Bulgarian Portal for Open Science

Notes Before Completing the Application

We have read and understood the notes concerning our application submission.

True

CORE TRUSTWORTHY DATA REPOSITORIES REQUIREMENTS

Background & General Guidance

Glossary of Terms

BACKGROUND INFORMATION

Context

R0. Please provide context for your repository.

Repository Type. Select all relevant types from:

National repository system; including governmental, Publication repository

Brief Description of Repository

The National Centre for Information and Documentation (NACID) is an administrative body funded by the state budget and a second tier spender of budget funds under the Minister of Education and Science of Bulgaria. NACID secures access to a variety of information resources, maintains databases and registers, creates information products and provides services, all of which support the development and advancement of education, training and science.

NACID maintains the Bulgarian Portal for Open Science (BPOS) and the national repository for open access to scientific information (the National repository). 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 national repository is a trusted space that allows the long-term storage and sharing of scientific publications and other research results of publicly funded research. Its main purpose is to assist the work of researchers that do not have an institutional repository available.

The national repository is multidisciplinary. It welcomes peer-reviewed scientific publications and other research outputs from all scientific fields. It aims to provide visibility and access to resources with significant scientific value - accepted manuscripts or published versions of publications. The repository does not contain publications created by students in their course of education.

The system also 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 national database for doctoral dissertations in the Register of academic staff. The system can be integrated with other repositories and related systems in order to allow automatic harvesting and publishing of data and metadata.

In the repository we follow the standard principles of a high quality digital repository, such as the usage of persistent identifiers, sharing of rich metadata and data in standard formats, using controlled vocabularies and clear access rights and license conditions.

Brief Description of the Repository's Designated Community.

The designated community of the national repository is the national and international research community.

As BPOS is multidisciplinary, this includes scientists from all research areas, early career researchers and doctoral students. It is a single point of access to scientific publications they could use in the process of writing of their thesis and earning an academic degree. BPOS is also of great assistance to both university professors and university students in the course of their education as it provides access to valuable scientific publications in an electronic form.

For resources with appropriate licenses (such as CC-BY) the repository could be also valuable for companies which could strengthen the relation between business and science.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

Level of Curation Performed. Select all relevant types from:

A. Content distributed as deposited, B. Basic curation – e.g. brief checking; addition of basic metadata or documentation

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

Comments

Reviewer Entry

Reviewer 1

Comments:

Reviewer 2

Comments:

Insource/Outsource Partners. If applicable, please list them.

Warranty support

The software company – contractor of NACID within the public procurement procedure for the software development of the repository - has a contractual obligation to provide at its own expense warranty support for a period of at least 24 months after the system was released (June 2020).

The warranty support team works closely and assists the work of the IT experts in NACID that are responsible for BPOS. After the warranty period is over the IT department in NACID is going to maintain the technical infrastructure on their own –they are already well trained and have in-depth knowledge of the work processes and specifics of BPOS. See more details in R6.

Institutional repositories

BPOS is the national repository that all researchers can use to upload their scientific publications. The majority of Bulgarian universities and research organizations do not have an institutional repository of their own and use BPOS to store and share their publications.

However, there are a few organizations that have an institutional repository. These are all repositories of Bulgarian universities and research organizations that play a major role in the advancement of science in Bulgaria:

- Research Portal of Sofia University "St. Kliment Ohridski"

- Bulgarian Digital Mathematics Library (BulDML) at Institute of Mathematics and Informatics-Bulgarian Academy of Sciences

- Medical Academic Repository of Medical University-Varna

- Digital Library of D.A.Tsenov Academy of Economics – Svishtov

- Central Medical Library of Medical University Sofia

- Research portal at Burgas Free University

- Digital repository of New Bulgarian University

In line with its mission to serve as a single entry point for access to scientific publications from all publicly funded research BPOS performs selective harvesting of metadata from these institutional repositories as they support The Open Archives Initiative Protocol for Metadata Harvesting.

In the process of developing BPOS NACID sent letters to these organizations with detailed explanation of the scope and principles of BPOS, the standards used and the procedure they need to follow and the procedure they need to follow in order to integrate their systems with BPOS. A general overview of the procedure is publicly available: https://bpos.bg/en/about-developers.

BPOS harvests, preserves and shares the metadata (not the full text) of the publications from the institutional repositories. We allow researchers from these organizations to choose whether to upload their publication in the institutional repository or directly at BPOS.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

Summary of Significant Changes Since Last Application (if applicable).

Other Relevant Information.

ORGANIZATIONAL INFRASTRUCTURE

1. Mission/Scope

R1. The repository has an explicit mission to provide access to and preserve data in its domain.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Response:

The mission of the national repository is to provide a space for the long-term storage and sharing of scientific publications and other research results of publicly funded research. Its main purpose is to assist the work of researchers that do not have an institutional repository available. The system enables the dissemination and enables the use and re-use of scientific research results, thus minimizing efforts and maximizing the benefits of the research. (https://bpos.bg/en/about-portal)

BPOS and the national repository provide researchers and the public at large with access to research data free of charge in an open and non-discriminatory manner. It is maintained by NACID on a legal basis - art. 2, par. 24 of the Statutes of NACID, issued by the Minister of science and education and in compliance with Commission recommendation (EU) 2018/790 of 25 April 2018 on access to and preservation of scientific information.(https://bpos.bg/en/about)

Par. 2.4 from the National Open Science Plan of Bulgaria sets BPOS and the National repository as a building block of the open science initiative and a national system for long-term storage, archiving, findability and open access to scientific publications. It is also set to be the single entry point to access scientific information and tool for coordination among the institutional repositories in the Republic of Bulgaria.

Reviewer Entry

Reviewer 1

Comments:

Reviewer 2

Comments:

2. Licenses

R2. The repository maintains all applicable licenses covering data access and use and monitors compliance.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Response:

Terms of use

Link: https://bpos.bg/en/terms-and-conditions

The Terms of Use, publicly available at BPOS, address significant issues related to the uploading and use of content and the liability of the depositors and the users. All users of BPOS agree to the Terms of use, which bind them to comply with the access rights and license conditions indicated by the Depositor.

The Terms of use explicitly state that all users can use the System free of charge. Access to the System's content is open to all users (registered and non-registered). Content however may be uploaded only by registered users in the System. By uploading and publishing content in the System the author does not relinquish any copyright and does not transfer any intellectual property rights to NACID. Users of the content are obliged to respect applicable license conditions.

License conditions

The license conditions to the resource are determined during submission by the Depositor – the researcher who uploads the publication. We encourage publishing with Creative Commons Attribution 4.0, however the system covers all the CC licenses. If there are any special conditions they can be addressed in a distribution license tailored and attached by the Depositor specifically for the particular item. The license attached to a repository item is displayed on the items page. We provide guidance on how to select the appropriate license in the FAQ section. Also the depositor can indicate different access rights – restricted access, metadata access only. (art. 6 Instructions on publishing of scientific resources in the national repository- https://bpos.bg/assets/documents/Instructions%20on%20publishing.pdf and FAQ section https://bpos.bg/bg/faq). Most of our publications are Open Access and distributed under similar public licenses, in particular variants of the Creative Commons licenses. Substantially less data is available under custom licenses.

Deposit agreement

Link: https://bpos.bg/assets/documents/Deposit%20agreement_ENG.pdf

During the submission, the Depositor enters into a standard Deposit agreement with the repository. The agreement is meant to provide clarity of the rights and liability of the Depositor and the repository. Within the agreement the Depositor acknowledges to be the sole entitled party with regard to the intellectual property rights to the uploaded scientific resource and/or he/she acts with the permission of the author or the intellectual property rights holder(s). The Depositor is made aware that he/she is solely responsible for the content of the published scientific resource, including but not limited to the authorship, access rights and licenses.

With this agreement the Depositor grants the National Repository the non-exclusive right to store and provide access to the published digital scientific resources in electronic form, taking into account the access rights and license conditions indicated by the Depositor. The repository on the other hand takes the responsibility, within its capabilities and resources, to provide conditions for the safe long-term storage and accessibility of the published scientific resource "as-is" provided by the Depositor.

Non compliance

In case there is proof or significant evidence of a violation of the aforementioned terms or any other legal provisions, the National Center of Information and Documentation reserves the right to delete or remove from public view the relevant content. (https://bpos.bg/en/terms-and-conditions)

3. Continuity of access

R3. The repository has a continuity plan to ensure ongoing access to and preservation of its holdings.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Response:

NACID functions since November 2000 and is planned to function indefinitely given its important responsibilities in the field of education, training and science. Due to its governmental nature NACID is funded by the state budget – every year a part of the budget goes to NACID for its activities and operations, including for the maintenance of its information systems, including BPOS.
Expanding and strengthening the capabilities of BPOS is also a major national priority that is set in detail in the National plan for development of the open science initiative in Bulgaria (2021-2025). Based on the plan additional funding for upgrade and new functionalities is expected both from the national budget and from EU structural funds. (https://naukamon.eu/wp-content/uploads/2021/03/National-Open-Science-Plan_Bulgaria_v.1.0-2.pptx).

In compliance with its mission and art. 7 of the Deposit agreement the National repository, within its capabilities and resources, provides conditions for the safe long-term storage and accessibility of the published scientific resource "as-is" provided by the Depositor for an indefinite period of time.

Art. 9 of the Deposit agreement states that the National repository, within its capabilities and resources, shall take technical and organizational measures necessary to ensure the integrity and authenticity of the published scientific resources, as well as to prevent unauthorized access. Link:

https://bpos.bg/assets/documents/Deposit%20agreement_ENG.pdf

The software, hardware and work processes of the national repository are documented in detail to ensure the continuity of the operations (e.g. System project of National repository and the Bulgarian portal for open science, IT infrastructure of the national repository, Administrator's manual). If necessary, the system can be restored to working order from the last copy of the data. For this purpose, copies are kept at every hour as to ensure minimal data loss in the event of a malfunction.

The software company – contractor of NACID within the public procurement procedure for the software development of the repository - has a contractual obligation to provide at its own expense warranty support for a period of at least 24 months after the system was released (June 2020), which will be discussed in more detail in requirement R6.

There is also a Disaster recovery plan which describes the composition, roles and responsibilities of the team needed in each backup or recovery scenario, the response strategy, which includes three areas - emergency response, backup operations and disaster recovery actions. Link:

https://bpos.bg/assets/documents/DisasterRecoveryPlan_ENG%20summary.pdf

In the event of termination without a legal successor in compliance with art. 51 of the National Archives Fund Act NACID will make arrangements for the data holdings to be transferred to the respective state archives within 6 months with the help of the State Archives Agency. The law states that termination of the administrative body can be finalized only after a certificate from the respective state archive for transfer of the valuable documents has been issued.

Reviewer Entry

Reviewer 1

Comments:

Reviewer 2

Comments:

4. Confidentiality/Ethics

R4. The repository ensures, to the extent possible, that data are created, curated, accessed, and used in compliance with disciplinary and ethical norms.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Response:

NACID employees

The Code of Ethics of NACID's Employees sets out explicit norms regarding the confidentiality of the work of NACID employees, which includes the administration of the national repository. All information and documentation available to NACID is for official work-related use only and its use for personal purposes is forbidden. Employees may not disclose information, disclose professional secrets, or provide documents that belong to NACID, provide statements about their official duties or obligations to third parties or the media. Exceptions from this rule are regulated by the law. NACID has the right to take all actions necessary under the national legislation against employees who have copied or otherwise acquired official information in breach of the Code of Ethics or other relevant legislation.

Depositors and users

In order to ensure the security of the information in the repository and to prevent the misuse of user data, the registered users are obliged to keep the confidentiality of their login details and not disclose it to third parties. NACID processes personal data in view of the functioning of the Portal and the repository in the interest of the national research community and the public at large in compliance with the privacy policy of BPOS (https://bpos.bg/en/privacy-policy). Details about the registration process can be found in R7.

The Depositor acknowledges during submission that if he is publishing scientific resources that contain personal data and / or other sensitive information, he/she acts in compliance with national and European legislation in the field of personal data, including that he/she has taken the necessary data protection measures. The Depositor also declares that the processing of personal data does not exceed the initial purpose for what the data was collected and/or the archiving purposes in the public interest, scientific or historical research purposes or statistical purposes. (https://bpos.bg/assets/documents/Deposit%20agreement_ENG.pdf)

The Depositor is required take measures to minimize the processing of personal data and pseudonymise it where possible. Given that the mission of the repository is to make research publications widely available, confidential data or data with disclosure risk is out of the scope of the repository. To date the repository has no submissions containing confidential data or data with disclosure risk which cannot be anonymized, and we do not expect this to change in the future.

The submissions are reviewed by a moderator from the organization the scientist is affiliated to. If the moderators are in

doubt about the compliance of the dataset with applicable laws or regulations, they can request more information from the Depositor or refuse to publish the submission. (art. 15 Instructions on publishing of scientific resources in the national repository https://bpos.bg/assets/documents/Instructions%20on%20publishing.pdf). The review process will be discussed in detail in R8 and R11.

If there are any special conditions they can be addressed in a distribution license tailored by the Depositor specifically for the particular item. Also the depositor can indicate different access rights – restricted access, metadata access only. (art. 6 https://bpos.bg/assets/documents/Instructions%20on%20publishing.pdf). Most of our publications are with open access and distributed under similar public licenses, in particular variants of the Creative Commons licenses. Substantially less data is available under custom licenses.

The Depositors declares that the uploading/publishing of the scientific resource is in accordance with Bulgarian, EU and international legislation, including that uploading/publishing the resource does not infringe upon the intellectual property and/or related rights of third parties.

In case there is proof or significant evidence of a violation of the terms of use or any other legal provisions, NACID reserves the right to delete or remove from public view the relevant content. (https://bpos.bg/en/terms-and-conditions)

Reviewer Entry

Reviewer 1

Comments:

Reviewer 2

Comments:

5. Organizational infrastructure

R5. The repository has adequate funding and sufficient numbers of qualified staff managed through a clear system of governance to effectively carry out the mission.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Response:

NACID employees

NACID (https://nacid.bg/en/about/) is an administrative body funded by the state budget and a second tier spender of budget funds under the Minister of Education and Science.

NACID operates a management system that has been assessed as conforming to ISO 27001:2013 (https://nacid.bg/en/awards/357), which concerns the information security management system within the context of NACID - and ISO 9001:2015 (https://nacid.bg/en/awards/356) – which demonstrate its ability to consistently provide quality products and services that meet customer and applicable statutory and regulatory requirements.

NACID is legally bound to maintain the National repository by the rules of its Statutes.

All BPOS team-members have permanent full-time contracts with NACID under the Bulgarian labor legislation. They are not employed on project basis. The team is managed at the highest level by the Executive Director – an expert in the field of library and information management and the Chief Secretary - a legal expert that ensures the legal compliance of the working processes of the repository. The team consist of:

- two IT experts - a programmer and a system administrator - that support the technical infrastructure, including the servers;

- four administrators that are responsible for the organizational processes of the repository like register new organizations and their administrators, new users that are not affiliated to any organization, provide support and answers to questions from users, carry out trainings for users, etc. Most of them are also renowned scientists – a PhD in History and Archaeology, a PhD in Sociology, anthropology and culture, a PhD in Social sciences and information sciences and a doctoral student of National security – who are of great assistance to the users as they have deep understanding in the way research is carried out and understand the researcher's needs. Maintaining BPOS is a primary task for the administrators, especially for the team leader - 80% of his responsibilities are BPOS-related. For the other administrators BPOS takes up to 50% of their work time.

Members of the team played a crucial role during the development phase of the repository – they were tasked to do research on best practices across Europe. They participated in meetings with representatives of the Research Council of Lithuania and the eLABa consortium, as well as with representatives of the Dutch national centre of expertise and repository for research data (DANS) at the Royal Netherlands Academy of Sciences and Arts (KNAW) where they exchanged valuable ideas and experience regarding the management and financing of the national repository, metadata standards and other important technical and organizational issues regarding the administration of the repository and the scientific resources in it.

The same team is now actively involved in the development and promotion of the National repository among the research community in Bulgaria. Members of the team regularly participates in conferences and workshops relevant to their work, for example:

- https://www.lib.bg/konferencii1/nk2020/102-grashkina-iliev.pptx

- https://events.ni4os.eu/event/30/attachments/59/129/BP4OS-20-11-2020.pdf

- https://library-blog.nbu.bg/?p=27495

- https://www.linkedin.com/feed/update/urn:li:activity:6760544470338428928

They also participate in different trainings to stay in touch with the state-of-the-art in their fields of expertise, for example – trainings and workshops, organized by the Institute for public administration - "Interoperability and information security", "Open data in the governance" - and by the State e-Government Agency of Republic of Bulgaria - "Open dialogue for open data". Additional qualification and training offers are discussed individually between the employee and NACID.

Moderators and administrators

Moderators and administrators from universities and research organizations are also essential to the work processes of the repository. Organization Administrators are authorized to create new user profiles of the researchers from their organization and edit information about users with the role of "Moderator" and "Researcher" to the organization. The administrator approves the account and the researcher receives an email with a confirmation link in order to activate the account.

If a researcher is currently not affiliated with any research organization, NACID registers his user profile and reviews his/her publications. The identity of the researcher in this case is verified by his personal identifier from the Register of academic staff that NACID also maintains. In order to ensure the security of the information in the repository and to prevent the misuse of user data, the registered users are obliged to keep the confidentiality of their login details and not disclose it to third parties

A registered user with the role of "Moderator" will be able to review the submitted items by depositors and approve it. After approval the item is published in the repository and becomes visible and accessible through BPOS taking into account the indicated access rights (see details in R7)

In November and December 2020 NACID organized series of specific trainings for administrators and moderators from the research organizations. We published a recording in Youtube -.
https://www.youtube.com/watch?v=nxKIdk9G1HQ&t=469s. The training focused on the main functionalities of BPOS as a whole and more specifically the editorial workflow – their responsibilities, the scope of their checks, how to give accepts the submission or return it to the depositor via the editorial workflow, acceptable reasons for refusal (see details in R8). We have also provided written guidelines on the review process in the User manual that all users can see when they log in with their credentials in the repository.

NACID works closely also with the Ministry of education and science, including with the experts that represent Bulgaria in the working groups at the Programme Committee for the specific programme implementing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020) and most importantly with the representatives in the European Open Science Cloud Working Group. They help us with the policy making and strategic planning regarding the National repository and how it can be integrated with other European research e-infrastructures such as the EOSC.

Reviewer Entry

Reviewer 1

Comments:

Reviewer 2

Comments:

6. Expert guidance

R6. The repository adopts mechanism(s) to secure ongoing expert guidance and feedback (either inhouse or external, including scientific guidance, if relevant).

Compliance Level:

4 – The guideline has been fully implemented in the repository

Response:

The National repository team works closely with a number of organizations, public bodies and initiatives.
NACID is a member and participates in the scheduled meetings of the working groups of RDA-BG Node which provide valuable insight about the recent trends, community standards and recommendations on FAIR data storage and management. The working group consists mainly of researchers in the field of informatics and mathematics from major universities like Sofia University.

NACID takes part in the meetings of the Council of university rectors in Bulgaria where we discuss strategic and political matters on the advancement of research and its funding, including national and EU programs related to open science and the expenditure of the capabilities of the national research infrastructures.

The National repository team is in regular touch also with ICT SES – a consortium of 12 research performing organizations in Bulgaria (https://npict.bg/node/8) that carries out the national program ICT in Science, Education and Security. They provide regular feedback on the work of the repository and ideas for its improvement, as well as help us promote it amongst researchers. They have some of the most renowned experts in the field of cyber security and information management which provide valuable advice on the matters of security.

In Bulgaria the State eGovernment Agency (SEGA) monitors communication and the functionalities of the information systems, used by public sector bodies such as NACID. They provide valuable input and recommendations on the

technical framework of the system and measures that need to be taken to ensure the security of information, help with the budget planning. https://e-gov.bg/wps/portal/agency-en/about-us

We are in regular touch also with the Bulgarian coordinators of the National Initiatives for Open Science in Europe – NI4OS Europe (https://ni4os.eu/2020/11/30/ni4os-europe-national-dissemination-event-in-bulgaria/) and our National Open Access Desk at OpenAIRE (https://www.openaire.eu/os-bulgaria). NI4OS is one of the leading OS project in the South East Europe region, bringing infrastructures together and aligning policies. We are in regular touch with the Bulgarian coordinators of the project (who are leading scientist in the Bulgarian academy of science) which gives us valuable insight into the development of national open science cloud initiatives. We often discuss the recent development of metadata standards, the repository landscape and examples of good practices in other countries which helps us in the strategic planning. Members of BPOS team participate in their conferences and workshops both as presenters and participants.

Users are welcome to give feedback through the feedback form - https://nacid.bg/en/contacts and our e-mail - openscience@bpos.bg. We organize workshops and events to promote Open Science and present the Bulgarian portal for open science and the National repository to the research community.

For the development of BPOS NACID needed a larger team of IT experts to cover the workload. It is a standard contract condition in public procurements for software products for the contractor to provide warranty support as it is their responsibility to fix any malfunctions that occur and also help and train the team that will maintain the system in the long run. As mentioned in R0, the software company –that developed the National repository provides warranty support for a period of at least until June 2022. This includes:
- Consultations on troubleshooting the configuration of the environment (operating system, database, middleware, hardware and networks) used by the application, including changes in the configuration of the software infrastructure at the installation site;
- Restoring of functionality and data in case of failure;
- Expert consultations by phone and e-mail for the system administrators of NACID;
- Diagnostics of a reported problem in order to ensure the proper functioning of the system;
- Debugging of software modules that have been modified or developed within the scope of the project;
- Update of the system documentation system documentation after the abovementioned debugging within the framework of the warranty support.
The warranty support team works closely and assists the work of the IT personnel of NACID that are currently responsible for BPOS - a senior programmer and a system administrator with more than 10 years of experience working with systems, registries and databases in the field of science and education. After the warranty period is over the IT department in NACID will continue to maintain the technical infrastructure on their own – they are well trained and have in-depth knowledge of the work processes and specifics of BPOS.

Reviewer Entry
Reviewer 1
Comments:

Reviewer 2

Comments:

DIGITAL OBJECT MANAGEMENT

7. Data integrity and authenticity

R7. The repository guarantees the integrity and authenticity of the data.

Compliance Level:

3 – The repository is in the implementation phase

Reviewer 1

Comments:
3 – The repository is in the implementation phase
Accept

Reviewer 2

Comments:
3 – The repository is in the implementation phase
Accept

Response:

The National Repository, within its capabilities and resources, takes responsibility to provide technical and organizational measures necessary to ensure the integrity and authenticity of the published scientific resources. (art. 9 Deposit agreement https://bpos.bg/assets/documents/Deposit%20agreement_ENG.pdf) This includes making sure that no publication is lost or altered and that it is described by rich metadata.

Integrity:

The depositor uploads the resources into the repository by themselves using a web-based submission workflow (a form with several stages for providing metadata about the submission). We require that a minimal "mandatory" set of metadata fields is filled in with appropriate values when submitting a publication. When applicable, the filled in values are validated against vocabularies or pre-defined rules after each stage.

In the next step, a moderator from the organization the depositor is affiliated with, does a brief review of the submission. The moderators review the deposited items for the eligibility of depositors, relevance to the scope of the repository, valid layout and format of the data and metadata and the exclusion of spam. The item is uploaded after it has been approved by the moderator. See more details in R11.

At publication, the repository assigns a persistent resource identifier - Handle. Net - to every item that has not been

previously assigned an identifier.

Evidence: art. 5, par. 5.4. Instructions on publishing of scientific resources in the National repository

https://bpos.bg/assets/documents/Instructions%20on%20publishing.pdf

All actions performed in the repository are registered in the internal administration – the "System journal" module. We keep system logs that contain the timestamp, the action, the module of the system where it took place, the resource it affects, the user (including an internal ID) and other relevant information.

Also, copies of the data are made every hour so that there can be minimal data loss in the event of a problem. If necessary, the system can be restored to working order from the last copy of the data.

Authenticity:

Only registered users who have logged into their accounts can upload content to the repository. Every university and research organization that is registered in the National repository appoints its administrators. The administrators are authorized to create user profiles of the researchers from their organization. Thus the academic institutions are responsible for verifying the user identity of the researcher. The administrator creates the account and the researcher receives an email with a confirmation link in order to activate the account.

If a researcher is currently not affiliated with any research organization, NACID registers his user profile and reviews his/her publications. The identity of the researcher in this case is verified by his personal identifier from the Register of academic staff that NACID also maintains. In order to ensure the security of the information in the repository and to prevent the misuse of user data, the registered users are obliged to keep the confidentiality of their login details and not disclose it to third parties

We do not support changing of the published resource. This is to ensure the findability of the resource and make sure that the PID refers to a long-lasting stable digital resource. A change or a new version of a resource can be created as a new repository item and the previous item's PID can be indicated in the metadata as a related identifier.

Evidence: „Changes and removal of resources" in the Preservation policy of the national repository

https://bpos.bg/assets/documents/Preservation%20Policy.pdf and FAQ https://bpos.bg/en/faq.

Links to other data and/or metadata and versions can be indicated during submission using the related identifier metadata field. The depositor indicates the persistent identifier and relationship of the resource being uploaded and the related resource using a controlled list of values (e.g. IsCitedBy, HasMetadata, IsMetadataFor, IsVersionOf, IsNewVersionOf, IsPreviousVersionOf etc). Detailed description can be found in pages 8 – 12 of the summary of Standards for storage, description and use of scientific information with open access NACID

(https://bpos.bg/assets/documents/Repository_standards_ENG%20summary.pdf).

Items may not normally be removed from the repository. Acceptable reasons for withdrawal include proven copyright violation or plagiarism, legal requirements and proven violations, national security, falsified research. Withdrawn items are not deleted per se, but are removed from public view.

Evidence: https://bpos.bg/assets/documents/Preservation%20Policy.pdf and

https://bpos.bg/assets/documents/Deposited%20Item%20Lifecycle.pdf.

All of the above measures and procedures are implemented. We are looking into ways of making better use of the connection between existing persistent identifiers and especially journal articles citing other journal articles - as the number of citation is an important indicator in the research assessment process in Bulgaria.

8. Appraisal

R8. The repository accepts data and metadata based on defined criteria to ensure relevance and understandability for data users.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Response:

We provide public instructions for data submission and guidelines on working with BPOS that outline the scope of the repository, required metadata and its relevance, give clarifications on the different access rights and preferred formats of the files and the process of submitting, reviewing, editing and publishing of the item. We also provide a detailed User manual outlining the procedure and requirements for depositing scientific resources.

Links:

https://bpos.bg/assets/documents/Instructions%20on%20publishing.pdf

https://bpos.bg/assets/documents/Guidelines%20on%20sharing%20publications.pdf

https://bpos.bg/assets/documents/Deposit%20process.pdf

The National repository is multidisciplinary and welcomes research outputs from across all scientific fields. We accept doctoral dissertations and peer reviewed manuscripts or published versions of publications, created by researchers. (art. 1 https://bpos.bg/assets/documents/Instructions%20on%20publishing.pdf). The items need to be described by a mandatory set of metadata:

-author/s,

- title,

- publication date,

- resource type (e.g. journal article, part of a book, conference paper, report, etc.),

- resource identifier (e.g. DOI, Handle)

- access rights (open, metadata only, restricted, embargoed acces).

The National repository makes use of international standards such as Dublin Core and DataCite Metadata Schema in accordance with OpenAIRE Guidelines for Literature Repository Managers v.4. We support identifier schemes for resources (for the resource - DOI, Handle, ARK, PURL, URL, URN), authors (we recommend ORCID iD, but allow WoS Researcher ID, Scopus ID), organizations and funders (ISNI, GRID, Crossref Funder, ROR).

We also support the use of COAR Controlled Vocabularies to enable the indexing and interoperability of metadata and data.

The submission interface is separated into several steps. The system performs validation of the metadata fields. The Depositor is not allowed to move to the next step unless all required fields are filled in correctly.

This mandatory set of metadata ensures the completeness of a description to allow understandability and findability of data and allow for it to be easily indexed by other systems. It is highly recommended to fill in rich metadata, including a description, funding reference and license condition (e.g. Creative Commons Attribution 4.0 International).

This applies also to the content that is harvested from other institutional repositories with open access that support The Open Archives Initiative Protocol for Metadata Harvesting.

If these conditions are met, we leave it to the researcher and the communities to decide which items are eligible for long-term storage and access.

The supported file formats are .pdf, .docx, .doc, .txt., .jpg, .png, .tiff, .xlxs, .xlx. (part III "Scope, standards, requirements" of the Preservation policy https://bpos.bg/assets/documents/Preservation%20Policy.pdf and art. 7 of the Instructions on publishing https://bpos.bg/assets/documents/Instructions%20on%20publishing.pdf)

After submission the item is reviewed by a moderator from the organization the depositor is affiliated with. A thorough check of the item's scientific quality is not performed since it has undergone peer-review and it is beyond our mission and scope. The moderator either accepts the submission or returns the submission to the depositor via the editorial workflow requesting further improvements and re-submission. The moderator can refuse to publish the item, in case of a serious irregularity in the metadata or the item that cannot be fixed. The user will be notified explicitly in such case. Reason for refusal of publishing can be spam, texts that are out of the subject scope of the repository, the publications is made by an author who is not a scientist, the publishing of a resource would violate copyrights, personal data protection rules, national security etc. The user will be notified explicitly in such case.

Links: art. 15 of the Instructions on publishing https://bpos.bg/assets/documents/Instructions%20on%20publishing.pdf and part 4 "Not approved" of Deposited item lifecycle: https://bpos.bg/assets/documents/Deposited%20Item%20Lifecycle.pdf

Reviewer Entry

Reviewer 1

Comments:

Reviewer 2

Comments:

9. Documented storage procedures

R9. The repository applies documented processes and procedures in managing archival storage of the data.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Response:

Three virtual machines that operate in high resilience mode are installed and configured on the available IT infrastructure of NACID. They are located on the built Hyper-V Failover Cluster, which includes four physical servers and one fast disk array. All links are duplicated. A separate network connection in an internal network is provided, which is used only by the open access storage. Virtual machines are scalable. Link:

https://bpos.bg/assets/documents/IT%20infrastructure%20of%20the%20National%20repository_ENG_summary.pdf

As a result of the installation and configuration actions and the use of the provided IT infrastructure by NACID the operational environment of the national repository is reliable and reserved. The virtual machines operate in high fault tolerance mode. The network infrastructure is built and secured according to best practices using a separate network for the traffic of the national repository. The server architecture uses modern technologies for redundancy and high resilience of the solution and balanced use of resources. The infrastructure used can be upgraded from all resources as needed.

We have a System project, which describes the business processes and detailed requirements for the activities for the development of the National repository and the Bulgarian portal for open science. Link:

https://bpos.bg/assets/documents/System%20project%20of%20BPOS%20and%20the%20National%20repository_ENG%20summary.pdf

We have a Disaster recovery plan, which describes the composition, roles and responsibilities of the team required in each backup or recovery scenario, the response strategy, which includes three areas - emergency response, backup operations and actions for disaster recovery. Link:

https://bpos.bg/assets/documents/DisasterRecoveryPlan_ENG%20summary.pdf

The available Administrator's manual includes all necessary procedures and scripts for installation, configuration, backup,

recovery and which guarantees clarity and predictability of administrators' actions in performing their various tasks.

There is a detailed Description of the software modules of the National repository and the Bulgarian portal for open science, including the technologies and software solutions used at the various layers - the user interface, business logic and the database. Link: https://bpos.bg/assets/documents/Software%20modules_ENG%20summary.pdf

Copies of the data are made every hour so that there can be minimal data loss in the event of a problem. If necessary, the system can be restored to working order from the last copy of the data.

There are detailed descriptions of the deposit process in the National repository. Links:

https://bpos.bg/assets/documents/Deposit%20process.pdf - Deposit process in the national repository

https://bpos.bg/assets/documents/Deposited%20Item%20Lifecycle.pdf - Deposited items lifecycle

Reviewer Entry

Reviewer 1

Comments:

Reviewer 2

Comments:

10. Preservation plan

R10. The repository assumes responsibility for long-term preservation and manages this function in a planned and documented way.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Response:

Our preservation policy is documented and implemented in the work processes of the software modules, the architecture and business logic of the repository.

Link: https://bpos.bg/assets/documents/Preservation%20Policy.pdf

The preservation policy is in line with the National plan for development of the open science initiative in Bulgaria and the official authority vested in NACID to maintain the Bulgarian portal for open science and the national repository. It is a representation of the commitment of NACID to provide researchers and the public at large with access to research data free of charge in an open and non-discriminatory manner.

The policy sets a clear statement of the responsibility of the National repository for the preservation of the items. The level of responsibility of both the repository and the depositor is also explicitly stated in the standard Deposit agreement that the parties enter into with every submission of an item (there is a checkbox with the agreement the Depositor needs to fill in). The National Repository, within its capabilities and resources, provides conditions for the safe long-term storage and accessibility of the published scientific resource "as-is" provided by the Depositor (art. 7 of the Deposit agreement (https://bpos.bg/assets/documents/Deposit%20agreement_ENG.pdf and art. 9 of the Terms of use https://bpos.bg/en/terms-and-conditions). It also takes the technical and organizational measures necessary to ensure the integrity and authenticity of the published scientific resources, as well as to prevent unauthorized access.

If the conditions described in R8 are met, our policy is to leave it to the researchers and the communities to decide which items are eligible for long-term storage and access. The items are stored in the repository for an indefinite period of time.

For security and back-up reasons the National Repository keeps a copy of the uploaded publications in PDF/A format to ensure preservation of the full-text files in the National repository over an extended period of time and ensure that the files would be able to be retrieved and rendered with a consistent and predictable result in the future.

BPOS selectively harvests, preserves and shares the metadata (not the full text) of the publications from open access institutional repositories as that support The Open Archives Initiative Protocol for Metadata Harvesting. (see details in R0)These organizations need to organize their content to comply with the standards used by BPOS and its scope. The integration procedure is publicly available at https://bpos.bg/en/about-developers. So are the guidelines for the content management that aim to support universities and scientific organizations in organizing their scientific content in a way that makes it is discoverable, interoperable and easily indexed by other national and international systems.
Link: https://bpos.bg/assets/documents/Guidelines%20on%20sharing%20publications.pdf

The National Repository is granted the non-exclusive right to store and provide access to the published digital scientific resources in electronic form, taking into account the access rights and license conditions indicated by the Depositor. The repository also has the right to provide open access to metadata for scientific resources, including to other portals and platforms for scientific information at national and international level.

As discussed in R7 and R8 during the ingest phase, depositors are presented with a user interface divided into logical blocks:
- Basic information – mandatory metadata fields, that ensure the completeness of a description to allow understandability and findability of data;
- Additional information – recommended metadata fields;
- Legal information – access rights and licenses (details in R2)
- Attachments – the Depositor uploads the full-text file in the supported format .pdf, .docx, .doc, .txt., .jpg, .png, .tiff, .xlxs, .xlx

- Publishing – classification of the resource and send for approval by the moderator.

Detailed documentation of the deposit process in the National repository can be found in the Instructions on publishing of scientific resources in the National repository for open access to scientific information, Deposit process in the national repository, Deposited items lifecycle, User manual.

11. Data quality

R11. The repository has appropriate expertise to address technical data and metadata quality and ensures that sufficient information is available for end users to make quality-related evaluations.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry
Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Response:

As mentioned in R7, only researchers that are logged in their valid account can upload scientific publications and outputs in the National repository. Their user account is created by an administrator from their affiliated organization. Thus the identity of the researcher is verified by the academic institution.

As a guarantee for the scientific quality and validity of the content we accept publications that are peer-reviewed - accepted manuscripts or published versions of publications, as well as doctoral dissertations. During submission the Depositor can indicate the resource version in the metadata field.

Sufficient completeness and quality of metadata is assured by requiring certain fields in the submission process. The metadata fields have 4 types of cardinality: mandatory, Mandatory if applicable, Recommended, Optional. The mandatory metadata is marked with "*" in the required sections. The system performs validation of the metadata fields. If a "mandatory" field is not filled in, the system does not allow the depositor to move on to the next step and the submission cannot be completed. Each harvested resource from the institutional repositories is also automatically checked for mandatory metadata.

During the submission hints, examples and suggestions are provided as to guide the Depositor through the submission process and to be certain that the Depositors understands what is required in the certain field and its importance.

There is a document that describes the standards for description and use of scientific information with open access that were followed when developing BPOS and the National repository. The document provides an overview of the FAIR principles and how they can be applied in the context of the repository and an overview of metadata formats and standards and a specification of each of the metadata fields – Occurrence, cardinality, metadata schema, description of the attributes, controlled values and instructions on how to implement the fields.
Link: https://bpos.bg/assets/documents/Repository_standards_ENG%20summary.pdf

In the development phase of the National repository we chose to implement the OpenAIRE Guidelines for Literature Repository Managers v.4 in order to achieve technical and semantic interoperability with OpenAIRE as one of the leading open science infrastructures in the EU. In accordance with these Guidelines the National repository supports Dublin Core and DataCite Metadata Schemas. To ensure the metadata is readable for people and machines without the need for specialized or ad hoc algorithms, translators, or mappings we provide controlled lists with values most of which use terms from COAR Controlled Vocabularies. The national repository automatically assigns a globally unique and persistent identifier – handle.net – to all resources that are approved and don't have a previously assigned PID to ensure findability and long term accessibility.

As mentioned in R7 - links to other data and/or metadata and versions can be indicated during submission using the related identifier metadata field. The depositor indicates the persistent identifier and relationship of the resource being uploaded and the related resource using a controlled list of values (e.g. IsCitedBy, Cites, HasMetadata, IsMetadataFor, IsVersionOf, IsNewVersionOf, IsPreviousVersionOf etc). The Depositor is also recommended to fill in the metadata fields required for bibliographic citation of this publication which are then visible on the item's page on BPOS.
The item is finally send for approval by the moderator from the affiliated organization of the researcher or from NACID (if the researcher is currently not affiliated to an organization). The moderators review the deposited items for the eligibility of depositors, relevance to the scope of the repository, valid layout and format of the data and metadata and the exclusion of spam. The moderator either accept the submission or return the submission to the depositor via the editorial workflow requesting further improvements and re-submission. The moderator can refuse to publish the item, in case of a serious irregularity in the metadata or the item that cannot be fixed. The user will be notified explicitly in such case. Reason for refusal of publishing can be spam, texts that are out of the subject scope of the repository, the publications is made by an author who is not a scientist, the publishing of a resource would violate copyrights, personal data protection rules, national security etc. (art. 15 https://bpos.bg/assets/documents/Instructions%20on%20publishing.pdf and par. 4 of

https://bpos.bg/assets/documents/Deposited%20Item%20Lifecycle.pdf). The user is notified explicitly in such case. The pages of the items in the Bulgarian Portal for Open Science provide all the metadata in human-readable and machine-readable format - PID, resource type data accessibility and licensing information, publication date, author, publisher, etc. https://bpos.bg/publication/12734. We provide additional information on the source of the publication when it is harvested from an institutional repository.

12. Workflows

R12. Archiving takes place according to defined workflows from ingest to dissemination.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Response:

In the User manual there are detailed guidelines about all the important aspects of the exploitation of the system – how to search in BPOS, log in and log out in the repository, submission workflow, review of the item by a moderator, possible corrections and re-submission. In the manual we also provide guidelines for the administrators and moderators from the academic institutions mentioned in R7 – how to create and manage classifications within the collection of publications of the institution and how to crate user profiles of the researchers. The user manual is available for users that have logged in with their user account in the repository.

A systematic overview of the submission workflow with screenshots of the steps is publicly available to all users at BPOS - Deposit process in the national repository. For even greater clarity and to help the users of the repository there is a brief description of the various stages of development of the scientific resource as a digital object in the course of submission in the repository - Deposited items lifecycle.

Links: https://bpos.bg/assets/documents/Deposit%20process.pdf

https://bpos.bg/assets/documents/Deposited%20Item%20Lifecycle.pdf

The Instruction on publishing of scientific resources in the National repository for open access to scientific information sets the scope of the repository, the metadata and data preferred formats and standards, explanation of some of the mandatory metadata fields and the different access conditions, the review process and the publishing of the resource. The instructions are designed to help researchers that deposit their content directly in the National repository.

Link: https://bpos.bg/assets/documents/Instructions%20on%20publishing.pdf

To ensure that the content harvested from Bulgarian institutional repositories through OAI-PMH is in line with the standards set by the National repository we provide Guidelines on sharing scientific publications with open access and using the National repository and the Bulgarian portal for open science.

Link: https://bpos.bg/assets/documents/Guidelines%20on%20sharing%20publications.pdf

Our long-term storage and preservation policy of the National repository is publicy available and implemented in the work processes of the software modules, the architecture and business logic of the repository.

Link: https://bpos.bg/assets/documents/Preservation%20Policy.pdf

The relevant legal issues - rights, responsibilities and liability of the repository and the users – are described in the Terms of use (https://bpos.bg/en/terms-and-conditions) and the Deposit agreement (https://bpos.bg/assets/documents/Deposit%20agreement_ENG.pdf). Relevant privacy issues concerning the repository as a personal data controller are described in the Privacy policy (https://bpos.bg/en/privacy-policy).

To ensure the integrity of the workflows in BPOS and in accordance with ISO 27001:2013 (control "A.12.1.2 Change management) we follow the procedure for change management described below.

1. Changes to the system can be invoked as a result from suggestions, incidents, legislative amendments.

A suggestion can be made by a team member – administrator, IT expert, legal officer or the Executive director – or by a user. Users are welcome to make suggestions through the feedback form - https://nacid.bg/en/contacts and our e-mail - openscience@bpos.bg. Most of the suggestions however arise during the workshops and events we organize to promote Open Science and present BPOS to the researchers and policy makers. In the course of the event a member of our team keeps track of the proposals for changes.

2. The suggestion is then discussed internally either at the weekly meetings of the team of BPOS. If a change in software/hardware is necessary NACID's network and information security manager (see R16) is informed and approves of the change and any revisions of the documentation in terms of compatibility and security. If it concerns a major organizational/software change we also invite experts from the Ministry of education and science to participate in the

meeting.

3. Before changing software or hardware, it is mandatory to take measures for possible restoration of the systems in their original state. Complete and secure backups and a recovery plan are prepared. Preliminary tests checking basic functions and settings are carried out on a separate test environment in order to avoid any negative influences on the functioning of working business systems.

4. Before completing the change, the necessary updates and/or corrections are made to the system documentation of the workflows and the instructions for users. A member the BPOS team is appointed by the team leader to list of documents, procedures, policies that need to be revised and update them.

5. The updated document or an overview of the most important changes is sent to the users via e-mail and via notifications in the repository.

Details on the technical requirements for the performance of the system can be found in R15.

Reviewer Entry

Reviewer 1

Comments:

Reviewer 2

Comments:

13. Data discovery and identification

R13. The repository enables users to discover the data and refer to them in a persistent way through proper citation.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Response:

Open access to research data and reusing research data are important parts of the mission of BPOS. The portal and the repository form a system that provides researchers and the public at large with access to scientific publications and publicly funded research outputs, including resources from institutional open access repositories in Bulgaria, in an open and non-discriminatory manner. https://bpos.bg/en/about-portal

The system offers various ways for data discovery and identification.

Search

The system provides a search engine for metadata and full text data that can be accessed via the homepage of BPOS website https://bpos.bg/ . We provide guidance on how to carry out a simple and an advanced search https://bpos.bg/en/faq#searchHelp.

Quick search allows you to type in and search for any word or phrase, whether they are in the publication's metadata, text or title. The system will then present a list of all publications that contain any of the words entered in the search field. The results in the list will be sorted starting with the most relevant results (publications with a higher term frequency, and publications that contain more unique uses of the term compared to other documents in the index). You can then apply different filters to that list using the feature BPOS provides on the left side of the screen. When selecting a filter (e.g. content provider; year, language, etc.) or a combination of filters, BPOS will display only those publications that meet the criteria set with the selected filters.

Advanced search is the tool for a more detailed and specific search. It allows you to determine the exact metadata from the publication in which to search. Here you can specify which words to search in which fields. You can search in only one field or add more fields. An additional field is added with the "+" button, and the logical connection between the different fields is set by selecting "AND" or "OR" in front of the respective field.

For detailed information and an example you can see the file "Search guide BPOS" or https://bpos.bg/en/faq#searchHelp.

The Search module allows for a structured search in the metadata of the items and full-text search in the metadata and content of the items.

The structured search is performed through an electronic form in which the user sets a filter for each metadata field to which the result must correspond. It will be possible to set a combination of fields to search for at the same time. Metadata search is optimized by creating indexes in the relevant fields of the database.

The full-text search functionality is implemented through the open source application (Elasticsearch) (https://www.elastic.co/products/elasticsearch). Elasticsearch provides a RESTful search interface for pre-indexed content. To extract text from files in PDF, JPG or similar format, we support a functionality for character recognition - object character recognition (OCR). The functionality is implemented using the open source library Tesseract OCR (https://github.com/tesseract-ocr/tesseract). Details about the search functionalities can be found in art. 3.1.4, 3.1.5 and 3.1.6 of the System project of the National repository and the Bulgarian portal for open science. Link:https://bpos.bg/assets/documents/System%20project%20of%20BPOS%20and%20the%20National%20repository_ENG%20summary.pdf

Persistent identifiers

The National repository supports identifier schemes for resources (for the resource - DOI, Handle, ARK, PURL, URL,

URN), authors (ORCID iD, WoS Researcher ID, Scopus ID, ISNI, Id in the Registry of academic staff), organizations and funders (ISNI, GRID, Crossref Funder, ROR). The resource identifier is a mandatory metadata field. The national repository automatically assigns a globally unique and persistent identifier – Handle.net – to all resources that don't have a previously assigned PID to ensure findability and long term accessibility. Details on the system module responsible for generating and assigning a PID can be found in par. 3.1.7 of the System project: https://bpos.bg/assets/documents/Syste m%20project%20of%20BPOS%20and%20the%20National%20repository_ENG%20summary.pdf . Details on the technical implementation of the Handle.net server can be found in par. 3.8 of the Administrator's manual https://bpos.bg/assets/documents/Admin%20manual_ENG%20summary.pdf .

The PID and a textual hint of how to correctly cite the publication is shown prominently on the item's page in BPOS. Links to other data and/or metadata and versions can be indicated during submission using the related identifier metadata field. The depositor indicates the persistent identifier and relationship of the resource being uploaded and the related resource using a controlled list of values. The system also allows the depositor to provide alternative identifier/s which is nn identifier or identifiers other than the primary Identifier applied to the resource being registered. This may be any alphanumeric string which is unique within its domain of issue and may be used for local identifiers.

We strongly recommend and provide guidelines to researchers on how to obtain a unique persistent personal identifier – Orcid iD - https://bpos.bg/en/faq .

Reviewer Entry
Reviewer 1
Comments:
Reviewer 2
Comments:

14. Data reuse

R14. The repository enables reuse of the data over time, ensuring that appropriate metadata are available to support the understanding and use of the data.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry
Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Response:

As mentioned in R11 in the development phase we chose to implement the OpenAIRE Guidelines for Literature Repository Managers v.4. In accordance with these Guidelines the National repository supports Dublin Core and DataCite Metadata Schemas. As the repository contains data from many different domains and disciplines, these standards are considered to be the best option providing a means of discovery for the data. These standards are basic, widely used and closely aligned. Their elements set is relatively simple which allows all researchers from all scientific fields to easily provide a descriptive metadata that provides for the repository and other platforms (such as OpenAIRE). To ensure the metadata is readable for people and machines without the need for specialised or ad hoc algorithms, translators, or mappings we provide also controlled lists with values most of which use terms from COAR Controlled Vocabularies.

It is our ambition to preserve the scientific publications in the form of FAIR digital objects. Given the specifics of the literature type of data, we ensure reusability by providing the data publishers with a set of metadata fields and the relevant guidelines as to ensure that they provide rich metadata that describes the context under which the publication was created. This is a form of guarantee that potential users (machine or human) will be able to decide if the data is useful in their specific context and that it is easily discovered.

When an item is accessed its page in BPOS contains all the metadata for the particular item in human-readable and machine-readable format - PID, resource type data accessibility and licensing information, publication date, author, publisher, keywords, description, where it was published, etc. You can see examples here: https://bpos.bg/publication/12734 https://bpos.bg/publication/12734 . We provide additional information on the source of the publication when it is harvested from an institutional repository, for example: https://bpos.bg/publication/13024. Data publishers can clearly indicate the licensing status and usage rights of the publications. By making use of the "Related identifier" metadata field they can describe the relationship of the resource being uploaded and a related resource - for example if the resource is a version of a previous one, contains data from someone else that you may have transformed or complete, etc. (https://openaire-guidelines-for-literature-repository-managers.readthedocs.io/en/latest/field_relatedidentifier.html)

In addition, to ensure preservation of the full-text files in the National repository over an extended period of time and ensure that the files would be able to be retrieved and rendered with a consistent and predictable result in the future, we apply the PDF/A standard which is an ISO-standardized version of the Portable Document Format (PDF) specialized for use in the archiving and long-term preservation of electronic documents.

Reviewer Entry

Reviewer 1

Comments:

Reviewer 2

Comments:

TECHNOLOGY

15. Technical infrastructure

R15. The repository functions on well-supported operating systems and other core infrastructural software and is using hardware and software technologies appropriate to the services it provides to its Designated Community.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Response:

As mentioned in R12 the business processes and detailed organizational and technical requirements for the performance of the system are documented in the project documentation of National repository and the Bulgarian portal for open science.

■he System project of National repository and the Bulgarian portal for open science contains the conceptual model of the System – mission, functions, scope, designated community, planned integrations with other repositories and e-infrastructures. The other parts of the document explore the different functionalities in the System's modules, planned integrations, metadata standards, business process and workflows, design of the database, overview of the IT and communications infrastructure design and overview of the user design.
Link: https://bpos.bg/assets/documents/System%20project%20of%20BPOS%20and%20the%20National%20repository_ENG%20summary.pdf

The software modules and data base of the National repository and the Bulgarian portal for open science are also

documented.

Link: https://bpos.bg/assets/documents/Software%20modules_ENG%20summary.pdf

The Administrator's manual provides guidance so that administrators (IT experts) performing their tasks will arrive at substantially the same outcome. It contains detailed descriptions of the system's architecture and Network and server infrastructure, the installation of the different modules of the system (the portal, the repository, the harvesting and processing of metadata from institutional repositories, Elasticsearch, PID assignment, data bases. There is also a description of the configuration procedures and scripts, recovery and backup data and a description of the internal administration panel.

Link: https://bpos.bg/assets/documents/Admin%20manual_ENG%20summary.pdf

The information system of BPOS and the National Repository is located on the existing virtualized server architecture of NACID. A service-oriented architecture (SOA) is used. In this architecture, the overall solution is composed of individual modules that communicate with each other through certain interfaces and protocols. This allows for the modules to be changed independently, e.g. upgrade or add a new functionality, without interfering with the work of the other modules. The software solution uses open source components. The Administrator's manual contains detailed descriptions of the system's architecture and Network and server infrastructure, the installation of the different modules of the system (the portal, the repository, the harvesting and processing of metadata from institutional repositories, Elasticsearch, PID assignment, data bases).

Link: https://bpos.bg/assets/documents/Admin%20manual_ENG%20summary.pdf

The internal system of the National Repository is a web-based system with restricted access. A three-layer architecture with a user interface layer, a business logic layer and a database layer has been implemented.

The solution is implemented using modern open source technologies. User interface layer is implemented using HTML5/CSS and Angular. Business logic layer is implemented on .NET Core. PostgreSQL is used to store relational data. PostgreSQL is a free open source software solution with PostgreSQL License. PostgreSQL meets the requirements of the standard SQL – 92 ■ ISO/IEC 9075:2003 (SQL:2003) . Elasticsearch is used for full text data. Detailed description of the solutions can be found in part III of the Description of the software modules of the national repository.

https://bpos.bg/assets/documents/Software%20modules_ENG%20summary.pdf

The Network infrastructure of BPOS and the national repository is also documented.

Evidence:

- IT infrastructure of the National repository:

https://bpos.bg/assets/documents/IT%20infrastructure%20of%20the%20National%20repository_ENG_summary.pdf

- Part V of the System project:

https://bpos.bg/assets/documents/System%20project%20of%20BPOS%20and%20the%20National%20repository_ENG%20summary.pdf

There are policies in place to filter traffic according to network needs. They are divided into groups that segment each individual part of the network, so traffic can be easily routed or isolated by a user or internal system in the network.

NAT policies are configured that connect network traffic from public IP addresses to and from systems located on the internal network. Groups have been created that cover certain resources in the network and segment them according to its needs. The solutions and configuration for providing protection and control of traffic to and from the network, for monitoring network and server infrastructure and notification in case of problems are described in detail in part 1 of the IT infrastructure of the national repository document.

There is a Disaster recovery plan, which describes the composition, roles and responsibilities of the team needed in each backup or recovery scenario, the response strategy, which includes three areas - emergency response, backup operations and disaster recovery actions. Link:
https://bpos.bg/assets/documents/DisasterRecoveryPlan_ENG%20summary.pdf

Reviewer Entry
Reviewer 1
Comments:
Reviewer 2
Comments:

16. Security

R16. The technical infrastructure of the repository provides for protection of the facility and its data, products, services, and users.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry
Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository
Accept

Response:

Three virtual machines operating in high resilience mode have been installed and configured on the available IT infrastructure of NACID. They are located on the built Hyper-V Failover Cluster, which includes 4 physical servers and one fast disk array. All links are duplicated. A separate network connection in an internal network is provided, which is used only by the open access storage. Virtual machines are scalable.

The Microsoft Hyper-V Cluster has the latest versions of operating systems, duplicated connections to the network and SAN infrastructure. The cluster is located behind a firewall, and its network traffic is also segmented. The highest priority of the virtual machines serving the open data system is configured. Built-in virtualization allows scalability and a rapid transition to a more mature level of IT infrastructure. The server infrastructure supports virtualization with the highest level of resilience and scalability.

The server architecture uses modern technologies for redundancy and high resilience of the solution and balanced use of resources. The used infrastructure has the ability to upgrade from all resources as needed. Rotary archives of virtual machines for open access national storage are configured. Weekly maintenance of the IT infrastructure is performed - checking of system logs, operability and stability of the systems.

The program code of the system uses the built-in tools provided by the .NET platform for automatic sanitation of the entered data and user actions for protection against malicious attacks, at least SQL injections, XSS attacks and other known methods of attacks.

NACID's management system that has been assessed as conforming to ISO 27001:2013 (https://nacid.bg/en/awards/357), which concerns the information security management system within the context of NACID - and ISO 9001:2015 (https://nacid.bg/en/awards/356) – which demonstrate its ability to consistently provide quality products and services that meet customer and applicable statutory and regulatory requirements.

We have strict policies on physical access to both the building and explicitly for the servers. Only authorized personnel can access the server rooms and only when it is necessary - for scheduled check-ups and in case of malfunctions. They are authorized by a written order by the Executive Director. The server rooms are with restricted access, equipped with the necessary air conditioning system and are compliant with all the regulations of art. 24 and 25 of the Ordinance on the minimum requirements for network and information security. This legislative act applies to all information systems maintained by administrative bodies like NACID, including BPOS. In compliance with art. 3, par. 2 of the Ordinance NACID has appointed one of its employees to be the network and information security manager. The security manager and his team of IT experts monitor the current state of the security of information system and handles incidents when they occur - this includes analyzing potential risks, keeping records of scheduled check-ups of the system, reporting and recording incidents, applying measures to prevent and/or handle incidents.

BPOS does not require user identification, while access to the internal system of the repository is restricted to authorized users only. Anonymous users have access only to the public part of the BPOS through the module "Open Science Portal". They can view, search and access the metadata and data in the national repository.

Registered users after they log in the system can access functionalities according to their assigned role.

The academic institutions are responsible for verifying the user identity of the researcher when creating an account. When NACID is creating the account the identity of the researcher is verified by his personal identifier from the Register of academic staff that NACID also maintains.

APPLICANT FEEDBACK

Comments/feedback

These Requirements are not seen as final, and we value your input to improve the CoreTrustSeal certification procedure. Any comments on the quality of the Requirements, their relevance to your organization, or any other contribution, will be considered as part of future iterations.

Response:

Being a multidisciplinary publication repository, the National Repository stores and provides access to the published scientific resource "as-is" provided by the Depositor as agreed upon in art. 7 of the Deposit agreement (https://bpos.bg/assets/documents/Deposit%20agreement_ENG.pdf) and art. 9 of the Terms of use (https://bpos.bg/en/terms-and-conditions). The repository does not convert the original uploaded file to another format and currently such format migrations are not planned. We perform basic curation. Sufficient completeness and quality of metadata is assured by requiring certain fields in the submission process. As stated in our application the repository is allowed to keep a copy of the scientific resource for purposes of security, back-up and preservation (art.8 of the Deposit agreement). So we keep only that copy in PDF/A to ensure preservation of the full-text files over an extended period of time and ensure that the file would be able to be retrieved and rendered with a consistent and predictable result in the future.

Our IT team is making sure that they are always up to date with the latest standards in formatting. The solutions they found to work best in the context of the National repository are those documented in our preservation policy (https://bpos.bg/assets/documents/Preservation%20Policy.pdf) and described in our application.