The Eleventh National Information Day: Open Science, Open Data, Open Access, Bulgarian Open Science Cloud

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Abstract. The paper gives an overview the current landscape and the activities on national and institutional level regarding Open Science, Open Access to scientific information, Open Data and the overall development of the Bulgarian Open Science Cloud.

Keywords: Open Access, Access to Knowledge, Open Science, European Open Science Cloud, Bulgarian Open Science Cloud

1 Introduction

The Eleventh National Information Day is devoted to the presentation of successful initiatives and projects for open access (OA), open data sharing and open science; strategies for promotion of OA; development of the Bulgarian Portal for Open Science and the national repository; development of the Bulgarian Open Science Cloud; copyright and licenses under OA; best practices and examples of policies for the development and promotion of open access at the national and institutional levels, etc. The event will support academic staff, research project managers, policy-makers and staff working in research funding bodies. It will demonstrate the main concepts for the implementation of OA principles and a national OA roadmap, key terms, strategies, business models, work plans, copyright and licenses, best practices, examples and policies for OA, open data and open science. There will be discussions on: OA indicators; dissemination of the partners' best practices; research problems in the field; contributions to the problems of the harmonization of national legislation and practices; the work of the managers of scientific digital repositories; development of the Bulgarian Open Science Cloud.

Bulgaria is part of the EU OpenAIRE-Advance project. OpenAIRE-Advance continues the mission of OpenAIRE to support the Open Access/Open Data mandates in Europe. By sustaining the current successful infrastructure, comprised of a human

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network and robust technical services, it consolidates its achievements while working to shift the momentum among its communities to Open Science, aiming to be a trusted e-Infrastructure within the realms of the European Open Science Cloud. OpenAIRE-Advance strives to empower its National Open Access Desks, so they become a pivotal part within their own national data infrastructures, positioning OA and open science onto national agendas. The main OpenAIRE-Advance functions are shown in Figure 1.

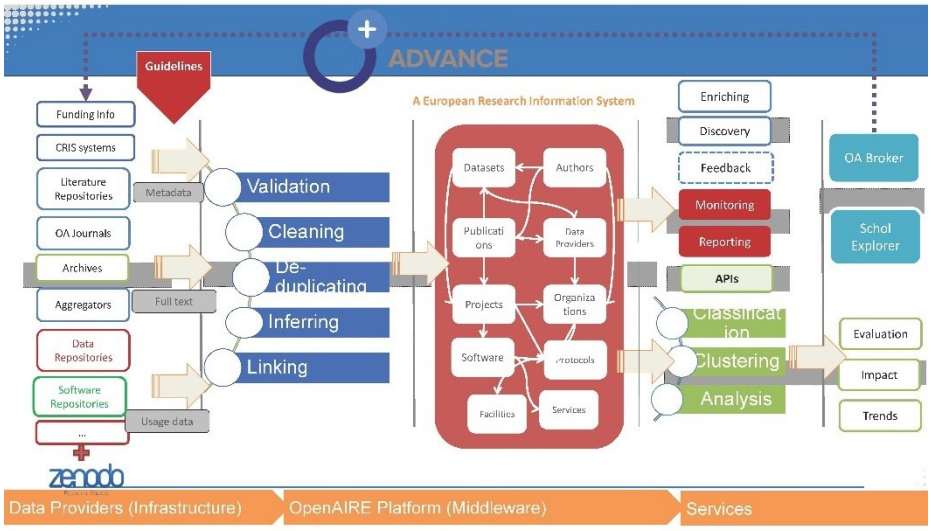

Fig. 1. The main OpenAIRE-Advance functions

2 Bulgaria OA Repositories

Data for the Open Access Bulgarian repositories in 2020 are shown in Table 1.

Table 1. Open Access Bulgarian repositories

Open Access Bulgarian Repositories 2020	Software	Link
New Bulgarian University Repository	EPrints 3.3.12	http://eprints.nbu.bg
BulDML at IMI-BAS	DSpace 1.6	http://sci-gems.math.bas.bg
Digital repository of Sofia University	DSpace 1.8.2	https://research.uni-sofia.bg
D.A.Tsenov Academy of Economics - Digital Library	DSpace 6.3-SNAPSHOT	http://dlib.uni-svishtov.bg/
Academic Research Repository at the Burgas Free University	Dspace 1.8.1	http://research.bfu.bg/

Electronic Repository - Central Medical Library - MU, Sofia	Dspace 3.0	http://nt-cmb.mu-sofia.bg:8080/jspui/
Medical Academic Repository - Medical University - Varna Prof. Dr. Paraskev Stoyanov	EPrints 3.3.15	http://eprints.mu-varna.bg
BGOpenAIRE at IMI-BAS	DSpace 1.6.2	http://www.bg-openaire.eu
Bulgarian Portal for open science	Custom software	https://pub.bpos.bg/login

The total number of OA journals in Bulgaria is presented in Figure 2. The license types are highlighted in Figure 3. The review types are shown in Figure 4.

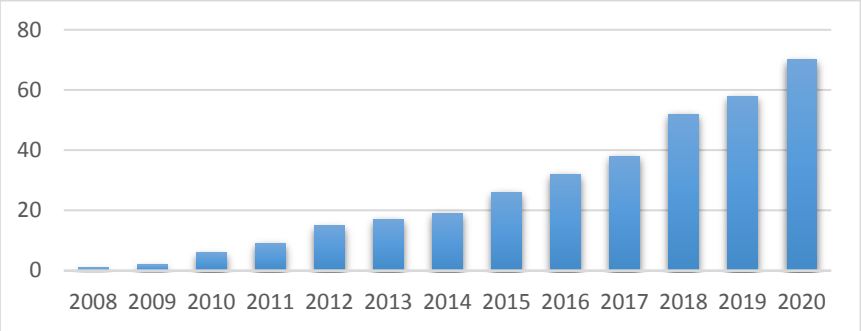

Fig. 2. Total number of open access journals in Bulgaria

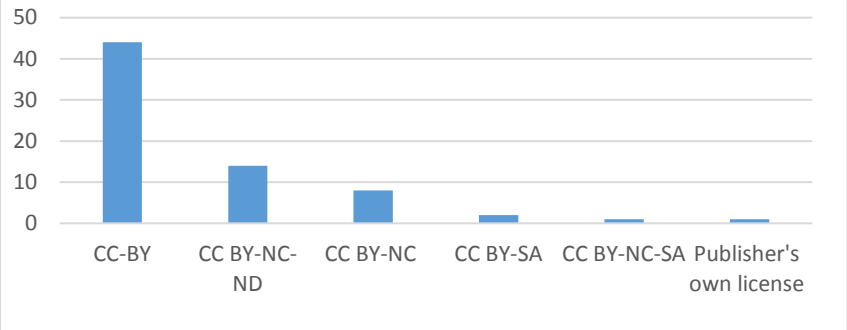

Fig. 3. License types of open access journals in Bulgaria

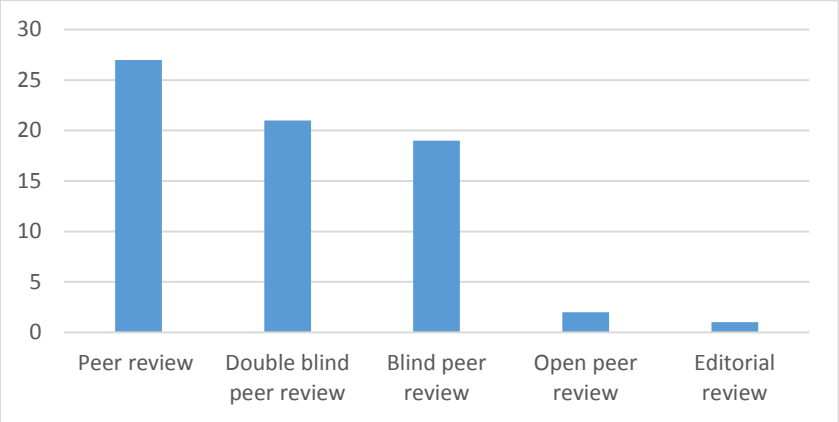

Fig. 4. Review types of open access journals in Bulgaria

3 The Main Bulgaria Open Science Activities in 2020

3.1 In the Area of National Policy and Infrastructure:

- Analysis of good practices and tendencies in the development of the open science initiative in the EU, including studies of national policies, plans an e-infrastructures across the EU that are more advanced in the field of open science in order to achieve interoperability;
- The group responsible for the package “Storages for open scientific results” of the National Scientific Program "Information and Communication Technologies for a Single Digital Market in Science, Education and Security", created a model for Bulgarian Open Science Cloud that would serve as a prototype that research organisations and universities can use in the development of their institutional software platforms and digital repositories for preservation and publishing of scientific results;
- The National centre for information and documentation (NACID) developed and maintains the Bulgarian Portal for Open Science (BPOS.bg) and the national repository for open access to scientific information. The portal and the repository form a system that provides researchers and the public at large with access to scientific publications and other research outputs free of charge in an open and non-discriminatory manner. The system is developed in compliance with OpenAIRE Guidelines for Literature Repository Managers v.4. The Bulgarian Portal for Open Science provides quick and easy access to scientific information and publicly funded research outputs, including resources from institutional open access repositories in Bulgaria. The national repository is a trusted space that allows the long-term archiving and sharing of scientific publications and research outputs with open access. Its main purpose is to assist the work of researchers and institutions that do not have an institutional

repository available. The process of publishing content in the national repository is aligned with both OpenAIRE requirements and the FAIR principles. All resources are described by rich metadata and have a persistent identifier. The repository assigns a Handle. Net identifier to every resource that has not been previously assigned an identifier. The metadata for the resources is described using Dublin Core and DataCite Metadata Schema in accordance with OpenAIRE Guidelines for Literature Repository Managers v.4. The system can also be integrated with other repositories and related systems in order to allow automatic harvesting and publishing of data and metadata. BPOS performs selective harvesting of metadata from Bulgarian institutional repositories with open access that support the Open Archives Initiative Protocol for Metadata Harvesting. It is also integrated with the Register of academic staff and the national database for doctoral dissertations. BPOS aims to provide coordination and connectivity with other European infrastructures and initiatives, such as OpenAIRE and the European Open Science Cloud. In compliance with the latest interoperability standards the resources of the Bulgarian Portal for Open Science are indexed by OpenAIRE. The development of the Portal and the integration with OpenAIRE infrastructure is an important step also towards the active participation of the Bulgarian research community in the EOSC initiative.

3.2 In the Field of Training and Support

- Specific trainings on working with BPOS and the national repository were organized by NACID; special training for administrators and moderators from the research organizations and universities is also planned;
- A National Capacity Building - Bulgaria NI4OS training event was held by the Institute of Information and Communication Technologies at the Bulgarian Academy of Sciences on 22nd of July 2020;
- Maintaining the National Open Access Desks, which connect researchers, research institutions, and policy makers at national level on the one end and the OpenAIRE-Advance project services on the other. The focus of the National Open Access Desks activities is on support for compliance with the EC Open Access policies;
- Teaching the academic staff (young and experienced researchers) and research project managers the best practices, examples and policies for open access, open data and open science practiced OA, and helping them acquire knowledge and skills writing, publishing and depositing articles, scientific data and materials in OA repositories, OA repositories maintenance, etc.;
- Organizing the National Seminar “Open Access for Open Science” during the Open Access week.

3.3 In the Field of Outreach and Dissemination

- Guidelines on sharing scientific publications with open access and using the national repository and the portal for open science are published in BPOS and are distributed within the research community;
- Instructions for publishing in the national repository are available on BPOS.
- A workshop on Data management was organized by the RDA BG Node on 24th of July 2020;
- RDA COVID-19 Recommendations and Guidelines are published on the RDA BG Node portal;
- National coordinators for The European COVID-19 Data Platform were appointed;
- Regular participation and active contribution to EOSC Governance Board meetings and the establishing of the EOSC legal entity;
- Participation in EOSC Landscape Validation Workshop, April 27th and 28th, 2020;
- Participation in the event EOSC Governance and Sustainability: NI4OS-Europe meets the EOSC GB country delegates, 8th of July 2020.

3.4 In the Field of Working with Funders

- Working with the National Science Fund (NSF) for the requirement that each funded project should provide open access to the results;
- The project reports to the National Science Fund are published with open access in BPOS.

3.5 In the Field of Task Forces

- Participating in the Expert Group on European Open Science Cloud at the Ministry of Education and Science;
- Participating in the EOSC Nordic International Advisory Committee;
- Participating in the Research Data Alliance and establishing a RDA BG Node;
- Participating in the National Initiatives for Open Science in Europe – NI4OS Europe;
- Participating as a partner in the OpenAIRE.

4 Discussion Topics during this Year National Information Day "Open Science, Open Data, Open Access, Bulgarian Open Science Cloud “

- Bulgarian roadmap for open science;
- European Open Science Cloud and EOSC Association;
- Bulgarian Open Science Cloud;

- National Science Program “ICT for science, education and security”;
- Bulgarian portal for open science and the national repository;
- Institutional repositories and other e-infrastructures;
- FAIR data requirements and tools;
- Open Data;
- Open Sources;
- Open Methodology;
- Open Peer Review;
- Open Access and Open licenses;
- Open Access Data E-Infrastructures;
- Access to Research Facilities;
- Access to Processing Capabilities;
- Communication at all Levels of Research Life Cruces;
- Open Access Indicators;
- Disseminate Partners’ Best Practices;
- Discuss Research Problems in the Field;
- Discuss the Possibilities of Establishing a Network of Open-Access Repositories;
- Contribute to the problems of the Harmonization of National Legislation and Practices.

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