

OPEN ACCESS TO RESEARCH OUTPUTS IN THE REPUBLIC OF MOLDOVA – INSTITUTIONAL POLICIES AND RESEARCHERS' VIEWS

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Nelly ȚURCAN

Open Access (OA) means free and unrestricted online access to research outputs, firstly to peer-reviewed research journal articles (Suber 2015). In the last years, several developments suggest that after years of work, a sea change is imminent in OA (Piwowar et al. 2018). First, international and national funding institutions are increasingly mandating OA publishing for grantees.

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. 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 (Code on Science and Innovation 2004). 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 (Țurcan & Cujba 2017).

The Research and Development Strategy of the Republic of Moldova until 2020 (2014) has set 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 Information Society „Digital Moldova 2020” (2013) 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.

The National Program for Research and Innovation for 2020-2023 (2019) mentions the necessity to scientific-technological and informational support of open science in the Republic of Moldova.

An important development is the recent adoption of the *Roadmap for the Integration of the Republic of Moldova into the European Research Area for 2019-2021* (2018). It sets that for the Republic of Moldova is a major priority to ensure open access to scientific results and services. In addition, the document mentions that harmonization of access policies is one of priorities for integration of the Republic of Moldova into the European Research Area. This will help Moldova make better use of the EU's research and innovation opportunities under the current programs.

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, 40 national scholarly journals have approved open access policies. At the same time 30 journals registered in DOAJ with open access (date 10/10/2019).

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 14 open access repositories – ten university institutional

repositories and one institutional repository of the research institution, and three important national research, development and innovation (RDI) repositories (Țurcan 2018). An accomplishment in promoting and preserving the scientific works in the Republic of Moldova is the fulfillment of the main goals of several projects – the creation of institutional repositories supporting the EU standards and protocols regarding the Open Archives Initiative (OAI) and ensuring the efficient dissemination of content.

To achieve this goal, the university libraries from the Republic of Moldova have joined their efforts and decided to act jointly. Due to the international projects *Modern Information Services for Improvement Study Quality*, co-funded by the Tempus Programme of EU (2013-2016) and *Modernization of academic library services in Moldova*, funded by the Norwegian Cooperation Programme in Higher Education with Eurasia (2016-2019), the university libraries developed and approved the institutional open access policies. In order to regulate the process of organizing and efficient operation of the institutional repositories they created and developed a set of documents including: regulations on the organization and operation of the institutional repository, 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 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 9 open access institutional policies registered in the ROARMAP which belong to universities from the Republic of Moldova (10.10.2019).

The analysis of open access institutional policies from the Republic of Moldova revealed that through the open access policies all institutions encourage researchers and teaching staff to submit their works in

institutional repositories. 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 institutional repositories in 6 months after publication.

All the open access institutional policies support the implementation of open access via two models: self-archiving in the institutional repository 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 institutional repositories 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 the institutional repository, provided there are copyright restrictions, so that the publication is included in the repository no 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.

In order to learn out about attitude of academia to open access to research outputs, Information Society Development Institute conducted two surveys: in January-February 2016 and May-July 2018. Some of the surveys' results are presented in the book *Open Science in the Republic of Moldova* (2018).

The first survey regarding the accounting of the digital scientific content and the assessment of the needs for the digitization of the national scientific content was conducted within the national project *The pilot platform for quality assurance and visualization of digital scientific content in the Republic of Moldova (2015-2019)*". The survey's *main objectives* were:

- to map the existing digital scientific content;
- to assess the needs for the transposition of national scientific content in digital format;
- to find out the opinion of Moldovan academia vis-à-vis openness of publications and research data;
- to catch the attitude of leadership of research institutions, project managers and journals' editorial boards regarding open access policies.

Responses were collected from 39 representatives of R&D institutions (75% success rate); 48 editors of scientific journals (success rate: 63%); 83 managers of national research projects (success rate: 34%); 23 libraries (success rate: 71%).

The second survey on the mapping of the research data ecosystem in the Republic of Moldova was carried out within the framework of the project „*Elaboration of conceptual and methodological framework for e-Infrastructure of data in the RDI field of the Republic of Moldova (2016-2019)*”. Unlike the previous survey this one *was focused* exclusively on research data.

The *main goal* of this study was to identify the needs of the RDI community in the Republic of Moldova on the management of scientific data over their lifecycle (creation, processing / analysis, storage / preservation, sharing / access and use). The specific objectives of the survey were:

- to identify the types / formats and sources of research data;
- to find out the modes of storing and preservation of the research data;
- to discover the ways the research data are processed and analysed;
- to learn the procedures of the research data management;
- to determine methods of sharing, access and use of the research data;
- to find out the opinion of Moldovan academia regarding openness of research data.

Responses were collected from 48 RDI institutions (92% success rate), including 13 higher education institutions. Respondents with various positions within these institutions participated in the survey, including: 25 heads of RDI institutions (12.3%); 42 project managers (20.7%), 65 laboratory / research group managers (32%), 34 scientists (16.7%), 23 university teachers (11.3%), 4 PhD students (2%), other positions (10 - 5%).

Both surveys highlighted the need to improve the circulation of knowledge and access to publication and research data. Thus, the respondents of the first survey totally or partially agreed that data obtained from research funded exclusively from public funds as well as those that are partly funded from public and partly from private funds should be available for reuse and free on the Internet.

At the same time, the first study's outputs revealed that majority of scientific institutions agree that scientific works should be in open access, albeit after a period of embargo.

This research has highlighted the need to improve the circulation of knowledge, access and preservation of scientific information. Most of the respondents (R&D institutions) totally agreed that the largest contributions should be made in the following directions:

1) approving the national policies on access and preservation of scientific publication and research data (24 institutions);

2) supporting the development of a national network of repositories (26 institutions);

3) encouraging universities, research institutions, funding agencies to realize specific actions, including the approval of open access policies (27 institutions). Also, the R&D institutions have agreed that it is necessary to provide access to the scientific content.

Representatives of the R&D institutions agreed that the results of research funded from public money should be in open access. 48.7% of the R&D institutions totally agreed that the publicly funded scientific research should be in open access.

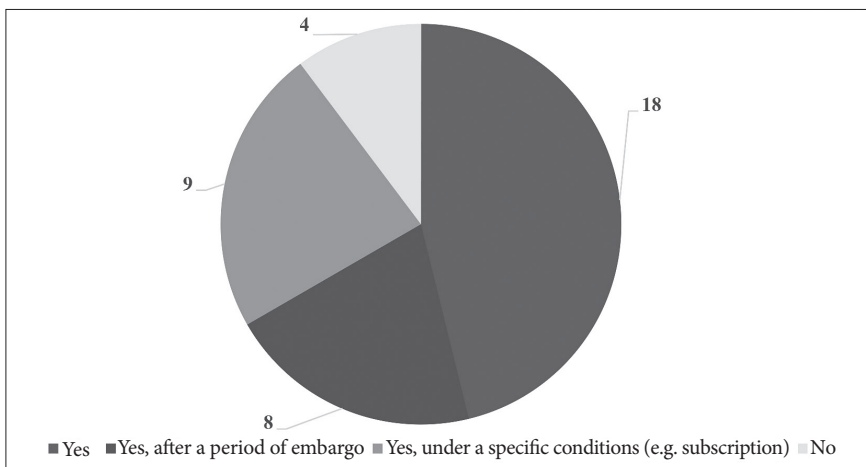


Fig. 1: Moldovan academia's opinion on open access to research data obtained from public funds (first survey)

The editorial boards of the scientific journals also supported open access to scientific publications. Thus, 95.9% of the scientific journal editors consider that the users, scientific community, society should

have open access (free and unrestricted access) to publications resulting from publicly funded research. Most of scientific journal editors (36 respondents) agreed that journals should be in open access; a part of the editors (13 respondents) considered that only some scientific journal articles should be in open access.

Most of the national research projects managers agreed that the results financed from public budget should be in open access. In particular, open access must be offered to: project proposals accepted for funding (47 respondents); final project reports (44 respondents); scientific data (41 respondents); deliverables (36 respondents) out of 83 respondents. 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.

The second survey highlighted the need to improve the circulation of knowledge and access to research data. Thus, 31% of survey participants noted that they unconditionally share research data, 60.1% said they share the research data according to the conditions specified in the research project, only 14.3% do not share their research data.

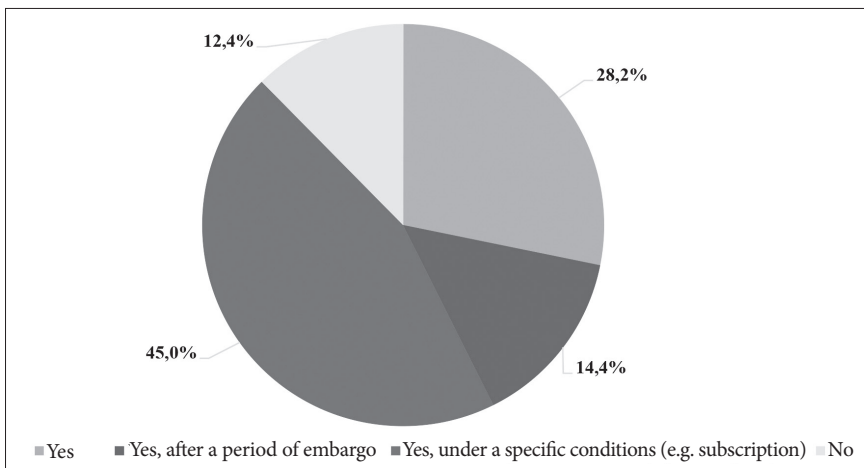


Fig. 2: Moldovan academia's opinion on open access to research data obtained from public funds (second survey)

Survey participants were asked what options they would choose in case they would share or plan to share research data. Most respondents noted that they will present data to journal as a support for the publication

(64%). Also, other data sharing options have been identified, such as sharing the research data to colleagues on request or informally (39.9%), the data will be available online on the project or institution site (34.5%), storing data in a specialized database or repository (33.5%) etc.

This survey provided questions on open access to research data resulting from public funding (Figure 2). The majority of researchers (177 respondents) believe it is necessary to open the data resulting from public money-funded research. 57 respondents (28.2%) opted for unconditional open access, 29 respondents (14.4) were granted open access after an embargo, and access under certain conditions was supported by 91 participants survey (45%). Only 25 researchers (12.4%) do not support the opening of data from state funded research.

At the same time, the survey participants have specified that research data must be accessible to colleagues, scientific community, PhD students, decision-makers, educational institutions and other users, and one of the primary conditions for using research data is to cite the source. Also, it was mentioned that there is no mechanism for managing and coordinating international projects in the Republic of Moldova, some data banks are not accessible to the public, and researchers do not have sufficient skills in managing research data.

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, 11 universities from the Republic of Moldova have approved open access institutional policies and promote open access to documents through institutional repositories. Also, 40 national scholarly journals have approved editorial open access policies.

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.

The comparative analysis of both surveys' answers shows that the rate of respondents who unconditionally accept open access to research data obtained from public funds decreased from 50% in 2016 to 28% in 2018. At the same time, those who accept conditional open access increased twice, from 23% to 45%. However, the rate of those who do not support open access to research data did not change significantly (10% in the first survey and 12.4% in the second survey).

In conclusion, we can mention that Moldovan academia is ready to provide access to research data. One of the main issues that discourages research data sharing is the issue of copyright protection. There are some concerns about the loss of property rights and copyright infringement in case of sharing and open access to research data.

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