

# VISION ON OPEN SCIENCE AND OPEN EDUCATION IN EUROPE

February 16, 2012

**From:** Policy advisors of the Royal Netherlands Academy of Arts and Sciences (KNAW), the Netherlands Organisation for Scientific Research (NWO) and the Association of Universities in the Netherlands (VSNU).

**To:** Policy officers of the office of Ms. Kroes, i.e. Morais Pires, from the GEANT and e-Infrastructures unit in the European Commission's DG Information Society and Media.

**Goal:** To provide the office of Ms. Kroes with a Vision on open science and open education in Europe, supported by the Dutch research community.

**Background by this vision:** Following a request by EC commissioner Ms. Kroes to Dijkgraaf (KNAW) and Engelen (NWO), and after consultation in the field, this vision has been written by policy advisors of KNAW, NWO and VSNU. It has been approved by the boards of KNAW and NWO and by the Steering Group Research & Valorization of the VSNU. This document is intended for the office of Ms. Kroes (i.e. Morais Pires) as the vision of the Dutch research community on open science and open education in Europe. It is the intention of the office of Ms. Kroes to shape this vision into a vision supported by Ms. Kroes, the entire European Commission and the Academies united in ALLEA. Next, Ms. Kroes may declare this vision formally at the ALLEA General Assembly on April 11 in Rome.

## Proposal for the Declaration to be made by EC commissioner Ms. Kroes

The vision on open science and open education in Europe is that in principle all results from research funded by the European Commission are made available and accessible for everyone. The EC distinguishes four different types of results: publications, research data, software, and educational resources. These results should be digitally preserved to ensure use by following generations.

## Introduction

In the advent to the finalization of Horizon 2020 (the successor of the FP7 program), this document is a proposal for the vision of the European Commission on “open”. This vision is that all results (publications, research data, software, and educational resources) of EC funded research are to be made available and accessible for everyone. As Ms. Kroes said<sup>3</sup> she is a “big fan of open science and open education” and her “vision is clear and straightforward: open science and open education”.

## Context

Above Declaration is the result of various initiatives in the last few years. The starting point was the Berlin Declaration<sup>1</sup> and the OECD Declaration on access to research data from public funding<sup>2</sup>. Examples from Ms. Kroes or the EC are Ms. Kroes' message for the Open Access Week 2011 in the Netherlands<sup>3</sup>, her Digital Agenda for Europe<sup>4</sup>, the EC Open Data Strategy<sup>5</sup> and the 2003 Directive on the re-use of public sector information<sup>6</sup>. Other initiatives are e.g. the EUROHORCs and ESF vision on a globally competitive European research area<sup>7</sup>, the Ghent Declaration<sup>8</sup>, the Manchester Manifesto<sup>9</sup>, the Riding the Wave<sup>10</sup> report and the Science Europe Con-

<sup>1</sup> Berlin Declaration: <http://oa.mpg.de/berlin-prozess/berliner-erklarung>.

<sup>2</sup> OECD Declaration on access to research data from public funding: Annex 1 of [http://www.oecd.org/document/15/0,3343,en\\_2649\\_201185\\_25998799\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/15/0,3343,en_2649_201185_25998799_1_1_1_1,00.html).

<sup>3</sup> Message for the Open Access Week 2011 in the Netherlands: <http://www.youtube.com/watch?v=YAkf7VmpQ5M>.

<sup>4</sup> Digital Agenda for Europe: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0245:FIN:EN:PDF>.

<sup>5</sup> EC Open Data Strategy, announced for Nov. 29, 2011 on <http://euroalert.net/en/news.aspx?idn=13979>.

<sup>6</sup> 2003 Directive on the re-use of public sector information: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32003L0098:En:HTML>.

<sup>7</sup> EUROHORCs and ESF vision on a globally competitive ERA and their road map for actions to help build it: [http://www.eurohorcs.org/SiteCollectionDocuments/EUROHORCs\\_ESF\\_ERA\\_RoadMap.pdf](http://www.eurohorcs.org/SiteCollectionDocuments/EUROHORCs_ESF_ERA_RoadMap.pdf).

<sup>8</sup> Ghent Declaration: <http://www.openaire.eu/en/component/content/article/223-seizing-the-opportunity-for-open-access-to-european-research-ghent-declaration-published>.

<sup>9</sup> Manchester Manifesto: <http://www.isei.manchester.ac.uk/TheManchesterManifesto.pdf>.

<sup>10</sup> Riding the Wave: How Europe can gain from the rising tide of scientific data: <http://www.grdi2020.eu/Repository/FileScaricati/c2194260-3ddf-47bd-93e4-68f8912a3564.pdf>.

tribution to the Public Consultation on the ERA Framework<sup>11</sup>. FP7 had an open access pilot<sup>12</sup> for a few research areas to deposit publications from FP7 research in a publication repository and to urge researchers to make their best efforts in making those publications open access. The (proposed) vision of the EC for Horizon 2020 is that *all* results of Horizon 2020 are to be made available and accessible for everyone.

Above Declaration is focused on EC funded research. Research organizations in Europe (universities, research institutes, research funders, etc.) are invited to adopt it for the research in their own organizations.

### **Goal of “open”**

Open publications, research data, software and educational resources are good for the development of science and education. Openness also accelerates innovation. According to Ms. Kroes: “Scientific information is there to be used, and if we make it available in a better and quicker way, we will all benefit”<sup>3</sup>. Other reasons, among many, are the development of science and education in the global south (the less privileged countries), enabling the exploration of topics not envisioned by the initial investigators within or across disciplines, and the creation of new datasets by combining data from multiple sources.

### **Definitions**

- Information: publications, research data, software and educational resources.
- Open access: provision of digital information in such a way that it is publicly accessible (not necessarily anonymous), free of charge.
- Digital preservation: storage and provision of digital information in such a way that it can continue to be used in the future.
- Trusted repository: a digital location for storage of information. In such a repository, this information is also digitally preserved. For EC funded projects, only trusted repositories that comply with generally accepted standards may be used (for example the Data Seal of Approval<sup>13</sup>).

### **Open publications**

*Publications: all published research results (for example articles, books, dissertations, reports).*

*Open publications: publications that are open access available, free of charge.*

Publications resulting from research funded by the EC should be made available for everyone by storing them in a trusted publication repository. That is to be done immediately after publication. Preferably, to ensure high quality, publications should be published via peer reviewed open access journals or books.

### **Open research data**

*Research data: all digital sources for research (for example databases, texts, measurements, audio files, videos).*

*Open research data: research data that are open access available, free of charge.*

Research data resulting from research funded by the EC should be made available open access for research purposes by storing them in a trusted data repository. The researcher or its organization is responsible to select which research data. Storing is to be done before the end date of an EC research grant, and they should be available within one year thereafter. Access may be limited for legal, privacy or sensitivity reasons. Everyone reusing this research data has to comply with codes of conduct and integrity in his/her discipline. An EC research proposal should contain a “data section”, describing what is done to ensure reuse of the data produced or collected during the research project.

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<sup>11</sup> Science Europe-Science Europe Contribution to the Public Consultation on the ERA Framework: <http://www.scienceeurope.org/uploads/Science%20Europe%20ERA%20Framework%20consultation.pdf>.

<sup>12</sup> FP7 open access pilot: <http://www.openaire.eu/component/attachments/download/4.html>.

<sup>13</sup> Data Seal of Approval: <http://www.datasealofapproval.org>.

### **Open software**

*Software: a collection of computer programs, procedures and associated documentation that provide the instructions for telling a computer what to do and how to do it.*

*Open software: software for which the instructions (i.e. the source code) are open access available, free of charge.*

Software resulting from research funded by the EC (including software used for processing the research data) should be made available open access by storing them in a trusted software repository. Storing is to be done before the end date of an EC research grant, and they should be available within one year thereafter. The only exception not to do that is when commercial or standard software has been used. In that case the name(s) of the software product(s) and its configuration(s) should be stored with the research data they apply to. An EC research proposal should contain a “software section”, describing what is done to ensure reuse of the software resulting from the research project.

### **Open educational resources**

*Educational resources: digital materials that can be used for teaching, learning and research (for example course materials, textbooks, streaming videos, tests).*

*Open educational resources: educational resources that are open access available, free of charge.*

Educational resources resulting from research funded by the EC (including educational resources developed during the project) should be made available open access. That is to be done immediately after the first course has been given. An EC research proposal should contain an “education section”, describing what is done to ensure that results of the research are used in education.

### **Projects with matching funds**

Many EC projects are based on matching funding from several parties. In case the matching funding is from publicly funded universities or research institutes, results are made available open access, as stated above. When the matching funding is from private parties, the guiding principle is that results are made available open access. However, in this case other agreements can be made between the EC and the private party, taking into account e.g. the ratio of public to private funding in the project.

### **Budget**

An EC research proposal is to include budget to finance costs for making the four different types of results (publications, research data, software, and educational resources) available open access. This includes open access publication fees and costs for storing the results in a repository. The EC should ensure that the costs for the peer review processes do not strain research budgets.

### **Recommendations to the European Commission**

The EC is recommended to further develop “open” policies on both the European and the global level, together with organizations such as Science Europe<sup>14</sup> (the association of European research funding organizations), EUA<sup>15</sup> (the European universities association), and ALLEA<sup>16</sup> (the federation of national Academies of sciences and humanities in Europe). It is also recommended to make sure these organizations support this vision. Finally, the EC needs to reserve budget for central facilities (such as infrastructure or large computer facilities) to facilitate the “open” vision.

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<sup>14</sup> Science Europe: <http://www.scienceeurope.org>.

<sup>15</sup> EUA: <http://www.eua.be>.

<sup>16</sup> ALLEA: <http://www.allea.org>.