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Essay-

Open access: the most important information needs of a scientist today's

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Abstract. The paper presents the most important tasks and challenges a modern scientific library is faced to; it describes the Open Access (OA) policy, its importance for the scientific community, for education, and its role in the development of our society. It is desirable that the OA policy be combined with the publication in English and with the Online First policy.
Key Words: open-access, OA, publication, online first, education, today, visibility.

1. Preliminary considerations

Nowadays, we live in a constantly changing society where access to up to date and relevant information is vital, because information means answers, solutions and release. The topical interest of the information and communication phenomenon is explained by the increasingly relevant role and importance of public information in the citizens' daily life[1]. Considering the importance of public information UNESCO characterizes as "vivid information that helps people to live"[2]. In this regard, access to information may be considered as a fundamental right. Scientific communication paradigm changes as a result of digitization. In this view, open access (OA) reinventes academic publication as a democratic system open to sharing knowledge[3].

2. Tasks and challenges a modern scientific library is faced to

One major task of the library is to make this information publicly available. According to B. Conaty, libraries form the "foundation of democracy"; therefore they have the duty and also the responsibility of to "be decisively involved in all the development of society"[4].

The traditional model of scientific journals that cause users' dissatisfaction is due to the excessive costs for subscription, which was reflected in the phrase "serials crisis" that has become a key issue in addressing scientific communication system. The development of information technology represents a new challenge for libraries. Why? Because it creates preconditions for redistributing responsibilities, for example, publish scientific papers can be done not only by publishing houses, but also by the libraries or directly by the authors. Under these conditions, libraries tries to consolidate their positions by creating more accessible resources, more flexible and cheaper access to scientific information.

[1] Piguet A., Dezvoltarea Colectiilor, Course Notes.
[2] Coblean O., N. Grama, *Biblioteca-mediu de acces la informatia publica* (2010), In: Accesul la informatie si dreptul de autor, Centrul Ed. al UASM , Chisinau, p.30.
[3] Whitworth B., Friedman R., *Reinventing academic publishing online. Part I: Rigor, Relevance and Practice*, In: First Monday [online]. 2009, vol. 14, nr. 8. Available at: http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2609/2248
[4] Coblean O., N. Grama, *op.cit.*, p.31.

Scientists need a communication system capable to help them to publish, to have access, to reuse and to evaluate the relevance and quality of information in an efficient way. These objectives can be best achieved through an interoperable system which integrates reviewed publication, open access to scientific information, long-term digital archiving and other components of the research process[5].

Important for the future of any library is to philosophy the library. This philosophy is characterized by the statement: "We focus more on services[6]." According to this theory, the size and relevance of cultural-historical of existing funds not very interested, but it is significant measurable ability of the library to provide convenient access to information. Basically, traditional fund digitization of library and making them available through the internet is one of the most important tasks of scientific libraries. The OA system is one of the most important services libraries can offer.

3. The Open Access: One viable solution

According to Laakso et al[7], in 2010, an estimated number of 191 000 OA articles were published in 4769 OA journals. Since 2000, the average OA yearly growth rate has been 18% for the number of journals and 30% for the number of articles. This can be contrasted to the reported 3.5% yearly volume increase in journal publishing in general. According to the same source, in 2009, the share of articles in OA journals, of all peer reviewed journal articles, reached 7.7%. Overall, the results of Laakso et al., showed a rapid growth in OA journal publishing over the last fifteen years. Based on the sampling results and qualitative data, they suggested a classification of OA history into three distinct periods: The Pioneering years (1993–1999), the Innovation years (2000–2004), and the Consolidation years (2005–2009).

A part of scientific literature in terms articles published is easy to find and open to public access for free. However, a large part of the published literature remains hidden from much of the target readers. There is a lot of taxonomic and zoological information in the close access literature which is relevant for conservation. There is a large amount of information in biomedical research which is important for both human and animal health. In the non-scholar environment, the access to primary scientific publications is actually quite limited, with costs of up to 35 US dollars per paper, or annual subscriptions to one journal often exceeding the sum of 1000 US dollars[8]. In applied fields, such as Parasitology, Aquaculture, or Biotechnology for instance, these issues concerning the access represent a very real and practical barrier to information flow and as a result, inhibit progress and development.

The most reputed journals in biomedical-agricultural fields or engineering contain useful information, case reports, treatments, ideas, and protocols that are not always available to major segments of the medical or agricultural community, both literally and figuratively. In the rare case where primary scientific literature is technically available to commercial producers, there is often a disconnection between authors and audience (Rhyne 2009). It is generally agreed that laboratory scale research is important and it is a primary source of cutting-edge technologies that it will, down the line, be appropriated for business. These lab-scale developments, however, are not always immediately applicable to commercial scale production without necessary tweaks in the process (Rhyne 2009). The understandable reluctance of scientists to give away intellectual property, coupled with the reluctance of commercial producers to adapt from of laboratory to commercial scales, create at best very slow progress that is further hampered by the logistical barriers to information access[9].

The real OA publications tend to be the solution of these issues.

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[5] Turcanu N., *Accesul deschis-un nou model de comunicare stiintifica* (2010), In: Accesul la informatie si dreptul de autor, Centrul Ed. al UASM , Chisinau, p. 84

[6] Neubauer W., *Viitorul bibliotecilor stiintifice*, available at: http://www.bcucluj.ro/bibliorev/arhiva/nr16/biblio1.html

[7] Laakso et al. (2011) The Development of Open Access Journal Publishing from 1993 to 2009.

[8] Rhyne A. L., 2010. The importance of open access in technology transfer for marine ornamental aquaculture: The case of hobbyist-led breeding initiatives.

[9] Brown S., 1999. Information exchange and captive breeding. Proceedings of Marine Ornamentals '99: Collection, Culture, and Conservation, Waikaloa, Hawaii, November 16-19, 1999.

The US Association of Research Libraries, ARL[10] interprets OA in various aspects:

- OA is a cost effective way of dissemination and use of information;
- OA functions within the current copyright legislative framework;
- OA is free for readers, but not for producers. Costs for producing publications in digital open access system are considered much lower than the production costs of printed literature;
- OA focuses on academic research and it implies peer review.

Open access journals are defined as journals that use a funding model that does not charge readers or their institutions for access to articles[11]. From the Budapest OA Initiative (2001) definition of OA, the open access represents the right of users to read, download, copy, distribute, print, search, or link to the full texts of these articles. Access to information is essential when we discuss about environmental or health sciences issues (mostly not-for-profit) and not about the commercial issues (e.g. patents in the field of biotechnology or IT).

Moreover, environmental issues should be regarded as related to educational ones. Having in view that free access to full text of a journal brings a higher number of citations, it can be considered beneficial to both publishers/authors, libraries and readers.

3.1. Funded by people, open to people

In 2008, European Commission launched an OA pilot in FP7; grant recipients in seven areas were required to: 1) deposit peer reviewed research articles or final manuscripts resulting from their FP7 projects into an online repository; 2) make their best efforts to ensure OA to these articles within either 6-12 months after publication.

"In order to become an increasingly competitive knowledge-based economy, Europe must not only improve the production of knowledge but also its dissemination and application. All research builds on former work, and depends on scientists' possibilities to access and share scientific publications and research data"... "With the advent of the digital age, the scientific community sees great opportunities for the electronic dissemination of research results. Open access has emerged as a possible way of improving access to and dissemination of publicly funded scientific information, in particular peer-reviewed scientific publications"[12]. "Easy and free access to the latest knowledge in strategic areas is crucial for EU research competitiveness,' commented Janez Potocnik, the EU's Science and Research Commissioner. This open access pilot is an important step towards achieving the 'fifth freedom', the free movement of knowledge amongst Member States, researchers, industry and the public at large. Beyond, it is a fair return to the public of research that is funded by EU money"[13].

3.2. English language in academic publications

Why mainly English Language in research and publishing? "English is the universal language of science at this time in history. It is for this reason that Thomson Reuters focuses on journals that publish full text in English or at very least, the bibliographic information in English. There are many journals covered in Web of Science that publish only bibliographic information in English with full text in another language. However, going forward, it is clear that the journals most important to the international research community will publish full text in English"[14]. Even it is the most important entity in scientific literature evaluation, Thomson Scientific (*sensu* Web of Science) is not the only one that suggests English as the most appropriate language for editing and publication (see Scopus Elsevier, EBSCOhost, Index Copernicus, Zoological Record, Biosis, CABI, Pubmed/Medline etc). The most important scientific publications of the world are those indexed by ISI Web of Knowledge platform (including Web of Science, but several other databases also) and those indexed by Scopus Elsevier (a new, but comprehensive and

[10] The US Association of Research Libraries, ARL, Framing the issue: Open access, (2004) available at: http://www.arl.org/bm~doc/framing_issue_may04.pdf
[11] DOAJ www.doaj.org
[12] http://ec.europa.eu/research/science-society/scientific_information
[13] CORDIS, www.cordis.lu
[14] Thomson Reuters http://thomsonreuters.com/

very objective database for citation literature). Some of these journals are international, while others target a rather regional audience.

3.3. OA: Benefits for all

Quality and impact of the scientific literature are the key points of an efficient dissemination of scientific results, ideas, new technologies and, consequently, they are among the most important driving forces in development and evolution of the human society.

Although debatable, both European Union Framework Programme's experts and other experts (eg. NIH-USA, CNRC-Canada, CSHRP-Canada, JREC-IN-Japan, and Australian Research Council) measure the value of publications such as impact indices, or other journal metrics, when they evaluate the result indicators of funded research projects. Having in view that OA to full text of a journal brings a higher number of citations, it can be considered beneficial to both publishers/librarians (higher impact indices/more visitors, customers) and to their readers (more information available).

3.4. OA and Online First policy

Online first policy makes possible a faster publication process and thus, on one hand, a higher chance for authors to be cited sooner and, on the other hand, an opportunity for the reader to use earlier the in press information. Online early publication of an article, corroborated with open access publication in English, offer the authors the chance to report, as soon as possible, important information obtained or discovered, and also to penetrate effectively the audience.

Many times in history a discovery was almost simultaneously reported by different scientists or teams of researchers[15]. There are many known examples of discoveries assigned not to their real discoverers, but to authors who published first the results. In other cases, the poorer visibility of a journal or the language of publication detracted the merit of great scientists. This is the case of Nicolae Paulescu, the real discoverer of insuline[16].

Nowadays, "search and compare" tools, comprehensive platforms of scientific literature, availability of different citation databases or libraries and online publication allow an accurate evaluation and award of scientific merit. Yet, not all the high ranking journals have online available version and only a part of them allow the OA to their online version.

3.5. OA and education

Access to information is essential when we discuss about environmental issues (e.g. risk assessments, conservation) or health science issues (e.g. parasitology, hygiene and so on). Moreover, environmental and health problems should be regarded as related to educational ones. This open access behavior of scholarly publishers would be benefic for the educational process.

Because:

- ⇒ Scientific literature increasingly gets an interdisciplinary character, becoming more expensive at national and global level, and digitization and modern technology impose license restrictions;
- ⇒ Amount of potentially relevant information has increased dramatically in the last 10-15 years in all scientific areas;
- ⇒ Both supply and demand for use of information online has increased dramatically in the last seven or eight years. Regarding the monographic literature, "digitalization" is not so advanced. However, developments in the last three to five years indicate text books, dictionaries and other reference

[15] see "Paulesco and the Isolation of Insulin", Murray, 1971
[16] Recherches sur le rôle du pancréas dans l'assimilation nutritive, Paulescu, 1921

works that the digitalization process will follow a path more or less similar to that of scientific journals[17];

⇒ Science has changed dramatically over the past 10-15 years, indicating the influence of several factors separately. Therefore, the time factor plays a more important role than in the past.

⇒ To improve access to old information, which is often difficult to use, there are projects aimed at digitizing the texts and put into "Open Access". These projects not only refer to funds of old books, important, appeared before 1850, but also ordinary literature, edited by around 1920.

Open Acces (OA) is a possible answer to these challenges. The OA phenomenon[18] started from beliefs that academic research and those financed from public funds should be freely accessible, especially with the spread of technology information and communication technologies (ICT) and with the Internet[19].

Reasons for the OA acceptance by researchers, scientists have been examined in by A. Swan and S. Brown[20]. The study shows some important reasons for promoting research results through OA models:

- to highlight alternative means of free access to scientific journals regarding up to date information;
- to familiarize the authors with new dissemination and access chanels for scientific research;
- to provide alternative sources that increase visibility and the impact of scientific researches etc.

4. Conclusions

Access to information is a fundamental concept of a free society, democracy and the right of access to information is recognized in all international human rights instruments. Thus, it is necessary to develop an institutional OA policy for academic and scientific libraries because libraries are an important link in the process of scientific communication. For libraries OP brings many advantages, such as: solves the problem of price crisis of scientific journals; librarians help users to find information they need, regardless of the limits set for library collections budget; university librarians help faculties and staff to increase scientific impact of the papers, thereby contributing to increase the rating of universities.

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CORDIS, www.cordis.lu

DOAJ, www.doaj.org

[17] Scientific publisher Springer, considered to be the largest publisher of books in the world, currently offers more than 27,000 electronic books: http://www.springer.com/e-content/ebooks?SGWID=0-40791-12-284999-0.

[18] In 1994 Stevan Harnad, in the discussion on the topic "electronic journals", launched an appeal, which invites scholars to create archives of their publications and place them on the Internet in open access. This served as the starting address for Open Access movement. The main idea of this initiative is that the scientific information that scientists are willing to give it free to scietific community must be placed in internet network for open access.

[19] Turcanu N., *op.cit.*, p.39

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