Institutional Policies for Open Access to the Results of Scientific Research

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Abstract—This paper describes the principles of all the known institutional policies for open access (OA) to the results of scientific research for research organizations, publishing companies, and funding agencies, in addition to which we suggest developing OA policies for libraries. The paper proposes a structural–logical scheme for an institutional OA policy system. We recommend invigorating the work of Post-Soviet organizations for their integration into the international OA movement at seven levels: global-ideological, regional (transnational)-ideological, national-ideological, national-political, institutional-political, national-technological, and institutional-technological.

Key words: scientific research, institutional policies, integration levels, open access.

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By institutional open-access policies to the results of research (scientific knowledge) we shall understand open-access policies to scientific knowledge endorsed by various institutions (research organizations, universities, funding agencies, publishers, libraries, etc.).

At present, these policies have been developed in the United Kingdom for three types of organizations:

(1) organizations conducting scientific research, their departments, and associations;

(2) research funders;

(3) publishers of scientific journals.

For all these three types of organizations, registers of respective OA policies have been created.

Adoption of these policies will not be possible without launching broader initiatives, statements, and declarations on open access to knowledge in the sciences and humanities and without supporting this process at the highest governmental and intergovernmental levels. We have summarized the currently existing open access initiatives, statements, and declarations in the table below.

At present, support for the process of open access to knowledge in the sciences and humanities has been given by governmental and parliamentary committees in many countries of the world, and by powerful organizations, such as UNESCO, OECD, European Commission, European Research Council European, European University Association, etc.

In view of the fact that the above OA policies are largely related to regulating the process of self archiving the results of scientific research in institutional OA repositories (archives, libraries, storage facilities) we should explain why the term "self archiving" is more frequently used as compared to the term

"archiving." The fact is that OA repositories (open access electronic archives supported by the standard of the "Open Archive" initiative) contain special directories for researchers (personal areas), where they can create, with the help of special instructions from information robots, collections of their research papers, i.e., it is not the administrator of the OA archive who archives the researcher's works, but the researcher him/herself.

Now we can consider the basic types of institutional OA policies.

INSTITUTIONAL SELF-ARCHIVING OA POLICIES

These policies, introduced upon the recommendation of the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities are registered in ROARMAP (Registry of Open Access Repository Material Archiving policies, http://www.eprints.org/openaccess/policysignup). The title of this register says that an institutional self-archiving OA policy (institutional mandate) is registered after creation of an institutional OA repository and its registration in ROAR (the Registry of Open Access Repositories) maintained by the University of Southampton.

As of June 1, 2008, the ROARMAP register included 22 mandates of funding agencies, 18 mandates of research organizations and universities (institutional mandates), 2 multi-institutional mandates (associations, international organizations), and 4 departmental mandates, as well as a small number of planned mandates of every class. These mandates are distributed among 24 countries, including Russia (CEMI RAS) and Ukraine (in the Ukrainian Law On the Basic

Initiatives, Statements, and Declarations on Open Access to Knowledge in the Sciences and Humanities

No.	Title	Date and place of adoption	Basic organization	Number of signatories on June 20, 2008	Languages
1	Budapest Open Access Initiative	February 14, 2002, Budapest	Open Society Institute and Soros Foundation Network	435 organizations, 4776 private persons (15 signatures at the moment of adoption)	English, Russian, etc.
2	Bethesda Statement on Open Access Publishing	April 11, 2003, Chevy Chase, Maryland	Howard Hughes Medical Institute	4 signatures at the moment of adoption	English, German, Spanish, Catalonian, Chinese, and Polish
3	Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities	October 20–22, 2003, Berlin	Max Planck Society	250 organizations (19 signatures at the moment of adoption)	English, German, French, Italian, Spanish, Portuguese, Polish, and Greek
4	Scotland Open Access Declaration	November 10, 2004, Edinburgh	Scottish Confederation of University and Research Libraries	20 organizations at the moment of adoption	English
5	Alouette Canada Open Access Declaration	November 2005, Emerald Lake, Summit	Canadian Association of Research Libraries	44 organizations	English
6	Belgorod Declaration on Open Access to Scientific Knowledge and Cultural Heritage	Approved on January 30, 2008 (Belgorod), signed on April 23, 2008 (Donetsk)	Transborder Belarussian–Russian–Ukrainian Consortium	10 organizations	Russian

Principles of Information Society Development in Ukraine in 2007–2015").

ROARMAP cites a reference to the order by the director of CEMI RAS on the participation of this institute in the international program Open Access to Research Results (http://www.cemi.rssi.ru/riis/news/mitial-eng.htm), which obliges researchers to place those research papers that are funded by the state budget into the OA repositories of the CEMI RAS within 6 months.

The above-mentioned OA policies are registered in ROARMAP in the form of institutional mandates giving open access to the results of scientific research conducted with the support of public foundations. Note that OA policies are based on the standard code of regulations on self archiving developed by Steven Harnad, Professor at the University of Southampton, which he made public at the presentation of the open access supporting mechanisms at the Berlin Conference (October 2003). A Russian translation of this document can be obtained at: http://users.ecs.soton.ac.uk/harnad/Temp/declaration.ru.html. In view of its importance for the broad academic community, we shall cite the explanatory note to this document presenting the essence and explaining the open-access mechanism.

In the world, there are currently 24 000 journals publishing 2.5 million papers per year on average. In contrast to book authors and journalists, authors of research papers do not expect honoraria for their works. They write their papers for a scientific contribution only, therefore in the paper era these authors were always ready to undertake efforts and bear expenditures to send their papers by mail to their colleagues working in their field, regardless of whether they knew them personally or not. In this era, journals could cover their expenditures for publishing and reviewing through subscription payments only. Universities and research organizations pay for subscriptions so that their scholars can read and use the research results of their colleagues from other organizations. But clearly no institution can afford subscribing to the majority of these 24 000 journals and the majority of organizations can afford subscription to a negligible part of the journals, the number of which, during recent decades, has been constantly decreasing with the increase in the prices for the journals, even in the Internet epoch. Naturally, in this situation, research libraries, whose budgets are constantly reduced, cannot subscribe even to the necessary minimum of scientific journals. As a result, as it was in the paper era and is still true today in the epoch of the Internet, each of the 2.5 million papers published every year loses the greatest part of its potential readers because it is not accessible to them. This means that each paper loses the largest part of its potential scientific contribution.

In the book-publishing era, this loss of scientific contributions was inevitable, but in the Internet epoch it can be avoided. In Steven Harnad's opinion, there are two ways to prevent this loss. New on-line open-access journals cover their expenditures, not through subscription campaigns but through fees paid by authors or their

sponsors (institutions or grants). But at present there are only 1500 such journals, which publish only 5% of the 2.5 million papers issued every year. For the remaining 95% of all papers, which are distributed via subscription by 22500 journals, a solution has been found which could soon put an end to closed access and the loss of scientific impact.

In this case, each author is offered the opportunity to self-archive an additional copy of each paper written by him/her on the network server storage of his/her university or research institute (institutional open-access electronic archive), which would support the standards of the Open Archives Initiative, so that this paper could bring its fruit to the benefit of potential users all over the world, whose institutions cannot afford to pay for subscription to the official version of the journal. More than 92% of the journals represented by their publishers have already given their official permission for the self archiving of papers in these online storage sites.

The only thing that universities, institutes, and funding agencies should do is to adopt the respective policies on open access to research results and require that these results not only be published, but also that an additional copy of each preprint or postprint paper be deposited in the respective open-access electronic archive. As a result, the progress of science will be enhanced and not senselessly constrained, as it is now.

Coming back to the ROARMAP register analysis, note that OA policies are described there in a concise form. Below we shall present the contents of a number of OA policies that have been adopted or are planned for adoption in four countries, which are ambitious from the standpoint of science.

On May 23, 2007, the Brazilian Parliament passed a law regarding the dissemination of scientific research results. Its first article reads that all universities and research institutes should mandate the creation of institutional OA repositories, where the results of scientific research are to be stored.

In India, the National Knowledge Commission requires that all the research papers published by Indian scholars and funded from public resources be archived in the standard OA format on the authors' personal websites, and thus be in open access. Later, when a national academic OA portal will be created, these scientific publications will also be placed there.

The Chinese Ministry on Science and Technology is preparing a mandate on electronic archiving of scientific research results.

The Middle East Technical University (Turkey) obliges all its researchers to place copies of all their papers, whether published or under review, as well as Masters or Ph.D. degree theses, on the university OA repository and takes on the responsibility of encouraging and supporting these authors to publish their papers in OA journals.

OA POLICIES OF FUNDING AGENCIES

While the ROARMAP register run by the University of Southampton gives a short description of research funders' OA policies, in the specialized SHERPA JULIET register run by the University of Nottingham these policies are described comprehensively and presented in the form of three subpolicies:

1. Open Access Archiving: this requires open free access to published papers or the reviewed paper version (postprint), although the publishers' time embargos nullify the online access to these papers.

2. Open Access Publishing: this requires publishing in OA or hybrid OA journals to accelerate the process of disseminating the results of scientific research.

3. Data Archiving Policy: this requires archiving the primary data within a certain time frame.

By June 1, 2008, 32 funding agencies from the United States, United Kingdom, France, Germany, Italy, Ireland, Switzerland, Belgium, Canada, and Australia registered their policies in SHERPA JULIET (in ROARMAP there were 22 adopted and 4 planned policies).

Surveys conducted in the United Kingdom in 2005 showed that 15% of all authors have been already self archiving their papers in OA repositories, but in case employers and funding agencies require the self archiving of papers, 95% of the researcher are ready to do it and 81% will do it willingly.[1]

Moreover, for institutions that have adopted self archiving mandates, the percentage of these authors is approaching 100% (http://eprints.ecs.soton.ac.uk/l 10061).

PUBLISHER OA POLICIES ON SELF ARCHIVING

Within the framework of the SHERPA POMEO project (at the University of Nottingham), three policies were originally proposed regarding self archiving of papers in OA repositories (http://romeo.eprints.org/publisher.html):

(A) the pale-green policy allows the self archiving of preprints (the author's version of the paper prior the first contact with the referee and even the publisher);

(B) the green policy allows self archiving of postprints (the final author's version of the paper after refereeing);

(C) the gray policy means that self archiving is formally not supported.

At the beginning of 2008, these policies, within the framework of the same project, were transformed into broader policies also covering copyright issues, viz., publisher copyright policies and self archiving (http://vvww.sherpa.ac.uk/romeo.php).

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[1] Research Council UK Position on Statement on Access to research outputs, 2005 (http://www.rcuk.ac.uk (accessed August 2005)).

When refining these self-archiving policies, four colors were introduced instead of three, as well as restrictions and terms for postprint self archiving:

(1) the green policy means that an author is allowed to self-archive preprints and postprints, with no time restrictions (embargos) for the latter, yet on certain conditions related to copyrights;

(2) the blue policy means that an author is allowed to self archive postprint versions with no restrictions but on certain conditions (the self archiving of preprints is not supported);

(3) the yellow policy means that the author is allowed to self archive preprints, while self archiving of postprints is not supported or subject to time restrictions (embargo) and copyright terms;

(4) the white policy means that self archiving is not formally supported and it is necessary to make requests to the publisher to get permission for self archiving for each article.

The descriptions of publisher's policies on copyrights occupy a fairly large place, and in the ROMEO guide they are cited as hyperlinks to the respective sections of the publisher's website. The above terms, written for postprint self archiving, form an integral part of the publisher's copyright policy.

All the OA journals allow self archiving of preprint and postprint author's versions of the papers and, according to the ROMEO classification, fall into the "green" category. It is important to note that in terms of content, postprint is analogous to the published paper; however, in term of appearance it is not similar, since the publisher reserves the rights for the arrangement of typesetting and formatting. In fact, this means that the author cannot use the pdf file created by the publisher and, therefore, should created his/her own pdf version of the paper for placement in an OA archive.

At the same time, some publishers insist, in contrast, on authors using the publisher's pdf file because they want to see their professional pdf file on the Internet to reserve and promote their house style.

Let us cite a number of publisher self-archiving policies from the SHERPA Romeo guide.

I. Interperiodica:

(1) Blue publisher.

(2) Self-archiving status for preprints is not defined.

(3) The author can self archive postprints on the following conditions:

(3.1) Only on personal and institutional sites and on the sites of non-profit organizations.

(3.2) Publisher contract and source of the publication should be cited.

(3.3) A link to the publisher's website should be given.

II. Elsevier, excluding the journal *Cell Press*:

(1) Green publisher.

2) Authors can self-archive preprints.

(3) The author can self archive postprints on the following conditions:

(3.1) The source of the publication should be cited.

(3.2) A link to the journal's website should be cited.

(3.3) The publisher's pdf file of the paper cannot be used.

(3.4) In some journals, papers can obtain open access status after paying additional expenses.

(3.5) Authors working in the system of the National Institute Health (United States) can place their papers in Pub Med Central in 12 months after publication.

III. Springer:

(1) Green publisher.

(2) Author can self archive preprints.

(3) The author can self archive postprints on the following conditions:

(3.1) On their personal site.

(3.2) In the institutional repository and the funding agency's repository (server) in 12 months after publication.

(3.3) The publisher's pdf file of the paper cannot be used.

(3.4) Reference should be given that the original publication of the paper is accessible at www.springerlink.com

(3.5) The source of the publication should be cited.

(3.6) A link should be given to the journal version of the paper.

IV. Blackwell Publishing:

(1) Yellow publisher.

(2) Authors can self archive preprints.

(3) Author can self archive postprints with a time restriction (embargo from 6 months, in rare cases, from 24 months) on the following conditions:

(3.1) Only on their personal, institutional, or disciplinary server.

(3.2) The server should be noncommercial.

(3.3) The publisher's pdf file of the paper cannot be used.

(3.4) The publisher's copyright and source should be cited with the following phrase: "the definitive version is available at www.black-well-svnergy.com"

(3.5) A link should be given to the journal version of the paper.

(3.6) In some journals, papers can obtain open-access status after paying additional expenses.

At present, there are two large registers of institutional repositories, one being supported by the Univer-
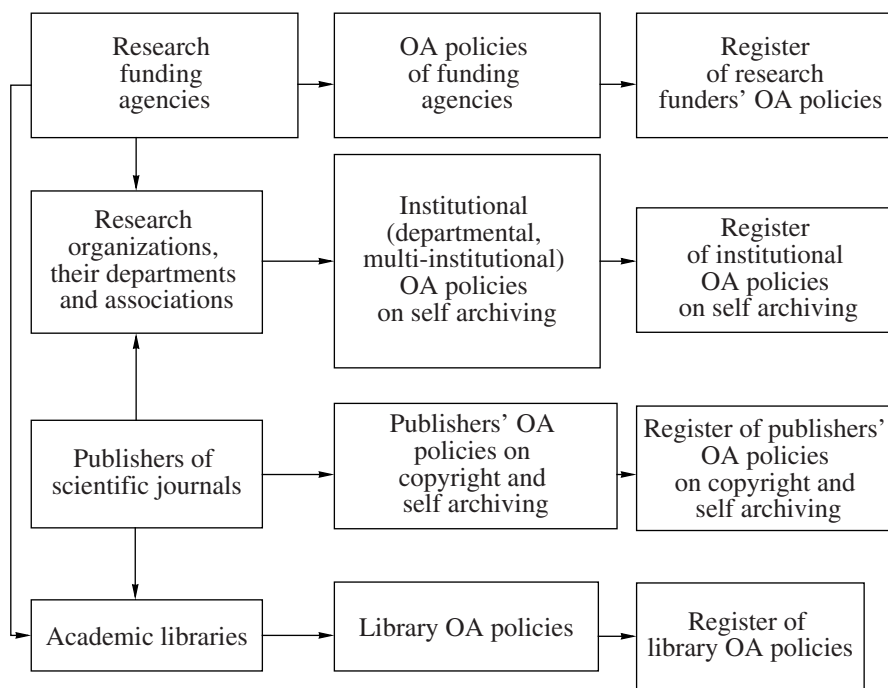
The System of Institutional OA Policies.

sity of Southampton (Registry, ROAR, http://roar. eprints.org/, 1071 OA repositories as of June 1, 2007), and the other by the University of Nottingham (Directory of Open Access Repositories, DOAR, http://www. opendoar.org/, 1148 OA repositories as of June 1, 2007).

Russian institutional OA repositories are most fully represented in the first register of OA repositories, and Ukrainian institutional OA repositories are to the same extent presented in both registers (the first register includes five OA repositories and the second one six).

Regarding academic OA journals, we should say that as of June 1, 2008 their register (Directory of Open Access Journals, DOAJ, http://www.doaj.org) run by the University of Lunda (Sweden) includes, 3401 OA journals, among which there are 14 Russian journals and 10 Ukrainian ones. At the same time, Brazil has 321 OA journals; India, 97; Turkey, 92; Pakistan, 38; Iran, 33, and the United States has 731 OA journals.

Apart from the aforementioned three types of institutional OA policies, in our view, it is necessary to develop OA policies for academic libraries (to search for a compromise between traditional subscriptions and online access to academic periodicals, regulations and priorities concerning digitization of library resources, etc.) All the four types of institutional OA policies are presented in the figure.

In view of the fact that in Post-Soviet territories the process of providing open access to scientific research results remains sluggish we suggest organizing efforts on invigorating this process at seven levels:

(1) the global-ideological level: to join the international open access initiatives and declarations (the Berlin Declaration and Budapest Initiative);

(2) the regional (transnational)-ideological level: to adopt a series of open access initiatives and declarations by analogy with the transborder interuniversity Belgorod Declaration on open access to scientific knowledge and cultural heritage;

(3) the national-ideological level: to adopt a series of open access initiatives and declarations, for example, within the framework of national academies of sciences, national university associations, etc.;

(4) the national-political level: to adopt a series of government and parliamentary mandates authorizing open access to the results of scientific research performed with support from public funds;

(5) the institutional-political level: to adopt institutional OA policies for organizations conducting scientific research (institutional mandates), publishers of academic periodicals, funding agencies and register them in the respective international directories;

(6) the national-technological level: to develop programs and large-scale projects on creating a national network of OA repositories and OA journals, as well as to upgrade software and information search systems based on open code;

(7) the institutional-technological level: to constantly create institutional OA repositories and OA journals, along with their registration in the respective international directories.