

Recommendations for Implementation of Open Access in Denmark

Final report from the Open Access Committee



Recommendations for Implementation of Open Access in Denmark

Final report
from the Open Access Committee

Recommendations for Implementation of Open Access in Denmark

Final report from the Open Access Committee

Published in 2011 by
Danish Agency for Libraries and Media / Denmark's Electronic Research Library
in collaboration with the Danish Agency for Science, Technology and Innovation

Danish Agency for Libraries and Media
H. C. Andersens Boulevard 2
DK-1553 Copenhagen V

Telephone: +45 33 73 33 73
post@bibliotekogmedier.dk
www.bibliotekogmedier.dk

DTP: Stæhr Grafisk
Print: C.S. Grafisk
Impression: 500
(Not in bookshops)

Photo: Tobias Toyberg

ISBN: 978-87-92681-16-4
Electronic ISBN: 978-87-92681-11-1

The publication can be downloaded from:
www.bibliotekogmedier.dk
www.fi.dk

Contents

Summary of the Open Access Committee's recommendations	5
Introduction	8
The Open Access Committee's assignments	9
The Open Access Committee's approach	10
Finances	11
Open Access and quality assurance	12
The possibilities of Open Access to scientific articles in the bibliometric research indicator	13
The Open Access Committee's recommendations	15
Main area 1 Reinforce national strategies and structures for access to and dissemination of scientific information	15
Assignment 1.1 Defining clear policies for dissemination and access to scientific information, including the associated financial planning	15
Assignment 1.2 Promoting through these principles, access through the Internet to the results	17
Assignment 1.3 Assessing in a systematic way the conditions affecting access to scientific information	19
Assignment 1.4 Ensuring that repositories of scientific information are sustainable and interoperable	19
Assignment 1.5 Bringing together main stakeholders in the debate on scientific information	20
Main area 2 Enhance the coordination between the member states	21
Assignment 2.1 Exploring the possibility of national funding bodies to define common basic principles on Open Access	21
Assignment 2.2 Improving the transparency of contractual terms	21
Assignment 2.3 Working towards the interoperability of national repositories	22
Assignment 2.4 Contributing to an effective overview of progress	22
Main area 3 Ensure long-term preservation of scientific information	23
Assignment 3.1 Defining structured approach to long-term preservation	23
Assignment 3.2 Taking into account the specific characteristics of scientific information	25
Appendices	27
Appendix 1: Mandate for the national work with Open Access	28
Appendix 2: The Council of the European Union's conclusions on scientific information	30
Appendix 3: Financial overview and financial calculations	38
Appendix 4: Time schedule for implementation	41

Summary of the Open Access Committee's recommendations

Danish research is global. The scientific quality of Danish research is at a high level internationally measured e.g. by publications, and the Danish Ministry of Science, Technology and Innovation has documented a positive development in recent years. More than half of all Danish scientific articles published in recent years have been published in collaboration with foreign researchers. 25 years ago, only one quarter of the scientific articles had foreign co-authors. Figures from the Ministry of Science show that research in different countries is being globalised at different speeds. In the 1980s, Denmark was the 10th most internationalised country in terms of research collaboration. Today, we are in the 5th place. The right implementation of Open Access is decisive for the continuation of this development. It has been shown that researchers whose research results are published in Open Access achieve more citations than those who are not published in Open Access. Likewise, the knowledge dissemination that can take place is decisive.

The implementation of Open Access is about maximization of the research effect. Danish companies, Danish research and the Danish society will benefit greatly from Open Access to research results. Open Access will result in improved research dissemination for the benefit of researchers, research institutions and businesses. This will lead to new and improved research opportunities, greater visibility for Danish researchers, research and research institutions nationally as well as globally, better access to knowledge for small and medium-sized companies and thus a potential for growth and innovation. The purpose of a national Open Access strategy is to remove barriers to free access to Danish research publications in the short and long term. This will be the best way of spreading and disseminating publicly funded scientific research results to Danish and foreign researchers and Danish companies. Thereby, we will be able to exploit the benefits of Open Access optimally, which will support Danish research and innovation. A national Open Access strategy would contribute significantly to the Government's Globalisation Strategy and the objective of Denmark becoming a leading knowledge and entrepreneurial society.

The consultation process about the Open Access Committee's recommendations indicated wide support for the principle of open access to publicly funded research. There is an express desire for research results from a small country such as Denmark to become as visible as at all possible, nationally as well as internationally. Barriers to access must therefore be broken down, and this would contribute to ensuring that Denmark remains an interesting partner internationally. It is therefore the recommendation of the Open Access Committee that as far as possible there should be Open Access to the results of publicly funded research via green Open Access with built-in quality assurance in the form of peer review by the scientific journals. This means that research articles, after a peer review process in the existing journal system, will be published in parallel in an institutional or subject-specific repository, to which there will be open access. This parallel publishing could be put into practice with a limited deferred period, during which the articles would solely be accessible in the journals.

The Committee also recommends that Open Access should not present a hindrance to results from Danish research being published in the most reputable journals. In its recommendations, the Open Access Committee has pointed out that new sustainable models for continued research publication in Danish must be established. The Committee also stresses the need to distinguish between the perspectives for the journal field and the book field, respectively. Here, the specific issue is the conditions and possibilities that apply to monographs in Danish. These should be made the object of independently focused analysis and consideration.

The Committee has prepared recommendations related to both golden and green Open Access. As mentioned, Green Open Access refers to parallel publication in a repository, while golden Open Access covers journals for which a one-off fee is paid for publishing an article, which is then made available online for free via the journal. The Committee has received information from the Agency for Science, Technology and Innovation's biometric research indicator with a view to clarifying the

possibilities of giving green Open Access to Danish articles. Statistics show that 42 % of the scientific articles that have achieved points in the indicator in 2010 can be made freely available via green Open Access. It is the Committee's assessment that green Open Access is clearly the most appropriate way ahead, and this is reflected in the Committee's recommendations.

Recommendation 1. The Ministry of Science, Technology and Innovation establishes an Open Access policy

The Open Access Committee recommends that a national Open Access policy be phrased on the basis of green Open Access with continual quality assurance by the scientific journals. This should encompass all research institutions that carry out research and/or disseminate research based on total or partial public funding. The point of departure is that there should be Open Access to the results of publicly funded research to as great an extent as possible.

Recommendation 2. Research councils and foundations establish Open Access policies

The Open Access Committee recommends that all research councils and public foundations implement Open Access policies that comply with the national Open Access policy.

Recommendation 3. Universities and other research institutions implement and promote Open Access policies

The Open Access Committee recommends that all universities and research institutions continually work to implement and promote Open Access policies that comply with the national Open Access policy.

Recommendation 4. Survey of the possibilities of coordination between the bibliometric research indicator and the Open Access policies

The Open Access Committee recommends that a study be carried out under the auspices of the Agency for Science, Technology and Innovation and Denmark's Electronic Research Library (DEFF), which is to find out whether it would be possible to achieve interplay between the bibliometric research indicator and Open Access.

Recommendation 5. One common national research database

The Open Access Committee recommends that public research grants should recommend that all Danish publicly funded research be made available in the research institutions' research databases and/or via a common research portal based on the Danish National Research Database in collaboration with the Agency for Science, Technology and Innovation and DEFF, which can disseminate the collective research results with clear indication/crediting of the performing university/ research institution.

Recommendation 6. Survey of the need for one repository for small research institutions' research publications

The Open Access Committee recommends that a survey be made of small research institutions' need for a common repository.

Recommendation 7. Danish scientific publishers, scientific associations and science editors prepare discussion paper on scientific journals' transition to Open Access

The Open Access Committee recommends that Danish scientific publishers, Danish scientific associations and science editors be encouraged to prepare proposals on how Danish journals can make the transition to Open Access.

Recommendation 8. Danish scientific publishers and scientific associations prepare discussion paper on scientific monographs' transition to Open Access

The Open Access Committee recommends that Danish scientific publishers and Danish scientific associations be encouraged to prepare proposals on how Danish monographs can make the transition to Open Access.

Recommendation 9. The Open Access Committee monitors the implementation of the Minister of Science's Open Access strategy

The Open Access Committee recommends that the Committee be given secretariat assistance from DEFF, and that it monitor and coordinate the implementation of the Minister of Science's Open Access strategy for a project period of four years. This also includes DEFF's professional role as a national support to the research institutions' local advisors (competency development, knowledge sharing, international collaboration etc.). An annual report should be submitted to the Ministry of Science, Technology and Innovation and to the Ministry of Culture.

Recommendation 10. Strengthen and support information, debate and dialogue

The Open Access Committee recommends that in connection with the coordination of the implementation of the Open Access Committee's recommendations an information campaign be carried out about Open Access, targeted at research environments in the form of e.g. information material and conferences.

Recommendation 11. Coordination of the Danish Open Access initiative in international forums

The Open Access Committee recommends that the research councils' Danish representatives in international research forums such as EUROHORCs and European Science Foundation ensure coordination of the international Open Access policies among the councils.

Recommendation 12. DEFF increases focus on Open Access in DEFF consortium licenses

The Open Access Committee recommends that in DEFF's work with licences and in the international partnerships in which DEFF takes part, focus be directed at negotiation of authors' royalties in connection with golden Open Access, freedom to green Open Access, and transparent business models for Open Access publishing at a fee. It is recommended that DEFF commits to working actively with this issue and aims to negotiate deals about Open Access publishing at a national level.

Recommendation 13. Danish membership of central collaboration forums for repositories and interoperability

The Open Access Committee recommends that Danish membership of central collaboration forums be ensured. For example, that after the cessation of DRIVER, support for international collaboration continues through membership of Confederation of Open Access Repositories (COAR).

Recommendation 14. Establishment of a comprehensive long-term preservation service for scientific publications

The Open Access Committee recommends that a long-term preservation service be established, which will ensure that digital publications can be read and utilised for a long time.

Recommendation 15. National planning of open access to and long-term preservation of primary research data

The Open Access Committee recommends that interdisciplinary collaboration be established, which will gather stakeholders within the field of primary research data. This collaboration will plan how Danish research data can be archived in order to ensure present and future access. The planning must account for financial consequences.

Recommendation 16. Danish membership of central international collaboration forums for handling and long-term preservation of scientific information in the widest sense

The Open Access Committee recommends Danish membership of and participation in the three most important international collaboration forums in the field, i.e. The Alliance for Permanent Access, DataCite and CESSDA ERIC. This will ensure Danish utilisation of global experience and solutions as well as Danish influence on these.

The Open Access Committee looks forward to the continued work with the implementation of the recommendations.

Introduction

Open Access to scientific publications means unhindered and free-of-charge access (from here on termed 'Open Access') for the entire world to read and use the results and that copies of peer-reviewed scientific articles can be stored in repositories.¹ Free access can be created by means of green or golden Open Access.

Green Open Access means that the peer-reviewed version of a scientific article is archived in a repository, after which it is freely available to everybody.

Gold Open Access includes journals that offer an Open Access publishing model including the entire journal or individual articles. In practice, this means that you do not pay a subscription/license fee, but instead you pay to publish in the journal, after which the article becomes freely available to everybody.

The Open Access Committee has prepared recommendations that ensure Open Access to the results of publicly funded research. The Committee believes that green Open Access is the most appropriate path, as the necessary infrastructure is already fully in place in Denmark. Furthermore, many international journals already permit the form of parallel publishing of peer-reviewed articles that green Open Access represents.²

Golden Open Access presupposes to a higher degree that the publishers have adapted their journals to the Open Access business model and that the overall cost for Denmark is not increased by this. Today, certain publishers seek to offer authors the option of an Open Access buy-out of the individual article, while at the same time the institution pays to subscribe to the very same journal. This sort of double payment is considered completely unrealistic and unacceptable, and the publishers should be encouraged to adapt to Open Access at a fee that does not exceed the present.

The Government, represented by the Minister of Science, Technology and Innovation, has approved the Council of the European Union's conclusions about scientific information in the digital age.³ The conclusions deal with:

- 1) Reinforcing national strategies and structures for access to and dissemination of scientific information.
- 2) Reinforcing coordination between the member states of policies and practice regarding access and dissemination.
- 3) Ensuring long-term preservation of scientific information, including publications and data, and showing due attention to scientific information in national preservation strategies.

Thereby, Denmark has committed to ensuring that the Council of the European Union's conclusions are implemented in Denmark. With the objective of living up to these conclusions, the Ministry of Science, Technology and Innovation has appointed an Open Access Committee and placed this under the steering committee for Denmark's Electronic Research Library (DEFF).

¹ A repository is an archive for research publications (often without the technology needed for long-term preservation).

² <http://www.sherpa.ac.uk/romeo/statistics.php>

³ Council of the European Union; Council conclusions on scientific information in the digital age: access, dissemination and preservation. <http://www.consilium.europa.eu/ueDocs/newsWord/en/intm/97236.doc> (also see Appendix 2)

The Open Access Committee's assignments

The Open Access Committee has been appointed under the DEFF Steering Committee with direct reference to the Danish Agency for Science, Technology and Innovation.

In the mandate⁴ for the national work with Open Access, the following assignments are stated for the Open Access Committee:

- 1) Planning the implementation of the Council of the European Union's conclusions
- 2) In connection with the planning, the Committee must clarify:
 - a) How publicly funded research can be made publicly available online
 - b) The financial consequences associated with this
 - c) How support for the implementation can be secured from Danish researchers
 - d) Which role the research funding bodies are to have in connection with the implementation
 - e) How to allow for clarification of copyright issues
- 3) Accomplishing the planning of the Council of the European Union's conclusions
- 4) Preparing an approach to the EU Commissioner for Research and Innovation and the EU Commissioner for the Information Society and the Media with a request that the commissioners prepare a joint European proposal to the publishing industry about Open Access publishing.

Members of the Committee

Bo Öhrström, Deputy Director, DEFF, Danish Agency for Libraries and Media (Chairman)
Birte Christensen-Dalsgaard, Deputy Director, The Royal Library
Niels-Henrik Gylstorff, Head Librarian, Aalborg University
Carsten Riis, Dean, Aarhus University
Mogens Sandfær, Director, DTIC, Technical University of Denmark
Grete M. Kladakis, Head of Department, Danish Agency for Science, Technology and Innovation
Anders Bjørneboe, Chief Consultant, Danish University and Property Agency
Morten Rosenmeier, Chairman of the Committee for the Protection of Scientific Work
Nikolaj Borg Burmeister, Chief Consultant, Danish Universities (Observer)
Lise Mikkelsen, Special Consultant, DEFF, Danish Agency for Libraries and Media (Secretary)

⁴ Mandate for the national work with Open Access;

Source: <http://www.deff.dk/content.aspx?catguid={432C8A5B-1EFC-47A5-8378-0339EAED4267%7d>

The Open Access Committee's approach

The Open Access Committee has prepared the first version of the report *Recommendations for Implementation of Open Access in Denmark – Report from the Open Access Committee* based on a number of internal work meetings and a meeting with the Danish Publishers Association in February 2010. The report was sent out for general consultation on 1 May 2010. The consultation process resulted in 42 statements and extensive material for the report and the further process. Based on this, the Open Access Committee has chosen to produce a revised, amplified version of the first report as the basis for the continued work. The Committee has also prepared a proposal for a national Open Access strategy for Denmark.

The Open Access Committee has based its work on the Berlin Declaration's⁵ definition of Open Access: "Open Access contributions must satisfy two conditions:

1. The author(s) and right holder(s) of such contributions grant(s) to all users a free, irrevocable, worldwide, 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 (community standards will continue to provide the mechanism for enforcement of proper attribution and responsible use of the published work, as they do now), as well as the right to make small numbers of printed copies for their personal use.
2. A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in an appropriate standard electronic format is deposited (and thus published) in at least one online repository using suitable technical standards (such as the Open Archive definitions) that is supported and maintained 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."

The Open Access Committee's recommendations encompass all research institutions that carry out research based entirely or partially on public funds and which publish scientific publications in connection with the research. Thus, this does not only include universities, but also sector research, regions etc.

Regardless of the method, Open Access means free access to research results, increased visibility and thus possibilities for increased utilisation of research results – in comparison to the present system where access is limited to the organisations that can afford to pay for access. Furthermore, the financial consequences of implementation of Open Access at a socio-economic level can be estimated. In 2009, DEFF had a cost benefit analysis prepared about the financial consequences of introducing various forms of Open Access publishing in Denmark.⁶ Similar analyses for the United Kingdom and the Netherlands have been prepared via DEFF's partners in Knowledge Exchange.

This report's conclusion is that depending on investments, the overall benefit for Denmark by introducing Open Access globally will be significant, while at the same time it will result in extensive savings in the value chain that produces scientific articles. The savings are derived from less time consumption at the researcher's end and a more efficient system for research communication. The socio-economic benefit is primarily achieved by more institutions, companies and citizens gaining quicker and better access to research publications.

The Open Access Committee has not wished to suggest how the individual research institution should organise a transition to Open Access. Such a transition will reflect the individual institution's management's research and dissemination strategic considerations and therefore, it cannot be reduced to a

⁵ Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities.
See: <http://oa.mpg.de/lang/en-uk/berlin-prozess/berliner-erklarung/>

⁶ Costs and benefits of Alternative Publishing Models: Denmark / Professor John Houghton, Centre for Strategic Economic Studies, Victoria University, Melbourne.
Source: <http://www.deff.dk/content.aspx?catguid={432C8A5B-1EFC-47A5-8378-0339EAED4267%7d>

common formula. For the same reason, the Committee has refrained from giving an overall estimate of the financial cost of the transition to Open Access for the individual research institution.

The Open Access Committee has chosen to organise its report as an implementation plan based on the Council of the European Union's conclusions: "Council Conclusions on scientific information in the digital age: access, dissemination and preservation" (Appendix 2). The implementation plan consists of a number of recommendations with indication of process, players and finances.

Some of the recommendations are of political and strategic character, while others are more practice-orientated and may contribute new and necessary knowledge about the establishment and ensuring of Open Access to data and publications – including in a long-term perspective.

In accordance with its mandate, the Open Access Committee will subsequently, in connection with the implementation of the plan in its approved form, be charged with monitoring the implementation and ensuring the progress.

Finances

The Open Access Committee has calculated the costs of a number of recommendations, while in relation to other recommendations, preparatory work needs to be carried out, which should result in project plans and calculations of costs. The table below shows estimated costs.

	1 year	2 years	3 years	4 years
Development of research database	1,000,000			
Operation and project management of research database	1,000,000	1,000,000	1,000,000	1,000,000
Development of long-term preservation service for publications	2,000,000			
Operation of long-term preservation service for publications	1,000,000	1,000,000	1,000,000	1,000,000
Complete coordination	800,000	800,000	800,000	800,000
Consultant assistance and surveys about scientific Open Access publishing in Danish	1,000,000			
Information, debate and dialogue	500,000	500,000	200,000	100,000
Planning of Open Access and long-term preservation of data	1,100,000	1,100,000		
Memberships	650,000	650,000	650,000	650,000
TOTAL	9,050,000	5,050,000	3,650,000	3,550,000
TOTAL for all 4 years				21,300,000

Additionally, the Open Access Committee awaits financial calculations for the following recommendations:

- Recommendation 6. Study of the need for one repository for small research institutions' research publications
- Recommendation 7. Danish scientific publishers, scientific associations and science editors prepare discussion papers on scientific journals' transition to Open Access
- Recommendation 8. Danish scientific publishers and scientific associations prepare discussion papers on scientific monographs' transition to Open Access
- Recommendation 15. National planning of Open Access to and long-term preservation of primary research data.

Open Access and quality assurance

Green Open Access has been paid increased global interest in recent years, and it is a fast and cost-effective method for achieving Open Access to accepted and quality assured articles. Green Open Access is not a change of peer review, as it takes place today, it merely means that the peer-reviewed version of an article is archived in the institution's repository.

Another relevant issue in relation to quality is the question of which version of a scientific publication should be subject to requirements about Open Access. In practice, different terms are used for the different versions of scientific articles that are available, from the time they are sent off to a publisher until a version is published on the publisher's website. In general, the versions can be divided into three groups: the submitted work (not peer-reviewed), the accepted work (peer-reviewed) and the published work (peer-reviewed and layouted/publisher version). A submitted work is an article that has been forwarded to a publisher with a view to publishing, i.e. it has not yet been peer-reviewed. The accepted work has been through a peer review and has been accepted for publishing. The published work is the version that is available at the publisher's website.

Sherpa/Romeo is a service run by the University of Nottingham in collaboration with 33 partners. Sherpa/Romeo contains information about publishers' copyright policies and self-archiving, and thus, it is a very useful tool in relation to the work to clarify different publishers' OA policies. According to Sherpa/Romeo, 53 % of the 788 publishers in the service permit archiving of the peer-reviewed version. In other words, green Open Access is an option that many international publishers already permit.

The challenge is that the authors need to secure the rights: "Because most publishers and journals already give blanket permission for green OA, the burden is on authors to take advantage of the opportunity. This means that authors may publish in nearly any journal that will accept their work (OA or non-OA) and still provide OA to the peer-reviewed text through an OA repository. (Unfortunately, the compatibility of green OA with publishing in most non-OA journals is still one of the best-kept secrets of scholarly publishing.)"⁷. The Open Access Committee wishes to stress that the accepted work (peer-reviewed) version is so close to the published work (peer-reviewed and layouted/publisher version) that accepted work is an acceptable solution in the cases where it is not possible to negotiate author's rights to the final layouted version.

In connection with the coming work on the elaboration of OA policies, the relevant stakeholders will have to discuss quality assurance, and they will need to make allowance for any differences between various disciplines. However, the Open Access Committee stresses that Open Access is not considered a problem in relation to scientific quality assurance, and that repositories are a supplement to scientific journals – not a replacement.

Danish researchers should continue to publish in journals that ensure peer review, and they should continue to strive to be published in the best and most respected journals. However, they should also retain a part of their copyright, so that they are allowed to archive the peer-reviewed version of their scientific publications in the institution's repository. Several large international publishers already give their permission for this, and even more publishers give their permission if the research is subject to Open Access requirements, cf. e.g. American Chemical Society⁸ and Wiley-Blackwell.⁹

A new survey concludes that the advantage gained from publishing Open Access is statistically significant: "The OA advantage is greater for the more citable articles, not because of a quality bias from authors self-selecting what to make OA, but because of a quality advantage, from users self-selecting what to use and cite, freed by OA from the constraints of selective accessibility to subscribers only. ...Overall, only about 15–20 % of articles are being spontaneously self-archived today, self-selectively. To reach 100 % OA globally, researchers' institutions and funders need to mandate self-archiving, as they are now increasingly beginning to do".¹⁰

⁷ Open Access overview. Peter Suber. <http://www.earlham.edu/~peters/fos/overview.htm>

⁸ <http://pubs.acs.org/page/4authors/copyright/index.html>

⁹ <http://eu.wiley.com/WileyCDA/Section/id-321170.html>

¹⁰ Self-Selected or Mandated, Open Access Increases Citation Impact for Higher Quality Research
Yassine Gargouri et al. PLoS One. October 2010, Volume 5, Issue 10.
<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0013636>

The possibilities of Open Access to scientific articles in the bibliometric research indicator

In the bibliometric research indicator, about 350 Danish researchers are associated with the selection of scientific peer-reviewed journals, which should trigger points in the indicator. The authority list for journals is subdivided into 67 disciplines and 1 interdisciplinary list. The journals are unambiguously placed in one subject group in order to avoid overlaps between the subject group's choice of journals. The list is reviewed annually and is an indication of a national assessment of which scientific journals are the best in the world seen through the eyes of Danish researchers. The authority list of journals and the indicator statistics are therefore a relevant starting point for assessing the possibilities of Open Access to Danish produced scientific articles.

The Open Access Committee has requested information from the Danish Agency for Science, Technology and Innovation with a view to elucidating the possibility of green Open Access to Danish produced scientific /peer-reviewed articles at the present time. The figures are from the indicator statistics 2010.

Indicator statistics and Open Access

The authority list of journals in the bibliometric research indicator contains information from Sherpa/Romeo about publishing rights. This means that by means of the four colour codes used in Sherpa/Romeo it is possible to see how many of the journals and articles in the bibliometric research indicator support green Open Access.¹¹

In total, 3,000 (75 %) of the 3,998 journals in which there are Danish contributions and which count in the indicator in 2010, have information from Sherpa/Romeo. All of the analyses of green Open Access below are based on these 3,000 journals.

Green Open Access to peer-reviewed articles is supported by the journals that Sherpa/Romeo classifies as 'green' (788 journals) and 'blue' (880 journals). This means that immediate Open Access can be given to articles published in 1,668 journals, i.e. 56 % of the journals with Sherpa/Romeo information and Danish contributions in the indicator statistics for 2010.

If you look at the articles in the 3,000 journals, there are 2,548 articles in the 'green' category and 2,839 articles in the 'blue' category, i.e. a total of 5,387 articles. This means that 56 % of the Danish research articles that have achieved points in the bibliometric research indicator in 2010, and which are registered in Sherpa/Romeo, could immediately be made freely available via green Open Access. Seen in relation to the total number of articles that have achieved points in 2010, this means that 42 % of the articles in the bibliometric research indicator could be made freely available via green Open Access.

¹¹ 'White'= archiving is not allowed, 'yellow'= archiving before peer review is OK, 'green'= archiving of peer-reviewed and final/published version OK, 'blue'= archiving of peer review OK.
Source: <http://www.sherpa.ac.uk/romeoinfo.html#colours>

Summary

Immediate green Open Access could be given to 56 % of the international journals that contain information from Sherpa/Romeo and for which Danish researchers have received points in the bibliometric research indicator in 2010. At article level, this corresponds to 56 % of the articles that have received points in 2010 and which have been published in journals that contain information from Sherpa/Romeo. Seen in relation to the total number of articles, 42 % of the articles in the bibliometric research indicator could be made freely available via green Open Access.

The Open Access Committee's recommendations

The Open Access Committee has chosen to base their work on the Council of the European Union's conclusions (Appendix 2) and has prepared 16 recommendations within the three main areas where the EU countries are expected to work with Open Access. The main areas are:

- 1) Reinforce national strategies and structures for access to and dissemination of scientific information
- 2) Enhance coordination between the Member States on access and dissemination policies and practices
- 3) Ensure long-term preservation of scientific information, including publications and data, and pay due attention to scientific information in national preservation strategies.

Main area 1

Reinforce national strategies and structures for access to and dissemination of scientific information

The first main area deals with the establishment of national strategies and structures for access to and dissemination of scientific information. Clear policies for scientific publishing are to be developed, access to scientific information must be ensured, the researchers' copyright must be managed, the technical infrastructure must be in place, and the main stakeholders must be included in the discussion about the strategy. All subjects are prerequisites if Denmark is to ensure that publicly funded scientific results are made freely available as far as possible.

Assignment 1.1

Defining clear policies for dissemination of and access to scientific information, including the associated financial planning

In the Council of the European Union's conclusions, member countries are encouraged first of all to develop national strategies for the dissemination and access to scientific information. It is vital that the governments have a clear attitude to and policy regarding Open Access. This is because of the challenges associated with a new national publishing strategy, the importance of Open Access to scientific publishing and the need for European and international collaboration. A national Open Access policy should, as a minimum, deal with the issues of Open Access, copyright, investment in the dissemination of research results, repositories and interoperability and preservation, and it should consider stakeholders and collaboration between these. These deliberations are the basis for the Open Access Committee's recommendation number one: The Ministry of Science, Technology and Innovation establishes a national Open Access policy.

Universities and research councils have a decisive role to play to ensure that requirements for Open Access to research results across all disciplines are met. Therefore, it is essential that the Danish Council for Independent Research, the Danish Council for Strategic Research, the Danish National Research Foundation, the Danish National Advanced Technology Foundation and the Danish Council for Technology and Innovation develop Open Access policies that are coordinated with the national policy and strategy. The strategy should be implemented in a way that considers the interests of researchers and research and ensures control of the implementation of Open Access. This is the basis for recommendation number two: Research councils and public foundations establish Open Access policies.

The universities should ensure local Open Access policies and the necessary technical solutions. This is the basis for recommendation number three: Universities and other research institutions establish Open Access policies.

The bibliometric research indicator stems from the Globalisation Strategy's objective that the quality of public research should measure up to the best in the world. The purpose of the bibliometric research indicator is to further publishing via the most distinguished publishing channels and

strengthen the quality of Danish research.¹² The question is whether there are areas in which it would be an advantage to achieve interplay between Open Access and the bibliometric research indicator. Researchers still need to choose the best possible publishing channel, but he/she should also be advised about this publishing channel's possibility of enabling the researcher to maintain his/her copyrights by archiving a peer-reviewed version of a published article in their local repository. The indicator has increasing influence on Danish scientific publishing and on the universities' initiatives concerning the registration of their research publications. The Open Access Committee recommends a study be carried out under the auspices of the Danish Agency for Science, Technology and Innovation and Denmark's Electronic Research Library (DEFF) to find out whether it would be possible to achieve interplay between the bibliometric research indicator and Open Access. This is the basis for recommendation number four:

A survey of the possibilities of coordination between the bibliometric research indicator and the Open Access policies.

Recommendation 1	The Ministry of Science, Technology and Innovation establishes a national Open Access policy The Open Access Committee recommends that a national Open Access policy be phrased based on green Open Access and with continual quality assurance by the scientific journals. This should encompass all research institutions that carry out research and/or disseminate research based on total or partial public funding. The point of departure is that there should be Open Access to the results of publicly funded research to as great an extent as possible.
Process	<ol style="list-style-type: none"> 1. The Open Access Committee submits a proposal for a national Open Access policy to the Ministry of Science, Technology and Innovation and the Ministry of Culture 2. The Ministry of Science, Technology and Innovation handles the necessary hearing and subsequent decision 3. Implementation of a national Open Access policy.
Finances	
Recommendation 2	Research councils and public foundations establish Open Access policies The Open Access Committee recommends that all research councils and public foundations implement uniform Open Access policies that comply with the national Open Access policy.
Process	<ol style="list-style-type: none"> 1. Establishment of Open Access policy 2. Implementation of Open Access policy.
Finances	
Recommendation 3	Universities and other research institutions implement and promote Open Access policies The Open Access Committee recommends that all universities and research institutions establish Open Access policies that comply with the national Open Access policy.
Process	<ol style="list-style-type: none"> 1. Establishment of Open Access policy 2. Implementation of the policy, including the necessary systems and procedures as well as advice to the researchers.
Finances	
Recommendation 4	A survey of the possibilities of coordination between the bibliometric research indicator and the Open Access policies The Open Access Committee recommends that a study be carried out under the auspices of the Agency for Science, Technology and Innovation and Denmark's Electronic Research Library to establish whether it would be possible to achieve interplay between the bibliometric research indicator and Open Access.

¹² Source: <http://www.fi.dk/forskning/den-bibliometriske-forskningsindikator>

Process	1. The Danish Agency for Science, Technology and Innovation and Denmark's Electronic Research Library (DEFF) investigate the possibilities of achieving interaction between the bibliometric research indicator and Open Access.
Finances	

Assignment 1.2

Promoting through these principles access through the Internet to the results of publicly funded research at no cost to the reader taking into consideration economically sustainable ways of doing this, including delayed Open Access

All universities and some research institutions have local research databases in which the institutions' research publications etc. are registered and disseminated. At a national level, all university data is harvested to the Danish Research Database, which is a common access point to the dissemination of Danish research. Via the Danish Research Database, Danish research results are made visible to the international audience, and in the long term, it will be possible to ensure interplay with the Act on Legal Deposit.

By building on this existing technical infrastructure in the form of the research registration system PURE and the Danish Research Database it will be possible to ensure that publicly funded research becomes freely accessible to all users. The solution should include all research institutions' scientific articles, and it should be implemented in a way that considers small research producing institutions' technical options. This requires further development of the Danish Research Database and a strengthened dissemination initiative. This is the basis for recommendation number five: One common national research database for Danish research results.

As the universities to a higher degree begin to store the full text of research publications in local repositories, the need increases for the universities and others to be able to draw on long-term preservation services. In Denmark, such services are supplied by two legal deposit libraries, the State and University Library, and the Royal Library. In order to ensure access over a long period of time there is thus a connection with recommendation 14 under main area 3 about long-term preservation.

In Denmark, some research producing institutions are so small that it is not feasible for each of them to invest in research registration systems. At the same time, the registration and archiving of research publications are a prerequisite for green Open Access. Therefore, a survey should be made of the need for and finances related to one national repository solution for small research institutions. This is the basis for recommendation number six: Survey of the need for one repository for small research institutions' research publications.

The point of departure is that all results from publicly funded research should be freely accessible. Publishing of scientific articles and monographs in Danish has always been difficult, as the market for scientific literature in Danish is rather limited. There may be a risk that the requirement for Open Access will remove some of these journals' possibilities of selling subscriptions when their articles are to be freely available after an embargo period of six months. The Open Access Committee acknowledges that it is important for researchers to be able to publish scientific articles in Danish. This is the basis for recommendation number seven: Danish scientific publishers, scientific associations and science editors prepare discussion papers on scientific journals' transition to Open Access.

Danish publishers primarily deal with the publishing of monographs in Danish within humanistic and social disciplines. Such publications constitute a particular financial challenge, as in general they are dependent on direct grants. It is necessary to carry out trials with the publishing of scientific monographs in Danish, and the Open Access Committee expects that this will be taken into consideration in connection with recommendation number eight: Danish scientific publishers and scientific associations prepare discussion papers on scientific monographs' transition to Open Access

Recommendation 5	One common national research database The Open Access Committee recommends that public research grants should include requirements that all Danish publicly funded research be made available in the research institutions' research databases or in a future national repository and via a common research portal, which will disseminate all research results with clear indication of / credit given to the performing university / research institution.
Process	<ol style="list-style-type: none"> 1. The Ministry of Science, Technology and Innovation and the Danish Agency for Science, Technology and Innovation implement the necessary requirements in research grants 2. DEFF appoint a task group to prepare a proposal for a common database based on the Danish Research Database (DDF), which utilises the existing infrastructure and which can facilitate interplay with the international research databases and long-term preservation services as well as expose Danish research publications internationally 3. The research database is established and put into operation.
Finances	<ol style="list-style-type: none"> 1. Development of a common portal based on DDF: DKK 1 million. 2. Operation, support and dissemination per year: DKK 1 million.

Recommendation 6	Survey of the need for one repository for small research institutions' research publications The Open Access Committee recommends that a survey be made of small research institutions' need for a common repository.
Process	<ol style="list-style-type: none"> 1. A survey is prepared including finances and possible scenarios 2. The Open Access Committee determines the further process.
Finances	

Recommendation 7	Danish scientific publishers, scientific associations and science editors prepare discussion paper on scientific journals' transition to Open Access The Open Access Committee recommends that Danish scientific publishers, Danish scientific associations and science editors be encouraged to prepare a proposal on how Danish journals can make the transition to Open Access.
Process	<ol style="list-style-type: none"> 1. The Open Access Committee prepares mandate 2. The Danish Publishers Association, scientific associations and science editors are invited to submit proposals for journals based on the mandate 3. The Danish Publishers Association, scientific associations and science editors prepare proposals on how Danish scientific journals can make the transition to Open Access.
Finances	<ol style="list-style-type: none"> 1. A framework amount of DKK 500,000 is allocated for surveys and consultant assistance.

Recommendation 8	Danish scientific publishers and scientific associations prepare discussion papers on scientific monographs' transition to Open Access The Open Access Committee recommends that Danish scientific publishers and Danish scientific associations be encouraged to prepare proposals on how Danish monographs can make the transition to Open Access.
Process	<ol style="list-style-type: none"> 1. The Open Access Committee prepares mandate 2. The Danish Publishers Association and the scientific associations are invited to submit proposals for scientific monographs based on the mandate 3. The Danish Publishers Association and the scientific associations prepare proposals on how Danish scientific monographs can make the transition to Open Access.
Finances	<ol style="list-style-type: none"> 1. A framework amount of DKK 500,000 is allocated for surveys and consultant assistance.

Assignment 1.3

Assessing in a systematic way conditions affecting access to scientific information, including the way in which researchers exercise their copyright on scientific articles, the level of investment in the dissemination of scientific information as compared to total investment in research, and the use of financial mechanisms to improve access, such as refunding VAT for digital journal subscriptions to libraries

As a rule, it is the individual researcher who holds copyright to his/her own publications. Researchers' copyrights must be handled in a way that is consistent with an Open Access policy. A targeted effort and guidance for the individual researcher are therefore necessary in order to prevent that all rights are relinquished when articles are published.

This guidance should be incorporated into the local implementation of the universities' Open Access policies. Each university should thus provide researchers with the possibility of guidance concerning Open Access, copyright, depositing of publications in local repositories etc. This is included as an element in recommendation number three above: Universities and other research institutions implement and promote Open Access policies.

Assignment 1.4

Ensuring that repositories of scientific information are sustainable and interoperable

In Denmark, all universities have research registration systems and repositories that are run and financed like other parts of the local digital infrastructure.

These systems comply with both national and international requirements on interoperability. At a national level, this concerns protocols for data exchange (OAI-PMH) and data formats (DDF-MXD) for use in e.g. the bibliometric research indicator and the common portal for dissemination of Danish research results.

At an international level, the same protocol is used for data exchange (OAI-PMH), and the Danish databases are incorporated into the European DRIVER portal and thus comply with the requirements stated in the DRIVER guidelines.

It is therefore the Open Access Committee's assessment that there is no need for further initiatives in order to ensure that the Danish repositories are sustainable and interoperable. The need for playing an active part in international collaboration is mentioned under Assignment 2.3.

Assignment 1.5

Bringing together main stakeholders in the debate on scientific information (researchers, funding bodies, libraries and scientific publishers)

It is recommended that the Open Access Committee supported by Denmark's Electronic Research Library (DEFF) monitor and coordinate the implementation of the Ministry of Science, Technology and Innovation's Open Access strategy. In order to ensure success, it is crucial that necessary resources be allocated to ensure progress and to coordinate tasks. The implementation should take place with due consideration for universities, other research procuding institutions, research councils and publishers. In addition, a number of support functions should be developed in the form of support to the participating research institutions' knowledge sharing, identification of best practices in connection with the implementation and guidance on copyright and licenses. This is the basis for the Open Access Committee's recommendation number nine: The Open Access Committee monitors the implementation of the Minister of Science's Open Access strategy.

It is necessary to provide information to stakeholders who have a role to play in scientific publishing and dissemination and thus an interest in a publishing model that to a higher degree is based on Open Access. Furthermore, information needs to be targeted at research environments, and this can be in the form of materials on copyright, conferences etc. This is the basis for the Open Access Committee's recommendation number 10: Strengthening and supporting information, debate and dialogue.

Recommendation 9	<p>The Open Access Committee monitors the implementation of the Minister of Science's Open Access strategy</p> <p>The Open Access Committee recommends that the Committee be given secretariat assistance from DEFF and monitor and coordinate the implementation of the Minister of Science's Open Access strategy for a project period of four years. This also includes DEFF's professional role as a national support to the research institutions' local advisors (competency development, knowledge sharing, international collaboration etc.). An annual report should be submitted to the Ministry of Science, Technology and Innovation and to the Ministry of Culture.</p>
Process	<ol style="list-style-type: none"> 1. The Open Access Committee becomes responsible for the implementation of the Minister of Science's Open Access strategy 2. DEFF prepares an overall project plan, which is approved by the Open Access Committee. The project plan includes the combined recommendations and a plan for the establishment of national support functions 3. Implementation of the project plan.
Finances	DKK 800,000 annually for four years.
Recommendation 10	<p>Strengthening and supporting information, debate and dialogue</p> <p>The Open Access Committee recommends that in connection with the coordination of the implementation of the Open Access Committee's recommendations an information campaign be carried out with debate and dialogue about Open Access, targeted at research environments in the form of e.g. information material and conferences.</p>
Process	<ol style="list-style-type: none"> 1. The Open Access Committee prepares a plan for information, debate and dialogue to be carried out. 2. The plan is put into action.
Finances	DKK 1.3 million in total for campaign and follow-up.

Main area 2

Enhance the co-ordination between Member States on access and dissemination policies and practices

The financial and societal benefits of Open Access to scientific research results increase in step with the introduction of an active policy and strategy for Open Access in many countries. It is by nature a task that can only be resolved fully in wide, international collaboration. Coordination between countries at all levels and in all forums is therefore necessary in order to achieve useful and lasting results.

Assignment 2.1

Exploring the possibility for national funding bodies to define common basic principles on Open Access

The international coordination between national research councils is essential with a view to ensuring the widest possible dissemination, but also in relation to the research councils' imposing uniform requirements across national borders. This assignment needs to be resolved in the relevant forums. This is the basis for recommendation number 11: Coordination of the Danish Open Access initiative in international forums.

Recommendation 11	Coordination of the Danish Open Access initiative in international forums The Open Access Committee recommends that the research councils' Danish representatives in international research forums such as EUROHORCs and the European Science Foundation ensure coordination of Open Access policies among the councils.
Process	1. The recommendation is implemented by the Danish Council for Independent Research, the Danish Council for Strategic Research, the Danish National Research Foundation, the Danish National Advanced Technology Foundation and the Danish Council for Technology and Innovation.
Finances	

Assignment 2.2

Improving transparency of the contractual terms of 'big deals' financed with public money, and assessing the possibilities to achieve economies of scale by demand aggregation

For a number of years, DEFF has negotiated license agreements for electronic journals, e-books, databases etc. on behalf of all academic libraries under the Ministry of Culture, the Ministry of Science, Technology and Innovation and the Ministry of Education, i.e. all library types from university libraries to upper-secondary school libraries.

DEFF participates in various Nordic and international coordination initiatives, e.g. the International Coalition of Library Consortia (ICOLC) and Knowledge Exchange. There is a need for a strengthened effort in this work about Open Access issues such as author fees in connection with golden Open Access, transparent business models, freedom to green Open Access (parallel publishing in repositories), deduction for publication fees and national buy-out agreements (Open Access to Danish produced research). This has happened in the Netherlands where an agreement at national level has been made with Springer about Open Access to all research publications published on behalf of Dutch university researchers by Springer in 2010. This is the basis for the Open Access Committee's recommendation number 12: DEFF increases focus on Open Access in DEFF consortium licenses.

Recommendation 12	Increased focus on Open Access in DEFF consortium licenses The Open Access Committee recommends that in DEFF's work with licences and in the international partnerships in which DEFF takes part, focus be directed at negotiation of writers' royalties in connection with golden Open Access, freedom to green Open Access and transparent business models for Open Access publishing at a fee. It is recommended that DEFF commits to working actively with this issue and aims to negotiate deals about Open Access publishing at a national level. It should be stressed that the aim is that expenses in connection with licenses do not rise at any time as a consequence of Open Access.
Process	1. DEFF prepares a plan for Open Access activities for the license area. 2. The plan is approved by the Open Access Committee. 3. The plan is put into action.
Finances	

Assignment 2.3

Working towards the interoperability of national repositories of scientific information in order to facilitate accessibility and searchability of scientific information beyond national borders

If research results are to be shared across systems, it is a prerequisite that the systems and exchange formats support this. DEFF has participated actively in the international collaboration about repositories via projects in Knowledge Exchange and via the Danish Research Database's collaboration with DRIVER.

The Knowledge Exchange collaboration is now well-established under the auspices of DEFF and includes several international working groups and occasional projects in areas such as interoperability between repositories, Open Access, eScience and primary data, support for researchers' management of copyright etc. DEFF is encouraged to continue this commitment and to ensure that activities and results are anchored widely in the university sector.

DRIVER has been financed by the EU Commission for a number of years and is now being replaced by a common structure, which is financed directly by the universities and/or their national partners in the area. Such a global Confederation of Open Access Repositories (COAR) has recently been established, and Denmark ought to join this so that both universities and DEFF can benefit from the collaboration and the common infrastructure. This is the basis for recommendation number 13: Danish membership of central collaboration forums for repositories and interoperability.

Recommendation 13	Danish membership of central collaboration forums for repositories and interoperability The Open Access Committee recommends that after the cessation of DRIVER, support for international collaboration continues through membership of the Confederation of Open Access Repositories (COAR).
Process	1. DEFF becomes a member on behalf of the Danish repositories. 2. DEFF ensures that activities and results are anchored widely.
Finances	Annual membership: DKK 50,000.

Assignment 2.4

Contributing to an effective overview of progress at a European level by informing the Commission about results and experiences with alternative models for the dissemination of scientific information

Various alternative publishing models are being tested internationally, and any Danish experience should be disseminated and reported on to the EU Commission.¹³

¹³ Source: <http://www.fi.dk/forskning/den-bibliometriske-forskningsindikator>

Main area 3

Ensure the long-term preservation of scientific information, including publications and data, and pay due attention to scientific information in national preservation strategies

Long-term preservation of scientific information is an important issue in relation to ensuring that knowledge is not lost due to technological obsolescence or a lack of structured collection and storage. In Denmark, the *Act on Legal Deposit of Published Material* ensures long-term preservation of publications, but when it comes to research data, the situation is quite different. There is no all-encompassing national solution for the long-term preservation of scientific data. However, researchers who have gathered survey data with funding from the Danish Council for Independent Research | Society and Business, the Danish Council for Independent Research | Society and Health and from a number of programme committees under the auspices of the Danish Council for Strategic Research have a formal obligation to archive data with the Danish Data Archive (DDA).

Assignment 3.1

Defining a structured approach to long-term preservation of scientific information and incorporating this approach in national plans for digital preservation established in compliance with the Commission Recommendation of 24 August 2006 and Council Conclusions of 13 November 2006 on online accessibility to cultural material and digital preservation

In Denmark, the *Act on Legal Deposit of Published Material* ensures that published Danish works and materials are deposited at the State and University Library and the Royal Library, who are responsible for long-term preservation of the documents. This applies to both physical and digital material published on the Internet. In accordance with the legal deposit act, which was revised in 2004, the State and University Library and the Royal Library conduct web harvesting in order to collect Danish material published on the Internet.

As mentioned above under Assignment 1.2, the universities increasingly need to be able to draw on long-term preservation services as they increasingly store the full text of research publications in their local repositories. In Denmark, the two legal deposit libraries have established the PINDAR archive into which the universities' publications are collected via OAI harvesting. However, this solution needs to be developed further into a fully comprehensive long-term preservation service for the universities' publications, which continually receive and actively ensure long-term preservation of all publications. Provisions should also be made to ensure that the research registration system PURE supports OAI harvesting from PINDAR through updates. In this way, universities can update their repositories with technically updated (migrated) versions of their digital publications, which technically become obsolete and lose their applicability in the course of a relatively few years.

As mentioned under Recommendation 5, the common research database for Danish research publications will ease the transfer of publications to the national long-term preservation service, which can then focus its efforts on the actual functional preservation of the publications. This is the basis for the Open Access Committee's recommendation number 14: Establishment of a comprehensive long-term preservation service for scientific publications.

Digital preservation is, in fact, a very large area, in which solutions are sought through international collaboration. The State and University Library and the Royal Library participate in the EU project Preservation and Long-term Access through Networked Services (PLANETS), where the challenges in relation to long-term preservation are addressed by a number of national libraries, national archives and universities. The focus is on preservation of document-like objects.

As regards preservation of data (primary data, research data), the situation is somewhat different, and there is a great need for funds and a joint effort and planning among the relevant players such as universities, the Danish Data Archive, the national libraries, research libraries and research

groups. Part of the joint effort will involve looking at activities at NordForsk and the EU. The EU's digital agenda focuses particularly on this area, and an expert group recently published the report *Riding the wave – How Europe can gain from the rising tide of scientific data*.¹⁴ The report will be used in connection with the phrasing of the EU's research and research infrastructure policies, and the area will undoubtedly be the object of increased focus in coming years.

In the long term, Open Access policies should also include data, but the situation being what it is right now, there is not sufficient coordination and infrastructure to impose this requirement. In contrast to an article, research data do not make a lot of sense on their own. It will be necessary to experiment with methods for structured collection and automatic retrieval of information that is needed for future use, including judicial, personal and scientific conditions. There will also be a need to apply international experience in this area.

In connection with the preparation of the planned Danish research infrastructure roadmap, the Ministry of Science, Technology and Innovation is considering appointing a new collaboration body in the field of eScience. The plan is that one of the new body's tasks will be to handle storage capacity for Danish research environments. The body should collaborate with relevant archiving institutions and the Ministry of Culture on the issue of access to and long-term preservation of research data.

Research data are often based on many implicit suppositions, which are known at the time, but in order for data to be useful to others than just the group who produced them, they need to be documented. When it comes to socio-economic survey data, there is an international documentation standard, DDI. Inspiration can be drawn from the DDI standard and its predecessors in relation to the development of structures for data documentation for other types of data with a view to long-term preservation and Open Access. Ensuring the Open Access to primary research data is an extensive field, which requires independent analysis of infrastructure, organisation, finances etc. This task cannot be resolved without collaboration among a number of stakeholders. This is the basis for the Open Access Committee's recommendation number 15: National planning of Open Access to and long-term preservation of primary research data.

Recommendation 14	Establishment of comprehensive long-term preservation of scientific publications The Open Access Committee recommends that in relation to the common portal for dissemination of Danish research results (Recommendation 5), a long-term preservation service be established that will ensure that digital publications can be read and utilised for a long period of time.
Process	<ol style="list-style-type: none"> 1. The Royal Library carries out a survey of universities' and other research producing institutions' needs and preferences and of the international state-of-the art in the area 2. Based on this survey, a proposal is prepared for the long-term preservation services' general functionality and interplay with the common portal and the universities' repositories. The Open Access Committee and the Ministry of Culture evaluate the proposal 3. The proposal is submitted for hearing among the stakeholders 4. The long-term preservation service is developed 5. The service is put into operation.
Finances	<ol style="list-style-type: none"> 1. Survey of needs and development of long-term preservation service: DKK 2 million. 2. Operation and support of service per year: DKK 1 million.

¹⁴ *Riding the wave – How Europe can gain from the rising tide of scientific data*. Final report of the High-level Expert Group on Scientific Data. A submission to the European Commission, October 2010
http://ec.europa.eu/information_society/newsroom/cf/itemlongdetail.cfm?item_id=6204

Recommendation 15	<p>National planning of Open Access to and long-term preservation of primary research data</p> <p>The Open Access Committee recommends that interdisciplinary collaboration be established, which will gather stakeholders within the field of primary research data. This collaboration will coordinate how Danish research data is to be archived in order to ensure present and future access. The planning should consider international initiatives and possible collaboration relations and give an account of financial consequences.</p> <p>In connection with the preparation of the planned Danish research infrastructure roadmap, the Ministry of Science, Technology and Innovation is considering appointing a new collaboration body in the field of eScience. The plan is that one of the new body's tasks will be to handle storage capacity for Danish research environments. The body should collaborate with relevant archiving institutions and the Ministry of Culture on the issue of access to and long-term preservation of research data.</p> <p>The international collaboration on primary research data in Knowledge Exchange continues via DEFF. The international collaboration on development of the documentation standard DDI and software solutions developed for data producers, administrators and users is continued via DDA based on the standard.</p>
Process	<p>1. The Ministry of Science, Technology and Innovation establishes a new interdisciplinary collaboration organisation for eScience. One of the tasks of this body will be to coordinate activities with storage institutions.</p>
Finances	<p>DKK 2.2 million in total over two years.</p>

Assignment 3.2

Taking into account the specific characteristics of scientific information when setting up the legislative framework (including legal deposit) or practical set-up for digital preservation

As mentioned under Assignment 3.1, Denmark has a comprehensive legal deposit act for material published on the Internet, regardless of the form of the material. The Act is enforced by means of web archiving of published material and through harvesting into PINDAR. However, the entire discussion about scientific primary data presents new challenges, as such data need to be handled in a structured manner if they are to be useful in the future.

At a European and global level, central forums have been established for collaboration on handling and long-term preservation of scientific information in the widest sense. Danish participation should be ensured here with a view to experience exchange and in order to establish solutions that are applicable in a global context. This is the basis for recommendation number 16: Danish membership of central international collaboration forums for handling and long-term preservation of scientific information in the widest sense.

Recommendation 16	<p>Danish membership of central international collaboration forums for handling and long-term preservation of scientific information in the widest sense</p> <p>The Open Access Committee recommends membership of, and active participation in, the three most important international collaboration forums in the field:</p> <ul style="list-style-type: none"> • The Alliance for Permanent Access, which gathers together large European universities, research laboratories, foundations, national libraries, publishers etc. with a view to creating a common vision and framework for a digital infrastructure that will last long-term and which will provide permanent access to scientific data • DataCite – International Initiative to Improve Access to Research Data on the internet – a global initiative that gathers players from the USA, Canada, Europe, Australia and Asia • CESSDA ERIC – Council of European Social Science Data Archives – European Research Infrastructure Consortium.
Process	<ol style="list-style-type: none"> 1. DEFF becomes a member of two of the forums on behalf of Denmark and Danish stakeholders. 2. The Danish Data Archive's membership of CESSDA ERIC awaits the results of the Danish research infrastructure roadmap process. 3. DEFF ensures that activities and results are anchored widely.
Finances	Annual memberships in total: DKK 600,000.

Appendices

Appendix 1: Mandate for the national work with Open Access

Background and objective

The government has – via the Minister for Science, Technology and Innovation – approved the Council of the European Union’ conclusions on scientific information in the digital age. With the objective of meeting the government’s obligations the implementation of the conclusions is anchored in a project group with basis in the Steering Committee for Denmark’s Electronic Research Library (DEFF). The Steering Committee works to further DEFF’s objectives and interests. The members are appointed in their personal capacity and do not consider institutional specific interests, neither do they represent specific organisations. The Steering Committee’s area of responsibility includes i.a. the preparation of a strategy and comprehensive action plans. The Steering Committee is placed organisationally under the Coordination Committee which handles the overall management of DEFF.

The work with implementation of the Council of the European Union’ conclusions takes place in connection with the Steering Committee’s ordinary meetings and is handled by a project group based on the Steering Committee supplemented by representatives from The Danish University and Property Agency, The Danish Agency for Research and Innovation, Danish Universities and the Committee for the Protection of Scientific work.

The Council of the European Union’ conclusions in the main encourage Denmark:

- to strengthen national strategies and structures for access to and dissemination of scientific information
- to strengthen coordination between the member states of policies and practice concerning access and dissemination
- to ensure long-term preservation of scientific information, including publications and data as well as paying due regard to scientific information in national preservation strategies.

The purpose of the new committee is to ensure that the work is implemented by a competent forum, and that the initiatives launched are coordinated with the relevant stakeholders.

Mandate

The project group’s task is to plan and carry out the implementation of the Council of Minister’s conclusions. In the planning of the implementation the committee is urged to clarify how publicly funded research can be made publicly available online and also which economic consequences are associated with this. The plan may contain deliberations as to how the implementation can secure support from Danish researchers, as well as what kind of role the research-funded bodies should have in connection with the implementation. The plan must take into account the clarification of copyright issues. Inclusion of the scientific publishers’ organisation in Europe is important in connection with dissemination of research results.

The project group prepares an approach on behalf of the Minister for Science, Technology and Innovation and the Minister for Culture to the EU Commissioner for Research and Innovation as well as the EU Commissioner for the Information Society and the Media, who are behind the Council of the European Union’ recommendations with the request that the commissioners prepare a common European proposition to the publishing companies concerning Open Access publishing.

Secretariat

The project group is serviced by the DEFF secretariat. The costs in connection with the secretarial service are expected to be covered within the existing frame.

Time schedule and products

The project is asked to be in charge of the implementation of the Council of the European Union’ conclusions.

Tentative time schedule

Date	Activity
1. Feb.-1.Apr. 2009	Appointment of project group on the basis of DEFF's steering committee
1. Apr. 2009	Forwarding of the Minister for Science, Technology and Innovation and the Minister for Culture's letter to the EU commissioners
1. Apr.-1. Sept. 2009	Preparation of plan for implementation and economy
1. Sep.-1. Nov. 2009	The project group presents the plan to the Coordination Committee
1. Nov.-1.Feb. 2010	The implementation plan is heard in the ministries involved and the economic issues are clarified
1. Feb.-1.Apr. 2010	The project group works out a broad hearing of the plan
1. Apr.-31. Jun. 2010	Consultation phase
1. Jul.-1. Sep. 2010	The project group concludes on the consultation
1. Sep.-1. Nov. 2010	The relevant ministers approve the implementation plan
1. Nov. 2010	Implementation of Open Access is put into motion
Ult. 2011	The project concludes on the implementation process and informs the ministers.

Appendix 2: The Council of the European Union's conclusions on scientific information in the digital age



**COUNCIL OF
THE EUROPEAN UNION**



Council Conclusions on scientific information in the digital age: access, dissemination and preservation

*2832nd COMPETITIVENESS (Internal market, Industry and Research) Council meeting
Brussels, 22 and 23 November 2007*

The Council adopted the following conclusions:

"THE COUNCIL OF THE EUROPEAN UNION

RECALLING:

- the 24 August 2006 Commission Recommendation on "the digitisation and online accessibility of cultural material and digital preservation" (OJ 2006/L 236/28) and the related Council Conclusions of 13 November 2006 (OJ 2006/C 297/01);
- the 14 February 2007 Commission Communication on "scientific information in the digital age: access, dissemination and preservation" COM(2007)56;
- the 4 April 2007 Commission Green paper on "the European Research Area: New Perspectives" COM(2007)161;
- The OECD's Principles and Guidelines for Access to Research Data from Public Funding, agreed by all OECD Countries in 2007.

CONSIDERING that:

- access to and dissemination of scientific information – publications and data – are crucial for the development of the European Research Area, and can help accelerate innovation;

P R E S S

- the Internet has created unprecedented possibilities to disseminate, share and build on the outcome of research efforts;
- Information and Communication Technologies revolutionise the way scientists communicate, perform research and produce knowledge;
- in an era of high speed connectivity and high performance computing, data emerges as key for modern science;
- the systems by which scientific information is published are pivotal for its dissemination and quality control, in particular through peer review, and thus have a major impact on research funding policies and on the excellence of European research;
- universities, libraries, research performing and research funding organisations, scientific publishers and other stakeholders have in recent years made considerable investments in information technologies for online accessibility;
- effective and long-lasting digital preservation of scientific information is fundamental for the current and future development of European research;

1) WELCOMES

- the Communication COM(2007)56 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.

2) RECOGNISES

- the major contribution of universities, international research organisations, research bodies, libraries and other public organisations, as well as of scientific publishers, to the scientific dissemination process;
- that new, Internet-based dissemination models have triggered a major debate involving all concerned stakeholders on access to and dissemination of scientific information and in particular on access to peer-reviewed scientific articles;
- that over the past years scientific libraries' capacity to provide researchers with access to a wide range of publications has been affected by rising overall prices of scientific journals (including electronic distribution of publications);
- the strategic importance for Europe's scientific development of current initiatives to develop sustainable models for open access to scientific information.

3) UNDERLINES

- the need to ensure rapid and wide access to publicly funded research results;
- that Member States have a strong interest in an efficient scientific information system that maximises the socio-economic impact of public investments in research and technological development;
- the importance of scientific output resulting from publicly funded research being available on the Internet at no cost to the reader under economically viable circumstances, including delayed open access;
- the cross-border nature of many research endeavours, of their funding sources, and of their dissemination channels;
- the importance of better access to unprocessed data and repository resources for data and material that allows fresh analysis and utilisation beyond what the originator of the data had envisaged;
- that new forms of electronic communication have the potential to enable open access to data and scientific publications, and provide a unique opportunity for the open development of specific data mining, analysis and integration tools, possibly enhanced by common format standards;
- that policies and practices in the Member States on access to and preservation of scientific publications and research data are developing at different speeds;
- the importance of effective collaboration between different actors, including funding agencies, researchers, research institutions and scientific publishers, in relation to access, dissemination and preservation of scientific publications and research data;

4) TAKES NOTE

- of recent reports calling on the Commission to improve access to results stemming from the research it funds, including reports of the European Research Advisory Board and the European Research Council's Scientific Council supporting open access to Community funded research results;
- of the intention of the Commission to support further research on the scientific publication system, and to carry out a study on the economic aspects of digital preservation.

5) INVITES THE MEMBER STATES

As first steps and in line with the annex, to

- reinforce national strategies and structures for access to and preservation and dissemination of scientific information, tackling organisational, legal, technical and financial issues;
- enhance the co-ordination between Member States, large research institutions and funding bodies on access, preservation and dissemination policies and practices;
- maximise access for researchers and students to scientific publications, in particular by improving public procurement practices in relation to scientific information; this could include exchanging information on these practices and increasing the transparency of the contractual terms of "big deals", and exploring the possibilities for funding bodies, research institutions and scientific publishers from different Member States to work together in order to achieve economies of scale and efficient use of public funds by demand aggregation;
- ensure the long term preservation of scientific information - including publications and data - and pay due attention to scientific information in national information preservation strategies;

6) INVITES THE COMMISSION TO

As first steps and in line with the annex, to

- monitor good practices in relation to open access to European scientific production, including those arising from large scale experiments by scientific communities and large research institutions, and encourage the development of new models that could improve access to European scientific research results;
- monitor the current situation of public virtual scientific libraries in the EU and other ongoing developments across Europe relating to access of students and researchers to scientific information and to its digital preservation, as well as the relevant legal framework conditions that may have an impact on access to this information;
- experiment with open access to scientific data and publications resulting from projects funded by the EU Research Framework Programmes in order to assess the appropriateness of adopting specific contractual requirements;
- encourage research into digital preservation, as well as experiments on and wide deployment of scientific data infrastructures with cross-border, cross-institution and cross-discipline added-value for open access to and preservation of scientific information;
- support and contribute to improving policy co-ordination and to fostering a constructive debate and exchange of information between stakeholders.

A. Invitation to the Member States to:

1. Reinforce national strategies and structures for access to and dissemination of scientific information by:	
defining clear policies for dissemination of and access to scientific information, including the associated financial planning;	2008
promoting, through these policies, access through the internet to the results of publicly financed research, at no cost to the reader, taking into consideration economically sustainable ways of doing this, including delayed open access	2008 onwards
<p>assessing in a systematic way conditions affecting access to scientific information, including:</p> <ul style="list-style-type: none"> - the way in which researchers exercise their copyrights on scientific articles; - the level of investments in the dissemination of scientific information as compared to total investments in research; - the use of financial mechanisms to improve access, such as refunding VAT for digital journal subscriptions to libraries; 	2008
ensuring that repositories of scientific information are sustainable and interoperable;	2010
bringing together main stakeholders in the debate on scientific information (scientists, funding bodies, libraries, scientific publishers)	2008

2. Enhance the co-ordination between Member States on access and dissemination policies and practices by:	
exploring the possibility for national funding bodies to define common basic principles on open access;	2008
improving transparency of the contractual terms of 'big deals' financed with public money and assessing the possibilities to achieve economies of scale by demand aggregation;	2008
working towards the interoperability of national repositories of scientific information in order to facilitate accessibility and searchability of scientific information beyond national borders;	2009
contributing to an effective overview of progress at European level, informing the Commission of results and experiences with alternative models for the dissemination of scientific information.	2008

3. Ensure the long term preservation of scientific information - including publications and data - and pay due attention to scientific information in national preservation strategies by:	
defining a structured approach to the long term preservation of scientific information and incorporating this approach in national plans for digital preservation established in line with the Commission Recommendation of 24 August 2006 and Council Conclusions of 13 November 2006 on online accessibility to cultural material and digital preservation;	Mid-2008
taking into account the specific characteristics of scientific information when setting up the legislative framework (including legal deposit) or practical set-up for digital preservation.	2009

B. Invitation to the Commission to implement the measures announced in the Communication on "scientific information in the digital age: access, dissemination and preservation", and in particular to:

1. Experiment with open access to scientific publications resulting from projects funded by the EU Research Framework Programmes by:	
defining and implementing concrete experiments with open access to scientific publications resulting from Community funded research, including with delayed open access.	2008 onwards

2. Support experiments and infrastructures with a cross-border added-value for access to and preservation of scientific information by:	
co-funding of research infrastructures, in particular by linking digital repositories at European level and co-funding research on digital preservation within FP7; supporting experiments with open access with a clear cross-border added value.	2007 onwards

3. Contribute to improved policy co-ordination between Member States and to a constructive debate between stakeholders by:	
bringing together, at the European level, concerned stakeholders in the debate on scientific information	2007 onwards
monitoring good practices in relation to open access to European scientific production.	2008 onwards

Appendix 3: Financial overview and financial calculations

	1 year	2 years	3 years	4 years
Development of research database	1,000,000			
Operation and project management of research database	1,000,000	1,000,000	1,000,000	1,000,000
Development of long-term preservation service for publications	2,000,000			
Operation of long-term preservation service for publications	1,000,000	1,000,000	1,000,000	1,000,000
Complete coordination	800,000	800,000	800,000	800,000
Consultant assistance and surveys about scientific Open Access publishing in Danish	1,000,000			
Information, debate and dialogue	500,000	500,000	200,000	100,000
Planning of Open Access and long-term preservation of data	1,100,00	1,100,000		
Memberships	650,000	650,000	650,000	650,000
TOTAL	9,050,000	5,050,000	3,650,000	3,550,000
TOTAL for all 4 years				21,300,000

Financial calculations

No.	Recommendation	Calculation	Danish kroner
1	The Ministry of Science, Technology and Innovation establishes a national Open Access policy		
2	Research councils and public foundations establish Open Access policies		
3	Universities and other research institutions implement and promote Open Access policies		
4	Survey of the possibilities of coordination between the bibliometric research indicator and the Open Access policies		
5	One common national research database	1) Basic modernisation from minimum functionality today corresponding to 20 months of academic development work 2) Operational costs as today plus continual update of functionality	1) Development of aggregated portal: DKK 1,000,000 per year 2) Operation and project management of common portal: DKK 1,000,000 per year
6	Survey of the need for one repository for small research institutions' research publications		
7	Danish scientific publishers, scientific associations and science editors prepare discussion paper on scientific journals' transition to Open Access	Consultancy assistance and surveys, if any: DKK 500,000	DKK 500,000
8	Danish scientific publishers and scientific associations prepare discussion paper on scientific monographs' transition to Open Access	Consultancy assistance and surveys, if any: DKK 500,000	DKK 500,000
9	The Open Access Committee monitors the implementation of the Minister of Science's Open Access strategy	One full-time employee: DKK 600,000 per year Funds for events etc.: DKK 200,000 per year	DKK 800,000 per year for four years
10	Strengthen and support information, debate and dialogue	Planning and design: DKK 300,000 Campaigns and conference: DKK 1,000,000	DKK 1,300,000
11	Coordination of the Danish Open Access initiative in international forums		
12	DEFF increases focus on Open Access in DEFF consortium licenses		

No.	Recommendation	Calculation	Danish kroner
13	Danish membership of central collaboration forums for repositories and interoperability	Membership: DKK 25,000 Travel and participation in meetings: DKK 25,000	DKK 50,000 per year
14	Establishment of a comprehensive long-term preservation service for scientific publications	Development corresponding to 40 months of academic work: DKK 2,000,000 Operation, salary, per year: DKK 600,000 Operation, other, per year: DKK 400,000	Development: DKK 2,000,000 Operation per year: DKK 1,000,000
15	National planning of free access to and long-term preservation of primary research data	Secretariat service for 2 years: DKK 600,000 Reviews/surveys: DKK 1,600,000	Employee: DKK 600,000 Surveys: DKK 1,600,000
16	Danish membership of central international collaboration forums for handling and long-term preservation of scientific information in the widest sense	Membership of The Alliance for Permanent Access: DKK 200,000 Membership of DataCite: DKK 200,000 Membership of CESSDA ERIC: DKK 200,000	DKK 600,000 per year

Appendix 4: Time schedule for implementation

		2011	2012	2013	2014		
		First 6 months	Last 6 months	First 6 months	Last 6 months	First 6 months	Last 6 months
Recommendation 1. The Ministry of Science, Technology and Innovation establishes an Open Access policy							
Process	1. The Open Access Committee submits a proposal for a national Open Access policy to the Ministry of Science, Technology and Innovation and the Ministry of Culture.						
	2. The Ministry of Science, Technology and Innovation handles the necessary hearing and subsequent decision.						
Recommendation 2. Research councils and public foundations establish Open Access policies							
Process	1. Research councils and public foundations establish and implement Open Access policies.						
Recommendation 3. Universities and other research institutions implement and promote Open Access policies							
Process	1. Discussion and decision-making at the universities.						
Recommendation 4. Survey of the possibilities of coordination between the bibliometric research indicator and the Open Access policies							
Process	1. The Danish Agency for Science, Technology and Innovation and DEFF carry out a study of possible interaction between the bibliometric research indicator and Open Access.						
Recommendation 5. One common national research database							
Process	1. The Ministry of Science, Technology and Innovation and the Danish Agency for Science, Technology and Innovation implement the necessary requirements in research grants.						
	2. DEFF and the Open Access Committee appoint a task group.						
	3. The research database is established and put into operation.						

		2011	2012	2013	2014								
		First 6 months	Last 6 months	First 6 months	Last 6 months	First 6 months	Last 6 months	First 6 months	Last 6 months	First 6 months	Last 6 months	First 6 months	Last 6 months
Recommendation 6. Survey of the need for one repository for small research institutions' research publications													
Process	1. A survey is prepared including finances and possible scenarios.												
	2. The Open Access Committee determines the further process.												
Recommendation 7. Danish scientific publishers, scientific associations and science editors prepare discussion paper on scientific journals' transition to Open Access													
Process	1. The Open Access Committee prepares mandate.												
	2. The Danish Publishers Association and others are invited to submit proposals based on the mandate.												
	3. The Danish Publishers Associations and others submit proposals on how Danish scientific journals can make the transition to Open Access.												
Recommendation 8. Danish scientific publishers and scientific associations prepare discussion paper on scientific monographs' transition to Open Access													
Process	1. The Open Access Committee prepares mandate.												
	2. The Danish Publishers Association and others are invited to submit proposals based on the mandate.												
	3. The Danish Publishers Associations and others submit proposals on how Danish monographs can make the transition to Open Access.												
Recommendation 9. The Open Access Committee monitors the implementation of the Minister of Science's Open Access strategy													
Process	1. The Open Access Committee monitors the implementation of the Minister of Science's Open Access strategy.												
Recommendation 10. Strengthen and support information, debate and dialogue													
	1. The Open Access Committee prepares a plan for execution.												
	2. The plan is put into action.												

		2011	2012	2013	2014				
		First 6 months	Last 6 months	First 6 months	Last 6 months	First 6 months	Last 6 months	First 6 months	Last 6 months
Recommendation 11. Coordination of the Danish Open Access initiative in international forums									
Process	1. The recommendation is implemented by the Danish Council for Independent Research, the Danish Council for Strategic Research, the Danish National Research Foundation, the Danish National Advanced the Danish Council for Technology and Innovation.								
Recommendation 12. DEFF increases focus on Open Access in DEFF consortium licenses									
Process	1. DEFF prepares a plan for Open Access activities in the license area.								
	2. The plan is approved by the Open Access Committee.								
	3. The plan is put into action.								
Recommendation 13. Danish membership of central collaboration forums for repositories and interoperability									
Process	1. DEFF becomes a member of COAR on behalf of the Danish repositories.								
	2. DEFF ensures that activities and results are anchored widely.								
Recommendation 14. Establishment of a comprehensive long-term preservation service for scientific publications									
Process	1. Study of needs etc.								
	2. Preparation of proposal.								
	3. Hearing.								
	4. Establishment and operation.								

		2011	2012	2013	2014				
		First 6 months	Last 6 months	First 6 months	Last 6 months	First 6 months	Last 6 months	First 6 months	Last 6 months
Recommendation 15. National planning of Open Access to and long-term preservation of primary research data									
	1. The Ministry of Science, Technology and Innovation appoints an interdisciplinary collaboration organisation for eScience.								
Recommendation 16. Danish membership of central international collaboration forums for handling and long-term preservation of scientific information in the widest sense									
Process	1. DEFF/DDA acquire membership.								
	2. DEFF ensures that activities and results are anchored widely.								

**Recommendations for Implementation
of Open Access in Denmark**

Final report from the Open Access Committee

Published in 2011 by
Danish Agency for Libraries and Media /
Denmark's Electronic Research Library
in collaboration with the Danish Agency for Science,
Technology and Innovation

Danish Agency for Libraries and Media
H. C. Andersens Boulevard 2
DK-1553 Copenhagen V

Telephone: +45 33 73 33 73
post@bibliotekogmedier.dk
www.bibliotekogmedier.dk

DTP: Stæhr Grafisk
Print: C.S. Grafisk
Impression: 500
(Not in bookshops)

Photo: Tobias Toyberg

ISBN: 978-87-92681-16-4
Electronic ISBN: 978-87-92681-11-1

The publication can be downloaded from:
www.bibliotekogmedier.dk
www.fi.dk

DEff