Gold OA journal in which they wish to publish by choice.

So the UK’s global leadership in OA comes from the fact that: the world’s first Green OA mandates, both institutional mandates and funder mandates, were adopted in the UK; the UK has the largest proportion of institutional and funder mandates in the world; and the UK has provided the OA policy model, as well as the first free repository software (EPrints) and many of the OA supporting tools and services (from JISC) now being used worldwide.

The UK also has twice the Green OA rate of the rest of the world: almost 40% compared to the global baseline of about 20%. This is nevertheless still far too low, since 60% of subscription journals already endorse immediate Green OA and about 30% more endorse Green OA after 6-12 months. The reason for the shortfall is that *the first RCUK mandate had no mechanism for monitoring and verifying compliance, hence no consequences for non-compliance*. Such a carrot/stick mechanism clearly needs to be provided.

Now that the UK has decided that it wants 100% of UK research output to become OA within the next two years, this could be accomplished by upgrading the existing RCUK Green OA mandate with the following compliance verification mechanism:

- I. All articles must be deposited immediately upon acceptance for publication (and deposited by authors, not by publishers!). Publisher embargoes can apply only to the date on which the deposit is made OA, not to the date on which the deposit is made.
- II. Deposit must be in the institutional repository, not institution-externally. This makes each UK institution responsible for monitoring and verifying timely compliance with the funder mandate while also motivating each institution to adopt a complementary institutional Green OA mandate of its own, for the rest of its research output.

III. Repository deposit needs to be designated as the sole mechanism for submitting publications for research assessment (REF), for competitive funding, for grant fulfillment and for institutional performance assessment. All RCUK grant applications and renewals must include the URL for the OA deposit whenever citing or listing published articles resulting from RCUK-funded research.

IV. Institutional repositories must provide depositors with rich online feedback and statistics on the usage and uptake of their work.

RCUK can easily upgrade its existing RCUK Green OA mandate to this simple, cost-effective compliance verification mechanism.

Instead, however, RCUK has proposed a new mandate, designed with the hope of inducing journals to either convert to Gold OA or to reduce Green OA embargoes (so they can keep publishing UK's 6% of world research output). The proposed mandate forbids RCUK authors to publish in a journal unless it either offers Libre Gold OA (with a CC-BY license) or Green OA (with an embargo of no more than 6-12 months).

So far, so good. But if the journal offers both the Libre Gold and 6-12 Green, *the RCUK author may only choose the (paid) Gold option, not the (free) Green option.*

This last clause unfortunately has perverse consequences, which were not noticed by RCUK. Far from inducing journals to convert to Gold OA or to reduce their Green OA embargoes to 6-12, it provides subscription journals with an irresistible incentive to offer hybrid Gold OA as an added option, at an added cost, and to increase their Green embargoes beyond RCUK's limit!

Why? Do the arithmetic: Suppose a journal's total subscription income is £X and it publishes N articles per year. It stands to enhance its total income by 6% at UK expense by *simply offering a hybrid Gold OA option* – i.e., any author has the option of paying nothing or paying for Gold OA – at a price of £X/N per article (which works out to about the £1000-£3000, the usual Gold OA publication fee today). And, to make sure RCUK authors must pick the Gold option, *raising the Green OA embargo to at least 13+.*

(The RCUK requirement to pick paid Gold over free Green whenever both are offered would already guarantee that the RCUK author must pay if Gold is offered, regardless of embargo length, but the RCUK only requires picking Gold if it is *Libre Gold*. So if a hybrid journal only wants to offer Gratis Gold, it can instead increase its embargo, to ensure that the only way an RCUK author can publish is by paying for the Gratis Gold, so the author can meet the RCUK's 6-12 Green OA requirement, even if the payment is out of the author's grant or pocket, because RCUK only provides the extra Gold funds if it's Libre Gold, and only until the funds run out.)

What induced RCUK to propose a policy with such perverse consequences? As I noted, the hope was that it would force journals to convert to Gold if they wanted to retain their UK authors – but the reckoning had been that that would be “pure” Gold. What was not taken into account was the easy and cheap way for a subscription journal to add 6% to its annual income without having to convert at all: Simply offer a hybrid Gold option, which just amounts to a CC-BY license, if Libre Gold, and even less – the right to make the final draft free online immediately -- if Gratis Gold.

There was also a conflation of the need for Open Data with the need for OA: For Open Data, re-use rights (such as data-mining, remix and republication) and corresponding Open Licenses are an urgent necessity -- *but data face no embargoes or copyright obstacles from publishers.*

For OA, in contrast, it is Gratis OA that is the urgent necessity, for all users lacking subscription access, and publisher embargoes and copyright obstacles need to be taken into account. For most fields, the need for Libre OA and an Open License is neither urgent nor even necessary. RCUK inadvertently conflated the need for Open Data with the need for OA to articles, concluding that Libre Gold OA was as urgent and necessary as Open Data – and worth paying publishers 6% over and above what the UK and the rest of the world are already paying them in subscriptions.

Nor did the RCUK reckon with the prospect of author resistance to restrictions on their choice of journal, or resentment at the diversion of scarce research funds to pay publishers extra for Gold OA, or outrage at having to choose the paid-Gold option over the cost-free Green option even when RCUK does not subsidize the Gold OA fee.

But perhaps the most important perverse consequence that RCUK failed to anticipate was the global effect that encouraging publishers to offer hybrid Gold OA and to lengthen their Green embargoes would have on Green OA mandates. The rest of the world, which produces 94% of the world’s research output, is unlikely to have either the resources or the inclination to increase by 94% the subscription income it is already paying to publishers -- instead of relying on cost-free Gratis Green OA mandates. And this RCUK-induced global dampening of Green OA and Green OA mandates by extended embargoes would rebound on the UK, for UK researchers don’t just need to make their own 6% of research output OA: they (and UK industry) need access to the rest of the world’s 94% of research output too.

All this can be very easily remedied. *RCUK can drop the requirement to choose Gold over Green when both are offered:* Leave the Green/Gold choice to authors. Leave journal choice to them too. Just upgrade the RCUK compliance verification mechanism.

(For those who are worried about OA embargoes, there’s a way to tide over user needs during embargoes too, with the repository’s automated email-eprint-

request Button. And be assured that the fastest, surest and cheapest way to hasten the inevitable and well-deserved death of OA embargoes – and a universal conversion to pure Gold OA, along with as much Libre OA as researchers want and need – is for institutions and funders to first mandate Green Gratis OA worldwide.)

With a simple tweak of the RCUK policy, the UK can continue to lead the way to global OA.

Harnad, S (2012) [Why the UK Should Not Heed the Finch Report](#). *LSE Impact of Social Sciences Blog*, Summer

Harnad, S (2012) [Hybrid gold open access and the Chesire cat's grin: How to repair the new open access policy of RCUK](#). *LSE Impact of Social Sciences Blog* September Issue

Harnad, S (2012) [There's no justifying RCUK's support for \[hybrid\] gold open access](#). *Guardian HE Network*.

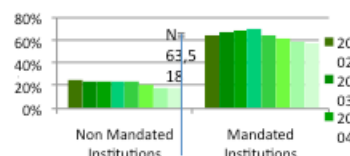
Harnad, S (2012) [United Kingdom's Open Access Policy Urgently Needs a Tweak](#). *D-Lib Magazine* Volume 18, Number 9/10 September/October 2012 [in press: not yet available]

Harnad, S (2012) [The Optimal and Inevitable outcome for Research in the Online Age](#). *CILIP Update* September 2012

Harnad, S (2102) [Digital Research: How and Why the RCUK Open Access Policy Needs to Be Revised](#). *Digital Research* 2012. Tuesday, September 12, Oxford.

# How and Why the RCUK Open Access Policy Needs to Be Revised

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DR2012 Oxford Sept 11 2012

**Open Access (OA):** free online access to journal articles (not to other kinds of content, such as books or research data).

**Gratis OA:** free online access, webwide.

**Libre OA:** free online access, webwide, plus various re-use rights (such as data-mining, remix and republication rights).

**Green OA:** OA provided by the author, by self-archiving the final, refereed draft in an institutional repository.

**Gold OA:** OA provided by the publisher.

**Open Data:** free online access to research data (not journal articles) plus various re-use rights.

**Institutional Repository:** online website hosted by a research institution.

**OA Mandate:** requirement by a researcher's institution or funding council to make published articles OA.

**OA Embargo:** an interval of various lengths (from 0 to 6-12 months, to many years) during which the publisher prevents authors from making their articles OA.

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# Open Access (OA)

Green OA

publish article in journal

AUTHOR makes article OA  
for *free*

Gold OA

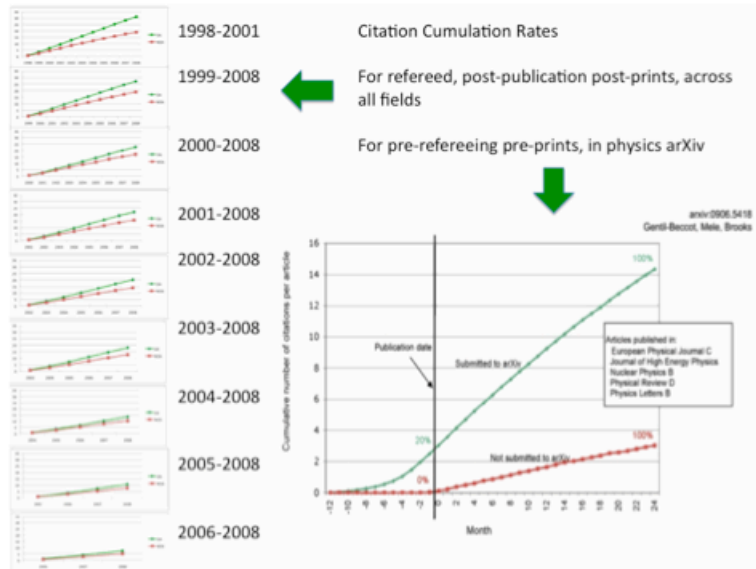
publish in an OA journal

JOURNAL makes article  
OA  
for *a fee*  
(£800- £3000+)

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# Growth of OA citation advantage



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**Open Access Citation Advantage.** Left: Comparing citations within same journal and year for articles that are **made OA** and articles that are **not made OA**. **OA** citation counts are always greater and the advantage grows with time. Right: The effect is even more striking with papers in physics that are made OA in Arxiv as preprints even before being peer-reviewed and published.

# Gold Journals in 2010

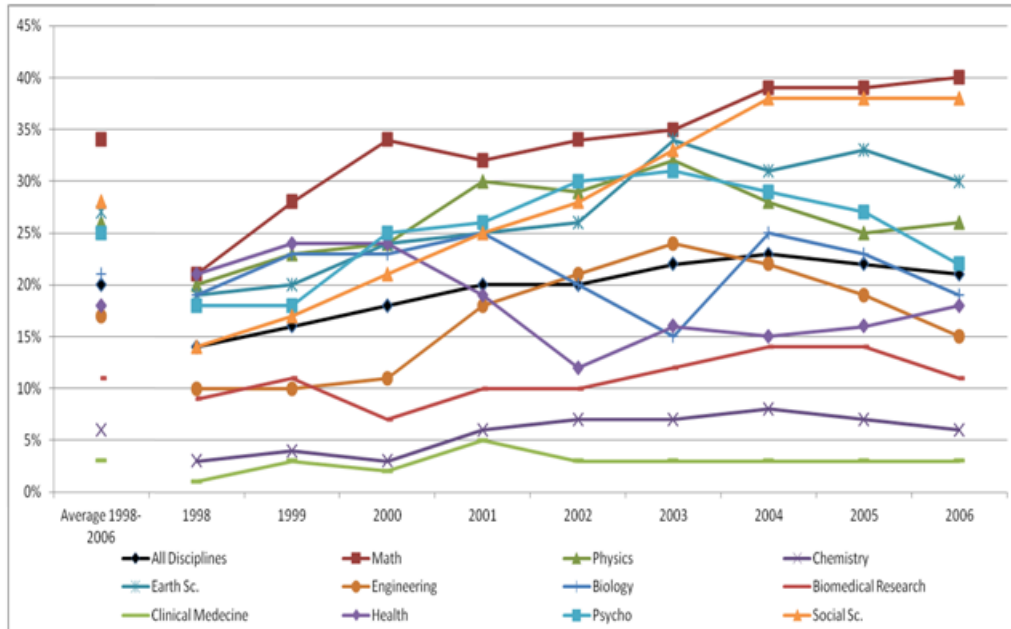
**8100/28,000** of all journals (33%)

(source: Ulrichs + DOAJ)

**625/12,500** (5%) of ISI journals

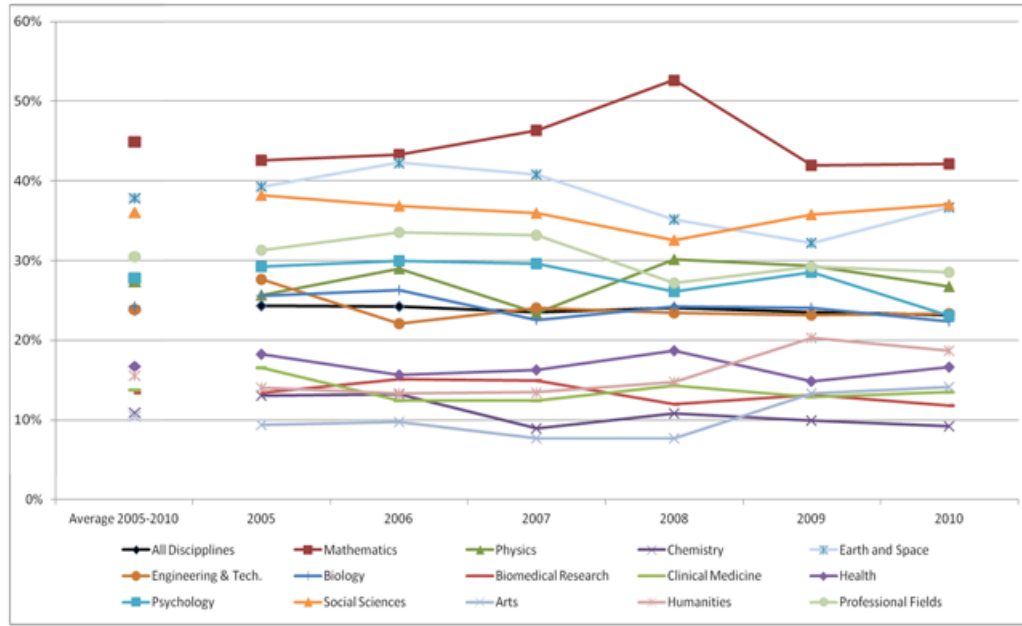
(source: Thomson-Reuters ISI)

# %OA for 11 disciplines 1998-2006 (tested 2009)



**Percent Open Access for publication years 1998-2006, as tested in 2009.**  
Average is about 20% with slight increase, mostly due to mathematics and earth sciences.

# %OA for 14 disciplines 2005-2010 (tested 2011)

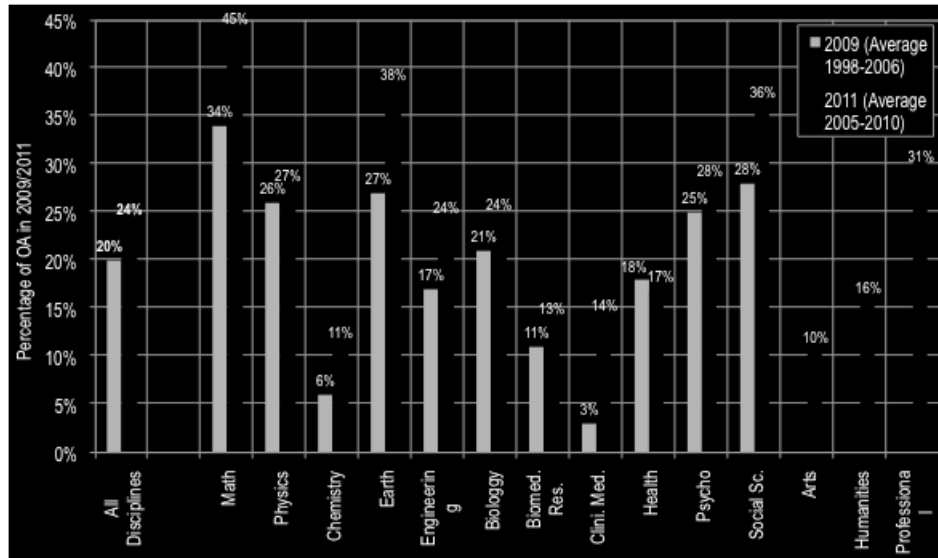


**Percent Open Access for publication years 2005-2010, as tested in 2011.**  
Average is about 24% with slight increase.

**%OA 1998-2006**  
(tested 2006)

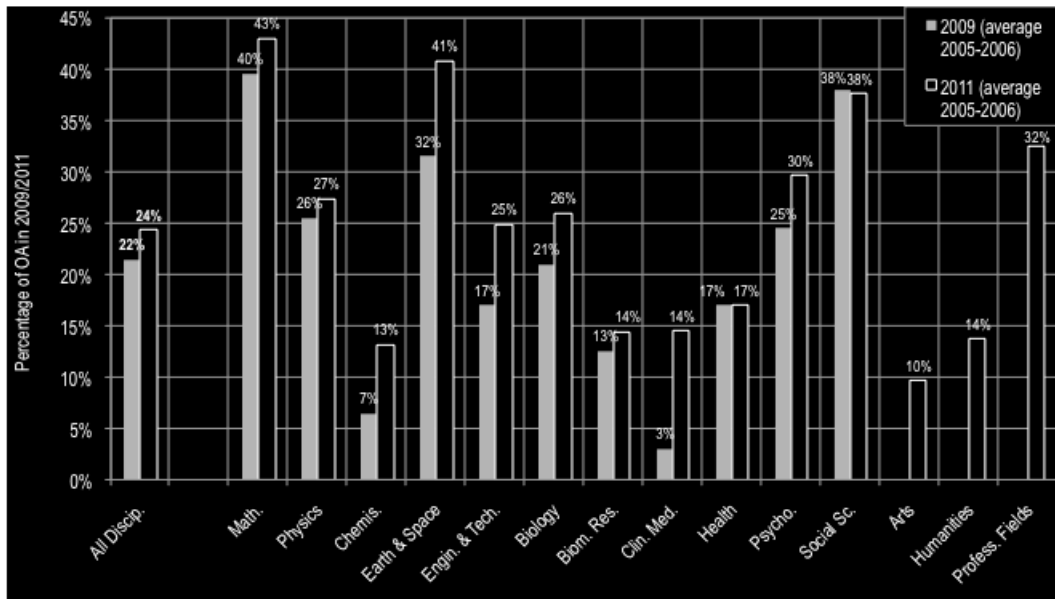
**VS**

**%OA 2005-2010**  
(tested 2011)



**Percent OA for 1998-2006 (tested in 2009) vs 2005-2010 (tested in 2011).**  
Average increase is about 4%.

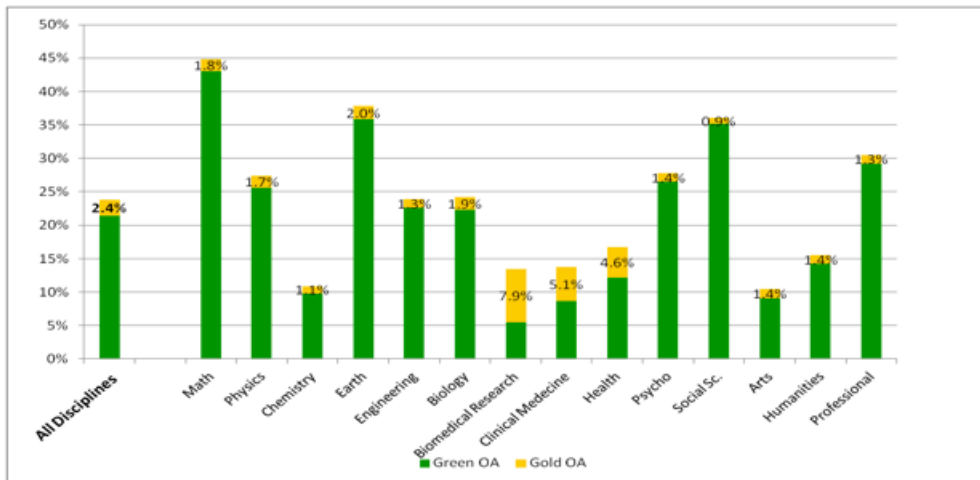
## 2005-2006 overlap (tested 2009 and 2011)



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**Percent OA for 2005-2006 overlap, tested in 2009 vs 2011. Average increase is about 2%.**

## % Gold and % Green for 2005-2010 (tested 2011)



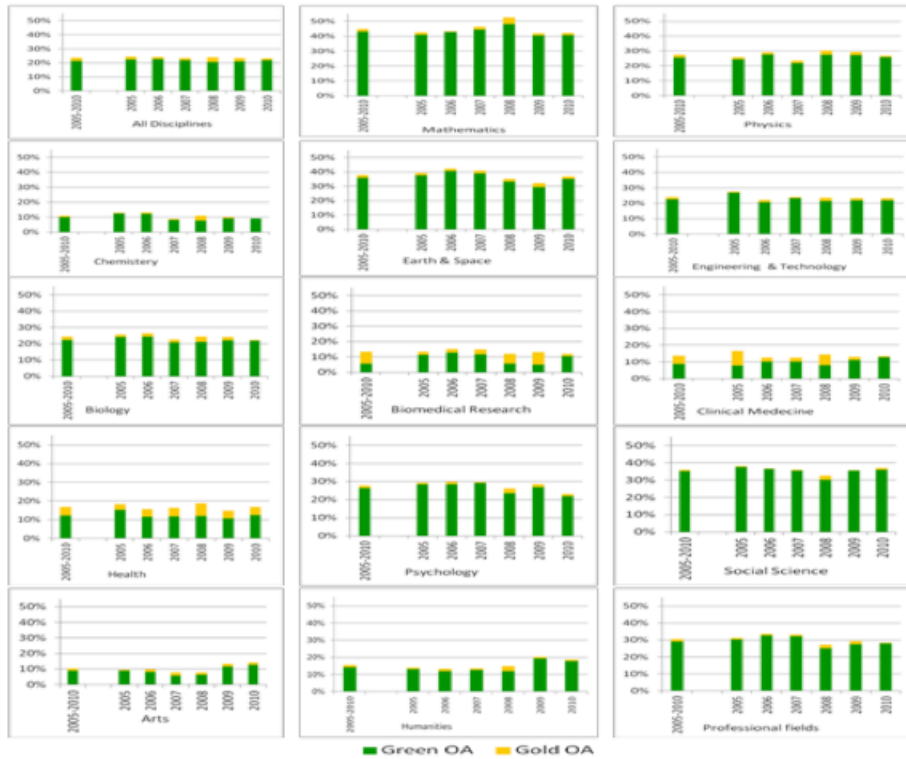
Gold OA journals: 4%

Gold OA articles: 2%

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Comparing percentage of OA that is **Green** vs **Gold** for Thomson/Reuters/ISI journals. **Green** percentage is much higher in all fields except biomedicine, where they are near equal.

## % Gold and % Green for 2005-2010 (tested 2011)



Comparing **Green** vs **Gold** publication years 2005-2010 (tested 2011). **Green** percentage is much higher in all fields except biomedicine, where they are near equal.

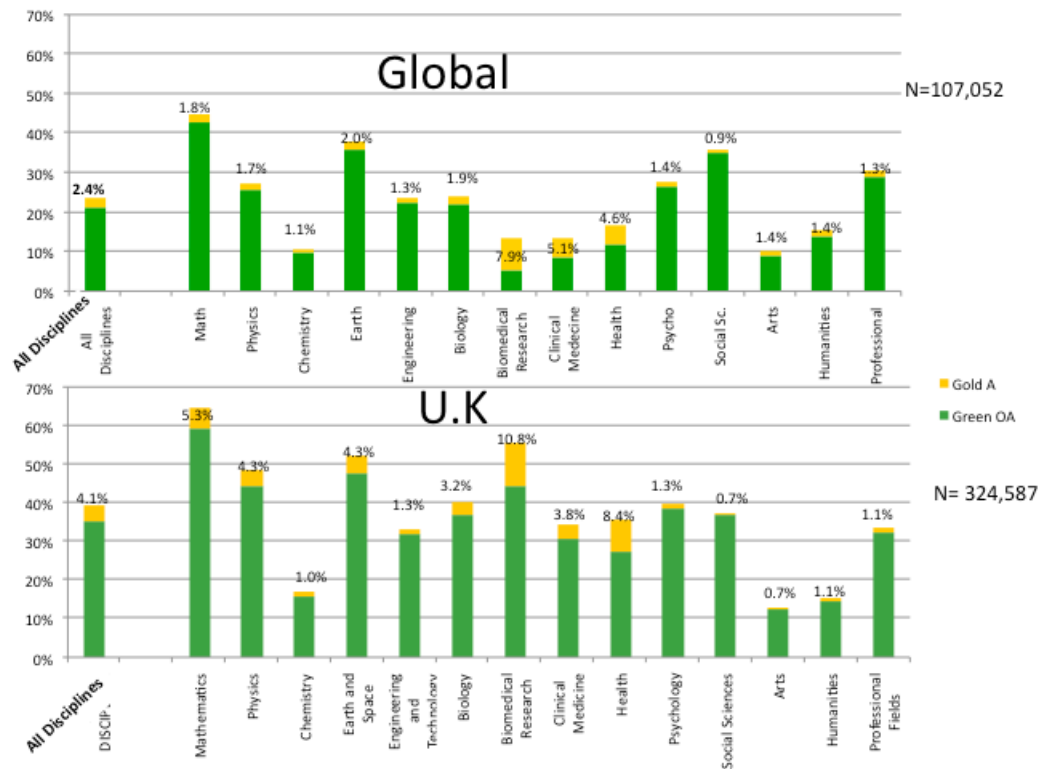


UK article output : 2007-2011  
(Thomson-Reuters-ISI subset)

**Total: 324,587** (65K/year)

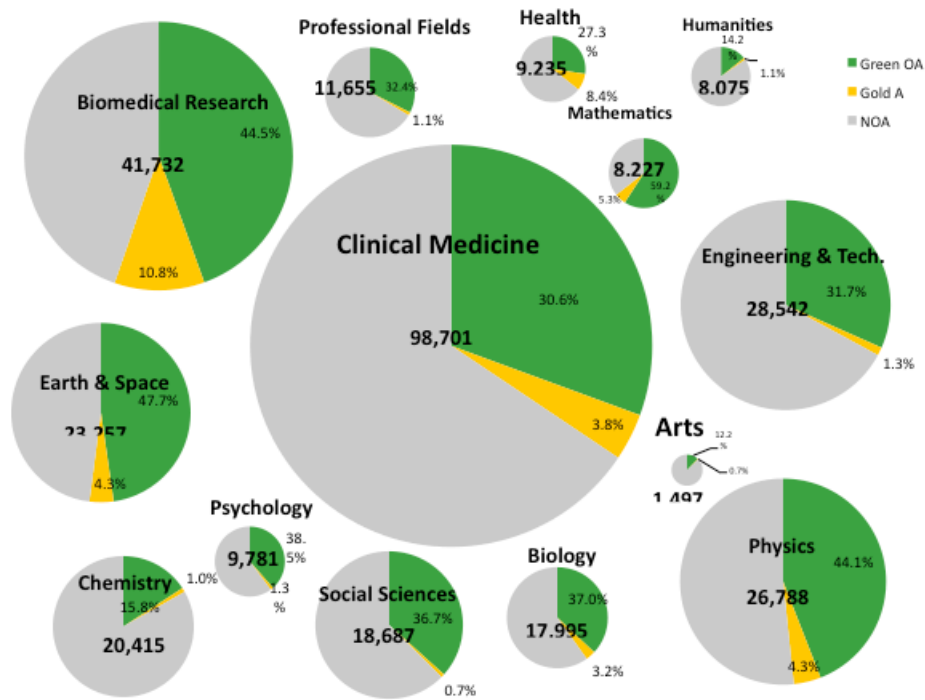
**Gold: 13,260** (3K/year) (4%)

UK published about 65,000 articles per year in TRI-indexed journals, about 3000 of them per year (4%) were in **Gold** OA journals.



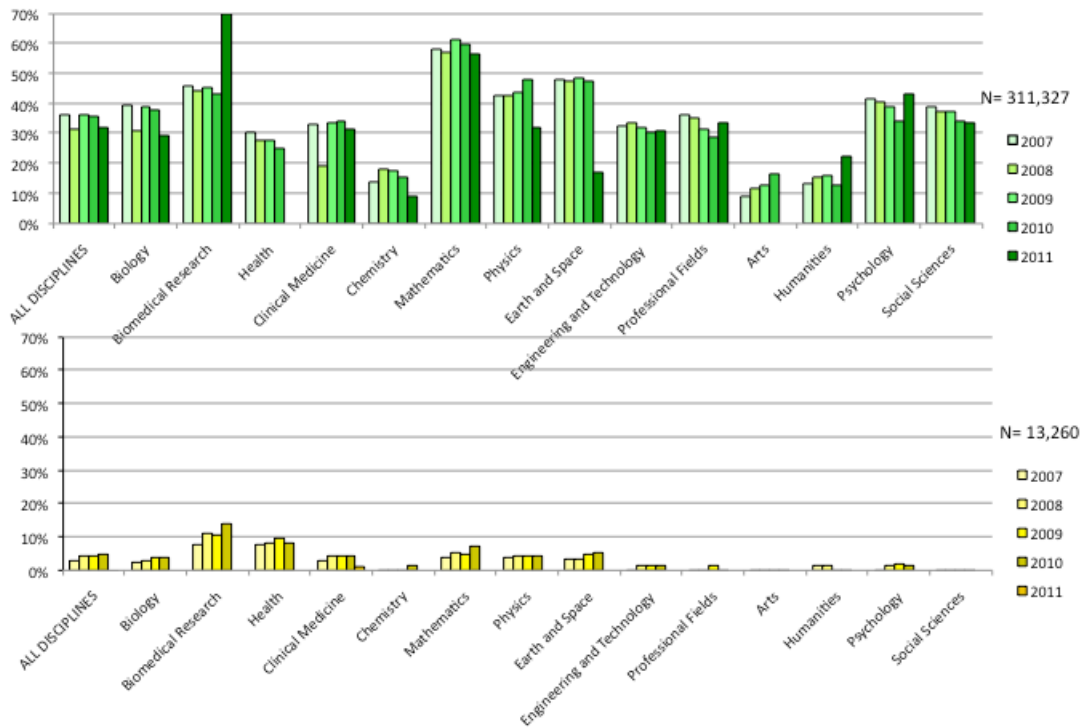
**Comparing percent OA globally and in UK.** UK average OA is close to 40%, 15% higher than the global average of about 24%. The most likely reason is that RCUK as well as about a third of UK universities have mandated **Green** OA. The mandates are not very effective, lacking compliance-verification mechanisms, but they are nevertheless substantially more effective than the global average, which is almost all unmandated OA. UK **Green** OA can be increased to 100% cost-free, by mandating it. **Gold** OA can only be increased by both mandating it and paying publishers extra for it, over and above subscriptions.

## UK %Green and %Gold (2007-2011)



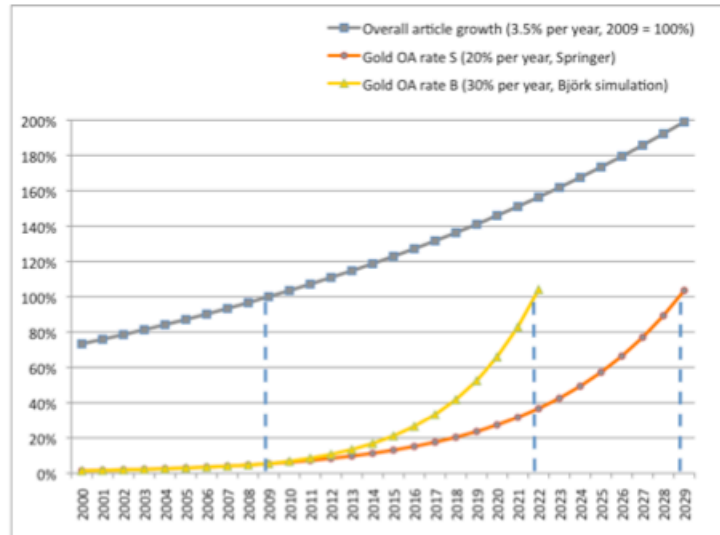
As in the rest of the world, most UK OA is **Green**, not **Gold**. UK **Green** OA can be increased to 100% cost-free, by mandating it. **Gold** OA can only be increased by both mandating it and paying publishers extra for it, over and above subscriptions.

## UK %Green and %Gold



Green and Gold OA by field (2007-2011). As in the rest of the world, most UK OA is Green, not Gold. UK Green OA can be increased to 100% cost-free, by mandating it. Gold OA can only be increased by both mandating it and paying publishers extra for it, over and above subscriptions.

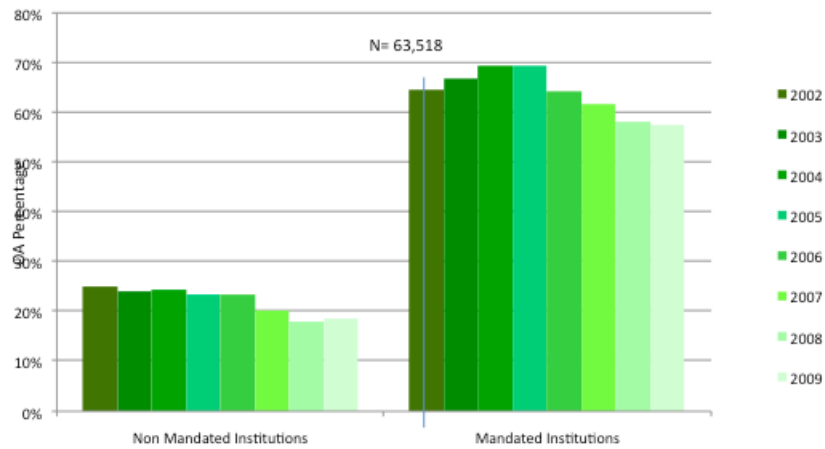
# Gold OA Growth Projection



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**Projected Growth of Gold OA** (estimates by Springer and Laakso/Bjork). If we wait for Gold OA, 100% will not be reached for another 1-2 decades.

## %Green OA for mandated & non-mandated institutions



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An effective **Green** OA Mandate generates 70%+ OA within 2 years, and continues to climb toward 100% thereafter.

# Mandate Strength

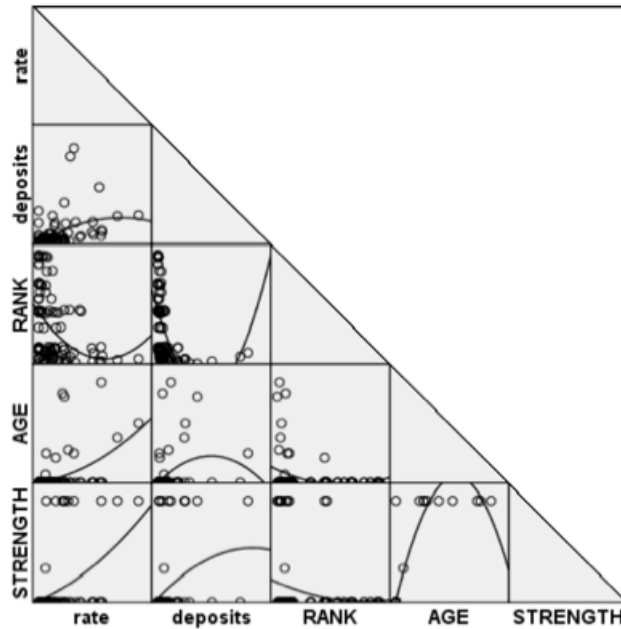
- 12 immediate deposit + performance evaluation (no waiver option)
- 9 immediate deposit (no waiver option)
- 6 6-month delay allowed (no waiver option)
- 3 12-month delay allowed (no waiver option)
- 3 rights-retention with waiver option
- 2 deposit if/when publisher says it's ok
- 1 no requirement: just request, recommendation or encouragement
- 0 no policy in ROARMAP

## **COMPLIANCE MONITORING MECHANISM**

1. Immediate Deposit (peer-reviewed draft, upon acceptance)
2. Institutional Deposit (so institutions monitor compliance and adopt own mandates)
3. Locus of Deposit for Performance Review Research Assessment
4. Rich Feedback on Usage and Impact (IRstats)



**AGE** of institution's deposit mandate (in months)  
**STRENGTH** of institution's deposit mandate  
**deposits**  
**rate** of deposit (number of days per year with 10-99 deposits)  
**RANK** (Webometrics)



Although there are only about 150 **Green** OA mandates to date, out of about 3000 registered repositories, there is already a very small but significant and positive correlation of both the strength and the age of the mandate with deposit rate. **Green** OA mandates work. What is needed is many more **Green** OA mandates – and effective ones.

## New RCUK OA Policy

- Only publish in journal that offers Gold or Green
- If journal offers (Libre) Gold and Green, must chose (and pay) Gold

## Purpose of RCUK OA Policy

- Encourage (pure) Gold
- Reduce Green embargos

# Perverse Effects of RCUK OA Policy

- Encourage (hybrid) Gold
- Increase Green embargoes
- Increase worldwide publisher revenue 6% (at the expense of UK tax-payers and UK research)
- Pay subscriptions + 6% for OA the UK output
- Handicap Green OA mandates for global output (94%)
- Resentment, resistance and non-compliance from UK researchers
- Lose another decade of local and global OA

## **Simple 9-Word Strike-Out Tweak to Fix RCUK Open Access Mandate**

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*[Still a lot of implementation details to shore up, but this simple tweak will fix the [new RCUK mandates's fatal flaw.](#)]*

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### **3. Research Council Expectations of Researchers**

The Research Councils expect authors of research papers to maximise the opportunities to make their results available for free.

Peer reviewed research papers which result from research that is wholly or partially funded by the Research Councils:

1. must be published in journals which are compliant with Research Council policy on Open Access (see section 4).
2. must include details of the funding that supported the research, and a statement on how the underlying research materials – such as data, samples or models – can be accessed.

### **4. Compliance of Journals**

The Research Councils will continue to support a mixed approach to Open Access. The Research Councils will recognise a journal as being compliant with their policy on Open Access if:

1. The journal provides via its own website immediate and unrestricted access to the publisher's final version of the paper (the Version of Record), and allows immediate deposit of the Version of Record in other repositories without restriction on re-use. This may involve payment of an 'Article Processing Charge' (APC) to the publisher. The CC-BY license should be used in this case.

Or

2. ~~Where a publisher does not offer option 1 above,~~ the journal must allow deposit of Accepted Manuscripts that include all changes resulting from peer review (but not necessarily incorporating the publisher's formatting) in other repositories, without restrictions on non-commercial re-use and within a defined period. In this option no 'Article Processing Charge' will be payable to the publisher. Research Councils will accept a delay of no more than six months between on-line publication and a research paper becoming Open Access, except in the case of research papers arising from research funded by the AHRC and the ESRC where the maximum embargo period is 12 months.