# Open Access – why and how


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**The Foundation for Science and Technology Discussion,**
***The Finch Report***
**March 6th, 2013**

## Overview of talk

- Open Access – why do we want it?
- Green and Gold OA
- RCUK implementation
- Some current discussion foci
- CC-BY licensing
- Value to be added by semantic enrichment and text mining

## Some reasons for desiring Open Access

- Work paid for from the public purse should be available to the public
- History of market failure of subscription model; authors provide content (and often review) free but cannot then access it
- For researchers, accessible (OA) research is more highly cited
- 'Public-ation' is hardly public when behind a paywall
- With 2 peer-reviewed papers per minute being published in BioMedicine (PubMed) alone (~5 overall) only computers can 'read' them all
- A free license (such as Creative Commons CC BY) that allows full reuse allows anyone to add value, using techniques such as text mining, semantic mark-up, etc.

## International context and examples

- Many countries already implementing OA policies (e.g. Austria since 2004, DFG and ERC since 2006)
- For EC will be part of Horizon 2020
- Science Europe supporting development of coordinated policies
- US NIH enforcing mandate (and provide $100M/y for publication charges; NSF providing $25M/y)
- Other US agencies being mandated to develop OA by OSTP
- Global RC has OA as main agenda item in May 2013

## ‘Green’ and ‘Gold’ OA – RCUK Policy

- Gold preferred by both Finch and RCUK (and Wellcome), involving an ‘article processing charge’ (present average ca £1700), with CC BY licensing allowing full attributed re-use
- If no Gold option offered then Green deposit of final ms after an embargo period, of up to 6 months (biomedicine mandated and STEM) to (initially) 12 months (Arts & Humanities). If Gold offered but funding unavailable then we accept 12/24 months. Anything above 24 months delayed access very much seen as outwith any spirit of OA.
- Assume an initial compliance of 45%
- Most journals of interest are actually compliant now
- Gold OA very widespread, e.g. PLoS One is largest journal, has very effective business model, regards Green as complementary (in assisting dissemination)

## “Decision tree”

## Recent history of RCUK implementation

- July 2012: Revised RCUK policy on OA launched, alongside HMG response to Finch Report
- September 2012: £10M from BIS to 30 Institutions
- November 2012: RCUK announcement on block grants, £17M in 1st year (from April 2013)
- November 2012 onwards. Many consultations of RCUK with HEIs, publishers, Learned Societies, etc.
- January 2013. HoL Select Committee enquiry on OA
- Early March 2013: Revised RCUK guidance on policy
- Q4 of 2014: full evidence-based review of RCUK implementation

## Transition to Open Access

- Working with the community to change the way the outputs from Research Council funded work are made available.
- Five year transition to 100% OA – flexibility in implementation.

**Journey – not an event**

## Funding

Arts & Humanities Research Council

E·S·R·C ECONOMIC & SOCIAL RESEARCH COUNCIL

bbsrc biotechnology and biological sciences research council

£11.2B

MRC Medical Research Council

EPSRC Engineering and Physical Sciences Research Council

NATURAL ENVIRONMENT RESEARCH COUNCIL

Science & Technology Facilities Council

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## Funding

- Research Councils providing block grants to institutions to support payment of APCs.
- Institutions must establish Publication Funds and the processes and procedures for payment of APCs.
- Flexibility on spend & 'light touch' guidance.

**Use the money to best deliver the RCUK Policy**

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CC BY

## Size of the APC fund

- How many publications?
  - Est. 26k per year, 90% HEI, 10% RC institutes.
- Average APC?
  - Finch £1727 + VAT, paid at 80% fEC = £1658;
- Five-year transition period.

| HEI publications | Year-1 | Year-2 | Year-3 | Year-4 | Year-5 |
|---|---|---|---|---|---|
| Est. % Gold | 45% | 53% | 60% | 67% | 75% |
| APC fund | £17M | £20M | tbc | tbc | tbc |

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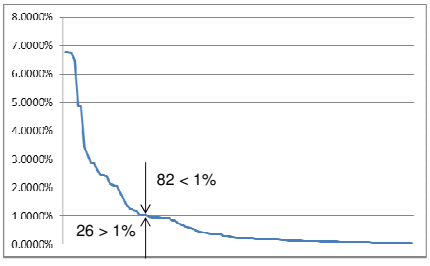
## Distribution of APC fund

- Based on % share of direct labour funding received over past 3 years (£1.5B)
  - *DI Staff and DA Investigators*
- Russell Group & 1994 Group – 37 HEIs, 82%
- Cut off below £10k in year-5 (>99%)

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## Supporting the Transition

- Working with Sherpa-Romeo, JISC and Wellcome Trust to develop journal compliance web site.
- Working with the RIN on 'best practice' project to develop protocols between HEIs.
- Plans to facilitate workshop for Learned Societies to share 'best practice' in OA publishing.
- Revised guidance and information on transition flexibility early March (actually today).
- Q4 2014 – evidence based review of policy and its implementation.

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## CC BY licensing

- Mandatory version for Gold OA when APCs paid
- Allows full re-use, including commercial, with attribution
- Hence is not 'plagiarism'
- Simplest method for allowing re-use (Hargreaves ++)
- The bounds of 'non-commercial' are rather unclear – are Universities 'commercial'?
- Does not affect third-party rights e.g. copyrighted images (or proprietary software) used in original article with permission remain copyrighted or proprietary
- In common use now

## Transparency requirement

- Acknowledgement of funding.
- Statement on access to the underlying research materials.
- Helps support the transparency, integrity and robustness of the research process.

*Science's powerful capacity for self-correction comes from this openness to scrutiny and challenge.*

Science as an open enterprise
Royal Society, June 2012.

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## Why full papers, and not only abstracts?

- A survey[1] of 29 biomedical papers showed that authors reported in the abstract fewer than 8% of the scientific claims that actually appeared in the body of the paper
- Of course most abstracts are also deficient in numerical details of the data

[1]Blake C: Beyond genes, proteins, and abstracts: Identifying scientific claims from full-text biomedical articles. J Biomed Inform 2010; 43:173-189.

## Text mining – 3 main stages

- **Information retrieval** – finding material that is relevant to the question of interest – needs OA
- **Information extraction** – fact retrieval – adds value
- **Data mining** – with 'deep' parsing and semantic annotation this allows true text mining – creates knowledge

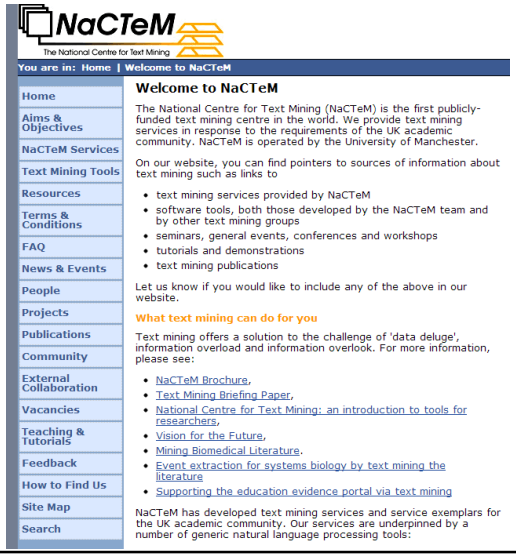
**Text mining and its potential applications in systems biology**

Sophia Ananiadou[1,2], Douglas B. Kell[3,4] and Jun-ichi Tsujii[1,2,5]

Trends Biotechnol 24, 571-579 (2006)

## National Centre for Text Mining (NaCTeM)

- http://nactem.ac.uk/
- Various tools available
- Mainly abstracts
- Full text where OA



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## Current tools

NaCTeM has developed text mining services and service exemplars for the UK academic community. Our services are underpinned by a number of generic natural language processing tools:

- TerMine is a Term Management System which identifies key phrases in text.
- AcroMine is an acronym dictionary which can be used to find distinct expanded forms of acronyms from MEDLINE.
- Kleio is an advanced information retrieval system providing knowledge enriched searching for biomedicine.
- FACTA+ is a MEDLINE search engine for finding associations between biomedical concepts.
- IRS facilitates advanced searching of documents by making use of added value features extracted from full texts using NaCTeM text mining tools.
- MEDIE uses semantic search to retrieve biomedical correlations from MEDLINE.
- Info-PubMed uses a gene/protein dictionary and deep parsing to understand protein interactions **[Firefox Required]**.

**BMC Medical Genomics** BioMed Central

2,469 refs

Review Open Access

**Iron behaving badly: inappropriate iron chelation as a major contributor to the aetiology of vascular and other progressive inflammatory and degenerative diseases**

Douglas B Kell*

**http://www.biomedcentral.com/1755-8794/2/2/**

**http://dbkgroup.org/publications/**

Arch Toxicol (2010) 84:825–889
DOI 10.1007/s00204-010-0577-x

Open Access

REVIEW ARTICLE

1,716 refs

**Towards a unifying, systems biology understanding of large-scale cellular death and destruction caused by poorly liganded iron: Parkinson's, Huntington's, Alzheimer's, prions, bactericides, chemical toxicology and others as examples**

Douglas B. Kell

# Concluding remarks

- Implementation of Finch recommendations proceeding with momentum and money
- Preference for Gold / CC BY to allow immediate OA and full re-use, but a mixed economy (with Green) accepted
- A journey rather than a fixed point
- Strong international context
- Need to modernise elements of copyright (BIS document in December); significant discussions within EC
- Huge **opportunities** in adding value and novel digital enhancements to OA texts for imaginative publishers and other entrepreneurs; many have begun to realise them