

**Opinion of the European Economic and Social Committee on the ‘Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions — Towards better access to scientific information: Boosting the benefits of public investments in research’**

COM(2012) 401 final

(2013/C 76/09)

Rapporteur: **Mr WOLF**

On 17 July 2012, the Commission decided to consult the European Economic and Social Committee, under Article 304 of the Treaty on the Functioning of the European Union, on the

*Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Towards better access to scientific information: Boosting the benefits of public investments in research*

COM(2012) 401 final.

The Section for the Single Market, Production and Consumption, which was responsible for preparing the Committee’s work on the subject, adopted its opinion on 8 January 2013.

At its 486th plenary session, held on 16 and 17 January 2013 (meeting of 16 January), the European Economic and Social Committee adopted the following opinion by 151 votes with 5 abstentions.

## 1. Conclusions and recommendations

1.1 Access to scientific information is an essential requirement for successful research and boosting innovation, and therefore for Europe’s competitiveness as well. This includes transfer of information between researchers, between research partnerships – particularly between research and business – and between researchers and the public.

1.2 Whilst bearing the following remarks in mind, the Committee supports the Commission’s stated objectives and proposals and believes that they have the potential – with the help of the internet – to facilitate scientific work and to make it more efficient.

1.3 In order to successfully meet these objectives, researcher authorship and intellectual property must continue to be safeguarded, scientific and research freedom must not be compromised, and researchers should be spared red tape and additional work that puts a brake on their efficiency.

1.4 Open access (via the internet) to scientific publications expands or supplements the work of libraries in line with today’s technical possibilities. It is very helpful, increasingly widespread, and should be taken further and fully developed. The goal should be global symmetry between Europe and countries outside Europe.

1.5 Preservation of scientific information (storage of research data) for potential later use is necessary and reflects sound scientific practice today. The Committee welcomes the

Commission’s intention to maintain support for the infrastructure needed to this end. To the extent that data storage is discussed in more detail in project agreements, technical decisions on scope, format, level of detail and description (with metadata) should be reached with the researchers concerned on a case-by-case basis.

1.6 This raises the issue of open (i.e. general, global, cost-free, unrestricted and unconditional) access via the internet to stored research data. There are many aspects to this issue, which concerns current scientific culture and has to be handled in a nuanced and careful way. Whilst it is possible to think of fields of research where open external access could be useful and safe, in many other fields there are compelling objections, which is why a broad-brush approach is not advisable.

1.7 Therefore, in selected cases possible solutions should build in an experimental and incremental way on self-organised data sharing (e.g. CERN, the internet) – already common and voluntary – and be empirically tested in a pilot with the agreement of the scientists involved in the research. However, the administrative work involved in this must not impose new requirements or additional procedures that would undermine simplification efforts that have only just begun.

1.8 Nevertheless, open access to an appropriate selection of data underlying figures in openly accessible publications could be useful – especially if there is global symmetry between Europe and countries outside Europe – so long as the added costs incurred are reasonable and justified.

1.9 All of these measures entail sometimes considerable added costs for researchers and their organisations, which need to be fully accounted for in budget planning and appropriations.

## 2. Gist of the Commission communication

2.1 This communication sets out the action that the Commission intends to take to improve access to scientific information and to boost the benefits of public investment in research.

2.2 The action is aimed at:

- access to scientific publications;
- preservation of scientific information;
- access to research data.

2.3 As far as access to scientific publications is concerned, there are currently two publishing models:

- **‘Gold’ open access:** payment of publication costs is shifted from readers (via subscriptions) to authors. These costs are usually borne by the university or research institute to which the researcher is affiliated, or by the funding agency supporting the research.
- **‘Green’ open access** (self-archiving): the published article or the final peer-reviewed manuscript is archived by the researcher in an online repository before, after or alongside its publication. Access to this article is often delayed (‘embargo period’) at the request of the publisher so that subscribers retain an added benefit.

2.4 A timetable has also been put forward for progressively achieving these objectives over the course of Horizon 2020.

## 3. The Committee’s comments

At stake here is open, i.e. general, cost-free, global and unrestricted, access via the internet to future publications and the research data that underlie them, which increasingly are also available in digital form.

### 3.1 Previous remarks

The Committee has already addressed and made general remarks on the issue at hand in its opinion <sup>(1)</sup> on *Cooperation*

<sup>(1)</sup> OJ C 218, 11.9.2009, p. 8 – paragraph 3.

*and transfer of knowledge between research organisations, industry and SMEs — an important prerequisite for innovation*, which remain valid. They concerned the objective of improving knowledge transfer between research partnerships (particularly between research and business). This was seen as a crucial factor in boosting innovation and with it Europe’s competitiveness. They also addressed the approach to intellectual property generated in the research and innovation process and to artistic and scientific freedom <sup>(2)</sup> <sup>(3)</sup>.

### 3.2 Authorship and intellectual property

On the one hand, authorship and intellectual property of researchers and their organisations have to do with recognition as the first to have made a scientific discovery or finding, typically through authorship of a publication. On the other hand, they concern recognition of the creative process and potential (shared) economic rights derived from it, where new findings may give rise to innovations and inventions for which a patent may then be sought. The Committee therefore welcomes the Commission’s statement (in Chapter 4.1) that: ‘Open access policies do not affect the author’s freedom to choose whether to publish or not. Nor do they interfere with patenting or other forms of commercial exploitation.’

### 3.3 Grace period

The question of whether to publish scientific results early and then relinquish any claim to inventions based on them, or to initially withhold publication in order to avoid losing such a claim, while potentially losing the right of priority with regard to a discovery, for example, is a tricky dilemma that can involve losses. To alleviate this dilemma, the Committee reiterates its recommendation to provide for a grace period when introducing the Community Patent <sup>(4)</sup>.

### 3.4 The case of patent law

Decades of international progress in patent law have seen a careful balance worked out and established between incipient intellectual property rights, on the one hand, and open access to the products of such rights, on the other; patent applications are disclosed after 18 months and are available to all online.

### 3.5 Research data

While there is some variation between disciplines, it is now common practice:

<sup>(2)</sup> Charter of Fundamental Rights of the European Union, Article 13 (March 2010): ‘Academic freedom shall be respected’.

<sup>(3)</sup> See, for example, Torsten Wilholt in *FORSCHUNG & LEHRE*, year 19, 12/12, p. 984; [www.forschung-und-lehre.de](http://www.forschung-und-lehre.de)

<sup>(4)</sup> OJ C 132, 3.5.2011, p. 39 – point 3.9.

- i. for data gathered as part of research, based on raw data, to first be adjusted and examined for incorrect measurements; checked for consistency in internal discussions; weighted; and if necessary compared or amalgamated with other measurement data, before being added to a validated, reliable data set and made public, and
- ii. for the researchers involved to be the first to report the data in a publication; to interpret the findings; and to draw conclusions.

### 3.6 Overall endorsement

Whilst bearing the above remarks in mind, the Committee supports the Commission's stated objectives and believes that they have the potential – with the help of the internet – to facilitate scientific work and to make it more efficient. It recommends gradually developing the processes or approaches now under way in pursuit of this, with ongoing feedback from active scientists. The particularities of each research discipline need to be taken into account here, and researchers should be spared red tape and additional work that puts a brake on their efficiency. The following section presents further considerations and qualifications.

## 4. Specific comments of the Committee

### 4.1 Open access to publications

Open access (via the internet) to scientific publications expands the work of libraries in line with today's technical possibilities. It is useful and helpful, already increasingly widespread, and should be urgently taken further and fully developed.

#### 4.1.1 Gold or green

Whether an agreement can or should be made on gold or green access with each publisher is largely a pragmatic question or a question of cost. What matters is general access via the internet, without an excessive lag, to scientific and technical publications.

#### 4.1.2 Excessive costs

However, there is a perception that the leading publishers charge excessively high fees for access. This could be remedied with more competition as part of the interplay between authors, editors and publishers. In assessing a scientist's output, however, one consideration is the prestige of the journal in which his or her results were published. The Committee therefore encourages the Commission to enter into further discussions with scientific organisations on how to make improvements. At the same time, the freedom of authors to choose a journal must not be restricted.

#### 4.1.3 Preprints

The Committee notes the widespread practice of making results that are still being reviewed by external experts (referees) prior

to publication in academic journals available to colleagues in the form of preprints, including via the internet. The same applies to presentations at symposia and conferences of experts, which consequently play an important role in bringing scientists together.

#### 4.1.4 International agreements: ensuring symmetry

At international level, radical imbalances between the EU and other countries should be avoided. If scientists or the general public across the world gain cost-free access to scientific publications in the EU via the internet, then scientists and the public in the EU also need to have cost-free access to such publications in other countries. The Committee supports the Commission's efforts to achieve such a symmetry with international agreements. Scientific work will only truly be made easier when there is an international flow of information.

#### 4.1.5 Conferences and libraries

At the same time, the Committee warns against the belief that open access will make superfluous or irrelevant other ways of sharing information and ideas. Working on a computer is no substitute for the stimulation that comes from discussion or the intellectual environment of a library or conference.

### 4.2 Data storage

Most of the major research organisations already include data storage in their rules on sound scientific practice. Considering the large amount of data captured today, this task is mostly a question of available resources and infrastructure, i.e. the considerable cost in manpower and equipment of validating data quantities; where necessary sorting, condensing, abbreviating and deleting raw data; and using metadata as a means of explanation without losing important information. Due account must be given to costs and benefits.

#### 4.2.1 Support from the Commission

The Committee welcomes the Commission's previous and planned efforts to provide support for research data storage and for the infrastructure needed for this.

#### 4.2.2 Solutions specific to each field

The Committee agrees with the Commission that there should be no across-the-board solutions, but that each field should independently decide to what extent and by what means data storage should be carried out, and what the right level of standardisation is. Open and international standards should be used here as much as possible to enable interoperability.

#### 4.3 Open external access to data

The intention of the Commission and other advocates<sup>(5)</sup> to promote open (digital) access to research data is driven by the following objectives:

- a) lifting the quality of scientific discourse, because understanding and evaluating published research results in detail requires access to the analysed data and the tools used to analyse them;
- b) boosting return on public funding used to gather data through re-use of those data.

The Committee can fully support these general objectives as they stand.

The question, however, is what tools should be used to achieve this and how nuanced and extensive it should be; what additional (administrative) outlay this will involve; whether this outlay can be justified by the expected benefits; and what objections there are to it.

##### 4.3.1 Current practice

It is an essential feature of scientific research that each process of scientific discovery and the data and sources that come with it have to be comprehensible and reproducible, and the conclusions drawn from it must stand up to any discussion and debate. To this end, there are well-established and successful procedures in the scientific community before, alongside and after publication in journals, such as seminars, conferences, refereeing, peer review, information and data sharing, personnel swaps, etc. The modern tools of the digital agenda are now also used for this purpose. At CERN<sup>(6)</sup> the internet was specifically proposed as an avenue for sharing data and developed with partners.

##### 4.3.2 Additional measures

Consequently, the Commission's proposals can only address the question of how these established forms of self-organisation can be extended, improved, simplified and made more efficient. The additional practical measures planned to this end are not made sufficiently clear in the communication; it seems that pilots are one of the measures planned.

##### 4.3.3 Problems: obstacles

While the expectations surrounding open access have already been discussed, consideration should also be given to the problems, exceptions and obstacles that need to be addressed. The latter include:

- confidentiality when developing innovations, particularly in cooperation with industry (SMEs); patent issues;

<sup>(5)</sup> For example: [www.royalsociety.org/uploadedFiles/Royal\\_Society\\_Content/policy/projects/sape/2012-06-20-SAOE.pdf](http://www.royalsociety.org/uploadedFiles/Royal_Society_Content/policy/projects/sape/2012-06-20-SAOE.pdf) [www.wissenschaftsrat.de/download/archiv/2359-12.pdf](http://www.wissenschaftsrat.de/download/archiv/2359-12.pdf)

<sup>(6)</sup> European Organisation for Nuclear Research.

- confidentiality of patient data in medical research;
- protection of data authorship (of researchers and research organisations);
- misunderstandings when consulting and interpreting data, together with the consequences;
- possible legal restrictions on technology transfer linked to export controls;
- ensuring global symmetry between the EU and third countries;
- cost in terms of manpower and equipment needed to filter out relevant data from what is often a vast amount of raw data and make it more easily comprehensible for outsiders.

Clearly, these obstacles stand in the way of rolling out open access to research data across the board.

##### 4.3.4 A differentiated approach

A differentiated approach is therefore needed. The Committee acknowledges that there are areas where open external access to research data can have advantages, such as meteorological data, gene pools, demographic data and other clearly defined and statistically meaningful data (although here, too, 'data' itself needs to be defined).

At the same time, it recommends a much more cautious approach in the case of e.g.

- i. highly complex experiments such as accelerators or test facilities used in fusion research, and
- ii. all cooperation with industrial research, including SMEs.

4.3.5 In the latter case, specifically, the Committee sees a contradiction between the objectives of promoting open access to data, on the one hand, and strengthening innovation with a focus on public-private partnerships, etc., where confidentiality is vital, on the other. However, efforts to strike a balance between these contradictory objectives by distinguishing between 'harmless' data, such as that generated in basic research, and innovative data, such as that yielded by applied research, is not without risk either: such an *a priori* distinction would mean looking into the future. Finally, pioneering new insights generated in basic research can also be highly innovative, and therefore lead to a loss of

patent protection in the event of premature publication (see point 3.3). A pragmatic solution similar to that used for 'normal' publications should also be sought here (see point 3.2, as well as point 4.1 of the communication from the Commission).

#### 4.3.6 A voluntary approach

The researchers in each project should therefore be given the freedom to decide whether to make the data obtained in a project available under certain conditions, and if so at what point and in what level of detail. The case of CERN, in particular, shows how voluntary, bottom-up processes do more to accommodate the concerns at issue here than do rules imposed from above. The Committee recommends that more trust be placed in the scientific community's ability to organise itself. Any forced intervention (see point 4.3.10) in what is currently a successful but sensitive scientific culture needs to be avoided.

#### 4.3.7 Data used in publications

One possibility that might be worth considering is to electronically prepare and make openly accessible a selection (see point 4.2) of the data that lie behind publications that are also openly accessible, in conjunction with publication. Even here, however, questions need to be asked in each case about whether the anticipated gain through online reuse by third parties actually justifies the additional outlay required of the initial authors, which keeps them from their own research work.

#### 4.3.8 Pilot

The Committee supports the Commission's efforts to first launch a pilot in a relatively uncomplicated and suitable field as a way of gaining experience. A report should be provided on the intended value added.

#### 4.3.9 Red tape and acceptance

The considerable displeasure of many researchers over excessive red tape imposed by the Commission on application and procurement procedures has been somewhat appeased by efforts to simplify and ensure continuity<sup>(7)</sup> of support instrument funding. It could flare up again in response to poorly conceived new requirements, interference with research work, and additional red tape.

#### 4.3.10 Interest of the funder

Another issue in the debate beyond those mentioned above is whether and to what extent the 'funder' or tax payer, here represented by the Commission, should simply make open access online to all research data a condition of its support. Notwithstanding remarks in points 3.1 and 3.2, this issue is not the focus of this opinion. The Committee is much more

concerned with the question of which approach to research funding and research management will produce an optimal scientific and financial result, which is also in the particular interest of the 'funder'.

#### 4.4 Additional burden on research budgets

All of the measures proposed by the Commission relieve recipients of information (publications, data) of the obligation to pay for it. These costs must instead be borne by those who create the data and publications, i.e. researchers and their organisations. As a consequence, these costs have to be covered by research budgets, and as far as funding from the EU is concerned, by the budget for *Horizon 2020*. These costs must therefore be reflected in each amount of support.

4.4.1 With open access to scientific publications, therefore, research budgets must not only provide for new research, they also need to cover the cost of making the results of this research generally accessible.

4.4.2 This applies equally to the cost of increased data storage and the expense in terms of personnel and infrastructure required for this (not least as a condition for point 4.4.3).

4.4.3 It applies all the more, of course, to the additional cost of establishing public access, where necessary, to all or selected research data.

#### 4.5 Possible misunderstanding

The Committee has the impression that some demands and arguments made in the political debate for open access are at least partly based on misconceptions about how scientists and researchers work, and about the ability of the general public to interpret scientific data: scientific publications are typically only comprehensible to experts working in the field, which is why only the experts can gain information through open access to them. The same is true of access to research data.

#### 4.6 Informing the public and politicians

All the more important, therefore, are efforts to present the key messages of new findings to the general public. The Committee has noted the importance of such strategies on several occasions and acknowledges the Commission's efforts in this area, including CORDIS<sup>(8)</sup>. The engagement of scientists with a talent for explaining findings in their field in a way that makes them accessible to as many people as possible should be highlighted. Finally, it is equally important for politicians to be as well informed as possible about the content and significance of scientific findings and the potential of further research, so that they can make well-founded decisions.

<sup>(7)</sup> OJ C 48, 15.2.2011, p. 129.

<sup>(8)</sup> [http://cordis.europa.eu/home\\_en.html](http://cordis.europa.eu/home_en.html)

#### 4.7 Access to expertise

Businesses and civil society organisations often complain of insufficient access to specialist expertise. It is therefore important for SMEs in particular to at least have access to an internal or external expert capable of understanding scientific data, or to an equivalent consultancy organisation. Moreover, the Committee notes, first, its recommendations (in a previous opinion<sup>(9)</sup>) to the Commission on the creation of a specific search engine for this field, and second, the search engine<sup>(10)</sup> made available by the European Patent

Office, with which most of the newer existing patent specifications worldwide can now be found.

#### 4.8 Online access to previous publications

Beyond the subject discussed here, there is an interest, not least on the part of the humanities, in also making older original publications digitally available via the internet. The Committee certainly welcomes efforts in this area, but they are not the subject of this opinion.

Brussels, 16 January 2013.

*The President*  
*of the European Economic and Social Committee*  
Staffan NILSSON

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<sup>(9)</sup> OJ C 218, 11.9.2009, point 3.2.

<sup>(10)</sup> <http://worldwide.espacenet.com>