



IFLA Presidential Meeting

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Why European Research and Education Policies must include Open Access

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Overview

- Context
 - Why
 - Advantages for stakeholders
 - OA Policies
 - Reflections
 - Actions
 - Conclusions
-

Let's have a look at the context

- **Mission**
 - **Economic growth drivers**
 - **Technology enablers**
 - **Researchers' needs**
 - **Economic Advantages**
 - **Societal Impact**
 - **The role of EU and the European Research Area**
 - **The cultural and policy framework**
-

Institutions' mission

- Foster education, learning and research
- Disseminate and preserve knowledge
- Advance knowledge
- Strive for quality and excellence
- Stimulate creativity
- Foster competition

What is OA?

Open Access is about dissemination of quality controlled information

publicly funded, enriched with appropriate supporting evidence (raw research data)

freely accessible, interoperable and reusable for research, study learning purposes

accessible to academic/ scientific community, amateur scientists, citizens, society, entire world

Mission (2)

- Foster innovation
- Scientific and technology development
- Internationalization and collaboration
- Diverse, open and participatory Society

- Societal impact
 - quality of life
 - democratic values
 - scientific progress
 - economic, social and cultural conditions
 - economic, social, cultural, digital divide

What OA can do

Open Access is crucial to strengthen these goals and objectives

Open Access optimizes, accelerates the fulfillment of these objectives

OA fosters research

All research builds on previous work

- ❑ OA improves access and contributes to avoid duplication of research
- ❑ OA increases discovery and reduces its costs of discovery through the implementation OAI compliant discovery tools
- ❑ OA improves integration, federation, analysis of information from many disparate, distributed sources

OA enables research to move fast and more efficiently

OA facilitates international and interdisciplinary collaboration (E-Science, E-Research)

OA and dissemination/preservation of knowledge

- Innovation in the technology landscape has brought a complete and irrevocable change in creation, storage, access, dissemination of knowledge
 - Open Access is an immense opportunity to maximize access and impact of scientific content through removing physical barriers thanks to digital environment
 - Open Access collects, exposes research output and enables long preservation
-

OA and creativity

- Innovation in technology gives enormous opportunities to stimulate learners and researchers' creativity
 - semantic web technology (text and data mining) opens to new context, new discovery, new content; user generated content, social networking, annotations, etc)
 - Re-usable publicly funded open content (data, text etc) is fundamental to foster creativity
 - Appropriate balance between the needs of users and the rights of creators, providers/distributors are necessary
-

OA and quality of research

- **OA improves quality of research**
 - **OA increases impact and visibility**
 - **freely accessible quality research is more cited**
 - **OA facilitates more transparency in peer reviewing process**
 - **OA offers better monitoring and evaluation of research**
 - **introduces new web based metrics on usage, influence, correlations among disciplines**
-

Economic growth drivers in 21st century

■ Knowledge

- circulation of knowledge: access to, dissemination and exploitation of results of publicly funded research
- research has to be converted in knowledge to realize the investment made in research (ROI)

■ Knowledge transfer

- better circulation of knowledge enables knowledge transfer
 - knowledge transfer means scientific and technological progress, democracy, better social, economic, cultural conditions
-

Economic growth drivers in 21 st century

■ Innovation

- ❑ is generated by an improved access to knowledge

■ Competition

- ❑ quality assured and excellent research output
 - ❑ visibility, Impact
 - ❑ attract funding, Faculty, Students
 - ❑ increase internalization and collaboration
-

Enablers: ICT

- ICT constant developments enable learning and scholarly communication to become more collaborative and inclusive of emerging technologies, moving away from a linear flow of information
- ICT encourages and enables data intensive research and more scientific collaboration at international and interdisciplinary level (E-Science, E-Research)
- ICT contributes to make culture and science more diverse, open and participatory
- ICT removes barriers to knowledge circulation
 - it is paradoxical to raise commercial, legal barriers
 - appropriate balance of rights

Enablers: ICT (2)

- ICT constant developments enable enhanced publications (different type of media can be embedded in a article)
 - ICT stimulates new forms of delivery of scientific output
 - ICT makes real to move beyond PDF (annotation/social reading, data inclusion, new models of writing.. reviewing etc)
 - It is paradox: ICT enables and commercial and legal barriers lock
-

Researchers' expectations

- Researchers require services to be contextualised, personalized, 'intelligent' and highly differentiated to their specific needs
 - new forms of creativity and economic benefit
 - new support to research excellence
- Users will increasingly demand searches that identify sources of quality information based on previous patterns of activity giving new context to content

UKPubMedCentral

NCBI Taxonomy Browser

Search for: as: complete name lock Go

Display: 3 levels using filter: none

Rattus norvegicus

Taxonomy ID: 10116
Genbank common name: Norway rat
Inherited blast name: rodents
Rank: species
Genetic code: Translation table 1 (Standard)
Mitochondrial genetic code: Translation table 2 (Vertebrate Mitochondrial)
Other names:
common name: brown rat
common name: rat
common name: rats
includes: laboratory rat
includes: Wistar rats
includes: Sprague-Dawley rat
includes: Buffalo rat
includes: Rattus PC12 clone IS
includes: zitter rats
misnomer: Rattus ratticus
misnomer: Gunn rats
equivalent name: Rattus sp. strain Wistar

Language of full text:
cellular organisms; Eukaryota; Fungi/Metazoa group; Metazoa; Eumetazoa; Bilateria; Sarcopterygia; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Euarchontoglires; G

Heme oxygenase-1 plays a pro-life role in experimental brain stem death via nitric oxide synthase I/protein kinase G signaling at rostral ventrolateral medulla.
(PMCID:PMC2941487)

Abstract Citations BioEntities Related Articles

Dai KY, Chan SH, Chang JY
Center for Translational Research in Biomedical Sciences, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung County 83301, Taiwan.
Journal of Biomedical Science [2010, 17:72]
Type: Journal Article, Research Support, Non-U.S. Gov't
DOI: 10.1186/1423-0127-17-72

Abstract

BACKGROUND: Despite its clinical importance, a dearth of information exists on the cellular and molecular mechanisms that underpin brain stem death. A suitable model substrate for mechanistic delineation on brain stem death resides in the rostral ventrolateral medulla (RVLM) because it is the origin of a life-and-death signal that sequentially increases (pro-life) and decreases (pro-death) to reflect the advancing central cardiovascular regulatory dysfunction during the progression towards brain stem death in critically ill patients. The present study evaluated the hypothesis that heme oxygenase-1 (HO-1) may play a pro-life role as an interposing signal between hypoxia-inducible factor-1 (HIF-1) and nitric oxide synthase I (NOS I)/protein kinase G (PKG) cascade in RVLM, which sustains central cardiovascular regulatory functions during brain stem death.

METHODS: We performed cardiovascular, pharmacological, biochemical and confocal microscopy experiments in conjunction with an experimental model of brain stem death that employed microinjection of the organophosphate insecticide mevinphos (Mev; 10 nmol) bilaterally into RVLM of adult male Sprague-Dawley rats.

RESULTS: Western blot analysis coupled with laser scanning confocal microscopy revealed that augmented HO-1 expression that was confined to the cytoplasm of RVLM neurons occurred preferential during the pro-life phase of experimental brain stem death and was antagonized by immunoneutralization of HIF-1 or HIF-1 in RVLM. On the other hand, the cytoplasmic presence of HO-2 in RVLM neurons manifested insignificant changes during both phases. Furthermore, immunoneutralization of HO-1 or knockdown of HO-1 gene in RVLM blunted the augmented life-and-death signals exhibited during the pro-life phase. Those pretreatments also blocked the upregulated pro-life NOS I/PKG signaling without affecting the pro-death NOS II/peroxynitrite cascade in RVLM.

CONCLUSION: We conclude that transcriptional upregulation of HO-1 on activation by HIF-1 in RVLM plays a preferential pro-life role by sustaining central cardiovascular regulatory functions during brain stem death via upregulation of NOS I/PKG signaling pathway. Our results further showed that the pro-death NOS II/peroxynitrite cascade in RVLM is not included in this repertoire of cellular events.

Abstract Citations BioEntities Related Articles

Show BioEntities summary

Genes & Proteins

Identified 25 unique Genes/Proteins in the Full Text

- HO-1 (58)
- HIF-1 (49)
- NOS (44)
- HO-2 (22)
- Heme oxygenase-1 (9)
- nitric oxide synthase (8)
- actin (7)

Gene Ontology (GO) Terms

Identified 15 unique GO Terms in the Full Text

- death (62)
- PKG (24)
- nucleus (4)
- transcription (3)
- sulfoxidation (3)
- Response to Hypoxia (2)
- cytoplasm (2)

Species

Identified 2 unique Species in the Full Text

- Sprague-Dawley rats (22)
- Animals (11)
- mouse (9) (transgenic mice)
- rabbits (7)
- murine (2)
- goat (2)
- horse/adsh (2)

Diseases

Identified 4 unique Diseases in the Full Text

- middle cerebral artery occlusion (4)
- coma/ose (2)
- diabetic gastroparesis (1)
- Thrombocytopenia (1)
- respiratory failure (1)

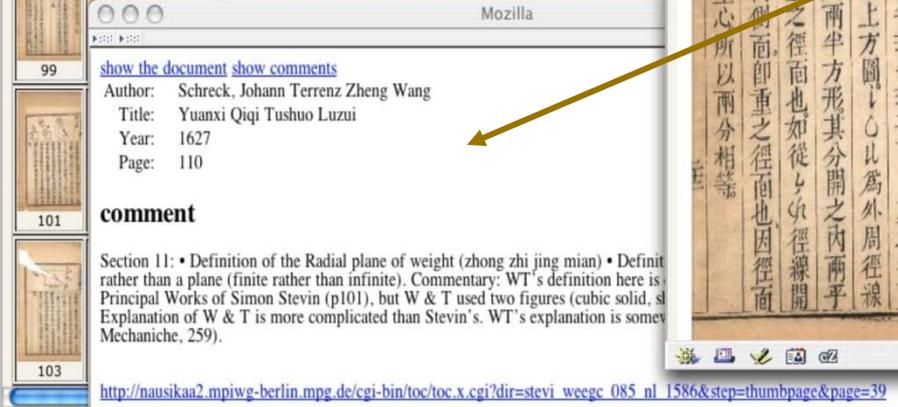
Identified 29 unique Chemicals in the Full Text

Text mining: highlighted terms link directly to databases related information

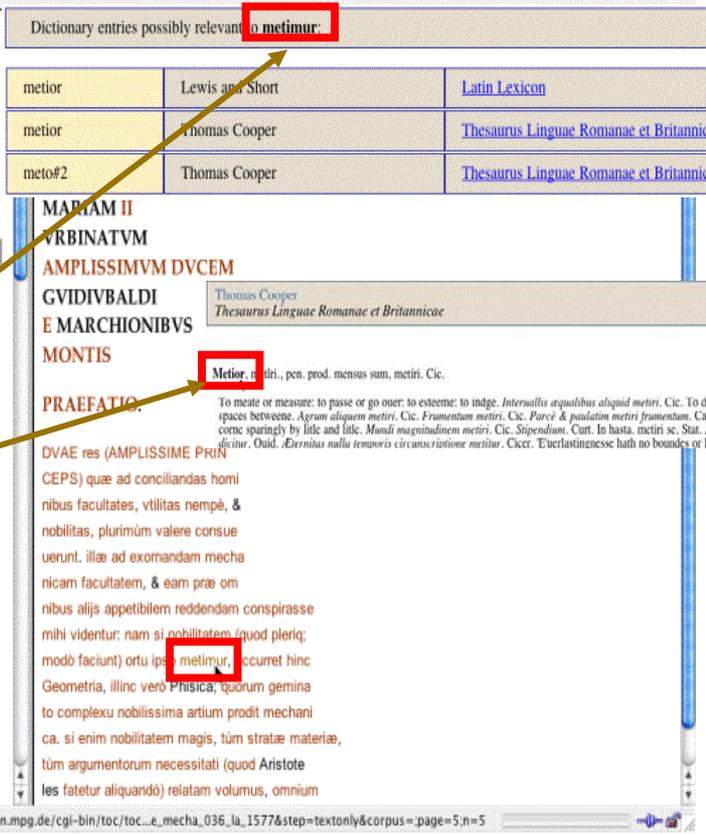


Da ECHO:
researcher's workbench

Annotation



Link to online dictionary



OA : direct economic advantages

Houghton, J. Economic Implications of Alternative Scholarly Publishing Models: Exploring the costs and benefits, JISC 2009

Houghton calculates savings in UK (£ millions)

- 500/287 Gold OA (global/unilateral UK)
- 258/159 Green OA (global/unilateral UK)
- 520/308 Green OA + overlay services (global/unilateral UK)
- Houghton calculates savings in 2 European countries:
 - Denmark 70 million €
 - [Costs and Benefits of Alternative Publishing Models: Denmark](#), 2009
 - Netherlands 133 million €
 - [Costs and Benefits of Research Communication: The Dutch Situation](#), 2009
- Better ratio costs/benefits: **Green Open Access**



Economic Advantages

Application of Houghton Model to 4 UK universities

Savings on subscriptions

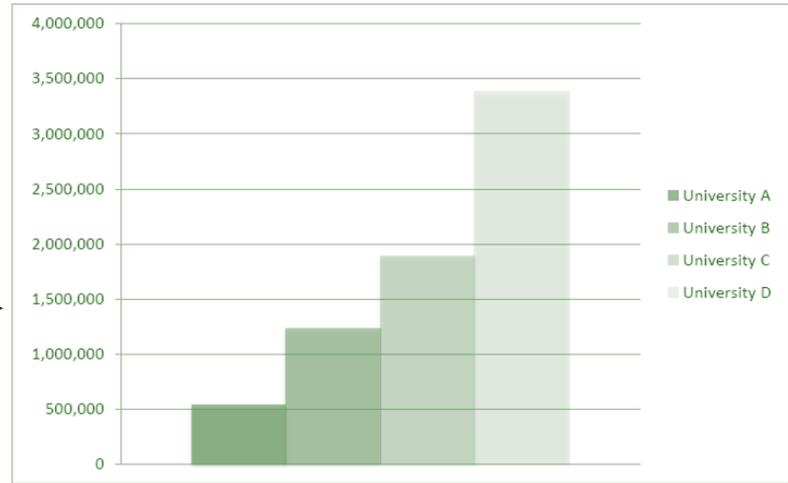


Figure 3: Subscription savings from Open Access per annum (GBP)

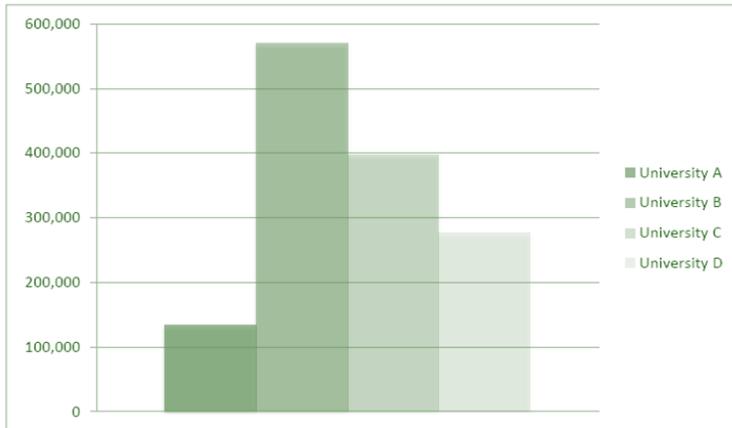


Figure 4: Library handling savings from Open Access per annum (GBP)

Savings on library services

Total savings for a university research system

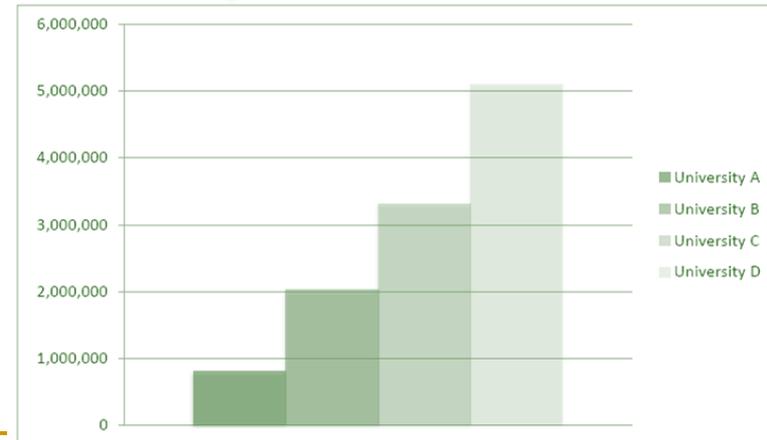


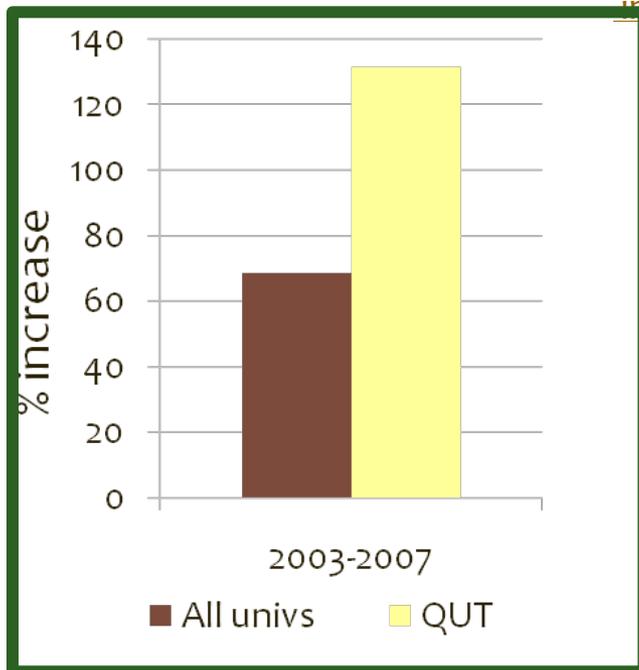
Figure 7: Research system savings from Open Access per annum (GBP)



Economic Advantages

«Because **discovery is a cumulative process**, with new knowledge building on earlier findings, the **dissemination** of research findings is **crucial to ensuring that the returns on the investment are realized**»

J.Houghton, [Economic and Social Return on Investment in Open Archiving Federally Funded Research Outputs](#), Report, 2010



Queensland University of Technology:
+ 132% total research income
A.Swan Open Access Advantage, 18 October 2010

EU and European Research

European Community Treaty ('Lisbon Treaty')

❑ Article 179

The Union shall the objective of strengthening its scientific and technological bases by achieving a European Research Area in which **researchers, scientific knowledge and technology circulate freely** [...]

❑ Article 180 c

“[...]The Union shall carry out the following activities: [...] **dissemination and optimisation of the results of activities** in Union Research, technological developments and demonstration

❑ Article 183

“ For the implementation of the multiannual framework programme the Union shall: - **lay down rules governing the dissemination of research results**

source : Celina Ramjoué. Open Access: Supporting European Research and Innovation, OpenAire Presentation and Launch Event, Gent 2 December 2010

European Research Area

- A Europe-wide space or single market for research and innovation
 - **Free movement of knowledge** ('Fifth Freedom')
 - Knowledge circulation: access to, dissemination of and exploitation of publicly- funded research
 - ERA to set clear principles or rules regarding
 - The management of intellectual property resulting from publicly funded research
 - Access to, and dissemination of publications and research data resulting from publicly funded research

EU and Open Access

- EU has financially supported many European projects related to Open Access (economic studies on scientific publications, on impact of large- scale OA depositing, on OA publishing, on improving scientific communication and OA, infrastructure developments etc.)
 - European Research Council (ERC)
 - established by the European Commission, funded by EC' Seventh Research Framework Programme (FP7)
 - ERC Guidelines (December 2007)
 - require researchers to deposit all peer reviewed reviewed publications funded by ERCresearch projects in appropriate institutional or discipline based archive within 6 months after publication (December
 - Open Access Pilot Project (FP7 Programme) since August 2008)
 - Eu funded project OpenAire
-



- Open Access Infrastructure for Research in Europe
- Funded in FP7 Programme – Research Infrastructures
- Duration: 2009- 2012
- 38 partners (coordination, scientific communities, technical partners, libraries/libraryIT) of which 27 national organizations covering the entire European Union

its goal is to implement the FP7 Open Access Pilot Project:

beneficiaries of FP7 grants in 7 areas are expected to deposit their published articles (accepted manuscript or publisher's version when permitted) as results of FP7 funded research in a online open repository within 6 months (in sciences) 12 months (humanities and social sciences) from publication. (Clause 39 Grant Agreement- Annex)



OpenAIRE

www.openaire.eu

- Provides a portal for deposit, search of OA publications
 - Supported by National Open Access Desks (27 countries)
 - Provides OA “toolkits” for
 - Researchers
 - Institutions

 - Liaison with
 - Other European OA initiatives
 - Publishers
 - CRIS systems
-

Cultural and policy framework :

EUA Recommendations

■ **EUA - European University Association**

- **Recommendations of EUA Working Group on Open Access were adopted by EUA Council on 26 March 2008 in Barcelona**
- University leadership is encouraged to:
 - develop institutional policy and strategies to foster the availability of quality- controlled research results for the broadest possible range of users, maximising their visibility, accessibility and scientific impact;.
 - create and institutional repository or participate in a shared one that is established and managed according to best practices [...] complying with the OAIPMH protocol and allowing interoperability and networking for wider usage;

Cultural and policy framework :

EUA Recommendations (2)

- require that their researchers deposit their publications in the institutional repositories upon acceptance of publication, with embargo permissible only for the date of open access provision but not for the date of deposit in the repository;
 - include copyright in the institution's management of intellectual property rights (IPR), to inform researchers about IPR and copyright management in order to ensure the wide sharing and re-use of digital research content and to build up a clear institutional policy;
 - explore how resources could be found and made available to researchers for authors fees to support the emerging author-pays model
-

Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities

Goals

“ Our mission of disseminating knowledge is only half complete if the information is not made widely and readily available to society. New possibilities of knowledge dissemination not only through the classical form but also and increasingly through the open access paradigm via the Internet have to be supported. We define open access as a comprehensive source of human knowledge and cultural heritage that has been approved by the scientific community. “ (2003)

<http://oa.mpg.de/lang/en-uk/berlin-prozess/berliner-erklarung/>

over 290 signatories (universities, research centers, academies, ministries) signed the declaration) as of Jan. 2011

Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities

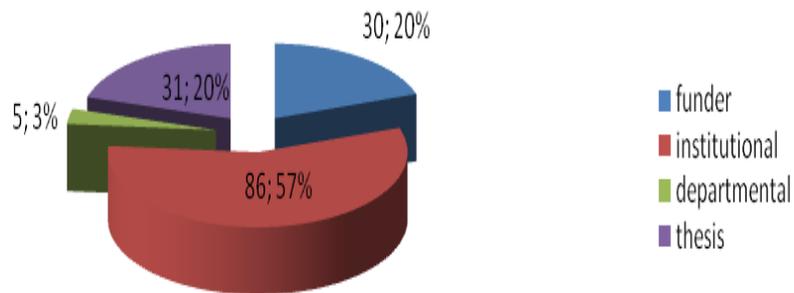
Two conditions are required to qualify as open access:

1. The author(s) and copyright holder(s) grant to all users a free, irrevocable, worldwide, perpetual (for the lifetime of the applicable copyright) right of access to, and a licence to copy, use, distribute, perform and display the work publicly and to make and distribute derivative works in any digital medium for any reasonable purpose, subject to proper attribution of authorship, as well as the right to make small number of printed copies for personal use
.
 2. A complete version of the work and all supplemental materials including a copy of the permission stated above, in a suitable standard electronic format is deposited immediately upon initial publication in at least one -line repository that is supported by an academic institution, scholarly society, government agency, or other well-established organisation that seeks to enable open access, unrestricted distribution, interoperability, and long -term archiving.
-

How to put OA into practice: implement a policy

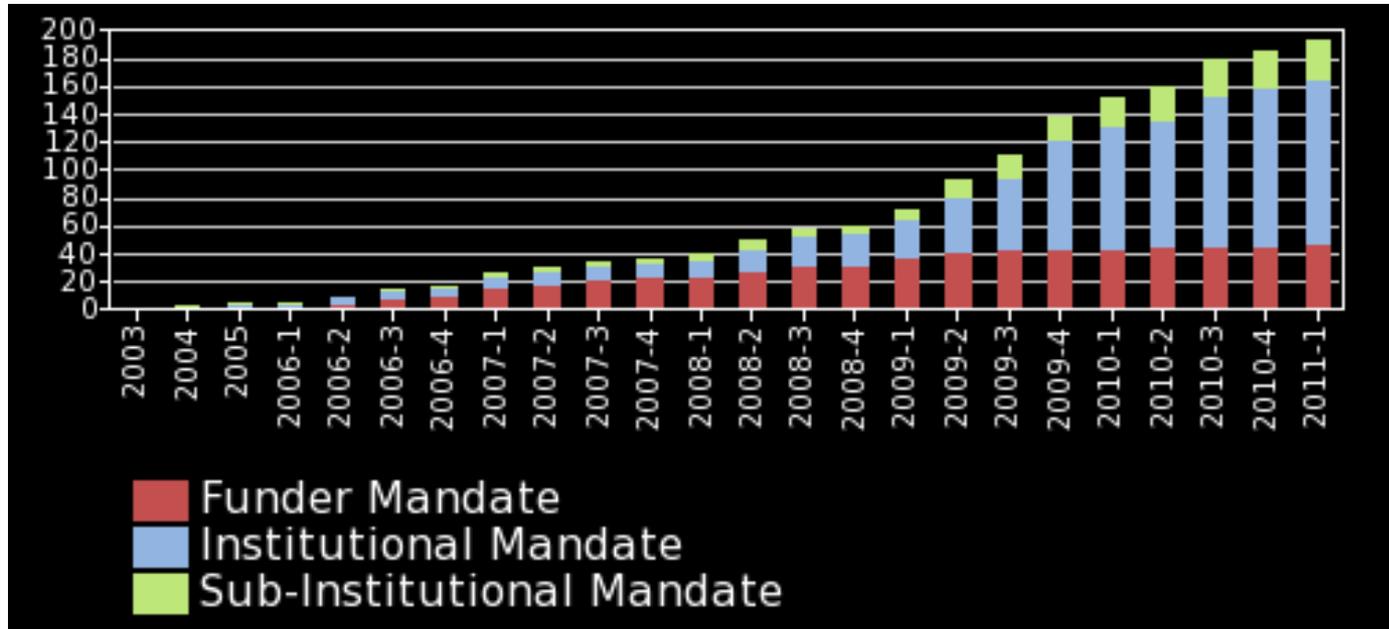
- Writing and approving an institutional policy stating clearly the principles, reasons and objectives, the deposition rules, copyright management
 - Policy can be mandatory or voluntary
 - Mandatory : researchers are required to deposit their scientific output in the institutional or discipline based repository
 - Voluntary : researchers are recommended to deposit their scientific output in the institutional or discipline based repository
 - 3 types of deposit
 - Immediate deposit and immediate open access
 - Immediate deposit and optional access (e.g full text available after an embargo period)
 - Later deposit after an embargo period
-

OA Mandates in Europe



- 60% OA mandates are based in Europe
 - 30 Research Funders
 - 86 Institutions

From ROARMAP <http://roarmap.eprints.org/>



http://www.openscholarship.org/jcms/c_6226/open-access-policies-for-universities-and-research-institutions, based on ROARmap Data

How to have success

- Most of OA mandates are still in early stage of implementation and cannot be evaluated
- Furthermore compliance rate is not always easy to measure unless the complete actual volume of work produced is known
- Evidence shows
 - a mandatory policy produces higher levels of deposition/self archiving
 - more than 60% of research output in 2 years
 - a voluntary policy with a strong advocacy
 - 35%- 40%
 - a voluntary policy no advocacy or self-selective archiving
 - 10%- 20%

Source: <http://www.openscholarship.org>

How to have success (2)

- An institutional policy is highly recommended if the institution wants to reach full dissemination and impact of its scientific output and be compliant with Berlin Declaration and EUA recommendations and in line with EU research funding policies (ERC guidelines and FP7 Open Access Pilot and OpenAire) policies and national and or discipline based funders
 - A license to publish should be also in place to help authors to deal with publishers
 - Key to success : a mandatory deposition policy together with author support practice
 - Awareness, Copyright Help Desk
-

Advantages for institutions

- Having a mandatory policy contributes to
 - fulfill the mission of the institution
 - disseminate the research outputs
 - increase visibility, impact
 - ROI

 - Implementing a mandatory policy means to have a ‘populated’ institutional repository
 - one central locus for
 - internal record
 - collecting research outputs,
 - research assessment and evaluation
 - long - term preservation

 - a show case of university scientific production
-

Advantages for researchers/authors

- An institutional mandatory policy: it requires that the author deposits his/her research output
 - could ease the relationship with publishers and empowers authors
 - avoids duplication of effort : one deposition for publication and for assessment
 - increases self- benefits if researchers comply to requirements
 - visibility and impact, citations
 - access to more funds, incentives,
 - opens to more transparency in peer reviewing, evaluation and to evaluation and assessment metrics
 - opens to more collaboration and more interdisciplinarity
-

Advantages for publishers

- A clear mandatory open access policy
 - makes it easier for publishers, they know what the institutions require
 - funded and unfunded mandate: a publisher's issue
 - opens to new ways of collaboration with institutions/authors
 - publishers have to reposition and reinvent themselves in the new scholarly communication paradigm
 - SCOAP3
-

Advantages for libraries/librarians

A clear mandatory open access policy

- ❑ new role and visibility of the library
 - ❑ support and assistance in implementing OA
 - ❑ a more active involvement with research and teaching staff
 - ❑ a more direct role in scholarly article creation/production cycle
 - ❑ a more active role in the library users' workflow
 - ❑ support and assistance on copyright and publishing issues
-

Tools: how to write a perfect policy

- EOS- Enabling Open Scholarship website
 - Information, briefing papers, data, resources, examples, recommendations, guidelines
 - ROARMAP website
 - collects OA policies from institutions, departments, funding agencies
 - MELIBEA website
 - compares policies
-



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Open Access

Open Access provides the means to maximise the visibility, and thus the uptake and use, of research outputs. Open Access is the immediate (upon or before publication), online, free availability of research outputs without any of the restrictions on use commonly imposed by publisher copyright agreements. It is definitely not vanity publishing or self-publishing, nor about the literature that scholars might normally expect to be paid for, such as books for which they hope to earn royalty payments. It concerns the outputs that scholars normally give away free to be published – journal articles, conference papers and datasets of various kinds.

The three original, formal definitions of Open Access are the **Budapest** (2002), **Bethesda** (2003) and **Berlin** (2003) definitions and they are usually referred to as a consolidated '**BBB definition**'.

Not only scholars benefit from Open Access. They are the most obvious beneficiaries, perhaps, because their work gains instant worldwide visibility, and they also gain as readers if much more world research is available on an Open Access basis for them to access freely and read. But there are many other beneficiaries, too.

Research institutions benefit from having a management information tool that enables them to assess and monitor their research programmes, and they have a marketing tool that enables them to provide a shop window for their research efforts. The same advantages apply to external research funders who need to be able to access and keep track of outputs from their funding, and measure and assess how effectively their money has been spent. They also can ensure that the results of their spending have had the widest possible dissemination.

It is because Open Access is so much in the interest of research funders and employers that an increasing number of them around the world are introducing Open Access policies that require their funded researchers to provide Open Access to their work.

The advantages of Open Access for science and scholarship are, in brief:

- Open Access brings greater visibility and impact
- Open Access moves research along faster
- Open Access enables better management and assessment of research
- Open Access provides the material on which the new semantic web tools for data-mining and text-mining can work, generating new knowledge from existing findings

[How Open Access is provided](#)

[Advantages and benefits of Open Access](#)

[Author concerns about Open Access](#)

[How institutions can encourage Open Access](#)

[Open Access policies for universities and research institutions](#)

[Formulating an institutional Open Access policy](#)

Briefing Papers

[Briefing Paper on Open Access](#) for research managers and administrators

Further resources

A comprehensive [overview of Open Access](#) by Peter Suber

An essay that discusses the advantages of Open Access to research in more detail: [in English](#) or [en Español](#).

A presentation in Portuguese on Open Access for university directors ([Powerpoint](#)) ([PDF](#))

A presentation on the vision of an open university by Martin Hall, Vice Chancellor, University of Salford, UK <http://jisrcres10.jiscinvolve.org/wp/multimedia/conference-videos/>

ROARMAP: Registry of Open Access Repository Material Archiving Policies

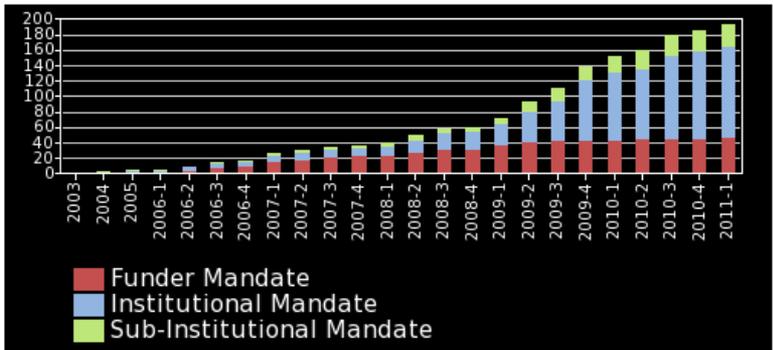
[Atom](#) |
 [RSS 1.0](#) |
 [RSS 2.0](#)

[Register your Institutional Open Access Mandate HERE](#)

(Please also register your Institutional Repository in [ROAR](#) if not yet registered)

Total Mandates to Date (by type)

- Institutional Mandates (117)** Proposed Institutional Mandates (5)
- Sub-Institutional Mandates (30)** Proposed Sub-Institutional Mandates (3)
- Multi-Institutional Mandates (1)** Proposed Multi-Institutional Mandates (5)
- Funder Mandates (47)** Proposed Funder Mandates (8)
- Thesis Mandates (76)**



COUNTRY	INSTITUTION(s) or FUNDER(s)	REPOSITORY URL(s)	Policy details
Australia	Queensland University of Technology	http://eprints.qut.edu.au/	Policy details
Australia	University of Tasmania: School of Computing	http://eprints.comp.utas.edu.au/	Policy details
Australia	University of Tasmania	http://eprints.utas.edu.au/	Policy details
Australia	Australian Research Council	http://leven.comp.utas.edu.au/AuseAccess/pmwiki.php?n=General.UniPolicies	Policy details
Australia	National Health and Medical Research Council (NHMRC)	http://leven.comp.utas.edu.au/AuseAccess/pmwiki.php?n=General.UniPolicies	Policy details
Australia	Charles Sturt University	http://bilby.unilinc.edu.au:8881/R?func=search&local_base=GEN01-CSU01	Policy details
Australia	Macquarie University	http://www.researchonline.mq.edu.au	Policy details

Actions to be taken (1)

- OA institutional policies are adopted, they are still few
 - more work is needed (top-down and bottom up approach)
 - Action is required at national government level, more lobbying is needed
 - Legislation on OA is almost inexistent in Europe
-

Actions to be taken (2)

- More awareness and more action is needed to put OA into practice, to change academic inertia (policy makers, researchers, professors)
 - Survey of University of Toronto: Faculty awareness, attitudes and practices regarding scholarly communication: a preliminary report, prepared by Gale Moore Feb. 2011
- The role of SPARC Europe, COAR, LIBER, LERU, IFLA, UNESCO is vital to OA implementation
 - Cooperation and reciprocal strengthening
 - Who does what – confusion and duplication of efforts can be counterproductive
 - The success of OpenAire will play a decisive role!
- More and more evidence of impact, success stories, best practice need to be collected, shared and circulated

Conclusions

I would like to conclude with quotations from **Neelie Kroes**, Vice President for the Digital Agenda (speech OpenAire launch, 2 December 2010, University of Ghent)

- [...] **Scientific information has the power to transform our lives for better- it is too valuable to be locked away.** In addition every EU citizen has the right to access and benefit from knowledge produced using public funds
 - [...] **The right to access freely the results of science does not only benefit citizens but also the public funding bodies.** I believe public scrutiny of research results will improve how we allocate research funds. It will also increase the citizens' confidence confidence in research spending
 - [...] **Scientists, libraries and society will clearly benefit from wider access to science, so I say today that open access is undoubtedly a win-win game**
 - [...] **No publisher can ignore the fact that the internet is the most powerful information dissemination tool ever. Many have already started to reinvent themselves.** I applaud these efforts because I am convinced that they have a chance to continue playing a leading role in the new era of Open Science, serving European scientists and European libraries - and society at large
-

References

- Melibea
- <http://www.accesoabierto.net/politicas/?idioma=en>
- RoarMap
- <http://roarmap.eprints.org/>
- OpenAire
- <http://www.openaire.eu>

Contact: Paola Gargiulo paola.gargiulo@caspur.it

Thank you !
