



III Międzynarodowa
Konferencja OA

III Międzynarodowa Konferencja Open Access w Polsce
„Otwarta nauka i edukacja”

13-14 marca 2012, Bydgoszcz, Polska

III International Conference Open Access in Poland
“Open learning and education”

March 13-14, 2012, Bydgoszcz, Poland

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Opening Science in Poland

Abstract: *Open science initiatives and enterprises in Poland have been presented, including key issues of open access to scientific resources (open access journals and repositories), IT infrastructure for open access (Polish and European projects with Polish partners involved), law regulation for open science (open licenses, open mandates).*

The roles of individual entities (government, scientific and research institutions, social organizations) in activities for open science have been discussed. The author attempts also to define basic problems and most important challenges faced by open science movement in Poland.

Keywords: *open science in Poland, open models of science communication*

Open access journals

Out of two basic forms of open access i.e. open access journals and open access repositories, in Poland open accessed journals are better developed. A Directory of Open Access Journals (DOAJ, <http://www.doaj.org/>¹) records 133 Polish open access journals. As far as the number of journals registered with this service is concerned, Poland occupies the fourteenth position in the world and the seventh position in Europe. The first Polish journals were registered in DOAJ in 2003. The number of Polish journals has significantly increased recently. Only in the year 2011 fifty new Polish titles registered. These journals are published by scientific institutions (Polish Academy of Sciences, universities, institutes and scientific societies) as well as by commercial publishers like Versita (46 journals) or Termedia (12 journals).

The ways in which the openness is realized are worth paying attention to. A business model in which authors pay to have their works published is not very popular — only 16 journals charge authors for publication. Most Polish journals represent the type of gratis open access i.e. content is made freely accessible on the Internet, but users can only use the content in the frame of the exceptions and limitations to copyright (fair use). Openness, even the type of *gratis open access*, can be questioned for journals of some publishers. For example, access to articles from journals published by Termedia is possible only after prior registration and creation of the profile on the publishers portal, which in turn requires registration with personal data and the consent to have them processed. 39 Polish journals registered in DOAJ is made accessible on free licenses, thus offering so called *libre open access*. They all use Creative Commons license. 37 of them use Creative Commons Attribution (CC BY). Only two journals use Creative Commons Attribution Noncommercial (CC BY-NC).

¹ All the references to the Internet refer to the versions of 23rd February 2012.



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Not all the Polish open access journals have been registered with DOAJ. Many Polish journals provide access to all or selected articles from current or archival issues on their homepages. However, they often are not aware that they publish in open access model. It seems that one of the main objectives of open access movement in Poland shall be to make publishers and redactors of journals aware of the importance of careful selection of a complex open access model of publishing, including its infrastructural, legal, financial, organizational or promotional aspects and its full implementation.

Some Polish open access initiatives refer to individual titles of journals, other initiatives are more general and systematic — these are usually undertaken by commercial institutions or research units.

Several commercial publishers realize traditional publishing model, joint with open access to selected titles published (Versita, Termedia, Via Medica) or maintains open publishing platforms (the Versita Open platform provides access to around 200 journal titles from various countries, including Poland).

ICM has started cooperation with providers of databases in various disciplines with the aim to open access to full texts of scientific journals on the ICM Internet Platform. At the moment open access to current and selected archive issues of 78 Polish scientific titles on this platform is possible in the frame of the following databases:

- BazTech (a database recording articles from Polish journals on engineering, technology, sciences and the environment),
- BazHum (a database recording articles from Polish journals in humanities and social sciences),
- AGRO (a database recording articles from Polish journals in life sciences, agriculture and technology),
- Virtual Library for Mathematics (also archival issues of the most important Polish mathematical journals).

Organizational model is as follows: ICM is responsible for the IT infrastructure and legal aspects of open access to the content of journals, whereas providers of databases are responsible for metadata of publications, posting full texts on the ICM Internet Platform and incorporation of the texts into consistent system of knowledge resources according to standards. Such a model enables journals to be included in open access resources smoothly and without additional work or costs incurred by publishers. ICM also participates in dissemination of open models focused on scientific books. A service Open the book (Otwórz książkę, <http://otworzksiazke.pl/>) contains modern scientific books made available by their authors.

Polish Academy of Sciences (PAN) has opened recently Journals Reading Room of the Polish Academy of Sciences (Czytelnia Czasopism PAN, <http://www.czasopisma.pan.pl/>). Thirty two journals from various disciplines of knowledge published by the committees and departments of PAN have been made



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available in open access. Further titles will be added successively. Journal presented in the Journals Reading Room will also be accessible on the ICM Internet Platform within the model discussed above.

Open access journals are still only a small part of Polish scientific journals. These journals are funded mainly from public funds. In 2010, only in the framework of sources for the dissemination of science, 734 titles received over 24 million PLN (for 2 years). In most cases journal sale and subscription proceeds are not the main source of funding. Therefore the requirement of open access to be mandatory for all the journals financed from public funds seems to be both well-reasoned and feasible. Realization of the postulate of providing open access should also be reflected in the process of evaluation of journals and in stimulation of publishing in open access models by research units throughout adequate solutions in the system of parametric evaluation of these units. Open access models introduced for journals funded from public resources would also affect commercial publishers who would have to adjust their business models to new circumstances.

Open access repositories

Open access repositories in Poland are still poorly developed. A Directory of Open Access Repositories (DOAR, <http://www.opendoar.org>) records 75 Polish repositories. Registry of Open Access Repositories (ROAR, <http://roar.eprints.org>) — 68. However, most of them are actually not repositories but digital libraries. Unlike the repositories, digital libraries do not enable authors self-archiving of research materials. Digital libraries contain digitized materials which already existed in printed form. Most of them are documents from public domain (due to the expiry of the economic copyright to these documents). It is worth to point out the significant development of Polish digital libraries: the resources of the Digital Libraries Federation (Federacja Bibliotek Cyfrowych FBC, <http://fbc.pionier.net.pl/owoc>) consist of over 900 000 publications² (incl. also contemporary research texts, articles and monographs) from 81 digital libraries.

In the services which record exclusively typical repositories (which is reflected in their validation and registration policies) there are much less Polish repositories than in DOAR or ROAR. A European network of research repositories DRIVER (<http://www.driver-repository.eu/>) records four Polish repositories: Adam Mickiewicz University Repository in Poznań, the Repository of ICM Centre for Open Science, ECNIS Repository (Environmental Cancer Risk, Nutrition and Individual Susceptibility) and the Institutional Repository of Poznan Supercomputing and Networking Center.

Only one Polish repository i.e. the Repository of ICM Centre for Open Science complies with requirements for open access repositories by OpenAIRE Project, which

² Data as of 29.02.2012.



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supports the Open Access pilot launched by the European Commission.

In Poland there are some more institutional repositories, e.g.:

- Repository of the Institute of Biochemistry and Biophysics, Polish Academy of Sciences,
- Eny Repository, Wroclaw University of Technology,
- Digital Library of the Formal Linguistics Department at the University of Warsaw,
- Repository of Cracow University of Technology.

Many institutions plan or consider the establishment of their repositories. Many Polish scientists use subject repositories (e.g. many physicists use the repository arXiv.org).

The establishment of an institutional repository ought to be accompanied by the adoption and implementation of open access policy in the institution. Its most significant

manifestation are so called open mandates. Open mandates have been adopted so far by three Polish institutions: Adam Mickiewicz University in Poznan (mandate refers to doctoral theses), the Institute of Biochemistry and Biophysics of Polish Academy of Sciences (mandate refers to all the articles) and The Department of Electrical Engineering of Wroclaw University of Technology.

Change of present institutional policies for open access and institutional repositories in academic units is necessary in the context of modernization of Polish system of science and its competitiveness. 42 universities and the Conference of Rectors of Academic Schools in Poland are already the members of the European University Association. In March 2008 the Association adopted a recommendation of the working group for open access concerning open access policy and open repositories in higher education. Following that recommendation and application of modern system for knowledge dissemination and management is beneficial for universities. Other research units should also take advantage of new technologies connected with open models in dissemination of research output. Taking into account such factors as having one's own repository or the use of an external one, introduction of open mandate and active promotion of open access in the system of parametric evaluation of research units would foster the establishment of an efficient network of institutional repositories. Research funders, e.g. the National Science Centre or the National Centre for Research and Development, also ought to make use of open repositories as the tools of open access policy.

Other forms of open science

Other forms of open science than open access to scientific content are hard to be observed in Poland. In 2004 Poland signed an OECD *Declaration on Access to Research Data from Public Funding* (accompanied by the document *OECD Principles and Guidelines for Access to Research Data from Public Funding*



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published in 2007)³. It recommends rules for openness, transparency and interoperability of research data financed from public funds. However, no further systematic activities connected with making research data accessible or the use of open research data in Polish system of science have followed. As far as open forms of distribution of knowledge other than publications are concerned, a few Polish scientists blog (scientific blogs) or use international social networks for scientists. Models of open scientific communication like *open notebook science* or *open peer review* not only have not been adopted in Poland but are also almost unknown. The introduction of these models into Polish science should proceed parallel with the implementation of open access, firstly because they form a consistent entity and secondly because selective implementation of only the best developed elements of open models — in the context of significant delay in implementation and co-shaping of open models — will lead to further weakening of competitiveness of Polish science in international environment.

IT infrastructure for open science

A necessary condition for the development of open science are adequate IT systems. Institutions which realize initiatives for providing open access to scientific content use both standard, worldwide known solutions, like free or open software for digital repositories (e.g. DSpace, EPrints, Invenio) and home-made solutions (e.g. YADDA software created at ICM, implemented for the ICM Internet Platform). It often happens that IT infrastructure is the weakness of the whole project. It refers first of all to institutions with no well-developed IT support. It happens also that lack of adequate infrastructure and competencies to develop adequate infrastructure prevents an institution from the realization of planned activities, limits such activities or causes delays.

The need to develop technical tools for the implementation of open access and making them available for a wide range of institutions is of great importance. Good effects should be brought by European projects for open access infrastructure as well as Polish ones focused both on open and closed models.

ICM was a member of the consortium of DRIVER and DRIVER II projects, working on the development of European infrastructure for open digital repositories. Basic elements of this infrastructure are key services of the YADDA Platform created by ICM. ICM is also its main operator. DRIVER and DRIVER II projects resulted in establishing a virtual network of European repositories and the implementation of the technology for the management of dispersed repositories treated as one virtual resource. At the moment ICM is a technical partner of the OpenAIRE and OpenAIREplus projects, that support realization of the European Commission's Open Access Pilot and build the second generation European open access infrastructure, as well as EuDML project, which aims at developing European digital mathematic

³ OECD Principles and Guidelines for Access to Research Data from Public Funding [on-line]. OECD, 2007 [Cited 23.02.2012]. Available from Internet: <http://www.oecd.org/dataoecd/9/61/38500813.pdf>.



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library. The infrastructure created and developed in the frame of these projects may be integrated with the infrastructure created within national projects, especially the SYNAT project (<http://www.synat.pl/>).

The objective of the SYNAT project, which is led by the ICM, is to create a universal, open, hosting and communication platform for network knowledge resources. Within the project centralized repository will be established to collect, index, store and provide access to digital content from various resources, as well as a set of IT tools and components which enable creation of repository software and the development of dispersed heterogeneous federation of digital repositories. That set is being created at ICM as an open platform YADDA2. The software of the platform will allow institutions to establish their own repositories according to their specific needs and requirements. Institutions will have the possibility to use their own local infrastructure or the platform's infrastructure.

It will be also possible to create other applications integrated with the platform, which will use its services and data to give access to new services and tools. Applications created by the ICM will include a portal with joint functions of metasearch engine and social networking service for scientists, a searching interface for external institutions and repositories interested in migration or providing access to data on the platform and the application for creating WWW home pages of scientific journals (including open access journals).

The objectives of the SYNAT project do not determine the model for creation of and access to resources on the platform. From the technical point of view, the solutions introduced on the platform can easily be used for open models. The use of these solutions would make the implementation of open models easy, it would also lower costs of the implementation and ensure unity and interoperability of resources. Because platform solutions are financed from public funds, connecting them with open models of knowledge production and distribution is important also in view of rational management of these funds.

Legal tools for open science

Special attention should be paid to legal aspects of open science. As far as legislative regulations are concerned the awareness of scientists in Poland is often rather low, which results in poor understanding of the essence of open models for scientific communication. Especially, open access is understood merely as free access to resources on the Internet (*gratis open access*). Also, such tools of opening access to scientific resources as open mandates or standardized procedures of negotiating of publishing contracts are not known well enough.

Libre open access requires that an entitled person agrees for the use of the works made accessible in this model in a range wider than is permitted in the copyright law. Ready patterns of so called free licenses make the expression of agreement easier. In Poland, similarly to other countries, Creative Commons licenses are used for that. However, number of research works licensed this way is still very small. Increasing



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this number should be a significant element of the implementation of open models. Creative Commons licenses are intensively promoted by Creative Commons Poland, which have existed since 2005. CC Poland attaches great importance to the use of licenses in science. Polish institutional partners of Creative Commons are the Digital Centre Project: Poland and the ICM.

Open mandates are not popular in Poland. In case of research institutions this issue should be considered together with open repositories. According to Polish law, open mandates in research institutions can be introduced in several ways. The ICM is working on model solutions in this field.

An important element in the improvement of law awareness of Polish scientists, especially authors, should be persuading them to negotiate traditional publishing contracts, so that they preserve their copyrights to the extent needed to provide open access.

Activities for open science — an institutional perspective

Activities for open science are undertaken by a small group of entities of various types, including government institutions, research ones and social organizations.

Until not long ago, the only activity of Polish government directed towards open access was financing of the Springer Open Choice program for Polish authors (for the years 2010-2012). Based on the agreement between the Springer publishing house and the ICM, researchers and students affiliated with all the Polish academic, research or educational institutions can participate in the program in the frame of which the Springer publishing house allows authors to choose open access to their articles published in most of Springer's titles on the Creative Commons Attribution Noncommercial (CC BY-NC) license free of charge. In this program the cost of publication i.e. 3000 USD or 2000 Euro is paid by the author, whereas for Polish authors the costs are paid by the Ministry of Science and Higher Education. This solution is specially interesting as a method of opening access to foreign publications of Polish researchers. It is worth encouraging authors who publish in Springer's journals to take advantage of this opportunity.

In 2011 the Department of Strategy of the Ministry of Science and Higher Education ordered an expertise for the *Implementation of open access to scientific and educational resources. World practices and Polish specifics. Predicted costs, tools, advantages and disadvantages*. The expertise was prepared by the ICM team and made accessible under the Creative Commons Attribution license (CC BY). It includes an analysis of the ways of implementation of open access to scientific and educational resources worldwide and proposals for changes in Polish system of science aiming at the implementation of open access. These proposals have been presented as a set of independent and complement solutions (modules). They are as follows:



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- inclusion of open access issues in the system of parametric evaluation of research units; the introduction of open mandate in the National Science Centre and the National Centre for Research and Development,
- transition of scientific journals financed from public funds into open access journals,
- taking into account the criterion of openness in the evaluation of research journals,
- implementation of unified policy that combines financing journals with the rules of open access in programs of the Ministry of Science and Higher Education,
- introduction of open mandate in reference to doctoral theses,
- financing of publications by Polish authors in foreign open access journals by the Ministry of Science and Higher Education,
- realization of additional promotional, advisory and information activities focused on open access.

The proposals are accompanied by the SWOT analysis of the whole model and its individual modules and a detailed overview of legal, infrastructural and financial solutions for that model.

The future will show to what extent the interest of the Polish government expressed in ordering the expertise will be transferred to implementation of the proposals presented in this expertise. Just now the document may be the starting point for a wide discussion.

Preparation of the expertise for the Polish government is one of the signs of active role of the ICM in opening science. ICM was also a member of the consortium of European Subject Network for digital public domain COMMUNIA. In the frame of OpenAire project, ICM manages a liaison office for Open Access. ICM also manages the Open Science portal. The development of interest in open models of scientific communication has led ICM to the establishment of the Centre for Open Science. Its competencies and activities for open science refer to software, resources, research expertise and promotion.

Many issues concerning open science — especially open access — have been introduced in Poland thanks to librarians. The University Library in Torun and EBIB organized international Open Access conferences (2007, 2010). The University Library in Torun was a member of the COMMUNIA consortium. In the portal of the EBIB Association there is a service on open access, an open access journal “EBIB Bulletin” publishes articles about open communication. Open archive of publications in the field of librarianship and information science E-LIS (E-prints in Library and Information Science), supported by Polish Librarians Association (PLA), provides access to many Polish publications. PLA together with the Modern Poland Foundation (Fundacja Nowoczesna Polska), Wikimedia Poland Association and ICM is a founder member of the Coalition for Open Education (Koalicja Otwartej Edukacji KOED).



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The Coalition for Open Education is an agreement of NGOs and educational, research or cultural institutions for the development and promotion of open education in Poland. Despite the fact that most of activities of the Coalition refers to education, they are of significant importance for open science also. The Coalition popularizes open models and persuades many entities to incorporate them in their activities. It publishes documents on open models, provides legislative analysis, organizes trainings. The Coalition and EBIB coordinate an Open Access Week in Poland.

Conclusion

The review shows that open models of scientific communication are still a novelty in Poland. Moreover, some elements of these models cannot even aspire to such a status. On the other hand, some issues of open scientific communication have already been articulated and practically implemented. Therefore it can be assumed that the process of opening science in Poland has began.

References:

1. NIEZGÓDKA, M. et al. *Wdrożenie otwartego dostępu do treści naukowych i edukacyjnych. Praktyki światowe a specyfika polska. Przewidywane koszty, narzędzia, zalety i wady* [on-line]. Warsaw, 2011 [Cited 23.02.2011]. Available from Internet: http://www.nowyebib.info/images/stories/wiadomosci_2/2012_styczen/oa_icm.pdf.
2. *OECD Principles and Guidelines for Access to Research Data from Public Funding* [on-line]. OECD, 2007 [Cited 23.02.2012]. Available from Internet: <http://www.oecd.org/dataoecd/9/61/38500813.pdf>.

Biography

Jakub Szprot works at the Centre for Open Science (Interdisciplinary Centre for Mathematical and Computational Modelling, University of Warsaw). He graduated from the College of Inter-Faculty Individual Studies in the Humanities at the University of Warsaw (major: philosophy). He is completing his PhD at the Graduate School for Social Research at the Institute of Philosophy and Sociology, Polish Academy of Sciences.

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