

# PASTEUR4OA Briefing Paper<sub>1</sub>

## Working Together to Promote Open Access Policy Alignment in Europe

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”<sup>2</sup>. 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”<sup>3</sup>.

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

<sup>1</sup> Briefing Paper written by Mafalda Picarra, Jisc, One Castlepark, Tower Hill, Bristol, BS2 0JA, UK

<sup>2</sup> Budapest Open Access Initiative, <http://www.budapestopenaccessinitiative.org/read>

<sup>3</sup> Bethesda Statement on Open Access Initiative, <http://legacy.earlham.edu/~peters/fof/bethesda.htm>

materials [...] in at least one online repository using suitable technical standards (such as the Open Archive definitions)<sup>4</sup>. 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**<sup>5</sup>, 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<sup>6</sup>, 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"<sup>7</sup>. OA journals often charge Article Processing Charges (APCs) but these costs are 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 citations<sup>8</sup>. 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"<sup>9</sup>.

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<sup>10</sup>, confusion about

4 Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, <http://openaccess.mpg.de/Berlin-Declaration>

5 Crawford, Walt (2011) *Open Access: What You Need to Know Now*, Chicago: American Library Association.

6 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.

7 Crawford (2011:20)

8 Swan, Alma (2012) *Policy Guidelines for the Development and Promotion of Open Access*, UNESCO.

9 Heylighen, Francis (2007) 'Why is Open Access Development so Successful? Stigmatic organization and the economics of Information', <http://arxiv.org/ftp/cs/papers/0612/0612071.pdf>

10 Swan, Alma (2006) 'The Culture of Open Access: Researchers' Views and Responses', in Jacobs, Neil (ed.) (2006) *Open Access: Key Strategic, Technical and Economic Aspects*, Oxford: Chandos Publishing Limited

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<sup>11</sup>. 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 access<sup>12</sup>. 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).

Organisations such as the World Bank<sup>13</sup>, the Organisation for Economic Cooperation and Development (OECD)<sup>14</sup>, United Nations Educational, Scientific and Cultural Organisation (UNESCO)<sup>15</sup>, and the UK Department for International Development<sup>16</sup> 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 repository<sup>17</sup>. 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 journals<sup>18</sup>. 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.

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 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

11 Creaser, Claire (2010) ‘Open Access to Research Outputs – Institutional Policies and Researchers’ Views: Results From Two Complementary Surveys’, *New Review of Academic Librarianship*, 16 (1): 4-25

12 Swan, Alma (2011) ‘Sharing Knowledge: Open Access and Preservation in Europe’, [http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/oa-preservation-2011\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/oa-preservation-2011_en.pdf)

13 World Bank Open Knowledge Repository, <https://openknowledge.worldbank.org/>

14 OECD iLibrary, <http://www.oecd-ilibrary.org/>

15 UNESCO Open Access, <http://www.unesco.org/new/en/unescdoc-open-access>

16 DFID Research for Development, <http://r4d.dfid.gov.uk/Search/SearchResearchDatabase.aspx>

17 University of Liège Open Access Policy, [http://orbi.ulg.ac.be/files/extrait\\_moniteur\\_CA.pdf](http://orbi.ulg.ac.be/files/extrait_moniteur_CA.pdf)

18 RCUK Open Access Policy, <http://www.rcuk.ac.uk/RCUK-prod/assets/documents/documents/RCUKOpenAccessPolicy.pdf>

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"<sup>19</sup>. 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"<sup>20</sup>.

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)"<sup>21</sup>. The report suggested that a "clear policy at European level is

required"<sup>22</sup> 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"<sup>23</sup>.

In early 2007, the EC convened a stakeholders conference on 'Scientific Publishing in the European Research Area: Access, Dissemination and Preservation in the Digital Age'<sup>24</sup> 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"<sup>25</sup>. 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"<sup>26</sup>; 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"<sup>27</sup>. Furthermore, it acknowledged that effective knowledge sharing should include "innovative communication channels [that] give the public at large access to scientific knowledge"<sup>28</sup>. 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

19 Study on the Economic and Technical Evolution of the Scientific Markets in Europe (2006:5), [http://ec.europa.eu/research/science-society/pdf/scientific-publication-study\\_en.pdf](http://ec.europa.eu/research/science-society/pdf/scientific-publication-study_en.pdf)

20 Study on the Economic and Technical Evolution of the Scientific Markets in Europe (2006:11)

21 European Research Advisory Board (EURAB) Final Report, Scientific Publication: Policy on Open Access (2006:3), [http://ec.europa.eu/research/eurab/pdf/eurab\\_scipub\\_report\\_recomm\\_dec06\\_en.pdf](http://ec.europa.eu/research/eurab/pdf/eurab_scipub_report_recomm_dec06_en.pdf)

22 European Research Advisory Board (EURAB) Final Report, Scientific Publication: Policy on Open Access (2006:2)

23 European Research Advisory Board (EURAB) Final Report, Scientific Publication: Policy on Open Access (2006:3)

24 Scientific Publishing in the European Research Area: Access, Dissemination and Preservation in the Digital Age, <http://ec.europa.eu/research/science-society/index.cfm?fuseaction=public.topic&id=1523>

25 EC Communication on Scientific Information in the Digital Age: Access, Dissemination and Preservation (2007:2), [http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/communication-022007\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/communication-022007_en.pdf)

26 EC Communication on Scientific Information in the Digital Age: Access, Dissemination and Preservation (2007:9)

27 Green Paper, The European Research Area: New Perspectives (2007:2), [http://ec.europa.eu/research/era/pdf/era\\_gp\\_final\\_en.pdf](http://ec.europa.eu/research/era/pdf/era_gp_final_en.pdf)

28 Green Paper, The European Research Area: New Perspectives (2007:8-9)

that EU policies and practices should improve to ensure open access to raw data (68%) and peer-reviewed publications (65%)<sup>29</sup>.

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"<sup>30</sup>. 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"<sup>31</sup>, 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 publication"<sup>32</sup> 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<sup>33</sup>.

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"<sup>34</sup>. 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"<sup>35</sup>.

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"<sup>36</sup>.

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"<sup>37</sup>. 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"<sup>38</sup>.

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

29 Analysis of the Responses to the Knowledge Sharing Questions in the Online Public Consultation on the Future of the European Research Area, [http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/summary-reportq21-24092007\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/summary-reportq21-24092007_en.pdf)

30 Council Conclusions on Scientific Information in the Digital Age: Access, Dissemination and Preservation (2007:2), [https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/council\\_conclusions\\_nov2007.pdf](https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/council_conclusions_nov2007.pdf)

31 Council Conclusions on Scientific Information in the Digital Age: Access, Dissemination and Preservation (2007:4)

32 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)

33 OpenAIRE, <https://www.openaire.eu/openaire-guide-for-authors-en/document-details>

34 EC Results of Questionnaire to Member States and Associated Countries via the Scientific and Technical Research Committee (2009:2),

[http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/scientific-info-results-crest-final-090609\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/scientific-info-results-crest-final-090609_en.pdf)

35 EC Results of Questionnaire to Member States and Associated Countries via the Scientific and Technical Research Committee (2009:2)

36 EC Results of Questionnaire to Member States and Associated Countries via the Scientific and Technical Research Committee (2009:3)

37 Sharing Knowledge: Open Access and Preservation in Europe (2010:10), [http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/oa-preservation-2011\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/oa-preservation-2011_en.pdf)

38 Sharing Knowledge: Open Access and Preservation in Europe (2010:6)

the long-term necessity and benefit of access to and preservation of scientific information”<sup>39</sup>.

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 development of official documentation that would determine the EC’s framework on access to scientific information for “research projects funded by the Union budget”<sup>40</sup>. Overall, the results showed that the majority of respondents considered that there were problems with access to scientific publications (84%) and research data (87%)<sup>41</sup>. 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”<sup>42</sup>.

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”<sup>43</sup>. 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”<sup>44</sup>. 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 funded projects in Horizon 2020”<sup>45</sup>. 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)<sup>46</sup>. 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-

39 Sharing Knowledge: Open Access and Preservation in Europe (2010:8)

40 Consultation on Scientific Information in the Digital Age (2011:no page),

[http://ec.europa.eu/research/consultations/scientific\\_information/consultation\\_en.htm](http://ec.europa.eu/research/consultations/scientific_information/consultation_en.htm)

41 Online Survey on Scientific Information in the Digital Age, [http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/survey-on-scientific-information-digital-age\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/survey-on-scientific-information-digital-age_en.pdf)

42 National Open Access and Preservation Policies in Europe (2011:50), [http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/open-access-report-2011\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/open-access-report-2011_en.pdf)

43 Survey on Open Access in FP7 (2012:5), [http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/survey-on-open-access-in-fp7\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/survey-on-open-access-in-fp7_en.pdf)

44 A Communication: A Reinforced European Research Area Partnership for Excellence and Growth (2012:13), [http://ec.europa.eu/euraxess/pdf/research\\_policies/era-communication\\_en.pdf](http://ec.europa.eu/euraxess/pdf/research_policies/era-communication_en.pdf)

45 A Communication: A Reinforced European Research Area Partnership for Excellence and Growth (2012:14)

46 A Communication: Towards Better Access to Scientific Information: Boosting the Benefits of Public Investments in Research, [http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/era-communication-towards-better-access-to-scientific-information\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/era-communication-towards-better-access-to-scientific-information_en.pdf)

infrastructures, multi-stakeholder dialogue and coordination of MS at EU level<sup>47</sup>.

Ultimately, the ‘**Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020**’ were made available in 2013<sup>48</sup>. 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<sup>49</sup>. Table 1 describes the EC’s OA policy in the Horizon 2020 Programme.

#### Open Access in Horizon 2020

- » **OA Strategy/Model:** requires self-archiving (Green OA) and accepts open access publishing (Gold OA)
- » **Deposit:** beneficiaries are required to deposit and to ensure open access to all peer-reviewed scientific publications relating to their results
- » **What to Deposit:** machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication
- » **When to Deposit:** as soon as possible and the latest on publication
- » **Where to Deposit:** institutional repository or subject-based/thematic repository or centralised repository (e.g. Zenodo)
- » **When to make the Deposit OA:** after 6/12 months embargo period (Green OA); immediately (Gold OA)
- » **Open access publishing:** beneficiaries can publish in open access journals or in subscription journals that offer the possibility to make individual articles openly accessible. APCs are eligible for reimbursement during the duration of the project
- » **Copyright and licensing:** authors are encouraged to retain their copyright and grant adequate licenses to publishers
- » **Sanctions:** if a beneficiary breaches any of its obligations, the grant may be reduced

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.

47 Recommendation on Access to and Preservation of Scientific Information, [http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/recommendation-access-and-preservation-scientific-information\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/recommendation-access-and-preservation-scientific-information_en.pdf)

48 Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020,

[http://ec.europa.eu/research/participants/data/ref/h2020/grants\\_manual/hi/oa\\_pilot/h2020-hi-oa-pilot-guide\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf)

49 Horizon 2020 Model Grant Agreement [Article 29],

[http://ec.europa.eu/research/participants/portal/desktop/en/funding/reference\\_docs.html#h2020-mga](http://ec.europa.eu/research/participants/portal/desktop/en/funding/reference_docs.html#h2020-mga)

50 PASTEUR4OA Description of Work.

51 PASTEUR4OA Description of Work.

52 PASTEUR4OA Description of Work.

## 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”<sup>50</sup>.

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<sup>51</sup>.

### 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<sup>52</sup>.

## 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<sup>53</sup>.

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.

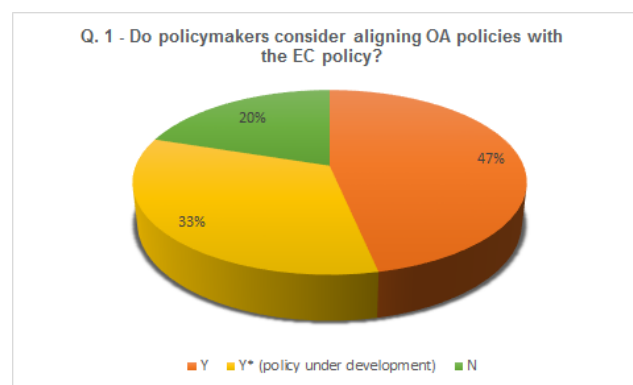


Figure 1 – OA Policy Alignment

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

<sup>53</sup> Nordic region = Sweden, Finland, Iceland, Denmark, Norway. Eastern European region = Croatia, Slovakia, Slovenia, Czech Republic, Romania, Estonia, Latvia, Lithuania, Poland. South Eastern European region = Macedonia, Serbia, Bulgaria, Cyprus, Turkey. North Western European region = France, Austria, Luxembourg, Netherlands, UK, Belgium, Germany. South Western European Region = Italy, Spain, Malta, Portugal.



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 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%).

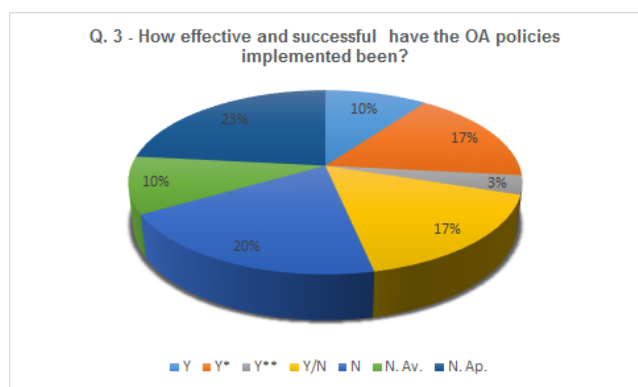


Figure 2 – OA Policy Effectiveness

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.

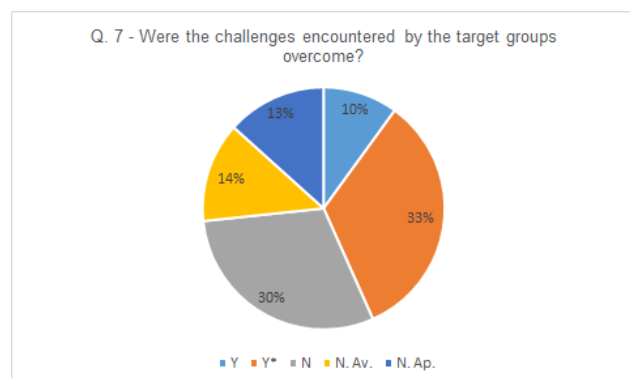


Figure 3 – Were the Challenges Overcome?

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:  
<http://www.budapestopenaccessinitiative.org/read>

Bethesda Statement (2003) 'Bethesda Statement on Open Access Publishing'. [online] Available at:  
<http://legacy.earham.edu/~peters/fos/bethesda.htm>

Berlin Declaration (2003) 'Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities'. Available at:  
<http://openaccess.mpg.de/286432/Berlin-Declaration>

### OA Books

Crawford, Walt (2011) *Open Access: What You Need to Know Now*, Chicago: American Library Association

Jacobs, Neil (ed.) (2006) *Open Access: Key Strategic, Technical and Economic Aspects*, Oxford: Chandos Publishing Limited

Jones, Catherine (2007) *Institutional Repositories: Content and Culture in an Open Access Environment*, Oxford: Chandos Publishing Limited

Katsirikou, Anthi (ed.) (2011) *Open Access to STM Information: Trends, Models and Strategies for Libraries*, The Hague: International Federation of Library Associations and Institutions

Solomon, David (2008) *Developing Open Access Electronic Journals: A Practical Guide*, Oxford: Chandos Publishing Limited

Suber, Peter (2012) *Open Access*, Cambridge: The MIT Press

### OA Peer-Reviewed Articles

Guédon, Jean-Claude (2004) 'The "Green" and "Gold" Roads to Open Access: The Case for Mixing and Matching', *Serials Review*, 30 (4): 315-328

Goodman, David (2004) 'The Criteria for Open Access', *Serials Review*, 30 (4): 258-270

### OA Working Papers

Eger, T., Scheufen, M. and Meierrieks, D. (2014) 'The Determinants of Open Access Publishing: Survey Evidence from Countries in the Mediterranean Open Access Network (MedOANet)', Available at:  
<http://dx.doi.org/10.2139/ssrn.2457550>

### OA Policy Guidelines

Swan, Alma (2012) *Policy Guidelines For the Development and Promotion of Open Access*, UNESCO, Available at:  
<http://unesdoc.unesco.org/images/0021/002158/215863e.pdf>

### OA Funders Policies

Irish Research Council (IRC) ([link](#))  
Research Council UK (RCUK) ([link](#))  
USA National Institute of Health (NIH) ([link](#))  
Wellcome Trust ([link](#))  
European Commission: Open Access in FP7 ([link](#))  
European Commission: Open Access in Horizon 2020 ([link](#))  
SHERPA-JULIET ([link](#))

### OA Institutions Policies

Harvard University, USA ([link](#))  
Hong Kong Polytechnic University, China ([link](#))  
Queensland University of Technology, Australia ([link](#))  
University of Liège, Belgium ([link](#))  
University of Pretoria, South Africa ([link](#))  
University of Southampton, UK ([link](#))  
MELIBEA ([link](#))

### OA Past & Present Projects

FOSTER ([link](#))  
MedOANet ([link](#))  
NECOBELAC ([link](#))  
OpenAIRE ([link](#))  
SOAP ([link](#))  
PASTEUR4OA ([link](#))  
RECODE ([link](#))

### OA Repositories & Registries

OpenDOAR ([link](#))  
ROARMAP ([link](#))

### Organisations with a Focus on OA

#### International Library Communities

Confederation of Open Access Repositories (COAR) ([link](#))  
Electronic Information for Libraries (EIFL) ([link](#))  
Association of European Research Libraries (LIBER) ([link](#))  
SPARC Europe ([link](#))  
Open Access Publishing in European Networks (OAPEN) ([link](#))

#### International Organisations

Enabling Open Scholarship (EOS) ([link](#))  
EuroCRIS ([link](#))  
Open Knowledge Foundation (OKF) ([link](#))  
Open Access Scholarly Information Sourcebook (OASIS) ([link](#))  
SPARC Europe ([link](#))

#### Infrastructure Organisations

Jisc ([link](#))  
SURF ([link](#))

#### Publisher Associations

Open Access Scholarly Publishers Association (OASPA) ([link](#))

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For further information please contact: [Mafalda Picarra, mafalda.picarra@jisc.ac.uk](mailto:Mafalda.Picarra@jisc.ac.uk)

## Annex 1 – European Open Access Policy Timeline

### European Open Access Policy Timeline

