

Open Access, repositories and H.G.Wells

Alma Swan

Convenor

Enabling Open Scholarship

LIBER 40th Annual Conference

Universitat Politècnica de Catalunya, Barcelona, 29 June - 2 July, 2011



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Herbert George Wells (1866-1946)



- The **World Brain**
- 'Permanent World Encyclopaedia'
- An 'all-human cerebrum'



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The World Brain

- The whole human memory can be, and probably in a short time will be, made accessible to every individual
- Photography affords now every facility for multiplying duplicates of this
- It can be reproduced exactly and fully, in Peru, China, Iceland, Central Africa, or wherever else seems to afford an insurance against danger and interruption
- It can have at once, the concentration of a craniate animal and the diffused vitality of an amoeba



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- Special sections of it will easily be reproduced for specific professional use
- A series of summaries of greater or less fullness and simplicity, for the homes and studies of ordinary people, for the college and the school, can be continually issued and revised



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Paul Otlet (1868-1944)

- Global network of 'electric telescopes'
- 'Reseau' [network] of telegraph machines and index cards
- Send messages, share files and join together in a social network



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Vague but exciting ...

CERN DD/OC

Tim Berners-Lee, CERN/DD

Information Management: A Proposal

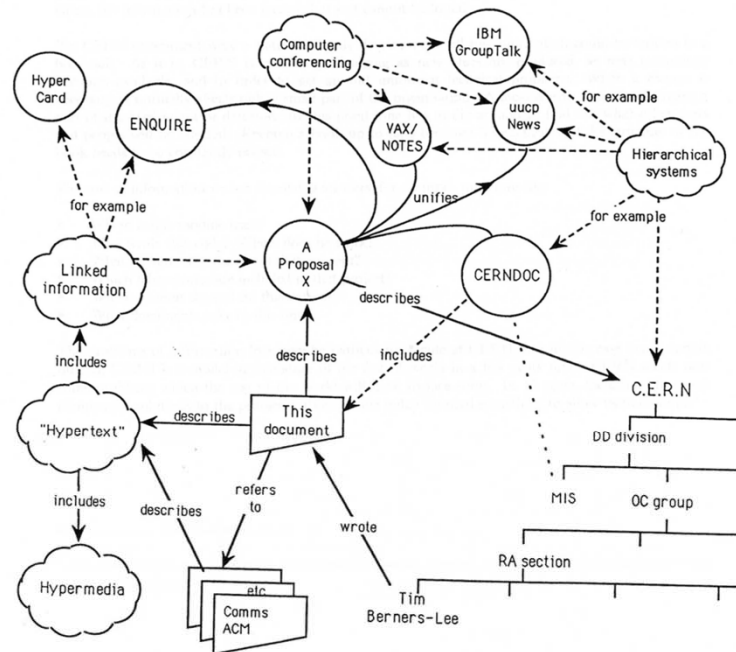
March 1989

Information Management: A Proposal

Abstract

This proposal concerns the management of general information about accelerators and experiments at CERN. It discusses the problems of loss of information about complex evolving systems and derives a solution based on a distributed hypertext system.

Keywords: Hypertext, Computer conferencing, Document retrieval, Information management, Project control



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Vague but exciting ...

CERN DD/OC

Tim Berners-Lee, CERN/DD

Information Management: A Proposal

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Unlimited Group, S.A.

- Financial services company
- Kevin Rolfe, CEO
- Two offices, 50 miles apart
- To transfer 4 GB encrypted data takes up to 6 hours
- Winston takes 45 minutes



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Unlimited Group, S.A.



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UK

- 🌐 Ten carrier pigeons carrying USB sticks
- 🌐 Reached destination 120 miles away in 75 minutes
- 🌐 5-minute video (300 MB): 24% through its download



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EU2020:

A knowledge-based society

- “A society that creates, shares and uses knowledge to improve its wealth and the well-being of its people.
- In a knowledge-based society, jobs no longer depend on manufacturing ...
- ... but instead on gaining and applying knowledge, for example developing and using technology, researching new medicines or providing services more efficiently.”



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Open Knowledge

Open knowledge is any kind of information – sonnets to statistics, genes to geodata – that can be freely used, reused, and redistributed.

(Open Knowledge Foundation)



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Google books



The Universal Digital Library

Million Book Collection

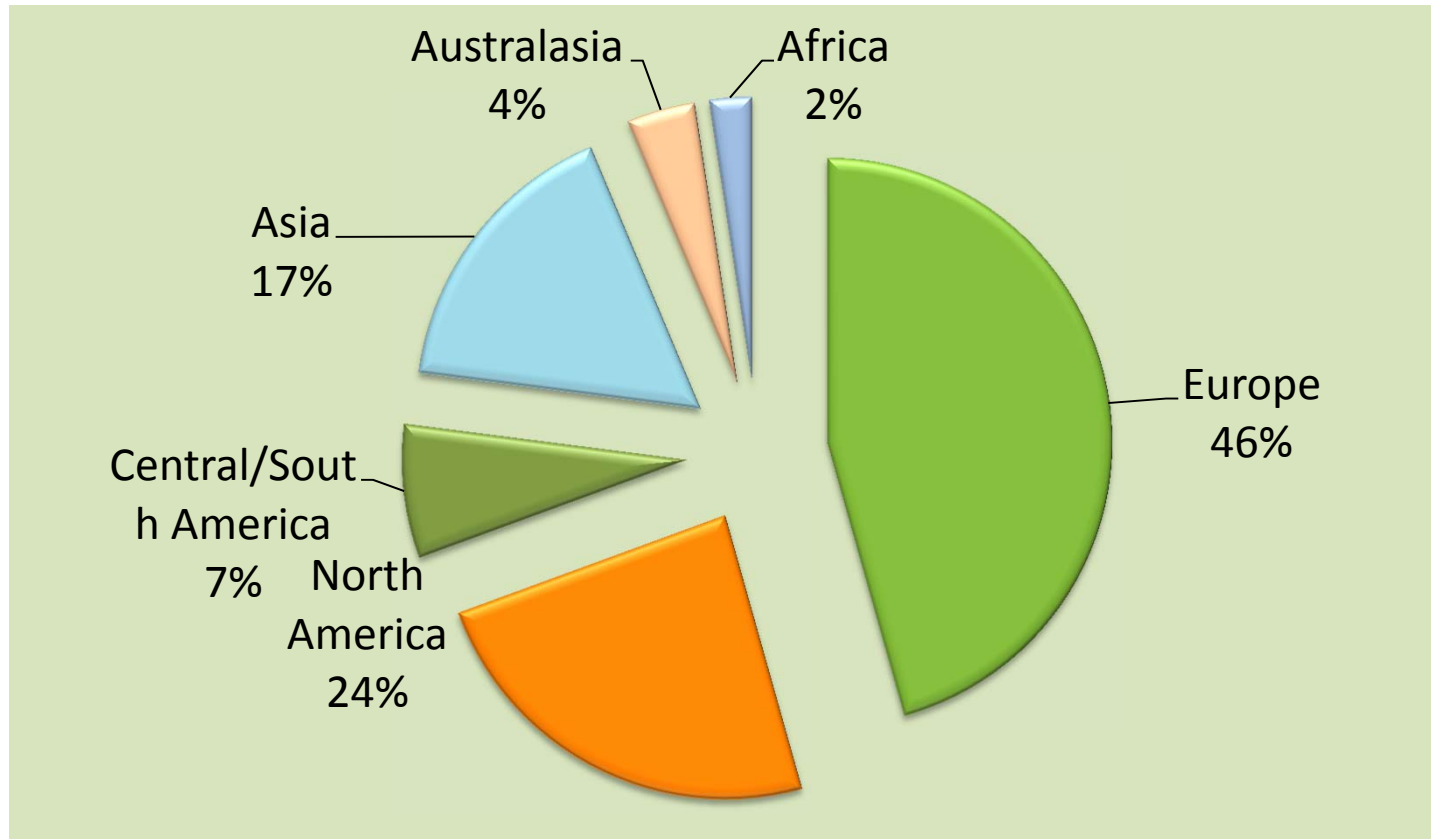
europæana
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CHINA-US MILLION BOOK DIGITAL LIBRARY PROJECT

A network of repositories



Total at 30 June 2011:
1980



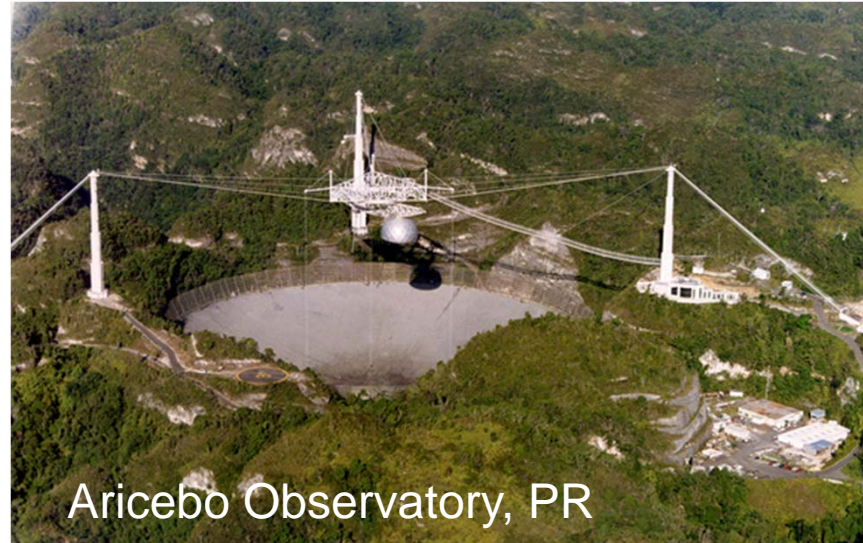
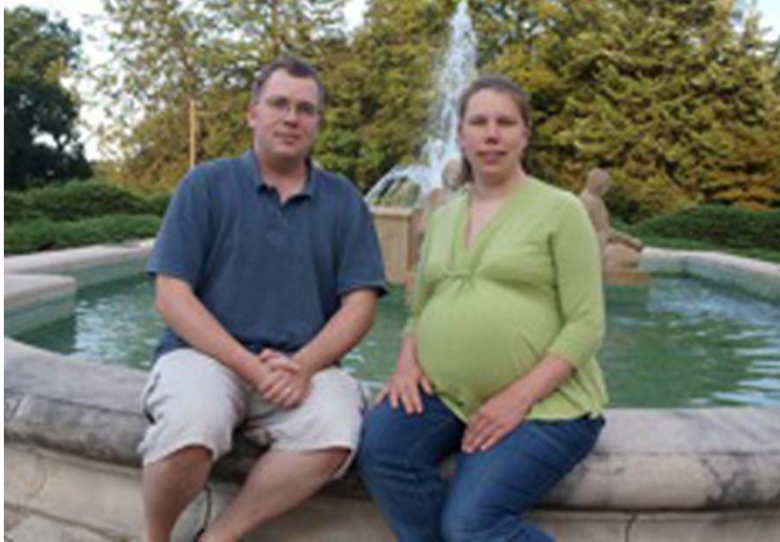
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Who for?

- Institutionally-based research community
- Researchers outside institutions
- Consumers of research information outside institutions:
 - Professionals
 - Practitioners
 - Educators
 - ‘Other curious minds’



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- Chris and Helen Colvin (Ames, Iowa)
- PSR J2007+2722 (new 'weird pulsar')
- Rotates 41 times per second and has an unusually low magnetic field
- 'Likely had a companion star that exploded, kicking it free'
- einstein@home – a (large!) citizen science initiative



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What should repositories be doing for all these constituencies?

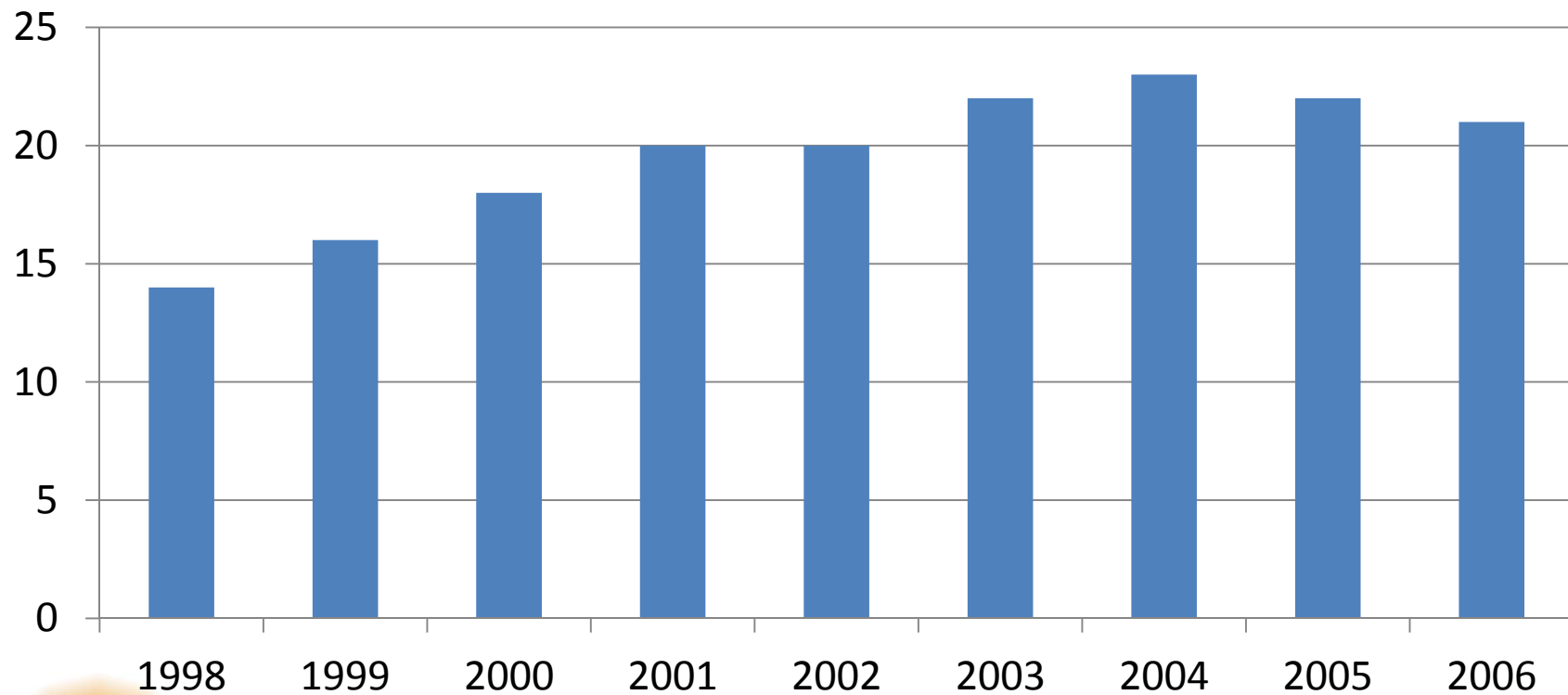
- Collecting OA material
- Providing visibility, enabling usage and maximising impact
- Publishing (?)
- Contributing to a true World Brain – with commitment to what that really needs



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Growth of Open Access in repositories

% literature that is Green OA



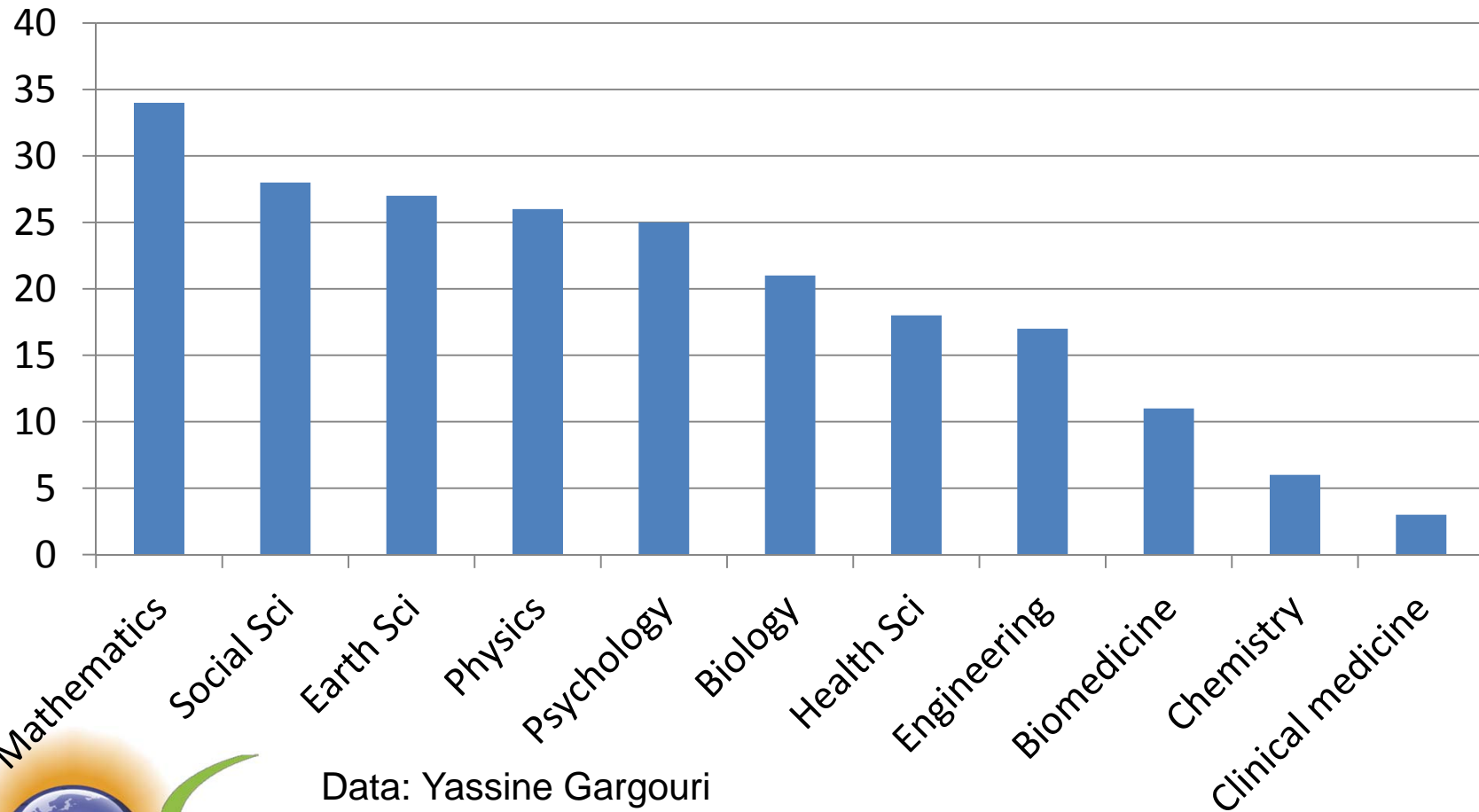
Data: Yassine Gargouri



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OA in repositories by subject

% literature that is Green OA

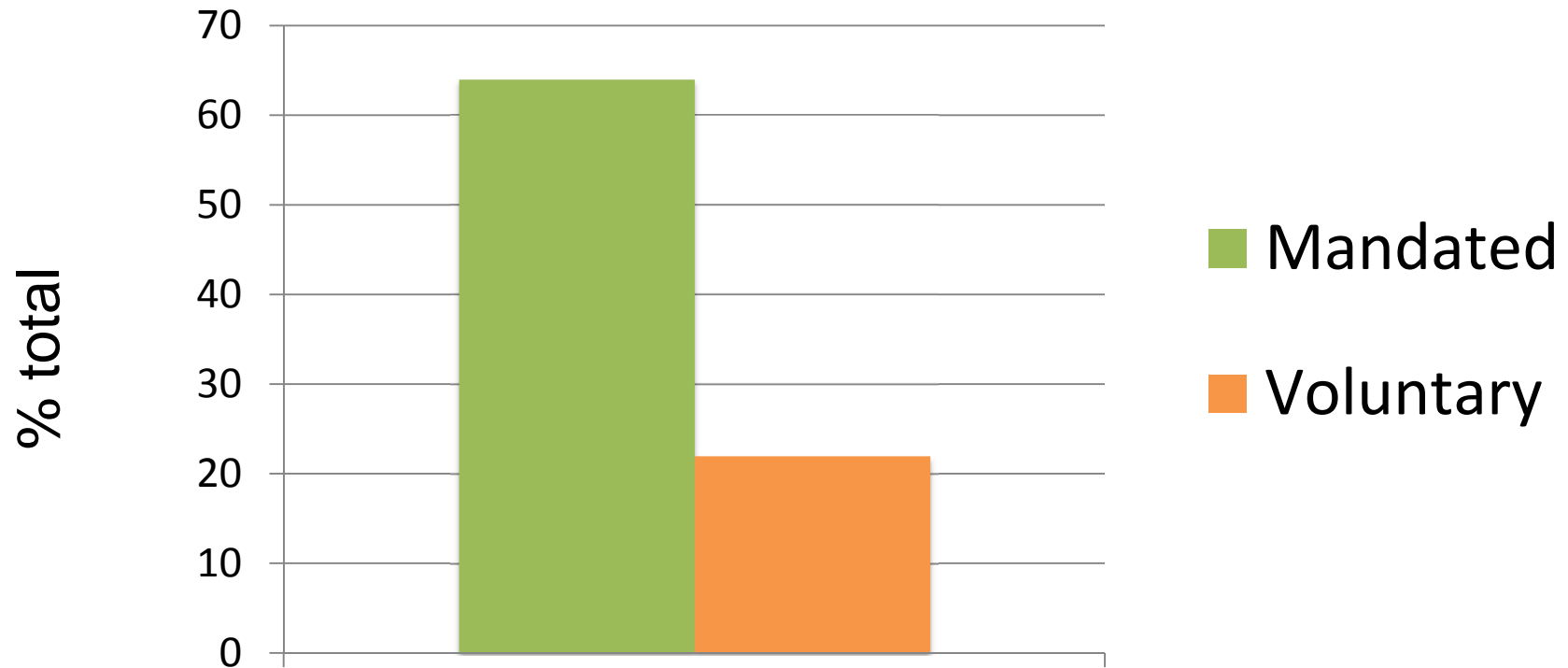


Data: Yassine Gargouri



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Policy effects



Data: Gargouri, 2011



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Test flight OK, except
auto-land very rough

Auto-land not installed
on this aircraft



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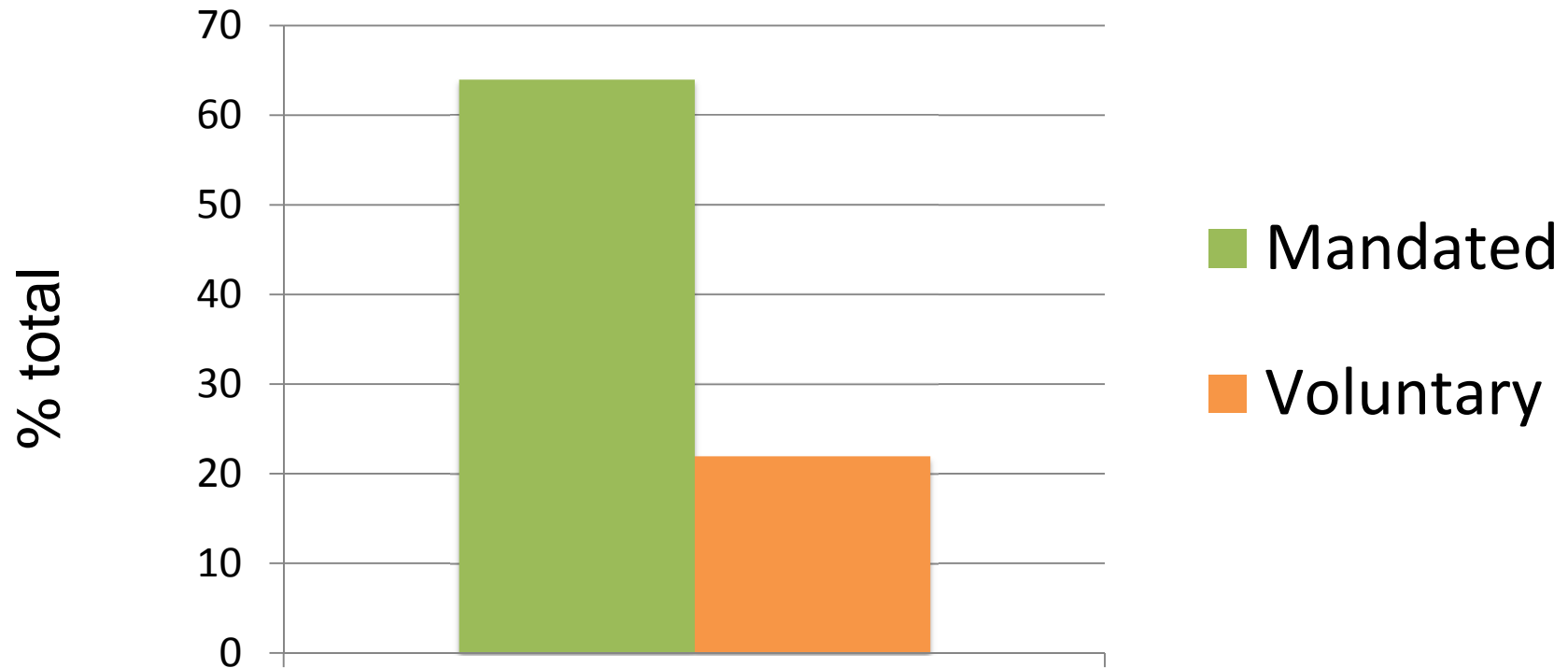
Something loose in cockpit

Something tightened
in cockpit



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Policy effects



Data: Gargouri, 2011



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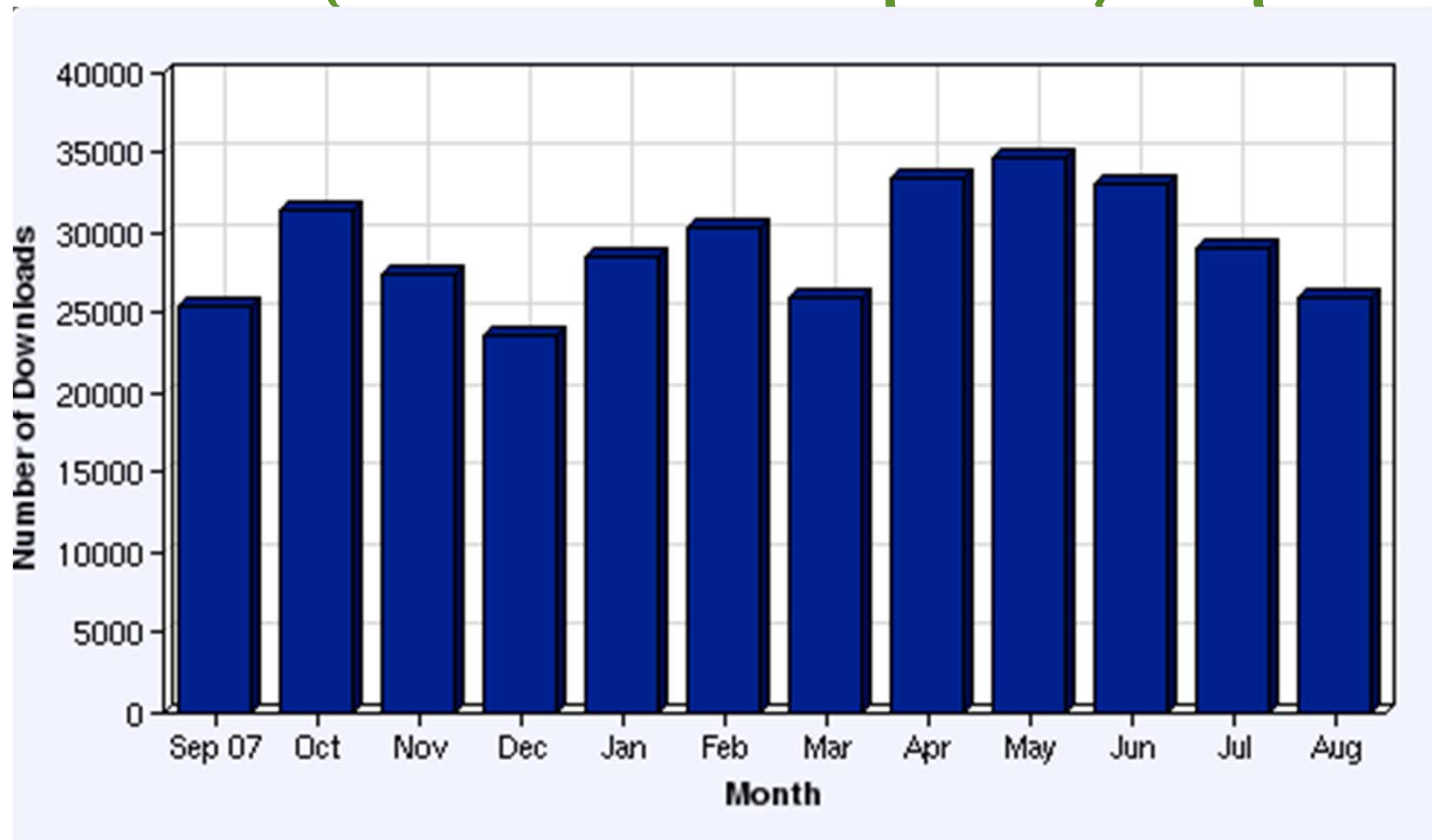
Total Open Access material

- Laakso, Bjork et al: 'Gold' OA is approximately 8% of the total research corpus
- Repositories ('Green' OA) have about 20%
- In total, in 2011, we have around 30% of the research corpus OA
- And that is by no means immediately



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School of Electronics & Computer Science (U.Southampton) repository



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Top authors (by download)

Top 50 Authors

Ordered by total downloads. Yearly total includes downloads from 2009-10-06

Rank	Author	<u>Year</u>	<u>Total</u>
1	<u>Frost, Ray</u>	<u>22398</u>	<u>204141</u>
2	<u>Skitmore, Martin</u>	<u>26879</u>	<u>204034</u>



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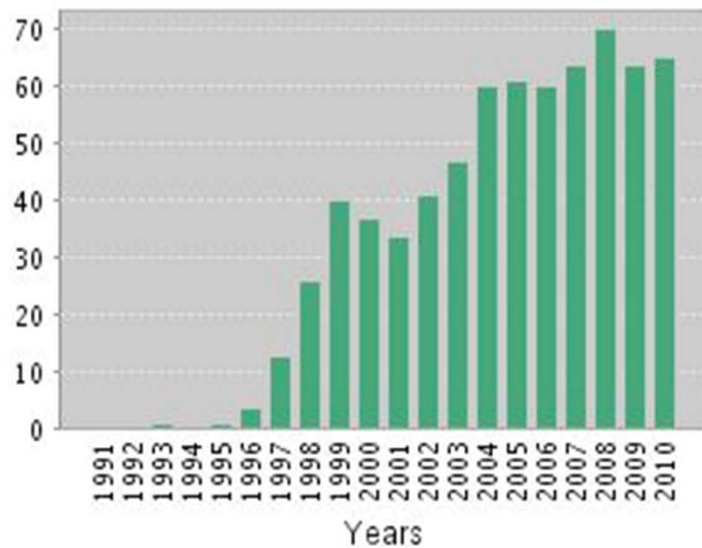
Ray Frost's impact

Citation Report Author=(frost r*) AND Address=(brisbane)

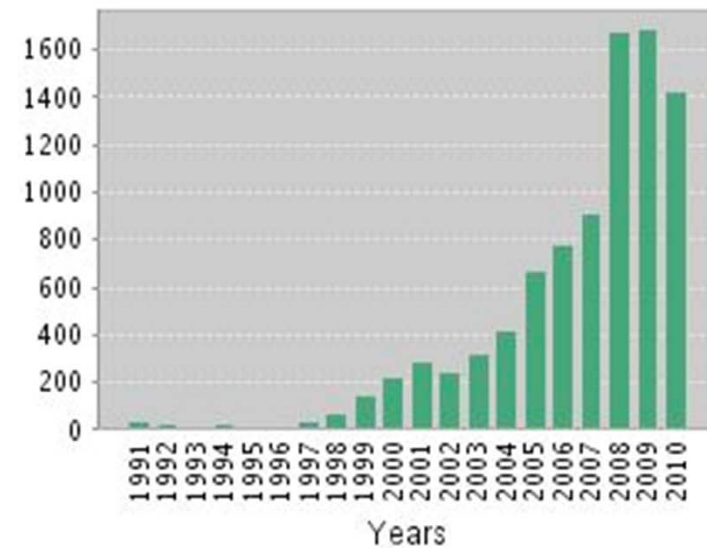
Timespan=All Years. Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S.

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The Interdisciplinary Journal of Problem-based Learning

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Associate Director, Purdue CIBER

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Journal of Pre-College Engineering Education Research (J-PEER)

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BUSINESS LANGUAGES

Department of Foreign Languages and Literatures
Purdue University

Volume 15 (2010)
Special Issues

A true World Brain

"[T]ruly free access to scientific data is not possible without a **coordinated effort** of European and global stakeholders to build and sustain an underlying seamless and trusted infrastructure."

<http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/10/716>



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Neelie Kroes

(European Union Commissioner for for the Information Society)



“Scientific information has the power to transform our lives for the better – **it is too valuable to be locked away.**”

06/10/2010



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The EU2020 vision for scholarly communication

🌐 “Our Vision is a scientific e-infrastructure that supports seamless access, use, re-use, and trust of data.

🌐 In a sense [...] **the data themselves become the infrastructure** – a valuable asset, on which science,

technology, the economy and society can advance”.

Science, technology, the economy and society...

- Academic researchers and....
- Family doctors
- Legal practices
- Civil engineers
- Biotech firms
- Horticulturalists (etc, etc)



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The Danish study

- Commissioned by the [Danish Agency for Science, Technology & Innovation](#) and the [Danish Agency for Libraries and Media](#)
- Examine usage of research and technical information by innovating Danish SMEs
- Examine ease, or difficulty, of access
- Determine broad economic implications:
 - On individual companies
 - On the Danish economy



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Some headline findings

- Access to research articles is very/extremely important (48%)
 - 79% have access difficulties
- Difficulties in searching/accessing articles cost €72m per year to researchers in Danish firms
- Product development would be delayed or abandoned without access to research articles
 - Value of academic research to sales is around €2.1m per firm per year
 - Value of delays, in lost sales of new products, is around €4.8m per firm per year



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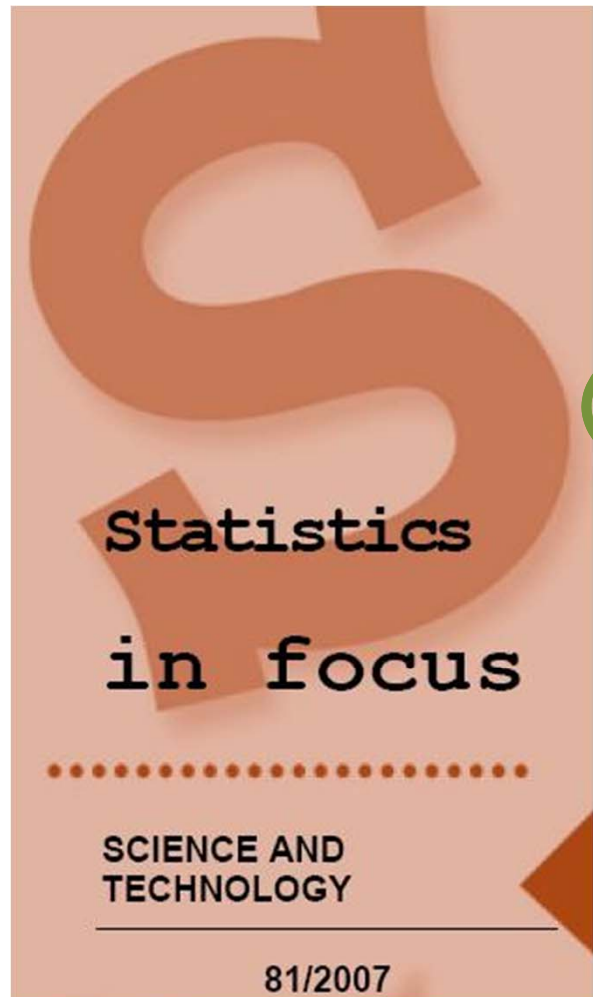
European Commission Community Innovation Surveys

- “There is a weak link between innovative companies and universities or government research institutes”
- “Companies find partners more easily amongst suppliers or customers than they do research institutions”



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EU CIS studies



Community Innovation Statistics

Weak link between innovative enterprises and public research institutes/universities

This report puts the spotlight on two different facets of innovation among those screened by the Fourth Community Innovation Survey (CIS 4): the sources of information that are highly important for innovation, and the types of partners with which innovative enterprises cooperate.

The outcome for both aspects is similar: the link between publicly financed science and innovative industry is rather weak. Institutional sources are less frequently consulted than internal or market sources; and innovative enterprises find cooperation partners more easily among suppliers or customers than in universities or public research institutes.



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Author
Sergiu-Valentin PARVAN

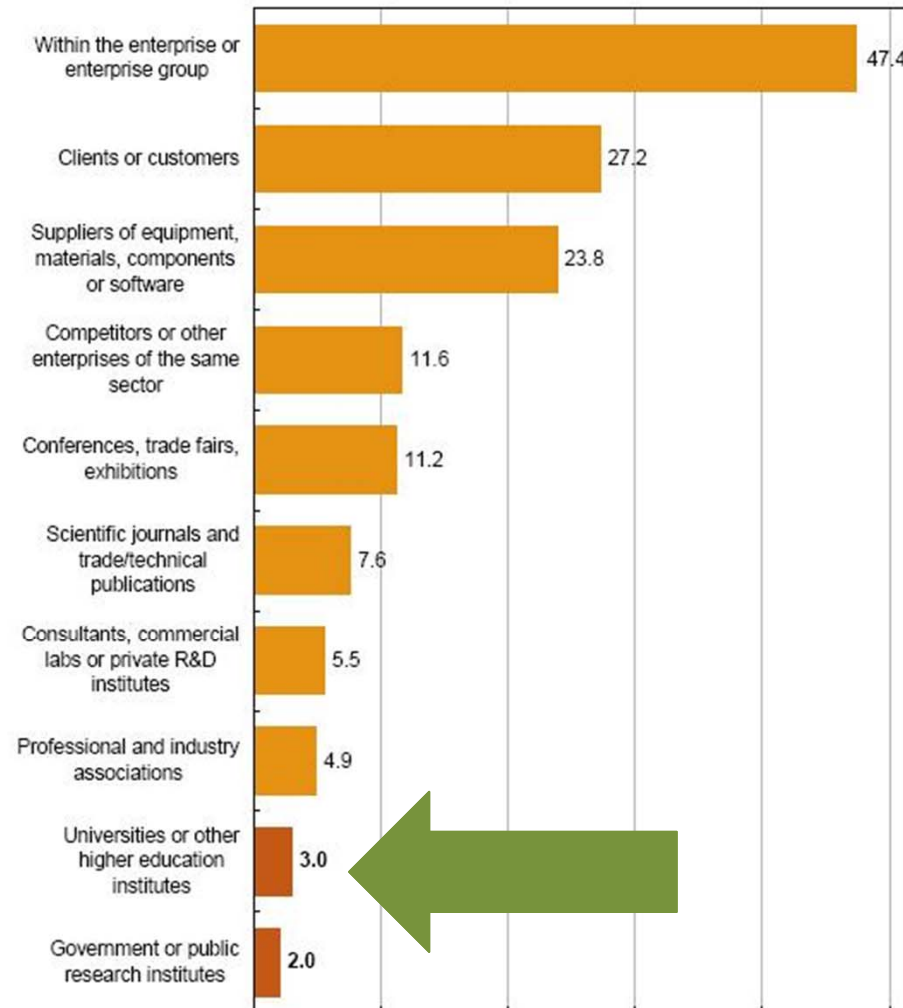
Contents

Highly important sources of information for innovation during 2002-2004..... 2

Link between science and industry..... 4



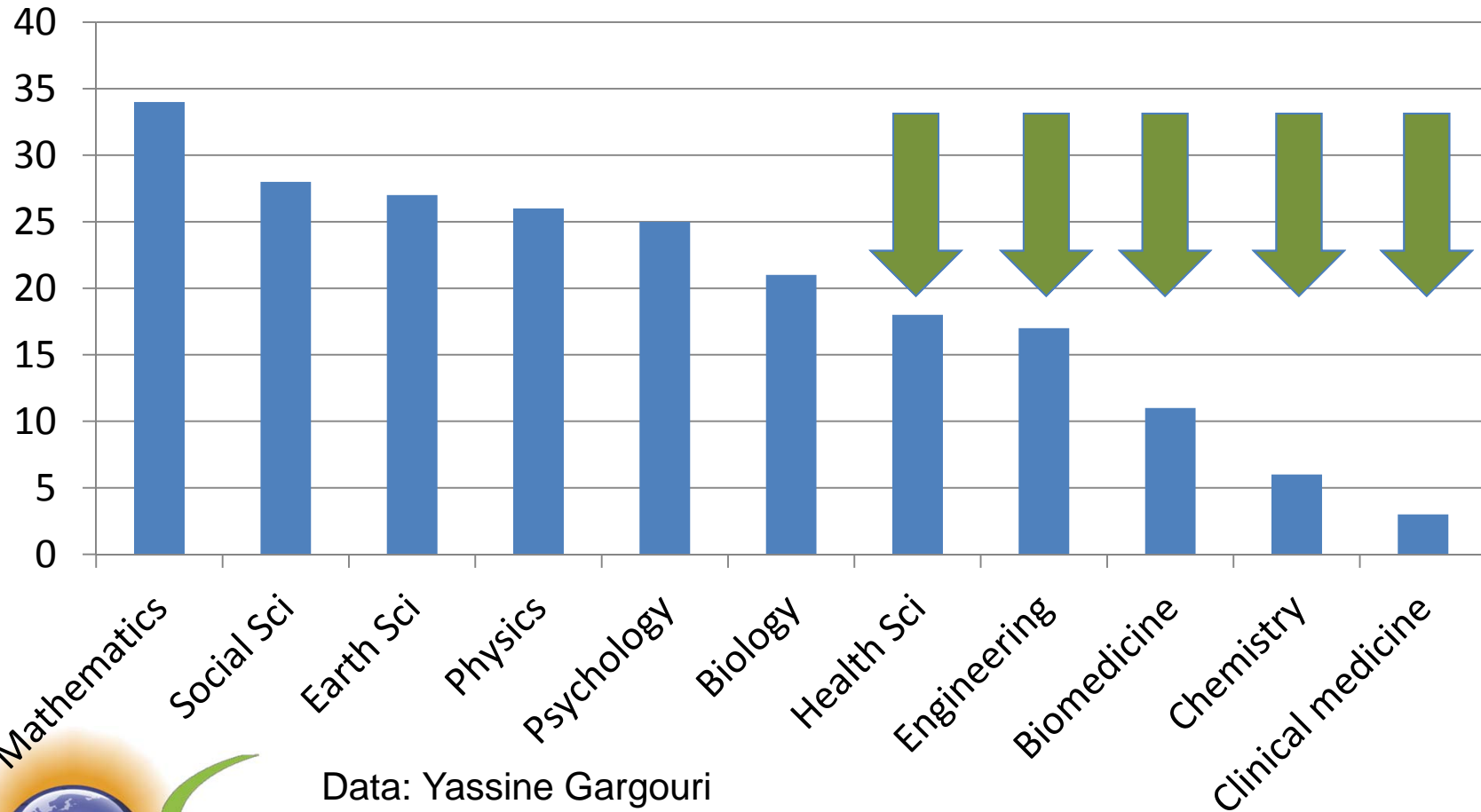
Figure 1: Sources of information identified by enterprises as highly important for the enterprise's innovation activities, as a percentage of innovative enterprises, EU-27 average



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Growth of OA in repositories

% literature that is OA



Data: Yassine Gargouri



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And what IS that OA material?

- Vast majority of text-based objects are PDF



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Mouse in cockpit

Cat installed



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What about PDF?

- 🌐 John Wilbanks
(Science Commons):

“Scraping is the right word, because having to work with PDF is really scraping the bottom of the barrel.”

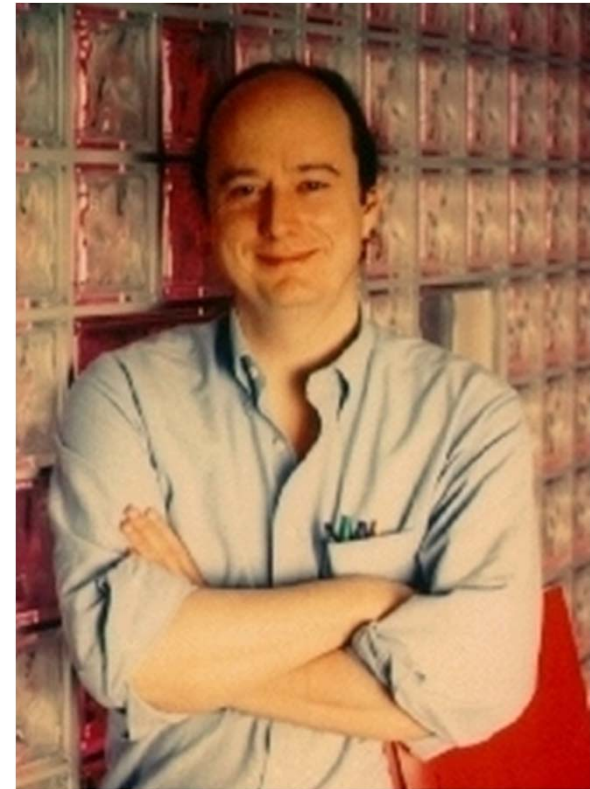


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What about PDF?

- Clifford Lynch
(CNI):

“PDF is evil”



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What about PDF?

- 🌐 Peter Murray-Rust
(Cambridge):

“Getting to XML from PDF is like starting with the burger and trying to get back to the cow.”



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And what IS that OA material?

- 🌐 Vast majority of text-based objects are PDF
- 🌐 Rarely even hyperlinked
- 🌐 Rarely linked to supporting datasets
- 🌐 Let alone to data elsewhere on the Web
- 🌐 Very difficult to mine
- 🌐 Most of it is not licensed appropriately



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Noise coming from under
instrument panel. Sounds like a
midget pounding on something
with a hammer

Took hammer away from
midget



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The World Brain

- Free to use and re-use
- Immediately
- Linked, or linkable
- Machine-friendly
- Just like H.G.Wells foresaw



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Thank you for listening

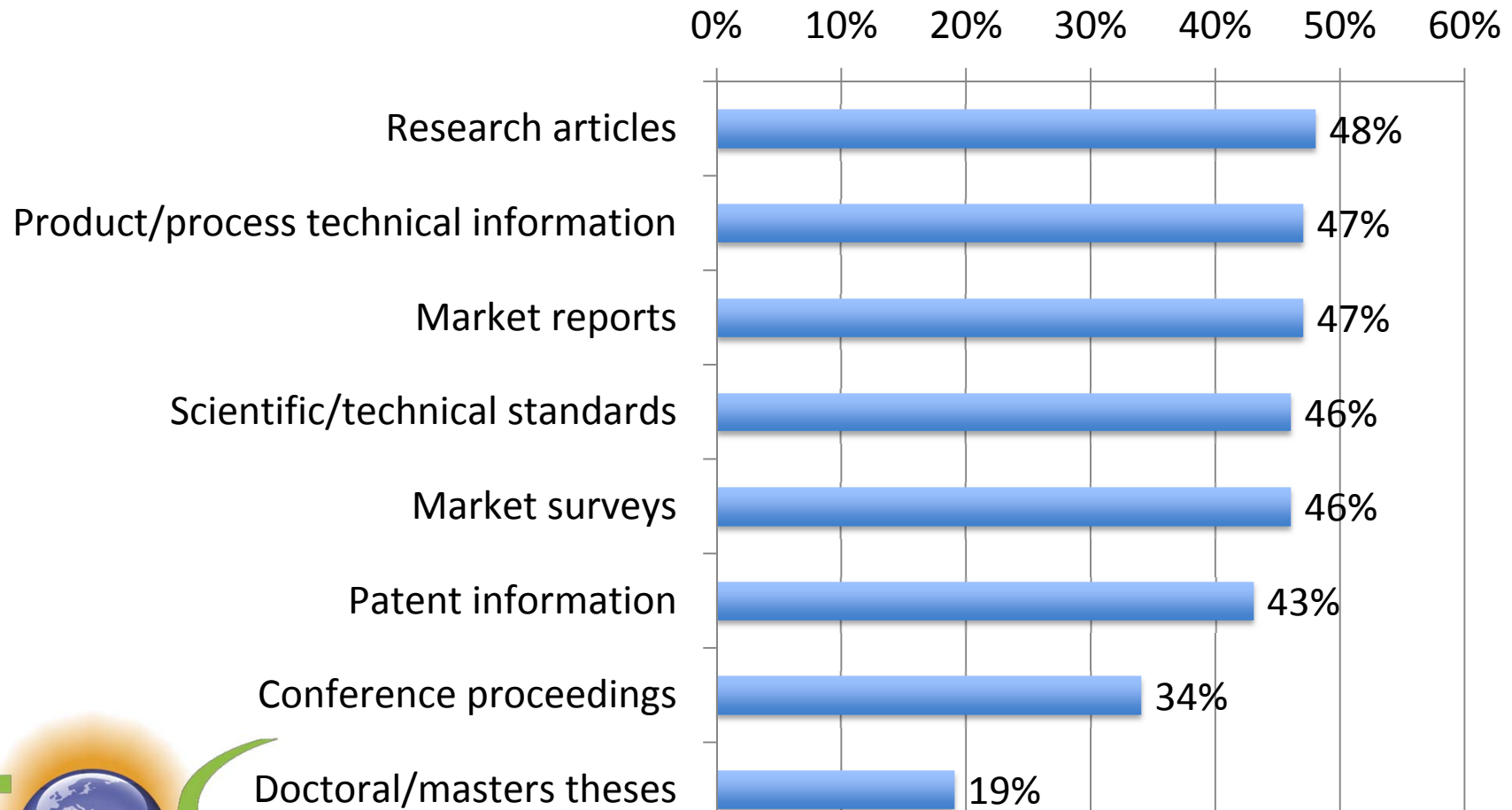
aswan@keyperspectives.co.uk

www.openscholarship.org



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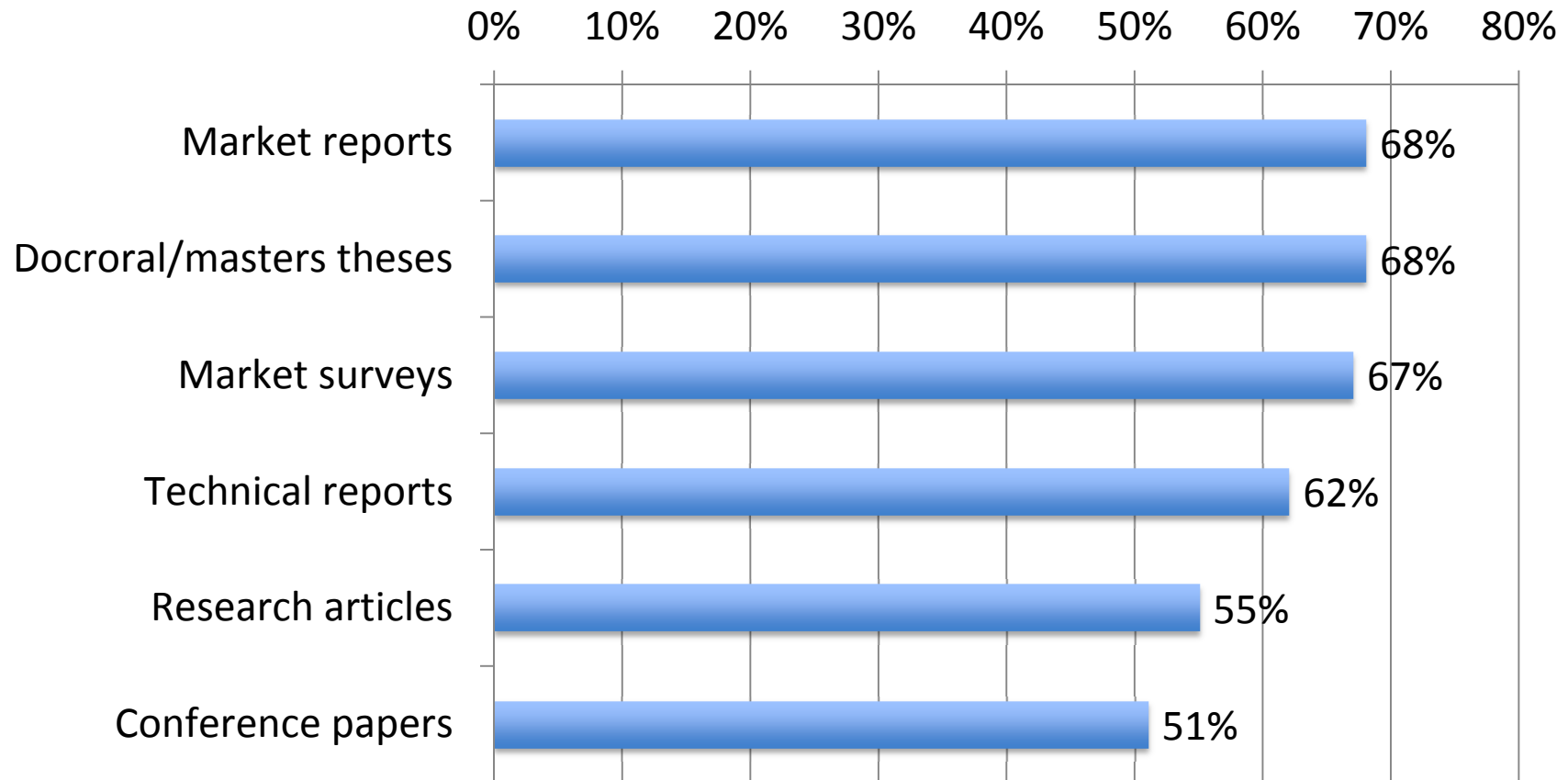
Importance of scientific and technical information*



* very or extremely important

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Access difficulties with scientific and technical information*

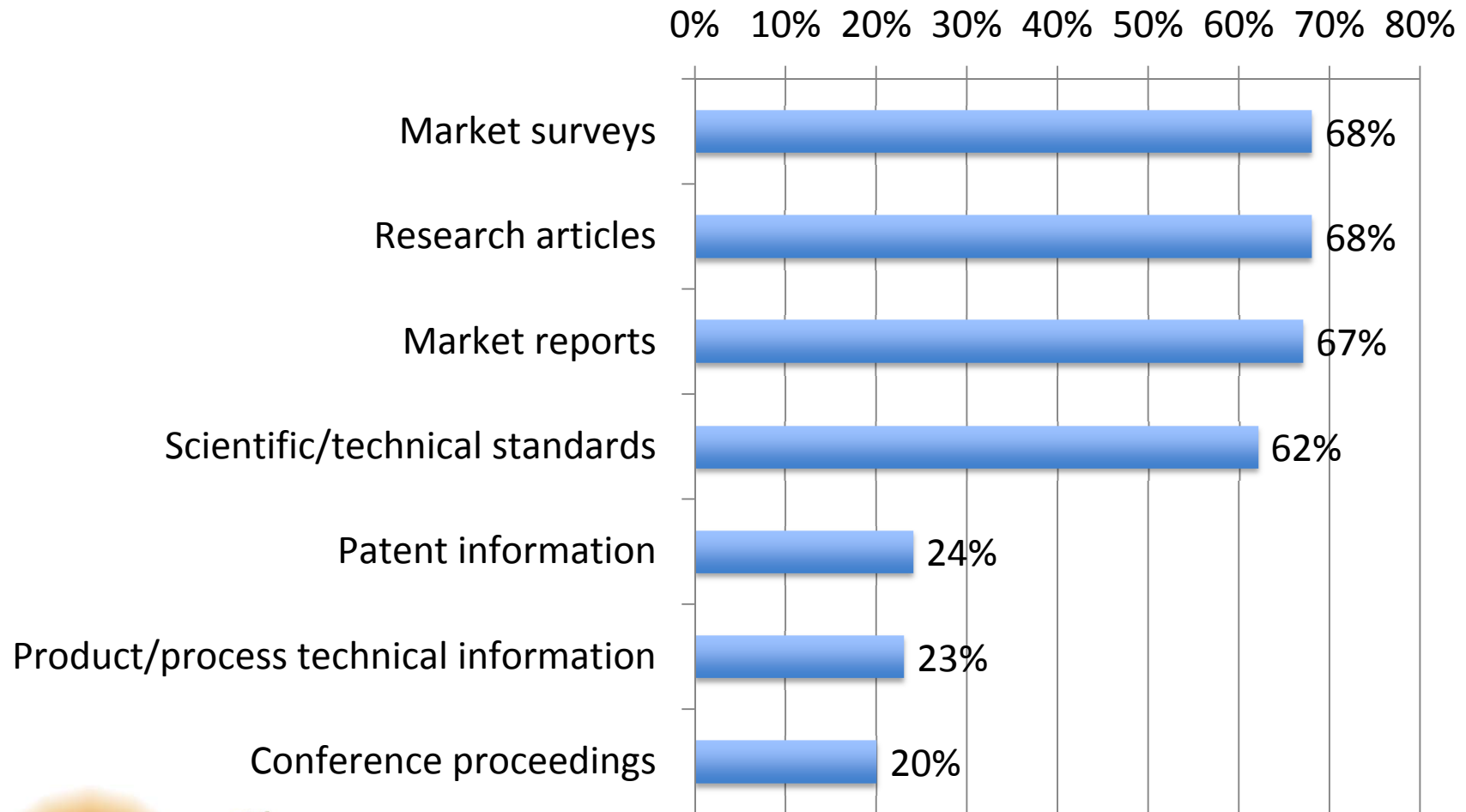


* very, fairly or sometimes difficult



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Want improved access to ...



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Evidence of leak on right main
landing gear

Evidence removed



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Left inside main tyre
almost needs replacing

Almost replaced left
inside main tyre



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- I think trust is ... a major issue – there are millions of small business owners that simply don't trust certain technologies and platforms. So we have made "trust and security" one of the seven key action areas of the Digital Agenda for Europe.



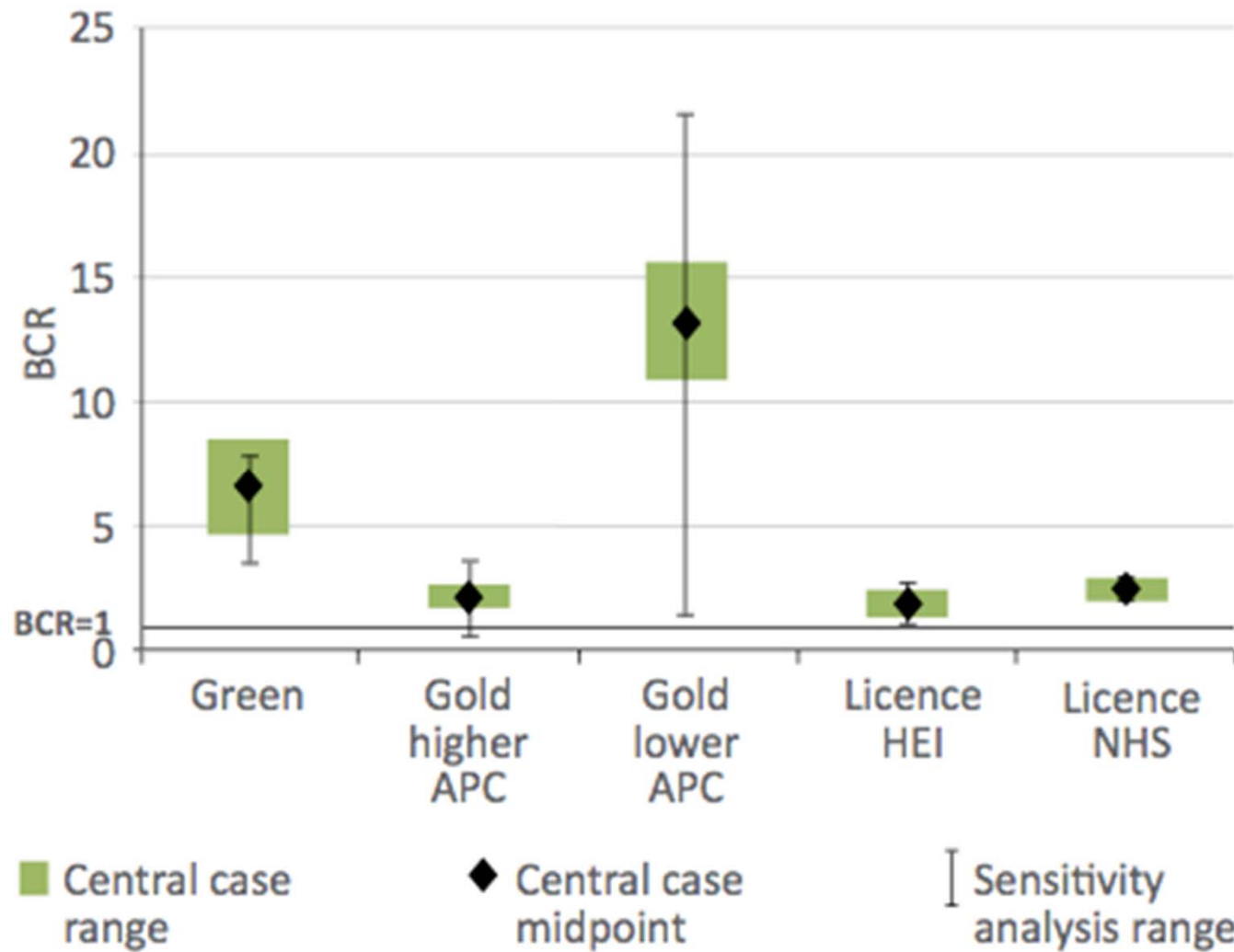
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Economic impact of Open Access: national-level (Houghton et al, 2009, 2010)

Annual € savings from moving to:	UK	Netherlands	Denmark	US federal agencies
OA journals ('Gold' OA)	480 million	133 million	70 million	Value of benefit amounts to some 4x to 25x the cost
OA repositories with subscriptions ('Green' OA)	125 million	50 million	30 million	
OA repositories with overlay services	Circa 480 million	Circa 133 million	Circa 70 million	



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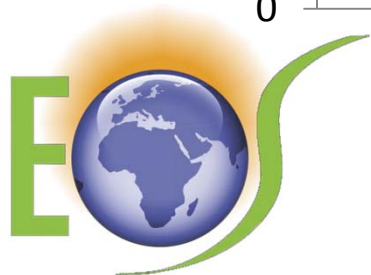
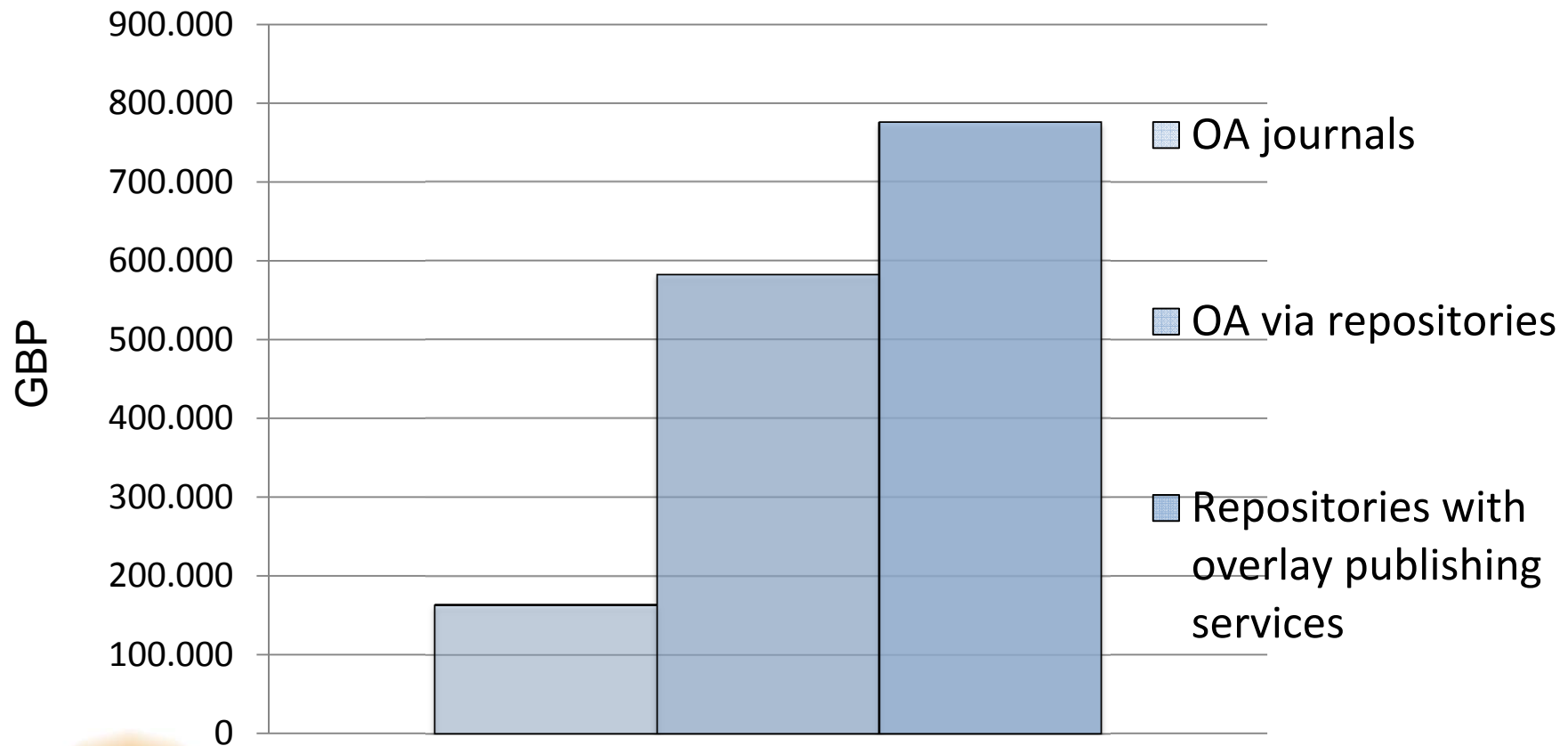


Source: RIN: *Heading for the Open Road*, 2011



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“University UK”: Annual savings from Open Access



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