

Dare to share

Open access and data sharing in science



January 2016

(Dutch) Advisory Council for Science, Technology and Innovation
Adviesraad voor wetenschap, technologie en innovatie (AWTI)



Summary

This advisory report is about *open science*, and more specifically about access to scholarly publications (*open access*) and research data (*open research data*). What impact is this likely to have for the world of science itself, for society and for business? What level of openness is publicly desirable and what does this imply for government policy?

AWTI is a strong advocate of making science more open and accessible, and shares the belief that this will strengthen the position of science in society. Ensuring that the transition towards open science is successful will require a broad and powerful strategy which goes beyond merely improving access.

Open access

Traditionally, the ‘reader’ has paid for access to scholarly publications. Under a system of open access, everyone can access such articles freely. The publication costs are then borne by other parties (e.g. the authors). The impact of open access on science, at least in the Netherlands, is however likely to be limited as most scientists already have good access to scholarly publications. Open access could potentially have a larger impact on society and business, which currently have poor access. However, this impact can only be achieved if open access is embedded into a broader strategy of ‘translating’ scientific results and presenting them in a way that is clear for lay people, and at the same time ensuring that the ‘social impact’ of research is appreciated more within the world of science. Only then will open access contribute to better utilisation of scientific knowledge.

A ‘bottom-up’ development towards open access has been under way for some time, though it appears that the growth of open access has come to a standstill at present. For the majority of researchers, the reputation of a journal is more important than whether or not a publication offers open access. We found that the organisations funding research, in particular, have the power to enforce open access. Moreover, if governments were to take the lead here, this would help give direction to stakeholders and speed up the process. Open access to scholarly publications in itself does *not* reduce the perceived high costs of scholarly publishing; the added value of open access lies mainly in making scientific knowledge more widely available.

Sharing research data

The sharing of research data is another story, with wide differences across the various scientific disciplines. In some disciplines storing and sharing research data is the norm already, but in most disciplines such storing and sharing rarely or never takes place. The quality and efficiency of science can be improved through good research data

management and sharing research data with third parties. Society and business will undoubtedly benefit from access to research data, though the extent will depend greatly on the nature of the data. A number of conditions are crucial for the successful storage and sharing of research data, such as a good storage infrastructure, a set of standards and clarity about legal aspects (such as privacy and data ownership). Sharing research data also only makes sense if the data are findable, accessible, interoperable and reusable.

It is not advisable simply to open up all research data to everyone unconditionally. There may be good reasons for not opening certain research data, such as privacy or commercial interests. Moreover, support for allowing access to data will increase if researchers and their institutions are given (some) control over who they share their research data with and for what purpose. Storing and sharing research data on a wider scale will initially cost more; the anticipated benefits are promising but uncertain, and it therefore makes sense to set priorities as to which data might be made available.

Recommendations

These conclusions lead to a number of recommendations to the Dutch Minister and the State Secretary of Education, Culture and Science and the Minister of Economic Affairs. They are summarised briefly below and explained in more detail in the body of the report.

Recommendation 1:

Embrace the importance of openness and formulate a broader strategy for better utilisation of knowledge

Acknowledge and embrace the importance of openness as a core value in science, and especially for publicly funded research.

- a) Do not view open access as an independent goal of science, but as a link in the process of achieving better utilisation of knowledge, within and, above all, beyond the field of science. Only as part of such a broader strategy which increases the accessibility of scientific knowledge does open access genuinely add value.
- b) Make a substantial and concerted effort to let research data be shared more widely, and aim to optimise access to research data.

Recommendation 2:

Strive for effective implementation of the principles of open science in the Netherlands

Formulate a masterplan for the Netherlands aimed at the better utilisation of scientific knowledge, with attention for the role of open access and the sharing of research data. Set aside sufficient resources for this and ensure that the importance of the 'impact on society and business' is properly anchored in research practice.

- A. Ensure that the masterplan for open access:
 - a) contains clear milestones, parameters and, where necessary, infrastructure. Allow for differences in elaboration and actual implementation in different scientific disciplines. Use this process to showcase the results of Dutch science;
 - b) makes scientific results more accessible to society by making them findable and presenting them clearly and in a way that can be understood by a wider public;
 - c) provides for better access to scientific knowledge for business.

- B. Ensure that the masterplan for sharing research data:
 - a) contains clear milestones and parameters and allows differences in elaboration and actual implementation in different scientific disciplines;
 - b) provides for general facilities for data storage and sharing;
 - c) promotes good data management by embedding data management in science training and also by rewarding good data management;
 - d) contains a clear assessment framework for deciding which type of research data should be stored at public expense;
 - e) as a minimum, provides for access to the research data that underlie a scholarly article, as long as there are no compelling reasons for not doing so;
 - f) for the rest, encourages the sharing of research data in general where this is possible, receives support and serves a useful purpose;
 - g) supports the sharing of data, preferably by rewarding it rather than through imposition;
 - h) properly addresses legal issues.

Recommendation 3:

Collaborate on open science at EU level

As far as possible, ensure that Dutch policy on open access to scholarly publications and research data is in line with EU policy. Aim for an accelerated transition to open access (to publications) and research data sharing, and advocate a common strategy to achieve this. The Dutch government can then place the following items on the agenda at EU level (including during the Dutch EU presidency):

- a) the economic, social and scientific importance of sharing research data and making scientific knowledge accessible;
- b) the importance of establishing conditions necessary for open science, such as maximum embargo periods, transparency on the costs of publication, and a degree of standardisation;
- c) actively monitoring developments and progress in relation to open access and research data sharing in Member States with a view to convergence and accelerating the process;

- d) genuine accessibility of the results and research data for those projects that are (co-)funded by the EU, by ensuring open access but also by providing accessible summaries and introductions for lay readers;
- e) the creation of a European Science Cloud to serve both as a hub and as a means of publicising European scientific achievements.