



Federal Ministry
of Education
and Research

Open Access in Germany

The Strategy of the German Federal Ministry
of Education and Research

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Preface

Dialogue and open exchange are essential in science. Digital technologies have expanded the opportunities for this dialogue and exchange in a manner that was previously unthinkable. Scientific findings can be shared much more quickly and can become the starting point for new knowledge. The key to success here is Open Access, which means that interested parties can access scientific literature and other materials free of charge at any time and from any location.

This is a significant advance for scientists and researchers – and for companies too, as it becomes easier for them to use research findings in their innovations. Ultimately, this is also a gain for everyone who has an interest in research results. Open Access creates new opportunities for participation.

The simple concept behind Open Access is that the findings of publicly funded research should be made available to the public for free. This need not be to the detriment to publishers, who can become important participants in quality-assured Open Access resources, digital analysis methods and long-term archiving. Many publishers have already begun to operate successfully along these lines.

Open Access is an idea that originated from science and research. Numerous researchers and science institutes have come out in favour of it. With its Open Access Strategy, the German Federal Ministry of Education and Research is making an important contribution to easy and permanent access to publications based on publicly funded research. We are creating incentives and funding opportunities

for achieving an improved flow of information in science. As a part of this, we are making Open Access part of the conditions for our project funding.

Open Access should gradually become one of the standard approaches in scientific publishing. This will represent a fundamental change in scientific practice that will strengthen the scientific system in Germany both internally and externally and will bring scientific findings closer to society as a whole. The ministry's strategy creates the foundation necessary for this transition process.

A handwritten signature in black ink that reads "Johanna Wanka". The signature is written in a cursive, flowing style.

Prof. Dr. Johanna Wanka
German Federal Ministry of Education and Research

I. Introduction

Open Access – Implementing the digital transformation in scientific practice

Germany is a land of ideas and innovations. Digitalisation is opening up major opportunities to further expand innovative potential and global competitiveness. Science and research is being influenced by the digital revolution to a particularly strong degree. At the same time, these fields also provide important impetus for developments that shape our lives both now and in the future. Modern innovations are capable of increasingly simplifying our everyday lives, reducing the burdens on our ecosystems and improving people's health.

Progress in science and research depends on interdisciplinary and international exchange of research findings. The exchange of information and results has a long tradition that extends back beyond the advent of the digital age. This exchange is the foundation for pioneering discoveries. With digital technologies, it is now possible to make information and knowledge accessible to a large community of interested parties in a much more effective manner and to initiate exchange processes. Scientists from all over the world across all subject areas can benefit from this exchange. In this way, scientific progress can be achieved more rapidly than ever before.

The idea of Open Access – that is, digital access to scientific publications free of charge – developed in science and research from this combination of tried-and-tested scientific practice and new technological possibilities. The aim is to give further impetus to innovation projects and scientific research in general.

Open Access creates not only a high additional benefit to science. Open Access also enables digital access to the work of others to all researchers. Furthermore, it facilitates quick and simple disseminations of results and publications. In addition, also companies will benefit from the possibility to exchange findings in an efficient manner. In this way, current innovations from all areas of science become available – published by companies with strong research activities and scientific institutions and also by individual scientists and researchers. Ultimately, Open Access makes

findings from science and research available to every interested party and thus to society as a whole, which in turn creates new opportunities for participation.

Communication structures that will allow the potential of digitalisation to be fully harnessed are not yet in place in all science and research institutions. For this reason, there is a need to quickly transfer new forms of communication into science and research practice.

With its Digital Agenda 2014–2017, the German Federal Government has set itself the task of improving the framework conditions for an unhindered flow of information – both within science and research as well as reaching out into all areas of industry and society. Unhindered access to scientific publications is an important and essential step along the way to achieving this goal. The German Federal Ministry of Education and Research's Open Access Strategy – as set out here – is part of a comprehensive strategy for the digital revolution in science. The aim of this strategy is to pave the way for achieving innovative science and research and thus to further foster the innovative strength of Germany.

II. Starting position

Making scientific findings available in digital form and allowing others to use them without financial, technical or legal barriers is at the core of the Open Access principle.¹ The most important element in this implementation process is that of unhindered access to written scientific publications. Following the Budapest Declaration on Open Access (2001)² and the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003),³ two basic models have evolved:

- So-called ‘Gold Open Access’ is the direct and free-of-charge access to publications directly via the publisher on the internet – e. g. in an Open Access journal.
- In the case of the so-called ‘Green Open Access’, publications are stored in a freely accessible online database (a so-called repository) alongside publication in an analogue print format (in parallel or after expiry of an embargo period).

Our mission of disseminating knowledge is only half complete if the information is not made widely and readily available to society. New possibilities of knowledge dissemination not only through the classical form but also and increasingly through the open access paradigm via the Internet have to be supported.

Source: Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, 2003.

There are also other Open Access publication models. These include in particular publications in ‘hybrid’ journals, where only some of the articles are openly accessible, or depositing articles on a website.

All of these models improve the flow of information in science and research – but only if a significant challenge can be overcome: the implementation of technical and organisational measures to ensure that digital publications are citable, findable and permanently available.

However, quality assurance cannot be achieved for free in publication systems jointly shaped by Open Access. The financial resources necessary for this must remain available to the scientific system.

The importance of digital publications is increasing even in disciplines where monographs in the form of printed books – and not journal publications – are the standard for academic publication. Monographs can already be made digitally accessible to the public free of charge today in line with the Open Access principle, alongside publication in print form. Digital publication and printed books are not mutually exclusive; instead, one can complement and help to promote the other.

Science and research in Germany is promoting Open Access

The science and research community in Germany is playing a pioneering role in the development of new initiatives and ideas for Open Access and its implementation in practice. Science in Germany is also regarded internationally as an important player in the Open Access movement.

Up to now, over 550 German and international organisations have signed the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, and this number is constantly increasing.

In 2003, the German Research Foundation, Helmholtz Association, Max Planck Society, Leibniz Association, Fraunhofer-Gesellschaft, German Council of Science and Humanities, German Rectors’ Conference and German Library Association were among the first signatories to the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, which represents an important milestone in the establishment of Open Access in the German scientific system.

¹ Definition of the Alliance of Science Organisations in Germany

² www.budapestopenaccessinitiative.org

³ <http://openaccess.mpg.de/Berliner-Erklärung>

In April 2016, the Helmholtz Association stated that it wished to make its Open Access efforts quantifiable. Its aim is for at least 60 percent of its publications to be available in an Open Access manner by 2020, rising to 100 percent by 2025.

The Fraunhofer-Gesellschaft is aiming for 50 percent of its publications to be Open Access by 2020.

The German Federal Government and the federal states have anchored the topic of Open Access in a formal, binding manner as part of the extension of the Joint Initiative for Research and Innovation 2016–2020. Subsequently, the major research organisations and the German Research Foundation declared their intention to actively expand their Open Access offerings and backed this up with quantitative goals in certain cases. The major scientific organisations in Germany – the Helmholtz Association, Max Planck Society, Leibniz Association and Fraunhofer-Gesellschaft – are already using Open Access today and promoting it with a wide range of measures.

Anchoring Open Access at federal state level

The support of the federal states is an important element in anchoring Open Access as an integral part of science and research activity in Germany. Accordingly, the states of Baden-Württemberg, Schleswig-Holstein and Berlin have already presented Open Access strategies and measures intended to strengthen Open Access. Other states are currently developing their strategies and measures. The German Federal Government welcomes this process and encourages the federal states to continue along this path. The goal must be to anchor Open Access initiatives in all sixteen federal states and to develop a common understanding of the significance of a responsible Open Access culture and of the opportunities this offers. The Federal Ministry of Education and Research will also be working to achieve just such a common understanding in the Joint Science Conference.

Strengthening Green Open Access – The indispensable right to secondary publication

With the amendments made to copyright law in recent years, the German Federal Government has already put in place the initial legislative prerequisites for Open Access. Particularly noteworthy in this regard is the introduction of the indispensable right to secondary publication for the authors of scientific articles as of 1 January 2014. This piece of copyright legislation allows authors of articles based on research with 50% or greater funding from state funds to make their journal articles accessible to the public for non-commercial purposes twelve months after initial publication – regardless of what has been agreed to in their contract with their publisher. This creates an important foundation for the strengthening of Green Open Access.

The indispensable right to secondary publication protects the standard practice of self-archiving of authors' articles and facilitates the expansion of institutional repositories. Germany is playing a pioneering role internationally in this regard.

Achieving progress with Open Access in the European research community

Within the European research arena, Open Access is being advanced by measures from the European Commission in particular. In addition, a range of initiatives and groups at national and international level are tackling the structuring and implementation of Open Access. The Berlin Declaration has now been signed by universities and scientific institutions from all over Europe and by their partners in other parts of the world. Open Access is thus also an integral component of a transition to an open European scientific system in line with the Open Science approach.

Open Access is already an established part of the rules for the publication of research findings – both for text publications and research data – in 'Horizon 2020', the Framework Programme of the European Union for Research and Innovation.

III. Guiding principles of the Open Access Strategy

The German Federal Ministry of Education and Research's Open Access Strategy is based on the following guiding principles:

Establishing Open Access as one standard in scientific publishing

The aim is that Open Access should become one standard practice in scientific publishing in Germany. The concept of unhindered access to scientific publications was developed by the science and research community and meets with approval there. Open Access must be implemented with the active participation of this community. With its strategy, the Federal Ministry of Education and Research is supporting science and research along its path towards establishing a comprehensive Open Access culture.

Opening up various paths to Open Access

Green and Gold Open Access are complementary and equally valuable. Other approaches remain possible.

Strengthening participation in scientific findings

Publications based on publicly funded research should be openly accessible. Science and research is funded from public funds to a significant degree in Germany – both at federal and state level. Society and industry should be able to access and benefit from the results of the science and research that they have funded.

Maintaining the high quality of scientific publications

Open Access publications have to fulfil quality-assurance requirements that are comparable to those for traditional publications. This can be ensured by applying tried-and-tested quality-assurance mechanisms, such as peer-review procedures. In addition, the potential of innovative new models for quality assurance (e.g. open peer-review procedures) should also be used.

No limitation for academic freedom

Open Access does not imply any obligation to publish or to disclose research findings. The decision whether to publish is the sole responsibility of researchers themselves. Open Access only comes into play in cases where publication is already intended. The decision to exploit research findings financially – e.g. through patenting – also remains unaffected.

IV. Establishment of Open Access across the German scientific system

The large majority of scientists in Germany and Europe welcome Open Access. However, practical implementation is not yet succeeding in all areas. Many scientists publish only a part of their own research results using an Open Access model.⁴ This discrepancy between the research community's wish for more openly accessible publications and current publishing practice still has to be overcome.

The transition to a scientific system where Open Access is one standard publishing approach is the responsibility of all participants in the scientific system. It can only be achieved through joint efforts by researchers, universities and institutes, government, industry and society as a whole. Here the political sphere has an essential role as a research-funder and provider of the legislative framework, and also as an encourager of and mediator between various interest groups.

89 percent of German scientists believe that Open Access is beneficial for their research area and would like to see more freely accessible literature. This is one of the results of the Study of Open Access Publishing (<http://soap-fp7.eu>).

For this reason, the Federal Ministry of Education and Research regards the strengthening of the current promising approaches and initiatives within the scientific system and the fostering of the establishment of Open Access with the ministry's own measures as important tasks. The following measures in five action areas are aimed at achieving these goals.

V. Action areas in the Open Access Strategy

The action areas are aimed at various parts of the scientific publication process. What they have in common is that they deal with setting examples and with incentives, new communication environments and practical support:

- Anchoring of Open Access as a basic principle of the ministry's own funding
- Visibility and acceptance
- Development of expertise and spreading of successful models from practice
- Financial support
- Transparency and monitoring

⁴ This is one of the results of the Study of Open Access Publishing (SOAP) (<http://soap-fp7.eu/>). A summary of the main findings can be found in Dallmeier-Tissen, Darby, Goerner et al., Highlights from the SOAP project survey. What Scientists think about Open Access Publishing, arXiv:1101.5260.

VI. Clear commitment to anchoring Open Access as a basic principle for funding

Integrating Open Access into BMBF funding

Scientists and researchers must practice Open Access with their own publications if Open Access is to achieve its full potential. A clear commitment is necessary from government and research-funding bodies that Open Access is desired and supported as a publication approach. For this reason, the Federal Ministry of Education and Research is including Open Access as a standard approach in its project funding. In this way, the political will to promote Open Access will be communicated to the science community and to publishers in a clear manner.

- The provision calls on scientists and researchers to publish their research findings as Open Access – either by using Gold Open Access or by depositing the publication in an appropriate repository after an embargo period has expired (Green Open Access). This provision only applies in cases where scientists and researchers have decided to publish research results from projects funded by the Federal Ministry of Education and Research.
- The provision does not at all affect the scientists' and researchers' independent decision whether to publish.
- Open Access monographs that result from projects funded by the Federal Ministry of Education and Research are welcome.
- As Open Access becomes increasingly widespread, it will become even more beneficial for all participants – and particularly for the scientists and researchers themselves – as a result of learning effects and positive feedback.

The federal states can also encourage Open Access nationwide by creating incentives for universities to introduce Open Access provisions of their own. This will strengthen those institutions that are already actively promoting Open Access and will also create awareness of this topic among those institutions that are not yet active in this area.

Initiating a BMBF Dialogue Forum on Open Access

Joint efforts by all actors in the science and research community are necessary if Open Access is to become a standard approach for scientific publishing. Accordingly, the Federal Ministry of Education and Research is initiating a structured dialogue on the introduction of Open Access. The main actors in the German scientific system will coordinate and refine their strategies and regulations as regards Open Access within the context of the Open Access Dialogue Forum.

The existing Open Access strategies of individual funding bodies, scientific organisations and universities already contain Open Access provisions. The aim is that these approaches will become more widespread in the course of this joint discourse. Clear rules as regards Open Access publication can help to achieve uniform framework conditions for scientists and researchers regarding Open Access.

VII. New approaches in financing of publications

Making efficient use of publishing funding

In essence, the changeover from a primarily subscription-based publication model to an Open Access publication model involves a transition from 'downstream' financing when journals are bought by libraries to 'upstream' financing of Open Access publications. With new business models, publishing houses can perform their important function in scientific communication and play an active role in the changeover to digital science and research. Support is necessary for this transformation process in the publication system.

According to current estimates, a comprehensive changeover in scientific publishing in Germany can be achieved in a cost-neutral manner in the medium term. Cost savings are predicted in the long term.

Source: Schimmer, R., Geschuhn, K. K., & Vogler, A. (2015). *Disrupting the subscription journals' business model for the necessary large-scale transformation to open access*. doi:10.17617/1.3.

However, the aim of achieving savings in library budgets for the public purse is not of primary importance in the context of the promotion of Open Access. Instead, the focus is to facilitate easy digital access to scientific text publications for users. Open Access will mean that more people can benefit from state-funded research for the amount of funds spent.

A precondition for the spread of Open Access is that the fees for processing articles are financed. Desired Open Access publications should not remain unpublished for financial reasons.

Promoting Open Access publications

The Federal Ministry of Education and Research is already supporting the changeover to Open Access by allowing applications for funding to cover the costs of publication in Open Access journals as part of project funding. The ministry is funding parts of the indirect

costs associated with projects as part of project lump sums, and also allows for the flexible use of these funds even beyond the end of the project duration. In this way, publication costs can be financed.

Setting up a post-grant fund

The publication of findings takes place at the end of the scientific process of establishing knowledge. As a result, publishing often only occurs after the end of the project duration in practice. The Federal Ministry of Education and Research will also provide support for cases like this. In the future, a post-grant fund will be available to cover the costs for Open Access publications based on projects funded by the BMBF that are published after the end of the project.

Integrating Open Access into the financing of research

Other funding bodies are already allowing scientists and researchers to apply for funds for Open Access publication of their research findings as part of project funding. In addition, Open Access publication funds have been set up at a number of universities and research institutions specifically to cover publication costs. The German Research Foundation is also supporting scientific universities in establishing publication funds with its own funding programme.

The German Research Foundation is supporting the publication of research findings in Open Access journals with its own funding programme for the establishment of publication funds at universities. This simple approach ensures that funding is in place for Open Access publications. Many scientific institutions have also set up similar funds.

All bodies that provide funding can and should expand their efforts in this regard. Publication funds should also be used as an instrument that helps to achieve fair publication and access conditions. In this way, the high quality standards that must be demanded of scientific publications can be ensured.

VIII. Making Open Access a valued component of scientific publishing

Increasing visibility and acceptance

Publications in renowned journals play an important role in the perception and evaluation of performance in science and research. Open Access journals are comparatively young and, in many cases, are not as established as conventional journals from publishing houses. In universities and bodies within scientific organisations, awareness needs to be raised at all levels for the fact that Open Access opens up additional opportunities for quality-assured publication and that Open Access publications should be taken into account when awarding funding or filling positions to the same extent that conventional publications are. The heads of academic departments, research institutions, universities and project groups can make it easier for their employees to publish in an Open Access manner. The opinion of the academic staff at a university or institution can also have a decisive influence here.

The Federal Ministry of Education and Research is running a broadly based information campaign to increase the visibility and acceptance of Open Access in the German scientific system as a whole.

This information campaign is targeted at scientists and researchers, and focuses on the advantages and potential of Open Access and on alternatives to the traditional publishing model. Young scientists and researchers need to be made aware of the approval that Open Access already enjoys in the scientific community. This reinforces the understanding within this community for the fact that Open Access publications can be a reflection of research performance in just the same way as conventional journal publications are.

The federal states can support Open Access in a long-term manner by evaluating Open Access publications based on the same quality-based criteria as conventional publications when awarding funding.

IX. Open Access – simple and practical

Setting up a national competence and networking office

The German Federal Ministry of Education and Research will support the establishment of a national office for expertise and networking. This body will play a central role in exchange and networking among the relevant representatives of the federal states, universities and research institutions. It will offer training courses to improve the skills of multipliers on-site. The national office will support the establishment of expertise in this area with materials and advice at institutions where there are no contact persons.

Low-threshold advice services and contact persons on-site will provide support to scientists and researchers who are interested in new publishing paths and

forms to successfully publicise their research results using the Open Access approach; help will also be provided in finding solutions for complex legal and practical issues (e.g. with regard to funding opportunities for Open Access publications). All of this should help it become natural for scientists and researchers to work with Open Access publications and to publish their own research findings quickly and in a legally secure manner using Open Access.

The open-access.net project supported by the German Research Foundation offers practical assistance and information for starting out with Open Access for particular target groups. The great success of this project demonstrates that there is a broad need for advice and information at all levels.

Promoting successful Open Access models

The Federal Ministry of Education and Research will support the development of Open Access initiatives and projects and help to increase the visibility of successful examples by organising a funding competition.

Impressive and innovative approaches that allow the Open Access to become more common at universities and research institutions will be honoured here, and the implementation of these approaches will be supported in everyday scientific activity. The focus here is on projects that demonstrate the successful implementation of Open Access in practice or that make publishing using an Open Access model easier in a specific manner.

The ease of searching for and finding Open Access publications is an important factor in the success of Open Access. Projects such as the Bielefeld Academic Search Engine (BASE) demonstrate how Open Access can be fostered with the aid of practical projects.

Numerous projects in the areas of science and research – such as the founding of Open Access journals, examples of shifts from subscription journals towards an Open Access model and the establishment of search engines and databases that improve the later usefulness, searchability and networked distribution of Open Access publications – are demonstrating how Open Access can be implemented in practice. The Federal Ministry of Education and Research will also be supporting smaller projects and initiatives.

X. Making Open Access visible and measurable – Open Access Monitor

The Federal Ministry of Education and Research will establish an Open Access Monitor that will track the quantitative status of Open Access in Germany in a reliable manner. Building upon an appraisal of Open Access activities in Germany, additional areas where action is required are to be identified and future measures are to be based on these findings. In this way, the effectiveness of future measures can be measured and changes in publishing behaviour can be rendered visible at the same time.

If institutions are able to quantify the share of Open Access in their publications, they will also be able to

identify areas that are weaker in Open Access and foster Open Access in a more targeted manner.

It is also planned that monitoring will show what sources and amounts of funds are used for obtaining scientific information and for financing publications (both for Open Access and the subscription-based model). In this way, the changeover to Open Access can be structured in a tailored manner.

XI. Outlook

Open Access is a component of a comprehensive transition to digital science and research. With the publication of its Open Access Strategy, the Federal Ministry of Education and Research is initiating a process that will bundle the diverse efforts being undertaken by science, research, industry and government and will identify and foster various new courses of action. At the same time, the ministry will strengthen the spread and use of Open Access publications by

expanding its own support measures. All actors from science, research, the political arena, industry and society are encouraged to participate in this process and to initiate or expand their activities in this regard.

Digitalisation opens up major opportunities that should be taken advantage of jointly in a global knowledge society.

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