

# OPEN ACCESS POLICY TO RESEARCH OUTPUTS IN THE REPUBLIC OF MOLDOVA. STATE OF THE ART AND PERSPECTIVES

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## **Abstract**

*According to the Registry of Open Access Repository Mandates and Policies (ROARMAP) only 8 research institutions from the Republic of Moldova (12%) approved an Open Access Policy (OAP). All these institutions are universities and none is a research institute or research funder, although research and development activities in the Republic of Moldova are funded basically from the state budget.*

*The paper contains analysis of the situation regarding Open Access Institutional Policies in the Republic of Moldova. Results of a study regarding the attitude of Moldovan academia to open access to research outputs and identified problems on this issue are presented in this work. Emphasis is given to tools and information systems like Institutional Repositories (IRs) that promote open access for research outputs. The paper reveals the barriers for adoption and / or implementation of an open access policy in a research organization and provides ways for their overcoming.*

## **1. Introduction**

Beginning with the second half of the twentieth century, traditional scientific publishing is still increasing although there are big differences between fields. At the same time, publication using new channels, for example conference proceedings, open IRs, open access journals and home pages, is growing fast. The increasing rate and further development of scientific publishing has led to a flood of information which is difficult for a single researcher to access or manage [5]. A description of this situation was made by John D. Bernal in one of his reports „It is easier to make a scientific discovery than to learn whether it was already made”.

There have been a number of studies that have examined the growth of journal titles [8, 9, 14]. The huge size of these estimates and their variability has inevitably generated complaints about the flood of literature and its effect on scholarly communication [7]. Thus, it is now more than crucial to select the most important resources so that relevant is not missed.

At the same time, the difficult situation on the information market is worsened by the expansion of the number of scientific publications in digital format. According to the data from Ulrich's Periodicals Directory, in 2014 there were 34,585 reviewed scientific journals, [0] whose number is increasing by over 3% annually [15]. Ernest Abadal notes that in 2013, Ulrich's Periodicals Directory registered 8,000 open access (OA) journal titles, which represents 13.5% of all peer-review journals (60,000 worldwide) [0].

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Currently, the number of open access journals is growing. The number of journals registered in the *Directory of Open Access Journals (DOAJ)* at the end of 2016 was 9,454 journals from 128 countries [0]. The representativeness of open access journals in international databases such as Web of Science (WoS) and Scopus is smaller. From 22,000 journals indexed in Scopus, 2,930 journals (13%) are open access, while WoS includes about 726 open access journals (9%) [0].

Now, access to information is restricted by some permission barriers and by price barriers as well. Because of annual serials price increases, libraries, publishers, and vendors search for innovative ways to fulfil information needs of researchers, faculty members and students.

Alternative models of publishing and open access help provide scientific research outcome and make it possible to unify the entire text in a single informational space which is accessible to all the public. Open access is an innovative way of dissemination and use of scientific information, which is promoted to offer users free access to information. Open access is an alternative to the traditional model of scientific communication, based on digital technologies in the network. These factors influence the transformation of the scientific communication system and change social interactions in the academic environment, as well as between the players involved in the scientific communication – scholar, editor, library and user. At the same time, open access strategies transform the relationships between the actors of the communication process, providing a higher public visibility to research outputs and an increase in the scientists' and country's rating due to the increased number of citations.

Open access is supported by two strategies that provide free and unrestricted access to scientific publications, primarily financed from the public budget. While Gold OA provides a quick and direct access to articles through the websites of open access journals, Green OA provides indirect access to an article or an earlier version of the manuscript which is available on the web at a location other than the website of the journal [0]. Hence, publishers give researchers a free hand to make their publications available through institutional or theme repositories with open access.

While publishing policies are important to clearly define the authors' rights on the previous versions of articles or manuscripts, the content of institutional policies encourages researchers to make their publications accessible for free.

## **2. Open access institutional policies in the Republic of Moldova**

According to the national legislation and the number of open access policies approved at national and institutional level, the Republic of Moldova cannot be called a politically open territory. However, there are some encouraging examples, as well as a positive forecast for the future to support open access in the Republic of Moldova.

In the Republic of Moldova the state policy in the field of science and innovation is carried out under the *Code on Science and Innovation of the Republic of Moldova*, approved in July 2004 [0]. Several articles of the Code assure guaranteed access to scientific information. The state, in accordance with the current legislation, guarantees: support through access to information, through its dissemination; information assurance of the topics from the scientific and innovation field; free and non-discriminatory access to scientific-technological information resources. However, open access to scientific research at state level is not confirmed in the Republic of Moldova, primarily that financed from the public money, and besides this, the mechanisms for ensuring free and open access to the scientific and technological information resources are not specified.

In the Republic of Moldova have been launched several projects to support open access and upgrade information services, in order to improve the quality of academic studies which also focus on open and free access to scientific information.

*The Research and Development Strategy of the Republic of Moldova until 2020* [12] sets to accomplish several objectives aimed at reforming the accessibility and dissemination of scientific information, including the increase of public confidence in science and it will foster the citizens' and the civil society's transparent commitment in the research and development areas, by making it easier to access scientific knowledge.

*The National Strategy for the Development of the Information Society „Digital Moldova 2020”* [13] includes the development and implementation of the *Program on creation, development and exploitation of digital content in the Republic of Moldova*, which implies taking such actions as:

- a) facilitating the development of data centres / digital deposits for local content, complying with the standards on content management, conservation and access over time and setting up the public access digital content Register (which will also include the orphan content);
- b) publish on the open data portal all the information of public interest in electronic format, from the public authorities, and regulating the publishing and updating of information, representing digital content, as well as procedures for digital content access and use.

Open Access initiatives are being implemented in the Republic of Moldova by Gold OA – the development of an alternative way of publishing via open access journals. Currently, at the national level there are 17 journals registered in DOAJ with open access (date 30/12/2016), but only 12 journals have approved open access policies.

Regarding Green OA, it is supported by the creation of open access repositories and approval of institutional policies on self-archiving the publications of the institution staff. Currently, in the Republic of Moldova there are 12 open access repositories – eight university IRs and one IR of the research institution<sup>3</sup>, and three important national research, development and innovation repositories<sup>4</sup>. An accomplishment in promoting and preserving the scientific works in the Republic of Moldova is the fulfilment the main goals of several projects – the creation of IRs supporting the EU standards and protocols regarding the Open Archives Initiative (OAI) and ensuring the efficient dissemination of content. To achieve this goal, seven university libraries from the Republic of Moldova have joined their efforts and decided to act jointly. Thus, in order to regulate the process of organizing and efficient operation of the IRs they created and developed a set of documents including: the open access institutional policy, regulations on the organization and operation of the IR, a contract with the author on the distribution of publications in the repository, the archiving guide of publications in the repository.

Universities from the Republic of Moldova accept and recognize the strategic importance of open access to information; express the vision of the institution regarding the benefits and impact of open access on the academic community and take responsibility to disseminate, as widely as possible, the

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<sup>3</sup> The analysis of institutional repositories is presented below in this paper

<sup>4</sup> National repository of e-theses (National Council for Accreditation and Attestation of the Republic of Moldova); National repository of inventions (State Agency on Intellectual Property); National repository of scientific journals and articles published in the Republic of Moldova (National Bibliometric Tool)

findings of scientific activities funded from public budgets and projects based on the principles of open access. Universities also encourage researchers to show their support for open access by submitting their publications in repositories using alternative models of scientific publishing in open access. In order to motivate researchers to provide open access to scientific publications, Moldovan universities have set the objective to register their institutional policies in international registries. University policies which allow open access to scientific research outputs, carried out from public funds, were registered in the *Registry of Open Access Repository Mandates and Policies (ROARMAP)*. Currently, there are 8 open access institutional policies registered in the ROARMAP which belong to universities from the Republic of Moldova.

The analysis of open access institutional policies in 8 universities from the Republic of Moldova revealed that through the open access policies all institutions encourage researchers and teaching staff to submit their works in IRs. Institutional policies mandate the compulsory registration of scientific publications which result from the scientific research, partially or fully, funded by the state. At the same time, some institutional policies stipulate that in case of embargo, the publications developed from state-funded research will be registered in the IRs in 6 months after publication.

All the open access institutional policies support the implementation of open access via two models: self-archiving in the IR as well as publishing in open access journals registered in DOAJ. At the same time, several open access university policies encourage authors to publish with publishing houses that support open access and allow self-archiving in IRs and encourage the teaching and research staff to place the papers published before the approval of the open access institutional policy. Policies require authors to negotiate with publishers the terms of including the publication in IR, provided there are copyright restrictions, so that the publication is included in the repository not later than 12 months after publication.

The national universities are concerned about the quality of scientific publications that creates both a visibility for the institution and an image in national and international scientific environments. Therefore university open access policies authorize the adoption of an efficient peer-review process in order to preserve the quality standards.

Thus, the institutional policies of open access from the Republic of Moldova encourage researchers, grant holders, teaching staff to publish their works in accordance with the principles of the open access paradigm, financed from public money and funds to ensure the long-term preservation of digital scientific works and provide the widest possible access to the scientific works of the academic community.

### **3. Studies on the attitude to open access to research outputs**

In order to learn out about attitude of academia to open access to research outputs, Information Society Development Institute carried out a study in the period November 2015 – February 2016, that consisted of four steps.

**Step One:** Creation of a working group. During kick-of-meeting main activities and methodology of the study were discussed and approved. It was decided to gather data via survey and to use online tool for questionnaires (Google Forms).

**Step Two:** Identification of target groups and drawing up, discussion and approve of questionnaires depending on the target group. Four target groups were identified: R&D institutions (research

organizations and universities); libraries (national, universities’ and research organizations’ libraries); editorial boards of scientific journals; managers of national research projects funded by Government.

Step Three: Identification and invitation of target groups’ representatives to fill out questionnaires. The online questionnaires were available online between 20 November 2015 and 20 January 2016 and enabled the collection of the responses from 39 R&D institutions (success rate: 75 %); 48 editorial boards of scientific journals (success rate: 63%); 83 managers of national research projects (success rate: 34%); 23 libraries (success rate: 71%).

Step Four: Data processing, analysis and drawing conclusions.

The study’s outputs revealed that majority of scientific institutions agree that scientific works should be in open access, albeit after a period of embargo (fig. 1).

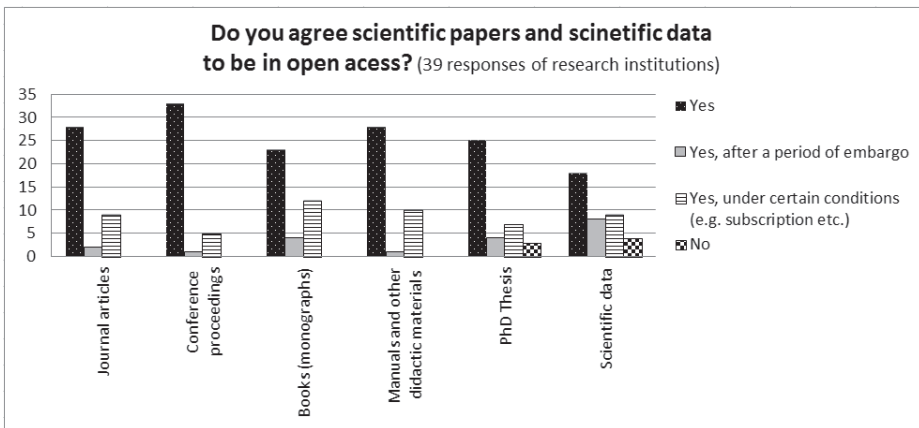


Figure 1: Opinion regarding the open access to scientific publications and research data

At the same time the majority of project managers confess that they prefer hard copy for dissemination of research data and only 15% of project managers are ready to disseminate their research outputs using open access (fig. 2).

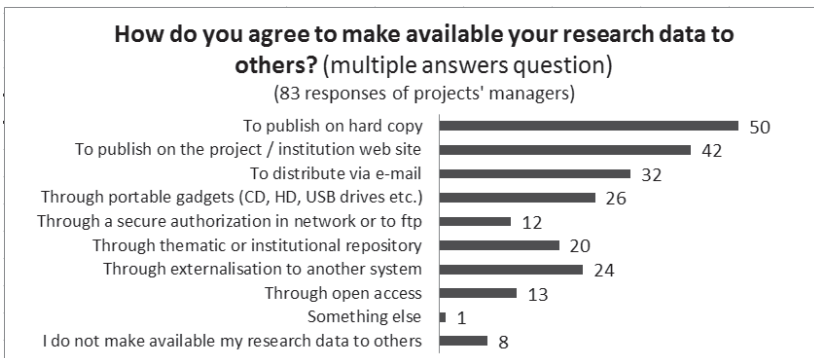


Figure 2: Opinion regarding dissemination of research data

Although 74% of scientific journals have approved open access policy (fig. 3) and 87,5% of them publish articles simultaneously in hard copy and digital format (fig. 4), only 8% of representatives of

scientific institutions confess that have no problem regarding access to scientific publications in Moldova (fig. 5).

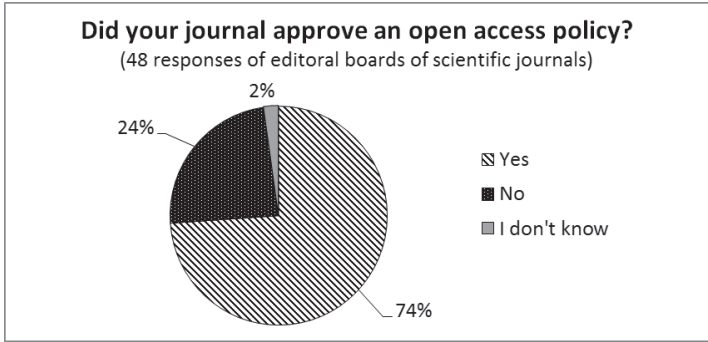


Figure 3: Approval rate of editorial open access policy

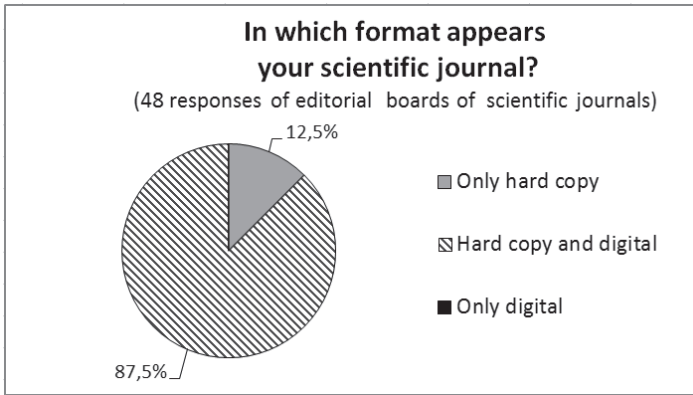


Figure 4: Opinion regarding publishing format of scientific journal

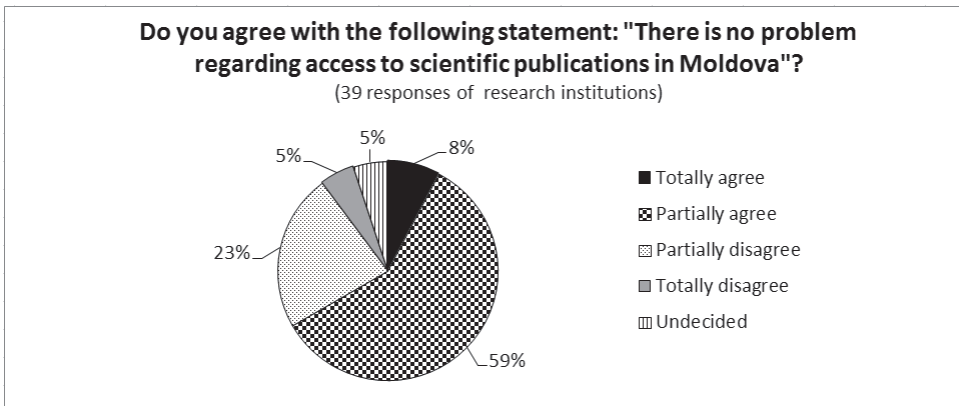


Figure 5: Opinion regarding statement „There is no problem to access scientific publications”

The problem with open access to scientific publications is confirmed by libraries – only 7 of them (or 29%) have between 81% and 100% of digital resources available on-line (fig.6).

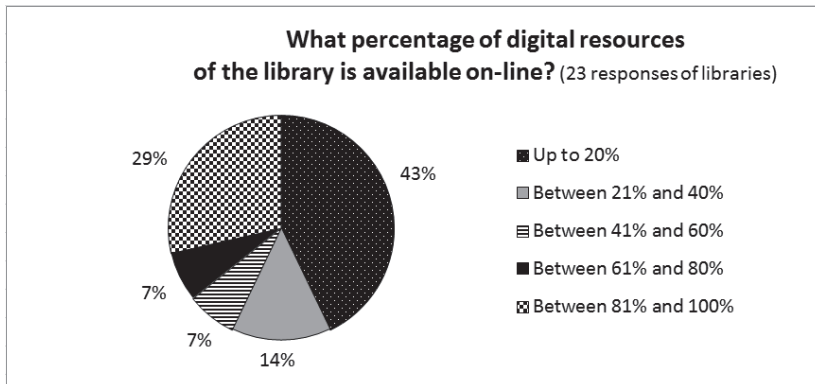


Figure 6: Rate of digital resources of the library available online

The representatives of scientific institutions showed that the most important two barriers to access to scientific publications are absence of motivation to increase access and limited or reduced library budgets. But also important barriers are high prices for subscriptions; lack of interest to scientific publications; insufficient national strategies/ policies on open access (fig. 7).

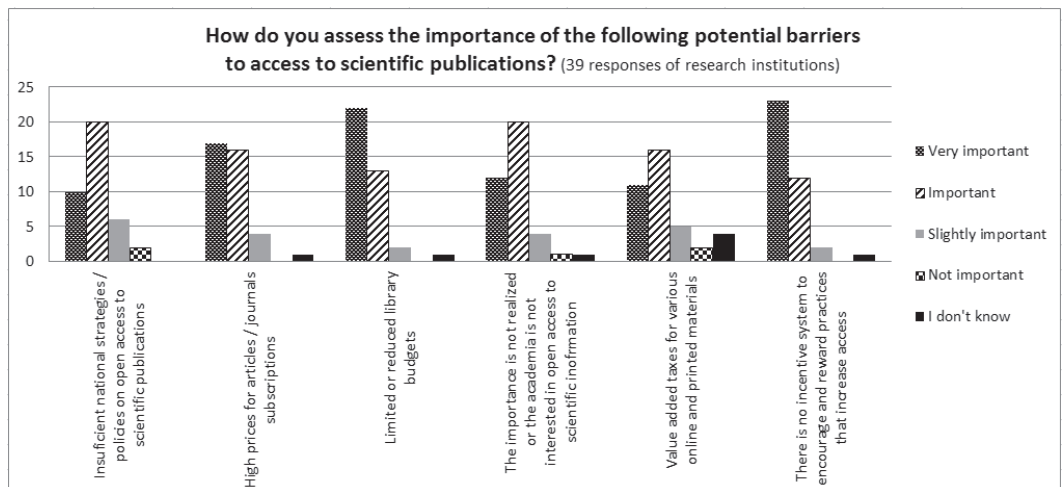


Figure 7: Opinion regarding barriers to accessing scientific publications

#### 4. Analysis of institutional repositories with open access

Aiming to increase international visibility and to be included in the international circulation of information and knowledge, the repositories from the Republic of Moldova are recorded in international registers. Thus, the *Directory of Open Access Repositories (OpenDOAR)* has recorded six IRs and one national repository [10] and the *Registry of Open Access Repositories (ROAR)* provides information on 8 IRs and one national repository [11]. A national open access repository that is included in both registers is the repository of PhD e-thesis<sup>5</sup>.

<sup>5</sup> National repository of e-theses (National Council for Accreditation and Attestation of the Republic of Moldova)

Another identified IR that is not registered yet in any international registry, belongs to a research institute of the Academy of Sciences<sup>6</sup>. More detailed information is presented in table 1.

No	Repository	OAP registration	Registration in ROAR	Registration in DOAR
1.	IR in Medical Sciences of Nicolae Testemitanu State University of Medicine and Pharmacy (IRMS – SUMPh)	ROARMAP ID: 1054 2016	ROAR ID: 11253 10.05.2016	OpenDOAR ID: 3713
2.	Open Research Archive of Alecu Russo Balti State University (ORA USARB)	ROARMAP ID: 999 16.09.2015	ROAR ID: 11083 6.04.2016	OpenDOAR ID: 3714
3.	IR of Economic Knowledge of the Academy of Economic Studies (IREK – AESM)	ROARMAP ID: 1009 24.12.2012	ROAR ID: 11736 22.09.2016	OpenDOAR ID: 3715
4.	IR of State University of Moldova (IR – MSU)	ROARMAP ID: 1062 01.12.2015	ROAR ID: 11352 26.05.2016	OpenDOAR ID: 3738
5.	IR Agricultural Sciences (IRAS – SAUM)	ROARMAP ID: 945 27.11.2015	ROAR ID: 10802 2.02.2016	OpenDOAR ID: 3623
6.	IR of Technical University of Moldova (IRTUM)	ROARMAP ID: 1069 26.01.2016	ROAR ID: 11541 25.07.2016	-
7.	IR of Free International University of Moldova (IR – FIUM)	ROARMAP ID: 1001 16.04.2014	ROAR ID: 10961 3.03.2016	-
8.	Digital IR of State Pedagogical University (DIR – SPU)	ROARMAP ID: 1128 31.10.2013	ROAR ID: 11733 22.09.2016	OpenDOAR ID: 3716
9.	Repository of Socio-Economic Sciences of the National Institute for Economic Studies (RSES – NIES)	-	-	-

**Table 1: Open access IRs from the Republic of Moldova in international registers**

All repositories are based on DSpace Software and have similar features. All documents are distributed per communities and collections, issue date, authors, titles, subjects. All repositories have search tool with possibility to filter documents by title, issue date and submit date.

<sup>6</sup> Institutional repository of the National Institute for Economic Studies (RSES)



No	Repository	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
1.	IRMS – SUMPh	1	3	5	1	5	2	4	6	6	8	227	421	497	495	290	312	<b>91</b>
2.	ORA USARB		1	1	7	6	161	53	57	48	64	100	191	285	164	314	<b>242</b>	186
3.	IRESK – AESM											1	1	<b>6</b>	31	61	73	31
4.	IR – MSU				1			2		3	3	11	3	10	57	229	<b>241</b>	86
5.	IRAS - SAUM	2	3	2	3	8	9	50	59	91	72	328	210	170	400	163	<b>270</b>	91
6.	IRTUM															12	40	
7.	IR-FIUM						3	3	1	2	4	12	3	9	18	<b>38</b>	43	63
8.	DIR-SPU															138	213	750
9.	RSES - NIES													6	4	5	1	1

Table 2: Documents registered in institutional repositories distributed by year of issue

Data in table 2 are presented for the period 2000-2016 (for 1970-1999 there are only 10 documents registered). The year of OAP approval is emphasized by white and bold text (where appropriate) on black background.

From tables 2 it is obvious that the approval of the Open Access policy does not affect the growth of the number of documents registered in that year or later. Some organizations are more active than others in repository exploitation. One repository is not updated (IRTUM).

A deeper analysis of repositories revealed that some repositories have many blank communities (State University of Medicine and Pharmacy, Technical University of Moldova, National Institute for Economic Research). All repositories have at least one blank collection. Sometimes repositories are used for registration of journals and journal issues published by organization-owner of repository (State University of Medicine and Pharmacy, Balti State University, Moldova State University, State Agricultural University of Moldova, Technical University of Moldova, National Institute for Economic Research), while institutional open access repositories of research outputs mean mainly all documents produced by organization researchers.

## 5. Conclusions

In conclusion to the above, we have discovered that institutions have become aware of the need for open access dissemination of scientific publications in the Republic of Moldova. To achieve this objective a number of institutions are adopting support or compulsory mandate policies for the publications of the institution staff, mainly those funded from public money.

In the Republic of Moldova open access is supported by two complementary models: self-archiving in institutional repositories and publishing in open access journals. For the purpose of implementing, encouraging and promoting the submission of scientific and didactic publications, 8 universities from the Republic of Moldova have approved open access institutional policies and promote open access to documents through institutional repositories.

One distinct feature is that in the Republic of Moldova universities are more active in promotion of open access to research outputs by means of institutional repositories, while research organizations are more conservative and prefer publishing scientific works in open access journals.

Although there are some peculiarities in the provisions related to submission terms of publications in institutional repositories, all stipulated provisions in open access institutional policies do not restrict the freedom of publication or research. All the universities that have approved the open access policies are interested in promoting a new open access paradigm to offer more benefits to science and society, an increased visibility, a greater impact and prestige in the academic scientific community, improvement in the dissemination of research outputs conducted in the universities from the Republic of Moldova.

Academia from the Republic of Moldova recognizes the importance of open access to research outputs but sticks to traditional forms of publishing scientific papers; or prefers to not make them available freely on the Internet.

In order to promote open access policies and their implementation in the Republic of Moldova we consider it necessary:

- nationwide to adhere to international initiatives (the Budapest Declaration and the Berlin Declaration);
- nationally (ideologically) to approve a series of initiatives and declarations in support of open access, for example, at the Academy of Sciences of Moldova, at the Ministry of Education or/and at the Ministry of Culture;
- nationally (politically) to approve legislation, regulations that would authorize open access to scientific research outputs, funded from public money;
- at institutional level to continue the approval of open access institutional policies in research institutions, funding agencies and register these policies in international directories;
- nationally to develop programs and projects to create a national network of electronic open access archives;
- at institutional level to extend the creation of open access institutional repositories which will subsequently be registered in the required international directories.

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