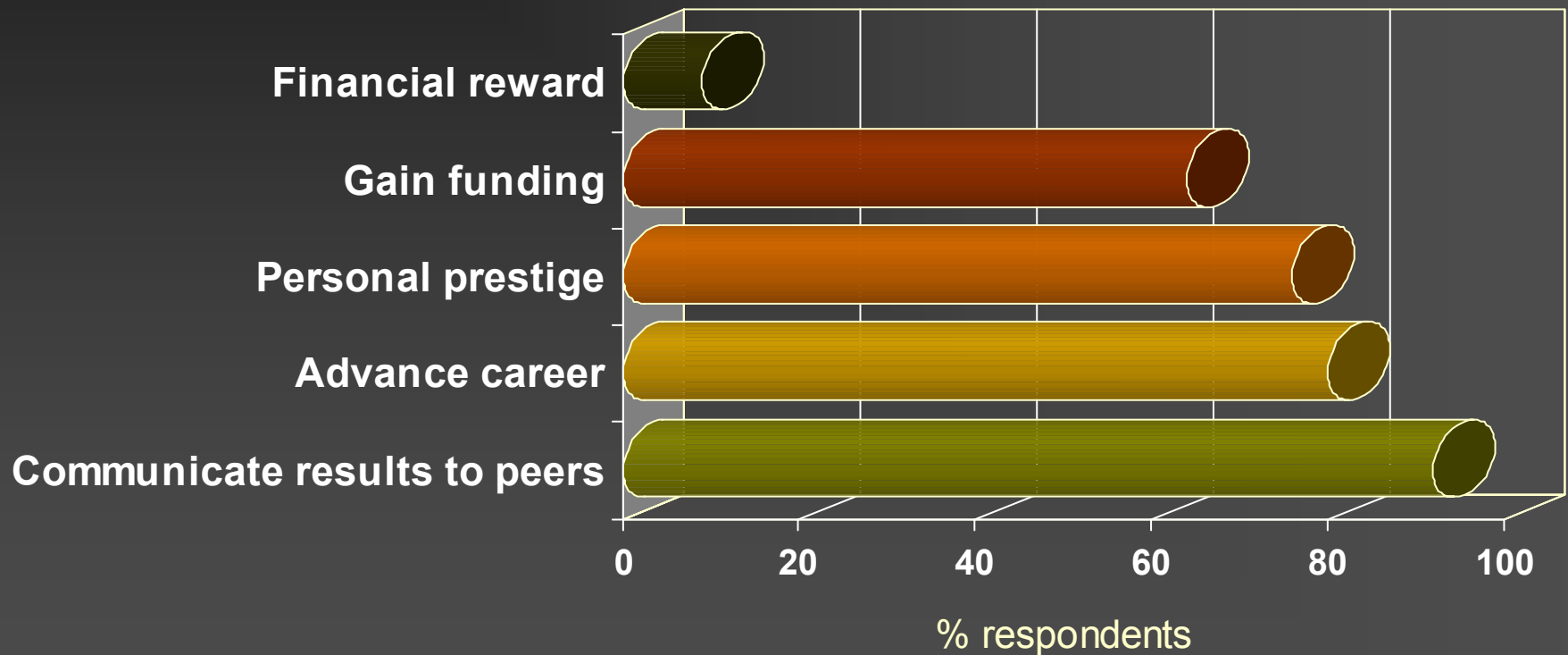


Electronic Publishing and Open Access: Developing country perspectives

Indian Institute of Science, Bangalore
2-3 November 2006

Alma Swan
Key Perspectives Ltd
Truro, UK

Why researchers publish their work



The digital era

“The potential role of electronic networks in scientific publication ... goes far beyond providing searchable archives for electronic journals. The whole process of scholarly communication is undergoing a revolution comparable to the one occasioned by the invention of printing.”

Stevan Harnad, 1990

The internet has brought ...

- New opportunities facilitated by new technologies
- The ways science is done (and thus the need for new technological capabilities)
- The way research is evaluated and assessed

Open Access: What is it?

- Online
- Immediate
- Free (non-restricted)
- Free (gratis)
- To the scholarly literature that authors give away
- Permanent

Open Access: Who benefits?

- Benefits to researchers themselves
- Benefits to institutions
- Benefits to national economies
- Benefits to science and society

Open Access: How?

- Open Access journals
(www.doaj.org)
- Open Access repositories
(author 'self-archiving')

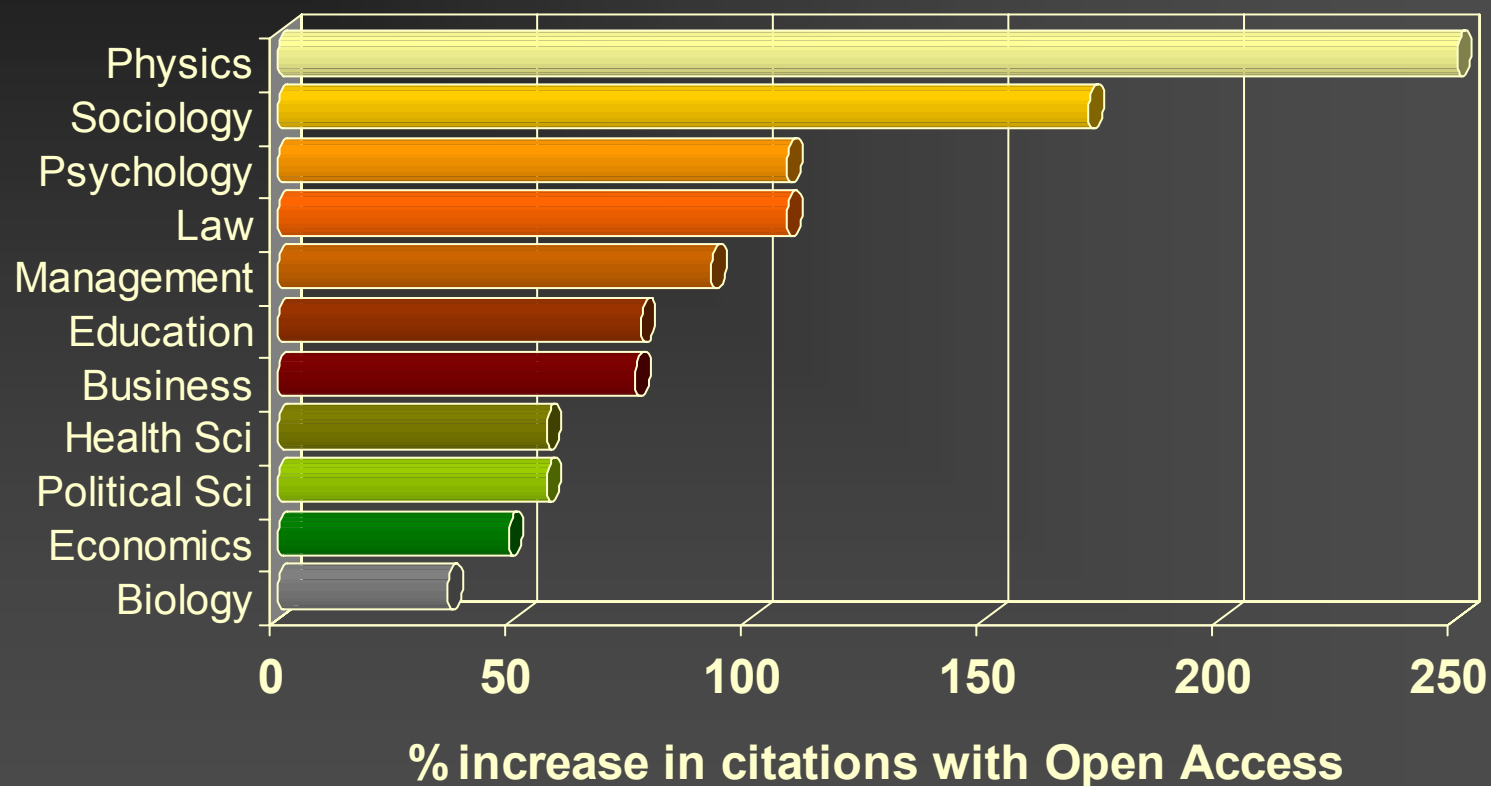
Author experience so far

- Only 24% of authors have submitted an article to an Open Access journal
- Only 22% have self-archived in their institutional repository

Why we should have Open Access

- Greater impact from scholarly endeavour
- More rapid and more efficient progress of scholarship
- Better assessment, better monitoring, better management of research
- Better information-creation using new and better technologies

Open Access increases citations



Range = 36%-200%

(Data: Stevan Harnad and co-workers)

Other impact studies

- Lawrence 2001 (computer science)
- Kurtz 2004 (astronomy)
- Brody & Harnad 2004 (all disciplines)
- Antelman 2005 (philosophy, politics, electrical & electronic engineering, mathematics)
- Wren 2005
- Eysenbach 2006

Lost citations, lost impact

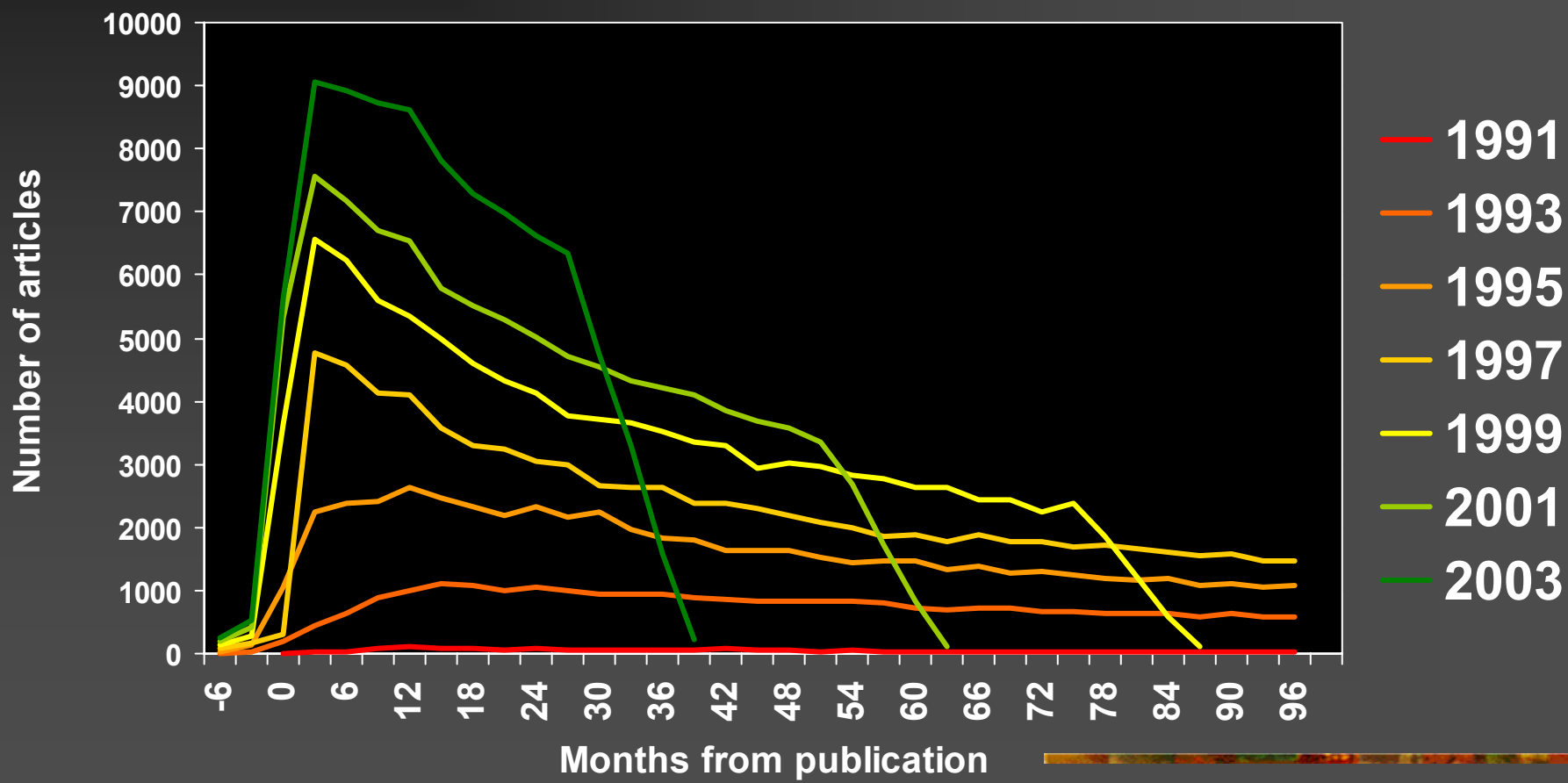
- Only around 15% of research is Open Access.....
- so 85% is not
- and we are therefore losing 85% of the 50% increase in citations (conservative end of the range) that Open Access brings (= 42.5%)

There is also a monetary measure

- In the last 5 years there have been 219040 citations to 104617 articles by Indian scientists (indexed by ISI)
- This figure could have been 42.5% higher (with OA) = **312132 citations**
- **44462 citations have been lost over 5 years**
- With an annual S&T budget of 164bn INR
- and 42.% impact lost...
- **that means 70bn INR-worth of impact lost to India over 5 years**

Science is faster, more efficient

Time taken to be cited for articles in the arXiv database



Measure, assess, and manage science more effectively

- Assess individuals, groups, institutions, on the basis of citation analysis
- Track downloads, citations, patterns of use
- Trends: predict impact, usage, direction of science and influences on research
- Latency, longevity
- Hubs, authorities
- 'Silent' 'unsung' authors identified by semantic analysis

Navigation and analysis of science output: Citebase

- Find researchers
- Measure citations to **articles** (not journals)
- Follow the citations through the literature
- Measure downloads (and predict citations)
- Use citation patterns to analyse science

New knowledge from old

- Data-mining
- Text-mining (semantic Web technologies)
- UK: National Text-Mining Centre
- Example: NeuroCommons

Why Open Access

- Greater impact from scientific endeavour
- More rapid and more efficient progress of science
- Better assessment, better monitoring, better management of science
- Novel information-creation using new and advanced technologies

Institutionally-based repositories

- 800+
- Half are institutional or departmental
- Growth of 1 per day, but...
- Average number of postprints is 297!

An institutional repository provides researchers with:

- The means to disseminate their work, free, to the world
- Secure storage (for completed work and for work-in-progress)
- A location for supporting data that are unpublished
- One-input-many outputs (CVs, publications)
- Tool for research assessment

Why an institutional repository?

- Fulfils a university's mission to engender, encourage and disseminate scholarly work
- Enables a university to compile a complete record of its intellectual effort
- Forms a permanent record of all digital output from an institution
- Enables standardised online CVs for all researchers (e.g. RAE exercise)
- 'Marketing' tool for universities
- An institution can mandate self-archiving across all subject areas

Some statistics

- Awareness of Open Access is increasing amongst scholars in all disciplines
- The number of repositories has increased at an average of 1 per day over the last year
- The rate of increase is rising

Here's the problem...

- Only 15% of research articles are spontaneously self-archived
- The average number of postprints self-archived in institutional repositories is 297

A few more statistics

- There are circa 800 repositories globally
- There are 37 documented policies
- There are 13 mandates

Policies, mandates

- There is a difference
- Both are being developed at institutional, national and even international level
- One is sometimes effective, the other always is

Third component: advocacy

- Sometimes in the absence of either a policy or mandate; sometimes alongside these
- Advocacy – sustained and organised
- Advocacy - opportunistic

Policies

- An almost-mandate from the DFG, Germany
- An almost-mandate from the FWF, Austria
- Dutch policy for the universities in the DARE network
- Exhortations and encouragements from public research funders in Finland, USA
- National policy being developed in Sweden (?)
- Developments in Australia, Canada, etc

Mandates

- **Proposed mandates:** public funders (Canada, Australia, S.Africa, Ukraine, USA and EU)
- **Real mandates:**
 - Wellcome Trust
 - RCUK (Research Councils UK)

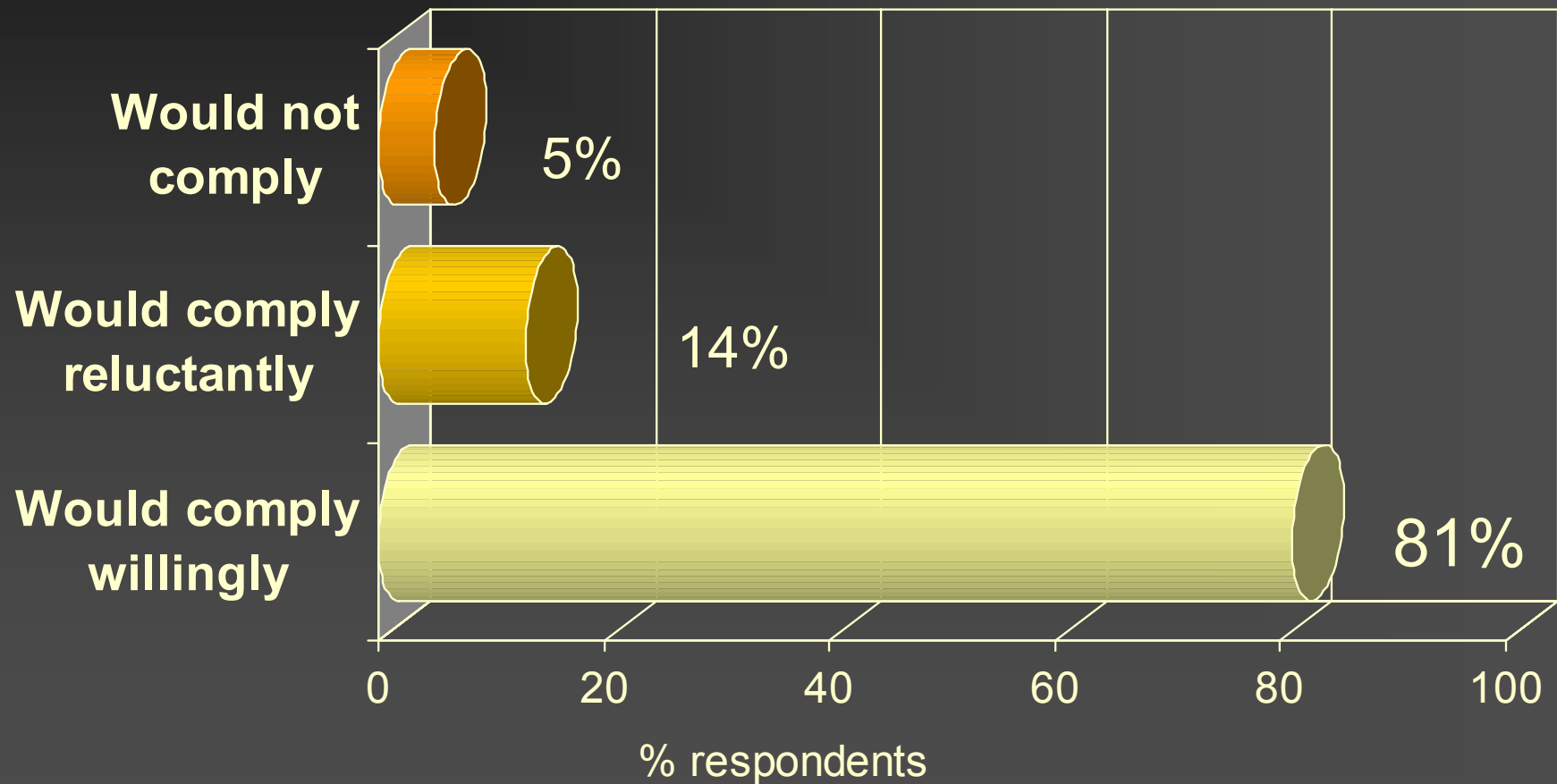
USA

- **NIH:** Strengthening now very likely
Require not request
- **CURES:** 6-month delay to provide OA
permitted but **deposit** must be
at **acceptance**
- **FRPAA:** Mandatory deposit: all research
funded by the largest agencies

UK

- Wellcome Trust (\$750m)
 - Research Councils UK
- 5 out of 8 have a mandate
and 1 has a strong
encouragement

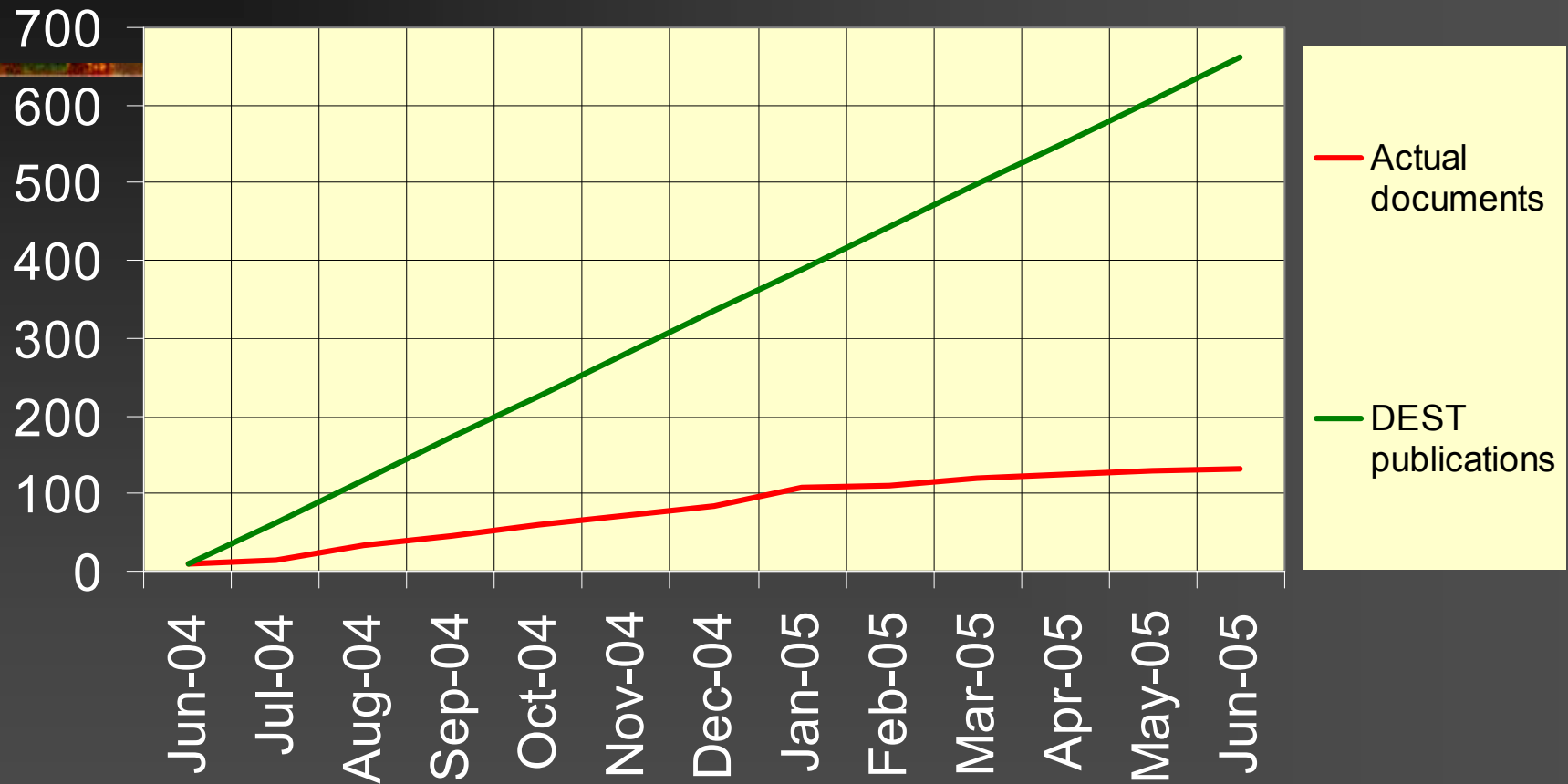
Author readiness to comply with a mandate



Institutions with a mandate already

- University of Southampton School of Electronics & Computer Science (since 2003) (90+% compliance already)
- CERN (2003) (90% compliance already)
- Queensland University of Technology (2004) (40%+ compliance and growing)
- University of Minho, Portugal (2005)
- Recently, NIT (Rourkela), Zurich University
- and others on the way ...

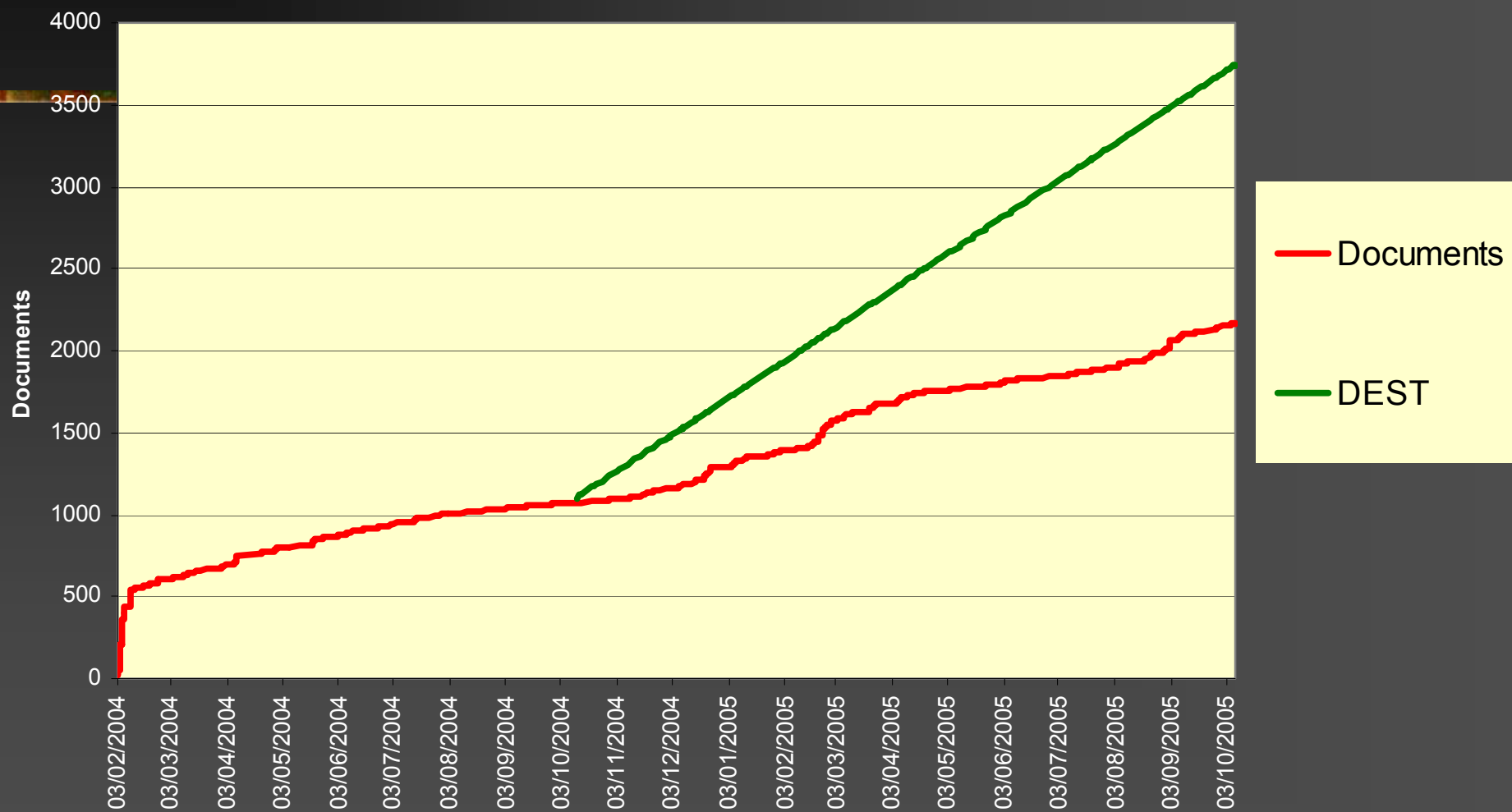
University of Tasmania



Data courtesy of Arthur Sale

Key Perspectives Ltd

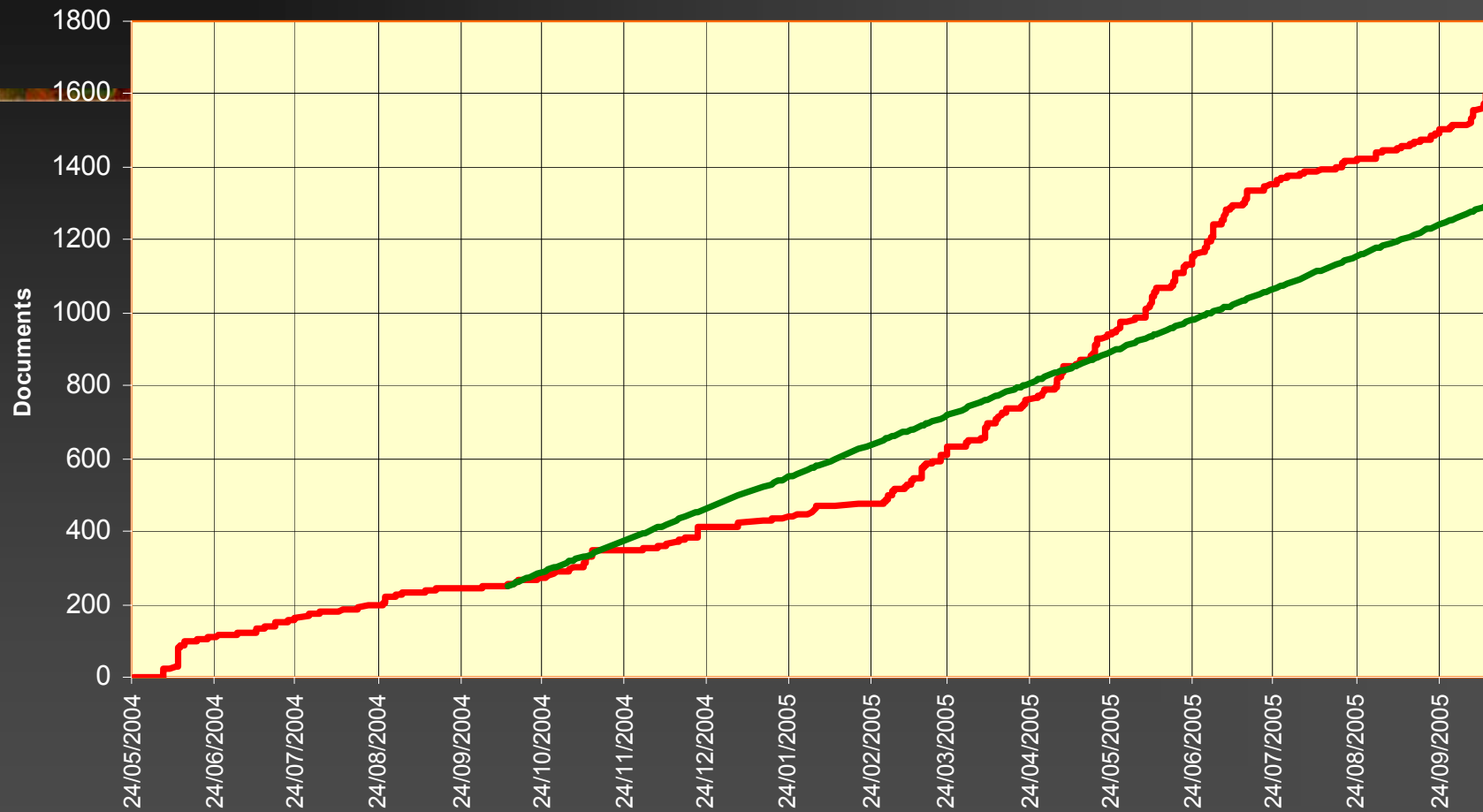
University of Queensland



Data courtesy of Arthur Sale

Key Perspectives Ltd

Queensland University of Technology



Data courtesy of Arthur Sale

Key Perspectives Ltd

Mandate when?

- At acceptance for publication: the author's final version
- Mandate the deposit at that point
- Mandate OA to full-text unless there is a compelling reason against this
- If there is a compelling reason, mandate OA to metadata
- Mandate opening of full-text at 6 months
- The publisher's PDF can be added, or linked to, later

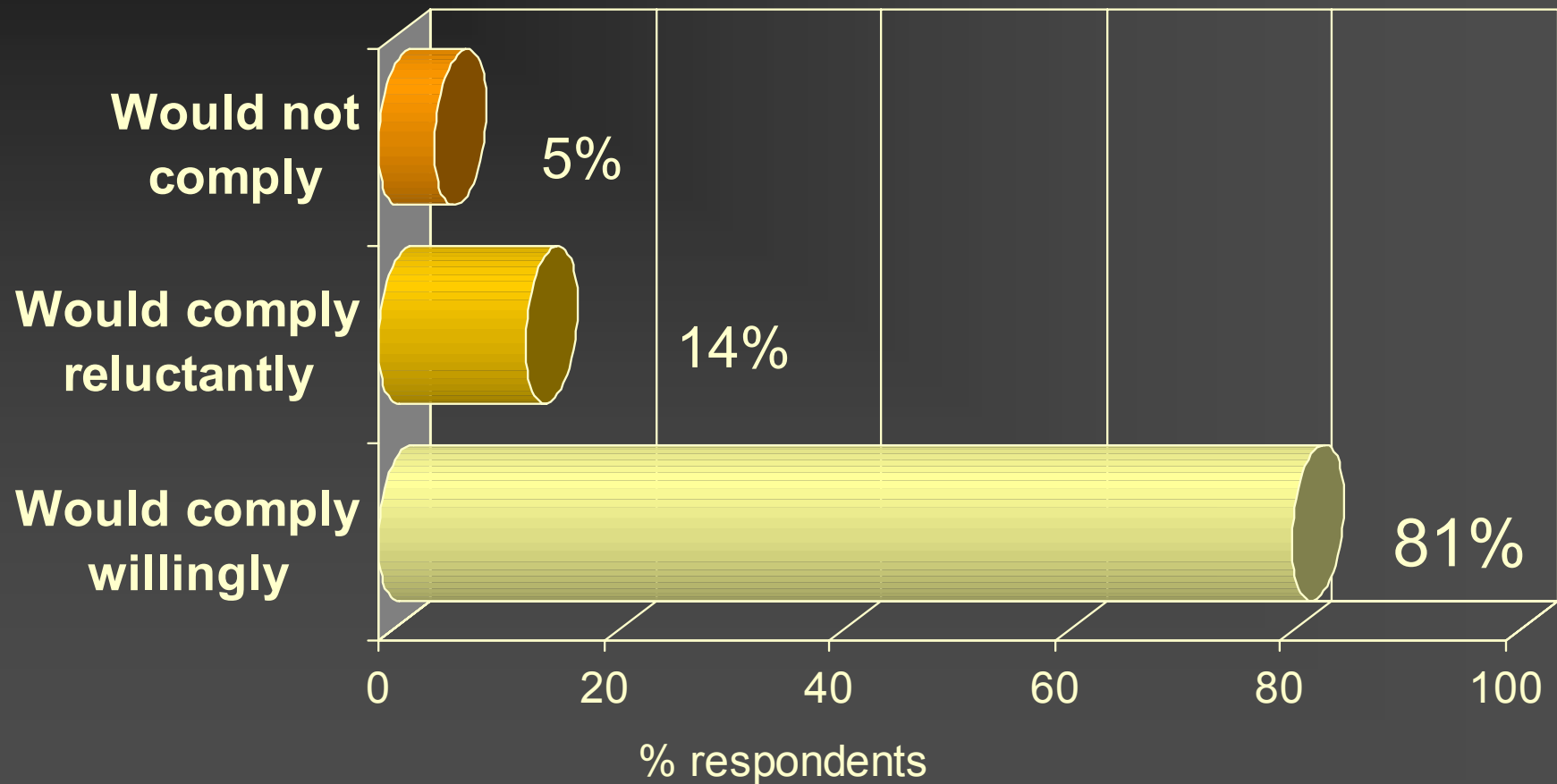
Mandate what?

- The author's final version
- In the native format
- Because text-mining and data-mining tools need to work on OA articles
- They work best on XML

Summary

- Policies nice but largely ineffectual
- Mandates work and so increasing
- Deposit at acceptance:
 - Open metadata immediately
 - Open full-text later if necessary
- Deposit author's final version; add published version later if desired

Author readiness to comply with a mandate



Thank you for listening

aswan@keyperspectives.co.uk

www.keyperspectives.co.uk

www.keyperspectives.com

Key Perspectives Ltd