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OPEN ACCESS AND THE NEW ERA OF INFORMATION FLOW

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Abstract: *In the new information era, a new phenomenon grows more and more: Open Access. The paper presents various advantages of the new way of online access to literature, from researches, studies, articles, to books and entire journal collections, through institutional repositories, DOAJ etc. Local projects for open access are presented in Romania. Regarding this concept, the paper also presents comparative situations in Romania, as well as other countries. Positive correlations between open access and citations are enlisted. Some advantages are also briefly presented for libraries.*

Key words: *open access, scientific information, information literacy, institutional repositories, electronic journals.*

1. Introduction

The massive increase of information of the last decade has completely changed the traditional method of sharing, accessing and using scientific data. The new information technologies allowed the migration of scientific publications from printed to electronic version.[1]

For more than three hundred years, the journal has been one of the most important information providers. With the new information technologies emerging, they shifted to the recent open access movement.

The basis of this movement in distributing information to the community of scholars and researchers is that people who need scientific information to be able to access it free of charge. This implies that open access for literature allows reading, copying, distributing, printing, searching within full text or accessing links from the article, without any other barrier but that the authors of the scientific material should keep control of the integrity of their work, and they are entitled to be properly cited.[2]

Those who disagree with open access state that scientific journals represent important guardians. The relevance of the published work, the accuracy and quality of information are provided by the process of peer review. This activity costs money, therefore open access threatens the traditional way of funding scientific publications.

Those who agree with this phenomenon plead that the revolution of information that has been ignited by the emergence of the Internet has spread to scientific publishing, and literature should not be hidden in high cost journals but should be accessible to everyone at no cost.[3]

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2. Advantages of the new way of online access to literature

Open access has a lot of benefits for all those who participate in the phenomenon. For researchers and scientists, the visibility of their work increases, as well as their citations. For universities and other institutions, the institutional rating improves, as well as the demand for their research results. For publishers of scientific journals, the impact factor of their publications increases. For countries, in general, the competitiveness of local scientists and institutions raises, by improving their publishing activity as a whole, increasing this way the level of quotations of local scientists, consequently, the country rating.[4]

Open access materials can be found in powerful networks of electronic archives and online open access journals with global registers, e.g., ROAR, DOAR, and DOAJ, and the number of archives and journals is rapidly increasing as time passes by.

2.1. Institutional repositories

The necessity for universities and other research institutes to store their entire scientific production leads to the creation of institutional repositories. These are open database, accessible online, where all scientific papers of the university are archived. In institutional repositories, diploma projects of students, master dissertations, doctoral thesis of members of the university, teaching materials, scientific papers, proceedings of conferences organized by the university, research reports, and other materials which the institution consider to be valuable for the scientific community can be accessed. They form the value of the institution and increase its visibility and competitiveness at both national and international level.

Institutional repositories can be set and maintained by faculties, by the IT department, by a group of IT specialists of each faculty, or by the library.

Although the works are not peer-reviewed, the advantages of publishing materials in an institutional repository are that all the researches of the university will be available in a single online database; scientific data is accessible from anywhere and for everybody; the university competitiveness, its visibility, and the impact of the researches are increasing.[5]

2.2. Directory of Open Access Repositories

Many institutions embraced the open access movement by creating their own institutional repository. In this multitude of repositories, a list of them was necessary. OpenDOAR (The Directory of Open Access Repositories) was created as a database of institutional repositories. More than a simple list of repositories, it gives access to all their digital content.

Besides the multiple search possibilities, this service offers graphics regarding the world situation of the institutional repositories, by many criteria.

2.3. Directory of Open Access Journals

By the same reason OpenDOAR was created, a list of journals reachable in open access was necessary. DOAJ (The Directory of Open Access Journal) is a database of journals available full text. Academic journals are enlisted after a quality control.

2.4. Registry of Open Access Repositories

ROAR (The Registry of Open Access Repositories) offers further information regarding the enlisted repositories.

3. Projects regarding free of charge access to scientific products in Romania

Even open access or just access free of charge, since 2009 onwards in Romania some projects have been developed, with the only purpose of providing scientific information to the scientific and academic community.

3.1. Access to scientific database

Libraries provide access to electronic journals as a part of documentary database. Usually the subscriptions to these database came with a fee. In this respect, a project came out in Romania: ANELiS (Acces Național Electronic la Literatura Ştiințifică de Cercetare – National Electronic Access to Scientific Research Literature).

In order to promote the access to scientific information, ANELiS project was launched, coordinated by INID (Institutul Național de Informare şi Documentare – National Institute of Information and Documentation) and ANCS (Autoritatea Națională pentru Cercetare Ştiințifică – National Authority for Scientific Research). This project offered, from 2009 to 2012 (at a national level), to the research institutions and to the universities in Romania, in full-text and/or bibliographic format, electronic information resources. These info-documentary scientific resources contain patents, theses, foreign journals etc., in online format. They could be accessed by each university or institution which participated in the project.[6]

Among database offered to the universities, according to ANELiS project, we can mention: ScienceDirect, SpringerLink, EBSCOhost, Wiley Online Library, Taylor & Francis Online, Cambridge Journals Online, Oxford Journals, ProQuest Central, Emerald Management Xtra.[7]

Due to the success that ANELiS project had in the scientific world, at the end of 2011, the Association of the *Universities, Research and Development Institutes, and the Central University Libraries in Romania "Anelis Plus"* was established.

Both ANELiS project and ANELiS Plus Consortium provided access to these platforms and publications, being the only way for the Romanian scientific community to access free online literature.[8]

3.2. Institutional repositories

Many countries developed institutional repositories, as a response of scientific community to open access movement. Although later on than most countries in Europe, in Romania digital repositories started to emerge.

The first institutional repository in Romania was ASPECKT (Analize Statistice şi Previziune a fenomenelor Economico-sociale şi Cercetări de marKeTing – Statistic Analysis and Prevision of the Economic-social phenomena and Marketing Researches), developed by the University "Transilvania" from Braşov, where researchers can archive by their own their materials. This open archive is a rich source of open access scientific information.[5]

On this platform will have access masters of all specializations of Faculty of Economics, all Ph.D. candidates of fundamental field of Economic Sciences, Marketing doctoral field, and teaching staff of Faculty of Economics, who have interest in the field of scientific research.[9]

Another project, which came into being in 2010, was IRCULB (the Institutional Repository of the "Carol I" Central

University Library of Bucharest). Its digital content includes articles published by professors of the University of Bucharest, doctoral thesis elaborated within this university, dissertations, papers edited by the Central University Library.[10]

Since then, several such projects became reality, enriching the academic community with scientific products.

4. Open access worldwide

The advantages of open access have been seen by the scientific community in each country. This is the reason for which more and more universities, institutions, publishers are moving towards open access practices. Hence, some examples are briefly presented, as follows.

In the United Kingdom, The Working Group on Expanding Access to Research Publications was created. It was commissioned by the UK government, but independent in its deliberations. Its members were research funders, scholarly publishers, academic staff, and library representatives. Its task was developing solutions for widening access to the published research, specified as access to more individuals and institutions free of charge and instant access with the ability to re-use the material.

The Working Group developed ten recommendations, enabling the United Kingdom to embrace open access. On behalf of the government, the Minister for Universities and Science responded, accepting and supporting the recommendations.[11]

In 2008, the libraries of higher education institutions and the Library of the Academy of Science established a national consortium in Hungary.

The HUNOR (HUNgarian Open Access Repositories) consortium seeks to advance national open access practices. The main goal of its members is to promote national research and to realize effective dissemination of scientific publications through a chain of national open access repositories. Among other activities, there are the organization of a methodology centre for those interested in open access in general, in repositories, scientific journals and scholarly publishing, complementary scientific communication channels, and international academic relations.

The National and University Library of the University of Debrecen coordinates and provides the necessary infrastructure for this consortium.[12]

In China, the open access movement began in 2003. A series of international conferences have been organized by Chinese academic libraries in order to discuss and promote the strategies, policies, mechanisms and international collaboration, for open access. At these conferences participated representatives from research funding agencies, research institutions, libraries and publishers, and the events helped to raise the value Chinese scientific output.

Today, many examples of practices related with open access adopted by academic libraries can be seen. One such example is the establishment of a national academic open access journal platform, in order to encourage national scholarly societies to make their journals available online.

A second example is the creation of institutional repositories by several academic libraries, for better dissemination of their institutions' scholarly literature.

The third example is that the websites of academic libraries are providing links to open access journals and institutional repositories.

Open access becomes the future of academic library exchanges in China. More and more academic libraries have

been committed to participating in open access movement. The rapid rise of this phenomenon has a major impact on all aspects of academic libraries, including their role, collections, technology and services.[13]

Many South Korean academic societies publish their own journals, usually providing open access through a specific site or their own Web sites. Many of these journals allow free access to articles after a certain period of time.

A barrier for the international impact of these journals is the fact that many of them are published in Korean language. Though they are dedicated to promote Korean scientific production, in order to accelerate the open access movement, they need to be published in English, as well.

Very few Korean scientific journals are working with leading international publishers like Elsevier, Springer, Wiley, or other. This is the reason why few Korean journals have adopted a hybrid model as practiced by worldwide journals. Articles in journal that have an open access version have higher credit on citation as opposed to non-open access articles.

There is an enthusiasm about research at Korean scientists. If they want worldwide readers to use their research products, it is imperative to publish in English as many journals as possible, and to switch publications over to open access. Experience has indicated that accessing Korean journals by international readers has noticeably increased since the transition to open access journals.[14]

Scientific production in the Netherlands has been growing from one year to another. It is a common phenomenon in other countries, too, but in the Netherlands the number of open access publications has been more than doubled in the last decade. Several hundred thousand publications are available through institutional repositories.

An important role in the success of open access in the Netherlands is assigned to scientific libraries. They have built an infrastructure in which a single registration of a publication makes it available on several platforms and sites. As a result of the efforts made over the last years, open access has been continuously growing.

When it comes to publishing in open access, authors are the most important players. The reason they write is to get credits, and to keep the scientific conversation alive. Therefore the visibility and accessibility are very important for them.

One issue is that the quantity of information largely increased in the last years, as well as the number of publications. It is hard, if not impossible, for the authors to keep up with reading all publications in the field they are interested in. This is why publications in open access, being accessed by anyone, are more likely to get attention than the other ones. Getting attention will be more and more important, this fact becoming eventually the dominant reason in choosing one publication or another.

In order to measure attention, publishers and repositories are asked for metrics, to monitor citations, ratings, downloads, for each publication.

The most comprehensive repository in the Netherlands developed a very sophisticated metric functionality for the authors and the management. An important university has incorporated the traditional metrics from database and the impact factors in the institutional repository. Another major institutional repository, holding the most downloaded publications in the Netherlands, monitors daily downloads in the past month and monthly downloads in the past 12 months.[15]

The available data shows that, from 2004 until nowadays, online access to international scientific publications (electronic journals, e-books and other

materials) and their use has been substantially increasing in Portugal. The same phenomenon happens to institutional repositories of scientific information in open access and to the amount of documents deposited in them, especially after 2008. Even though the analysed data point out an increased awareness of available digital information by the local scientific community, there are few studies on the adoption of IC&T regarding Portuguese scientists. Furthermore, studies on electronic publishing and open access to scientific literature are little and seem to be focused more on communities formed around an organization than around specific areas.

Anyway, even when journals are available only in the printed format, it is possible to access few contents online. The adoption of open access policies resulted in the emergence of institutional repositories and increased information sharing in academic communities. Even when the journals are not archived in an institutional repository, the publishers might provide their contents, including articles in full text, freely available through their web sites.

Although some categories of scientists are considered traditional communities in regard to the channels adopted to communicate their research, the studies reveal some behavioral changes. Data shows that, even if there is a common preference regarding print format, universities value more and more the free electronic access.[16]

5. Open access and citations

The emergence of open access raises an important and interesting question. Do authors of the articles that are freely available are more cited than authors of printed materials?

Recent researches on the increase of citations have been based on exploring specific bibliographic database and citation indexes, like Scopus, Journal Citation Report, Ulrichs, and the Directory of Open Access Journals (DOAJ).[17]

Studies reflect that open access journals articles naturally are cited more as compared to non-open access journals ones. There has been a major rise in the open access journals number over the last decade. These journals have been published both by developed countries and developing countries. Open access results in a positive impact regarding the availability of literature, and availability can explain increase in citations and impact. Also, it was found that a higher quality paper will receive more citations than a lower quality paper.

Open access publishing has had a major rise in the last decade, which has not only provided easy access to the scientific literature but has also increased the impact of the research finding. In this period of time, the number of journals available free of charge has been many fold increase.[18]

The impact factor represents the number of citations of an article published in a particular journal divided by the number of articles published by that journal. The measure of the impact factor favors consecrated journals and minimizes the new ones. It is hoped that the emergence of open archives will be beneficial for both the availability and the impact of the papers.

It is proved that online availability determines the increase of the number of citations of open access journals, which is a major indicator of their quality.[19]

6. Advantages for libraries

Open access to scientific data has brought various benefits for libraries. Now they can meet the expectations of their users more in a way not possible before with an enormous quantity of materials. It

is well known that finance was always an issue for library collections. They can shift now their practices from owning (printed copies) to access (free of charges electronic resources).

Due to open access, more publications from around the world are available in libraries, and now libraries can provide high-quality services to readers. Also, the academic libraries could transform their roles from traditional library (to collect, preserve, store, organize and provide information) to prominent publishers of scholarly material.

These are some of the advantages of digital information and publications: electronic journals have a superior speed of editing and disseminating; electronic articles can be published considerably faster than print articles, rising the grade of actuality of the information; electronic text can be updated and corrected; articles can be accessed from anywhere a network exists; online information can be accessed any time of the day, regardless the library is open or closed; the number of simultaneous readers is no longer a concern; information can be search by multiple options; hyperlinks in the article can lead the reader to further information; the readers can use alerts to be informed when a work within his interest is published; electronic environment provides a higher visibility of the scientific journals' content; cooperation between members of the scientific community is encouraged; physical space for depositing information supports (printed books, printed journals) is no longer a concern for libraries.[7]

7. Conclusions

The traditional way of sharing, accessing and using scientific data has completely changed due to the massive increase of information from the past decade. With the emergence of the new information technologies, journals shifted to the open access movement, in which people who seek scientific information to be able to access it free of charge. Open access has a lot of benefits for all those who participate at the phenomenon: researchers, scientists, universities and other institutions, publishers, countries, in general.

Open access materials can be found in powerful networks of electronic archives and online open access journals with global registers. In the multitude of open access sources, lists of them were necessary. Therefore, OpenDOAR (The Directory of Open Access Repositories), DOAJ (The Directory of Open Access Journal), ROAR (The Registry of Open Access Repositories) were created.

The open access movement spread in Romania, as well as in other spaces. Several national and international good practices show that this phenomenon is getting more and more importance.

Studies prove that open access journals articles are cited more as compared to non-open access journals ones. It is proved that online availability determines the increase of the number of citations of open access journals, which is a major indicator of their quality.

Open access to scientific publications has brought multiple benefits for libraries. They can meet now the expectations of their users in a way not possible before, with an enormous quantity of materials. Finance was always a problem for libraries in order to develop their collections. Now, their practices can shift from owning (printed copies) to access (free of charges electronic resources).

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