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Delegations will find attached Commission document SWD(2012) 221 final.

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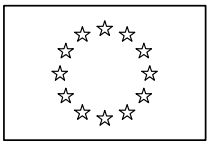

EUROPEAN COMMISSION

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COMMISSION STAFF WORKING DOCUMENT

EXECUTIVE SUMMARY OF IMPACT ASSESSMENT
accompanying the document
RECOMMENDATION ON ACCESS TO AND PRESERVATION OF SCIENTIFIC INFORMATION

{C(2012) 4890 final}
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1. SCOPE AND CONTEXT

1.1. Scope

This impact assessment (IA) investigates whether, in the light of current developments in the scholarly publications system, more needs to be done at EU level with a view to improving the efficacy of research and fostering an innovative Union that is a global science leader. The IA examines the policy options on furthering EU action to improve access to and the preservation of scientific information in the digital age, in particular the impact of a Commission Recommendation to the Member States on that topic.

1.2. Context

Knowledge and innovation give a competitive advantage as stressed in the Europe 2020 Communication[1]. Structurally low growth in Europe can be tackled by creating optimal conditions for innovation. In order to become an increasingly competitive knowledge-based economy, Europe must not only improve the production of knowledge, but also the dissemination and sharing of the scientific results of publicly funded research.

With the advent of the digital age, the scientific community sees greater opportunities for the electronic dissemination of the results of research. One of these opportunities is open access (OA). Open access enables the provision of free online access to and the re-use of knowledge in the form of scientific publications, data, monographs and related material.

Commission policy development on access to and the preservation of scientific information in the digital age builds on policy developments that started in February 2007, with the Communication from the Commission[2] on scientific information in the digital age. This was followed in November 2007 by Council Conclusions[3], which included a set of actions to be undertaken by Member States. They invited the Commission to experiment with open access to scientific publications resulting from projects funded by the EU research framework programmes, resulting in an Open Access pilot as part of the seventh framework programme launched in August 2008.

A Communication on ICT infrastructures for e-science[4] was adopted in March 2009. It was followed by Council Conclusions[5] in December 2009 inviting Member States and the Commission to continue extending access and to ensure a coherent approach to data access and curation.

In 2010, the Commission adopted the Europe 2020 Flagship Initiatives Innovation Union[6] and A Digital Agenda for Europe[7]. Both Communications refer to open access as a means of achieving the Europe 2020 objectives. They announce that open access will be extended to the results of publicly funded research, in particular as a general rule for projects funded by the EU research framework programmes. On 30 November 2011, the Commission adopted a

1 http://europa.eu/press_room/pdf/complet_en_barroso___007_-_europe_2020_-_en_version.pdf.
2 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0056:FIN:EN:PDF.
3 http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/intm/97236.pdf.
4 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0108:FIN:EN:PDF.
5 http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/intm/111732.pdf.
6 http://ec.europa.eu/research/innovation-union/pdf/innovation-union-communication_en.pdf.
7 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0245:FIN:EN:PDF.

proposal for the Horizon 2020 Programme[8]. From 2014 onwards, it will combine European research and innovation funding in a single framework. It is proposed to make open access the basic principle for the dissemination of the results of research.

Another strategic policy issue is the development and implementation of a European Research Area (ERA). The ERA encompasses all research and development activities, programmes and policies in Europe which involve a transnational perspective. The aim is to provide access to a Europe-wide open space for knowledge and technologies in which transnational synergies and complementarities are fully exploited. In this context, issues relating to access to and the preservation of scientific information are particularly relevant.

Against this policy background, the Commission will adopt a new Communication 'Towards better access to scientific information — Boosting the benefits of public investment in research'. This Communication will take stock of developments since 2007 and indicate areas in which the Member States and the Commission should take further action. It will be accompanied by a Recommendation to Member States suggesting specific actions in the area of access to and the preservation of scientific information.

2. PROBLEM DEFINITION

The scholarly dissemination system is confronted with a series of problems that prevent the achievement of the desired policy outcome, i.e. to offer researchers in the ERA an integrated system of practices and infrastructures that allows easy, open access to, and the use and re-use of, the results of research. These problems are:

(a) Suboptimal access to scientific research publications

Journal subscription prices have risen above inflation levels and continue to rise, putting libraries under pressure and making it difficult to access the results of publicly funded research.

Access to the content of scientific journals and opportunities to use and re-use scientific information remain limited for researchers, industry (in particular small and medium-sized enterprises) and the public at large.

For a number of years, the scientific community has been calling for open access to the results of publicly funded research, in particular peer-reviewed publications. Open access to scientific publications takes two forms:

- The costs of publishing an article are covered upfront by the authors (in practice, their funding bodies or universities) rather than by subscriptions, making the article immediately available to everyone for free (Gold Open Access).

- The text of the peer-reviewed publication is archived in a repository so it can be made available to everyone for free, usually after an embargo that allows the scientific publisher to recoup their costs and make a return on investment (Green Open Access).

[8] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0808:FIN:en:PDF.

(b) Suboptimal access to research data

Currently, research data from publicly funded research are not systematically available for others to build upon.

One part of the problem is that many different kinds and categories of data are generated at different stages of the research process. There is also a lack of career rewards and/or recognition for sharing data. Finally, infrastructuresare not yet in place for researchers to find, access, use and re-use data in a trusted way.

(c) The rising tide of scientific data, making the long-term preservation of scientific information necessary

The advent of born-digital material and the generation of enormous amounts of data has given rise to new difficulties for the long-term preservation of scientific information. Very few research funding organisations and academic institutions undertake data preservation activities.Appropriate financing and organisational models are lacking. While publishers have made an effort to digitise in the past, the long-term preservation of scientific information should be a public task. Preservation cannot be allowed to depend on the life-cycle of a commercial enterprise[9].Stakeholders include researchers, businesses (including SMEs), scientific publichers (for profit and not-for-profit), governments (national or regional), academic institutions (including their libraries) and citizens.

3. RATIONALE FOR EU ACTION, EU ADDED VALUE AND SUBSIDIARITY

Policy actions in the area of scientific information are cross-border and international by definition, as science is a global endeavour. Initiatives exist in all Member States to facilitate and enable wider access to and the preservation of scientific information, but the intensity and focus of initiatives may vary, and there is even some fragmentation within the same country[10]. Multiple initiatives have led to overlapping policies for European researchers, investors and citizens. Since 2007, the Commission has been instrumental in encouraging Member States to continuously exchange information and work together.

The development of e-infrastructure has advanced at an uneven pace.

Policy regarding research outputs must be coordinated with other policy areas related to the realisation of the ERA and the broader economic development goals of the EU. This type of coordination can only be organised efficiently at EU level.

The important share of public funding in R & D (35 % of investment) gives the public sector an important say in how results should be disseminated to stimulate economic growth and for the benefit of society at large.

[9] See the results of the PARSE.Insight Project.

[10] See European Commission (2011), 'National Open Access and Preservation Policies in Europe. Analysis of a questionnaire to the European Research Area Committee.' http://ec.europa.eu/research/science-society/document_library/pdf_06/open-access-report-2011_en.pdf.

4. POLICY OBJECTIVES

The preferred policy option should have the following general, specific and operational objectives.

General objective:

- to provide better support for innovation and contribute to economic growth by improving the conditions for access to, the use and re-use of scientific information and by enabling the development of the ERA.

Specific objectives:

- to make scientific publications openly accessible online for free, as far as possible and as soon as possible;
- to make research data openly accessible online for free;
- to preserve scientific information for future generations;
- to provide access to scientific information across Member States.

Operational objectives:

- to stimulate the implementation of open access policies for scientific publications by Member States that increase the number of open access publications resulting from publicly funded research, increase the number of open access mandates and improve the funding conditions for Gold Open Access;
- to stimulate the implementation of open access policies for data by Member States that require the deposit of research data resulting from publicly funded research in an e-infrastructure and support the set-up and maintenance of digital e-infrastructures;
- to support the set-up and maintenance of digital e-infrastructures for the preservation of scientific information and promote effective deposit systems for born-digital scientific information;
- to ensure full interoperability between e-infrastructures across and outside the EU, promote federated access to scientific content and promote coordination of policies, exchange of best practice and stakeholder dialogue at European level.

5. POLICY OPTIONS

The following policy options are developed and assessed in detail in the report.

(1) Discontinuing existing EU action

This option would involve scrapping all soft measures, including any implementing measure currently contained in the Council Conclusions on scientific information in the digital age. The EU would not address problems and would no longer support the process towards widening access to scientific information, by funding or co-funding infrastructures, projects and policy-making.

(2) No policy change (Baseline scenario)

This option would leave the current approach unchanged. Access to and the preservation of scientific information would continue to build on existing legal frameworks, where these exist, and policies would continue to depend on national initiatives, which are at variance with these policies.

(3) Implementation of a policy framework in the form of soft law

Under this option, a policy framework would be defined, suggesting implementation through a Recommendation to Member States, accompanied by a Communication from the Commission. This policy framework would help Member States to develop and implement policies on access to and the preservation of scientific information (scientific articles and research data). It would set out the specific objectives and leave the choice to the relevant actors in the Member States to decide which policy fits best, both for the Member State and for each academic discipline. If self-archiving (Green Open Access) is mandated, embargo periods should be no longer than twelve months in social sciences and the humanities and six months in all other fields. A longer embargo period for social sciences and humanities is explained by the longer half-life of publications in these disciplines compared to those in the scientific, technical and medical fields. It would call for open access mandates for both publications and research data and for the creation of digital e-infrastructures (repositories), if they do not already exist, and for e-infrastructures to also serve for preservation purposes. It would suggest building on current examples of best practice.

(4) Implementation of a policy framework in the form of approximation of legislation

Article 182(5) of the TFEU provides a legal basis for taking the measures necessary for the implementation of the ERA, including approximation of legislation through a Directive. Under this option, the objectives set by the policy framework would be implemented through a Directive.

6. COMPARISON OF POLICY OPTIONS AND IMPACTS

Option 1:

Discontinuing existing EU action would lead to an increase in divergence among Member States. Some would make progress on open access, reaping the benefits of a more open scientific research environment. Others would have less guidance and could not benefit from EU infrastructure funding. This divergence of developments would have a negative impact on researchers and on public budgets, mainly university libraries that have to cope with increasing prices for the acquisition of research output. No progress would be made in the long-term preservation of scientific information.

Option 2:

No policy change would not change the current divergence among Member States., Some convergence around the 2007 Council Conclusions could be expected, although at a slower pace and without taking into account the developments in scientific information that have happened since. Funding for infrastructures and projects would be available, but it would be

limited to experimental projects. There would be no improvement on the current situation. The effect on stakeholders would be similar to the effect of discontinuing EU action.

Option 3:

The implemenation of a policy framework in the form of soft law is expected to improve access to scientific information, regardless of how Member States implement it. Providing open access to scientific publications has the potential to trigger overall benefits as a return on investment in R&D, and also save governments and research-funding organisations money, while maintaining a sustainable system for the dissemination of scientific publications in the medium and long term. Those savings depend on how open access is ensured. The precise impacts and risks of opening up access to publications also depend on how open access is ensured.

Impacts in relation to wider access to research data and the preservation of both publications and data would mainly be felt at the level of governments and/or research-funding organisations that would have to fund additional efforts. Effects of scale are likely to be achieved as the e-infrastructure needed to ensure Green Open Access can also be used to provide better access to data and for preservation purposes.

Given the non-binding nature of a Recommendation it can be expected that some objectives would be only partially achieved.

Option 4:

As the policy measures of the soft law option would be the same under the optionof approximation of legislation, the impact is expected to be largely the same. The difference in this option is that putting policy into practice would take considerably longer as it entails a legislative process and an implementation phase at Member State level. This could delay the effects of the policy option.

A comparison of the different policy options shows that **Option 3** offers the best balance between enabling the provision of wider and quicker access to scientific information whilst taking into account how science and scholarly publishing have changed over the past few centuries. It would allow some flexibility for Member States to take into account their national specificities in a European framework, and for all stakeholders to endorse improvements. To mitigate the inherent non-binding character of a Recommendation to Member States, it should provide for close monitoring by the Commission.

7. MONITORING AND EVALUATION

The core indicators of progress towards achieving the identified objectives will be assessed in the context of the ERA framework, with periodic reports from Member States on action taken in response to the Recommendation.