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Working Together to Promote Open Access Policy Alignment in Europe

Work Package 4: Policymaker engagement and policy development

October 2015

PASTEUR4OA Project

POLICYMAKER ENGAGEMENT AND POLICY DEVELOPMENT: ADVOCACY MATERIALS FOR POLICYMAKERS
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1. Open Access policy templates and guidelines

1.1 Template and guidelines for Open Access policy implementation by research institutions

Open Access Policy Guidelines for Research Performing Organizations

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September 2015
Open Access Policy for [name of Research Institution]

The present guidelines aim to assist in the development of efficient Open Access policies among Research Performing Organisations. They have been prepared by the National Documentation Centre and SPARC Europe as part of the work of the PASTEUR4OA project. They provide the context, the process and a model policy that will enable the institutions to devise and implement their own Open Access policy. The proposed policy draws heavily on the UNESCO Open Access policy development guidelines, the MedOANet guidelines for Open Access, PASTEUR4OA work on the efficiency of existing Open Access policies, and the RECODE project policy recommendations for Open Access policies to research data. The proposed policy aims at aligning institutional policies with the 2012 Recommendation of the European Commission and the Horizon 2020 requirements. It follows current good practices in institutional and funder policies, as they emerged from PASTEUR4OA research on policy efficiency, suggesting and obligatory and non-waivable deposit in repositories as the most successful way leading to the growth of Open Access to scientific information.
The Current European Policy Context

The recent worldwide turn of interest towards Open Access policies follows many years of work in promoting the concept of Open Access by advocates of Open Access and by researchers themselves. It also follows advances in e-infrastructures, such as repositories and journals, brought forward by developments in information and communication technologies. Improved understanding regarding the benefits of Open Access by research funders and institutions and the widely supported idea that publicly funded research should be available to all render the development of relevant policies that will secure Open Access as the standard practice for the dissemination of research urgent.

The European Commission supports Open Access as the standard way of disseminating publicly funded research in the European Union and includes open circulation of knowledge as one of the five priorities of the European Research Area (COM(2012) 392 final), as well as one of the constituent parts of Responsible Research and Innovation (RRI), strongly emphasized in Horizon 2020. In the summer of 2012 the European Commission recommended that Member States develop national policies that will provide Open Access to publicly funded research and that research funders and research performing organizations accordingly develop their own policies, coordinated at the national and European level (C(2012) 4890 final). Furthermore, Open Access is required (mandatory) for all peer-reviewed publications resulting from Horizon 2020 funding. This decision follows the pilot action on Open Access, which was implemented in FP7 for part of the funding period. Horizon 2020 also includes a pilot action on Open Access to research data. Open Access to research data is a topic that is receiving increased attention recently and for which policies are still at a relatively early stage.

The most significant developments at the policy level are the growing number of research funders and research performing organizations implementing Open Access policies throughout the world and in Europe. Major research institutions are increasingly adopting mandatory Open Access policies, thus effectively building the foundations for Open Access to become the standard way of communicating research. The ROARMAP registry of journal Open Access policies, recently revamped by PASTEUR4OA, counts more than 700 Open Access policies, two-thirds of which in universities and research institutions and more than half of them in Europe. It also shows an exponential growth of Open Access policies in the recent years worldwide (http://roarmap.eprints.org/).

What is Open Access?

Open Access addresses the limited access to scholarly outputs, usually caused by high journal subscription rates. It is the practice of providing online access to scientific information (articles, monographs, research data and other research outputs) that is free of charge to the reader, and licensed so that they can be further used and exploited by researchers, the industry, and citizens.
Milestone definitions of Open Access include those of the Budapest Open Access Initiative (BOAI) and the Berlin Declaration (October 2003) on Open Access.

How to provide Open Access

**Self-archiving (the Green route):** Authors publish their research in their preferred venue and upon acceptance archive an electronic copy of their peer-reviewed publication and related research data in an institutional or subject repository through which it is freely available to everyone.

A repository allows the institution to manage, preserve and showcase its scientific output. The repository is a valuable tool in an institution’s research information system and evaluation process, and one that offers added value services for the scientific community.

**Open Access publishing (the Gold route):** Authors publish their scholarship in Open Access journals or monograph series. These publications are freely available to the end users on the Internet. Copyright is usually retained by their authors. Open Access publications follow the same processes as toll access publications (i.e. peer review), but provide Open Access to the content of the publications. There is no correlation between the quality of a publication and access to it.
The Benefits of an Open Access Policy

The formal adoption of Open Access through an institutional policy allows institutions to become part of the evolving research and academic ecosystem where access to research is immediate and open to the benefit of both researchers and citizens.

An institution and its researchers may expect multiple benefits from the implementation of an efficient Open Access policy:

**The Institution:**

- Collects and preserves its scientific output and disseminates it through its repository
- Provides the possibility of indexing and tracking the scientific output of the institution from international search engines on the internet, like google etc.
- Monitors the number of visits and use and collects data and indicators that can be used in institutional planning, and the search for sources of funding etc.
- Provides opportunities for the use and re-use of the institution’s output for scientific purposes (CVs, publications, excellence reports, indicators, institutional websites, personal websites etc.)
- Strengthens international communication and collaboration channels and the institution’s international profile

**The researchers:**

- Increase the visibility of their research and their citations
- Increase the usage of their research
- Increase the impact of their research
- Obtain a permanent link for each of their research outputs
The policy content at a glance

The proposed Open Access Institutional policy aligns with the European Commission Recommendation for Open Access to scientific information (C(2012) 4890 final) in requiring deposit and Open Access through repositories, institutional or subject based. It is, in other words, what is known as a “Green” Open Access policy. This alignment facilitates policy compliance among researchers from different countries who co-author articles and other publications and with the requirement of most other national and private research funders.

The policy is mandatory, it requires immediate deposit of the author’s (or publisher’s where allowed) version of the publication in the repository at the time of acceptance for publication and deposit is linked to research evaluation. The policy stipulates that depositing the publications in the repository cannot be waived. PASTEUR4OA research on policy effectiveness showed that the most effective policies are those bearing the aforementioned characteristics and for this reason we recommend that they are included in all policies.

Finally, the policy requires immediate Open Access to research articles wherever possible, but permits an embargo on Open Access itself (that is, the full-text of the deposited articles may be kept closed off) for up to 6 months in Science, Technology, Engineering and Medicine disciplines or up to 12 months for the Social Sciences and Humanities. In this case, article metadata (bibliographic details) will be made immediately available as these details cannot be subject to embargo. These bibliographic details will be indexed by web search engines, making the article discoverable even during the period of embargo on the full text of the document. In the case of monographs the policy requires access to the bibliographic metadata and encourages researchers to provide Open Access taking into consideration the restrictions set by the publisher.

What is required to implement an Open Access Policy

The following processes and tools are required for the implementation of an Open Access policy by [name of the institution].

1. **Assessment of international policies** and positioning of organization within the international context of scholarly communication and publishing practices.
2. **Participation in dialogue and collaboration** among stakeholders within the institution and outside of it for policy development. Developing an Open Access Working Group and an Open Access Implementation Group with all parties represented.
3. **E-infrastructure, i.e. repository for Open Access.** Provisions for an institutional repository or other arrangements that support policy implementation through economies of scale and collaborative initiatives.

4. **Policy Content Development** with clear description of roles and responsibilities of the stakeholders involved (e.g. the present recommended policy).

5. **Guidance and training for the researchers** (one-to-one and seminars for researchers for the repository, Open Access and copyright, templates and information materials etc.). University libraries usually undertake to run repositories and to train researchers in depositing their outputs, as well as informing on how to comply with funder and institutional policies (such as the one suggested here).

6. **Provision of incentives and rewards to researchers** (added-value services: dynamic reports, reports by School/Department/Institute etc., statistics on progress and impact, inclusion of open access publishing in career advancement criteria for young researchers etc.)

7. **Policy implementation and compliance monitoring mechanism(s).** A plan for implementing the policy, whereby progress is checked. Monitoring compliance through the services provided by the repository and comparison with the institution’s annual publications list (recorded in institutional systems, such as a CRIS, or found in commercial indexing services). Publication of related reports.

8. **Provision of resources to ensure the long term sustainability of these services and activities.** Long-term funding and organizational (human) resources should be assigned for the success of the policy in changing around institutional practices regarding open access to scientific information.
Practical Checklist for Research Institutions

- Have you mapped relevant international institutional policies for Open Access to publications and research data?
- Have you involved stakeholders both within and outside your institution in developing the policy (e.g. have you formed an open access working group)?
- Have you assessed your infrastructure and services and have you considered potential collaborations in addressing infrastructure issues (for example, participating in a collaborative repository with other institutions, receiving repository services as software services)?
- Does your policy include statements on:
  - Open Access as the default status for peer-reviewed outputs?
  - Self-archiving in the institutional or other appropriate repository as the primary way of achieving this?
  - Distribution of responsibilities among involved parties?
  - Time and locus of deposit?
  - Technical specifications?
  - Licensing?
  - Compliance and Monitoring statement?
- Do you offer or are you planning to offer guidance and support to researchers for making their publications and research data open?
- Have you made provisions to reward researchers for making their research outputs open? (e.g. Open Access as formal criterion for career progression) and, conversely, does your policy indicate that if they fail to make their outputs Open Access as the default state, there will be career progression implications?
- Have you established a monitoring and compliance mechanism?
- Have you decided how and when to evaluate the efficacy of your policy?
- Have you developed a resourcing and sustainability plan for supporting the Open Access policy within the institution (roles, responsibilities, resources)?
Model Open Access Policy

OPEN ACCESS POLICY OF [NAME OF INSTITUTION]

[Name of Institution] adopts an Open Access Policy based on the following principles

Article 1
General Principles

1. [Name of the Institution] Open Access policy aims at providing free online access to the outputs of publicly funded research supported.
2. Open Access to scientific results is based on the recognition of knowledge as a public good and the social and economic benefits derived.
3. The efficient and wide dissemination of scientific outputs constitutes a significant part of the [Name of the Institution] role as a public research organization.
4. The increase in the visibility of the scientific outputs resulting from Open Access leads to an increase of the impact of publications.
5. Deposit in the institutional repository ensures curation, long-term preservation, and further dissemination of the scientific output of [Name of the Institution] and access to them for the conduct of internal and external evaluation.

Article 2
Definitions

• A Publication is defined as the peer-reviewed published (or under publication) work of researchers based in the institution (indicatively this comprises articles, monographs, book chapters, reports, conference presentations).
• A Researcher is any member of the research staff of [name of the Institution], of all levels and irrespective of their employment status.
• An Institutional Open Access Repository is [name of the Repository] established at [name of the Institution] according to international standards, containing digital content from various disciplines and providing advanced tools for search, navigation and Open Access to its digital collections.
• A Digital copy is the electronic copy of the publication in its final stage (either the author’s final manuscript after peer review or the publisher’s version).
• Research Data is the data (such as statistics, results of experiments, measurements, observations, interview recordings, images, etc.) used to validate the results presented in scientific publications.
• An Embargo is the period during which a publication can be ‘closed’ while deposited in the repository (i.e. the publication is not openly available).
• Metadata are the descriptors used for describing, tracing, use and management of the deposited item (indicatively: title of publication, author(s), institutional affiliation, name of journal where the publication has been accepted).
• A suitable Repository is one that provides Open Access to scientific results, enables citation through permanent identifiers (DOI or other) and provides qualitative metadata (including acknowledgment of research funding) based on accepted guidelines and standards.

Article 3
Policy

From [date] [name of the Institution]:

1. Requires its researchers to deposit in the institutional repository a digital copy of the full text, as well as the related metadata of all publications (author final manuscript or publisher version) upon acceptance for publication. Researchers are held responsible for the timely deposit of their publications in the institutional repository.
2. Requires the full text of all publications referred to in 1 to be made openly available upon deposit or as soon as possible following deposit. In all cases, metadata should be openly accessible. For peer-reviewed publications, the deposited item can remain closed for up to 6 months (or for up to 12 months for publications in the social sciences and humanities). For monographs deposit referred to in 1.B remains mandatory, but access is closed until publisher embargo elapses.
3. Requires the deposit of the abstract of the publication to be made openly accessible in the case of ‘closed’ publications with the aim to increase their visibility.
4. For purposes of individual or institutional evaluation of the research output of the institution and its members, [name of the institution] will only consider as publications those whose metadata and full texts are deposited in the institutional repository according to the requirements stated above.
5. Encourages researchers to deposit the research data supporting their publications in the institutional repository or in any other suitable Open Access Data repository.
6. Encourages its members to retain ownership of copyright and to licence to publishers only those rights necessary for publication. This is possible through the use of addenda to the publishing contract. Templates are available at www.sparc.arl.org/resources/authors/addendum and http://copyrighttoolbox.surf.nl/copyrighttoolbox/index.html
7. Encourages researchers to deposit in the institutional repository publications authored prior to the date of effect of the current policy and make them openly accessible whenever possible.

Article 4
Support and Monitoring of the Open Access Policy

[Name of the institution]

1. Enables the adoption of Open Access through the organization of seminars, events, awareness-raising actions, and education and training on Open Access issues.
2. Monitors policy compliance by comparing the content of the repository with information gathered from indexing services and through data on the use (access and downloads) per publication/department/unit/institute etc.
3. Provides the necessary human resources and the required infrastructure for the support of the Open Access policy.
4. Provides links and interoperability with other databases like Google Scholar.
Open Access Policy Guidelines and Template for Funders

Authors: Victoria Tsoukala, Marina Angelaki (EKT)

Reviewers: Alma Swan (EOS), Mafalda Picarra (Jisc), Eloy Rodrigues (U Minho)

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Aims and scope

The present guidelines aim to assist in the development of efficient Open Access policies among Funders. They have been prepared by the National Documentation Centre and SPARC Europe as part of the work of the PASTEUR4OA project. They provide the context, the process and a model policy that will enable Funders to develop and implement their own Open Access policy. The proposed policy draws heavily on the UNESCO Open Access policy development guidelines, the MedOANet guidelines for Open Access, PASTEUR4OA work on the effectiveness of existing Open Access policies, and the RECODE project policy recommendations for Open Access policies to research data. It follows current good practices in institutional and funder policies, as they emerged from PASTEUR4OA research on policy effectiveness, suggesting an obligatory and non-waivable deposit in repositories as the most successful way leading to the growth of Open Access to scientific information. Finally, the proposed policy aims at helping align institutional policies with the 2012 Recommendation of the European Commission and the Horizon 2020 requirements.
Background Information

What is Open Access?

Open Access addresses the limited access to scholarly outputs, usually caused by high journal subscription rates. It is the practice of providing online access to scientific information (articles, monographs, research data and other research outputs) that is free of charge to the reader, and licensed so that they can be further used and exploited by researchers, the industry, and citizens.


How to provide Open Access

Self-archiving (the Green route): Authors publish their research in their preferred venue and upon acceptance archive an electronic copy of their peer-reviewed publication and related research data in an institutional or subject repository (online open access archive) through which it is freely available to everyone.

Open Access publishing (the Gold route): Authors publish their scholarship in Open Access journals or monograph series. These publications are freely available to the end users on the Internet. Copyright is usually retained by their authors. Open Access publications follow the same processes as toll access publications (i.e. peer review), but provide Open Access to the content of the publications. There is no correlation between the quality of a publication and access to it.

The benefits of Open Access for funders

By removing legal, commercial and technological barriers to access of scientific information the research process becomes more efficient and the research results more visible. Furthermore, Open Access prevents duplication, fosters knowledge and technological transfer and promotes innovation.

More specifically, by requiring Open Access to the research they fund, funding agencies:

- Are better able to monitor the quality and transparency of the research they fund.
- Enhance the innovation potential of research institutions and research-intensive SMEs.
- Enable new and innovative ways of performing research, such as, for example, Text and Data Mining and machine-intensive research methods.
- Enable new collaborations and the paving of new, interdisciplinary and internationally-driven research paths.
- Foster science-literate and research-literate citizens and enhance citizen science.
- Gradually may expect to save financial resources otherwise spent on expensive subscriptions.
- Overall obtain a higher return on their investment on research through Open Access both by the re-use and by the higher visibility of the results of the research they fund.
The Current European Policy Context

The recent worldwide turn of interest towards Open Access policies follows many years of work in promoting the concept of Open Access by advocates of Open Access and researchers themselves. It also follows advances in e-infrastructures brought forward by developments in information and communication technologies. Improved understanding regarding the benefits of Open Access by research funders and institutions and the widely supported idea that publicly funded research should be available to all citizens as a means of enabling social and economic development and transparency lead to an increasing interest in developing Open Access policies to secure openness as the standard practice for research dissemination in Europe and the world.

As a funder, the European Commission supports Open Access as the standard way of disseminating publicly funded research in the European Union and includes open circulation of knowledge as one of the five priorities of the European Research Area (COM(2012) 392 final), an important component of Responsible Research and Innovation (RRI), and a constituent part in the path toward Open Science. In 2012 the European Commission recommended that Member States develop national policies that will provide Open Access to publicly funded research and that research funders and research performing organizations accordingly develop their own policies, coordinated at the national and European level (C(2012) 4890 final). Additionally, Open Access is required (mandatory) for all peer-reviewed publications resulting from Horizon 2020 funding. This decision follows the pilot action on Open Access, which was implemented in FP7 for part of the funding period. Horizon 2020 also includes a pilot action on Open Access to research data. Open Access to research data is a topic that has received increased attention recently and for which policies are still at a relatively early stage.

The most significant policy development among Member States is the growing number of research funders and research performing organizations implementing Open Access. The largest growth in mandatory policies can be, understandably, observed with the research institutions, counting two-thirds of the policies contained in the ROARMAP registry of Open Access policies, recently revamped by PASTEUR4OA (http://roarmap.eprints.org/). Nonetheless, a significant growth in policies can equally be observed among European funders, also driven by the interest to support policies that align with Horizon 2020 and provide a consistent framework to researchers for easy implementation of policies across countries, and continents, if possible.

The United Kingdom has strong policies for open access to research publications and research data, with all seven research councils (RCUK) having relevant policies. The preference towards mandatory gold open access policies of the RCUK was recently largely moderated by the HEFCE requirement towards Universities for evaluation purposes to provide open access to their research publications through their repositories. Most funders in Europe, however, require open access through repositories (green open access). Countries such as Norway, Denmark, Belgium, and others, moved early on to define open access policies, which are, however, for the most part not mandatory, while more recent policies, such as that of the Portuguese Foundation for Science and Technology (FCT) or the Austrian Science Fund (FWF) are mandatory for grant recipients. Research shows that mandatory policies are the ones that secure compliance and the gradual development of a more open research culture overall.
The PASTEUR4OA Open Access Policy Template for Funders

Introduction

[Insert information regarding the [Name of funding entity’s] motivations for the policy (e.g. wider dissemination, maximizing return on investment, public access to publicly funded research, alignment with European Commission’s policies etc.) and any other relevant information.]

For this purpose, [Name of funding entity] has defined the following Open Access policy, which must be observed by all recipients of research funding as of [date].

1-[Name of funding entity] requires that a copy of the accepted version (either author final manuscript – post-print- or publisher version) of all peer reviewed articles and books/monographs produced as a result of research supported, either in entirety or in part by [Name of funding entity] research funding, be deposited in a suitable Open Access repository. The deposit of these materials should be made immediately upon acceptance for publication and their metadata made fully open, searchable and machine-readable from the time of deposit.

2-[Name of funding entity] requires that the full-text of all such publications be made openly available immediately where possible and in any case no later than 6-months after publication in Science, Technology, Engineering and Mathematics (STEM) or 12 months after publication in the Social Sciences and Humanities (SSH). If a journal’s permitted embargo period is longer than these, authors should either negotiate with the publisher to retain the rights they need to comply with this policy, or find a journal that enables them to comply without the need for negotiation.

3 – [Name of funding entity] requires that the research data supporting research publications resulting entirely or partly from its funding are made openly available at the same time as the publication. These datasets should be made available in Open Access in suitable repositories and linked to the publication itself.1

4- [Name of funding entity] requires that a plan for addressing the present open access requirements to research publications and research data produced as a result of its funding be provided during the grant application process.

1 Suitable repositories: institutional repositories, subject repositories widely accepted by the respective research communities, capable of exposing their contents according to the funder requirements] immediately upon acceptance for publication, with the metadata (title, author, affiliation, funder, name of journal, etc.) openly available from the time of deposit. While a government may want to develop a national repository, for some research areas, e.g. Medicine, it is best to allow deposit in the established subject repositories, e.g. PubMed etc., which are most useful to the research community, thus the choice of a ‘suitable’ repository.

2 Suitable data repository: offers public access to the research data, enables data citation through persistent identifiers (DOI, or others), provides quality metadata (including acknowledgment of research funding) based on accepted guidelines and standards.
5 – [Name of funding entity] will recognise article processing charges (APCs), book processing charges (BPCs) for publishing in fully Open Access journals or books and costs for data storage and curation and other Data Management Costs as eligible research costs according to the funding guidelines. APCs towards Open Access to publications in ‘hybrid’ (subscription-based) journals are not eligible research costs.

6 – [Name of funding entity] requires that all articles in Open Access journals where an APC has been paid are published with a Creative Commons CC-BY license. Where an APC has not been paid, a Creative Commons license is still recommended. It is recommended that all deposited publications and data are licensed, preferably with a Creative Commons license.

7- In all publications recipients must acknowledge [Name of funding entity] and identify the funding [project name, and/or acronym, and/or number] in the standardized prescribed manner [provide the standardized acknowledgement here, or refer to the appropriate document/webpage where this is defined, e.g. Guidelines for Grant Applicants].

8-[Name of funding entity] will take the grant holder’s compliance with this policy into account when assessing research performance and when future applications for funding are received from the grant holder. Reporting on compliance will be required during and at the end of the funding periods for projects receiving support.

9--[Name of funding entity] will systematically monitor the implementation of this policy and revise, provide public accounts of its progress, and revise, if necessary.
The Content of the Policy Template

This section discusses the significance of important policy characteristics proposed by PASTEUR4OA:

- The proposed policy is **mandatory** since research shows that this is the most effective kind of policy and is the most likely to induce compliance with the researchers. PASTEUR4OA and other research shows that if the policy is voluntary, only a small percentage of researchers is expected to comply. A mandatory policy carries an obligation for the funder to monitor its uptake and revise, where necessary, also provisioned in the policy.

- The policy requires **self-archiving of peer-reviewed publications** in repositories: therefore it does not interfere with the researchers' freedom of choosing his/her publication venue (journal, monograph publishing venue), while at the same time it gives research institutions the power to manage their own output, using infrastructures (repositories). In such a context, universities assume the responsibility to support the access to the research they produce for the benefit of the research community and society. Subject repositories may be used for those disciplines with established relevant infrastructures though this may not be available in many cases. The policy, therefore, does not require deposit in a specific repository. This requirement is modeled after the mandate of the European Commission in Horizon 2020 and is the same as that of many important public funders worldwide.

- **Self-archiving of final author or publisher version of the work** should take place immediately upon acceptance for publication and certainly no later than the publication of the work; it is during this phase that the researchers are more likely to perform this task since this is the moment when they are dealing with the publication for the final time. A 6-month or 12-month embargo period for Open Access to the full text of the publication can be accommodated if it is a publisher requirement for Science, Technology, Engineering and Mathematics (STEM) and Social Sciences and Humanities (SSH) fields, respectively. This is in alignment with most other policies including the European Commission’s Horizon 2020 requirements. Publication metadata should be openly accessible from the outset.

- The policy requires **open access to research data that support and validate publications** by archiving them in suitable repositories. This is a policy modeled on that of the most significant research funders around the world, such as the European Commission, the NIH, the NSF, all seven of the UK’s Research Councils, the Gates Foundation, etc. Exception to this policy should be made when necessary (e.g. for reasons of security) and explicitly stated in the guidelines document and in the grant agreement document.

- The policy encourages, but does not require, **publishing in Open Access journals** or monograph series. It renders article processing charges (APCs) and book processing charges (BPCs) are eligible project costs, as well as costs for data management. This entails setting aside the relevant funds and specifying, in the grant application guide the amount that can be spent per project. This is a measure to incentivize the transition to an Open Access publishing system (vs. a subscription system). The requirement for Open Access self-archiving still needs to be met.

- The policy requires that all publications in Open Access journals funded by the funder are licensed under **Creative Commons licenses, CC-BY**. This will allow true Open Access, in other words, legally re-usable publications and research data (the so-called libre-Open Access). It also recommends CC licenses for items not
published in Open Access but deposited in repositories (publications, books, data), without determining the precise licensing terms.

- **Compliance with the policy is connected to project reporting, future funding requests and performance evaluation** (where applicable). Connecting compliance with project reporting, future funding and performance evaluation is critical in achieving high rates of compliance.

- **The policy effectively requires the author to retain the rights necessary to make her/his work Open Access** under the requested terms and embargo allowance and deters researchers from the standard practice of transferring their copyright to publishers. It is possible for authors to negotiate with publishers, licensing to them only those rights necessary for the publication, and relevant resources should be provided for researchers (e.g. negotiation tools, author’s contract addenda). Authors are requested to seek another publisher if the proposed publisher does not allow them to meet the terms raised by the funder.
A Practical Guide for implementing an Open Access Policy

Important steps in implementing an Open Access policy

- **PREPARATION/CONSULTATION PHASE.**
  - Researching international policies is essential to assess position and standing of the funder in terms of policies, infrastructures, practices and degree of participation in international fora.
  - Assessment of infrastructure (repository) for deposit in Open Access. The policy will be strong if, among other things, the infrastructure that will serve it exists either among all institutions or at the national level. A national harvester can provide a ‘shop window’ for the funder’s research, as well as a means of analysing and monitoring the research it funds. Lack of infrastructures should be addressed.
  - Assessment of costs and financial planning for the preparation and implementation of the policy, including funding for infrastructure (if this is necessary), funding for APCs, BPCs, research data management, training and awareness-raising (where applicable).

- **POLICY DEVELOPMENT PHASE**
  - Development of policy content along the lines of current good practices at the international level.
  - Development of supporting infrastructure to enable researchers to self-archive.
  - Development of internal supporting and monitoring mechanism
    - Assigning roles within organisation regarding policy procedures (e.g. implementation and monitoring) and developing related mechanisms
  - Preparation of information materials and revision of internal documents
    - Revision of existing grant application forms to include the request for planning for open access to publications and research data by applicants
    - Revision of existing grant agreements to include a clause for Open Access
    - Revision of existing reporting forms with requirements to report on open access
  - Preparation of policy supporting actions to help with policy implementation
    - Guidelines for applicants with clear instructions on what to do to comply and when and eligible costs
    - Information materials for grantees on how to comply with the requirements
    - Potential supporting actions for APCs, enhancing Open Access publishing, self-archiving
    - Awareness-raising actions (workshops etc)

- **POLICY IMPLEMENTATION PHASE**
  - Policy adopted by the Ministry and/or the Funder (see section below on policy template). A clear and explicit policy from the funder should be made publicly available through the funder’s website as a means of demonstrating the commitment to the principle of Open Access.
  - Monitoring of compliance by the funder through reporting and other means (e.g. intelligent systems). Measures should be taken (e.g. withdrawal of funding) if compliance is not taking place and non-inclusion of missing deposits in evaluation lists.
  - Assessment of policy after a couple of years by the funder: revision where appropriate
Policy Implementation Checklist

- Have you researched relevant international funder policies for Open Access to publications and research data?
- Have you engaged all relevant stakeholders in the policy development process?
- Have you assessed the available/ existing infrastructure necessary for the implementation of your policy?
- Have you estimated the policy implementation-related costs?
- Does your policy include statements on:
  - Mandatory Open Access and self-archiving
  - Open Access as the default status for peer-reviewed outputs?
  - Self-archiving as the primary way of achieving this?
  - Distribution of responsibilities between involved parties
  - Time and locus of deposit
  - Technical specifications
  - Eligible costs
  - Licensing
  - Compliance and Monitoring mechanisms
- Do you have an Open Access clause in your Grant Agreements?
- Do you offer guidance to your researchers to enable them to comply with your policy (e.g. Q &As, information resources on research data management plans)?
- Have you established a monitoring and compliance mechanism?
- Have you set up a process for evaluating the efficiency of your policy?
Model Grant Agreement clause for Open Access

The Funder should include clauses for Open Access in the grant agreement. The following model grant agreement is based on the one used in Horizon2020 and encompasses the criteria that PASTEUR4OA research showed to make a policy most effective:

**Grant Agreement clause [xxx] Open Access to scientific publications**

Each beneficiary [or the undersigned grantee] must ensure Open Access (free of charge, online access for any user) to all peer-reviewed scientific publications relating to its results. In particular, the beneficiary must:

(a) deposit a machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication, at the time of that acceptance, in a repository for scientific publications; the beneficiary must deposit at the same time the research data needed to validate the results presented in the deposited scientific publications.

(b) ensure Open Access to the deposited publication — via the repository — at the latest: (i) on acceptance for publication, if the publisher does not impose an embargo (ii) on publication, if an electronic version is available for free via the publisher, or (iii) within six months of publication (twelve months for publications in the social sciences and humanities) in any other case.

(c) ensure Open Access — via the repository — to the bibliographic metadata that identify the deposited publication. The bibliographic metadata must be in a standard format and must include all of the following: Grant Number or Code: [insert number]; Project name : [insert name]; Project acronym: [insert acronym]; Call identifier: [insert call/sub-call identifier]; - publication date, and length of embargo period if applicable, and - persistent identifier.

**GA clause [xxx] Open Access to research data**

Each beneficiary [or the undersigned grantee] must ensure Open Access to all research data supporting research publications. In particular, the beneficiary must:

(a) deposit in a suitable research data repository and take measures to make it possible for third parties to access, mine, exploit, reproduce and disseminate — free of charge for any user — the supporting research data, including associated metadata, needed to validate the results presented in scientific publications as soon as possible, and no later than the associated publication.

(b) provide information — via the repository — about tools and instruments at the disposal of the beneficiaries and necessary for validating the results (and — where possible — provide the tools and instruments themselves). As an exception, the beneficiaries do not have to ensure Open Access to specific parts of their research data if the achievement of the action’s main objective, as described in the Description of Work (DoW), would be jeopardised by making those specific parts of the research data openly accessible. Additionally, they are not obliged to provide open access for reasons of breach of confidentiality in cases where commercial exploitation of results is planned, if the release of the data in Open Access can threaten public security. Finally, Open Access can be waived where personal data must be protected.

(c) If the project is to generate important research data on which the publications will be based, a Research Data Management Plan should be developed in the first six months of the project as a project deliverable.
2. Practical and technical issues

2.1 Brief on Open Access

Briefing paper: Open Access

Authors: Meg Hunt and Alma Swan, Enabling Open Scholarship
Reviewers: Mafalda Picarra, Jisc; and Victoria Tsoukala and Marina Angelaki, Greek National Documentation Centre

Open Access, disseminating research information for free on the Web, brings benefits to researchers, their institutions and funders, and to the wider public. It is not without cost, but the principal issue is that costs do not fall on the readers.

Why is Open Access necessary?

Conservative estimates put the number of peer-reviewed journals at around 30,000, and the number of articles published in those journals at around 3 million per year. University libraries subscribe to as many journals as they can afford, but even the wealthiest libraries can manage to buy access to only a fraction of the total. Indeed, Harvard University library, the richest in the world, recently announced that it needed to change the way it buys journals because the large publishers charge too much, and price increases are too high.

Yet the internet provides the means for researchers to make their research results available to anyone, anywhere, at any time. However, most publishers own the rights to the articles in their journals and strictly control what can be done with those articles. Anyone who wants to read the articles must pay to access them. Anyone who wants to re-use the articles in any way must obtain permission from the publisher and is often required to pay an additional fee.

Although many researchers can access the journals they need via their institutional library and think that their access is free, in reality it is not. The institution has often been involved in lengthy negotiations around the price of their site license and re-use of this content is limited.

“Open access...ensure[s] that knowledge is available to the public, not hidden behind pay walls. And sharing actual data sets – whether created by scientists or enthusiasts – is key part of the movement toward open knowledge.”

Dr Caren Cooper
Assistant Director of Biodiversity Research Lab,
North Carolina Museum of Natural Sciences

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3 The Harvard Library: Major periodical subscriptions cannot be sustained (memo to faculty members, 17 April 2012): http://isites.harvard.edu/icb/icb.do?keyword=k77982&tabgroupid=icb.tabgroup143448
4 http://scistarter.com/blog/2013/11/open-science-resources-sharing-publishing-citizen-science-research/
This whole model of academic publishing is out-of-date and part of the print-on-paper era. The internet offers the chance to do things much better, fitting research communication to the age of the Web.

What is Open Access?

Open access is making the research literature freely available on the internet. Formally, the Budapest Open Access Initiative (www.soros.org/openaccess/) defines Open Access as:

"By 'open access' to this literature we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself."

There are two main ways to ensure Open Access to research:
1. A researcher can place a copy of each article in an Open Access repository (known as ‘self-archiving’)
2. A researcher can publish articles in Open Access journals

What are the advantages of Open Access?

Open Access improves the speed, efficiency and efficacy of research because researchers no longer need to spend time seeking out papers that their library does not subscribe to, nor waste time going into cul-de-sacs or duplicating research of which they are unaware because they cannot access the right journals.

Open Access also increases the visibility, usage and impact of research and allows the professional, practitioner and business communities, and the interested public, to benefit from research.

Why are governments in favour of Open Access?

The details of the academic communication system may seem a rather arcane issue for governments to take an interest in. Yet the truth is that modern knowledge societies benefit from an efficient system for transferring knowledge from the basic research process to the innovation community. Innovation

5 http://www.wellcome.ac.uk/About-us/Policy/Policy-and-position-statements/WTD002766.htm
underpins wealth-creation in their economies and the diffusion of knowledge benefits the scientific and cultural life of their societies.

The PACE survey of large European firms showed that such firms rely heavily on scientific publications as a source of information about publicly-funded research and that for over half of high-technology companies public science is the most important source of technical knowledge for innovation. A study of innovative SMEs in Denmark, carried out on behalf of the Danish Government, confirmed that smaller innovative companies, too, need access to publicly-funded basic research, with 64% of those in research roles rating research articles as very or extremely important.

There is good evidence on how making scientific information easily available spurs innovation. The Human Genome Project (HUGO) results were made openly accessible in 2003. By 2010, every dollar invested from federal funds in the US in the HUGO research had generated economic activity worth 141 dollars: the total value of the economic activity is so far USD 796 billion, from an investment in the original research of USD 3.8 billion. In 2010 alone, 310,000 jobs were created in the US. Overall, 3.8 million job-years of employment have been created, with an average of $63,700 personal income per job-year. The conclusion is that Open Access for scientific results will spur innovation, generate jobs and create wealth.

What infrastructure is needed to achieve Open Access?

Open Access can be provided through open repositories or through open journals. Most research-based institutions now have a repository and there are a number of large, discipline-based repositories, too,

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such as Europe PubMed Central. These repositories all work to the same basic technical standards, forming an interoperable network of freely available research information. They are indexed by Web search engines, so a simple Web search locates relevant articles for the reader. There is a registry of repositories worldwide, OpenDOAR\textsuperscript{11}.

An umbrella organisation, COAR (Confederation of Open Access Repositories\textsuperscript{12}), provides coordination and support for repositories across the world.

Many Open Access journals are international in scope. To date (September 2015), there are some 10,500 Open Access journals listed in the Directory of Open Access Journals\textsuperscript{13}. They cover all disciplines and fields and between them have published over 2 million articles.

**Do we need policy?**

Studies around the world have shown that without a well-implemented mandatory policy, levels of Open Access remain low, yet with a well-designed policy they are boosted to approaching 90%.

Many European countries (including the UK, Portugal, Denmark, Ireland, Norway, Finland, Sweden, Hungary) have Open Access policies from their national research funders. Further afield, a national policy in the US covers all the large federal funding agencies, and there are policies in Australia, Brazil, India, Japan and more\textsuperscript{14}.

**What do Green and Gold mean?**

This is a way to define the method and avenue of publication (e.g. journals and repositories).

| Green OA | ‘Green’ Open Access is a way of self-archiving. The researcher decides to submit the results of his/her research in a selected repository that is open, which means that anyone has access to it, and that the materials in it are free to view and download. To access the contents of these archives you can use Google, Google Scholar or other Web search engines. These search engines systematically harvest the contents of the archives worldwide, forming a database of current global research. There are many variants of self-archiving which depend upon what kind of licenses are used by authors for their papers, and what rights to the articles have been retained by the publisher. Authors are usually |

\textsuperscript{11} http://www.opendoar.org
\textsuperscript{12} https://www.coar-repositories.org/
\textsuperscript{13} Directory of Open Access Journals http://www.doaj.org
\textsuperscript{14} Registry of Open Access Repository Mandates and Policies http://roarmap.eprints.org/
permitted to archive the final version of their article before it is published in their chosen journal.

**Gold OA** ‘Gold’ Open Access means that the author publishes a paper in an Open Access publication. The publication does not charge the reader but instead assigns the costs to the author (known as APCs or Article Processing Charges) or makes no charge at all, supporting covering the costs through sponsorship, subsidy or advertising. The articles are peer-reviewed in the same way as in traditional publishing, except that the published paper is freely available to the public, without the need for a journal subscription.

There is also an additional term in use, *hybrid Open Access*, which refers to a specific subset of Gold Open Access. This term is used for papers that are published in otherwise subscription-access journals and are made Open Access in those journals in return for a publication fee.

"Forty six out of 70 studies found that Open Access brings increased citations for research papers (17 studies showed no such advantage and 7 were inconclusive)."

![Graph](http://sparceurope.org/oaca/)

Results of a meta-analysis of studies on the putative Open Access citation advantage: does Open Access bring greater impact in terms of increased citations? (see footnote 12 for link to original data)

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What do Gratis and Libre Open Access mean?

These two terms are defined as follows.

| ‘Gratis’ | Gratuit Open Access means free of charge. This means that price barriers alone are removed from access to the publication. It allows no uses beyond what is considered legitimate under copyright and fair use. |
| ‘Libre’ | Libre Open Access means free of charge and free of at least some permission barriers. This means that the article is free for some kinds of further use and reuse, and presupposes some kind of open licence that allows types of uses that are not permitted by default. |

**In Summary**

Open access literature is digital, online, free of charge, and free of most copyright and licensing restrictions. It makes research easier to find, retrieve, copy, share, reuse, search, crawl, mine, and preserve.

This benefits everyone, inside and outside the academic world, such as researchers, teachers, students, librarians, doctors, patients, journalists, non-profits, businesses, policy-makers, voters, and curious minds. It enhances discovery, widens scrutiny and discussion, and maximises the return on our investment in research.

By accelerating research, it also accelerates the development of all the goods that depend on research, from new medicines and useful technologies to informed decisions, solved problems, and improved public policies.

> “Ladies and gentlemen, from publications, to data, to software, to educational resources: opening up can help in all fields of research! Helping us into a new era of open science: one that is good for citizens, good for scientists and good for society.”

*Neelie Kroes*
Vice-President of the European Commission responsible for the Digital Agenda

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Ladies and gentlemen, from publications, to data, to software, to educational resources: opening up can help in all fields of research! Helping us into a new era of open science: one that is good for citizens, good for scientists and good for society.

Neelie Kroes
Vice-President of the European Commission responsible for the Digital Agenda

Illustration: CC-BY Danny Kingsley & Sarah Brown

3.2 Brief on Open Data [forthcoming]
3.3 Brief on Article Processing Charges (APCs)

Briefing Paper: Article Processing Charges

Authors: Marieke Guy (Open Knowledge) and András Holl (Hungarian Academy of Sciences)

Reviewers: Nina Karlstrøm (CRISTin) and Victoria Tsoukala (EKT)

September 2015

Article Processing Charges (APCs) are the fees that some scholarly publishers charge authors of academic papers to publish their papers in Open Access journals.

This briefing paper provides an overview of basic issues regarding APCs, an important component of the business model of Open Access publishing. It reviews how APCs are levied, the frequency of their use and APC practices among publishers and funders. It also considers the development of Open Access publication funds led by institutions, funders and disciplines. The paper ends with a review of future questions and trends.

An Overview

Article Processing Charges (APCs) or Article Processing Fees are the most widely used commercial method for financing Open Access publishing. APCs can be charged by Open Access publishers and by subscription-based journals. However, not all Open Access journals charge APCs: the majority publish articles for ‘no fee’. APCs are more likely to be charged for publishing of science articles.
Traditional journal publishing is financed through subscriptions and subsidies from institutions. The system was created because production prices were dependent largely on the number of readers: printing and mailing costs heavily depend on circulation volume. Since the advent of computers and the Internet the production cost of journals have come to depend primarily on the number of articles/volume of published material (pages, figures etc.) and are largely independent of the number of downloads or reads. In recent years scholarly publishing is gradually moving away from subscriptions and towards Open Access. Publishers explore different models for financing publishing in Open Access. One of the ways of financing it is by charging authors (and their institutions and/or funders) at publication time through APCs. Other means of financing will be detailed later on in this paper.

Author-side fees existed in the print-era, through these were called page charges (as they were charged by the number of pages in the article). In the cost model page charges covered partly the (then) minor component of production costs proportional to the publication volume. Surcharges were often applied for oversized papers and for colour figures.

APCs are levied in 2 ways:

- **Open Access journal**: Authors charged to publish.
- **Subscription-based journal**: Authors charged to make their publication Open Access in an otherwise subscription-based collection. Known as the hybrid model.

A detailed study by Kozak and Hartley in 2013 found that of 9,000 Open Access journals investigated only 28% charged authors for publishing. This figure was found to be “highest in various disciplines in medicine (47%) and the sciences (43%) and lowest in the humanities (4%) and the arts (0%)”\(^\text{18}\). A 2014 survey\(^\text{19}\) found that 26% of journals listed in the Directory of Open Access Journals (which does not accept hybrid Open Access or embargoed journals) charge APCs and that at least 61% of publishers of these journals were commercial in nature, with the remaining percentage not-for-profit or unknown types. In May 2015 Peter Suber indicated that in the DOAJ\(^\text{20}\) data showed that 32% of listed journals charged a fee while 67.9% charged no publication fee\(^\text{21}\). Since costs exist for Open Access publishing as well, it is assumed that these are covered in ways other than APCs\(^\text{22}\).

### APC practices among publishers

APCs vary from publisher to publisher. One major area for concern is the lack of transparency in the process for deciding on an APC fee.

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\(^\text{20}\) Directory of Open Access Journals (DOAJ): [https://doaj.org](https://doaj.org)

\(^\text{21}\) Peter Suber APC research: [https://plus.google.com/+PeterSuber/posts/Cqv4oq3LuFr](https://plus.google.com/+PeterSuber/posts/Cqv4oq3LuFr)

\(^\text{22}\) Other models for financing Open Access publications are the so-called collective models, such as for example the Open Library of the Humanities model ([https://about.openlibhums.org/](https://about.openlibhums.org/)).
APCs are primarily charged for published articles, but some journals apply other methods including submission fees or offer membership or bulk payment options for institutions, reducing the costs23.

While many publishers have fixed prices, others charge different fees for different types of articles (such as full articles or shorter research notes). There may also be discounts for authors whose institution participates in the publisher’s membership programme, or for those who have negotiated a discount (these usually involve block money transfers and advance payments). Some Open Access publishers have schemes for waiving APCs for authors from developing or low-income countries (e.g. BioMed Central waives APCs24; the Public Library Of Science offers Publication Fee Assistance25). The extent of fee waiving among the largest toll access and Open Access publishers is measured in a report written by Stuart Lawson of Jisc26.

While APC costs vary, Walt Crawford27 found that 25% of the journals (roughly) fall into each of the four ranges indicated in figure 1.

![Figure1: Range of APC Costs](image)

According to the comprehensive Study of Open Access Publishing (SOAP)28, APCs are paid by the article author only 12% of the time, hence the conscious move away from the use of the term author-side fees or author pays. The majority of payments are made by funders (59%) or by universities (24%). Researchers with a funded research project can, in principle, cover APCs from their grants and funders often support this approach. However in countries where the average grant sizes are low, there is simply no way to cover APCs from grants.

Björk and Solomon found that APCs for hybrid Open Access journals tend to be significantly higher than APCs for Open Access journals29 at a cost of $2,727 on average per article rather than $1,418. A different study looking at the relationship between APC cost and the prestige of a journal was carried out at the University of Edinburgh. They found that some journals (both hybrid and Open Access) with


24 BMC waiver country list: [http://www.biomedcentral.com/authors/oawaverfund/](http://www.biomedcentral.com/authors/oawaverfund/)

25 PLOS Publication Fee Assistance: [https://www.plos.org/publications/publication-fees/plos-publication-fee-assistance/](https://www.plos.org/publications/publication-fees/plos-publication-fee-assistance/)

26 Lawson, S. (2015) Fee waivers for open access journals [http://figshare.com/articles/Fee waivers_for_open_access_journals/1415955](http://figshare.com/articles/Fee waivers_for_open_access_journals/1415955)

27 Universal survey of Open Access (OA) journals: [http://walt.lishost.org/2015/03/the-open-access-landscape-1-background/](http://walt.lishost.org/2015/03/the-open-access-landscape-1-background/)


high impact factors applied significantly higher article processing charges30.

Many funders and institutions are less keen to pay Open Access fees for hybrid journals, and are concerned about paying for the same content twice (known as ‘double dipping’) by paying both a subscription to the journal and APCs for articles to be published Open Access. The Norwegian Research Council has made grant money available for APCs but only for purely Open Access journals. It should be noted that page charges (mentioned earlier) do still exist and can be levied on top of APCs or Open Access fees, though some funder policies may specify that where an Open Access cost is charged no other publication costs should be paid on top. In another strategy, the Austrian Science Fund (FWF) (Austria) funds hybrid APCs, but applies a lower price cap than applied for Open Access journals31.

Work is still taking place to investigate the best ‘value for money’ approach for funders and institutions. In the aforementioned paper, Björk and Solomon outline three combined (full Open Access and hybrid) scenarios believed to be the most beneficial for APC-funding policies:

- APCs are refunded at list prices, with mechanisms put in place on the local level for hybrid Open Access in order to ensure savings on subscriptions and avoid “double dipping”;
- APCs are funded according to value-based price caps set for each journal and based on the journal’s relative “value”;
- Funders cover a fixed percentage of the APCs’ costs up to a certain maximum and the remaining portion is covered by universities/authors through other sources.

Developing Open Access publication funds

In response to the increasing requirement for APCs by large commercial publishers, funders and institutions have been developing Open Access publication funds to assist their researchers. A publication fund is a pool of money set aside by an institution to pay APCs or reimburse money spent on Open Access publishing. The Open Access Directory provides a list of APC supporting funds or assistance schemes32 and Taylor and Francis online offer a list of institutions which will offer Open Access prepayment33.

SPARC provides information for institutions planning to implement a publishing fund34. The Open Access working group of the Alliance of Science Organisations in Germany published a recent hand-out on Open Access Publication Funds35. The guide suggests a number of key policy decisions to be made when establishing the fund including:

33 Taylor and Francis Open Access information: http://www.tandfonline.com/page/openaccess/funders
34 SPARC Funds FAQ: http://www.sparc.arl.org/initiatives/funds
35 Open Access working group of the Alliance of Science Organisations in Germany Open Access Publishing Funds: http://doi.org/10.2312/allianzoa.007
Who manages the fund? Where do the funds come from? What charges should the fund cover? What content types are eligible? Are any access restrictions acceptable? Who within your community is eligible to receive support from the fund? How are intramural collaborations handled? Are there restrictions on repeat usage?

Another approach is centralising funds. SCOAP3\(^{36}\) (Sponsoring Consortium for Open Access Publishing in Particle Physics) is a pioneering project looking at covering APCs centrally for a particular scientific field: particle physics. The APC level can be collectively negotiated resulting in agreed-upon APCs for SCOAP3 participating journals. Negotiation can take place as a country, institution or as a discipline.

In the Netherlands – the Association of Dutch Universities (VSNU) and the Koninklijke Nederlandse Akademie van Wetenschappen (KNAW) have established a countrywide agreement with Springer that covers the open access charge for affiliated corresponding authors in subscription-based journals\(^{37}\).

An analysis of the financial background to the transition from subscription-based to Open Access publishing has recently been published by the Max Planck Digital Library\(^{38}\). The report provides insights in to what institutions can do to move towards Open Access publishing as an alternative to subscriptions.

**APCs and Funders Policies in EU**

APCs are becoming a more acceptable and understandable component of the business model of Open Access publishing.

As mentioned earlier a number of European funders now allow the payment of Open Access article fees or accept that research grant funding could be used to pay for APCs. These include RCUK, Deutsche Forschungsgemeinschaft (DFG), the Dutch NWO, the Norwegian Research Council, the Swiss National Science Foundation and the Swedish Research Council. A list of these funders is provided in the information section. Another interesting approach is demonstrated by the Hungarian Scientific Research

\[^{37}\] Springer Agreement with the Association of Dutch Universities and Academy Institutes: http://www.springer.com/gp/open-access/springer-open-choice/agreements/42388

\[^{38}\] Disrupting the subscription journals’ business model for the necessary large-scale transformation to open access. Max Planck Digital Library Open Access Policy White Paper. http://dx.doi.org/10.17617/1.3
Fund (OTKA), which earmarks a part of the institutional overhead to be used for funding APCs.

One area of work funders have been involved with is providing guidance to publishers introducing offset systems and to academic institutions in evaluating proposals for such systems\(^{39}\).

In the future funder mandates and APC funding policies may well affect the pricing of publishers. As Richard Poynder points out: the indication of ample funding might encourage publishers to raise APCs\(^{40}\). It is possible some funders may try to orient the market and influence the APCs with appropriately adjusted price caps\(^{41}\).

For Horizon2020 researchers are encouraged to publish in Open Access journals or in hybrid journals that offer the possibility of making individual articles openly accessible. When applicable the APCs incurred by beneficiaries are eligible for reimbursement during the duration of the action. It is advisable to indicate anticipated costs for publishing Open Access in grant proposals\(^{42}\).

As part of OpenAIRE2020\(^{43}\) a Gold Open Access Pilot was launched supporting FP7 projects finished after 2013. The pilot will make 4 million Euro of funding available to cover the cost of publications arising from FP7 projects up to 2 years after the project has ended. In this pilot hybrid APCs are not eligible for funding.

**Future Trends and Conclusions**

Use of APCs by publishers continues to be diverse and often opaque. However, while APCs often present a burden for both researcher and the publisher, both financially and bureaucratically, they do provide a compelling opportunity as a mechanism to ensure that researchers are aware of costs in the publishing process. Further, this supply-side model entails the full disclosure at the outset of the costs per article, which lends transparency to the process of charging for the publication of literature on the side of the publishers.

It is possible that this engagement will bring hitherto often undiscussed elements of the scholarly publishing environment to a new audience, and allow opportunities for discourse and feedback.

This paper has shown that there is growing recognition that financial help could be provided for APCs from funders and institutions alike. One suggestion might be that funders coordinate their APC support policies to achieve larger impact on publishers, and that they remain aware of the possible effect of such policies on publishing costs. The PASTEUR4OA regional meetings offer a venue for developing coordinated APC funding policies.

\(^{39}\) Jisc Collections principles for offset agreements: [https://www.jisc-collections.ac.uk/Global/News files and docs/Principles-for-offset-agreements.pdf](https://www.jisc-collections.ac.uk/Global/News files and docs/Principles-for-offset-agreements.pdf)


\(^{41}\) Open Access policy for FWF projects: [https://www.fwf.ac.at/en/research-funding/open-access-policy/](https://www.fwf.ac.at/en/research-funding/open-access-policy/)


It is clear that there is a political and economic question about who pays for scholarly publication. However, scholarly communication should be viewed in the context of what society pays for when it funds research, rather than just seen as a cost for academics to shoulder. Effective future policy will need to consider what is required for scholarly communication to work effectively and think more imaginatively about the opportunities available.

The Max Planck Digital Library Open Access Policy White Paper cited earlier in this briefing document begins to look at alternate options in more detail. It argues that a true transformation of scholarly publishing will be achieved by “converting the existing library acquisition funds into a budget for publication services, which can be expected to be eventually rather more stratified than article processing charges (APCs) as we know them today.” It might be that APCs are only an interim measure on the road to Open Access.
Further Information

Papers and articles

http://dx.doi.org/10.1087/20120207

http://www.amsciepub.com/pdf/10.2466/01.17.CP.1.4

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LSE & HEFCE (2015) Economic analysis of business models for open access monographs

doi:10.1087/095315108X356680

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SPARC, “Income Models for Open Access: Article Processing Fees”,
http://www.sparc.arl.org/resources/papers-guides/oa-income-models/guide2-1

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http://sustainingknowledgecommons.org/2015/05/05/which-subjects-are-most-likely-to-charge-article-processing-charges/

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http://dash.harvard.edu/handle/1/4552050

Working Group Open Access of the Priority Initiative Digital Information of the Alliance of Science Organisations in Germany, “Open Access Publication Funds”
http://doi.org/10.2312/allianzoa.007

Efficiency and Standards for Article Charges
http://esac-initiative.org

Some funders that support the payment of APCs

Austria: Austrian Science fund (FWF)

Germany: Deutsche Forschungsgemeinschaft (DFG)

Netherlands: Dutch Organisatie voor Wetenschappelijk Onderzoek (NOW)

Norway: Norwegian Research Council

Sweden: Swedish Research Council

Switzerland: Swiss National Science Foundation

UK: Research Council UK (RCUK)

APC information can also be found through a search on ROARMAP

See Advanced search > Funding for APCs where charged by journals
Annex 1 – Article Processing Charges Timeline

A more detailed version of this timeline is available on the Open Access Working Group blog: http://access.okfn.org/2015/05/18/apcs-timeline/
2.4 Brief on research impact measurement in Higher Education

PASTEUR4OA Briefing Paper: Research Impact Measurement in Higher Education

Author: Marieke Guy (OKF)
Reviewers: Alma Swan (EOS) and Federico Morando (POLITO)

September 2015

Research impact is the demonstrable contribution that research makes to society and the economy.

One way of indicating research impact is through measuring the interest in, and use of, scholarly journal articles. The quantitative study of “the application of mathematical and statistical analysis to bibliography; the statistical analysis of books, articles, or other publications” is known as bibliometrics. Bibliometric measures are useful to many interested parties including researchers, institution, funders and the commercial sector.

This paper explores the current bibliometric measures in practice, it discusses whether they are fit for purpose and considers future directions for research impact measurement.

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Introducing Research Impact

In 2010 the world’s total nominal research and development spending was approximately one trillion dollars, with many countries spending over 2% of GDP PPP (Purchasing power parity).\(^4\) Research is funded in a variety of different ways with funding models for Higher Education continually evolving. For example, in the UK research is funded by a combination of endowments (for wealthy universities), student fees and a significant contribution from the public purse. Source of funding aside, research remains firmly in the public interest though there is a continual need to justify spending.

At universities, stakeholders are interested in how research supports academic progression and in the positive influence it has on society as a whole and the economy. The effect research has is widely known as ‘research impact’ and tends to be more highly regarded when demonstrable and supported by evidence. Demonstrable research impact is very important to universities and research institutions, as it is routinely used to place them in international league tables and often used to support decision-making by funders in future funding rounds. The European Commission supports this need to assess and measure research. The Commission’s Communication Delivering on the modernisation agenda for universities: Education, research and innovation of 2006 noted that: “Universities should be funded more for what they do than for what they are, by focusing funding on relevant outputs rather than inputs.”\(^5\)

Research impact is also of importance to individual researchers, playing a role on CVs and in funding applications.

Despite the recognised importance of research impact, however, there is still a lack of understanding of how research quality and research impact are measured. The approaches used often lack transparency leading many to ask: can we measure better?

Research Impact Measurement: An overview

Research bibliometrics continue to be a divisive issue in research communities. While most involved recognise the need for accountability and assessment of research impact, many question whether bibliometrics serve the objectives they are supposed to, with some expressing general hostility to

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\(^4\) Wikipedia: List of countries by research and development spending: https://en.wikipedia.org/wiki/List_of_countries_by_research_and_development_spending

measurement and its implications.

While bibliometrics are depicted as an objective measure that use quantitative methods, there is debate over interpretation and adoption of different approaches. It is important to recognise that no one method is the definitive approach and that most researchers and institutions will use a combination of techniques. As EU Research Commissioner Janez Potočnik wrote in the opening to the 2010 report on Assessing Europe’s University-Based Research “coexistence of different models to assess university-based research is not only inevitable, but healthy.”

Levels of measurement

One way to classify research bibliometrics is by considering at what level they measure impact.

They can measure the impact of:

- People or groups: at an individual level, department level, research group level or institutional level
- Papers: at an article level, journal level or book level

Some of the most popular bibliometric methods (listed in the following table) may be more appropriate for one particular level of measurement than another.

<table>
<thead>
<tr>
<th>Type</th>
<th>Individual</th>
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<th>Group</th>
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A full list of scholar indices and their related formulas is available on Wikipedia. Some of the most popular are:

- **Citation count** - the number of citations of a given paper or set of papers
- **H-Index** - based on the set of the scientist’s most cited papers and the number of citations that they have received in other publications. The h index is where the number of papers equals the number of citations (beginning with the paper with the highest number of citations).
- **G-Index** – a variation of the h-index which takes into account the citation evolution of the most cited papers over time.
- **Publication count** - the number of publications produced by an individual or institution
- **The Journal Impact factor (JIF)** - a measure indicating the average number of times articles from the journal published in the past 2 years have been cited that particular year. A 5-year JIF is also available.

So, for example, the JIF is not appropriate for measuring individual impact and was developed first and foremost as a tool for journal editors to assess how their own journal is performing. The JIF came under criticism in the recent HEFCE report: The Metric Tide: Report of the Independent Review of the Role of Metrics in Research Assessment and Management. The well-supported San Francisco Declaration on Research Assessment intends to halt the practice of correlating the journal impact factor to the merits of a specific scientist’s contributions. Using measurement tools in the wrong context can be confusing and even damaging to reputations, so an awareness of appropriateness is imperative.

**Research Evaluation and Impact: Limitations**

While research impact measurement is extremely useful it is clear that there are significant limitations to many of the approaches. The main limitations include:

- **Journal prestige**: Impact can be raised by association with a prestigious journal.
- **Journal policies and editor bias**: Journals are able to adopt policies that boost their impact factor. For example by publishing a higher number of review articles, which tend to be cited more than research papers; or by releasing special issues, which tend to garner higher levels of citation. Editors have been known to encourage or insist on authors citing journal articles from their own publication. Policy decisions that support impact factor are easier to make in a larger more commercially successful journal than in a small specialist publication.


• **Discipline issues:** Citation-based research metrics were developed primarily for the science disciplines. They do not necessarily translate across research disciplines, or even research fields, due to different publishing patterns and coverage of publication types. This applies most strongly in the Humanities and Social Sciences where indicators are not well established.

• **Non-publication outputs:** Impact techniques are less well developed for new types of outputs such as data sets, websites, and digitised collections.

• **Notoriety:** Publications or journals are not necessarily cited for good reasons or an endorsement of quality. They may be mentioned because of failings.

• **Naming issues:** Ambiguity of names can be an issue for individual researchers

• **Self-citation:** Researchers tend to cite themselves. The more prolific a researcher the more he or she is cited by his or herself.

• **Timeliness:** Bibliometric and citation data is backward looking, it offers little insight in current work and can ignore new and emerging disciplines, growing institutions and young researchers. It is not a good measure of potential.

**Research Evaluation and Impact: Developments**

One new approach to measuring impact is through article level metrics or altmetrics\(^\text{50}\) (a portmanteau for ‘alternative metrics’): non-traditional metrics, which move beyond citation counts and track online conversations around research. Collating altmetrics involves monitoring social media sites, newspapers, government policy documents and other sources for mentions of scholarly articles. Other approaches include looking at page views and downloads of papers. The Open Access publisher PLOS provides article level metrics for all of its journals including downloads, citations, and altmetrics. SPARC has published a primer on altmetrics\(^\text{51}\), which describes this topic further.

But any metric or metric system has pros and cons: altmetrics are a different way of measuring from bibliometrics and inevitably have their own set of advantages and limitations

**Benefits:**

• They can measure articles with high impact but relatively few citations.

• A picture of impact can be built very quickly. Citations take months or years to accumulate.

• On the whole they are transparent. The algorithms behind altmetrics tend to be open and people can follow the related data trail. This is not always the case with traditional metrics.

\(^{50}\) Altmetrics: [http://www.altmetric.com/](http://www.altmetric.com/)

\(^{51}\) SPARC primer on altmetrics: [http://www.sparc.arl.org/initiatives/article-level-metrics](http://www.sparc.arl.org/initiatives/article-level-metrics)
• They allow researchers to understand better how their research is being discussed and used by other scholars and the public.

• They can be adjusted more easily than bibliometrics and inappropriate metrics removed e.g. data can be compared by discipline or field.

• They can be used to reach and understand a non-academic audience and capture the influence that research has outside of academia.

Limitations:

• They can easily be misinterpreted and misused and at times they can lack context and meaning. (However this can also apply to traditional bibliometrics.)

• They are not always reproducible and can be transient because altmetrics refer to a heterogeneous family of diverse metrics.

• The tools used to produce altmetrics can disappear if not supported. While there is a diverse range of (often open source) tools developed for altmetrics many rely on open business models rather than commercial backing.

Other complementary qualitative methods include impact stories, information on cultural applications and measures of esteem, peer review information, funding received, grants received etc.

Among some research communities thinking on metrics has also begun to move from a supply-side model, in which metrics are created from the data available, to a demand-side model, in which the purpose of the measurement is anticipated and metrics are created that most closely match need\textsuperscript{52}. One example of this is snowball metrics\textsuperscript{53}, a bottom-up initiative owned by international research-intensive universities to ensure that metrics are of practical use to them, and are not imposed by organisations with specific agendas. They are working towards metric methodologies which can enable institutional benchmarking on a global scale. These take the form of a series of free "recipes" available for anyone to use.

Another area of interest is that has warranted significant investigation is the effect of making an article and/or its underlying data available via Open Access. One article looking at Impact Factor gains of journals after their conversion to Open Access found “a significant rise – a doubling and more” of impact factor after transferring to an Open Access model\textsuperscript{54}. Evidence shows that such approaches result in higher citation rates due to increased exposure. A comprehensive list of journal articles considering this

\textsuperscript{52} Demand side metrics were discussed at the Impact of Science Conference 2014: \url{https://scienceworks.nl/the-impact-of-science-2014/}

\textsuperscript{53} Snowball initiative: \url{http://www.snowballmetrics.com/}

\textsuperscript{54} The Impact Factor of journals converting from subscription to open access: \url{http://blogs.biomedcentral.com/bmcblog/2014/11/06/the-impact-factor-of-journals-converting-from-subscription-to-open-access/}
Research Evaluation and Impact: Peer Review

While scientific publishing has been around for over 350 years formal peer review of submitted articles by external academics is relatively new. The peer review system involves an editor sending an article out to a number of experts in the field who can comment on the work. The identity of these experts is not normally indicated, though conversely the author details for the article are available to the reviewer. ‘Blind peer review’ as it is often known, has a number of issues:

- Reviewers may be biased for or against and author (peers are often competitors)
- Some have noted ‘inherent conservatism’ by peer reviewers and “perceived bias towards conservative judgements” or a lack of risk-taking
- Blind peer review has been shown to not be gender-neutral
- Not sharing reviews makes it difficult to gather evidence on the authenticity of the peer review conducted.

The apparent solution to this is ‘double-blind review’ where the author’s name is also hidden however authors are still often identifiable. Once the review has taken place the comments are only shared with the editor and the author. For an explanation of open peer review see the F1000 research information sheet.56

So can we measure research impact?

Comprehending research evaluation and impact requires that we ask ourselves some fundamental questions about academic research. What exactly is research impact? And why do we feel the need to measure it? Does our current measurement system effectively assess the impact and value of research to society more broadly (e.g. contributions to medicine, green energy, technology, democracy, more equal societies, etc.)? Does it enable equality among institutions involved in research, both nationally and internationally? A recent article written by Laura Czerniewicz, Associate Professor at the University of Cape Town, pointed out that the current systems retain the status quo and continue favour the Northern hemisphere and persecute the global south.57

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55 The Open Access Citation Advantage: http://sparceurope.org/oaca/
56 F1000 research information sheet: http://blog.f1000research.com/2014/05/21/what-is-open-peer-review/
57 It's time to redraw the world's very unequal knowledge map: https://theconversation.com/its-time-to-redraw-the-worlds-very-unequal-knowledge-map-44206
In her aptly titled paper on research impact measurement ‘not everything that can be counted counts, and not everything that counts can be counted’ Jane Grimson compares current practice with what is happening in the health sector. Health sector Key Performance Indicators must be:

- **Valid** - indicators should measure what they are supposed to measure
- **Reliable** - they should give the same answer if measured by different people
- **Sensitive** - they should be able to measure small changes
- **Specific** - they should measure actual changes
- **Evidence-based** - and they should be underpinned by research

Grimson points out that “health care indicators are simply a proxy indication of quality, and that in order to truly understand whether the care being provided is safe and of good quality, it is necessary to consider many other, generally qualitative, issues”. She argues that the issue faced by research impact measurement is that it is traditional bibliometrics that define what constitutes research quality rather than providing objective measures of research quality. Within health care they are more aware of the risk of data-driven, as opposed to evidence-driven, indicators.

**Future Trends and Conclusions**

Whilst an understanding of research impact measurement is imperative for those connected with research within universities it is important to retain a critical eye. Not only can measurements be gamed but we need to ensure that we are measuring the right things and are mitigating unwanted effects.

Recommendations from 2010 EU Assessing Europe’s University-Based Research report still stand today. They suggest that we should:

- Combine indicator-based quantitative data with qualitative information
- Recognise important differences across different research disciplines
- Include assessment of impact and benefits
- Integrate self-evaluation

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58 Measuring research impact: not everything that can be counted counts, and not everything that counts can be counted: [http://www.portlandpress.com/pp/books/online/wg87/087/0029/0870029.pdf](http://www.portlandpress.com/pp/books/online/wg87/087/0029/0870029.pdf)

The recent HEFCE report on the Metric Tide mentioned earlier talks of ‘responsible metrics’. Responsible metrics are described in terms of the following dimensions:

- **Robustness**: basing metrics on the best possible data in terms of accuracy and scope
- **Humility**: recognising that quantitative evaluation should support – but not supplant – qualitative, expert assessment
- **Transparency**: keeping data collection and analytical processes open and transparent, so that those being evaluated can test and verify the results
- **Diversity**: accounting for variation by field, and using a range of indicators to reflect and support a plurality of research and researcher career paths across the system
- **Reflexivity**: recognising and anticipating the systemic and potential effects of indicators, and updating them in response.

The report points out that it is the duty of Higher Education Institutions to take responsibility and ownership for these metrics rather than passively accepting the use of opaque quantitative indicators, such as those used in the creation of league tables. The review identified 20 recommendations for further work including action in the following areas: supporting the effective leadership, governance and management of research cultures; improving the data infrastructure that supports research information management; increasing the usefulness of existing data and information sources.

Research impact measurement, whilst incredibly useful for those working in research, should always be treated with a critical eye.
Further Information

Bibliometric tools

Web of Science:
http://login.webofknowledge.com/

Scopus:
http://www.scopus.com/

Publish or Perish:
http://www.harzing.com/pop.htm

Google Scholar:
https://scholar.google.co.uk/

PLOS Article Level metrics:
http://article-level-metrics.plos.org/

Scopus:
http://www.scopus.com/

Eigenfactor:
http://www.eigenfactor.org/

SCImago:
http://www.scimagojr.com/

Altmetrics

Impact Story:
https://impactstory.org/

PlumX:
https://plu.mx/

Readermeter:
http://readermeter.org/

PLOS Impact explorer:
http://www.altmetric.com/demos/plos.html

Papercritic:
http://www.papercritic.com/

EU Documents


Commission Communication on the modernisation of universities report asks “How to create a new and more coherent methodology to assess the research produced by European universities?”

EC Communication report ‘Delivering on the modernisation agenda for universities: Education, research and innovation’.

EC on resolution on ‘Modernising Universities for Europe’s Competitiveness in a Global Knowledge Economy’

European standard for social impact measurement announced.

Timeline of Research Impact and Peer Review

Open Access Working Group blog:
http://access.okfn.org/2015/06/10/research-impact-measurement-timeline/

F1000 Peer review:
http://blog.f1000research.com/2014/05/21/what-is-open-peer-review/

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For further information please contact: Marieke Guy, marieke.guy@okfn.org
Working Together to Promote Open Access Policy
Alignment in Europe – Work Package 4: Policymaker engagement and policy development

Annex 1 – Research Impact Measurement Timeline

European Research Impact Measurement Timeline

- Launch of Thompson Reuters Web of Knowledge
- Official U.S. launch of Scopus held at the New York Academy of Sciences
- BMJ publishes the number of views for its articles found to be somewhat correlated to citations
- Launch of Google Scholar
- EC resolution on ‘Modernising Universities for Europe’s Competitiveness in a Global Knowledge Economy’
- EC expert group launched by the Scientific and Technical Research Committee (CREST): Mutual Learning on Approaches to Improve the Excellence of Research in Universities
- Open Peer review: Journal Frontiers launches, and includes reviewer names with articles
- Higher Education Funding Council for England (HEFCE) announce a new framework for assessing research quality in UK universities to replace Research Assessment Exercise (RAE)
- Launch of Datacite
- Public Library of Science introduced article-level metrics for all articles
- UK research councils introduce “pathways to impact” as a major new section in all RCUK applications for funding. Applicants are asked to set out measures taken to maximise impact
- EC report on Assessing Europe’s University-Based Research Expert Group on Assessment of University-Based Research released
- BMJ Open launches, and includes all reviewer names and review reports with published articles
- First Research Excellence Framework held in UK
- RCUK extends the Researchfish approach to all disciplines and implements the process across all research council funding. 18,000 principal investigators complete the process, providing 800,000 reports of outputs linked to over £16 billion of RCUK funded awards
- European standard for social impact measurement announced
- Google scholar adds the possibility for individual scholars to create personal “Scholar Citations profiles”
- Several journals launch with an open peer review model: GigaScience; PeerJ; eLife; F1000Research
- Subset of Higher Education institutions in Australia run a small-scale pilot exercise: the Excellence in innovation for Australia impact assessment trial (EIA)
- ORCID launches its registry and begins minting identifiers
- EU Innovation Output Indicator launched
- RAND ImpactFinder tool released
- European standard for social impact measurement announced
- EC Communication report ‘Delivering on the modernisation agenda for universities: Education, research & innovation’
- EC report Enhancing Europe’s Research Base by the Forum on University based Research
- Bollen, Rodriguez, and Sompel propose replacing impact factors with the PageRank algorithm
- Launch of Twitter
- EC Communication on the modernisation of universities
- EC report on ‘Modernising Universities for Europe’s Competitiveness in a Global Knowledge Economy’
- EC expert group launched by the Scientific and Technical Research Committee (CREST): Mutual Learning on Approaches to Improve the Excellence of Research in Universities
- Open Peer review: Journal Frontiers launches, and includes reviewer names with articles
- Higher Education Funding Council for England (HEFCE) announce a new framework for assessing research quality in UK universities to replace Research Assessment Exercise (RAE)
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- European standard for social impact measurement announced

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2010 - 2011
2012 - 2013
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3. Open Access policy effectiveness

3.1 Brief on Open Access policy effectiveness for research institutions

Open Access policy effectiveness: A briefing paper for research institutions

Author: Alma Swan
Reviewer: Eloy Rodrigues

September 2015

There are now almost 700 Open Access policies around the world, two thirds of them in universities and research institutes. There is considerable variation across these policies in terms of the conditions they lay down for authors and of their effectiveness. Based on the results of the analysis of over 120 mandatory policies this briefing paper lays out the main issues that affect the effectiveness of a policy in providing high levels of Open Access research material.

What an Open Access policy covers

An Open Access policy covers a number of issues including when and where research articles must be deposited, the length of embargo permitted, whether waivers may be granted and under what conditions publication charges may be paid. The database of Open Access policies, ROARMAP60, records each policy’s conditions under a set of categories. This database as a whole provides a rich source of data to analyse when studying policy effectiveness, and the data included in this briefing are sourced from such an analysis.

The main areas that a policy on Open Access should address are:

60 Registry of Open Access Repository Mandates and Policies: http://roarmap.eprints.org/
• whether or not the policy is to be mandatory
• whether the policy stipulates how Open Access should be provided (through deposit into an Open Access repository or by publication in Open Access journals)
• where repository-based OA is concerned, in which repository (or repositories) items may be deposited
• the length of permitted embargoes
• whether there are to be sanctions in the case of non-compliance
• whether there are to be any particular requirements regarding licensing, including whether authors should retain certain rights over their work (in practice, this means retaining the right to make the work Open Access by depositing it in an Open Access repository)

Analysing the effectiveness of policies
As part of the PASTEUR4OA project, all of these things and more were recorded for every Open Access policy in existence and entered into the ROARMAP database. It was already known that only mandatory policies raise the levels of Open Access material above that of the general baseline level of voluntary provision (about 15%).

The project therefore looked at the mandatory policies in place at over 120 universities around the world and assessed the effectiveness of each policy. This was measured in terms of the percentage of Open Access material available from each institution compared to the total number of articles published from those institutions each year.

The analysis involved looking at how each element of the policy affected its success. This was done by regression analysis, which provides data on whether there is a positive correlation between effectiveness and a policy element, and if that positive correlation is statistically significant, which is a stronger level of correlation.61

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61 The methodology and results are presented in detail in the full report from the PASTEUR4OA project: Swan A, Gargouri Y, Hunt M and Harnad S (2015) Open Access policy: numbers, analysis, effectiveness
The important elements of a policy

The analysis showed that the following elements of a policy are positively correlated with a successful outcome:

- The policy states that research articles must be deposited in the institutional repository (that is, the policy is mandatory)
- The policy states that this action cannot be waived: that is, whatever the conditions of embargo, the article must be deposited at the point specified by the policy
- If the policy states that an author should retain certain rights over the published work, this action is mandatory and cannot be waived
- The policy states that deposited items must be made Open Access, and if there is an embargo then they must be made Open Access immediately the embargo comes to an end
- The policy links the deposit of articles with research assessment/performance evaluation procedures within the institution: that is, the policy states that articles that are not deposited in line with policy requirements will not count towards performance reviews or research assessment exercises

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<td>Deposit of articles is linked to research evaluation (performance assessment)</td>
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<tr>
<td>Articles must be made Open Access</td>
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<tr>
<td>Where the policy stipulates that authors retain certain rights, this cannot be</td>
<td>✓</td>
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<td>waived</td>
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The critical elements of a policy

It seems obvious, but is backed up by the statistical analysis, that the most critical elements of a policy are that it requires that research articles be deposited in an Open Access repository. In addition, the policy must state that this deposit step cannot be waived. These are the first two points in the list above and analysis showed them to be significantly correlated with resulting high levels of Open Access and, of course, they make the policy a mandatory one.

The other statistically significant element of a policy is the link between deposit and research assessment (performance evaluation). All three of these policy elements are significantly associated with success.

Working Together to Promote Open Access Policy
Alignment in Europe – Work Package 4: Policymaker engagement and policy development

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<td>Where the policy stipulates that authors retain certain rights, this cannot be waived</td>
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The model Open Access policy

Having identified what a policy needs to contain to have a successful outcome, an optimal Open Access policy can be designed. A policy must make its requirements of authors minimally burdensome: at the same time, it must require the actions (listed above) that are essential to provide Open Access. The policy should therefore address these issues specifically and an optimal policy will include them all as non-negotiable requirements.

It is also recommended that a policy stipulates that deposit it made at the time of acceptance for publication of an article. While the requirement for deposit immediately upon acceptance may seem to be in contravention of publisher embargo requirements, it is not. The deposit step is a separate action from making an article openly available and the publisher has no sanction over it. The aim is to get authors to deposit their articles as they are accepted for publication, which is the moment they are dealing with the paper for the last time in practical terms. So long as a paper is deposited, the author need not worry about it any longer: if it is under a publisher embargo the repository software automatically opens the article and makes it public at the end of the embargo period.

Finally, the version of an article that such a policy should specify for deposit is the author’s version, once it has been peer-reviewed and all the changes required by the review process have been made. This is the final version that the author has, the last one submitted for publication once all corrections have been made: it will vary only marginally, if at all, and certainly not in substance, from the published version in the journal.

A model Open Access policy: criteria to include

Purpose: This policy aims to make the knowledge created in this institution available to all for the benefit of research itself and for society more widely

Policy conditions: The policy requires the following:
- All peer-reviewed publications must be deposited in the institutional repository [name] at acceptance for publication.
- The version to be deposited is the author’s final document once the changes required by peer review have been made.
- The deposit must be made, regardless of whether a publisher embargo is to be observed or there are other legitimate reasons for not making the material openly available at a future date.
- Articles must be made openly available immediately wherever possible, or once any embargoes have run their course.
- All assessment and evaluation procedures in this institution will use the institutional repository to source publication lists for candidates: publications not deposited at acceptance for publication will not be eligible for consideration.
Why this type of policy works
A policy that includes all these criteria and is implemented properly at the institution will succeed in gathering a large volume of Open Access content. The requirement to deposit, and the insistence that this step cannot be waived for any reason, ensure that authors deposit their work.

The authors themselves can be reassured that if there is any sound reason for not making the work Open Access at the time of deposit – a publisher embargo requirement, for example, or ethical or legal reasons why the work should not be made public – then the full text of item can remain closed for the duration of an embargo period, or even forever in those extremely rare cases where there is a legitimate reason.

Policies of this type
The numbers of policies that are like this model-type policy are growing. The first was from the University of Liège (Belgium) and others that have followed suit include the University of Minho (Portugal), University of Turin (Italy), University of Ghent (Belgium), Durham University (UK) and others, including a number of national and international research funding agencies.

Importantly, the policy for the European Commission’s Horizon 2020 research funding programme is also of this type, meaning that institutions making this type of policy are aligning their own policy with that of the European funding programme. This is important, as researchers within the institution may be funded under this programme and will therefore have the agreeable experience of their funder’s and institution’s policies have matching requirements, making it simple to comply with both through one set of actions.
3.2 Brief on Open Access policy effectiveness for research funders

Open Access policy effectiveness: A briefing paper for research funders

Author: Alma Swan (EOS)
Reviewer: Eloy Rodrigues (University of Minho)

September 2015

There are now almost 700 Open Access policies around the world, around one-quarter of them from research funders. There is considerable variation across these policies in terms of the conditions they lay down for authors and of their effectiveness. Based on the analysis of over 120 mandatory policies, this briefing paper lays out the main issues that affect the effectiveness of a policy in providing high levels of Open Access research material.

What an Open Access policy covers
An Open Access policy covers a number of issues including when and where research articles must be deposited, the length of embargo permitted, whether waivers may be granted and under what conditions publication charges may be paid. The database of Open Access policies, ROARMAP\(^{62}\), records each policy’s conditions under a set of categories. This database as a whole provides a rich source of data to analyse when studying policy effectiveness, and the data included in this briefing are sourced from such an analysis.

The main areas that a policy on Open Access should address are:
- whether or not the policy is to be mandatory
- whether the policy stipulates how Open Access should be provided (through deposit into an Open Access repository or by publication in Open Access journals)

\(^{62}\) Registry of Open Access Repository Mandates and Policies: http://roarmap.eprints.org/
where repository-based OA is concerned, in which repository (or repositories) items may be deposited

- the length of permitted embargoes
- whether there are to be sanctions in the case of non-compliance
- whether there are to be any particular requirements regarding licensing, including whether authors should retain certain rights over their work (in practice, this means retaining the right to make the work Open Access by depositing it in an Open Access repository)

**Analysing the effectiveness of policies**

As part of the PASTEUR4OA project, all of these things and more were recorded for every Open Access policy in existence and entered into the ROARMAP database. It was already known that only mandatory policies raise the levels of Open Access material above that of the general baseline level of voluntary provision (about 15%).

The project therefore looked at the mandatory policies in place at over 120 universities around the world and assessed the effectiveness of each policy. This was measured in terms of the percentage of Open Access material available from each institution compared to the total number of articles published from those institutions each year. It was not possible to study funder policies in this way because the outcomes are difficult to measure: this is because, as yet, tracking articles that are published from work supported by specific funders is very difficult as many articles do not acknowledge funding sources in systematic and traceable ways. In addition, funder-supported articles can be deposited in many different locations (many different institutional repositories, for example, or in one or more centralised repositories), making it hard to trace these articles. Institutional policies, however, stipulate that articles must be deposited in the institutional repository, making it easy to track them. For these reasons, the analysis was carried out on institutional policy effectiveness, but the principles discovered probably apply to all policies, including funder ones.

The analysis involved looking at how each element of the policy affected its success. This was done by regression analysis, which provides data on whether there is a positive correlation between
effectiveness and a policy element, and if that positive correlation is statistically significant, which is a stronger level of correlation.\textsuperscript{63}

The important elements of a policy

The analysis showed that the following elements of a policy are positively correlated with a successful outcome:

- The policy states that research articles must be deposited in a repository (that is, the policy is mandatory)
- The policy states that this action cannot be waived: that is, whatever the conditions of embargo, the article must be deposited at the point specified by the policy
- If the policy states that an author should retain certain rights over the published work, this action is mandatory and cannot be waived
- The policy states that deposited items must be made Open Access, and if there is an embargo then they must be made Open Access immediately the embargo comes to an end
- The policy links the deposit of articles with research assessment/performance evaluation procedures within the institution: that is, the policy states that articles that are not deposited in line with policy requirements will not count towards performance reviews or research assessment exercises

<table>
<thead>
<tr>
<th>Policy element</th>
<th>Positive correlation</th>
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<tbody>
<tr>
<td>Articles must be deposited</td>
<td>✓</td>
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<td>Deposit cannot be waived</td>
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<td>Deposit of articles is linked to research evaluation (performance assessment)</td>
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<tr>
<td>Articles must be made Open Access</td>
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<tr>
<td>Where the policy stipulates that authors retain certain rights, this cannot be</td>
<td>✓</td>
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<td>waived</td>
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The critical elements of a policy

It seems obvious, but is backed up by the statistical analysis, that the most critical elements of a policy are that it requires that research articles be deposited in an Open Access repository. In addition, the policy must state that this deposit step cannot be waived. These are the first two points in the list above and analysis showed them to be significantly correlated with resulting high levels of Open Access and, of course, they make the policy a mandatory one.

The other statistically significant element of a policy is the link between deposit and research assessment (performance evaluation). All three of these policy elements are significantly associated with success.

<table>
<thead>
<tr>
<th>Policy element</th>
<th>Positive correlation</th>
<th>Significant correlation</th>
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<tr>
<td>Articles <strong>must</strong> be deposited</td>
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3.3 Brief on UK Higher Education Open Access policy landscape: from policy development to effectiveness and alignment

From policy development to effectiveness and alignment: An analysis of the UK’s Higher Education Open Access policy landscape

Author: Mafalda Picarra, Jisc
Reviewers: Alma Swan, EOS and Marina Angelaki, EKT
August 2015

Summary

The number of Open Access (OA) policies that have been adopted by universities, research institutes and research funders has been increasing at a fast pace. The Registry of Open Access Repository Mandates and Policies (ROARMAP) records the existence of 724 OA policies across the world, of which 512 have been adopted by universities and research institutions. The UK is one of the leading countries in terms of OA policy development and implementation with a total of 85 institutional and an estimated 35 funder OA policies. In order to understand and contextualise how OA policies are developed and how they can be effectively implemented and aligned, this brief looks at two areas. The first section provides an overview on the processes evolving around policy making, policy effectiveness and policy alignment. In particular, it summarises the criteria and elements generally specified in OA policies, it points out some of the relevant steps informing the development, monitoring and revision of

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64 Registry of Open Access Repository Mandates and Policies (ROARMAP) (link)
65 Registry of research funders’ open access policies (Sherpa Juliet) (link)
OA policies, it outlines what OA policy elements contribute to policy effectiveness, and highlights the benefits in aligning OA policies. The second section revisits the issues previously discussed within the context of the UK institutional (universities) OA policy landscape.

I. Open Access policies: making knowledge free for all

Open Access policies: criteria and elements

OA policies generally cover specific sets of criteria. They generally include requirements for depositing research outputs in repositories, for making the deposited outputs open access, and for publishing outputs on open access. Within these sets of criteria, OA policies usually include the following elements:

- kinds of research outputs to be deposited,
- version of outputs to be deposited,
- where to deposit,
- date of deposit,
- deposit exemptions,
- date to make deposited outputs available on open access,
- embargo length,
- licensing conditions,
- kinds of research outputs to be published in open access form,
- where to publish (open access and/or hybrid journals),
- funding for publication costs,
- and conditions on use of publication funds.

Importantly, OA policies can be distinguished between being mandatory or non-mandatory. Mandatory OA policies are those that a) require authors (the author must or is obliged) to deposit the research outputs in a repository and/or b) require authors to publish the research output on open access through a publisher. Non-mandatory OA policies merely request, recommend or encourage authors to a) deposit the research outputs in a repository and/or b) publish the research output on an open access form through a publisher.

By and large, OA policies usually specify a preference for research outputs to be either deposited in a repository (Green OA) or to be published in open access or hybrid journals (Gold OA). In the first case, research outputs become freely available online following a determined embargo period. In the second case, research outputs become immediately available online following, in most cases, the payment of an Article Processing Charge (APC).

Overall, OA policies elements and requirements vary. The emphasis that is placed in the policies wording can vary depending on the issues deemed as more relevant for a Higher Education Institution (HEI), depending on the resources available to implement open access, and depending on whether external OA policies (for instance research funders OA policies) exert some influence or have implications on the institutional OA.

Developing or revising an Open Access policy

The major benefits in developing OA policies are that more research outputs become freely available online. By making research outputs available on open access, researchers are facilitating knowledge transfer, accelerating scientific research, advancing technological progress, and heightening social well-
being. Importantly, open access to research outputs also contributes to increase the impact and visibility of the research conducted in HEIs and raises their research profiles. Therefore, when adopting OA policies HEIs often need to consider a number of steps that can inform the effective development, implementation, monitoring and revision of policies. The table below discusses in more detail what some of these steps are.

### I. Policy development and implementation

1. **Start the consultation and preparation process to develop or revise the OA policy:**
   - Establish a working group;
   - Consult relevant institutional stakeholders to discuss awareness about OA as well as what issues they consider the OA policy should cover.

2. **Draft the OA policy:**
   - Examine guidelines for the development of OA policies;[^66]
   - Look at major research funders OA policies (for example: RCUK, HEFCE, Wellcome Trust, EC) to understand the requirements and the emphasis of those policies;
   - Look at examples of HEIs whose policies have been successful in ensuring that a significant amount of content is made available on open access[^68];
   - Consider including the 5 important elements of a policy in the institutional OA policy[^69].

3. **Consider human and financial resources available to support effective implementation of OA policy[^70]**
   - Assess the financial resources[^71] required to implement open access in the institution. For instance: whether a repository needs to be developed, whether the repository software needs to be upgraded, whether the institution will make funds available for open access publishing, whether it will manage block grants, and whether new staff needs to be hired;
   - Consider the human resources skills and training required for research support staff to facilitate an effective implementation of the policy.

4. **Consider infrastructure, systems and processes required to support OA at the institutional level**

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[^66]: Good practices for university OA policies ([link]);
[^67]: MedOANet Guidelines for implementing open access policies: research performing and research funding organizations ([link]);
[^68]: Policy guidelines for the development and promotion of open access, pp 45-57 ([link]);
[^69]: Open access policy options for funding agencies and universities ([link]);
[^70]: MedOANet Guidelines for implementing open access policies: research performing and research funding organizations ([link]);
[^71]: HEFCE OA policy ([link]); RCUK OA policy ([link]); European Commission Horizon 2020 OA policy ([link]).
[^72]: A series of case studies on institutional policy implementation will be made available in the PASTEUR4OA website ([link]).
[^73]: PASTEUR4OA report: OA policies ([link]).
• Examine what infrastructure (for example: repository software, repository hosting services) are needed to support the implementation of the OA policy;  
• Consider what internal systems, processes and workflows are required to support the effective implementation of the policy.

5. Submit draft OA policy for approval by the University Senate, the Research Committee or other

6. Implement an advocacy and communication plan to raise awareness about OA policy, compliance requirements and available support mechanisms.

II. Monitoring and revision

7. Monitor OA policy effectiveness and collect data on policy compliance levels

• Look at examples on how to monitor policy effectiveness and how to collect data on compliance for reporting purposes.

8. Implement systems to report on compliance with research funders OA policies requirements

• Examine what the major research funders (for example: HEFCE, RCUK, Wellcome Trust, EC) reporting requirements are;  
• Determine to which funders the institution needs to report, how and when;  
• Consider what steps the institution needs to follow to ensure that reporting is accurate.

9. Regularly review the university’s OA policy effectiveness and collect feedback from university stakeholders

10. Periodically assess the need to revise OA policy in order to encompass changes in the national and international policy landscape

Table 1: OA policy development, implementation, monitoring and revision

Open Access policies: effectiveness

When developing or revising an OA policy, HEIs must consider how to ensure that policies are effective. The existence of OA policies per se is not sufficient to ensure that more research outputs become freely available online. At the policy making and subsequently at the monitoring level, some factors can contribute to ensure that policies are effective and that they achieve the expected outcomes. Based on previous studies that acknowledged that mandatory OA policies are more effective than non-mandatory

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72 For some information on OA infrastructure see the Sustainability of Open Access Services report (link).
73 For an example of an HEI OA workflow see the Imperial College approach to making open access simple (link).
74 See an example of an advocacy toolkit developed collaboratively by UCL, Nottingham and Newcastle Universities (link).
75 For example, the Funding Councils have issued a statement with the information and audit requirements for Open access in the post-2014 Research Excellence Framework (link).
Working Together to Promote Open Access Policy Alignment in Europe – Work Package 4: Policymaker engagement and policy development

policies\textsuperscript{76}, PASTEUR4OA has examined 120 universities mandatory OA policies to assess their effectiveness. This was measured in terms of the percentage of OA material available from each institution compared to the total number of articles published from those institutions each year.

Accordingly, this research exercise has indicated that the most successful policies – those that ensure that higher levels of research outputs are made available on open access – are the ones that include the following important policy elements\textsuperscript{77}:

- The policy states that research articles must be deposited in the institutional repository (that is, the policy is mandatory);
- The policy states that this action cannot be waived: that is, whatever the conditions of embargo, the article must be deposited at the point specified by the policy;
- The policy states that deposited items must be made Open Access, and if there is an embargo then they must be made Open Access immediately the embargo comes to an end;
- The policy links the deposit of articles with research assessment/performance evaluation procedures within the institution: that is, the policy states that articles that are not deposited in line with policy requirements will not count towards performance reviews or research assessment exercises;
- If the policy states that an author should retain certain rights over the published work, this action is mandatory and cannot be waived.

In sum, a policy that includes all these criteria and that considers the policy development, implementation and monitoring steps highlighted in Table1 is more likely to succeed in gathering a large volume of OA content.

Open Access policy alignment

Beyond the development, implementation, monitoring and revision of OA policies there is also another relevant factor, that of policy alignment. The benefits in promoting the alignment of OA policies are manifold. In particular, policy alignment can contribute to create a simpler policy landscape for researchers and increase the prospect that researchers will comply with one or multiple OA policies (for example: an institutional and/or a research funder OA policy (ies). It could also have an impact on researcher mobility if the same OA policies compliance criteria were applicable at a global level. Policy alignment can also reduce the burden on research support staff who need to provide advice on OA policies and monitor and report on policy compliance. Ultimately, policy alignment increases consistency between research funders and institutional OA policies.

Policy alignment can be achieved by converging all or the majority of the institutional OA policy elements with another OA policy model. For instance, a research funder OA policy. The table below highlights three key issues to be considered in order to align an institutional OA policy to another policy model.

\[ \text{Gargouri, Y., Hajjem, C., Lariviere, V., Gingras, Y., Brody, T., Carr, L. and Harnad, S. 2010. Self-Selected or Mandated, Open Access Increases Citation Impact for Higher Quality Research. PLOS ONE, 5 (10). e13636 (link).} \]

\[ \text{PASTEUR4OA report: OA policies (link).} \]
Working Together to Promote Open Access Policy
Alignment in Europe – Work Package 4: Policymaker engagement and policy development

I. Policy Alignment

1. Examine major research funders strategies and policies for open access (for example: national research funders OA policies and the European Commission’s OA policy)

2. Consider what research funders OA policies have a greater impact in the respective institution but also what policy model can promote greater alignment at the national, EU and global levels

3. Assess how the institutional OA policy can become fully or largely aligned with another policy model

   - Look at research funders OA policies and examine the policy elements where there are greater similarities between policies. Can the institutional OA policy apply the same requirements in the respective policy elements? What are the implications for adopting those policy elements in terms of internal systems, processes and resources?

   - Conversely, look at the areas where there are greater divergences between research funders OA policies. Can the HEI adopt the same requirements as those applied by the most pertinent policy model? What are the implications for adopting those policy elements in terms of internal systems, processes and resources?

Note: information about major research funders OA policies can be found in SHERPA/JULIET and ROARMAP. Information comparing some funders’ requirements can be retrieved from these databases.

Table 2: OA policy alignment

II. The Open Access policy landscape in UK Higher Education Institutions

Overview

The first OA policy to be implemented in the UK was a sub-institutional policy, adopted by the School of Electronics and Computer Science of the University of Southampton in 2003. This was followed by the OA policies adopted by the University of Surrey (2005), the University of Stirling (2006), Queen Margaret University (2008), University College London (2009), and so on.

The process leading to the development and implementation of institutional OA policies in the UK has, in general, included the following steps: drafting a new or revising an existing OA policy; considering the human, financial and infrastructure resources required to implement the OA policy; submitting the draft policy for approval by an institutional committee; adopting monitoring mechanisms for internal (institutional) and external (research funders) reporting purposes; and engaging in advocacy activities to raise researchers awareness about the existing OA policy.

In the specific case of the UK, it is observed that the OA policies of the main research funders – in particular HEFCE and RCUK – exert an impact on the development or revision of institutional OA policies and on internal
monitoring and reporting processes. It is also considered that since the RCUK and HEFCE OA policies were announced more OA policies have been adopted. Peak years for OA policy adoption were 2014 (19 policies) and 2013 (8 policies).

There are a total of 162 universities, research institutions and colleges in the UK. From these, 85 HEIs (52%) have implemented OA policies. More specifically, 71 OA policies (84%) are mandatory, requiring authors to deposit research outputs in a repository, and 13 policies (15%) are non-mandatory. As a result of these policies some HEIs have been considerably successful in securing high deposit rates in the respective institutional repositories (although some of these may be bibliographic metadata-only items amongst full-text deposits). Furthermore, none of the OA policies require publishing in an open access form (Gold OA), but 3 policies (4%) recommend and 45 policies (53%) permit Gold OA publishing as alternative to Green OA self-archiving. As a result, some HEIs have made funds available to support the payment of APCs and/or manage block grant funding for APCs provided by research funders.

Examining the similarities and differences between UK HEIs OA policies

Based on data collected from ROARMAP, it is possible to identify OA policy elements where there are major similarities, differences or non-specified information between OA policies.

Major similarities between OA policies elements

- **Deposit of item**: 71 policies (84%) require and 13 policies (15%) request the deposit of items;
- **Place of deposit**: 83 policies (98%) state that items must/should be deposited in institutional repositories;
- **Content type to be deposited**: 70 policies (82%) state that peer-reviewed manuscripts must/should be deposited;
- **Journal article version to be deposited**: 55 policies (65%) state that the author’s final peer-reviewed version must/should be deposited;
- **Making deposited item OA**: 38 policies (45%) require and 29 policies (34%) recommend making the deposited item freely available online;
- **Gold OA publishing option**: 45 policies (53%) permit and 3 policies (4%) recommend Gold publishing.

Major differences in OA policies elements

- **Date of deposit**: 59 policies (69%) express different dates of deposit and as a consequence there seems to be limited consensus between deposit dates;
- **Open licensing conditions**: there still is a limited consensus on licensing conditions; 36 policies (42%) do not require any re-use license, 31 policies (36%) do not specify this element and 7 policies (8%) require an open license without specifying which one.

Most non-specified elements in OA policies

- **Can deposit be waived**: 46 policies (54%) do not specify this element;
- **Can making the deposited item OA be waived**: 54 policies (64%) do not specify this element;
- **Is deposit a precondition for research evaluation**: 50 policies (59%) do not specify this element;
- **Rights holding**: 53 policies (62%) do not mention this element;

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78 RCUK’s OA policy was announced in July 2012 and became effective in April 2013 (link)
79 HEFCE’s was announced in March 2014 and becomes effective in April 2016 (link)
80 Registry of Open Access Repository Mandates and Policies (ROARMAP) (link)
81 Directory of Open Access Repositories (OpenDOAR) (link)


- **Can rights retention be waived:** for 45 policies (53%) this element is ‘not applicable’ (i.e. information is not provided) and for 39 policies (46%) this element is not specified;
- **Can author waive giving permission to make the article OA:** for 31 policies (36%) this element ‘not applicable’ (i.e. information is not provided) and for 35 policies (41%) it is not specified;
- **Policy’s permitted embargo length for science, technology and medicine:** 75 policies (88%) do not specify this element;
- **Policy’s permitted embargo length for humanities and social sciences:** 75 policies (88%) do not specify this element;
- **Can maximal allowable embargo length be waived:** for 43 policies (51%) this element is ‘not applicable’ (i.e. information is not provided) and for 36 policies (42%) it is not specified.

**OA policies similarities and differences: making policies more effective and aligned**

The results presented above indicate that there is an extended consensus on the more generic Green OA policy requirements as well as a considerable consensus on the acceptance of Gold OA publishing.

Conversely, major differences exist between OA policies in terms of date of deposit and licensing conditions. The resultant implications are that authors face challenges when having to comply with distinct OA policies requirements applied to the same policy element. This is the case, for instance, when authors have to comply both with a funder and an institutional OA policies that have different requirements. Monitoring and reporting processes also become more cumbersome for research support staff whenever HEIs report on compliance with the institutional and distinct research funders OA policies and are faced with different requirements being applied to the same policy elements. For instance, research support staff may have to report on whether the date of deposit or embargo periods required by the institutional OA policy or by distinct research funders OA policies were observed and to consider how it complied with distinct OA policies in the cases where different conditions applied to the same policy element. In brief, if OA policies become increasingly aligned in the policy elements where greater divergence exists, they will consequently become more effective.

Ultimately, it is at a more in-depth level of detail – where further consideration often needs to be given to issues related to waivers, research evaluation, rights, embargoes, and funding – where more information is missing from existing OA policies. The omission of such information can have implications in terms of lack of information on distinct exemptions (deposit, access or technical exemptions), on reinforcing compliance (linking compliance to evaluation processes), and on clarifying when a research output can be accessed by others (whenever reference is not made to embargo periods). The absence of such information may result from HEIs limited financial or human resources to closely monitor compliance and to notify authors’ about inadequate compliance with the existing policy. On the contrary, the omission of such information from the OA policy may be a result from the fact that academics and researchers have to observe specific research funders OA policies (for example HEFCE, RCUK, Horizon 2020) that already have specific requirements for these policy elements. Notwithstanding, the more comprehensive and aligned OA policies are, the clearer it will be for researchers to know how to comply with them.

To conclude, the development or revision of OA policies should be based on informed decisions on what makes an OA policy succeed so that policies become increasingly effective and ensure that a significant amount of research outputs are made available on open access. Ensuring a greater effectiveness of existing OA policies by
reinforcing their criteria\textsuperscript{82} and promoting a greater alignment between policies will ensure that more researchers comply with OA policies.

\textsuperscript{82} For more information on policy effectiveness see ‘Open Access policy effectiveness: A briefing paper for UK Higher Education Institutions’ (link)
4. National Open Access case studies

4.1 Belgium

Open Access in Belgium

JUNE 30, 2015
The Fund for Scientific Research-FNRS

The Fund for Scientific Research-FNRS (F.R.S-FNRS) is the major research funding agency promoting and supporting basic scientific research for the French-speaking community of Belgium (Brussels-Wallonia Federation, BWF). Founded in 1928, it mainly receives public subsidies. The Fund supports individual researchers on the basis of academic excellence by offering temporary or permanent positions. The Fund also provides funding to research teams, grants and credits for international collaboration, as well as scientific prizes. The Fund fosters research in all scientific fields, following a bottom-up approach of investigator-driven research. It supports researchers in an ever growing context of internationalisation through facilitating their mobility, allowing for collaborative transnational projects and supporting a high level international working environment.

The Flemish counterpart of F.R.S.-FNRS, the Fonds Wetenschappelijke Onderzoek (FWO) has similar OA mandates, also inspired by the Brussels Declaration of 2012 (cfr infra).

Summary

The Belgian political landscape is complex and this complexity is reflected in the scientific system. Luckily, the multiple power layers did not preclude to the birth and development of open access policies. Indeed, the move towards OA for publications started more than 10 years ago in Belgium.

It is the creation of the Immediate Deposit and Optional Access (ID/OA) at Université de Liège (ULg) in 2007 paved the way for Belgian OA mandates. OA policies were developed by more than 15 Belgian research organisations. Each of these research organisations may have its own mandate. However, they sometimes use common repositories. Throughout the past ten years, the move to OA policies was massive in entire Belgian territory, however, one now notices regional differences at the infrastructure level: Flanders is the only region developing a common portal for Flemish research organisations, FRIS (cfr infra).

Also, one of the specificities of Belgium regarding OA is the wish to develop a concerted approach on Green and Gold. The signature of the Brussels Declaration for OA in 2012 (cfr infra) by Belgian authorities pushes the agenda forward.

Last but not least, despite the move towards regional empowerment, coordination at the national level exists with the Interfederal Open Access Consultation Working Group, the CIS-CFS Working Group on OA (CIS-CFS OA) and the push towards a large definition of Green OA (i).
The research and scholarly communication system of the country

The scientific landscape in Belgium is complex with three levels of power (federal, regional, and community levels). The authorities for science, research and innovation are distributed between both the federal government and the regional and community governments. Therefore, it is necessary to present each research and scholarly communication entity involved in separate sections before moving to the presentation of the current OA landscape.

Federal State

The Federal state supports thematic programmes, space research, 10 Federal Scientific Institutions international organisations and infrastructures, the Interuniversity Attraction Poles programme (IAP) and partial exemptions of researcher’s salary taxes.

The Federal Scientific Institutions are as follows:

- Cinquantenaire Museum - Royal Museums for Art and History
- MIM - Musical Instruments Museum
- Chinese Pavilion | Japanese Tower, Porte de Hal
- Royal Museums of Fine Arts of Belgium
- Royal Institute for Cultural Heritage
- Royal Belgian Institute of Natural Sciences
- Royal Museum for Central Africa (MRA/KAM)
- State Archives
- Royal Library of Belgium (BR/KB)
- Centre for Historical Research and Documentation on War and Contemporary Society

Communities Level

Belgium is divided into three communities (French-speaking, Flemish-speaking and German-speaking) that are responsible for culture and education. Higher education is organized by the two main communities - the Flemish Community (to which the FWO belongs) and the Brussels Wallonia Federation (to which the FNRS belongs). German speakers mainly enrol in institutions in the French Community or study in Germany.

Regional Level

The support for basic research is shared by F.R.S.-FNRS in the French-speaking community and FWO in the Flemish community. Applied research is covered at the regional level by three regions - Wallonia, Brussels and Flanders - economy and employment in particular fall within their remit. With the exception of a handful of small colleges, all universities and colleges in Belgium are publicly funded. In
Flanders, colleges receive subsidies based on their teaching activities (including the number of students) and universities receive subsidies based on their teaching activities and research output. In the French-speaking community, funding for research is mostly based on the number of students but the total budget allocated to universities and colleges is fixed. Universities and colleges can increase their research funding only when the number of students increases. If the number of students attending a specific institution decreases, its funding will follow the same trend.

Flanders has 5 universities:
- Universiteit Antwerpen (UA)
- Vrije Universiteit Brussel (VUB)
- Universiteit Gent (U Gent)
- Universiteit Hasselt (UH)
- Katholieke Universiteit Leuven (KUL)

Flanders also has 4 strategic research centres:
- IMEC – Interuniversity Micro-Electronics Centre (Heverlee)
- iMinds – Digital Research Centre (Gent)
- VIB – Institute for Life Sciences Research (Gent)
- VITO – Institute for Technological Research (Mol)

Wallonia-Brussels has 6 universities:
- UCL- Université Catholique de Louvain (Louvain-la-Neuve)
- ULB - Université Libre de Bruxelles (Brussels)
- ULg - Université de Liège (Liège)
- UNAMUR - Université de Namur (Namur)
- UMONS - Université de Mons (Mons)
- USL - Université Saint-Louis Bruxelles (Brussels)

In Belgium, public investment in R&D is below the European average according to the Innovation Score Board. Belgium ranks seventh in the EU Member States’ Innovation Performance and belongs to the upper part of the innovation followers’ league table. Belgium scores high thanks to its international scientific publications and its open, excellent and attractive research systems (Table 1).
Table 1 – EU Member States’ Innovation Performance (Source: EC Innovation Scoreboard 2013)

Table 2 - Number of publications per 1000 inhabitants (2009-10) (Source: Scimago Scopus, Eurostat)
Belgium has an average number of publications per inhabitant (Table 2) but is better placed regarding citations/publications, being ahead of Switzerland, Denmark, the Netherlands and Sweden (Table 3). As for the number of citations/R&D investment ratio, Belgium shows major outputs, mainly from Flanders, with modest inputs.
Current Open Access policy landscape

A brief presentation of the research and scholarly communication system of Belgium was necessary to move to the main part of this document dedicated to the OA policy landscape. This chapter starts with a short history of OA in Belgium. It then presents the national strategies and policies for OA before it develops institutional policies, followed by funders’ policies. These sections are followed by a short overview of the OA policies at the federal level, the Flemish level and the Brussels-Wallonia level. Infrastructures will be briefly discussed in the last section of this chapter.

a) A Brief History of the Development of OA Policies

The roots of OA in Belgium start as early as 2001. A consortium of libraries, BICfB, launched the first common electronic repository of theses and e-prints of the universities of the BWF, making them freely accessible online in full text. Their aim was to develop and coordinate a common policy between university libraries regarding academic and scientific documentation. This opened the way for OA as the BICfB was followed by various initiatives towards OA. In 2001, ULg also initiated BICTEL, the first common electronic repository of theses (dissertations) and e-prints submitted to the universities of the BWF. In 2004, OA Day was organised at ULg. One year later, PoPuPS, portal for the publication of scientific journals, was launched.

The DRIVER project has been instrumental in developing OA awareness across the Belgian scientific community. UGENT, a DRIVER partner, created a Belgian repository community - DRIVER Belgium - which was responsible for the distribution of DRIVER’s Guidelines to Belgian repository managers and the creation of a national search interface for DRIVER compliant OA repositories.

Belgian university Rectors, the Ministers of Science of Flanders and Wallonia and the president of the Flemish Council of Schools for Higher Education signed the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities from 2003. The President of the Science Policy Office signed the Declaration the following year. Also, another noteworthy point, national conference was held in February 2007, bringing together the major stakeholders in Belgium regarding research.

During the same year, the ULg’s interest in OA went further with the ‘Immediate-Deposit & Optional-Access’ (ID/OA) mandate. In addition, the assessment of research performance and the evaluation of researchers within ULg is exclusively based on the research outputs that are deposited in the institutional repository (ORBI). This model is often referred to as the “Liège model” internationally.

Indeed, in 2012, Belgian public authorities signed the Brussels Declaration on Open Access (ii). The event brought together the major stakeholders in Belgium in the field of research. The signing was at
the instigation of the Open Access Belgium organisation, which is, among others, composed of members of the Belgian OpenAIRE Helpdesk. The Brussels Declaration was a commitment to maximise the free availability of publicly funded research results by supporting the creation and the maintenance of OA digital infrastructures, by actively informing researchers about the benefits of OA, and investigating the ways of covering the costs of OA publishing.

All Belgian universities are now informing their researchers about OA and encouraging OA publications. Open Access mandates are progressively being adopted by the other universities of the BWF and Flanders, although with different levels of achievement. In October 2014, Belgium recorded 28 repository registrations on OpenDoar, which is a quality-assured listing of Open Access repositories around the world. A dedicated webpage - Open Access Belgium (http://openaccess.be) - is maintained by UGent Library and ULg Library. It intends to promote Open Access and to deliver current information about the progress of OA in Belgium. As a result of these initiatives the total number of research results available in IR’s has grown steadily since 2004 (Figure 1).

Figure 1 - Number of archived references among the repositories in the French-Speaking Community of Belgium

http://www.pasteur4oa.eu |
b) National strategies and policies for OA

As mentioned before, given the governmental structure of the country, there is no common national Open Access policy in Belgium despite the signature of the Brussels Declaration in 2012. However, in the wake of the Brussels Declaration, the CIS-CFS Working Group on OA was created with the objective of providing consultation on OA matters at a national level, and to ensure coherence in alignment with European reporting. Members consult on OA matters involving the Federal Authority, the Flemish Authority, and the BWF. The other main regional stakeholders (such as the Walloon Region and the Brussels Capital Region) are being kept informed but are not actively involved.

The mission of the CIS-CFS WG on OA is to pursue conformity and interoperability of implemented systems. The WG shares knowledge and best practices, informs other parties, stimulates initiatives, coordinates both promotional events and international reporting, and explores related fields. It gathers information on progress in the field of OA among stakeholders and coordinates the ERA Roadmap on OA for Belgium.

c) Institutional OA policies

Again, the development of institutional policies reflects the complexity of the research landscape in Belgium. In Belgium, repositories are not centralised as there is no external body to manage repositories.

Each research organisation in Belgium has its own policy/mandate. However, some repositories are common to some organisations (e.g. DIAL for UCL and USL-Brussels) for historical reasons (iii).

All Belgian universities have an IR and actively promote the self-archiving of research outputs:

- Universiteit Antwerpen (UA) – IRUA
- Universiteit Gent (U Gent) – BIBLIO
- Katholieke Universiteit Leuven (KUL) – LIRIAS
- UCL – DIAL
- ULB – Di-Fusion
- ULg – ORBI
- UMONS – Di-UMONS
- UNAMUR – Pure
- SL-Brussels – DIAL

In ROARMAP, Belgium has 14 IR’s Open Access policies, mainly from universities (3). The four most effective mandates (ID/OA) were enforced by one funding agency (F.R.S.-FNRS) and three universities (ULg, UGent, and ULB). In 2014, 12 Belgian repositories were listed in Webometrics, an index derived
from their web presence and impact of their contents UGent, KUL and ULg repositories are in the top 30 in European rank and the top 50 worldwide (iv). The difference in ranking between universities reflects the effectiveness of the mandate they have enforced. Compulsory archiving of scientific publications (whether OA or not) in an institutional repository is far more efficient than a recommendation to archive them.

d) Funders OA policies

Fund for Scientific Research-FNRS

In order to encourage researchers to make their work OA, some research funders have already developed Open Access policies and mandates. European initiatives such as the OA Pilot in FP7, the OA Guidelines for researchers funded by the ERC in 2013, and the anchoring of OA context as an underlying principle for all Horizon 2020 research have provided a springboard upon which Belgian policy can advance. In response to these guidelines the two major research funders in Belgium present OA mandates. The F.R.S.-FNRS Green Open Access Mandate, states that Recipients of F.R.S.-FNRS funding are required to deposit their final author drafts of journal articles, in their institutional repositories, immediately upon acceptance for publication. Access to these immediate deposits must be made OA straight away, or at the latest within 6 months (or 12 months for humanities and social sciences). Moreover, the F.R.S.-FNRS now supports the Gold Road to OA by enabling their funded researches to claim the costs of publication in OA journals from F.R.S.-FNRS funded projects (grants, CDR, PDR) to a limit of 500€ per article. Note that hybrids are not funded.

Fund for Scientific Research - FWO

The Research Foundation Flanders (FWO) has adopted similar rules to the Fund-FNRS rules on Green OA. Its researchers must self-archive, and make available in an OA repository, all peer-reviewed articles resulting from FWO funding, up to a maximum of one year after their publication. So, FWO is actively implementing an Open Access Policy too. Its general regulations explicitly state that in accordance with the Berlin Declaration, beneficiaries of FWO funding, credits and projects must deposit publications that result from FWO subsidies in a public OA database within one year of the date of publication. This should greatly contribute to the impact and validation of their work. Researchers are also advised to deposit their other publications in such an OA database - the so-called “Open Archives” - together with the research data underpinning these publications.
The Belgian Federal Science Policy Office (BELSPO)

Until 2015, BELSPO’s management plan states its commitment to free online availability of scientific information, in particular to that of research results and collections from Federal Research Institutions in compliance with the Berlin Declaration. The Scientific and Technical Information Service (STIS) allocated € 100.000 for the creation of an IR for results of research projects funded by BELSPO in a first phase (2014-2015), and all other Federal institutions in a second phase (2016). A clause has been drafted for inclusion in research contracts which binds federal research institutions under BELSPO tutelage. It invites researchers to publish results in OA publications or repositories. The State will, in any case, publish the mandatory research report in OA, providing all safety and privacy requirements are met. This clause has already been included in the prestigious Inter University Attraction Centres' program (IUAP) as well as in the Belgian Research Action through Interdisciplinary Networks (BRAIN). A more compelling definitive mandate is expected in 2015.

To go further, the Federal Open Access Strategy Working Group was setup to discuss the shaping of a common OA policy for the 10 Belgian federal institutions (cfr supra). It targets resolutions with regard to, business mandates, property rights, licenses, promotional campaigns metadata and indicators etc. The WG has established collaboration with the Royal Library, and more specifically with its Legal Deposit and its electronic interface. It is currently conducting a poll about requirements and use of OA among its researchers and research institutions. BELSPO and its ten research institutions (cfr supra) have been involved in the development of OA policies in order to help shape common policies and develop joint infrastructures since the early 2000s (v). Same with 3 institutes related to the Health Care Knowledge Centre (KCE).

The 3 KCE institutes have different policies towards OA but all of them are committed to the advancement of OA. The KCE strongly supports Green OA, although journal articles are not its core business. Its Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) compliant repository is mostly composed of medical and health reports. Adding journal articles is planned within the next 2 years. The institute intends to replace its internal database with a new one in order to implement the Current Research Information Systems (CRIS) concept. KCE has allowed the use of some of its research budget to be used to fund for Gold OA publication fees.

The aim of the use of OA Green repositories to disseminate a large variety of scientific communications and publications that goes beyond the dissemination of articles from scientific journals.
e) OA Infrastructures in Belgium

The development of OA Infrastructures started to gain importance after the endorsement of the Berlin Declaration and has seen an increasing number of institutions and funders implementing institutional repositories in support of institutional mandates.

In Flanders, the situation differs from its French-speaking counterpart as a platform has been set up. The department of Economy, Science and Innovation (EWI) of the Flemish Government organises an annual stakeholders and expert meeting (EWI FOCUS “Open Access”) to which the federal and BWF experts are also invited. In 2007, EWI created the FRIS programme (Flanders Research Information Space) thanks to EWI. EWI considered that an information platform for all stakeholders in the policy domain of economy, science and innovation was needed. Therefore, the research portal FRIS was created to ensure the transparent and automatic flow of research information (http://www.researchportal.be). The portal is accessible to all who wish to search for relevant research information within approximately 25,000 Flemish projects and about the same number of researchers. This portal for Flemish research has had over 2 million unique visitors since it went online in 2008. It is possible to browse through the database by using several search options: by research projects, organisations or persons, but also by publications.

RILOD (Research Information Linked Open Data), a pilot project is another achievement connected to FRIS. This project puts an emphasis on “open”. Structured research information of the FRIS research portal was combined with unstructured data on the www (full texts of publications, websites of organizations and people). Through an intelligent search engine this unstructured data was classified. In this way more than 600,000 Flemish publications were made available as open data.

In the BW, despite some local initiatives such as PoPuPS, there is no dedicated OA infrastructure that covers the whole spectrum of the publication activities yet.

Discussions have been taking place at the Fund for Scientific Research-FNRS to explore the feasibility of the setting up of an infrastructure for FWB repositories. A feasibility study has already been conducted in order to evaluate the possibility of integrating the Social Sciences and Humanities research projects that are financed by the WBF (other than through the funding of universities or the research funding agency) into a single OA portal.

Also, at BELSPO, the Orphan Open Access Repository (ORFEO) is currently at its pilot phase stage and will be fully operational at the end of 2015. SCK-CEN has been registering documents in an internal database since 2010. A quality control evaluation of the deposited items is performed by a librarian. A possible integration with Orfeo is now being studied but the migration of archives are expected to take up to 4 years.
Challenges, ongoing developments and conclusions

In Belgium, the move towards started more than ten years ago but it is the birth of the ID/OA at ULg in 2007 that paved the way for Belgian OA mandates. More than 15 Belgian research organisations have now OA mandates and have their own IR or share an IR. The development of OA in Belgium has been remarkable. However, one now notices regional differences regarding infrastructures: Flanders has its own portal (FRIS), BFW will create its own soon and federal scientific institutions will benefit from the creation of their own portal (Orfeo). It is clear that interoperability of the portals will soon be under close scrutiny by the CIS-CFS WG on OA.

The signature of the Brussels Declaration for OA in 2012 shows that the country is willing to develop a concerted approach on Green and Gold. Despite the move towards regional empowerment, coordination at the national level is happening thanks the CIS-CFS WG on OA.

The relatively good level of policy development should not hide the lack of a concerted policy at the national level. Indeed, the country suffers from a pervasive lack of resources for basic research that thwarts the potential developments of OA. However, OA strategy exists at the regional and community levels.
Also, the Fund for Scientific Research-FNRS and FWO are members of Science Europe and participate actively in the writing of recommendations on OA-related topics, such as OA to publications and OA to research data. The Federal Authority is also associated to Science Europe as it represents Belgium at the EC Network of OA Points of Reference.

The development of a strategy on OA to research data is gaining interest throughout Europe. Another noteworthy point would be that the Green and Gold models coexist in Belgium. Providing the Gold model evolves in a fair and reasonable way, there will be no political wish to privilege one model over the other as they appear to be complementary, provided Author Publication Charges (APC) are proportional to the editor service provided.

Another avenue to explore is the potential to explore new models of OA scientific communication (OA to data and OA to books) along with a harvesting system that would allow for access to all indexed publications contained in institutional repositories. Again, the CIS-CFS WG on OA should be beneficial to these developments as member of the ERAC taskforce on Open Data. Thanks to ULg, Belgium came to the fore. However, OA is a never-ending process and relentless efforts must be made to keep up with the progress in the expanding field of OA.

**Useful links**

- [FNRS Rules for OA](http://www.fnrs.be/index.php/open-access)
- [FWO Rules for OA](http://www.fwo.be/nl/algemeen-reglement)
- [Open Access website](http://openaccess.be)
The F.R.S.-FNRS: KEY POINTS
R&D public funding scheme: slightly complicated...? ~ 2.3 billions €

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Annex 1 – Overview of the research funding landscape in Belgium

http://www.pasteur4oa.eu |
4.2 Denmark

Education, Research and Open Access in Denmark

PASTEUR4OA PROJECT
CRISTIN
Jens H. Aasheim, Nina Karlstrøm
Education, Research and Open Access in Denmark

The following is a short presentation of the education system, research and Open Access in Denmark. As regional coordinator for the Nordic region, CRIStin (Current Research Information System in Norway) was asked to write a case study of Denmark. This study is based in large on data and statistics provided by the Danish Key Node, Anne Sandfær, and the Danish Ministry of Higher Education and Science.

Summary

As one of the countries to focus on Open Access quite early, Denmark was off to a head start. E.g. the Danish government appointed an Open Access Committee to recommend steps on how to implement the transition to Open Access. But progress has been time-consuming. However, several of the suggested recommendations have already been, or are now being implemented. National policies, joint policies for the Danish Research Councils and tools for monitoring Open Access output are some examples. The main focus of the Danish Open Access effort has been directed towards repositories, depositing and the so called green route.

The research and scholarly communication system of the country

Denmark has a population of 5.6 million, 7.5% of which have a university/college level education of five years or more. There has been a steady increase in output of the Danish research education programs, from over 1200 finished PhDs in 2009 to over 1600 in 2012. These graduate from one of the 8 universities, 7 university colleges or 4 university hospitals in Denmark.

To promote publication in channels with high impact, publications are classified in two levels, level 1 and 2, where the most prestigious journals are classified at level 2. In 2012/2013 9.1% of the 15 500 level 1 journals are listed in DOAJ, and 2% of the level 2 journals. 12.7% of papers published in level 1 journals, and about 10% in total (1 538 papers), were Open Access. There are 40 Danish journals listed in DOAJ.

In 2013 Denmark registered about 21 700 scientific publications, 16 300 of which were research papers. This shows a steady annual increase, up from about 17 000 and 12 800 respectively in 2009. The University of Aarhus and the University of Copenhagen alone represent about 57% of total university publishing.

In 2012 R&D expenses for the public sector amounted to about €2.6 billion, while R&D expenses for the private sector was almost €5 billion. In total this amounts to approximately 2.95% of the Danish GNP. In 2012 Danish universities, university colleges and university hospitals had about €2.4 billion in total R&D expenses, of which €1 billion was externally funded. In 2012 the total Danish public R&D effort consisted of almost 22 000 work years, where the higher education institutions and university hospitals represented about 20 000. All in all, around 40 000 people were employed within R&D in 2012.

http://www.pasteur4oa.eu |
Denmark has five research councils, the Danish Council for Independent Research, the Danish National Research Foundation, the Danish Council for Strategic Research, the Danish National Advanced Technology Foundation and the Danish Council for Technology and Innovation. These research councils received about €300 million in funding for 2014.

Denmark participated in 1,974 projects in FP7, involving 512 Danish coordinators. The total FP7 funds received were €130 million (by March 1st 2014), up from €53 million in FP6.

**Current Open Access policy landscape**

In March 2011 a government appointed Open Access Committee issued the second and final iteration of a report which it started working on in 2009. In the report “Recommendations for Implementation of Open Access in Denmark”, the committee lists 16 recommended actions that have served as a basis for the implementation of Open Access to publications and data. In general the recommendations are to establish and promote Open Access policies on all levels. And to support Open Access work through dialog and collaboration, national as well as international. In addition to monitoring and long-term planning. The full report is available in English under “Useful links” at the end of this document.

The Ministry of Higher Education and Science outlined in 2014 its vision in the national strategy for Open Access:

“To create free access for all citizens, researchers and companies to all research articles from Danish research institutions financed by public authorities and/or private foundations.”

The chartered targets are to achieve unimpeded digital access via digital archives by 2017 to 80% of research articles published by Danish research institutions in 2016. By 2022 it should reach 100% of research articles published in 2021.

As a part of the national innovation strategy, the Minister of Higher Education and Science has set up a National Steering Committee for Open Access. The committee’s objective is to implement and further develop the national strategy for implementation of Open Access. The strategy has focus on both green and gold Open Access, but implementation is primarily to take place through the green route to avoid the extra costs often associated with gold Open Access. However the National Steering Committee for Open Access is given the task of examining the opportunity for a long-term and cost-effective transition to gold Open Access.

Following the recommendations of the previously mentioned report, in June 2012 all five Danish research councils implemented a joint Open Access policy in line with the European Commission’s policy. This policy requires researchers receiving funding from any of these councils to provide open web access to their results.

The Danish National Research Database is a central portal for Danish published research, such as scientific articles and PhD theses. It is open for contribution from all institutions of higher education, government research institutions, research councils and other public research institutions. At present
universities represent the main bulk, but new data contributors are being added continuously. As of October 2014 it contains over 760 000 records (over 353 000 journal articles), 6.9% of which are Open Access.

Challenges and ongoing developments

The Danish government is focused on preserving and ensuring free access to scientific information, and is therefore committed to the EC’s recommendation of Open Access to research data as well as publications. It is consulting and collaborating with the Danish universities, research councils and key providers of e-infrastructure.

Conclusions

With the appointment and work of the Open Access Committee, Denmark early put Open Access on the map. This resulted, among other things, in a joint Open Access policy for all five of Denmark’s research councils and a strong governmental mandate for Open Access. The focus is mainly on green Open Access and the depositing of research output in repositories.

Useful links


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For further information please contact: openaccess@cristin.no
4.3 Hungary

Hungary Open Access Case Study

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András Holl
Summary

Hungarian OA landscape, policies, challenges are reviewed. There are a few mandates, and a few declarations or policy documents which have relevance for Open Access. The role of the Hungarian Scientific Bibliography Database (MTMT) is discussed – as it can be used for monitoring OA mandate compliance. From infrastructural point of view, the OA status is considered fairly good, from the policy side much further efforts are needed, though the mandate of the Academy of Sciences is elaborate and seems to be effective.

For research data the OA situation is dire in the country. For small countries, like Hungary, the significance of EU-level coordination in shaping OA policies is enormous.

The research and scholarly communication system of the country

In the higher education system of Hungary publicly funded universities are dominant, and the relative weight of private universities is small. Hungary has a chain of research institutes belonging to the Hungarian Academy of Sciences (MTA). MTA is a learned society, it maintains a series of research centres and institutes, furthermore also acts as a research funder. However, the main research funding organization is the Hungarian Scientific Research Fund (OTKA). Hungary has one relatively large scholarly publisher, Akadémiai Kiadó, owned by Wolters Kluwer and the MTA. In the area Science / Technology / Medicine researchers largely publish in international journals, while in the Arts / Humanities / Social Sciences the Hungarian language, local publications prevail.

The Hungarian Scientific Bibliography Database (MTMT) is a nation-wide project, operated by the Library and Information Centre of the Academy (MTA KIK). It is expected to be legally mandatory in the future to record all publications resulting from public funding in MTMT – though the coverage is almost complete already.

Current Open Access Policy Landscape

a) Brief history of development of OA policies in the country

The Budapest Open Access Initiative was issued in Budapest, as a product of a meeting convened by the Open Society Institute. Despite its international long-lasting impact and the fact that projects for making specific scholarly literature openly accessible were already operating in the country, the immediate local impact of the Initiative was minimal.

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83 One such project we are aware about is the small journal “Information Bulletin on Variable Stars”, which was openly readable on the web since 1994/95, and from 2000 it had an HTML version with enhanced features.
OTKA, the main Hungarian funder, signed the Berlin Declaration in 2008 and issued an open access mandate (covering publications and data). MTA has had an open access mandate since 2012, and the Law on Higher Education has required OA for PhD theses since that year. The organisation of Hungarian open access Repositories (HUNOR) has been active since 2008 and the country participates in SCOAP³.

b) National strategies and policies for OA

Presently there is no national open access strategy or policy. The Law on National Higher Education (2011/CCIV), modified to this effect in 2012, requires PhD dissertations to be made open access, to have DOIs, and be listed in MTMT.

c) Institutional OA policies

The MTA policy is the only explicit one in the country. It is mandatory, both individual researchers and their institutions are responsible for execution, and monitored using the MTMT. The MTA mandate is ‘color-neutral’: it allows both gold and green open access. It is also repository-neutral: in case of the green open access, although the MTA repository (called REAL) is the default one, established disciplinary repositories could be used (as arXiv or PubMed Central), and in case of MTA-funded research for University researchers, using the repository of the given University is also possible. The MTA mandate does not cover research data. One important feature of the mandate is that not only the individual researchers bear the responsibility for making publications OA, but the OA compliance of research centres, institutions and groups are evaluated as well.

The MTMT is used to monitor open access compliance statistics for individual researchers and institutions (the project was sponsored by SIM4RDM) and to aggregate the distributed full text content. Compliance with the MTA open access mandate can be monitored on different levels, from the individual researcher through the research institutes and centres, up to the aggregated MTA publication output. However, the Open Access status information is not complete in MTMT yet – for the current year about 44% of the publications are open access, and for about 38% accessibility data is not available, while about 18% is not openly accessible.

MTMT has an almost complete coverage of the national scientific output, therefore Universities or other institutions will be able to benefit from the open access monitoring function in the future.

A few Universities have expressed their intentions to promote Open Access – one has signed the Berlin Declaration, another has policy documents which implicitly deal with Open Access. These are not full-fledged OA mandates, though.
d) Funders OA policies

The OTKA mandate is the only funder mandate. It is mandatory, but it is neither monitored nor enforced. The mandate is not an elaborate, specific document—it appears in the grant contract as two simple statements: all publications resulting from the funding should be made Open Access, using either the gold or green routes; and research data should be deposited in an open access repository. At the time when the mandate was issued, there was no possibility to monitor compliance (besides of asking researchers to report the URLs where their publications are openly accessible—but this option was not pursued). Now the MTMT can be used—if the OTKA funding is properly indicated in the database.

e) Infrastructural support for OA

Repositories are now established at almost all large Research Performing Organisations (RPOs). MTMT can function as a national aggregator for open access publications. Deposit is possible through MTMT to various institutional repositories using the SWORD protocol. MTA has an open access fund to cover gold open access Article Processing Charges (APCs), and OTKA earmarks a part of the overhead for funding open access. HUNOR (HUNgarian Open access Repositories) is a national open access support group, and acts as a communication forum for repositories and advocates open access. The MTMT has a task group for assessment and certification of repositories. The development of a national Open Access (aggregated repository) search portal is under way.

f) Hungarian OA in numbers

There are 29 Hungarian journals in the DOAJ; 28 repositories in Registry of Open Access Repositories; 24 repositories in OpenDOAR (Directory of Open Access Repositories); 3 mandates in the Registry of Open Access Mandatory Archiving Policies; 3 EU project participations (OpenAIRE / OpenAIREplus: Univ. of Debrecen; SIM4RDM: National Information Infrastructure Development Institute (NIIF); PASTEUR4OA: MTA KIK).

Challenges and ongoing developments

Developing national open access policies and strategies is a challenge—and it is envisioned PASTEUR4OA will catalyse progress in this regard. Open access mandates and strategies would be needed for the universities (presently only a few universities have some documents dealing with Open Access explicitly or implicitly, but neither of these are clear mandates, nor do they have any perceptible effects). Agreements between publishers and RPOs issuing open access mandates are needed—MTA has reached an agreement with Elsevier only recently. (In Elsevier's case, they require such agreements for allowing mandatory repository deposits. For all major publishers, agreements could enable MTA make bulk APC payments, instead of the authors paying on an article-by-article basis.) Open access for research data is uncharted territory, and not even the need for it is recognised widely. There are some positive developments nevertheless: the MTMT is examining the inclusion of “data” type research output besides of traditional publication, and MTA KIK considers setting up a data repository having recently joined DataCite. Most of the Hungarian publishers have no clear open access policies, and in general are worried about the harmful effects they conceive that open access might bring.
The research funding system of Hungary is under re-organization. There are indications that the new system might be beneficial from the point of view of OA. There is on-going legislation process about the registration of publications resulting from public funding, and there are indications that the government might welcome initiatives regarding a national OA mandate. PASTEUR4OA might catalyse this process.

Conclusions

The status of open access is mixed in Hungary – in some areas it is fairly developed, in other areas it is still rudimentary or lacking completely. The MTA mandate is elaborate and seems to be effective. The national PhD mandate seems to bring some effect after a slow start. But not much other result could be listed on the policy side. The infrastructure is fairly developed, there are many repositories working, or under construction. OA for research Data is where the most developments are needed. For relatively small countries, like Hungary, international cooperation is extremely important, and PASTEUR4OA and strong, uniform European standpoint is necessary.

Useful links

» MTMT (presently only in Hungarian) (http://www.mtmt.hu)
» Hungarian OA Portal / HUNOR (only in Hungarian) (http://www.open-access.hu)
» Library and Information Centre, Hungarian Academy of Sciences (http://konyvtar.mta.hu/index_en.php)
» MTA OA policies and Hungarian OA landscape (slides of a talk, MedOAnet final conference, Athens, 2013) (http://www.konkoly.hu/staff/holl/Athens.pdf)
4.4 Ireland

Ireland: The Transition to Open Access

PASTEUR4OA PROJECT
OPEN KNOWLEDGE
Stuart Dempster

http://www.pasteur4oa.eu |
Summary

Ireland’s transition to Open Access has been iterative and substantive, with government bodies and funding agencies adopting Open Access policies over a period of several years. These policies have been developed through consensus building amongst different stakeholders and culminated in the establishment of the National Steering Committee on Open Access in 201284. The committee had representation from all Irish funding agencies and in October 2012 it successfully formulated the ‘National Principles for Open Access Policy Statement’ which outlines a framework for Open Access in Ireland85. The principles, which have placed Ireland in an exemplar position in Europe, consist of a green way mandate and encouragement publishing in Gold Open Access journals. The policy is supported by all Irish funders and uses existing infrastructure including the use of RIAN86, a national portal that harvests content from Institutional Repositories of the Irish seven university libraries. The framework includes a set of common principles, general principles and other supporting statements on infrastructure, advocacy, coordination and exploiting Open Access.

The research and scholarly communication system of the country

Higher Education in Ireland is referred to as third level education. Ireland has seven Universities, fourteen Institutes of Technology, including the Dublin Institute of Technology and seven Colleges of Education. Other third level institutions provide specialist education in such fields as art and design, medicine, business studies, rural development, theology, music and law.

Ireland is increasingly being recognised for its research ability. The Irish Universities Association states that "In 1981, the impact of Irish research as measured by the number of citations per publication has risen from a very low level to exceed the world & EU average, joining nations including France, Germany and the UK. In that period the number of papers produced per annum globally has increased by 100% whereas in Ireland it has increased by 400%. At the same time, Ireland has more than doubled its percentage share of world research papers. Currently, Ireland produces 0.49% of all world research papers”87.

There are approximately 100 book publishers in Ireland distributing their output in English and Irish online and through 230 bookshops and Irish book publisher sales account for around 20% of total book sales in Ireland. The number of books published in Ireland amounts to approximately 6,000 annually, though the volume sales, value and average selling prices have declined in recent years according to

84 Open Access Ireland (http://openaccess.thehealthwell.info/about-us-2)


86 Rian (http://rian.ie/en)

87 Irish Universities Association (http://www.iua.ie/research-innovation/research-impact)
Nielsen BookScan\textsuperscript{88}. Some of these book publishers; particularly international publishers with offices in Ireland have introduced different models of Open Access. Much of this is change is driven through funders mandates, such as the Wellcome Trust which has worked in partnership with the Health Research Board and Science Foundation Ireland and now includes monograph’s and chapters in their Open Access policy\textsuperscript{89}. The impact of Open Access is within Ireland is evident in Ireland’s scholarly journal output. Much of this is delivered through scholarly societies and university presses. Publishers and aggregators are now making articles Open Access, even when journals are not. For example, the Irish Journal of Medical Science\textsuperscript{90} is delivered via Springer and now has 21 Open Access articles available on the publisher platform.

**Policy Landscape**

The first Irish funder to adopt an Open Access policy was the Irish Research Council for Science, Engineering and Technology (IRCSET) in 2008\textsuperscript{91}. The IRCSET was merged with the Irish Council for Humanities and Social Sciences in March 2012 to form the Irish Research Council. Other funders adopted Open Access policies subsequently including the Higher Education Authority in June 2008 and the Science Foundation Ireland in February 2009\textsuperscript{92}.

Driven by the post-2008 economic downturn in Ireland, which resulted in a need for greater public accountability and value for money, the establishment of the National Steering Committee in 2012 accelerated the move towards a national strategy on Open Access in Ireland\textsuperscript{93}. The committee included all major stakeholders, namely the Heath Research Board, Science Foundation Ireland, Consortium of National and University Libraries, Department of Agriculture, Food and Marine, Digital Repository of Ireland, Dublin Institute of Technology, EdepositIreland, Environmental Protection Agency, Health Service Executive, Higher Education Authority, Institute of Public Health in Ireland, Institutes of Technology Ireland, Irish Research Council, Irish Universities Association, IUA Librarians' Group, Marine Institute and the Royal College of Surgeons in Ireland. Its combined expertise across a range of disciplines sought to reach consensus on Open Access policy and strategy.

Progress amongst Irish funders, publishers, universities, academics and libraries has not been without

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\textsuperscript{88} Nielsen Bookscan (http://www.nielsenbookscan.co.uk/controller.php?page=48)

\textsuperscript{89} Wellcome Trust Monograph deposit (http://www.wellcome.ac.uk/About-us/Policy/Spotlight-issues/Open-access/Monograph-deposit/index.htm)

\textsuperscript{90} Springer (http://www.springer.com/medicine/internal/journal/11845)

\textsuperscript{91} Registry of Open Access Repository Mandates and Policies (http://roarmap.eprints.org/63)

\textsuperscript{92} Registry of Open Access Repository Mandates and Policies (http://roarmap.eprints.org/95/; http://roarmap.eprints.org/115)

\textsuperscript{93} Open Access Ireland (http://openaccess.thehealthwell.info)

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difficulty, but the Irish Government has accepted the premise that publicly funded research should be Open Access. This has taken place against a backdrop of on-going issues related to the length of embargoes, issues of career progression for young academics and the viability of the scholarly publishing system.

The implementation of Open Access for Irish institutions has required the development of institutional and shared digital infrastructure (e.g. digital repositories), increased engagement with scholars to ensure that research outputs are deposited in repositories and published in Open Access journals (where appropriate), the adoption of new roles (e.g. by academic libraries) to manage the increasing scale of article-processing charges (for ‘Gold’ Open Access) and the development of the ‘National Principles for Open Access Policy Statement’ launched on 23rd October 2012 by funders, which is supported by a coordinating committee of funding agencies.

The Common Principles state:

1. The policy confirms the freedom of researchers to publish where ever they feel is the most appropriate.
2. The policy is intended to increase the visibility of, and improve access to, the outputs of research funded by the Irish State, where such research is published by the researcher(s) concerned.
3. The policy is designed to support the free flow of information across national and international research communities; to support the principle of research-enabled teaching and learning and the generation of Open Education Resources (OERs); to contribute to Open Innovation through richer and more effective knowledge transfer and diffusion; and to support greater transparency, accountability and public awareness of the results of publicly funded research.
4. The policy is based on recognised best practice. It aligns with EC and OECD Open Access recommendations.

The General Principles state:

1. Peer reviewed journal articles and other research outputs resulting in whole or in part from publicly-funded research should be deposited in an Open Access repository and made publicly discoverable, accessible and re-usable as soon as possible and on an on-going basis.
2. Repositories shall release the metadata immediately upon deposit. Open access to the full text paper should be made immediately upon deposit or upon publication data at the latest.
3. Researchers are encouraged to publish in Open Access Journals, but publishing through Open Access Journal is not necessary to comply with this Open Access policy. Payment of additional Open Access charges through the ‘Gold’ Open Access model is not necessary to comply with this policy.
4. A repository is suitable for this purpose when it provides free public access to its contents, supports interoperability with other repositories and with other research information and reporting systems, is harvestable by national portal(s) and international aggregators and takes steps toward long-term preservation.
5. Research data should be deposited whenever this is feasible, and linked to associated publications where this is appropriate.
The committee’s recommendations on Open Access were accepted by the Irish Government in October 2012. Ireland adopted a ‘Green’ Open Access policy, with optional provisions for funders to fund ‘Gold’ Open Access article processing charges and the encouragement to open up the accompanying research data too. The Committee continues its work to help develop Open Access in Ireland, as many funders agree that these are ‘early days’ and the transition to Open Access will need to be supported. To help support this transformation Ireland has established a number of support services to assist with staff development and the creation of peer-to-peer networks. Ireland has also invested in a network of 13 institutional repositories that are supported by shared trusted repositories and discovery services.

**Infrastructure**

In 2007 the Irish Government awarded funding to build an Open Access institutional repository in each Irish university and to develop a federated harvesting and discovery service via a national portal for Open Access publications. The Irish Universities Association coordinated the development of the project that resulted in the launch of Rian (the Irish word for ‘path’) in October 2010. Rian is a portal that enables users to search across Open Access repositories from partnering institutions. Additional partners are now involved with Rian including the Dublin and Waterford Institutes of Technology. A working group helped support the development of this Irish Open Access institutional repository infrastructure, called ‘ReSupIE’. It provided practical support to assist with the implementation of Open Access in partnering organisations. This assisted with the transition in regards to skills development, knowledge transfer and organisational change. Rian statistics reveal that there are 48,552 Open Access items available (between 1st January 1970 to 26th November 2014) in Ireland. Rian collaborates with other European Open Access repository initiatives such as OpenAIRE, DartEurope, Driver and Base.

Open Access to humanities and social science research data is facilitated through the Digital Repository of Ireland. A research consortium of six academic partners working together to deliver the repository, policies, guidelines and training built the trusted national repository. These research consortium partners included the Royal Irish Academy (RIA, lead institute), National University of Ireland, Maynooth (NUIM), Trinity College Dublin (TCD), Dublin Institute of Technology (DIT), National University of Ireland, Galway (NUIG), and National College of Art and Design (NCAD). A network of academic, cultural, social, and industry partners, including the National Library of Ireland (NLI), the National Archives of Ireland (NAI) and RTÉ, also supports the repository.

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94 Rian, Pathways to Irish research (http://rian.ie)

95 Irish Open Access Repositories Support Project Working Group (http://www.irrel-open.ie/moodle)

96 The number of items in RIAN during the specified time period (http://rian.ie/en/stats/tableInfo)
Open Access to health service research and grey literature is facilitated through the Lenus repository. Lenus was launched in 2009 and is managed by the Health Service Executive (HSE) Regional Library & Information Service in Dr. Stevens’ Hospital, Dublin. Lenus makes available the research output of the many organisations providing healthcare in Ireland, along with their administrative, clinical and regulatory publications. Together they provide the background and context for Irish healthcare. In October 2013 Lenus was included as a participating repository in RIAN, the national Open Access portal. Another recent initiative is EdepositIreland, a self-deposit service open to all publishers in Ireland managed by Trinity College Library, Dublin. The edeposit collection works alongside a sister repository, TARA (Trinity’s Access to Research Archive).

Skills Landscape

The Repositories Support Project Working Group has supported staff skills in the development of Open Access and repository management. The Repository Network Ireland (RNI) group helps librarians, repository managers and other information professionals develop their technical skills. To date the RNI has run several events including a workshop on copyright and repositories and two teachmeet workshops held during international open access week in 2013 and 2014. Plans for 2015 include a workshop on research data management and another teachmeet. RNI is run on a voluntary basis and manages a LinkedIn Group, a Twitter account and Gmail account.

Challenges and On-going Issues

While Irish funders do ask grantees to confirm whether they have complied with the Open Access requirements in their grant funding reporting there is a recognition that more could be done to ensure more compliance with Open Access requirements. The evidence to support the impact of the ‘Green’ Open Access policy in Ireland is limited, but anecdotal evidence from some Irish funding bodies indicate that compliance with the Open Access recommendations is extremely low, but increasing. There is a recognition that such major cultural change across scholarly publishing and research behaviours requires encouragement rather than compulsion at this stage of the process. Agencies such as Science

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97 HSE is the Irish equivalent of the UK’s National Health Service – NHS.

98 Lenus repository (http://www.lenus.ie)

99 EdepositIreland (http://edepositireland.ie)

100 Trinity’s Access to Research Archive (http://www.tara.tcd.ie)

101 Repository Network Ireland (http://rni.wikispaces.com)
Foundation Ireland have started an annual audit and this is beginning to show increasing amounts of compliance amongst grantees.

Some have questioned whether a mandate to publish research findings is enough or should policies and strategies take into account the ‘durability’ of Open Access. For example, if research findings can be easily found, but cannot be validated because data and other research outputs that would permit reproduction are not available, then the value of the research may be lost over time. A number of grantees have expressed the desire to see the critical path to the costs of data archiving be included in future funding. Meanwhile, the evidence to support the socio-economic impact of Open Access across Irish society and the economy has yet to be measured. Some funders are now considering what steps might be required to assess the impact of their open access policies.

One recent positive step is the voluntarily adoption of Institutional mandates requiring Open Access archiving of research publications by Irish institutions, led by Trinity College Dublin. There is now a move within these institutions to link publications to performance and future funding.

**Conclusions**

Ireland stands at an important juncture in its Open Access journey. Significant progress has been made in delivering Open Access using institutional and national policies and strategies. These are underpinned by institutional digital repository infrastructure and the development of shared trusted national repositories. Skills development has been supported through the development of peer-to-peer networks. Higher education sector changes as a result of reports of research prioritisation and a national strategy for higher education to 2030 have also played their part.

However some concerns remain over the sustainability of Open Access and scholarly communications. Some additional research and modelling on the part of funding agencies might address these concerns, especially if the lessons learnt from the digital preservation and the total cost of ownership are taken into account. This may require a review of the way funding is calculated to take into account a more durable Open Access environment. Additional evidence on the return on investment from Open Access in Ireland could be considered. This might, for example, include a challenge fund to encourage ‘secondary research’ based on OA research data and publications. Such case studies might help address some of the knowledge gaps that exist in regards to the value and benefits to Irish research of Open Access over time.

The case for shared digital infrastructure beyond research data in the humanities and social sciences and the Rian discovery portal remains an open topic in Ireland. However, getting early stage implementation for Open Access remains a priority at this stage. Additional investigation into further subject-based, national or international digital infrastructure is likely in the future.
Useful links

» Digital Repository Ireland (http://www.dri.ie)
» Open Knowledge Ireland (http://openknowledge.ie)
» Research Data Alliance (https://rd-alliance.org)

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4.5 Norway

Education, Research and Open Access in Norway

PASTEUR4OA PROJECT
CRISTIN
Nina Karlstrøm, Jens H. Aasheim
The CRIStin organisation was established in January 2011 under the ownership of the Ministry of Education and Research in cooperation with the Ministry of Health and Care services. CRIStin has three main functions: to manage and further develop the national CRIS system, to coordinate the implementation of Open Access in Norway and to negotiate licence agreements for e-resources on behalf of consortia of research institutions.

Summary

Norway is a small country with a quite centralised research infrastructure. Building good services for Open Access infrastructure is simplified by having one major research funder, one national CRIS and one key provider of repository services. Politically the Government has expressed in a White paper its commitment to making Norwegian research results openly available. Despite Norwegian research institutions focus on Open Access, institutional policies tend to be vague and based on good intentions. The need for alignment and policy reinforcement is there for evident, and the PASTEUR4OA project provides a great opportunity for this.

The research and scholarly communication system of the country

Norway with a population of around 5 million, has 8 universities and 48 university colleges. Statistics show that 22% of the population over 16 years of age have a higher education degree at university/college level (4 years or more). The country has seen a steady growth in research education, and in 2013 more than 1500 finished their doctoral theses. In addition, Norway has 61 research institutes being partially publicly funded and 6 university hospitals. The national CRIS, CRIStin, registered around 20 000 academic publications from 160 institutions in 2013.

In the last 10 years, Norway has seen a growth in the number of scientific publications of 89% (increase per research position is 54%). Papers from Norwegian universities rank above the world average when it comes to citations, but they rank below some of the top Swedish and Danish universities. The four oldest universities in Norway (University of Oslo, Norwegian University of Science and Technology in Trondheim, University of Bergen and University of Tromsø) contribute to about 70% of all the university and university college publications.

These publications form part of the research institutions result based funding (RBO), albeit a small one. The Norwegian Publication Indicator is used to distribute around 2 percent of the total funds for the university and university College sector (the overall funding for research is around €290 million from the Norwegian Research Council, and a total budget of about €4.4 billion in 2013). To promote publication in channels with high impact, Norway has adopted a two-tiered classification of publication channels. Level 2 channels are the most important channels within each subject area and constitute at most 20 percent of a subject area’s total scientific production. The level 2 channels therefor award more publication points than those at level 1. The register of approved channels contains about 25 000 scientific journals.
A cross-check with DOAJ shows that approximately 2500 of the 25 000 channels are OA journals and, in 2012, 1800 articles were published in Open Access journals, 175 of these in level 2 journals.

In 2012, combined R&D expenses in Norway amounted to about 1.65% of the GNP. This is lower than the other Nordic countries, and below the OECD average. However, compared to population, it is well above average and second only to Finland.

In 2011 Norwegian universities and university colleges represented 26% of all Norwegian R&D efforts, while the independent research institutes contributed about 23%.

The Norwegian Research Council is Norway’s main research funding and research strategic agency. It has a total budget of about €1 billion.

The Norwegian contribution to Horizon2020 is about €2.1 - 2.3 billion. This is a doubling compared to FP7, where Norway contributed about €1 billion. As reported by the Ministry of Education and Research, in the report “Forskningsbarometeret 2014”, Norway has collected almost €700 million in funding from FP7 by November 2013. This is a success rate of about 19%, from a total of over 2700 applications.
Current Open Access policy landscape

The Government first mentioned Open Access in the White paper on research for 2004-2005. The paper discusses the problems with increased subscription costs of journals, and that an alternative economic model for dissemination, Open Access, is emerging. The paper also mentions the growth of institutional repositories. The Norwegian Open Research Archives (NORA) was established in 2004 as a project, and it helped raise awareness for both green and gold Open Access. In 2011 NORA was established as a service with CRIStin, the national CRIS.

In the White paper on research, “Lange linjer” (St.meld. 18, 2012-2013), the Norwegian government demands that all publicly funded research must be published Open Access and/or deposited in a repository. Research institutions are encouraged to, individually or combined, establish APC (article processing fee) funds for covering costs associated with Open Access publishing. In the same paper CRIStin is charged with the responsibility of working towards a coordinated Open Access effort on a national and EU basis. CRIStin, as the national consortium for license agreements, is also given the task of leading negotiations with scientific publishers to lower APC costs.

The Norwegian Research Council has an Open Access policy that says all research funded by it must be made Open Access. All papers and articles must be deposited in a repository, with a maximum allowed embargo period of 6-12 months. If these conditions are not met, funding can be withheld. In a transition period from 2014 to 2019 the NRC will also help cover APCs. After 2019 it is expected that APC-funding will be part of project funding.

CRIStin did a survey of all Norwegian research institutions to map policies, institutional APC-funds and establish contact points for Open Access. The results show that there is a great deal of commitment regarding Open Access, and that it is continually gathering momentum. An effort is being made into making Norwegian research publicly available, however current policies tend to be non-mandatory and express intentions rather than mandates. A link to those institutions who have funds is included at the end.

Norway has a strong infrastructural support for Open Access. With the exception of three universities and a few colleges, the higher education institutions and research institutes are members of BIBSYS Brage, a centralised platform for repository services. Administering almost 60 repositories, the consortium that forms Brage ensures updated technical support and development of the DSpace platform. Norway has a national CRIS which is responsible for the national repository harvester, NORA. Researchers can use the CRIS to upload a copy of the article which is then transferred to the author’s institutional repository. The CRIS can also be used to identify potential articles for the repository by checking records in the CRIS with Sherpa/Romeo and then seeing if an article that could have been self-archived actually has been. A report can be issued for each repository to identify articles that could have been deposited, which they then can use to contact the author. NORA then harvests all repositories and links it back to the CRIS records. A look-up service with DOAJ makes sure all full text content in the CRIS is highly visible.
Challenges and ongoing developments

The Norwegian Research Council recently published its policy on Open Access to research data. The policy states that research data should be stored securely and be made openly available. The data should be made available no later than the publication date and must be enriched with metadata. Exceptions to the policy can be made for legal, ethical or security reasons.

To encourage scientific publication in Norwegian, the Research Council helps fund 15 Norwegian-language journals in the Humanities and Social Sciences. As of today they are based on a subscription model, but NRC has announced that from 2017 all journals that receive NRC funding must convert to Open Access. A working group is now outlining business models for these journals. A consortium model of Norwegian libraries with subscription costs converted to APCs might be a solution.

Conclusions

With its national CRIS system and centralised repositories, Norway has established a robust research infrastructure. But even though Norwegian public research funding is subject to a government Open Access policy in line with EU’s Horizon2020 policy, the policies of Norwegian research institutions are still generally vague and based on good intentions rather than mandates. However, many, if not most, of the research institutions in Norway have a strong focus on Open Access. This is illustrated by the numerous institutional APC funds that have been established. However, the need for policy alignment and reinforcement is evident. The PASTEUR4OA project provides a great opportunity for Norwegian research institutions to develop effective and coordinated Open Access policies.

Useful links

» List of Norwegian institutions with APC-funds (in Norwegian) (http://www.openaccess.no/faq/fond-arkiv-tidsskrift-i-norge/publiseringsfond-ved-norske-uh-institusjoner)

» CRIStin homepage (http://www.cristin.no/english)
4.6 Portugal

Portugal Open Access Policy Landscape

PASTEUR4OA PROJECT
UNIVERSITY OF MINHO
Documentation Services
Summary

This case study includes a brief description of the Portuguese higher education and research systems, followed by a short history of the development of Open Access policies in the country, including all aspects of implementation and supported infrastructures. It concludes listing some challenges and ongoing developments.

In Portugal, the development of a solid and mature repository infrastructure, providing a range of relevant services and supporting an active OA community, around the Scientific Open Access Repository of Portugal - RCAAP - offered a solid basis to the definition and implementation of Open Access policies within research performing institutions and research funders. The majority of Portuguese Higher Education Institutions have an institutional repository as the main access point to their scientific output, and most of them also have defined Open Access policies requiring deposit into their institutional repositories.

Currently, there are strong and effective policies in Portugal, like the mandates from Instituto Politécnico de Bragança (IPB) and University of Minho, which link repository deposition with the institutional processes of reporting and evaluation. Over the last few years, and taking advantage of the participation in EC’s funded projects, OpenAIRE, MedOANet and PASTEUR4OA projects, an effort has been made to homogenise the OA policies in Portugal and align them all with the EC recommendations.

Other factors which contributed for the success of the infrastructure and policy initiatives were the strong advocacy strategy implemented in the RCAAP context, the focus on promoting interoperability, the adoption of DRIVER Guidelines, the use of the validator to periodically verify the repository compliance, and a helpdesk service to help institutions when needed. Finally, the Open Access mandate of the major public funder launched in May this year reinforced the idea that there remains room for development and improvement of Open Access issues in Portugal.

The higher education and research systems of Portugal

According to the current legislation, the Portuguese educational system comprises three levels: basic, secondary and higher education. The higher education structure includes public and private university and polytechnic institutions.

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Higher education institutions are directly funded from annually funds of the national budget, and also through the use of their own income from fees, funding of research projects, community funds, and community service, among others.

Scientific research takes place in R&D institutions which are funded by the Portuguese public funding agency – Fundação para a Ciência e a Tecnologia (FCT) - based on their periodic evaluation and number of PhD researchers. Currently, there are 292,103 R&D Units and 26 Associate Laboratories, housing more than 22,000 researchers. The vast majority of these research units are part of, or affiliated to, the Portuguese universities.

Since 1996 has been performed the process of evaluation of R&D Units. In 2013 a new review of national R&D Units was launched. This new evaluation process was carried out by international evaluation panels in two phases. The results of the last evaluation and associated funding will come into effect from January 2015 and are valid for period of six years. Approved R&D Units will be financed through national funds and, when eligible, co-financed by EU funds in the framework of the Common Strategic Framework for 2014-2020.

### Table 1 – Number of university and polytechnic institutions

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<th>University education</th>
<th>Polytechnic education</th>
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<td>Public</td>
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<td>Private</td>
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<td>62</td>
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<td>Total</td>
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According to the scientific research output 2008-2012 included in the WoS (Web of Science) the number of publications and citable documents in Portugal have been increasing over these five years. Comparing with other European countries, Portugal is between Spain and France in regard to the number of publications per million of inhabitants in 2012.

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With respect to scientific journals in Portugal the creation of the national journal subscription consortium B-on106 – Online Knowledge Library – in 2004 contributed to a significant increase the accessibility of scientific journals by Portuguese libraries and researchers. Regarding open access journals there are 451 Portuguese publishers indexed in the DOAJ (Directory of Open Access Journals).

**Current Open Access policy landscape**

In Portugal, the recent developments concerning Open Access policies has been mainly driven by the existence of a mature infrastructure and service provision resulting of the work done by different entities and projects. The first Open Access initiative was the creation of the institutional repository of the University of Minho, RepositóriUM, in 2003, followed by the definition of an institutional Open Access policy at the end of 2004. Over the following years some other repositories were created, and the first OA journals were established in Scielo Portugal.

But the turning point on Open Access evolution in Portugal was the launch of the Scientific Open Access Repository of Portugal (RCAAP) in 2008, aiming to promote visibility and accessibility to the Portuguese scientific output, and to integrate Portugal into international developments and progress. The early stages of the RCAAP Project were focused on the creation and development of repositories, through a) the development of the RCAAP portal, aggregating, indexing and providing unified access to Open Access research results from Portuguese institutional repositories; b) offering a free repository hosting service (called SARI – Serviço de Alojamento de Repositórios), to facilitate the creation and management of IRs in many Portuguese research and higher education institutions; and c) training and advocacy about repositories and Open Access, targeted to repository managers and HEI leaderships and top managers. The results of these activities were immediately visible with the number of institutional repositories growing from 10 in 2007, before the RCAAP project, to 26 in 2009 (one year after the project started), and currently 42107.

Beyond the two original services (RCAAP Portal and SARI, which continued to grow and continue to be the core and most important services of RCAAP), over the last few years the project extended its scope, building new value-added services for the Portuguese scientific community. Examples of this orientation are the Common Repository (a repository service designed for the researchers affiliated with Portuguese institutions taking part of the national scientific institution system which do not have their own institutional repository), the repository Validator (a service to validate and monitor the compliance of repositories with the standards, guidelines and best practices adopted by the project), and the Centralised Service on Repository Usage Statistics (SCEUR, a centralised system allowing aggregation of statistical data on repository usage). Regarding journal publishing, RCAAP offers the Scientific Journal Hosting Service (called SARC, based on Open Journal System (OJS) platform, a service to host and facilitate the management of scientific journals), and also supported the launching in 2010 of the Blimunda Project, that started to collect and help to define self-archiving policies from Portuguese scientific publishers’ and journals’ and to include these policies in the SHERPA/RoMEO database (which

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107 Institutional Repositories aggregated in the RCAAP Portal available at: [http://www.rcaap.pt/directory.jsp](http://www.rcaap.pt/directory.jsp)
was translated into Portuguese). At this time there are 117 Portuguese publishers’ self-archiving policies registered in the SHERPA/RoMEO database.

Another priority of the second stage of RCAAP evolution was the promotion of the definition and implementation of Open Access policies by research performing institutions and research funders. For that purpose, as well as several other advocacy activities, an Open Access Policies Kit was developed in 2010. The work of RCAAP on the policy front had a significant impact on the definition of Open Access policies by research performing institutions, especially in 2011 and 2012. Currently, there are 21 OA policies from research performing organisations. Most of them (N=10) require the deposit into institutional repositories.

Table 3 – Number of Open Access policies from Portugal

<table>
<thead>
<tr>
<th></th>
<th>University education</th>
<th>Polytechnic education</th>
<th>Public Undertaking (Health organisations)</th>
<th>Funder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>9</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Private</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Despite being considered as mandatory, some of the policies have no monitoring procedures in place, and some aspects need to be clarified, mainly regarding access and embargo conditions, versions to deposit, and date of deposit. There are, however, strong and effective policies in Portugal, like the mandates from Instituto Politécnico de Bragança (IPB) and University of Minho, which link repository deposition with the institutional processes of reporting and evaluation. Over the last few years, and taking advantage of the participation in EC’s funded projects, first in MedOANet Project and currently in the PASTEUR4OA project, an effort has been made to homogenise the OA policies in Portugal and align them all with the EC recommendations (and hence each other).

Recently, the most significant development at the policy level was the establishment of the mandatory Open Access policy of the Portuguese major public funder – Fundação para a Ciência e a Tecnologia (FCT) – which was released in May 2014. Taking advantage not only of the underlying infrastructure but also of the services and support provided by RCAAP, FCT launched a public consultation on proposals for policies on Open Access, resulting in a policy on Open Access for publications, and also a policy on management and sharing of data. The policy on Open Access for publications requires that all publications or research outputs subject to peer-review or another form of scientific review should be deposited in one of the Open Access repositories hosted within RCAAP as soon as possible, preferably

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108 SHERPA/RoMEO available at: http://www.sherpa.ac.uk/romeo/search.php
111 Open Access Policy of the University of Minho available at: https://repositorium.sdum.uminho.pt/about/ficheiros/Despacho_RT-98_2010.pdf
112 Open Access to publications of results of FCT-funded research available at: https://www.fct.pt/documentos/PoliticaAcessoAberto_Publicacoes.pdf

http://www.pasteur4oa.eu |
immediately on acceptance for publication. An embargo period is allowed, after which the full content of the publications should be made freely available, at no cost. The policy applies to papers in scientific journals, conference proceedings, posters, books and book chapters, monographs, Masters and PhD theses. The policy on management and sharing of data and other results arising from FCT-funded research encourages researchers to share primary data and other data with the scientific community by placing the data in Open Access databases within the shortest time possible. In both policies, FCT funding encompasses project grants, studentships and fellowships, and career development contracts (FCT Investigator).

**Challenges and ongoing developments**

The participation of the University of Minho in the EC’s funded projects as OpenAIRE, MedOANet and PASTEUR4OA has facilitated the networking between research performing organisations and research funders in order to foster the alignment of Open Access policies with the EC’s recommendations. The members of the National Task Force, which includes representatives of research performing organisations, research funders and scientific publishers, created within MedOANet are committed to meet at least once a year to maintain an active engagement programme with other national policymakers, mainly private research funders, and other relevant research performing institutions, supporting them in developing and implementing Open Access policies.

The implementation of the funder’s mandates (both FCT at national level, and the Horizon 2020 OA mandate at European level) is the main challenge for the development of Open Access in Portugal in the coming months. There are several requirements to be met at the infrastructural level, namely: upgrading current versions of repository software; using identifiers for authors (ORCID), organisations, projects and digital objects; facilitating the deposition of research results into repositories (using automated or semi-automated deposit of metadata and full texts); and promoting the integration and interoperability of repositories with other components of the research information systems landscape at national (PT-CRIS being developed in Portugal) and international (OpenAIRE) level. But there is also the need to help institutions to upgrade their existing policies and/or the implementation and monitoring of those policies, in order to achieve higher compliance levels both for institutional and funder policies.

**Conclusions**

The development of a solid infrastructure, comprising a range of services which supported and motivated the community built around the project, contributed to the success of the RCAAP project and added an important impact on the Open Access landscape in Portugal. The Open Access advocacy strategies implemented in the context of RCAAP project influenced the adoption of Open Access polices.

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113 Management and sharing of data and results of FCT-funded research available at: https://www.fct.pt/documentos/PoliticaAcessoAberto_Dados.pdf
114 ORCID provides a registry of unique researcher identifiers and a transparent method of linking research activities and outputs to these identifiers, available at: http://orcid.org/
and mandates by research performing organisations, contributing to increase the number of contents deposited into their institutional repositories. Other factors for the success of these initiatives were the orientation to integrate the Portuguese work into the international context, focusing on promoting interoperability, the adoption of DRIVER Guidelines, the use of the validator to periodically verify the repository compliance, and a helpdesk service to help institutions when needed. Finally, the Open Access mandate of the major public funder reinforced the idea that there remains room for development and improvement of Open Access issues in Portugal.

Useful links

» RCAAP Directory (http://www.rcaap.pt/directory.jsp)
» RCAAP Services (http://projeto.rcaap.pt/index.php/lang-en)
» OA Policy of the Portuguese major public funder (https://www.fct.pt/dsi/eciencia/index.phtml.en)
» OA Policy of the University of Minho (http://roarmap.eprints.org/7)
» OA Policy of the Polytechnic Institute of Bragança (http://roarmap.eprints.org/292)
4.7 The United Kingdom

UK Open Access Case Study

PASTEUR4OA PROJECT
JISC
Mafalda Picarra
Summary

Recent Open Access (OA) policy developments in the United Kingdom (UK) have caused stakeholders such as universities and academic libraries to have to consider how to adapt to distinct funders OA policies and to ensure compliance with those policies. Following an independent study on ‘how to expand access to research publications’, also referred to as the Finch Report, the UK Government adopted a new OA policy and the Research Councils UK (RCUK) revised their OA policy. The newly adopted OA policies require research findings to be made OA through publication in open access or hybrid journals (Gold OA). More recently, the Higher Education Funding Council for England (HEFCE) announced that its OA policy for the next Research Evaluation Framework (REF) – the system that assesses UK universities research – will require the deposit of research findings in institutional or subject repositories (Green OA). By and large, the two distinct paths being currently promoted by the UK Government and RCUK (Gold OA) and the Funding Councils (Green OA) require that continued efforts be made to ensure that advice and support are provided to universities, academic libraries and researchers. They also require that coordinated efforts endure so that progress towards making research findings freely available online continues. Despite the distinct OA policies adopted by policymakers and national research funders, the UK’s movement towards OA has been a result of stakeholders coordinated efforts and is considered a case of good practice.

The research and scholarly communication system of the country

The UK is acclaimed for its world leading teaching and research. Research performed in the UK Higher Education Institutions (HEIs) is of intrinsic value to advance economic, social and technological progress. The dissemination and transfer of knowledge from the academic to the public and private sectors plays a key role in ensuring the UK’s role as a competitive knowledge-based economy.

UK HEIs are legally independent and self-governing bodies – with the exception of the Scottish universities – and their income derives from various streams. In particular, from UK funding bodies grants, tuition fees, endowments and investments, and research grants and contracts. In 2012/2013, the HEIs total income was of £29.1 billion of which the total income for research grants and contracts was of £4.7 billion. The HEIs research income is mostly funded by the UK Government Research Councils, the Royal Society, British Academy and the Royal Society of Edinburgh.

The funding bodies grants and research grants and contracts income that the UK Government makes available to HEIs is delivered through a dual support system. The Funding Councils for England, Scotland, Wales and Northern Ireland allocate ‘core funding block grants to HEIs for research infrastructure and to support their strategic research priorities’. Conversely, the UK Research Councils ‘provide grants for specific projects and programmes’ through a system of peer review of the research grants applications. Figure 1 illustrates how funding is allocated.
Figure 1 - Research Funding in Higher Education

![Diagram of Research Funding in Higher Education]


The UK’s renowned ‘world-class research base’ implies that it is also ‘a global centre for the publishing of research’. The high-level and high-quality research performed in HEIs contributed to the development of a complex and highly dynamic scholarly communications system. Multiple stakeholders – researchers, publishers, research funders, libraries and not-for-profit organisations – play an important role in the scholarly communications system.

UK researchers are both producers and users of research outputs and the most commonly used route to disseminate their research findings is by publishing peer-reviewed articles. UK HEIs researchers represent 4.1% of the global total researchers. They account for 6.4% of the global article share, 9.5% of the total article downloads, 11.6% of the total citation share, and 15.9% of the total highly-cited articles. The UK’s field-weighted citation impact is 1.61 – the world average by definition is 1.0 – and ranks in first position in the G8, sixth position in the EU27, eight position in the OECD, and ninth position globally.

UK based academic publishers account for an estimated 5,000 journal titles. The main publishers are commercial but there is also a significant representation of not-for-profit publishers. Traditionally, the commercial and not-for-profit publishing model is based on a subscription model where academic libraries pay for and subscribe to journals on behalf of their readers and researchers. In the last decade, alternative publishing models – open access publishing and open access self-archiving – have been explored and the UK Government, Jisc, funding bodies and HEIs have supported the implementation of
these models. In 2012, a study demonstrated that the uptake of OA publishing was of 5.5% at the global level and 5.9% in the UK. Publication in hybrid journals was of 0.5% at the global level (2011-2013) and 2.7% in the UK (2011-2013). The UK performed above the global average in OA publishing because Jisc supported publishers in experimenting with OA publishing and research funders \textquote{provided [direct] funding to grantees for the payment of Article Processing Charges}. In 2011-2013, the global uptake of self-archiving for the manuscript version was of 5.0% globally and 11.6% in the UK. Similarly, the UK’s performance above the average results from the fact that Jisc supported the development of a large network of institutional repositories and research funders implemented mandatory policies for their researchers to make accepted manuscript versions of published articles immediately available in institutional or subject repositories.

The UK’s scholarly communications system has been faced with numerous challenges that are a result of the changing ways in which society accesses information and of the increasing interconnectedness between economic agents, researchers, funders and the society in general. The emergence of the World Wide Web brought people closer and enabled a speedier sharing of information with fewer barriers and constraints. Traditional publishing models have consequently been challenged and scope for alternative publishing models has been considered. An important factor also contributing to this paradigm shift have been the challenges that UK academic libraries have been facing as a result of increasing costs of journal subscriptions above inflation levels and of decreasing or static libraries budgets. Furthermore, the journal subscription models have been tied to pre-determined subscription packages (big deals), leaving libraries with limited scope and resources to negotiate different subscription models and to subscribe to journals that are not included in the big deals. Funding bodies and tax payers, on the other hand, observed that research supported by public funds was often not accessible to them. This issue raised a consensus among the research and funding communities as well as the society in general that publicly funded research should be made freely available online. As a result alternative publishing models have been promoted by multiple stakeholders which not only increase authors options in terms of how and where to publish their research findings but also increase the scope for a wider access those findings.

Current Open Access Policy Landscape

a) Brief history of development of OA policies in the UK

In the 1990s, discussions started in the UK on how to improve access to academic publications. Professor Stevan Harnad argued in his \textquote{Subversive Proposal} that researchers should archive their works in electronic format so that they would be available for their peers to read and to \textquote{build on one another’s work}. At the time, academic librarians were becoming increasingly concerned about the libraries limited budgets and the growing costs of subscribing to academic journals. As a result, various stakeholders began to explore the feasibility of implementing alternative publishing models. For instance, Jisc financed the eLib Programme which started in 1994 and looked for ‘innovative approaches
to electronic journals, incorporating data and multimedia content and using new business models’. The programme sought to ‘transform the use and storage of knowledge in higher education institutions’xxiv.

In the early 2000s, the growing support for the implementation of alternative publishing models at home and abroad, placed OA at the centre of the national scholarly communications debate led by senior researchers, research funders, libraries, publishers and policymakers. In 2004, the House of Commons Science and Technology published the report ‘Scientific Publications: Free for All?’ The report considered that in light with the pricing policies practiced by publishers and the constrained academic libraries budgets, the UK Government should take a leading role in setting an agenda that would improve access to scientific publications. It recommended that HEIs developed institutional repositories, the Government financed the institution ‘of an interlinked network of institutional repositories’xxv, and Research Councils implemented mandates for researchers to deposit research findings in repositories (Green OA). In 2005 RCUK issued a position statement on access to research findings, declaring ‘that both e-print repositories and open access journals can help improve access to the results of publicly funded research’xxvi. In 2006, six of the UK Research Councils (AHRC, BBSRC, MRC, ESRC, NERC and STFC) issued their first OA mandates requiring peer-reviewed publications to be deposited in OA repositoriesxxvii.

In 2011, the Department for Business, Innovation & Skills (BIS) Minister David Willetts held a round table discussion on transparency with academic representatives, research funders, scholarly publishers and libraries. As a result of the discussion, a working group led by Dame Janet Finch was formed to investigate how to expand access to published research findings. In June 2012, the working group published the report ‘Accessibility, Sustainability, Excellence: How to Expand Access to Research Publications’. The report recommended that ‘a clear policy direction should be set towards support for publication in open access or hybrid journals, funded by APCs, as the main vehicle for the publication of research, especially when it is publicly funded’. It recommended Research Councils to adopt mechanisms to cover for publications costs and to monitor progress and impact. It also recommended that licensing arrangements be revised, that VAT costs be reduced, and that embargo periods should not be inferior to 12 months if funds were not available to cover for publication costs. On research data, it recommended that institutional and subject repositories ‘develop their roles in preserving and providing access to research data’xxviii. In July 2012, the Minister David Willetts officially expressed the Government’s support for the majority of the Finch Report recommendations including the implementation of a policy that promotes publications in open access or hybrid journalsxxix. At the same time, RCUK announced its new OA policy determining that findings resultant from RCUK funded research must be published in open access or hybrid journals (Gold OA). RCUK’ policy also required that research papers must ‘include a statement on how underlying research materials such as data […] can be acesssed’xxx.

In February 2013, the House of Lords Science and Technology Select Committee published the report ‘The Implementation of Open Access’ to evaluate RCUK’s OA policy implementation plan and the Finch Report recommendations. Overall, the report recommended RCUK to provide further instructions on its ‘incremental approach to compliance’ during the five-year implementation phase of the policy. It also recommended RCUK to provide further clarification on embargo periods and to monitor international
developments on OA policy adoption and preferred policy routes. It recommended the Government to conduct a cost-benefit analysis on OA publishing and to review the effectiveness of RCUK’s consultation on its change of policy direction xxxi. In March 2013, RCUK’s OA policy was revised in order to provide further clarification on the five-year transition plan and on embargo periods (see Table 1) xxxii.

In September 2013, the House of Commons BIS Committee published the ‘Open Access’ report that resulted from an inquiry conducted with stakeholders to review the Finch report recommendations and RCUK’s new OA policy. The report criticised the newly adopted OA policies, their preference for OA publishing, the length of embargo periods, the implications of CC BY licensing, the costs and implications of APCs, and the capacity for HEIs to remain internationally competitive under the new publishing model. It indicated that a considerable number of HEIs and funders already had Green OA mandates in place and that extensive investment had been made by the Government to develop OA institutional and subject repositories. As a result, the Committee strongly advocated for ‘author freedom of choice between Green and Gold open access’. It recommended that HEFCE developed a policy supporting ‘immediate deposit mandate as a requirement for eligibility’ and that RCUK revised its policy ‘by reinstating and strengthening the immediate deposit mandate in its original policy and improving the monitoring and enforcement of mandated deposit’ xxxiii. The Government issued an official letter in response to the House of Commons report. The letter emphasised the Government’s vision on how to lead the transition to OA, reiterating its preference for the Gold OA route. However, it also acknowledged that ‘decisions by researchers and the responsiveness of the publishing industry will determine whether Gold OA proves to be the prime route’ xxxiv.

In November 2013, the Finch group published the first ‘Review of Progress in Implementing the Recommendations of the Finch Report’. The group collected information from stakeholders to assess progress towards the implementation of the OA agenda. The report recognised that various challenges had been observed that hindered the effective implementation of the policy and that progress results were mixed. In particular, few HEIs had made funds available from other sources than the RCUK block grants to cover for APCs and that several HEIs continued to favour Green over Gold OA. It emphasised the need to ‘improve interoperability and effective flows of data between different systems’, to coordinate communications between stakeholders, to set a ‘formal structure to ensure active co-ordination of efforts’, to disseminate information about best practices and to continue to explore sustainable economic models. An important recommendation was the support for a mixed economy where preference is given to Gold OA but where nonetheless both models ‘play important roles in a transition period’ xxxv.

In contrast to the OA policies adopted by the Government and RCUK, the UK Funding Councils announced that their OA policy required that research findings must be ‘deposited in an institutional or subject repository on acceptance for publication, and made open-access within a specified time period’ xxxvi. The policy requires that compliance must begin from 1 April 2016, however, it recommends that HEIs start implementing it before this date. Despite promoting a Green OA route, the Funding Councils expressed their support for the UK Government and RCUK mixed model approach and for a dual publication model where publishers offer OA options and where new OA journals are created.
b) National strategies and policies for OA

The UK Government OA policy was stated in Minister David Willetts’ letter responding to the Finch Report in July 2012. Following the publication of the report, the Minister announced his extensive support for the recommendations and his commitment to promote their implementation via the Research Councils and the Funding Councils and in consultation with HEIs, publishers, learned societies and other xxxvii. The Government’s policy is aligned with the Finch Report recommendations and RCUK’s OA policy. Specifically, it favours Gold OA over Green OA, it promotes publishing in hybrid journals, it supports the principle that publicly funding should be made available to cover for APCs, it allows longer embargo periods for Green OA when APC funds are not available (12 months for STEM /24 months for HASS), and it requires CC BY licence for Gold OA but it is flexible on Green OA.

In January 2014, Minister David Willetts’, on behalf of the Government, welcomed the recommendations made on the Finch Report Progress Review. The Government reaffirmed its position on open access by restating its ‘strong preference for Gold and acceptance of Green OA’ xxxviii. It welcomed the recommendations made on cost and sustainability restating its support for allocation of funds for APCs, the provision of assistance to HEIs in the transition to Gold OA, the development of sustainable funding models, and the support for research on full cost benefit analysis. It also welcomed the recommendations made on governance and the proposal for Universities UK (UUK) to take the lead in promoting and supporting HEIs in the transition to OA. In November 2014, a new Innovation and Research Strategy for Growth will be released by the UK Government which will make reference to OA but it is not envisaged that the Government’s position on OA will change.

c) Institutional OA policies

The first institutional and sub-institutional OA policies were implemented in the early 2000s. The School of Electronics and Computer Science of the University of Southampton was the first to adopt a self-archiving mandate in 2003. According to the information available in ROARMAP xxxix, there are 51 self-archiving mandates in the UK which include 36 institutional, 4 sub-institutional and 11 thesis mandates xl. Forty-nine mandates require deposit of research outputs in institutional repositories (Green OA) and two require deposit in repositories whilst also recommending publication in open access journals (Gold OA). The PASTEUR4OA project has recently collected up-to-date information on mandatory sub-institutional and institutional mandates. Accordingly, it has been observed that there are now 54 OA institutional and sub-institutional mandates that require deposit in repositories. Institutions that have recently adopted OA mandates include the Bangor University, Lancaster University, Nottingham Trent University, University of Cambridge, University of Kent and University of Leeds. On research data, a total of 23 HEIs have adopted open access to research data policies xli.

The UK Government and RCUK’s new OA policy, which supports publications in open access and hybrid journals, has not resulted in HEIs changing their mandates to Gold OA. One reason for institutions to continue to favour self-archiving is that over the years significant investments were made in developing
sound institutional repositories that institutions are not willing to discard. Another reason is that a shift in policy imposes new burdens to HEIs and academic libraries. For instance, they have to consider how to manage the payments of APCs and RCUK block grants, how to comply with distinct funders policies, and how to search for and plan alternative funding mechanisms when funders grants are not available to cover for APCs.

d) Funders OA policies

In 2003, the Wellcome Trust was the first UK research funder to issue a position statement on OA. Its first OA policy was implemented in 2005xliv. Other research funders such as Arthritis Research UK, British Heart Foundation, Cancer Research UK and RCUK have soon after implemented OA policies. Overall, the research funders OA policies required deposit of peer-reviewed articles in OA repositories (Green OA) and some encouraged publication in open access or hybrid journals (Gold OA)xliii.

Currently, RCUK’s new OA policy gives preference for publication in open access or hybrid journalsxliv. On research data, the seven research councils promote the sharing of research data, require that information about how to access data be provided in research papers, and require that researchers consider developing a data management plan when applying to research fundingxlv. The Wellcome Trust’s new OA policy requires authors to publish in OA and to self-archive the author manuscript in Europe PubMed Centralxlvi. The Wellcome Trust’s policy on research data requires researchers to maximise access to data with as little restrictions as possible and that at a minimum access to data is provided to researchers on request. In similitude to the RCUK, the Trust requires researchers that apply for funding to consider developing and implementing a data management planxlvii.

The Funding Councils OA policy, as opposed to the RCUK policy, determines that research findings accepted for publication after 1 April 2016 must be deposited in an institutional or subject repositoryxlviii. The policy accepts that research findings are published in open access or hybrid journals and requires that publications are deposited in a repository at the point of acceptance. Table 1 summarises the most important UK research funders OA policies and the European Union’s funding programme Horizon 2020 OA policy to illustrate the differences between funders preferred routes to OA.
Table 1 - Overview of Research Funders OA Policies

<table>
<thead>
<tr>
<th></th>
<th>RCUK</th>
<th>HEFCE</th>
<th>Wellcome Trust</th>
<th>EU Horizon 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green OA</td>
<td>Green OA is accepted</td>
<td>Green is required</td>
<td>Green OA is accepted</td>
<td>Green OA is required</td>
</tr>
<tr>
<td>Deposit date</td>
<td>By end of policy specific embargo</td>
<td>As soon as possible after the point of acceptance and no later than 3 months after this date</td>
<td>As soon as possible or not later than six months after the journal publisher’s official date of final publication</td>
<td>Upon acceptance of the publication by the journal, at the date of publication or after embargo period</td>
</tr>
<tr>
<td>Version of item to be deposited</td>
<td>Final accepted manuscript/author’s accepted manuscript/postprint</td>
<td>Author’s accepted and final peer-reviewed text/accepted author manuscript/final author version/post-print version</td>
<td>Peer-reviewed manuscript</td>
<td>Published version/final peer-reviewed manuscript accepted for publication</td>
</tr>
<tr>
<td>Embargo period</td>
<td>6 months (BBSRC, EPSRC, MRC, NERC, STFC)/12 months (AHRC, ESRC)**</td>
<td>12 months (STEM)/24 months (HAS)</td>
<td>6 months</td>
<td>6 months (STM)/12 months (SSH)</td>
</tr>
<tr>
<td>Licence</td>
<td>CC BY NC</td>
<td>CC BY NC ND</td>
<td>[no information expressed in policy]</td>
<td>CC BY</td>
</tr>
<tr>
<td>Gold OA</td>
<td>Gold OA is preferred</td>
<td>Gold is accepted</td>
<td>Gold OA is preferred</td>
<td>Gold OA is accepted</td>
</tr>
<tr>
<td>APCs</td>
<td>APC payments available</td>
<td>[no information expressed in policy]</td>
<td>APC payments available</td>
<td>APC payments available</td>
</tr>
<tr>
<td>Fund to pay APCs</td>
<td>Block grants made available to institutions</td>
<td>[no information expressed in policy]</td>
<td>Individual grants made available to grant holders</td>
<td>APC payments eligible for reimbursement during the duration of the project</td>
</tr>
<tr>
<td>Embargo period</td>
<td>Embargo periods can apply if there are no funds to cover for APCs: 12 months (BBSRC, EPSRC, MRC, NERC, STFC) / 24 months (AHRC, ESRC)</td>
<td>[no information expressed in policy]</td>
<td>Non applicable</td>
<td>Non applicable</td>
</tr>
<tr>
<td>Licence</td>
<td>CC BY</td>
<td>[no information expressed in policy]</td>
<td>CC BY</td>
<td>CC BY</td>
</tr>
</tbody>
</table>
e) Infrastructural support for OA

The UK has advanced and integrated repository infrastructure that have resulted in over 15 years of research, development, and investment led by Jisc. Such infrastructure have been developed to support researchers, libraries and HEIs. Jisc has also been developing projects to promote open access to other content formats, in particular monographs and research data.

On the deposit of research outputs in repositories, Jisc supported the start-up and enhancement of institutional repositories through a series of programmes from 2002 to 2011. The majority of the UK HEIs currently have institutional repositories and they are listed in the Directory of Open Access Repositories (OpenDOAR). Some funders require that research findings are deposited in specific repositories. For instance, BBSRC, MRC and the Wellcome Trust require the deposit of research outputs in Europe PubMed Central and ESRC requires the deposit of outputs in the ESRC Research Catalogue. A few initiatives have also been promoted to enhance the dissemination of research outputs. For instance, the Gateway to Research was developed by RCUK to provide users with information about publicly funded research. Access to Research is an initiative developed to provide free access to academic articles in the UK public libraries.

On the publishing lifecycle, at the stage of submission of peer-reviewed articles in journals, researchers and libraries have services at their disposal that provide information on publishers copyright policies and self-archiving (SHERPA/RoMEO), research funders' open access policies (SHERPA/JULIET), and tools to verify if journals comply with research funders OA policies (SHERPA/FACT). These services were built in the UK and are run by Jisc. At the stage when the article is accepted by the journal, Jisc Publications Router is currently being developed to provide an automatic notification and deposit of the article in the author’s institutional repository. For the payment of APCs, Jisc Collections negotiations is a service that offsets arrangements to save costs for HEIs. Furthermore, the Total Costs of Ownership APC project has collected data on expenditure on journal subscriptions and expenditure on APC payments to support Jisc Collections in the negotiations with publishers. On the publication of the article, CORE is a service developed by Jisc that raises the visibility, reach and impact of the published article on the internet and makes the article available in library discovery services. On monitoring and reporting compliance with funder policies, Jisc Monitor is a project currently being run which focuses on collating data to allow librarians and research managers to monitor publication outputs and compliance with OA policies. Furthermore, the Jisc-ARMA ORCID pilot project will, among other, enable institutions to keep track of their researchers publications by using the ORCID unique digital identifier. The development of metadata standards – for instance via projects such as RIOXX, V4OA and CASRAI – which improve interoperability and flow of data also support libraries to ensure efficient information flow that feed into monitoring and reporting compliance. Finally, on the download of articles, IRUS-UK provides
information on usage reports for articles authored in a given institution and which can be used as a benchmark on usage for all the participating institutions.

To support HEIs compliance with funders OA mandates, the OA Good Practice Project is being run by Jisc to capture and share lessons learnt. The Pathfinder projects are a collection of 9 case studies that are currently being undertaken and that seek to demonstrate HEIs good practices when implementing funders OA mandates.

Social infrastructures that promote discussion and research on OA and that provide support on OA implementation related issues include the UK Council of Research Repositories (UKCoRR), the Society of College, National and University Libraries (SCONUL), Research Libraries UK (RLUK) and the Association of Research Managers and Administrators (ARMA).

Challenges and ongoing developments

The road to open access has raised numerous challenges to universities, libraries, publishers, funders and not-for-profit organisations. The most commonly identified challenges include: determining the feasibility of financial models, ensuring compliance with distinct funders OA policies, applying appropriate licensing models, establishing mechanisms to manage APCs grants and mass payments of APCs efficiently, developing institutional funds to cover for APCs, setting processes to avoid double payment for articles subscriptions and APCs for the same journal, managing research data effectively and sharing the software needed to use the data. Notwithstanding, multiple stakeholders are working towards finding ways to tackle the challenges faced.

Conclusions

In the last decade, the UK has reached significant milestones in promoting free online access to research findings. This has largely been the result of a comprehensive approach and coordinated efforts to develop and implement OA policies, to develop infrastructure and shared services, and to make funds available to ensure the transition to OA. Despite HEIs, research funders and policymakers having followed different routes towards OA – which reflect that a ‘one size fits all’ approach is not always feasible because different stakeholders have divergent priorities and views on how to implement the same agenda – significant progress is being made. In the near future, it is envisaged that the research findings made available on OA will continue to grow. The levels of success will depend on the continuous coordination of strategies between stakeholders, on the continuous improvement and development of infrastructure and services that support the Green and Gold OA models, on funds continuing to be made available to finance the two OA models, on continued efforts being made to raise researchers awareness about OA, and on funders and institutions monitoring compliance and promoting strategies that incentive compliance.
Useful links

» Digital Curation Centre (http://www.dcc.ac.uk/resources/policy-and-legal)

» HEFCE (http://www.hefce.ac.uk/whatwedo/rsrch/rinfrastruct/oa)

» Jisc (http://www.jisc.ac.uk/open-access)


» RCUK (http://www.rcuk.ac.uk/research/openaccess)

» Research Information Network (RIN) (http://www.rin.ac.uk/category/tags/open-access)

» Research Libraries UK (RLUK) Open Access (http://www.rluk.ac.uk/search/?search=open+access)

» Society of College, National and University Libraries (SCONUL) (http://www.sconul.ac.uk/search?searchBox=open%20access&sort_by=score&sort_order=DESC)

» Universities UK (UUK) (http://www.universitiesuk.ac.uk/highereducation/Pages/default.aspx?ks=open access&ws=wsks)

» Wellcome Trust (http://www.wellcome.ac.uk/about-us/policy/spotlight-issues/Open-access/index.htm)
Institutional policy implementation at UiT The Arctic University of Norway

Authors: Clara Boavida (UMinho) and Brigita Serafinavičiūtė (LMT)
Reviewers: David Ball (SPARC Europe) and Yasar Tonta (Hacettepe)

October 2015

Summary

The University of Tromsø – The Arctic University of Norway (hereinafter UiT) based in Norway is the northernmost university of the world with more than 11,000 students and 1,600 academic staff. The goal of the OA policy adopted by UiT in 2010 is to make freely available all scientific publications from the university. The policy encourages self-archiving through institutional repository – Munin -, fosters Green self-archiving and recommends Gold OA publishing option as an alternative. A sharp increase of OA publications since 2010 is evident, and the publishing fund may be part of the explanation of the rapid growth here. The Munin collection at the moment has 7,361 items, of which more than 99% have an openly available full text. The Munin’s policy is included in ROARMAP. The University Library of Tromsø has the main responsibility to support the OA policy and has a special Open Access adviser working full-time.

1. Introduction

The UiT is the northernmost university of the world. Climate change, the exploitation of Arctic resources and environmental threats are topics of great public concern, and which the UiT takes special interest in. On the 1st January 2009 the UiT merged with the University College of Tromsø. On 1st August 2013 the University merged with the University College of Finnmark. The new university has now four campuses. They are located in Tromsø, Alta, Hammerfest and Kirkenes. The number of students and study
programmes increases due to this merger. The new university has become an even more important driving force for Northern Norway and international cooperation in the High North. From January 1st 2016 the university will grow further due to mergers with the University College of Narvik and the University College of Harstad.

According to the 2014 data, at the UiT there are:

**Employees** - 2,907.9, among them:
- Number of academic staff – 1,639.5
- Number of administrative staff - 768.6
- Number of other staff - 499.7

**PhD's** - 101

**Students** – 12,180 (in the fall term 2014)

Teaching is research-based. UiT’s seven faculties offer, in spite of a dedication to Northern issues, a broad range of study programmes. The academic community in Tromsø is highly international. More than 20% of the academic staff and 10% of the student body are from abroad. The UiT offers more than 20 English taught master’s degree programmes, and all faculties offer English taught courses at both bachelor’s and master’s level.

The scope of academic activities of UiT is well seen from this graph:

![Figure 1 – Academic staff, 2014, per department](image)

UiT’s key research focuses on the polar environment, climate research, indigenous people, peace and conflict transformation, telemedicine, medical biology, space physics, fishery science, marine bioprospecting, linguistics and computational chemistry.

UIT’s Centre for Advanced Studies in Theoretical Linguistics, CASTL, and CTCC, Centre for Theoretical and Computational Chemistry, have both been designated Norwegian Centres of Excellence. In 2002 the Tromsø-based NST, Norwegian Centre for Telemedicine, was appointed a World Health Organization Collaboration Centre.

In 2014 UiT was involved in 1,361 journal articles, 336 articles in anthologies and 23 monographs. The scope of the publications is presented in the graph.

Summary of main points:

- UiT The Arctic University of Norway is the northernmost university of the world
- With more than 12,000 students and more than 1,600 academic staff UiT is an important driving force for Northern Norway and international cooperation in the High North
- UiT’s main research competencies lay in climate and arctic environment research, fishery science, theoretical linguistics, health sciences, computational chemistry, and space physics.

2. Repository

Munin is the UIT’s institutional repository. It was launched on the 21st of September 2006. Munin is based on DSpace, and a submission portal, closely integrated with Munin, is also based on DSpace. The

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118 Munin Institutional Repository available at [http://munin.uit.no/](http://munin.uit.no/)
DSpace submission form is adjusted to fit the needs of information for all involved parties. The submission portal is available 24/7 and it is possible to submit theses from home or elsewhere. The size of whole collection includes 7,361 items distributed as follow:

- Administration [39]
- Faculty of Health Sciences [2448]
- Faculty of Law [331]
- Faculty of Fine Arts [18]
- Faculty of Biosciences, Fisheries and Economics [1,194]
- Faculty of Humanities, Social Sciences and Education [2,156]
- Faculty of Science and Technology [875]
- Finnmark Faculty [40]
- Tromsø Museum [120]
- University Library [140]

The content types are distributed as follow:

- Master’s theses [3,811]
- Journal articles [2,231]
- Doctoral theses [629]
- Reports [313]
- Various [295]
- Book (book chapters) [139]
- Conference presentations [135]
- Working papers [79]

The theses cannot be evaluated without having been submitted to the submission system, therefore UiT has a “no deposit - no degree” policy. Making theses available in Munin is still a decision for the candidate to make. As the theses are approved, and all the administrative tasks are taken care of, the administrative staff clicks the Done-button. This results in an export of the items from the submission portal’s DSpace to the Munin DSpace. After a bibliographic control, the theses are made public in Munin, unless the candidate has chosen that it should not be made public on the internet. About 75% to 80% of theses (master’s and doctoral) are made available in Munin shortly after being evaluated.

In addition to Munin and the submission portal, a third DSpace instance serves as an archive of all submitted theses, in accordance with regulations from The National Archives of Norway. This instance is closed and only available to the central archive of the university plus technical personnel from the library. All items are moved automatically between the three DSpace instances.

The numbers for Green OA includes self-archiving of Gold OA (this means that Gold OA may also be deposited in institutional repository). As will be seen from the numbers, until 2010 self-archiving was
around the same level as Gold OA, meaning that some non-OA articles were self-archived, but not all Gold OA articles. A publication fund started operating in 2011, this led to a marked increase in the share of Gold OA articles from UiT, which started to follow-up closely on Gold OA, ensuring that all were self-archived, with few exceptions. At least from 2011, on all Gold articles are included in the Green numbers (Green less Gold showing the actual percentage of Green that are not Gold).

<table>
<thead>
<tr>
<th>Year</th>
<th>Total no of articles</th>
<th>Gold OA</th>
<th>Gold OA share</th>
<th>Green OA</th>
<th>Green share</th>
<th>Green less Gold share</th>
<th>TA articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>572</td>
<td>31</td>
<td>5.4 %</td>
<td>27</td>
<td>4.7 %</td>
<td>-0.7 %</td>
<td>541</td>
</tr>
<tr>
<td>2005</td>
<td>652</td>
<td>49</td>
<td>7.5 %</td>
<td>33</td>
<td>5.1 %</td>
<td>-2.6 %</td>
<td>603</td>
</tr>
<tr>
<td>2006</td>
<td>665</td>
<td>47</td>
<td>7.1 %</td>
<td>45</td>
<td>6.8 %</td>
<td>-0.3 %</td>
<td>618</td>
</tr>
<tr>
<td>2007</td>
<td>743</td>
<td>59</td>
<td>7.9 %</td>
<td>65</td>
<td>8.7 %</td>
<td>0.8 %</td>
<td>684</td>
</tr>
<tr>
<td>2008</td>
<td>874</td>
<td>71</td>
<td>8.1 %</td>
<td>86</td>
<td>9.8 %</td>
<td>1.7 %</td>
<td>803</td>
</tr>
<tr>
<td>2009</td>
<td>992</td>
<td>79</td>
<td>8.0 %</td>
<td>84</td>
<td>8.5 %</td>
<td>0.5 %</td>
<td>913</td>
</tr>
<tr>
<td>2010</td>
<td>1059</td>
<td>84</td>
<td>7.9 %</td>
<td>108</td>
<td>10.2 %</td>
<td>2.3 %</td>
<td>975</td>
</tr>
<tr>
<td>2011</td>
<td>1194</td>
<td>131</td>
<td>11.0 %</td>
<td>242</td>
<td>20.3 %</td>
<td>9.3 %</td>
<td>1063</td>
</tr>
<tr>
<td>2012</td>
<td>1285</td>
<td>216</td>
<td>16.8 %</td>
<td>306</td>
<td>23.8 %</td>
<td>7.0 %</td>
<td>1069</td>
</tr>
<tr>
<td>2013</td>
<td>1284</td>
<td>209</td>
<td>16.3 %</td>
<td>333</td>
<td>25.9 %</td>
<td>9.7 %</td>
<td>1075</td>
</tr>
<tr>
<td>2014</td>
<td>1361</td>
<td>277</td>
<td>20.4 %</td>
<td>432</td>
<td>31.7 %</td>
<td>11.1 %</td>
<td>1084</td>
</tr>
</tbody>
</table>

Tabela 1 – Number of articles 2004-2014

At the same time, Library OA staff started annual activities e-mailing all authors who had authored articles that could be self-archived, informing them of journal, article title and which version could be self-archived. Library OA staff also ensured all Gold OA articles were archived, either by the author or by library staff (if the license permitted). The “Green less Gold share” shows that this has resulted in a marked increase in the number and share of non-Gold articles that have been self-archived by authors.
All self-archiving is done by uploading the relevant full-text to CRIS, the Norwegian national CRIS. This means the extra work required on the part of authors is extremely small, and that metadata are consistent between the CRIS and Munin. All data and full-text are imported automatically to Munin, but it is not made available until the library has checked for completeness of metadata and that the version uploaded is in accordance with publisher policies.

Based on content in BASE (Bielefeld Academic Search Engine) UiT has developed the search service High North Research Documents. Based on various criteria, this presents a subset of BASE only containing documents pertaining to the High North.

Based on the open source software Dataverse, UiT has started a data depositing and publishing service for a global linguistic community, TROLLing. Work is in progress to make this a general Open Research Data service for UiT researchers. A sharp increase of OA publications since 2010 is evident, both Gold and Green.

**Summary of main points:**

- The institutional repository policy is included in ROARMAP
- The Munin collection at the moment has 7,361 items. As Munin is only used for contents with OA full text (with minor exceptions), it is estimated that nearly 100% of this collection are OA
- A sharp increase of OA publications since 2010 is evident.

**3. Policy**

The goal of the policy is to make all scientific publications from the university available either in an Open Access journal or in an institutional repository. The policy is available in Norwegian and English. The policy is based on 3 principles:

1. **Self-archiving:** the authors from UiT should self-archive their publications in Munin, through which the publications are made available within the limits of possible legal constraints, e.g. publisher policies.
2. **Choice of publishing venue:** the authors are encouraged to choose publishing venues that provide the freest access to the publications (both Green OA and Gold OA).
3. **The University as a publisher:** aims at making all UiT published publications (journals, series etc.) OA publications, as well as permitting and encouraging self-archiving.

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119 High North Research Documents is available at http://highnorth.uit.no/
120 The Tromsø Repository of Language and Linguistics http://opendata.uit.no/dvn/dv/trolling
121 ROARMAP registry http://roarmap.eprints.org/252/
122 OA policy https://uit.no/Content/375533/OA%20policy%20UiT%20141010.pdf
The UiT principles for Open Access publishing were approved by the Board of the UiT on October 14th 2010, aiming to make the research from the university as accessible and reused as possible.

The institutional policy mandated depositing of Master’s theses and was implemented fully. Policy of mandated depositing of Doctoral theses has also been implemented. Articles and other types of documents are archived based on voluntary depositing.

The institutional repository Munin, which was launched in 2006 to replace an older ETD archive and to enable self-archiving of other material than theses, has been used heavily to implement the OA policy since 2010. Now the deposition of manuscripts, theses, dissertations, books, book sections, etc. to Munin is required, however the deposit can be waived. The item that should be deposited must be the author’s final peer-reviewed version. It is requested that the deposited item would be OA. The author retains key rights. The date of deposit depends on the permits of publishers. The open licensing conditions require that material not published elsewhere currently demands acceptance of a CC-BY-NC license, otherwise self-archived content published elsewhere follows the licensing of the publisher.

UiT is also a founder member of the national search engine NORA and offers Septentrio Academic Publishing, a publishing infrastructure for scientific and scholarly journals/serials. A publication fund has been established as well to cover APCs for research without sufficient external funding.

**Summary of main points:**

- The goal of the 2010 OA policy adopted by UiT is to make available all scientific publications from the university
- The policy encourages self-archiving through institutional repository Munin, fosters Green self-archiving and recommends Gold OA publishing option as an alternative
- A publication fund has been established to cover APCs for research without sufficient external funding.

**4. Policy support**

The University Library of Tromsø has the responsibility for investigating and ensuring compliance with publishers’ policies and other questions regarding intellectual property rights.

There are three Open Access advisers working full-time on various Open Access activities and projects as well as taking part in the development of Munin support activities towards students and researchers and content gathering and managing the UiT’s OA publication fund.
The University Library also hosts information service ‘openaccess.no’. The UiT has a fund that can cover author-side payments in Open Access journals.\textsuperscript{123} The Board of the UiT, which adopted the OA policy and funds the publication fund over the UiT general budget. The UiT board has also awarded the library a PhD position to study Open Access (operative from February 2015). From 2014 the national search engine harvesting all Norwegian institutional archives (NORA), is integrated fully in the CRIStin system.

**Summary of main points:**

- The University Library of Tromsø has the main responsibility to support the OA policy
- Three Open Access advisers working full-time at UiT coordinate all OA related activities and are of great help for authors

**5. Policy monitoring**

While no exact figures for OA targets have been set, the policy has an implicit goal of 100% Open Access both for self-archiving and for theses being made available in the IR. Green OA reached a level of nearly 32% for 2014, this includes self-archiving of gold OA and hybrid OA articles. While 32% isn’t overwhelmingly impressive, it is up from 10% in 2010 when the policy was adopted – and the effect of the policy was seen in an immediate raise to 20% in 2011 (see Table 1 and Figure 3). Compliance rates are measured against numbers from the national CRIS as published in the Database for Statistics on Higher Education (DBH). Accessibility of theses seems to have become stable at around 75%. There seems to be good reasons (anonymized information, data to be used for formal publishing later, commercial publishing interest, among others) for not making the major fraction of the remaining 25% available, though some of this may be made available at a later date. Compliance rates are measured against numbers for awarded master’s degrees and doctoral degrees from Database for Statistics on Higher Education (DBH).

**Acknowledgment**

This case study was revised by Jan Erik Frantsvåg, Open Access adviser at University of Tromsø – The Arctic University of Norway. PASTEUR4OA would like to express a sincere gratitude for his contribution.

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\textsuperscript{123} The publication fund at the University of Tromsø: https://uit.no/ub/publisering/art?p_document_id=225287
5.4 The University of Minho
5.5 University College London [forthcoming]

Institutional policy implementation at University of Minho, Portugal

Authors: Clara Boavida, Ricardo Saraiva and Eloy Rodrigues
Reviewers: Alma Swan (EOS) and András Holl (MTA)

August 2015

Summary

This case study describes the implementation process of the Open Access institutional policy at the University of Minho (UMinho), Portugal. Starting with a brief introduction about the institution, in terms of its academic community and research, the document then provides a detailed description of the steps taken to implement the UMinho’s institutional repository (the IR) and the Open Access policy. We highlight the main goals which oriented the implementation of the repository, the devised communication plan, the value-added services created for authors, and finally, the engagement within the international community in these areas.

Regarding the Open Access policy, we present a brief summary of the main points of the self-archiving policy, approved late 2004, and also point out the main additions to the policy when it was upgraded in 2011.

This case study also provides some figures and tables about the results of the various monitoring processes carried out by the University of Minho Documentation Services to follow-up and measure policy compliance.
In summary, since the beginning of 2004 with the IR implementation, several initiatives have been taking place with the purpose of increasing the number of deposited documents. The Open Access policy adoption was, definitely, the main success factor amongst all the other initiatives and efforts.

6. Introduction

The University of Minho\textsuperscript{124}, situated in the Minho region of Northern Portugal, was founded in 1973 and began its academic activity in 1975/76. The University is a public research performing organisation with two campuses: one in Braga and the other in Guimarães. UMinho has grown to around 19000\textsuperscript{125} students, 40% of whom are graduate students, over 1098 academic staff and 602 non-academic staff. For the 2014/15 academic year the institution was running 58 undergraduate courses, 112 masters and 50 PhD courses covering a large number of subject areas. Until now, the University of Minho has produced more than 19000 scientific papers in total (in 2013, 1,995 were indexed by Scopus and 1,311 by ISI-WoS – see Table 1).

<table>
<thead>
<tr>
<th></th>
<th>Scopus</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Portugal</td>
<td>1373</td>
<td>1544</td>
<td>1783</td>
<td>1954</td>
<td>2109</td>
<td>87647</td>
<td>1096</td>
<td>1223</td>
<td>1343</td>
<td>1508</td>
</tr>
<tr>
<td>Total UMinho</td>
<td>1154</td>
<td>1355</td>
<td>1549</td>
<td>1860</td>
<td>1995</td>
<td>7913</td>
<td>775</td>
<td>896</td>
<td>1061</td>
<td>1307</td>
</tr>
<tr>
<td>UMinho contribution</td>
<td>8.4%</td>
<td>8.8%</td>
<td>8.7%</td>
<td>9.5%</td>
<td>9.5%</td>
<td>9.0%</td>
<td>7.1%</td>
<td>7.3%</td>
<td>7.9%</td>
<td>8.7%</td>
</tr>
<tr>
<td>Portugal annual growth (%)</td>
<td>12.4%</td>
<td>15.5%</td>
<td>9.6%</td>
<td>7.9%</td>
<td>11.4%</td>
<td>11.6%</td>
<td>9.7%</td>
<td>12.3%</td>
<td>8.1%</td>
<td>10.4%</td>
</tr>
<tr>
<td>Total UMinho annual growth (%)</td>
<td>17.4%</td>
<td>14.3%</td>
<td>20.1%</td>
<td>7.3%</td>
<td>14.8%</td>
<td>15.6%</td>
<td>18.4%</td>
<td>23.2%</td>
<td>0.3%</td>
<td>14.4%</td>
</tr>
</tbody>
</table>

Table 1: Evolution 2009-2013 of nº of documents (all types) Scopus and ISI WoS – compared Portugal and UMinho

The institution is organised into 11 schools and 33 research centres, which are sub-units of the various teaching and research units. These research centres are funded by FCT (the Portuguese public research funder), five of which are integrated into Associated State Laboratories\textsuperscript{126}.

7. Repository

The University of Minho Documentation Services (SDUM) developed the idea of institutional repository for Minho University at the end of 2002. Shortly after, in the beginning of 2003, a new national

\textsuperscript{124} University of Minho http://www.uminho.pt
\textsuperscript{125} Activity report of the University of Minho (2014) available at: http://www.uminho.pt/docs/relat%C3%B3rios-de-actividade/2015/06/11/uminho_2014_individual_web.pdf
\textsuperscript{126} R&D Institutions < https://www.fct.pt/apoios/unidades/index.phtml.en>
programme called e-U (Electronic University) was initiated by the Portuguese government aimed at building infrastructures, services, and communication networks to facilitate the production and interchange of knowledge between Portuguese universities.

UMinho Documentation Services saw in this programme an opportunity to support the creation of the institutional repository and proposed it to the Rector, who fully supported the idea. The proposal was submitted and, with the Rector’s agreement, SDUM didn’t wait for the funding approval but started the project almost immediately in 2003.

The main goals established for the UMinho IR implementation were the following:

1. Maximise UMinho’s research impact both nationally and internationally;
2. Preserve its institutional intellectual heritage;
3. Contribute to the improvement of the management of research information at UMinho.

At that time, it was decided to use the DSpace platform because its architecture and its community model and open source approach suited the needs of the institution. The software was translated into Portuguese and the layout design was adapted. Hereafter, the academic community was invited to participate. In June that year, several recently graduated PhD and MSc students were invited to deposit their theses, and in September six departments and research centres were invited to become pilot communities, and to deposit their conference papers, journal articles, and other document types. On the 20th November 2003, the UMinho institutional repository, called RepositóriUM127, was publicly released with a total of 280 documents.

In the following year, the focus was to increase, significantly, the number of deposited items and the number of departments and research units using the repository, and to promote its visibility and usage both inside and outside the institution. Despite all efforts, the number of communities and documents was growing more slowly than initially foreseen.

In order to improve this situation, a new strategy was formulated based on four components: (1) develop a communication plan for RepositóriUM and Open Access in general, (2) develop value-added services for authors, (3) become further engaged in the international community (e.g. developing DSpace add-ons, participating in international conferences and meetings, and promoting several initiatives regarding OA mainly in Portuguese and Spanish speaking countries), and finally (4) define a self-archiving policy.

8. Policy

A turning point for RepositóriUM occurred in the autumn of 2004, when a new Open Access policy was proposed to the UMinho rector. The rector discussed this with the Presidents of the Schools Council and in late November, a symbolic date marking the first anniversary of RepositóriUM, signed the Berlin

127 RepositóriUM https://repositorium.sdum.uminho.pt/
Declaration and most important of all approved and announced a self-archiving policy for UMinho. The self-archiving policy for UMinho stating that all scientific work produced by its members should be deposited in the RepositóriUM was put into practice starting from January 2005 and can briefly be summarised as follows:

- All academic staff and researchers from University of Minho authoring or co-authoring of any type of published work should deposit those publications in the institutional repository of the University of Minho and grant permission for the dissemination of the resources via Open Access;
- All organic units of the University of Minho should subscribe to this policy or adopt self-archiving policies for their own research output;
- All authors of theses and dissertations approved by the University of Minho should authorise their deposit and dissemination through the institutional repository.

After the policy public presentation, it was decided that during the year of 2005 a financial incentive would be distributed to departments and research centres as a reward for their commitment to the implementation of the policy. The policy also established the criteria for the awarding system, attributing more weight to peer-reviewed publications from the current/previous year (and lower weight to “older” or non-peer-reviewed publications) and distributed the financial incentive to departments and research centres, not directly to individual researchers. This encouraged the interest and participation of department and research centre directors whose units stood to benefit considerably financially if they could increase policy compliance.

To stimulate the early adoption of the self-archiving practice, the reward was distributed according to the number of documents archived along three distinct time spans: 42% of the reward would be given according to the number of self-archived documents by April 2005, 33% according to the number of documents archived between May and August 2005, and 25% according to the number of documents archived from September to December 2005. As a result, from 1 January to 31 December 2005, 2,813 documents had been deposited in RepositóriUM: 41% of these were journal articles; 40% were conference papers; and 19% were other types of documents (book chapters, books, working papers, etc.).

In 2006, the rector issued additional financial support (about 1/3 of the value of 2005) to be distributed according to the same rules as the previous year. As a result, in 2006 an additional 1,885 documents were deposited in the repository. 92% of those were self-archived by the authors themselves, while the rest (315 documents, mainly theses and dissertations) were deposited administratively by Documentation Services staff. Since the beginning of 2007, the financial incentive to self-archiving ended and the IR has been operating without it since then.

From 2007 there was a slowdown in RepositóriUM growth and regression of the percentage of UMinho’s scientific production being deposited in the IR (see the following graphic). The reasons for this are manifold and range from a period of financial difficulties, changes and institutional instability experienced by the UMinho between 2007 and 2009, to the lack of institutional guidelines and tools to
monitor and encourage compliance with the institutional policy of self-archiving. In addition, the SDUM team experienced difficulties and limitations in responding to all the tasks and challenges posed by the development of RepositóriUM, particularly in a context of increasing demands and involvement in external activities related to repositories and Open Access.

![Figure 4: Self archived documents per year (2003 – 2010)](image)

The experience also demonstrated that the level of compliance with the institutional self-archiving policy established by UMinho since 2005 showed wide variations between the teaching and research units (UOEI) and even within the same UOEI. In this sense, considering the strategic interest of UMinho to continue and deepen its rich experience in the field of Open Access, it was considered essential to upgrade the institutional self-archiving policy in order to make it more effective and ensure a wider compliance. Thus, in 2010, it was proposed to the new Rector of UMinho that there should be a further upgrade to the institutional policy. This proposal was accepted and starting from 2011 onwards the new UMinho policy has required that:

“All academic staff to mandatory deposit into RepositóriUM a copy of all peer reviewed publications dated after January 2011; From January 2011, all official publication lists or reports, from individual researchers and research units, submitted internally at UMinho, must contain a link to the version archived at RepositóriUM.”

The revision of the original policy can be considered a major breakthrough, because this mandate established a connection between the deposits and the evaluation procedures for the UMinho teachers and researchers. In future RepositóriUM will be the only information source about publications output, providing these data to the overall university information system that will support all reporting, management and evaluation activities in the university.

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9. Policy support

Since 2004, as part of the mentioned strategy, SDUM manages and provides an IR liaison service aimed at supporting the UMinho community (providing training sessions, and a helpdesk service), developing advocacy materials, and monitoring the policy compliance and also the quality of the deposited metadata.

In terms of developing value-added services for authors, and subsequent further engagement in the international community, the UMinho has been engaged in the development of some add-ons for DSpace, such as the ‘Statistics Add-on’ for providing information about accessibility and usage (access/downloads) of deposited documents, the ‘Request a Copy’ enabling users request a restricted document copy directly from the authors by sending an email, as others add-ons (e.g. ‘Suggest item’, ‘Controlled Vocabulary/Ontology’, ‘Commenting’), which have been integrated in the core code of DSpace or have been discontinued.

The RepositóriUM website makes available a set of resources about the UMinho OA policy, the RepositóriUM itself, and also about copyright issues. Apart from this the Documentation Services publishes in a regular basis news about the Open Access in general as well as informs the community about national and international initiatives where the UMinho participates or is involved.

10. Policy monitoring

Since 2011, policy compliance is ensured through a monitoring process which collects data from two main information sources: internal documents (e.g. research centres and departmental list of publications, etc.) and international databases (ISI Web of Science and Scopus). This process intends to identify publications affiliated to the University of Minho and check if these publications are or not already deposited in the institutional repository. In order to minimise the effort involved on the monitoring activities several strategies/tools are being used, such as creating search alerts and using reference management software (e.g. EndNote and/or Mendeley) to compile publication lists and compare those lists with deposited items in RepositóriUM.

The periodic monitoring of the policy is done three times each year (March, July and November) and has proven to be an important contribution to the compliance with the policy, because there is a very significant increase of self-archiving after the notification of the results within the academic community. Regarding the 2014 UMinho publications, by the time of the final monitoring (January 2015), it was estimated that 62% of the UMinho scientific output were deposited in RepositóriUM.

130 RepositóriUM Statistics on access/downloads are available at: https://repositorium.sdum.uminho.pt/stats?level=general&type=access&page=downviews-series
132 https://wiki.duraspace.org/display/DSPACE/Extensions+and+Addons+Work
133 RepositóriUM content support available at: https://repositorium.sdum.uminho.pt/?locale=en
134 OpenAccess@UMinho available at: http://openaccess.sdum.uminho.pt/
Currently, the RepositóriUM content guidelines only allow works (co)produced, submitted or sponsored by University of Minho, researchers or staff. Some current facts are listed below:

- SDUM doesn’t deposit items on behalf of researchers, but nevertheless can mediate and support communities in order to recover missing research outputs;
- Theses and dissertations are delivered to the library electronically or on CD-ROM for incorporation into the IR once submitted and successfully approved;
- For all outputs the deposit cannot be waived and Open Access should always be the preferred choice. However, it is up to the authors to decide the type of access accordingly to copyright restrictions /embargos that apply. The embargo period options are: 6 months, 1 year, 2 years or 3 years (the last one more applied to theses and dissertations). 84% of authors make their work available Open Access, and 9% choose embargos of up 3 years;
- Considering the last policy monitoring (2014), some research centres are delivering 15-20% (e.g. Law and Psychology subject areas) and others are reaching remarkably 80-90% of their annual academic output (e.g. Biological Engineering and Civil Engineering subject areas);
• There are only full-text deposits in the RepositórioUM, metadata-only records are not permitted;
• Regarding research data, an internal survey was conducted in 2014 to evaluate the research data produced at UMinho\textsuperscript{135}.

\textsuperscript{135} Report on types of research data produced at UMinho in Portuguese available at: http://repositorium.sdum.uminho.pt/handle/1822/29948
In conclusion, UMinho has been making fine adjustments from time to time that have contributed to the success of the policy. The key steps that improved success in raising compliance levels are summarising in the table below:

<table>
<thead>
<tr>
<th>Key steps</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003: RepositóriUM was publicly released</td>
<td>• Got support and commitment from the University leadership (making OA/IR a part of the institution strategy).</td>
</tr>
<tr>
<td></td>
<td>• Promoted IR, and the deposited OA content, inside and outside of the institution.</td>
</tr>
<tr>
<td>Communication plan developed (2004)</td>
<td>• Got involvement and commitment from researchers, departments and research centres.</td>
</tr>
<tr>
<td>Value-added services developed (2004)</td>
<td>• Facilitated / rewarded deposit / self-archiving.</td>
</tr>
<tr>
<td>DSpace add-ons developed (2006)</td>
<td>• Increased the engagement and the visibility of UMinho in the international community, i.e., to proactively participated in the Open Access, IR and DSpace communities worldwide.</td>
</tr>
<tr>
<td>Participation in international conferences, meetings and interest groups</td>
<td>• Increased awareness and commitment to the implementation of the policy (the incentive was distributed through the research centres / departments, and not directly to the individual researchers).</td>
</tr>
<tr>
<td>2004: Self-archiving policy approved and announced</td>
<td>• The incentive was finished later 2006, since then, the RepositóriUM has been running without any financial incentives.</td>
</tr>
<tr>
<td>Financial incentive introduced (2005)</td>
<td>• All official lists of publication or reports must contain a link to the version at repository. In the future RepositóriUM will be the only information source of research output, which will support reporting, management and evaluation activities at the university.</td>
</tr>
<tr>
<td>Financial incentive ended (end of 2006)</td>
<td>• Increased significantly the compliance levels and self-archiving activity after the notification of the results within the academic community.</td>
</tr>
<tr>
<td>2010: Self-archiving policy upgraded</td>
<td>• Allowed to disseminate OA activities within the community</td>
</tr>
<tr>
<td>Mandatory policy introduced</td>
<td>• Facilitated the deposit and integration of new publications</td>
</tr>
<tr>
<td>Quarterly monitoring of the policy compliance (Since the end of the 1st</td>
<td></td>
</tr>
<tr>
<td>quarter 2011)</td>
<td></td>
</tr>
<tr>
<td>Open Access website</td>
<td></td>
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<tr>
<td>Embed, integrated, and interoperated the repository with other relevant</td>
<td></td>
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<td>information systems (institutional, national, global)</td>
<td></td>
</tr>
</tbody>
</table>

*Table 4- Key steps that improved the compliance levels with the UMinho OA policy*
6. Funder Open Access case studies

6.1 The Austrian Science Fund (FWF)

Open Access Policies of Research Funders: The Case Study of the Austrian Science Fund (FWF)

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Reviewers: Marina Angelaki and Victoria Tsoukala, EKT, and Alma Swan, EOS

October 2015
Summary

Founded in 1967, the Austrian Science Fund (Fonds zur Förderung der wissenschaftlichen Forschung, FWF) is the main funder of “non-profit-oriented research designed to generate new insights and to expand and advance scholarly knowledge”. Its mission is “to support the ongoing development of Austrian science and basic research at a high international level”. FWF’s annual budget is about 100 million euro. FWF supports more than 600 projects and funds the salaries of about 4,000 researchers in Austria. FWF-funded projects generate 14% of Austrian scientific output that gets published in high impact international journals.

FWF is the first public research funding agency in the world to develop a policy (2004) and mandate Open Access to scholarly publications since 2008. FWF’s green OA policy (revised in December 2014) covers all FWF-funded peer-reviewed journal articles, monographs, other innovative publications and research data in both sciences and social sciences and humanities. Authors or publishers must deposit the final peer-reviewed copies of publications in the institutional or subject repositories with no exception or waiver. The maximum embargo period allowed is 12 months for both sciences and social sciences and humanities.

FWF also supports gold and hybrid Open Access options and pays for article processing charges (APCs) up to 2,500 euro for gold OA journals and up to 1,500 euro for hybrid journals. Journals supported with APCs must be listed in either Directory of Open Access Journals (DOAJ) for gold Open Access journals, or Web of Science or Scopus for hybrid journals. FWF funds stand-alone publications and monographs, too, and requires CC-BY license or its equivalent for all FWF-funded publications. FWF monitors the compliance to its OA policy through final project reports and keeps a meticulous track of the embargo periods of funded papers.

FWF has been instrumental in promoting Open Access in Austria and elsewhere. It commissions scientific studies and surveys to explore Open Access issues and funding models. FWF adopted the Principles on the Transition to Open Access to Research Publications initiated by Science Europe. It supports arXiv, DOAJ, Europe PubMedCentral (EPMC) and Open Access Publishing in European Networks (OAPEN) Foundation; pays for one third of costs of Austria’s partnership with SCOAP3, negotiates with publishers to lower subscription/licensing fees for journals and to get rebates for APCs; and publishes the Open Access testimonials of scientists to promote Open Access to gain public support.

The effectiveness of FWF’s Open Access policy is due primarily to its comprehensive, multipronged strategy complemented by supporting actions (e.g., green Open Access mandate, support of Open Access publishing through APCs and stand-alone funds, monitoring of compliance, among others).
Aligned with the European Commission’s Horizon 2020’s Open Access policy, it could serve as an informative PASTEUR4OA case study for other research funders to further explore and develop similar ones for their respective institutions.

1. Introduction

The Austrian Science Fund (Fonds zur Förderung der wissenschaftlichen Forschung) was established in 1967 in Vienna as an independent legal entity under Austrian federal law (Research Funding Act) to fund “non-profit-oriented research designed to generate new insights and to expand and advance scholarly knowledge”.

The mission of the Austrian Science Fund (hereafter FWF) is “to support the ongoing development of Austrian science and basic research at a high international level” so that it “makes a significant contribution to cultural development, to the advancement of knowledge-based society, and thus to the creation of value and wealth in Austria”. One of FWF’s main objectives is to “strengthen Austria’s international performance and capabilities in science and research as well as the country’s attractiveness as a location for high-level scientific activities, primarily by funding top-quality research projects and by enhancing the competitiveness of Austria’s innovation system and its research facilities”.

A member of Science Europe, FWF is the most important Austrian funding organization supporting basic research. FWF receives about 100 million euro (2013) per year from the federal government to fulfill its mission, and funds the salaries of about 4,000 scientists and researchers with grants.

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139 Ibid.
In 2003, FWF approved about 25% of the grant proposals submitted and allocated more than 200 million euro for 632 projects. FWF funding was distributed by research disciplines as follows: life sciences: 39.6%, natural and technical sciences: 40.8%, and social sciences and humanities (19.6%).\(^{142}\)

FWF funds research proposals in science, engineering and the humanities and supports the efforts of universities and research centres through its competitive grant programs for stand-alone projects, as well as for international and priority research programs. Top researchers, especially promising young scientists, are supported so that they can compete with their colleagues for the European and international grants. Researchers in specific fields and subjects are funded through private funds as well.\(^{143}\)

Scholarly papers produced from FWF-funded projects are usually published in prestigious international journals with high citation impact. FWF funds 14% of the Austrian papers that appear in journals indexed by Web of Science while they receive 20% of the total citations. For instance, an average paper funded by the FWF and published between 2001 and 2010/11 received 21.6 citations, 35% more than an average international paper did, which is totally in line with FWF’s mission of “supporting ‘Austrian science and basic research at a high international level’”.\(^{144}\)

2. FWF’s Existing Open Access Policy

As one of the earliest signatory institutions to the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (November 5, 2003),\(^{145}\) FWF developed its first policy recommending its grantees to provide Open Access to FWF-funded research output in 2004. This policy then became an Open Access (OA) mandate in 2008.\(^{146}\) FWF’s OA policy has been last revised in December 2014 to align it with the current pattern of funders’ policies in Europe as well as to reflect the most recent


\(^{143}\) See FWF’s support programs at http://www.fwf.ac.at/en/research-funding/fwf-programmes/


\(^{145}\) http://openaccess.mpg.de/319790/Signatories

developments in the OA scene. What follows is the details of FWF’s existing OA policy as given in its web site (December 19, 2014).

FWF has a mandatory green OA policy covering all peer-reviewed manuscripts including journal articles, monographs, book chapters, etc. in sciences as well as in social sciences and the humanities (SSH). It requires the authors of FWF-funded research to self-archive their accepted manuscripts (prior to copy-editing and production) in any suitable institutional or subject repository listed in the Directory of Open Access Repositories (OpenDOAR). FWF has no institutional repository of its own but asks the authors to deposit their papers in institutional or subject repositories such as arXiv. As FWF funds Europe PubMedCentral (EPMC), researchers from the life sciences have to deposit their papers there. As for monographs and other stand-alone publications, FWF deposits them not inly in its e-book library but also in the Open Access Publishing in European Networks (OAPEN) Library since 2013, thereby ensuring both short- and long-term Open Access to them.

Deposit is mandatory, cannot be waived, and is a precondition for the evaluation of research grants. FWF-funded publications “have to be deposited (by the author or by the publisher) in repositories with sustainable access at the time of publication.” The ability of FWF to have a mandatory and rather strict policy also relies on the fact that all Austrian universities possess repositories. Moreover, e-Infrastructures Austria coordinates the “development of Repository infrastructures for digital resources in research and science throughout Austria to securely archive and publish digital publications, multimedia objects and other digital data resulting from research and education.”

FWF also supports gold and hybrid OA through publishing either in an Open Access venue (gold) or in a subscription venue (hybrid), and provides funding for publishers’ article processing charges (APCs). Gold OA journals receiving FWF funds must be listed in the Directory of Open Access Journals (DOAJ) while hybrid journals or proceedings books must be listed in the Web of Science or Scopus databases.

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151 http://e-infrastructures.at/en/startpage

152 DOAJ is funded, in part, by FWF.
FWF’s OA policy also covers research data, and recommends that “whenever legally and ethically possible, all research data and similar materials which are collected and/or analyzed using FWF funds have to be made openly accessible” through an appropriate repository either immediately after research results are published or within two years after the end of any project if data is not used in publications. Deposited datasets have to be citable and re-usable without any restrictions. In 2016, FWF will initiate pilot programs on Open Access to research data and is likely to strengthen its policy in the near future by providing further financial support and developing mechanisms to monitor its uptake.

To increase the quality and transparency of the selection process of the projects and the evaluation of their outcome, “FWF supports Open Access not only to research results arising from FWF-funded projects, but also to evaluations, studies and other research policy-related services commissioned by the FWF”. These studies as well as data sets are readily available through FWF’s web site and “sustainably archived in the repository Zenodo”.

In summary, FWF mandates green Open Access with a lot of inducement for gold and hybrid Open Access options by providing needed funds and recommends Open Access to research data whenever possible.

Embargo period

FWF’s OA policy specifies an embargo period of up to 12 months for both sciences and SSH. If publishers’ embargo periods are longer, the authors are advised to consult the SHERPA/RoMEO database for publisher copyright and self-archiving policies and find alternative publishing venues. The full-texts of all manuscripts are required to be made freely available at the end of publishers’ embargo periods of up to 12 months.

Licensing

All FWF-funded publications have to be made available through Creative Commons Attribution Licence (CC BY) or its equivalent (for funded articles since 2014 and for stand-alone publications since 2015). In 2014, almost two thirds (65%) of the funded publications complied with FWF’s OA policy, a
150% increase compared to the 26% compliance rate of 2013. Whereas in 2013, 66% of the publications were not attached with a Creative Commons licence, in 2014 only 14% of the articles were published without a licence.”

FWF’s financial support for Open Access

(a) Article Processing Charges (APCs): FWF pays for publishers’ article processing charges (APCs). FWF’s OA policy introduces price caps for both gold (up to 2,500 euro per paper) and hybrid (up to 1,500 euro per paper) Open Access APCs. FWF will not make additional payments to cover any other publication charges (e.g., fees for publishing colour figures). Authors can claim APCs at any time during the project or up to three years after the project ends. Where the APCs required are higher than allowed by FWF, authors are advised either to look for alternative publishing venues or use other means to fund the cost.

(b): Offsetting deals: APCs are sometimes paid to the publishers directly, as FWF makes special agreements with some publishers (e.g., IOP Publishing, RCS and Taylor & Francis) to reduce fees, implement reimbursement and embargo policies and monitor compliance. It has already secured one such three-year pilot project (2014-2016) with IOP Publishing to get “country-based reductions in journal subscriptions, in line with increases in author- or institution-pays contributions for Open Access”. In 2015, FWF signed an offsetting deal with the publisher Taylor & Francis for hybrid Open Access. Where such agreements exist between FWF and publishers, authors are notified during the submission process.

(c) Open Access Publishing: FWF and the Austrian Library Consortium have signed an agreement with Springer so that scholars working at 34 Austrian research institutions may, starting from January 2016, publish Open Access in more than 1,600 Springer journals “without having to worry about financial terms and conditions or administrative requirements”. This so called Compact License is seen as a pioneering agreement in that it “paves the way for a full transition of the academic publishing system to Open Access”. FWF also funds eight OA journals in SSH and provides funding of up to 18,000 euro for stand-alone publications in new formats such as apps, wiki- and web-based publications, and annotated scientific databases, provided that publishers certify their peer review process.


http://dx.doi.org/10.6084/m9.figshare.1378610, p. 4.

157 Reckling, loc. cit.

158 http://ioppublishing.org/newsDetails/Austria-open-access

159 Reckling, loc. cit.


161 FWF Annual Report 2013, loc. cit., p. 31. See p. 71 for the eight journal titles being funded.

FWF’s Open Access APC costs from funded projects

In 2013, FWF paid almost 2.4 million euro to publishers to cover the APCs of 1,120 FWF-funded research papers. Elsevier received more than 40% of the total amount (982 thousand euro for 409 papers). The fee paid ranged between 117 euro and 4,474 euro, average being 2,118 euro per paper. FWF paid an additional 270 thousand euro to publishers for publication costs of some 250 papers.

In 2014, FWF paid more than 3.4 million euro for Open Access publication costs, of which 67% were paid for APCs of 1,176 OA journal articles while 28% were spent for 68 OA monographs. The average APCs paid for gold OA journals was 1,287 euro per paper. This is very similar to what German institutions in general and the Max Planck Society in particular paid in 2014 (1,282 euro and 1,258 euro per paper, respectively). Note that the average APC paid for hybrid journals was much higher (2,300 euro per paper). FWF payments to hybrid journal publishers constituted 73% of the total OA costs whereas gold OA journal publishers received only 13%. Almost half (46%) of the FWF’s OA funds went to three publishers: namely, Elsevier, Wiley-Blackwell and Springer. “Further, for all three the number of Hybrid Open Access costs far exceeds the payments for Gold Open Access and Other costs (95% of Elsevier’s costs were Hybrid OA; 85% of Wiley-Blackwell; 79% of Springer).” The average costs of almost all hybrid journal publishers exceeded the price limit per paper (1,500 euro) set by FWF’s OA policy whereas all gold OA journal publishers were within the limit (2,500 euro per paper).

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164 Reckling and Rieck, loc. cit., p. 3

165 Reckling and Rieck, loc. cit., p. 9.


167 Ibid., pp. 4-6.

168 Ibid., p. 8.
FWF supported about one third of all articles that resulted from FWF-funded projects through gold and hybrid Open Access options,169 indicating that close to 5,000 papers are produced and published each year through FWF grants.

**Policy monitoring**

FWF monitors compliance to its Open Access policy through the final reports of funded projects, where authors are required to list the articles published and to indicate the type of Open Access provided for each.170 Starting from 2016, principal investigators (PIs) who do not make their peer-reviewed publications Open Access cannot apply for further funding from FWF.171 Persistent addresses and links to the full-texts of publications should be provided. Digital Object Identifiers (DOIs), PubMedCentral, arXiv, SSRN (Social Science Research Network), RePEC (Research Papers in Economics), and DataCite DOIs are among the preferred persistent addresses that should last at least ten years or more.

Authors are required to acknowledge the FWF support in all papers and presentations by citing the FWF grant number. FWF keeps track of the funded papers and strictly monitors if they are made Open Access immediately after the embargo period.172 Starting from January 1, 2016, it will be compulsory for applicants to use ORCID (Open Researcher and Contributor ID) numbers.173

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169 Ibid.


171 Reckling, personal communication (October 14, 2015).

172 Reckling and Kenzian, loc. cit.; see also http://figshare.com/articles/Austrian_Science_Fund_FWF_Publication_Cost_Data_2013/988754

173 https://www.openaire.eu/newsletter-items/austria-open-access-policy-for-fwf-funded-projects
**FWF’s OA policy:**

- is one of the first green OA research funder mandates developed in the world;
- ensures Open Access to all FWF-funded peer-reviewed journal articles as well as monographs and other innovative publications;
- asks authors or publishers to deposit the final peer-reviewed copies of publications in the institutional or subject repositories with no exception or waiver;
- supports gold and hybrid OA options and pays for article processing charges (APCs);
- specifies an embargo period of up to 12 months for publications in all fields:
- asks authors to find alternative publishing venues if the embargo period is longer;
- asks authors to provide persistent addresses that would last at least 10 years;
- funds stand-alone publications and monographs as well as Open Access journals;
- requires CC-BY license or its equivalent for all FWF-funded publications;
- monitors compliance through final project reports and asks authors to acknowledge FWF support in all publications and presentations.

### 3. Policy support

FWF has been playing an active role to promote Open Access in Austria as well as in the international arena. FWF has recently strengthened its Open Access policy by introducing a more strict mandate supported with proper funding mechanisms for green, gold and hybrid Open Access and expects to reach 100% Open Access publishing by 2020. Earlier in 2012, FWF initiated the establishment of the Open Access Network Austria (OANA) together with Universities Austria not only to create awareness on Open Access among researchers and policy makers but also to develop policies on funding and Open Access publication models. One of OANA’s working groups is currently preparing recommendations for Austria to transition to nearly 100% gold Open Access publishing by 2025.

In the past, FWF commissioned a bibliometric study to find out the scientific impact of the FWF-funded research covering more than 13,000 papers published between 2001 and 2010. “The results of the study show a high performance of FWF supported output in most fields of science and that it plays a predominant role in the Austrian and international scientific landscape.”

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174 Reckling, personal communication (14 October 2015).
176 Reckling, personal communication (14 October 2015).
In 2013, FWF commissioned a survey among the Austrian scientific community in which more than two thirds of scientists (67.9%) indicated that there is a high or very high need to promote Open Access.\(^{178}\) Based on the outcome of this survey, FWF, along with Wellcome Trust, the Research Councils UK (RCUK), Jisc, the Luxembourg National Research Fund (FNR) and the Max Planck Institute for Gravitational Physics, commissioned another study to review the current market for APCs and to identify policy options for funders and other stakeholders.\(^{179}\) The final report contains scenarios to stimulate further discussion and debate on APCs and on transition to Open Access publishing. FWF also took part in crafting the Principles on the Transition to Open Access to Research Publications initiated by Science Europe and adopted it in 2013.

Since 2014, FWF is covering one third of the total cost of the SCOAP3 Initiative (Sponsoring Consortium for Open Access Publishing in Particle Physics) in Austria to make the papers published in high energy physics journals Open Access through the SCOAP3 Repository. As mentioned earlier, FWF funds DOAJ, OAPEN, and EPMC. Since 2014, FWF also funds the arXiv repository, which has over a million papers in physics, mathematics, computer science and related fields. Researchers can make their papers (pre-prints or post-prints) freely available through arXiv. “As early as 2011, the FWF began to offer funding for the costs of publishing works from FWF-funded research in the journal Astronomy & Astrophysics, meaning that those publications are freely available in arXiv.”\(^{180}\) Moreover, FWF obtained initial funding from the Austrian Federal Ministry of Science and Research for eight Open Access journals in social science and humanities. “The initiative targeted media owners operating in Austria and enabled them to submit funding applications for the establishment of new Open Access journals and for conversion from classic subscription models to Open Access.”\(^{181}\)

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\(^{179}\) Bo-Christer Björk and David Solomon, Developing an effective market for Open Access article processing charges (March 2014).

\(^{180}\) FWF Annual Report 2013, loc. cit., p. 31.

FWF, together with the Austrian Academic Consortium, negotiated with IOP Publishing a new Open Access funding model that reduces the cost of publishing FWF-supported papers in IOP journals. This is similar to the deals struck between publishers and scientific communities elsewhere. The Dutch and the UK scientific communities will get rebates for the total cost of licensing of Springer and Wiley journals, respectively, between 2015 and 2017 since they will pay APCs for papers to be published in the hybrid journals of these two publishers.182

“Openness is the normative essence of science and scholarship. It is the precondition that results can be replicated, verified, falsified, and reused for scholarly as well as practical applications. Therefore, it is the intrinsic duty of every research funder to enforce the transition to full Open Access politically and financially.”

Dr. Falk Reckling, Director, Department of Strategic Analysis, Austrian Science Fund (FWF)

FWF also publishes the Open Access testimonials of respected scientists and researchers in all disciplines in its web site to draw attention to the importance of making publications freely available over the Internet for scientific development, which should increase the OA awareness to gain the support of the general public.

4. Conclusion

Our analysis clearly shows that the Austrian Science Fund (FWF) has developed one of the most effective OA policies as a public research funder and is progressing towards its goal of reaching 100% Open Access publishing by 2020. For, FWF has a mandatory green OA policy and also supports gold and hybrid Open Access options through APCs as well as Open Access publishing. Final manuscripts have to be deposited in repositories by no later than their publication time. Deposit cannot be waived and non-compliants may not be eligible for further support from FWF. FWF’s current OA policy is substantially in line with the European Commission’s Horizon 2020 policy in that FWF requires its grantees to provide Open Access to all FWF-funded publications as well as recommends Open Access to research data. All types of publications including journal articles, monographs, innovative web-based publications and scientific databases are supported in both sciences and social sciences and humanities as long as they are peer-reviewed. FWF monitors the compliance of authors through final project reports and keeps

track of publishers’ embargo periods as well as the license types (e.g., CC-BY) for each and every FWF-funded publication.

The FWF was one of the first research funders making its Open Access publications costs data openly available for journal articles (2013) as well as for monographs and books (2014). FWF paid publishers about 3.4 million euro in 2014 for Open Access publication costs. Although FWF introduced higher price cap for APCs for gold Open Access (2,500 euro per paper), almost three quarters of FWF funds went to hybrid journal publishers. FWF signed agreements with a number of publishers including IOP Publishing, RCS and Taylor & Francis to offset the Open Access publishing costs and get rebates for the APCs.

It is hoped that the openness and willingness of FWF and other research funders (e.g., Wellcome Trust and several institutions in Germany\textsuperscript{183}) to share OA costs data would encourage not only research funders but also other research performing institutions paying APCs to do the same. This will make it easier to find out and compare the average APCs paid to gold OA and hybrid journal publishers on both micro and macro levels and develop more comprehensive and efficient Open Access policies on a broader scale. More importantly, it will facilitate to repurpose the money invested in the current system and transition to full Open Access publishing that can be achieved without financial risks and added expense.\textsuperscript{184}

**Acknowledgments**

We would like to thank Dr. Falk Reckling, Director of FWF’s Strategic Analysis Department, for his meticulous reading of an earlier version of this study and for providing further information about FWF’s Open Access policy. Any remaining errors and views expressed herein are of course our own.

\textsuperscript{183} See Schimmer, Geschuhn and Vogler, *loc. cit.*

\textsuperscript{184} Schimmer, Geschuhn and Vogler, *loc. cit.*, p. 7.
APPENDIX

History of the development of FWF’s OA policy

FWF’s OA policy has been included among the eight case studies reported by Chris Armbruster along with its activities until 2010. The short timeline of the development of FWF’s OA policy based on several sources is given below:

- 2002: Started to provide funds to cover OA costs to FWF-funded research output;
- 2003 November 5: Became one of the first research funding agencies signing the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities;
- 2004: Developed its first policy recommending OA to FWF-funded research output;
- 2005: Issued the first deposit request;
- 2008 December: Policy became an OA mandate, first of its kind among research funders;
- 2009: Developed its stand-alone publications program for SSH publications;
- 2010: Became a partner of Europe PubMedCentral;
- 2011: Open Access to FWF-funded monographs became mandatory;
- 2014 December 19: Revised its OA policy to align it with the European Commission’s Horizon 2020 OA policy.

This publication was produced by the Department of Information Management of Hacettepe University, a PASTEUR4OA Project partner. PASTEUR4OA is an FP7 project funded by the EUROPEAN COMMISSION. This publication is licensed under a Creative Commons Attribution 4.0 International license. For further information please contact: yasartonta@gmail.com

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185 Chris Armbruster, Implementing Open Access: Policy case studies (October 14, 2010).  
6.2 Ireland’s Health Research Board (HRB)

PASTEUR4OA Case Study
Funder Open Access Policy Implementation at the Health Research Board Ireland

Author: Eloy Rodrigues (University of Minho) and Marieke Guy (OKF)

Reviewers: Iryna Kuchma (EIFL) and Alma Swan (EOS)

September 2015

Summary
The Health Research Board (HRB) is the lead funding agency in Ireland for health research. Their most recent Open Access policy, published in 2014, requires researchers to deposit their publications in an Open Access repository and ensure they are discoverable, accessible and re-usable. The policy is supported in a number of ways including discussions with key Irish Agencies through the National Steering Committee for Open Access policy, on-going dialogue with researchers and others within the
Irish research system and increased emphasis on Open Access in documentation and advocacy work. This case study looks at Institutional Open Access Policy Implementation at HRB.

Introduction

The Health Research Board (HRB) is the lead funding agency in Ireland for health research, and is a statutory body under the Irish Department of Health (DoH). In 2014 Health research, funded through the HRB, was €36.4 million, representing approximately 85% of the budget for the organisation, and 0.3% of the total health service budget in Ireland of €14 billion. It has funding commitments of almost €100 million across hundreds of awards and a revenue budget of €31 million, a capital allocation of €11 million and 57.8 staff. The HRB funds a wide range of health-related research in approved host institutions, after open calls and international peer review. An approved Host Institution for the purpose of administering HRB research awards must be a legal entity which fulfils the responsibilities of “Host Institution” as set out in the HRB General Terms and Conditions for research awards. The HRB is currently developing a new strategic plan, which will direct activity over the period 2016 - 2020. The scope of funding is driven by the four goals of the HRB:

- Goal 1: Driving the development of excellent clinical research, including applied biomedical research, within a coherent health research system
- Goal 2: Building capacity to conduct high-quality population health sciences and health services research
- Goal 3: Working with key partners to develop and manage high-quality national health information systems
- Goal 4: Generating and synthesising evidence, and promoting the application of knowledge to support decision-making by policy makers and relevant practitioners

Areas of particular interest include: clinical research, including applied biomedical research; high-quality population health sciences research and health services research; patient-oriented research; increasing diversity of health professionals and researchers.

Schemes include: Cochrane Training Fellowship; Health Research Award; Clinician Scientist Awards, Clinical Trial networks, Research Leaders Awards, Interdisciplinary Capacity Awards, Research Training Fellowship for Health Professionals; Joint Programme in Neurodegenerative Disease (JPND) and Healthy Diet Health Life (HDHL); Cancer Prevention Fellowship; Welcome Trust-HRB-SFI Biomedical Partnership etc. A list of awarded funding is available from the HRB website.

In addition to its extramural research support, the HRB manages five national health information systems in the areas of alcohol and drugs, disability and mental health and provides an evidence

generation and knowledge brokering service to the DoH. Data from these information systems are routinely reported at a regional, national, European and international level.

These are:

- The National Physical and Sensory Disability Database [http://www.hrb.ie/health-information-in-house-research/disability/npsdd/]

**Open Access Policy**

The HRB works to ensure that its policies and procedures are in line with international best practice. Policies and positions of the HRB are available from the HRB website\(^\text{189}\). The Open Access to Published Research policy\(^\text{190}\) provides the following conditions to which HRB funded award recipients should adhere:

1. All researchers are required to deposit their publications resulting in whole or in part from HRB-funded research in an Open Access repository and these publications should be made publicly discoverable, accessible and re-usable as soon as possible.
   a. Authors must deposit post-prints (or publisher’s version if permitted) plus metadata of articles accepted for publication in peer-reviewed journals and conference proceedings.
   b. All peer reviewed journal articles and conference publications must be deposited as soon as possible, ideally at the time of acceptance by the journal/conference and no later than the date of formal publication. Other research outputs such as monographs, books, book chapters, technical reports, research theses, and reports should be deposited where possible.
   c. Metadata shall comprise the full bibliographic and/or descriptive data and should comply with national and international standards and agreements for harvesting, reporting and interoperability.
2. Repositories should release the metadata immediately upon deposit. Open Access to the full text paper should be made immediately upon deposit or once access restrictions, as required by

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certain publishers, have expired. Access restrictions should not normally exceed six months after publication for scientific, technical and health science research publications and 12 months for arts, humanities and social sciences research outputs.

3. Researchers should agree terms of deposit with publishers. Clarity should be sought on copyright, licensing and embargo policies and agreed policies with publishers must be respected.

4. The repository should ideally be a local institutional repository that supports interoperability with other repositories and harvesting by national portal/s and international aggregators. Suitable repositories are those that provide free public access to, and make provision for long-term preservation of, published research findings.

5. Research publications deposited in an Open Access repository must contain a link from the deposited version to the publication site, a URL/DOI (Document Object Identifier) must be used.

6. Research publications in Open Access Journals must also be deposited in an Open Access repository in the same way as other publications.

7. In accordance with the National Principles on Open Access Policy Statement, where possible, research data supporting the publication should also be made available in an Open Access repository whenever feasible and linked to associated publication. European and national data protection rules must be taken into account in relation to research data, as well as concerns regarding trade secrets, confidentiality or national security.

8. All research publications must acknowledge the HRB as the source of research funding, and also include details of the award within the metadata. Researchers will be required to provide acknowledgment of Open Access publishing as part of the grant evaluation process. Software, together with methods and algorithms, are not directly covered by Open Access repositories. However, in keeping with best practice of scientific reproducibility, key scientific results should be made available openly wherever possible.

Software, together with methods and algorithms, are not directly covered by Open Access repositories. However, in keeping with best practice of scientific reproducibility, key scientific results should be made available openly wherever possible.

The policy applies to research publications where funding arises in whole or in part from HRB and the policy has been in effect from 1 May 2014. The policy is aligned with the Irish National Principles for Open Access Policy Statement\textsuperscript{191}, and also aligned with the European Commission’s Horizon 2020 Programme Open Access Requirements and European Commission’s Recommendation to Member States of July 2012.

Open Access Policy support

To support its Open Access policy the HRB has a number of actions:

- The HRB General Terms and Conditions for Research Awards have been updated to include details of its mandatory Open Access policy. These Terms and Conditions are used for all new HRB grants awarded. In addition, all active Host Institutions were informed of the new policy and given the opportunity to clarify meaning and openly discuss the implications of the policy change.

\textsuperscript{191} National Principles for Open Access Policy Statement: \url{http://www.oaireland.ie}
Policy discussions continue with key Irish Agencies through the National Steering Committee for Open Access policy, and with other EU Member States through previous membership of Science Europe Open Access Working Group and current membership of the Science Europe Research Data Working Group. Following publication of the national Open Access principles other Irish funding agencies have also updated their own individual Open Access policies so that they are now aligned and relaying a single message to the research community.

HRB became a member of the newly expanded RIAN Board, which is responsible for the RIAN\textsuperscript{192} national Open Access harvester infrastructure.

Ongoing dialogue with researchers and others within the Irish research system. For example, in 2014 the HRB presented at the Dublin City University Celsius Science Society meeting, the Government Librarians Group conference and the Policy Panel of the Research Data Alliance third Plenary Conference.

Sharing of Open Access policy with key Irish stakeholders responsible for research data who were interviewed as part of a HRB Research Data Project, considering long-term issues of data access, storage, sharing, and linkage for Irish health researchers.

Importance of Open Access policy has been referenced in current preparations of the new HRB strategy and the new national research strategy both of which are due to be published in 2015, and with the Irish Horizon 2020 National Support Network.

**Open Access Policy monitoring**

HRB defines as a suitable repository one that provides free public access to its contents, supports interoperability with other repositories and with other research information and reporting systems, is harvestable by national portal/s and international aggregators and takes steps toward long-term preservation\textsuperscript{193}. In Ireland, institutional repositories, including those within academic institutions and within the health service executive, are available through RIAN. This project aim is to harvest to one portal the contents of the Institutional Repositories of the seven university libraries, in order to make Irish research material more freely accessible, and to increase the research profiles of individual researchers and their institutions.

In terms of advocacy and coordination, HRB is committed to coordinating mechanisms and monitoring processes to support the implementation of the policy. The HRB End-of-Grant evaluation survey\textsuperscript{194} that extends beyond the close of the grant now includes questions on compliance with the HRB Open Access policy asking for details of repositories used and if appropriate reasons why individual publications have not been deposited.

\textsuperscript{192} RIAN: http://rian.ie/

\textsuperscript{193} In Ireland the contents of institutional repositories, including those within academic institutions and within the health service executive, are available through RIAN.

\textsuperscript{194} HRB Grant related forms including End-of-Grant reporting form: http://www.hrb.ie/research-strategy-funding/grant-holder-information/grant-related-forms/
All those involved in the Irish research system, including publishers, editors, referees, librarians, funders and researchers should be made aware of standards of professional conduct for Open Access publishing, for example on licensing, editorial process, soliciting submissions, disclosing ownership, the handling of publication fees and the benefits of Open Access publishing. Responsibility for Open Access education lies with institutions and individuals, but training has been available through programmes such as ‘FOSTER training on Open access and research data management: Horizon 2020 and beyond’\textsuperscript{195}. Regarding Gold Open Access, the HRB is explicit that it does not provide additional funds to cover Gold Open Access fees.

Acknowledgment

This case study was written by Clara Boavida (Uminho) and Marieke Guy (Open Knowledge) for the PASTEUR4OA Project. It was reviewed by Alma Swan (EOS) and Iryna Kuchma (EIFL). It was revised by Dr Patricia Clarke, Senior Policy Analyst / National Delegate for H2020 Health at the Health Research Board. PASTEUR4OA would like to express sincere gratitude for her contribution.

\textsuperscript{195} A two-day training session on Open Access and Research Data Management organised by the University College Cork (Ireland), Repository Network of Ireland and Teagasc took place in Cork on April 14 and 15, 2015: http://bit.ly/1Kdj81A
7. Open Access in Europe

7.1 Regional Challenges in Achieving Open Access and Proposed Recommendations

Regional Challenges in Achieving Open Access and Proposed Recommendations:

Working Together to Promote Open Access Policy Alignment in Europe

Author: Mafalda Picarra, Jisc

Reviewers: Marina Angelaki, EKT and Alma Swan, EOS

August 2015

PASTEUR4OA

The PASTEUR4OA project supports the aim of developing and reinforcing Open Access strategies and policies at the national level that are in alignment with the European Commission's 2012 Recommendation on Access to and Preservation of Scientific Information and the Open Access Mandate for Horizon 2020.

PASTEUR4OA aims to increase national policymakers’ understanding and awareness about Open Access (OA) as well as to help develop and/or reinforce Open Access strategies and policies at the national level. In addition, it aims to facilitate coordination among all EU Member States and Aligned Countries.
by establishing a coordinated network of expert organisations across Europe (which the project is calling the Knowledge Net) and by developing a coordinated and collaborative programme of activities that support policymaking at the national level.

**Challenges in developing, implementing and aligning Open Access policies**

At the beginning of the project, PASTEUR4OA had identified that EU Member States and Aligned Countries experience challenges in developing, implementing and aligning Open Access (OA) policies:

- European countries experience different levels of progress with regard to OA policy development at the national, institutional and funder levels;
- National policymakers still lack awareness about OA;
- In some countries open access to scientific information is not a priority in policymakers agenda;
- In countries where OA policies have been adopted there is still a lack of information on policies effectiveness.

In December 2014, the project hosted a Europe-wide meeting of national experts that brought together the PASTEUR4OA project partners and Open Access and scholarly communication experts from a total of 33 European countries. At the meeting, issues related to policy formulation, compliance and alignment, best practices, incentives and challenges were addressed. In addition, the European Commission’s agenda for Open Access was revised. The meeting aimed to inform participants about the rationale for developing, implementing and aligning OA policies as well as to enhance the establishment of supportive and productive relationships between European countries that can result in an advance of free online access to scientific information.

**From challenges to recommendations**

At the Europe-wide meeting of national experts, participants worked collaboratively in identifying challenges that are currently acting as barriers to advance open access to scientific information in their countries. Because different levels of progress have been made at national and regional levels, different approaches are required to assist national policymakers and other national stakeholders.

In regional groups, participants mapped the most pressing challenges that are currently hindering OA in their countries and regions and discussed some of the ways in which those challenges can be addressed. This factsheet illustrates, in the tables below, what the most pressing challenges are. It also makes recommendations on how those challenges can be addressed and makes suggestions on some of the resources that can be provided to national policymakers and other stakeholders that inform them about how to develop and align Open Access policies and how to address other policy related issues.
## 1. Nordic region

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Recommendations</th>
<th>Recommended resources &amp; activities</th>
</tr>
</thead>
</table>
| Visibility of OA and publishing conditions: there are issues evolving around making a case for OA and challenges deriving from fragmentary embargo periods and licencing conditions | • Replicate the University of Liege model (including top-down approach, strong leadership, and basis for evaluation).  
• Require immediate deposit and short embargo periods in funder mandates.  
• Include self-archiving as part of licencing agreements and top level involvement in negotiations. | • Provide facts, statistics and indicators on OA to stakeholders.  
• Collect and disseminate success stories.  
• Give feedback to funders and government on their mandates effectiveness.  
• Provide feedback to researchers on increased visibility of the resources they make available on OA. |

## 2. East Europe

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<th>Challenges</th>
<th>Recommendations</th>
<th>Recommended resources &amp; activities</th>
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<tbody>
<tr>
<td>Financial constraints (1): grants are too small to cover for Article Processing Charges.</td>
<td>• Raise awareness about Green OA as an alternative to publishing in OA journals.</td>
<td>• Disseminate information (guidelines, factsheets) on scientific information can be made OA.</td>
</tr>
<tr>
<td>Financial constraints (2): some European universities have very limited financial resources and limited visibility, thus being at a disadvantage when compare with other more affluent universities.</td>
<td>• Demonstrate that coordination at the European level is very important, especially for smaller universities and countries, to ensure an effective implementation of OA policy and strategies.</td>
<td>• Provide resources to stakeholders (briefing papers, case studies) that emphasise the importance of promoting coordinated activities in Europe.</td>
</tr>
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</table>
| Financial constraints (3): current project funding is low and poses challenges to projects that need to cover for data curation. | • Consider ways in which OA can be supported with the existing funds.  
• Demonstrate the benefits of promoting and funding the transition to OA to publications and research data. | • Disseminate resources (guidelines, factsheets) that demonstrate the benefits and long-term financial savings resultant from OA. |
| Promoting policy compliance: despite recommendations having been adopted in some countries that are similar to the H2020 OA policy nothing is done in concrete. In other countries where national policies are expected, it is envisaged that they will not produce the expected outcomes. | • Initiate dialogue with multiple stakeholders and the scientific community to inform them about OA and the H2020 OA policy.  
• Discuss with policymakers how to define competencies, tasks and responsibilities when developing OA policies and strategies.  
• Support institutions and funders to develop clear strategies that promote effective policy implementation. | • Provide advocacy resources to national policymakers that explain the H2020 OA policy and that promote effective policy development and compliance monitoring. |
<p>| Green OA vs. Gold OA: research | • Provide comprehensive information on the | • Disseminate guidelines, factsheets, |</p>
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<th>Challenges</th>
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<tr>
<td>quality is an issue and good research results are published in foreign journals. This means that valuable research can be deposited locally. Therefore, why would institutions support Gold OA?</td>
<td>Green and Gold OA routes.</td>
<td>case studies and reports to stakeholders that explain how scientific information can be made OA.</td>
</tr>
<tr>
<td>Low priority: OA has low priority in institutions.</td>
<td>• Enhance Current Research Information Systems (CRIS) as the way forward.</td>
<td>• Disseminate information about CRIS and provide examples of institutions that have successfully implemented them.</td>
</tr>
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</table>

**Overarching challenge: MS arrangements with publishers to secure deposit rights and short term embargoes are fragmentary and inconsistent**

| Publishing: publishers are not concerned about institutions’ decisions to save costs. They do not see OA policies and repositories as a rational solution to save costs because there are no convincing cases. | • Raise publishers’ awareness about OA and about successful OA journals. | • Disseminate information to local publishers that raises their awareness about OA. |
| ▪ Provide comprehensive information about the ways in which scientific information can be made available on OA. | • Advocate for the increase of visibility of OA publications. | • Disseminate information to publishers that address issues related to OA publishing and ‘traditional’ publishing. |
| Publishing: research evaluation in some countries is very quantitatively oriented. Thompson Reuters’ Web of Science and Journal Citation reports (home of the Journal Impact Factor) are not seen as being compatible with OA. | • Raise awareness about OA initiatives such as the Directory of Open Access Journals (DOAJ) and the Thomson Reuters Open Access Journals List. | • Organise informative sessions that address issues related to OA publishing and ‘traditional’ publishing. |
| Publishing: If publishers’ embargo periods are longer than what their funders or institutions require, researchers will not negotiate embargoes with publishers. | • Increase researchers’ awareness about OA and about different OA policies’ requirements and the resultant implications for policy compliance. | • Disseminate case studies, reports and factsheets to researchers that inform them about OA and publishing agreements conditions. |
| Publishing: publishers’ agreements do not allow the option to transfer copyrights to authors. | • Demonstrate the advantages for researchers to make their publications available on OA. | • Urge institutions and funders to organise information and training sessions on OA for researchers. |
| ▪ Advocate for the inclusion of a copyright checkbox in publishers agreements. | • Raise awareness about publishers’ policies. | • Disseminate information to stakeholders about the advantages of publishers’ agreements having a copyright checkbox. |

3. South East Europe

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<th>Challenges</th>
<th>Recommendations</th>
<th>Recommended resources &amp; activities</th>
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<tr>
<td>Overarching challenge: OA has low priority with research performing organisations (RPOs) and funders</td>
<td>• Use the Horizon 2020 OA policy as a tool to push OA forward by extending the related provisions to all publications, irrespective of their source of funding (i.e. European or national).</td>
<td>• Disseminate resources (guidelines, case studies, reports) that explain what OA is and what its advantages are.</td>
</tr>
<tr>
<td>OA advantages: the benefits of open access for the research community are still unclear.</td>
<td>• Disseminate guidelines on the H2020 OA policy and information or case studies that demonstrate how the H2020 policy was successfully replicated in some countries.</td>
<td>• Disseminate guidelines on the H2020 OA policy and information or case studies that demonstrate how the H2020 policy was successfully replicated in some countries.</td>
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Working Together to Promote Open Access Policy
Alignment in Europe – Work Package 4: Policymaker engagement and policy development

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<tr>
<td><strong>Licencing</strong>: difficulties in understanding more complex issues such as licencing.</td>
<td>• Raise stakeholders’ awareness about licencing.</td>
<td>• Disseminate information on OA (guidelines, information sheets) that explains what licencing is and that exemplifies what kinds of licences are usually required in different OA policies.</td>
</tr>
<tr>
<td><strong>Awareness raising</strong>: low levels of awareness among researchers.</td>
<td>• Increase researchers’ awareness about OA and demonstrate the advantages for researchers to make their scientific publications available on OA.</td>
<td>• Disseminate information about OA (case studies, guidelines, factsheets) to researchers. • Provide institutions and funders with information on OA and support them in organising training sessions for researchers.</td>
</tr>
<tr>
<td><strong>Infrastructure</strong>: repositories are not sufficient to guarantee the adoption of OA policies. In some cases repositories are in place but there is no support from policymakers on promoting their use.</td>
<td>• Raise policymakers, librarians, researchers and the wider academic community awareness about OA and the role of repositories. • Support policymakers in developing a clear strategy about how repositories must be used.</td>
<td>• Disseminate resources to key stakeholders that inform about OA and repositories, that highlight best uses of repositories, that demonstrate how they can be used and what information can be retrieved from them. • Provide resources to librarians to hold information and training sessions with researchers on how to use and deposit content in online repositories.</td>
</tr>
<tr>
<td><strong>Political conditions</strong>: changes in political posts have led to an absence in policy continuity. On various occasions OA advocates have to re-start their work.</td>
<td>• Ensure a systematic engagement with policymakers and to ensure that relevant information and updates on OA are transmitted.</td>
<td>• Set up meetings with policymakers to inform them about OA and to update them on the latest developments at the national and EU levels. • Disseminate relevant OA information (guidelines, case studies, reports, factsheets) to new policymakers.</td>
</tr>
<tr>
<td><strong>Latecomers</strong>: some countries are latecomers to OA.</td>
<td>• Encourage policy learning from other countries’ success stories as well as from their failures.</td>
<td>• Provide resources (case studies, reports, factsheets) to national stakeholders that illustrate success stories and what lessons can be learned from them.</td>
</tr>
<tr>
<td><strong>Stakeholder engagement</strong>: low level of involvement of stakeholders.</td>
<td>• Promote dialogue and engagement with a wide range of stakeholders about the processes of developing and implementing OA policies.</td>
<td>• Disseminate OA resources to relevant stakeholders. • Inform stakeholders about national and international OA networks and about their purposes.</td>
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4. North West Europe

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<tr>
<td><strong>Overarching challenge</strong>: OA has low priority with RPOs and funders</td>
<td>• Involve RPOs and industries in the process of transition to OA. • Demonstrate the benefits of OA in advancing technological innovation and facilitating knowledge transfer to academic-industry partnerships. • Provide evidence that the lack of OA to scientific information harms innovation, especially for small and medium-sized</td>
<td>• Provide available information to RPOs on the impact that OA has to the private sector, to academic-industry partnerships and to advance economic growth. • Provide examples of cases where more advances can be made if OA to scientific information is available.</td>
</tr>
</tbody>
</table>

| Overarching challenge: OA has low priority with RPOs and funders | | |
| **R&D**: the current research communication system is slowing down research and innovation. | • Involve RPOs and industries in the process of transition to OA. • Demonstrate the benefits of OA in advancing technological innovation and facilitating knowledge transfer to academic-industry partnerships. • Provide evidence that the lack of OA to scientific information harms innovation, especially for small and medium-sized | • Provide available information to RPOs on the impact that OA has to the private sector, to academic-industry partnerships and to advance economic growth. • Provide examples of cases where more advances can be made if OA to scientific information is available. |
### Challenges

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<tr>
<td>Financial constraints: the current research system is time consuming and expensive. It is difficult to find and get access to crucial information.</td>
<td>▪ Demonstrate the time saving and cost saving advantages that OA facilitates to policymakers, funders and librarians.</td>
<td>▪ Provide reports and studies that comprehensively demonstrate the scientific, economic and social benefits of OA.</td>
</tr>
<tr>
<td>Research environment: the current research communication system is extremely harmful for research and researchers and reduces the possibility for problems to be solved in other parts of the world.</td>
<td>▪ Demonstrate the consequences of disregarding OA.</td>
<td>▪ Disseminate information (case studies, factsheets) that detail the benefits of OA and that exemplify some of the negative effects of not promoting OA.</td>
</tr>
<tr>
<td>Ways of working: the current research communication system is depriving research funders and research managers from doing a good job because they are not getting the most out of the knowledge produced in their organisations.</td>
<td>▪ Demonstrate how the knowledge produced in scientific publications can be better used if made available on OA and how OA is an advantage to academic libraries and universities.</td>
<td>▪ Provide information on successful cases where OA policies have been adopted by funders and institutions. Demonstrate what information and metrics are being collected and highlight the advantages that the transition to OA brought.</td>
</tr>
<tr>
<td>Metrics: the current research communication system lacks evidence on OA metrics.</td>
<td>▪ Demonstrate which metrics have positive effects on visibility – web analytics, repository indicators.</td>
<td>▪ Disseminate information that shows indicators and results that have positively impacted on OA. Provide concrete examples of cases where metrics are being used and on the kinds of information that they collect (e.g. University of Liege).</td>
</tr>
<tr>
<td>Citations: the current research communication system lacks evidence on OA citations.</td>
<td>▪ Demonstrate that increased citations resultant from open access to academic publications are advantageous for researchers and have a positive impact on the university.</td>
<td>▪ Disseminate information that provides evidence on OA citation rates and advantages. Give concrete examples of cases where articles are being cited.</td>
</tr>
<tr>
<td>Economic models: the current research communication system lacks information on economic models.</td>
<td>▪ Provide information on economic models presented in the various Houghton/Swan reports.</td>
<td>▪ Disseminate clear and comprehensive information on OA economic models and provide a list of recommended readings.</td>
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5. South West Europe

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<th>Challenges</th>
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<tr>
<td>Overarching challenge: developing OA policies is difficult</td>
<td>▪ Develop a toolkit that explains how to develop OA policies. It could be a toolkit similar to the one developed during the MedOANet project (used by the Portuguese national research funder to develop its OA policy). ▪ Raise policymakers, funders and librarians’ awareness about OA policies and provide them with training and resources on OA.</td>
<td>▪ Disseminate OA policy toolkit. ▪ Disseminate H2020 OA policy guidelines. ▪ Provide training and training materials to policymakers, funders and librarians on OA policymaking and on policy related issues.</td>
</tr>
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Working Together to Promote Open Access Policy  
Alignment in Europe – Work Package 4: Policymaker engagement and policy development

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Recommendations</th>
<th>Recommended resources &amp; activities</th>
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<tr>
<td><strong>Embargoes and research evaluation</strong>: OA policy does not make reference to the limit embargo period and is not linked to the research evaluation process.</td>
<td>• Use H2020 OA policy as a model and a tool to facilitate the development of national OA policies.</td>
<td>• Disseminate OA policy toolkit and guidelines that address essential policy formulation issues such as embargo periods and the relation between OA and research evaluation. Moreover, provide concrete examples of where OA has been included in research evaluation processes, explain the mechanisms that were put in place to monitor compliance and demonstrate the impact this measure has had. • Write case study on University of Liege OA policy and on the process linking OA with research evaluation. • Raise policymakers’ awareness about how OA policies should be formulated at the PASTEUR4OA regional workshops.</td>
</tr>
<tr>
<td><strong>Monitoring</strong>: need to address issues regarding policy implementation and monitoring processes.</td>
<td>• Advocate for policy to include an embargo period limit and to link OA to the research evaluation process. The results from the OA policy effectiveness work conducted in the PASTEUR4OA project will contribute with more information on these issues. • Advocate for a change in the research evaluation process. • Provide information about the University of Liege model. This may lead to the inclusion of open access to scientific information as a research evaluation condition.</td>
<td>• Disseminate OA policy toolkit and guidelines that address essential policy formulation issues such as embargo periods and the relation between OA and research evaluation. Moreover, provide concrete examples of where OA has been included in research evaluation processes, explain the mechanisms that were put in place to monitor compliance and demonstrate the impact this measure has had. • Write case study on University of Liege OA policy and on the process linking OA with research evaluation. • Raise policymakers’ awareness about how OA policies should be formulated at the PASTEUR4OA regional workshops.</td>
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**Overarching challenge: current infrastructure constrains effective OA**

| Infrastructure: important issues relate to the economic sustainability of infrastructures, the absence of a national support institution, lack of investment on technical side (managed individually by each institution) | • Encourage policy learning from other countries with integrated infrastructures (e.g. in countries like Spain and Portugal there are national infrastructures that collect information from various sources). | • Disseminate information that explains how a national support infrastructure can be developed and managed, what resources are required to do so, and provide examples of best practice. |

**Overarching challenge: MS arrangements with publishers to secure short term embargoes are fragmentary and inconsistent.**

| Embargoes: there are issues concerning embargo periods. | • Develop guidelines about the position on embargo periods Base all the negotiations between institutions and publishers should be based on a common approach. • Explore the possibility for a European guideline on embargo periods to be developed, making it easier to comply with the H2020 OA policy and other OA policies. • Explore the harmonisation of embargo periods in countries like Portugal, Spain and Malta where a single institution is responsible to negotiate with publishers. | • Provide information on different OA policies embargo periods and their respective implications. Emphasis should be made to the importance of having embargo periods that are in agreement with those of the H2020 OA policy. |
7.2 Case-study on the assessment of readiness for Open Access policy implementation in Europe

Assessing Readiness for Open Access Policy Implementation across Europe

Author: Pablo DeCastro, EuroCRIS
Reviewer: Marina Angelaki, EKT

August 2015

Summary

This report presents a European-wide case study for assessing EU Member State's readiness for Open Access (OA) policy implementation – and specifically for the European Commission H2020 policy. Aspects like the availability of OA infrastructure, the awareness of OA and the availability of harmonised working procedures and coordination mechanisms are analysed, providing the means to assess the situation of specific countries.

Introduction

The PASTEUR4OA European project is all about collecting and analysing Open Access (OA) policies, aiming to support the July 2012 European Commission’s Recommendation to Member States that they
develop and implement policies to ensure Open Access to all outputs from publicly-funded research [1]. 

*Policy collection* means producing a structured and comprehensive directory of worldwide OA policies so that it's possible to see what policies are available for specific geographical areas at institutional, funder and/or regional/national levels. This will allow to identify and spread best practices in OA policy issuing, with advanced countries playing a role model for those with less advanced models. *Policy analysis* means then designing and applying the tools for assessing the effectiveness of a given set of available OA policies and identifying the factors that will contribute to make them successful.

OA policies are important because they support, facilitate and encourage:

1. early, wide and open availability (ideally without charge) to the results of research;
2. take-up, knowledge and technology transfer to industry for wealth creation or to government policies for improving the quality of life;
3. comparative statistics of output by country, by research domain, by institution, by facility perhaps related to per capita wealth, country size;
4. relating the scholarly publications – and datasets – to researchers, research groups for evaluation purposes – perhaps also relating the outputs to the inputs (funding);
5. assessment of how much e-Research depends on OA policies;

all leading to a clearly defined need for OA policies anchored to the need for wealth creation and improvement in the quality of life.

A critical factor for the success of OA policies is the availability of the required infrastructure for them to work. This can take different forms, the most frequent one being a tightly knotted open access repository network like the one put together across the EU by the European *OpenAIRE project* [2] (which will provide the infrastructure basis for enabling the European Commission OA policy associated to the H2020 research programme [3]). There is however a wide range of technical solutions and resources that will contribute to the effectiveness of an OA policy. This document will first provide a brief summary of the different technical tools and systems that will enable an OA policy to be effective, covering Open Access repositories as well as Current Research Information Systems (CRIS) and the interoperability between both kinds of systems. A number of relevant factors which will enable any OA policy to be successfully adopted are also analysed, together with a first description of how different geographical areas are placed with regard to them. The second part of this report is devoted to providing a description and an analysis of the current European landscape in terms of the available infrastructure for enabling an effective application of OA policies.
Together with this European-wide case study, PASTEUR4OA has commissioned seven national use cases for advanced countries from an infrastructure viewpoint, namely the UK, Belgium, Ireland, Norway, Denmark, Portugal and Hungary. This wider use case will build upon these national use cases, providing additional compared information on the kind of systems available for supporting OA policy implementation across Europe and analysing to what extent specific solutions may be re-used in other countries where there has been not such a relevant progress so far in comparison to the countries featured on the national use cases. This European-wide report will also address the situation in whole geographic areas not covered by the national use cases, making an attempt to provide general-purpose case studies where different countries may fit in from different perspectives, including the availability of national repository networks, the ability of institutional or regional/national CRISs to play an effective role in supporting OA policy implementation, the level of awareness about OA initiatives (especially at European level) and others.

1. Achieving Open Access: Infrastructure Requirements

As mentioned in the introduction above, a previous availability of a sufficiently solid Open Access infrastructure is a prerequisite for an OA policy to be successfully adopted. This mainly relates to the existence of a network of content management systems where the research outputs covered by a given OA policy can be filed following agreed research information standards for their description. The systems that best meet this requirement are Open Access repositories, either institutional or discipline-based ones. However, other systems can also provide the required functionality for OA implementation, such as Current Research Information Systems or CRIS.

1.1. Availability of an Open Access repository network

The two phases of the DRIVER European Project (Digital Repository Infrastructure Vision for European Research [4]) held from June 2006 to November 2009 enabled the foundation of an Open Access repository network across Europe. Harmonisation instruments like the DRIVER Guidelines allowed the growth of such network to happen in an aligned and collaborative way. Such standards allowed repositories to flourish.
According to the OpenDOAR repository directory [5], there are around 1,250 Open Access repositories in Europe as of Sep 2014. This means nearly half of the worldwide repositories are in Europe. This is the direct result of the DRIVER work and its follow-up by the ongoing OpenAIRE project. This infrastructure is to provide the basis for the H2020 OA policy implementation.

However, the repository network distribution across countries is far from homogeneous. While country size considerations must be kept in mind, Open Access repositories are clearly more popular in Western European countries like the UK, Germany, Spain, France or Italy, with Poland being an exception to this trend. When taking country area into account besides the sheer number of available platforms, the resulting weighted list is again topped by the UK, followed by Belgium, The Netherlands, Portugal and Germany.

While OpenDOAR is a very useful directory for collecting figures on the total number of available repositories by country, the best indicator on how ready the repository infrastructure at national level may be for supporting the implementation of an Open Access policy is the OpenAIRE Member State OA Statistics for Content Collection shown below. This data, released and maintained by the OpenAIRE project, describe the number of OpenAIRE-compliant repositories by country and the amount of contents – or number of harvested items – delivered to the common database of research outputs by such compliant repositories.
This is an evolving picture, as many additional repositories are presently in the process of becoming OpenAIRE-compliant, but the differences across countries when analysing the level of contents contributed to the global aggregation are even more dramatic than those shown in the OpenDOAR directory. When considering the need for the European Research Area aggregation to contain the outputs of every country involved in the initiative, the current picture shows significant room for improvement.
Two are then the requirements for implementing a repository network at national level than may support an Open Access policy: first, the OA institutional repositories must be made available, and then these should gradually become OpenAIRE-compliant. However, alternative platforms may also be put to work in order to support OA policy implementation in areas with low repository availability, and this is relevant for an European-wide OA policies like the one issued for the Horizon 2020. Framework Programme.

1.2. Current Research Information Systems (CRIS)

Current Research Information Systems [6] can be one of such alternative platforms for storing research outputs in a harmonised way. CRISs aim to provide a comprehensive research information context to research outputs in areas such as research funding (projects), research organisations (institutions, funders) and researching individuals. Although generally more focused on business intelligence and having loosely different goals from repositories [7], CRISs may very effectively support Open Access implementation too when appropriately designed – especially once the OpenAIRE Guidelines for CRIS managers [8] have been made available that will allow content to be delivered to OpenAIRE from CRISs as well as from repositories.

Of particular interest for supporting the implementation of an Open Access policy are national-level CRISs which collect the research outputs – together with their research information context – for a whole country. CRIStin, the Norwegian national CRIS, is a good example for such systems, which are rather frequent too in Central and Eastern Europe where the repository network is frequently weaker. There are in fact initiatives under way to connect national CRISs to the repository network in order to allow them to deliver full-content outputs to the OpenAIRE aggregation. These initiatives fall under the area of CRIS-repository interoperability.

1.3. CRIS-repository interoperability

The concept of linking CRISs to Open Access repositories as a way of achieving the main goals of both systems, i.e. the collection of the full set of relevant metadata by CRISs and the provision of full-content versions of the research outputs by OA repositories has a rather long tradition at institutions such as the University of St Andrews [9]. It is however its application on a national-level scale which offers the most promising features to support an Open Access policy. This involves establishing technical interoperability (i.e. the ability to exchange information on the basis of specific protocols) between a national CRIS and a
whole national repository network, and has been pioneered by the CRIStin National CRIS in Norway by means of its link to the NORA network of Norwegian OA repositories [10].

Other countries, especially in Central and Eastern Europe, find themselves in a situation from the point of view of infrastructure availability which could effectively benefit from a similar approach to implementing CRIS-repository interoperability at national level. A strong national CRIS where comprehensive research information is being collected on the research outputs for a country and the gradual strengthening of a still relatively weak repository network can result in a connected network where access to the full-content is jointly provided by the linked systems. Once the OpenAIRE Guidelines for CRIS managers have been made available, it is now possible to deliver OpenAIRE-compliance at national CRIS level, potentially allowing a vast amount of materials to be delivered into the content aggregation by countries where the repository network has not consolidated as quickly as in the most successful ones. It will take some time however for this strategy to deliver its full potential, since no national CRIS has yet achieved OpenAIRE-compliance given the still very recent release of the Guidelines. Work is already under way anyway, and once a first national CRIS becomes OpenAIRE-compliant, it should be much easier for the rest to quickly follow suit.

1.4. Availability of Local Open Access Journal Portfolios

One of the most effective strategies some countries have applied for making a large fraction of their national research output Open Access all at once (especially in the Social Sciences and Humanities) has been to provide the technical and funding mechanisms for turning a significant number of local serials into Open Access journals [11].

When addressing the low awareness of Open Access (especially among scholars) and the low OA infrastructure availability in specific geographic areas, the possibility of flipping to Open Access high-quality local journals in languages other than English is also a strategy to be kept in mind. Open Access repositories remain the most sensible and affordable way to ensure that “information already paid for by the public purse” gets freely shared and re-used. Additional means are however at hand, especially where the repository network is yet to consolidate, for allowing Open Access to flourish while the supporting infrastructure is made available: as of Sep 20th, nearly 10,000 Open Access journal titles are listed in the Directory of Open Access Journals (DOAJ) [12]. Moreover, OpenAIRE has released a Guide for Open Access Journals to become compliant and have their content harvested in the same way as repositories [13].
2. Readiness for Open Access policy implementation: additional factors

Beyond the availability of a well-designed, well-maintained and well-populated open access repository network or an equivalent infrastructure, achieving the OpenAIRE objectives at national level will require the consolidation of the associated working procedures for ensuring a comprehensive research output collection and an effective awareness-raising activity among researchers and scholars. Well-established Open Access teams are needed at institutions to keep the OA goals on top of the institutional agenda, and the number and effectiveness of current institutional OA policies in a country will often provide the best indicator for its success in OA implementation. In a situation where no reliable tools for monitoring OA policy compliance have yet been made available by the OA community even at institutional level, the assessment of how ready a whole country actually is for implementing OA policies is rather subjective. As a result of both the funders' requirements and the discussion on the effectiveness of Open Access policies, work is however under way in different countries to provide the instruments for monitoring policy compliance. Once these efforts result in the provision of the required tools and mechanisms, estimating the level of progress of countries towards a successful Open Access implementation will become a much more objective exercise.

In the meantime there are a number of factors that provide good indicators on the progress achieved, such as for instance the cohesion of national repository networks. This involves having the adequate mechanisms in place for ensuring an appropriate coordination of working procedures and criteria across institutions. Small countries like Portugal, Ireland or The Netherlands unsurprisingly score far better than large ones in this regard as a rule. The national case studies put together by PASTEUR4OA include large countries as well as small ones, and there are best practices in this area to be closely followed.

An additional factor is the number and relevance of national and/or regional Open Access conferences and events held in a country. This is of course tightly linked to the previous one, since the existence of national Open Access organisations and working groups will naturally lead to the organisation of high-profile OA events to share and discuss best practices often at international level. Although the situation is rapidly evolving in this regard, this factor may partially explain a certain European divide in terms of readiness for OA policies, where Western European countries have traditionally hosted many international Open Access meetings and harmonisation initiatives.

When examining the high-level strategy for Open Access implementation across the EU, it's easy to see a first effort – through projects like DRIVER and OpenAIRE – to get the OA repository infrastructure built and harmonised. Only when this had been achieved to a certain extent there was a shift towards the issuing of OA policies. This strategy means that no successful OA policies can be expected to arise in areas where no infrastructure is available for meeting the deposit mandates. However, a third stage is required on top of the two previous ones for an effective OA policy adoption: mechanisms for assessing policy compliance must also be made available.

As an increasing number of OA policies are issued across the Continent at institutional level and beyond, the availability of tools for monitoring and reporting on their compliance is becoming a key missing
element. Such tools are now starting to be developed, driven by funders' requests for reports on the way their investments on Open Access are being used at Higher Education Institutions [15]. These include monitoring the availability of full-text files stored in repositories through aggregations like CORE [16]. Initiatives like the HEFCE post-2014 REF Open Access policy [17] issued by the Higher Education Funding Council for England are also strongly driving the development of cross-institutional services that will enable HEIs to monitor Open Access publications and their associated expenses.

3. Use case analysis

Once the different factors have been examined that will establish the readiness for OA policy implementation, the second part of this report will deal with some detailed description of how they are addressed in different countries. A categorisation for the degree of progress in Open Access implementation is provided first, followed by brief descriptions of the OA landscape for a number of countries.

Detailed national case studies for the most advanced countries in terms of Open Access implementations are provided in the national reports commissioned by PASTEUR4OA – and this section will subsequently not thoroughly deal with these. The description of the OA landscape will instead be focused on countries not covered by such national reports, which will also provide the opportunity to identify specific areas where a further effort would be useful.

3.1. Success in Open Access implementation: categories

The degree of success in Open Access implementation across Europe is rather diverse at the moment. A broad categorisation of such progress is provided below, addressing use cases rather than specific national landscapes. These categories are however not clear-cut ones, and the situation for specific countries will often lie somewhere in between them.

The first scenario involves a situation where Open Access is a high-priority objective for policymakers, funders and institutions and there are effective coordination mechanisms and organisations for its implementation at universities and research centres. A comprehensive repository network is available and institutional OA policies have been around for some time, which has resulted in a joint effort for its implementation covering both OA awareness-raising activities for scholars and the availability of basic reporting mechanisms at least at repository management level. This is the best-case scenario for an effective OA policy implementation, and it’s a fairly accurate description of the Open Access landscape in small countries like Portugal, The Netherlands, Belgium or Ireland, plus some large ones like the UK or Germany.
A **second scenario** shows a wide OA repository network in place. The coordination mechanisms are however missing or rather loose, and Open Access does not have such a high-profile at policymaker level as in the first scenario above. There may be a number of institutional OA policies in place, but there are scarcely implemented and no specific mechanisms are available for monitoring their effective application. This is often an evolving situation, and the availability and dissemination of a few best practice implementations might suffice for shifting the landscape towards the best-case scenario. This situation is archetypical in large countries such as Spain or Italy, where coordination and raising the profile of OA at political level remain tough challenges.

A low-developed repository network (especially in terms of OpenAIRE-compliant repositories) is the main feature of the **third scenario**. Even if some institutions may have a repository and may have implemented a best practice approach for its management, there are few or no mechanisms in place for ensuring an effective coordination of the activity at national level and the political profile of Open Access is very low. Other pieces of infrastructure such as subject-based repositories or national CRISs may however be available, and this may well provide a solid starting point for OA policy adoption purposes. Most Central and Eastern European countries fall within this category. Potential steps to consider for achieving progress could include setting up Open Access working groups at national level – with a good and rather recent example in this regard provided by Austria [17]. Sharing best practice case studies in the development of repository platforms at regional level might also be a useful initiative.

### 3.2. Brief case studies

A brief description is provided to conclude this report of the situation around Open Access, its associated infrastructure and the initiatives towards increasing readiness for OA policies in specific countries. Descriptions are provided in rather broad terms here, since the landscape keeps swiftly evolving and any analysis will quickly become outdated if not generic enough. The three main areas to be addressed in these brief case studies will be the strength of the national repository network (plus alternative infrastructure), the coordination initiatives taking place at national level and the level of OA policy issuing at Research Performing Organisations (RPOs) in the country.

#### 3.2.1. Germany

With 170 OA repositories listed in the OpenDOAR directory snapshot provided above, Germany has the strongest repository network available in Europe only second to the UK’s. This network, together with the growing implementation of institutional CRIS systems, provides a very solid infrastructure for OA policy implementation in the country. Although the repository infrastructure has sometimes in the past
been described as "fragmented" in a large, federal country, there are effective coordination initiatives taking place in this area from the German Research Foundation (DFG) [18], the German Initiative for Network Information (DINI) and the DFG-funded Open Access Network platform [19] among others. Topics like repository certification (in a common thread with a number of additional European countries) or the different models for achieving Open Access are high on the OA discussion agenda at the time.

This strong coordination effort results in the organisation of frequent OA events and a general high-level of awareness of the topic among policymakers – even if OA policies were not in the programme of the most recent 'Open Access Days' event held Sep 2014 in Cologne [20]. However, the OA policy collection recently gathered by PASTEUR4OA shows there are 22 OA policies in place at different German universities and research centres, which makes it likely for policies and their compliance to shortly become highly-relevant topics in the discussion about Open Access.

3.2.2. France

France has 89 repositories available according to the OpenDOAR data, which makes it a fairly strong network with the national Hyper Articles en Ligne (HAL) repository sitting at its core and serving the whole institutional network in the country. France was also a partner in the recently finished MedOANet European project, which offered valuable opportunities for coordination at international level. There are nevertheless frequent claims from the French OA community that Open Access is not sufficiently high on the policymakers' agenda in the country, and significant efforts are being made in the last few years to promote the extension of the current OA deposit policy for theses and dissertations into further research outputs.

The coordination of the Open Access initiatives in the country, currently under the Couperin consortium, is not yet as strong as in other countries, and there is also a smaller number of high-profile events on Open Access. There was nevertheless top-level official representation at the Jan 2013 OA Conference held in Paris by Couperin [21], where Open Access was acknowledged as a relevant topic in the Government's agenda, and which resulted in the signature by 25 organisations of a partnership agreement in favour of Open Access and the use of HAL [22], but then none of the 15 French OA policies recently collected on the PASTEUR4OA database is classified as A-level.

The current CAPLAB initiative to implement a unified research information management system across French universities and CNRS laboratories may provide additional infrastructure support to a gradual awareness-raising activity with regard to OA policy implementation in the country.
3.2.3. Austria

With only 16 Austrian OA repositories listed in OpenDOAR and 5 OA policies in the PASTEUR4OA database, the situation of the country with regard to OA policy implementation shouldn’t in principle look too promising. However, Austria – which is a small country, with the already mentioned advantages this offers in terms of coordination – is presently one of the most dynamic areas in Europe in terms of Open Access promotion, under the energetic coordination of its central funding organisation the Austrian Science Fund (FWF). FWF recently became a partner in the former UKPMC platform -- prompting its name to be changed to EuropePMC after the European Research Council also joined the originally UK-focused initiative – and has its own, well-advertised Open Access policy [22]. FWF is also effectively working with Austrian universities to promote the gradual setting up of the required deposit infrastructure – including both OA repositories and CRISs – and the establishing of Open Access working groups where discussions and coordination can take place.

Even if a number of areas need further consolidation to ensure readiness for OA policy implementation, the rather quick progress recently experienced by the country makes it a suitable candidate for becoming a case study in its own, and a potentially very useful one too for neighbour nations where Open Access is not too high on the policymakers’ agenda.

3.2.4. Czech Republic

With 11 OA repositories listed in OpenDOAR -- three of which are OpenAIRE-compliant -- and just one Open Access policy in the country (from the National Academy of Sciences), the repository infrastructure in the Czech Republic does not at the moment look strong enough to carry out an effective OA policy implementation activity. However, the major Czech universities such as Charles University in Prague, Czech Technical University in Prague, Masaryk University in Brno, University Tomas Bata in Zlín or the Technical University of Ostrava have institutional repositories, a fact which could provide the basis for establishing joint collaborative initiatives that could help other institutions. At the same time, the Czech Republic has one of the most advanced national CRIS systems available in Europe, including a comprehensive database of research results. Even if most of these records are in metadata-only format at the time, the availability of such a research information management infrastructure means there could be opportunities for exploiting the CRIS/repository synergies and using them as a starting point for addressing OA policy implementation.

Moreover, awareness-raising activities around Open Access recently organised by the ongoing FOSTER project [23] have added to the significant coordination work that was already taking place in the country. The fact that both repositories and the national CRIS have taken part in such advocacy activities could mean an opportunity to tackle the existing infrastructure gaps.
3.2.5. Estonia

Estonia has 5 Open Access repositories listed in OpenDOAR, just one of which is OpenAIRE-compliant, and no OA policy records in the PASTEUR4OA database. However, this small Baltic Republic punches well above its weight in the OpenAIRE content delivery figures displayed above, being the largest content provider in the Baltics and outscoring much larger countries both in Eastern and Western Europe.

A key element for explaining this success in Open Access content delivery is the fact that the Estonian national CRIS ETIS [23], which contains nearly 160,000 bibliographic records for research results, is the most Open Access-friendly platform of all national CRISs in Central and Eastern Europe. ETIS allows researchers to choose at data delivery time whether or not to make the full-content Open Access available. Given that delivering bibliographic metadata into ETIS is compulsory for Estonian researchers, there are again good opportunities here for establishing the connection between CRIS and institutional repositories and using ETIS as supporting platform for OA policy implementation, providing some reusable best practice along the way.

Conclusion

At a time when Open Access policies are becoming increasingly relevant for advancing in the implementation of the Open Access agenda, this report provides an assessment of the readiness for Open Access policy implementation across Europe. The results of the analysis show a rather fragmented landscape where some countries are already succeeding in an effective Open Access policy adoption while others still lack the repository infrastructure and/or the social and technical coordination initiatives that will allow Open Access to be successfully implemented.

At the same time, alternative mechanisms for Open Access implementation have been identified involving the use of Current Research Information Systems and the application of the OpenAIRE Guidelines for CRIS managers. This area remains to be fully realised at the moment, but there is promising progress taking place at the moment and new developments in the area can be expected to arrive in the short term.

Initiatives like the OpenAIRE European project have played and continue to play a significant role in promoting the harmonisation of best practices across countries for repository and Open Access implementation purposes, but there is still a gap to be filled by PASTEUR4OA in this relatively new area of OA policies. By highlighting effective approaches where identified, promoting the sharing of best practices and enabling an international conversation to be held on the best way to jointly progress towards a common objective while keeping in mind at the same time the specificities of each national landscape, PASTEUR4OA can significantly contribute to the realisation of the European Open Access agenda bringing the policy area closer to the technical one along the way.
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In the past decade various stakeholders engaged in the debate about making free open access to scientific publications and data. The benefits resulting from open access – acceleration of scientific research, advancement of technological progress, promotion of social well-being – have driven the debate that open access to scientific publications is required. A number of universities, research institutions, research funders and international organisations have already adopted Open Access (OA) mandates. The European Commission (EC), as a major research funding body, is committed to advance the OA agenda. After various studies having been conducted on access to and preservation of scientific information, the EC issued an OA mandate requiring that research outputs from Horizon 2020 funded projects are made available on open access. Despite encountering challenges in promoting open access to scientific publications, the EC is working with Member States (MS), neighbouring countries and stakeholder communities to search for solutions to support OA policy implementation and alignment, and to facilitate coordination at the European level. The PASTEUR4OA project builds on the EC’s OA agenda by promoting the development and implementation of aligned OA policies and the coordination of activities between MS and neighbouring countries.

This paper overviews the open access movement, defines open access, summarises international developments on open access, and examines the advances made on open access at the EC, MS and neighbouring countries levels. By contextualising OA developments at a global and European levels, it informs the role that the PASTEUR4OA project plays in advancing the EC’s Horizon 2020 OA mandate.

Open Access: A Definition

The term Open Access (OA) was formally defined in the Budapest Open Access Initiative declaration and was further refined by the Bethesda Statement on Open Access and the Berlin Declaration on Open Access. OA is described as the practice of granting free and unrestricted online access to academic research outputs to end-users – for instance: research funders, universities and research institutions, libraries, enterprises, and the general public. Open access to research outputs is largely possible due to the emergence of the internet and the support from some end-user communities in making scholarly literature more widely and freely available.

At the Budapest Open Access Initiative (BOAI) (2002), OA was defined as the “world-wide electronic distribution of the peer-reviewed journal literature” for free and without access restrictions. Accordingly, peer-reviewed articles should be made freely available online to “permit any users to read, download, copy, distribute, print, search, or link to the full texts of these articles [...] without financial, legal,
or technical barriers\textsuperscript{196}. The BOAI also recommended that two complementary strategies – self-archiving and open access publishing – be adopted to facilitate open access to peer-reviewed articles.

The Bethesda Statement on Open Access (2003) built upon BOAI’s OA definition and described what rights authors should grant to users, how open access to journal articles should be made available, and when and where articles should be deposited. Accordingly, authors grant “all users a free, irrevocable, worldwide, perpetual right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship”. Furthermore, an electronic copy of the peer-reviewed articles should be “deposited immediately upon initial publication in at least one online repository that is supported by an academic institution, scholarly society, government agency, or other well-established organization that seeks to enable open access, unrestricted distribution, interoperability, and long-term archiving”\textsuperscript{197}.

The Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003) is similar to the Bethesda Statement, however, it included a recommendation on the repository requirement. It detailed that OA policies adopted by stakeholders – policymakers, funders, universities and research institutions – should require researchers to deposit a “complete version of their work and all supplemental materials [...] in at least one online repository using suitable technical standards (such as the Open Archive definitions)”\textsuperscript{198}.

The Budapest, Bethesda and Berlin declarations delineated the key principles of open access and brought forward common agendas on how to promote the transition to OA. To facilitate open access to peer-reviewed articles, the Budapest declaration also determined how access could be provided: by self-archiving and by publishing in open access journals. Self-archiving\textsuperscript{199}, commonly referred to as Green OA, means that open access can be provided by depositing the peer-reviewed journal article in an online repository (self-archiving in an institutional or a subject repository). The articles may be deposited before (preprint) or after (postprint) publication in a peer-reviewed journal. In the cases where publishers impose an embargo period\textsuperscript{200}, institutional or subject repositories software must permit authors to postpone the date of release of the article in open access. As the OA movement progressed, online databases have been developed to provide authors with information about publishers’ copyrights policies and self-archiving (SHERPA/ROMEO), research funders’ open access policies (SHERPA/JULIET), and online repositories (OpenDOAR).

Open access publishing, referred to as Gold OA, means that open access can also be provided by publishing articles in open access or hybrid journals. Authors can publish their articles in open access journals which once published become immediately available online for free without being subject to an embargo period. Whereas traditional journals charge subscription fees to non-academic readers and libraries, open access journals do not charge subscription fees and “significantly reduce the costs of readership whilst increasing access to research outputs”\textsuperscript{201}. OA journals often charge Article Processing Charges (APCs) but these costs are

\textsuperscript{196} Budapest Open Access Initiative, \url{http://www.budapestopenaccessinitiative.org/read}
\textsuperscript{197} Bethesda Statement on Open Access Initiative, \url{http://legacy.earlmhs.edu/~peters/fos/bethesda.htm}
\textsuperscript{198} Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, \url{http://openaccess.mpge/berlin-declaration}
\textsuperscript{200} In many cases the embargo periods have been of six months for science, technology, engineering and mathematics disciplines, and twelve months for social sciences and humanities disciplines.
\textsuperscript{201} Crawford (2011:20)
Working Together to Promote Open Access Policy
Alignment in Europe – Work Package 4: Policymaker engagement and policy development

frequently carried by the university or research institution where the researcher is affiliated or by the funder supporting the research. Hybrid journals are commercial journals, or subscription journals, in which some of the articles are available in open access format if authors pay for APCs. The Directory of Open Access Journals (DOAJ) lists all the open access journals available in science, technology, engineering, mathematics, social sciences and humanities.

By identifying the ways in which peer-reviewed articles can be made open access – self-archiving and open access publishing –, some of the specifications to be taken into consideration when developing OA policies were also being delineated. In particular, OA policies format (mandatory or voluntary), content (articles, conference proceedings), deposit procedures (where to deposit, when to deposit), publishing procedures (whether to publish in OA journals, what funds to cover for APCs), licensing conditions, copyrights, maximum embargo periods, and so on.

As the OA movement progressed, it acquired increasing visibility among the research and funder communities. Researchers have stated that the advantages of promoting open access to peer-reviewed articles include enabling an efficient process of dissemination and access to scholarly research that can accelerate scientific progress. Furthermore, it facilitates a quicker and easier access to research outputs which consequently impact on the potential for increased visibility, use and citation. It also promotes interdisciplinary research by making scholarly research freely available to researchers and enabling cross-fertilisation of ideas into new combinations. In academic libraries, OA presents an alternative to the traditional journal subscription business model, removing price barriers that constrain access to journal literature. Universities, research institutions and research funders have been able to demonstrate the academic, economic and societal impact and value of the research they fund when research outputs are made open access. The general public, benefits from OA through the knowledge that is transferred from academic research to, for instance, the business and R&D sectors where knowledge can be applied to develop or improve products and processes. In the healthcare sector, for example, patients have been able to benefit from more advanced treatments as more information is made freely available and shared within the sector. Ultimately, the benefits of OA move beyond the academic sphere and play a crucial role in driving “social, technological and economic [...] progress”.

The OA agenda, however, has not evolved without obstacles. Challenges frequently identified as hindering open access include researchers’ unawareness or lack of a clear understanding about open access, confusion about whether the journals where researchers publish allow Green OA, and resistance by some publishers to the move toward OA. In various instances, researchers have not been able to identify open access repositories, open access journals, and institutional and funders open access policies. Policymakers are often unaware or do not understand what open access is and what the issues evolving around scholarly communications are. The lack of OA policies and poor policy development and enforcement by universities, research institutions, funders and governments also hinders open

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access 206. Nonetheless, some stakeholders have been highly committed to tackle the challenges encountered, to promote OA, to support effective policy development and implementation, and to develop infrastructure.

Open Access Policies: A Global Perspective

The development and implementation of effective OA policies is key to promote open access to scholarly research. Some universities and research institutions, research funders, governments and organisations in countries around Asia, Europe, North America, South America and Oceania have implemented OA policies. Currently, ROARMAP indicates that 652 OA institutional, sub-institutional, multi-institutional and funder mandates have been implemented worldwide. The USA, UK, Australia, Canada and Italy lead the list of total institutions and funders with OA mandates.

Early adopters of OA policies include universities and research institutions such as the School of Electronics and Computer Science at the University of Southampton (2003), the Queensland University of Technology (2004), the University of Minho (2004), the European Organisation for Nuclear Research (CERN) (2005), and the University of Liege (2007).

The first research funders implementing OA policies include the Wellcome Trust (2005), the Australian Research Council (2006), the UK Medical Research Council (MRC) (2006), the European Research Council (ERC) (2007), the Irish Research Council for Science, Engineering & Technology (IRCSET) (2007), and the USA National Institutes of Health (NIH) (2007).

By and large, OA mandates have been adopted by some universities and research institutions, research funders, and international organisations around the world. At a regional level, the EC is both determined to promote open access to scientific publications.

Organisations such as the World Bank207, the Organisation for Economic Cooperation and Development (OECD)208, United Nations Educational, Scientific and Cultural Organisation (UNESCO)209, and the UK Department for International Development210 have also adopted OA policies and developed online repositories.

The OA policy models adopted by universities, research institutions and research funders often vary. Some give preference for the deposit of research outputs in institutional or subject repositories. Others give preference for publication in open access or hybrid journals. The University of Liège, for example, requires that “all publications must be deposited” in the institutional repository211. The Research Councils United Kingdom (RCUK), on the other hand, require that peer-reviewed articles be made immediately available online by publishing the article in open access or hybrid journals212. Distinct OA models coexist within national research systems and some produce better results than others. Notwithstanding, stakeholders often refer that it is not necessarily the OA model adopted that ensures compliance. Instead, it is often the availability of (or conversely the lack of) human and financial resources, mechanisms to raise awareness about OA, and coordinated actions that are often decisive in achieving positive results.


funded under the Commission’s Research and Innovation Programme Horizon 2020 and to engage with MS and neighbouring countries by playing a coordinating role in promoting OA policy development and alignment.

**Open Access Policy Developments in the European Union: The Role of the European Commission**

Since 2006 the European Commission (EC), the European Research Advisory Board (EURAB), the European Council, and the European Research Area Board (ERAB) have conducted research and engaged in debate about access to, dissemination and preservation of scientific information. As a result, a consensus has evolved around the principle of developing and implementing an OA policy at the EU level, promoting OA to the research outputs of programmes funded by the EU, and supporting OA policy adoption and alignment at the EU MS level. Annex 1 shows the work conducted by the EC and other European agencies to promote OA and to support the implementation of an Open Access policy for research funded under the Horizon 2020 programme.

In 2006, the ‘**Study on the Economic and Technical Evolution of the Scientific Markets in Europe**’ commissioned by the EC looked at “the evolution of the market for scientific publishing” and the development of “European-level measures to help improve the conditions governing access to and the exchange, dissemination and archiving of scientific publications”\(^2\). The study examined various options for access to and dissemination of scientific publications such as public repositories, open access journals and ‘author-pay’ models. It recommended, among other, the following actions:

- The development of “a European policy mandating published articles arising from EC-funded research to be available after a given period of time in open access archives”;
- The start of consultations “with Member States and with European research and academic associations” to explore “whether and how such policies and open repositories could be implemented”;
- The active involvement of educational institutions and research funders in supporting “new models for publishing and communicating research results”\(^3\).

In the same year, the European Research Advisory Board (EURAB) published the report ‘**Policy on Open Access**’ for the EC. The report examined “scientific publications with particular reference to policy recommendations regarding open access for Framework Programme 7 (FP7)”\(^4\). The report suggested that a “clear policy at European level is required”\(^5\) and recommended that the EC played a tripartite role in the FP7 programme as a:

- Funding body: by promoting visibility and improving open access to research outputs funded by the EC;
- Supporting body: by setting clear standards and procedures for FP7 funded projects so that researchers understand how to use and deposit publications in open access repositories;
- Policy body: by stimulating “Member States to promote open access publication policies for all their publicly funded research”\(^6\).

In early 2007, the EC convened a stakeholders conference on ‘**Scientific Publishing in the European Research Area: Access, Dissemination and**….”

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\(^2\) **Study on the Economic and Technical Evolution of the Scientific Markets in Europe** (2006:11)


Preservation in the Digital Age and issued a ‘Communication on Scientific Information in the Digital Age: Access, Dissemination and Preservation’. The Communication informed that a policy process would be initiated to promote “access to and dissemination of scientific information”.

Furthermore, it outlined the EC’s plans to: increase free access to research funded by the EC, fund the development of infrastructure (repositories), “support research on the scientific publication system”; and play a convening role in the promotion of policy coordination and debate among stakeholders in Europe.

Soon after, the EC also published the ‘Green Paper on the European Research Area: New Perspectives’. The paper assessed the progress made in the European Research Area and considered future directions. It noted that the European Research Area should continue to work towards the promotion of “effective knowledge-sharing notably between public research and industry, as well as with the public at large.”

Following the publication of the paper, an online public consultation was held to evaluate the future of European Research Area. The consultation results showed that a significant percentage of respondents agreed that EU policies and practices should improve to ensure open access to raw data (68%) and peer-reviewed publications (65%).

Late in 2007, the Council of the European Union issued the ‘Council Conclusions on Scientific Information in the Digital Age: Access, Dissemination and Preservation’ supporting the EC’s Communication on Scientific Information in the Digital Age: Access, Dissemination and Preservation “as a basis for further work at the European level on the accessibility and preservation of scientific information”. The report urged MS to: strengthen strategies that enable access to scientific information, heighten coordination at stakeholders’ levels, explore publishing models that maximise access to publications, and ensure preservation of scientific information in the long term. Furthermore, it advised the EC to: promote open access to scientific information “funded by the EU Research Framework Programmes”, promote policy coordination, monitor open access good practices, and take a leading role in engaging with stakeholders.

As a result of the initial studies, consultations and communications published, there was now a general consensus across the EU that access to, dissemination and preservation of scientific information was key for economic, research, educational and social progress. In alignment with this vision, the EC launched the ‘Open Access Pilot in FP7’ in 2008. Accordingly, FP7 grant recipients were expected to “deposit an electronic copy of the published version or the final manuscript accepted for publication of a scientific

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225 Council Conclusions on Scientific Information in the Digital Age: Access, Dissemination and Preservation (2007:4)
publication\(^{226}\) and ensure that open access to the peer-reviewed article was made immediately available if the article was published in an OA journal or within 6 months or 12 months if published in a subscription journal. The pilot was monitored by the OpenAIRE Project which developed guidelines and infrastructure for researchers to comply with the EC OA Pilot in FP7\(^{227}\).

In 2009, the conclusions of a questionnaire commissioned by the EC to the Scientific and Technical Research Committee (CREST) were published. The questionnaire had been submitted to CREST members (EU MS) and observers. The conclusions conveyed which activities were taking place in MS and highlighted the “need to capitalise on [...] existing activities in order to move towards convincing and robust national and European strategies\(^{228}\). Most importantly, it drew attention to the following issues:

» “There are very few of the nationally coordinated strategies or policies called for in the 2007 Council Conclusions”;

» “While existing declarations and initiatives form a solid basis to build on, explicit common national funding body principles, for example on open access, are still missing”\(^{229}\).

As a result of the meagre progress made in MS, respondents supported the EC’s role in leading activities on open access to scientific information, in promoting “coordination of Member States policies”, and in developing “a pan-European e-Infrastructure”\(^{230}\).

In 2010, the EC hosted the workshop ‘Sharing Knowledge: Open Access and Preservation in Europe’. The workshop aimed to further understand the extent to which MS had implemented the 2007 Council Conclusions. It also aimed to share “experiences and know-how”, and create “a common vision” for future “policy and action at Member State and at European levels”\(^{231}\). At the workshop, MS identified the following issues as barriers to advance access to scientific information: “lack of awareness and understanding of Open Access amongst researchers and policymakers; limited policy development; issues around copyright; misconceptions about quality control [...]”; and the financial cost of implementation of Open Access\(^{232}\).

The recommendations resultant from the workshop promoted policy coordination at the EU level, strategies to raise awareness and inform European policymakers about OA, the development of advocacy programmes, and the adoption of indicators to evaluate progress. Reference was also made to the development of mechanisms for the EU to provide “guidance and leadership to MS on the principle of the long-term necessity and benefit of access to and preservation of scientific information”\(^{233}\).

In 2011, the EC carried out a ‘Consultation on Scientific Information in the Digital Age’, calling for multiple stakeholders to contribute to this exercise. The consultation proposed to inform the

\(^{226}\) FP7 Model Grant Agreement Special Clauses [Clause 39], [http://ec.europa.eu/research/participants/data/ref/fp7/95592/fp7-ga- clauses_en.pdf](http://ec.europa.eu/research/participants/data/ref/fp7/95592/fp7-ga-clauses_en.pdf)


\(^{229}\) EC Results of Questionnaire to Member States and Associated Countries via the Scientific and Technical Research Committee (2009:3)

\(^{230}\) EC Results of Questionnaire to Member States and Associated Countries via the Scientific and Technical Research Committee (2009:3)


\(^{232}\) Sharing Knowledge: Open Access and Preservation in Europe (2010:6)

\(^{233}\) Sharing Knowledge: Open Access and Preservation in Europe (2010:8)
development of official documentation that would determine the EC’s framework on access to scientific information for “research projects funded by the Union budget”\textsuperscript{234}. Overall, the results showed that the majority of respondents considered that there were problems with access to scientific publications (84%) and research data (87%)\textsuperscript{235}. Nonetheless, 90% of the respondents agreed that outputs resultant from publicly funded research should be made available on open access. Accordingly, the consultation recommended the EU to formulate a policy on access to and preservation of scientific information. The EU should also coordinate existing initiatives in MS, support the development of a European network of repositories, and encourage, among other, universities, libraries and research funders to implement specific actions.

Late in 2011, the EC published a report on ‘National Open Access and Preservation Policies in Europe’ based on a survey conducted through the European Research Area Committee. The report overviewed how open access was evolving in the European Research Area at national and regional levels. It mapped the progress made by universities, research institutions and research funders and underlined the dynamic growth of open access. It recognised that national initiatives and practices were not even across Europe. As a result, the report recommended MS to find common grounds, identify common agendas and implement common initiatives. It recommended the EC to continue playing a leading role “in the debate on access to and preservation of scientific information”\textsuperscript{236}.

In 2012, the results of the ‘Survey on Open Access in FP7’ were published. The survey built on the work that had been conducted on the ‘Open Access Pilot in FP7’ launched in 2008 and sought to obtain feedback from FP7 Project Coordinators “on their experiences of both the implementation of the pilot and the reimbursement of open access publishing costs”\textsuperscript{237}. Overall, the respondents highlighted the important role the EC played in promoting the benefits of open access more widely and in providing guidance and information on how to make scientific information available online. They were supportive of open access but found it difficult to find information on requirements in FP7 and subsequently to comply with the policy. They also found it difficult to establish contact with publishers, to directly negotiate copyrights and licenses with publishers, and to understand the legal specifications.

Following the 2011 Consultation on Scientific Information in the Digital Age, the EC published three documents on OA in 2012. The ‘Communication: A Reinforced European Research Area Partnership for Excellence and Growth’ set the key priorities in the European Research Area. It recognised the need for optimising the circulation, access and transfer of scientific knowledge. MS were invited to “define and coordinate their policies on access to and preservation of scientific information”\textsuperscript{238}. Research stakeholder organisations were invited to “adopt and implement open access measures for publications and data resulting from publicly funded research”. The EC proposed to “establish open access to scientific publications as a general principle for all EU

\textsuperscript{234} Consultation on Scientific Information in the Digital Age (2011: no page), http://ec.europa.eu/research/consultations/scientific_information/consultation_en.htm
funded projects in Horizon 2020.239 The ‘Communication: Towards Better Access to Scientific Information’ described the steps the EC would follow to enable access to scientific information and clarified how open access policies will be carried out in the EU Framework Programme for Research and Innovation 2014-2020 (Horizon 2020).240 The ‘Recommendation on Access to and Preservation of Scientific Information’ made extensive recommendations to MS on how to define OA policies for scientific publications and research data, on preservation and re-use of scientific information, on e-infrastructures, multi-stakeholder dialogue and coordination of MS at EU level.241

Ultimately, the ‘Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020’ were made available in 2013.242 These guidelines apply to projects funded under Horizon 2020 and describe under what terms open access to scientific publications and research data must be made. The Horizon 2020 Model Grant Agreement (Article 29.2) determines that it is a requirement to disseminate research results and to make them available on open access. Table 1 describes the EC’s OA policy in the Horizon 2020 Programme.

239 A Communication: A Reinforced European Research Area Partnership for Excellence and Growth (2012:14)
243 Horizon 2020 Model Grant Agreement [Article 29], http://ec.europa.eu/research/participants/portal/desktop/en/financing/reference_docs.html#h2020-mga

Table 1 – Open Access in Horizon 2020

In sum, the path that led to the development and implementation of the EC’s open access policy was the culmination of years of work and consultation with multiple stakeholders across Europe. Whilst progress was made on the policy development front, work is still required from the EC and MS to coordinate policy development at national level, to raise national stakeholders’ awareness about OA, and to produce significant results.

**PASTEUR4OA**

The PASTEUR4OA project evolved from the analysis of the progress made at EU level on open access. The work developed by the EC since the mid-2000s led to “the establishment of the required infrastructure and policy components to support Open Access for
Framework Programme-funded research”. However, the EC’s intention that “similar developments would take place at national level so that national research programmes also delivered an open body of scientific knowledge” has not been achieved. Experts have indicated that the reasons for lack of progress often relate to the “lack of coordination and vision across the Union”. Therefore, recommendations have been made emphasising the need for:

» “Better coordination across the Union on both policy and infrastructural developments”;
» “National strategies to be developed and be better coordinated by co-operative approaches”;
» Continued stakeholder engagement “to ensure success in providing OA across the EU within a reasonable length of time”.

By considering these issues, the PASTEUR4OA project proposes to address them. More specifically, it proposes to:

» Facilitate coordinated action in policy development at the MS and neighbouring countries level;
» Engage with and inform policymakers at the national level of EU Open Access policy and infrastructure;
» Identify, analyse and record OA policies, measure OA policies effectiveness and identify policy-related gaps;
» Establish a network of national centres of expertise that collaboratively monitor and champion an aligned OA policy environment across the EU and in neighbouring countries.

The Knowledge Net

To facilitate coordinated action between MS and neighbouring countries, the Knowledge Net was created to pursue the aim of changing and improving scholarly communication practices at the national level. Through collaborative work, the Knowledge Net will seek to support an aligned OA policy environment, engage with policymakers, and disseminate advocacy materials that report the evidence base on the reasons for and benefits of OA.

The Key Nodes

The Knowledge Net is composed by 38 Key Nodes whose role is to:

» Identify national policymakers;
» Create or make use of any existing OA working groups or task forces to promote the uptake of policies aligned with H2020 and the EC Recommendation on Access to, Dissemination and Preservation of Scientific Information;
» Develop an agreed programme of activities to engage with policymakers;
» Act as the national centre of expertise on Open Access;
» Act as the Key Node for their countries within the Europe-wide Knowledge Net on a long term basis.

Mapping the OA Policy Environment in MS and Neighbouring Countries

Since the PASTEUR4OA project started, one of the project’s objectives has been to record, map and understand the extent to which OA policies have been developed, implemented and aligned across Europe. In preparation for the national experts meeting and to inform the PASTEUR4OA partners and the Knowledge Net on OA policy developments across Europe, an online questionnaire was distributed to the Key Nodes. The questionnaire sought to collect information on OA developments at the national level, to identify challenges faced during the processes of policy development and implementation, and to consider ways to strengthen effective policy implementation. The questionnaire results will seek to inform the workshop debate on some of the Knowledge Net’s potential areas of focus.
The questionnaire was structured in three sections. The first looked at policy alignment, implementation and effectiveness (Questions 1 to 3). The second focused on the challenges in developing and implementing OA policies (Questions 4 to 7). The third considered what is required to strengthen effective OA policy implementation (Question 8). A total of 30 Key Nodes answered the questionnaire, representing the Knowledge Net’s Nordic, Eastern European, South Eastern European, North Western European and South Western European regions.

The first question enquired if national policymakers consider aligning OA policies with the EC’s policy. In total, 47% of respondents answered that policymakers have aligned their policies with the EC’s policy. Thirty-three percent of the respondents answered that discussions to develop OA policies are currently on-going in their countries and that policymakers intend to align the new policies with that of the EC. Twenty percent of the respondents said that they do not have an OA policy or that their current policy is not aligned with the EC’s policy (see Figure 1). By looking at the results within each region, it was observed that in all the Nordic countries OA policies are aligned with that of the EC (100%). In the remaining regions, 75% of the countries within South Western Europe, 43% within the North Western European region, and 33% within the Eastern European region have their policies aligned with the EC’s policy. In South Eastern Europe, 40% of the respondents from this region answered that they do not have an OA policy but 60% declared that OA policies are currently under discussion and are planned to be aligned with the EC’s policy.

The second question asked if OA policies have been implemented by a) research funders, b) universities and research institutes, and c) organisations in each country. Respondents could select more than one option and give examples of where the policies have been implemented. On the whole, the results showed that the majority of the identified OA policies have been implemented in universities and research institutes (24 responses), followed by research funders (17 responses) and other organisations (6 responses). In four countries, OA policies have not been implemented by any of the referred groups. By looking at this information, it is observed that by comparison, and given the fact that there are more universities and research institutions than research funders, there is a considerable number of funders implementing OA policies.

The third question enquired how effective and successful the implemented OA policies have been. The results of this question were mixed. Few respondents said that the policies have been effective and successful (10%). Seventeen percent of respondents said that the policies have so far been effective but they are only in the early stages. An additional 17% respondents said that there have been mixed results, both positive and negative, in relation to policies effectiveness. Twenty percent of the responses indicated that the policies have not been effective or successful. A total of 30% of the responses were either not available (10%) or not available (20%).
applicable (23%) (see Figure 2). The geographical distribution of the results within regions showed that 60% of the Nordic respondents did not consider the policies to be effective. In Eastern Europe, the question did not apply to 44% of the cases. In South Eastern Europe, the question was also not applicable to 40% of the cases. In another 40% of the cases the policies were considered as being effective but they have only recently been adopted and are still in early stages. In the North Western European region, 43% of respondents said that the policies have obtained mixed results. In the South Western European region, there was an equal distribution of results between mixed results (25%), policies not being effective (25%), answers not being applicable (25%), and not being available (25%).

Figure 2 – OA Policy Effectiveness

The fourth question asked if there have been major challenges in developing and implementing OA policies in each country. The vast majority of respondents answered yes (87%) and only a small percentage answered no (3%). On the whole, 100% of the respondents from South East and the South West Europe said that there have been challenges. More than 89% of the respondents in Eastern Europe, 80% in Northern Europe and 71% in North Western Europe also identified challenges in developing and implementing policies.

The fifth question asked if there were specific groups, a) research funders, b) universities and research institutes, and c) other organisations, that might face more challenges in developing and implementing OA policies. In this question, respondents could select more than one group. Overall, 22 respondents said that universities and research institutes are the group that faces more challenges, followed by research funders (13 responses) and other organisations (5 responses).

The sixth question requested respondents to give one or two examples of challenges commonly encountered by these groups. The challenges were qualified within the following themes:

- Policy – lack of national, institutional or funders OA policies;
- Infrastructure - lack of infrastructure or lack of integrated national infrastructure systems;
- Financial - lack of financial resources to develop infrastructure or to cover APCs;
- Awareness and incentives – policymakers, funders and researchers lack of awareness and understanding about OA, lack of incentives for researchers to deposit or publish scientific information in OA;
- Coordination– lack of coordination and cooperation at the national level to develop and implement OA;
- Research evaluation models - lack of OA criteria in the academic research evaluation system;
- Progress monitoring – lack of systems to collect data and to monitor compliance with OA policies;
- Good practice – lack of OA guidelines and good practices;
- Publishers - lack of awareness and understanding about publishers policies, issues related with authors exclusive contracts with publishers, and problems in reaching agreements with publishers for licensing and Gold OA.

The seventh question enquired if the challenges have been overcome and, if so, how. The results showed that 10% of respondents considered that the challenges have been overcome. Thirty-three percent of respondents said that the challenges are being, will be or are intended to be overcome. For thirty percent
of respondents, the challenges have not been overcome (see Figure 3). Overall, 60% of the respondents from the Nordic region said that the challenges have not been overcome. In Eastern Europe, answers were not available in 33% of the cases. In South Eastern Europe, 40% of the respondents considered that the challenges have been overcome but at the same time an additional 40% considered that the challenges have not been overcome. In North Western Europe and South Western Europe, in 53% and 50% of the cases, respectively, it was indicated that the challenges are being, will be or are intended to be overcome.

Figure 3 – Were the Challenges Overcome?

The eighth question requested respondents to consider what is necessary to strengthen effective OA policies implementation in each country. The responses to this question indicate that the respondents focused on identifying solutions to many of the challenges listed in question six. In particular:

» Policy – development and implementation of national, funders and institutional OA policies, strengthening OA mandates, alignment of OA policies with the EC policy;
» Infrastructure - development of repositories, integration of functionalities between different repositories, upgrade of information systems;
» Financial – governments and funders need to allocate resources to develop repositories and to support publishing in OA journals;
» Awareness and incentives – encourage policymakers and research funders to promote OA, increase researchers’ awareness about OA and give researchers incentives to deposit and publish in OA;
» Coordination – initiate a wider dialogue between policymakers, stakeholders and the scientific community about OA, support policymakers in developing a clear strategy for open access;
» Research evaluation models - encourage the inclusion of OA in the academic research evaluation system, research councils need to make OA to research findings mandatory;
» Progress monitoring – development of new metrics to measure the quality of research as a basis for incentive structures, development of good indicators for OA publishing to monitor progress;
» Good practice - exchange of knowledge about OA, sharing resources about successful case studies, providing professional advice and education on OA;
» Advocacy – promote advocacy activities where the EC OA policy is explained to national policymakers to support policy implementation, development of advocacy strategies targeted towards institutional leaders;
» Publishers - roundtable with local publishers to make OA publications more visible, promote agreement between publishers and universities representatives on models that restrain the potential costs of hybrid journals, include information about OA publications in Journal Citation Reports.

The questionnaire results from the first section (Questions 1 to 3) show that overall national OA policies are aligned (47%) or intend to be aligned with that of the EC (33%) but there is also a relative number of countries (20%) where national policies are not in place yet. The main groups implementing OA policies are universities and research institutes (22) and research funders (13). However, in a significant number of countries only one or very few OA policies have been implemented by these groups (Question 2). On how effective the policies implemented have been, the results varied between
policies not being effective (20%), being effective in some cases but not in other (17%), or answers not being applicable (23%) or available (10%). Only in 10% of the cases were policies considered to be effective.

In the second section (Questions 4 to 7), it was observed that the vast majority of countries have faced challenges in developing and implementing OA policies (87%) and that the target groups facing more challenges are also those that have been more involved in adopting OA policies. These are universities and research institutes (24) followed by funders (13). Examples of the challenges commonly encountered reiterate issues such as lack of policies, infrastructure, financial resources, coordination and awareness. On challenges being overcome, a significant number of countries said that they are being, will be or are intended to be overcome (33%). However, 30% of respondents considered that the challenges were not overcome. Overall there is still a level of uncertainty towards challenges being overcome and only 10% of respondents confidently said that the challenges had been overcome. The third section (Question 8), focused on what is necessary to strengthen effective OA policy implementation. Recommendations were made to tackle issues related to policy, infrastructure, financial resources, good practice and advocacy.

Conclusion

This paper sought to explain what OA is, to highlight developments on OA at global and European levels, and to identify the benefits and challenges in developing and implementing OA policies. At the national level, some progress has been made in MS and neighbouring countries but greater emphasis needs to be placed on how to coordinate, bring forward and support national stakeholders in developing, implementing and aligning their OA policies.
Further Information

OA Declarations
Budapest Open Access Initiative (2002) ‘Budapest Open Access Initiative’. Available at:


Berlin Declaration (2003) ‘Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities’. Available at:

OA Books


OA Peer-Reviewed Articles


OA Working Papers

OA Policy Guidelines

OA Funders Policies
Irish Research Council (IRC) ( )
Research Council UK (RCUK) ( )
USA National Institute of Health (NIH) ( )
Wellcome Trust ( )
European Commission: Open Access in FP7 ( )
European Commission: Open Access in Horizon 2020 ( )
SHERPA-JULIET ( )

OA Institutions Policies
Harvard University, USA ( )
Hong Kong Polytechnic University, China ( )
Queensland University of Technology, Australia ( )
University of Liège, Belgium ( )
University of Pretoria, South Africa ( )
University of Southampton, UK ( )
MELIBEA ( )

OA Past & Present Projects
FOSTER ( )
MedOAnet ( )
NECOBELAC ( )
OpenAIRE ( )
SOAP PASTEUR4OA ( )
RECODE ( )

OA Repositories & Registries
OpenDOAR ( )
ROARMAP ( )

Organisations with a Focus on OA
International Library Communities
Confederation of Open Access Repositories (COAR) ( )
Electronic Information for Libraries (EIFL) ( )
Association of European Research Libraries (LIBER) ( )
SPARC Europe ( )
Open Access Publishing in European Networks (OAPEN) ( )

International Organisations
Enabling Open Scholarship (EOS) ( )
EuroCRIS ( )
Open Knowledge Foundation (OKF) ( )
Open Access Scholarly Information Sourcebook (OASIS) ( )
SPARC Europe ( )

Infrastructure Organisations
Jisc ( )
SURF ( )

Publisher Associations
Open Access Scholarly Publishers Association (OASPA) ( )
### Annex 1 – European Open Access Policy Timeline

#### European Open Access Policy Timeline

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>European Open Access Policy Timeline</td>
</tr>
<tr>
<td>2007</td>
<td>• EC Communication on Scientific Information in the Digital Age: Access, Dissemination and Preservation</td>
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<tr>
<td>2008</td>
<td>• EC Study on the Economic and Technical Evolution of the Scientific Markets in Europe</td>
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<tr>
<td>2011</td>
<td>• Launch of Open Access Pilot in FP7</td>
</tr>
<tr>
<td>2012</td>
<td>• EC Europe 2020 Flagship Initiative: Communication A Digital Agenda for Europe</td>
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<tr>
<td>2013</td>
<td>• European Research Advisory Board (EURAB) Final Report, Scientific Publication: Policy on Open Access</td>
</tr>
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<td>2014</td>
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<td>2020</td>
<td>• European Research Council (ERC) Final Report, Scientific Publication: Policy on Open Access</td>
</tr>
<tr>
<td>2023</td>
<td>• Launch of Open Access Pilot in FP7</td>
</tr>
<tr>
<td>2024</td>
<td>• EC Europe 2020 Flagship Initiative: Communication A Digital Agenda for Europe</td>
</tr>
<tr>
<td>2025</td>
<td>• European Research Advisory Board (EURAB) Final Report, Scientific Publication: Policy on Open Access</td>
</tr>
<tr>
<td>2026</td>
<td>• European Research Council (ERC) Final Report, Scientific Publication: Policy on Open Access</td>
</tr>
<tr>
<td>2027</td>
<td>• European Council: Lisbon Strategy for Growth and Jobs 2008–2010</td>
</tr>
<tr>
<td>2028</td>
<td>• EC Recommendation on the Management of Intellectual Property in Knowledge Transfer Activities and Code of practice for Universities and Other Public Research Organisations</td>
</tr>
<tr>
<td>2029</td>
<td>• Launch of Open Access Pilot in FP7</td>
</tr>
<tr>
<td>2030</td>
<td>• EC Europe 2020 Flagship Initiative: Communication A Digital Agenda for Europe</td>
</tr>
</tbody>
</table>

- EC Communication on Scientific Information in the Digital Age: Access, Dissemination and Preservation
- EC Scientific Publishing in the European Research Area (ERA): Access Dissemination and Preservation in the Digital Age Conference
- Green Paper, The European Research Area: New Perspectives
- Council of the European Union, Council Conclusions on Scientific Information in the Digital Age: Access, Dissemination and Preservation
- ERC Scientific Council Guidelines for Open Access
- EC Recommendations on Open Access to and Preservation of Scientific Information
- EC Communication on Open Access and Preservation Policies in Europe
- EC Communication: A Reinforced ERA Partnership for Excellence and Growth
- EC Communication: Towards Better Access to Scientific Information: Boosting the Public Benefits of Public Investments in Research
- European Economic and Social Committee (EESC) Opinion on Towards Better Access to Scientific Information: Boosting the Benefits of Public Investments in Research
- Council of the European Union, The Competitiveness Council (Internal Market, Industry, Research and Space)
- EC Report: Public Consultation on Open Research Data
- EC Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020

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**European Open Access Policy Timeline**

- **2007**
  - EC Study on the Economic and Technical Evolution of the Scientific Markets in Europe
- **2009**
  - European Research Advisory Board (EURAB) Final Report, Scientific Publication: Policy on Open Access
  - European Research Council (ERC) Scientific Council Statement on Open Access
- **2011**
  - Launch of Open Access Pilot in FP7
- **2012**
  - EC Europe 2020 Flagship Initiative: Communication A Digital Agenda for Europe
  - Report to the EC: Riding the Wave: How Europe Can Gain From the Rising Tide of Scientific Data
  - EC and National Experts Workshop, Sharing Knowledge: Open Access and Preservation in Europe
  - Official launch of FP7 OpenAIRE Project
- **2013**
  - EC Results of the Public Consultation on Scientific Information in the Digital Age
  - EC Survey on Open Access in FP7
  - EC Communication: A Reinforced ERA Partnership for Excellence and Growth
  - EC Communication: Towards Better Access to Scientific Information: Boosting the Public Benefits of Public Investments in Research
  - EC Recommendation on Access to and Preservation of Scientific Information
  - EC Communication on a Single Market for Intellectual Property Rights Boosting Creativity and Innovation to Provide Economic Growth, High Quality Jobs and First Class Products and Services in Europe
  - EC Communication on Scientific Information in the Digital Age: Access, Dissemination and Preservation
  - EC Scientific Publishing in the European Research Area (ERA): Access Dissemination and Preservation in the Digital Age Conference
  - Green Paper, The European Research Area: New Perspectives
  - Council of the European Union, Council Conclusions on Scientific Information in the Digital Age: Access, Dissemination and Preservation
  - ERC Scientific Council Guidelines for Open Access
  - EC Results of Questionnaire to Member States and Associated Countries via the Scientific and Technical Research Committee (CREST)
  - ERA Board Report: Preparing Europe for a New Renaissance: A Strategic View of the European Research Area
  - ERA Conference: Working Together to Strengthen Science in Europe
  - Sharing Knowledge: EC-Funded Projects on Scientific Information in the Digital Age
  - EC Notes on Public Hearing on Access to and Preservation of Scientific Information
  - European Economic and Social Committee (EESC) Opinion on Towards Better Access to Scientific Information: Boosting the Benefits of Public Investments in Research
  - Council of the European Union, The Competitiveness Council (Internal Market, Industry, Research and Space)
  - EC Report: Public Consultation on Open Research Data
  - EC Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020

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8. Data Visualisations

8.1 A series of data visualisations illustrate, among other, how many Open Access policies there are worldwide, how many policies are compliant with the Horizon 2020 Open Access policy, when policies require deposit, and whether policies mention APCs

Below are links to the data visualisations online:

ROARMAP data

All data available from the Registry of Open Access Repository Mandates and Policies (ROARMAP).

- Number of Open Access Policies Worldwide
- Number of Open Access Policies Worldwide - Map
- Number of Open Access Policies by Policy Maker
- Number of Open Access Policies that are Mandatory
- Number of Open Access Policies that are Horizon2020 Compliant
- When Open Access Policies Require Deposit
- Open Access Policies that mention APCs
- Live data: Number of Open Access Policies Worldwide

Other data

Bibliographic metadata indexed by the Thomson-Reuters database (WoK).

- Number of Deposits in Institutional Repositories

Publication date was estimated based on the Altmetrics database and WoK publication date.

- Deposit latency on Open Access and restricted access publications
Appendix A

All materials can be found online at the following URLs:

**Open Access policy templates and guidelines**

1.1 Template and guidelines for Open Access policy implementation by research institutions [http://goo.gl/Fzw8F3]
1.2 Template and guidelines for Open Access policy implementation by research funders [http://goo.gl/qOEXSy]

**Practical and technical issues**

2.1 Brief on Open Access [http://goo.gl/YODOuh]
2.2 Brief on Open Data [forthcoming]
2.3 Brief on Article Processing Charges (APCs) [http://goo.gl/55KaGp]
2.4 Brief on research impact measurement in Higher Education [http://goo.gl/Mkocvi]

**Open Access policy effectiveness**

3.1 Brief on Open Access policy effectiveness for research institutions [http://goo.gl/gf7Hs8]
3.2 Brief on Open Access policy effectiveness for research funders [http://goo.gl/OnmzPA]
3.3 Brief on UK Higher Education Open Access policy landscape: from policy development to effectiveness and alignment [http://goo.gl/N4ikF8]

**National Open Access case studies**

National case studies on Open Access in:

4.1 Belgium
4.2 Denmark
4.3 Hungary
4.4 Ireland
4.5 Norway
4.6 Portugal
4.7 the UK [http://goo.gl/oLshIA]

**Institutional Open Access case studies**

Institutional case studies on Open Access policy implementation in:

5.1 The University of Liege [forthcoming]
5.2 The University of Turin [forthcoming]
5.3 The University of Tromsø
5.4 The University of Minho
5.5 University College London [forthcoming] [http://goo.gl/1LrNP5]

**Funder Open Access case studies**
6.1 Research funders case studies on Open Access from the Austrian Science Fund (FWF) and Ireland’s Health Research Board (HRB) [http://goo.gl/QSqALZ]

Open Access in Europe

7.1 Regional Challenges in Achieving Open Access and Proposed Recommendations [http://goo.gl/NnkDbe]
7.2 Case-study on the assessment of readiness for Open Access policy implementation in Europe [http://goo.gl/eCXGxJ]

Data visualisations

8.1 A series of data visualisations illustrate, among other, how many Open Access policies there are worldwide, how many policies are compliant with the Horizon 2020 Open Access policy, when policies require deposit, and whether policies mention APCs [http://goo.gl/1ZyyrL]
Alignment in Europe – Work Package 4: Policymaker engagement and policy development

i CIS stands for Commission Coopération Internationale (International Cooperation Committee) and CFS for Commission Coopération fédérale (Federal Cooperation Committee). These permanent committees are attended by high civil servants from the federal community and regional authorities who cooperate on international and internal matters. The CIS-CFS WG on OA gathers experts from administrations and ad hoc experts. The WG considers that Green OA covers more than scientific articles, e.g. grey literature, reports etc.

ii http://openaccess.be/2012/11/29/brussels-declaration-on-open-access-signed-by-ministers-nollet-magneete-and-lieten/signedsbrussels-declaration-on-open-access

iii In the 2000s, it was decided to create 3 Academies in BWF and that each one would have its OA repository. DIAL was the institutional repository for University Academy Louvain that contained UCL and USL-Brussels, ORBI was the IR for Wallonia-Europe Academy that contained ULg and Di-Fusion became the repository for ULB, UMONS and UNAMUR. The system of Academies collapsed but OA IR connections between universities remained.

iv Webometrics (Oct 16, 2014). The repositories are: University of Ghent Institutional Archive, Katholieke Universiteit Leuven Lirias Repository, ULg Open Repository and Bibliography ORBI, Document Server@Uhasselt, Dépôt Institutionnel Académie Universitaire Louvain, Serveur institutionnel des thèses de doctorat ULg, Lessius Hogeschool LIRIAS, Hogeschool Universiteit Brussel LIRIAS, Institute of Tropical Medicine Tropmed Central, Hogeschool West Vlaanderen Institutional Repository, Di-fusion Dépôt institutionnel de ULB, Katholieke Hogeschool Zuid West Vlaanderen Doks, Katholieke Hogeschool Kempen Doks, Xios Hogeschool Limburg Doks

v The three institutes are:), the Nuclear Research Centre (SCK), the Scientific Institute of Public Health (ISP) and the National Institute for Criminalistics and Criminology (NICC)


ix The four UK Funding Councils include the Higher Education Funding Council for England (HEFCE), the Scottish Funding Council (SFC), the Higher Education Funding Council for Wales (HEFCW), and the Northern Ireland Department for Employment and Learning (DELINI).


xi RCUK’s mission is ‘to enhance the overall performance and impact of UK research, training and knowledge transfer’. RCUK’s seven research councils include: the Arts and Humanities Research Council (AHRC), the Biotechnology and Biological Sciences Research Council (BBSRC), the Economic and Social Research Council (ESRC), Engineering and Physical Sciences Research Council (EPSRC), the Medical Research Council (MRC), the Natural Environment Research Council (NERC), and the Science and Technology Facilities Council (STFC).


xv For more information see the ‘Do research, communicate and apply the results!’ diagram, p.12, in Björk, Bo-Christer (2007) ‘A Model of Scientific Communication as a Global Distributed Information System’, Information Research, 12 (2)


xvii Hybrid journals are commercial journals, or subscription journals, which offer the possibility for authors to pay an APC and to make their articles immediately open access at the date of publication.


xxi Big Deals designates the act of ‘institutional subscribers pay[ing] for access to online aggregations (e.g. of journal titles) through consortia or site licensing arrangements’. Source: Jisc (2009) Economic Implications of Alternative Scholarly Publishing Models: Exploring the Costs and Benefits, London: Jisc

xxvii For more information on AHRC, BBSRC, ESRC, EPSRC, MRC, NERC and STFC open access policies from 2006-2012 and from 2013 onwards go to http://www.sherpa.ac.uk/juliet/index.php?la=en&mode=simple&page=browse&la=en&sortby=country
xxix For more information filter results by Country > United Kingdom in the Registry of Open Access Repositories Mandatory Archiving Policies
xxx For more information filter results by Country > United Kingdom in the Registry of Open Access Repositories Mandatory Archiving Policies
x For more information filter results by Country > United Kingdom in the Registry of Open Access Repositories Mandatory Archiving Policies
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xii For more information filter results by Country > United Kingdom in the Registry of Open Access Repositories Mandatory Archiving Policies
xiii For more information filter results by Country > United Kingdom in the Registry of Open Access Repositories Mandatory Archiving Policies
xix For more information on the work currently being developed by Jisc on research data please contact Rachel Bruce, Jisc’s Deputy Chief Innovation Officer.
x The information collected for the publishing lifecycle is based on Jisc’s ‘Services and Projects Schema’ developed by Neil Jacobs, Head of Jisc’s Scholarly Communications.