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OPEN DATA REPOSITORY DATAVERSEUA: PRACTICAL EXPERIENCE

ABSTRACT. *DataverseUA repository has been operating since 2024 and provides services to researchers from institutions of the National Academy of Sciences of Ukraine. Interoperability with third-party services has been implemented to ensure compliance with the FAIR principles. Further development is ongoing to expand the repository's functionality for users. The article presents the current status, challenges, and future plans for the DataverseUA repository.*

KEYWORDS: *FAIR data, Open science, Open data repository, Open research infrastructure.*

INTRODUCTION. In 2022, Ukraine adopted the National Open Science Plan (approved by the Decree of the Cabinet of Ministers of Ukraine on October 8, 2022, No. 892-p), which defined the tasks for the implementation of open science principles, ensuring open access to scientific results and scientific and technical information, as well as research infrastructure, publications, and scientific data.

The National Academy of Sciences of Ukraine (NAS of Ukraine) has actively joined the implementation of the tasks of the National Open Science Plan and, by its resolution “On the participation of the NAS of Ukraine in the implementation of the European principles of open science” (approved by the Presidium of the NAS of Ukraine on February, 2022, No. 327, has defined the priority work for its implementation.

The talk presents the results of the implementation of the target scientific and technical project of the NAS of Ukraine “Development and implementation of open science infrastructure in the NAS of Ukraine (OPENS)” for 2023-2024, in part of the creation of the Open Data Repository of the NAS of Ukraine and the experience of supporting its operation.

MATERIALS AND METHODS. As part of the open science policy, providing open access to data becomes a necessary condition for publication in open-access journals and a required attribute of scientific publication. The open access goal is to make research results and the data available for verification to the widest possible audience. Open access supports the preservation and wider use of results and research data in practice and in subsequent research. It accelerates the achievement of results and significantly supports innovation. Open access also contributes to transparency and control over the use the State financing, increasing quality and trust in research.

The main objective of the NAS of Ukraine project was to create and introduce into industrial operation elements of open science that were not available at the NAS of Ukraine. The results of the project are presented in [1].

EXPERIMENTAL MATERIALS. The Repository DataverseUA is deployed based on the Bogolyubov Institute of Theoretical Physics of the NAS of Ukraine (BITP) and is a digital platform for storing, classifying, and publishing scientific data. A fault-tolerant infrastructure was created to ensure the Repository's industrial operation. In addition, it was necessary to consider the peculiarities of the regulatory laws of Ukraine in terms of copyright for research data. An NAS of Ukraine employee who wishes to store data in the Repository DataverseUA must have permission from the owner of the property rights to the data - the NAS of Ukraine institution or an authorized person of the grantor whose funds were used to obtain this dataset.

The general infrastructure of the Repository DataverseUA is presented in Fig. 1 and consists of several sites:

- Open Data Repository DataverseUA (<https://opendata.nas.gov.ua/>) and the site for the support of business processes (<https://opendata.bitp.kyiv.ua/>), which ensures interaction between the user and the support staff of Repository DataverseUA in the process of registration of the institutions and research data posting;
- Development Dataverse site (<https://dataversedev.bitp.kyiv.ua/>), which is used for user training and development.
- backup system consisting of a Data Storage server and a cloud server.

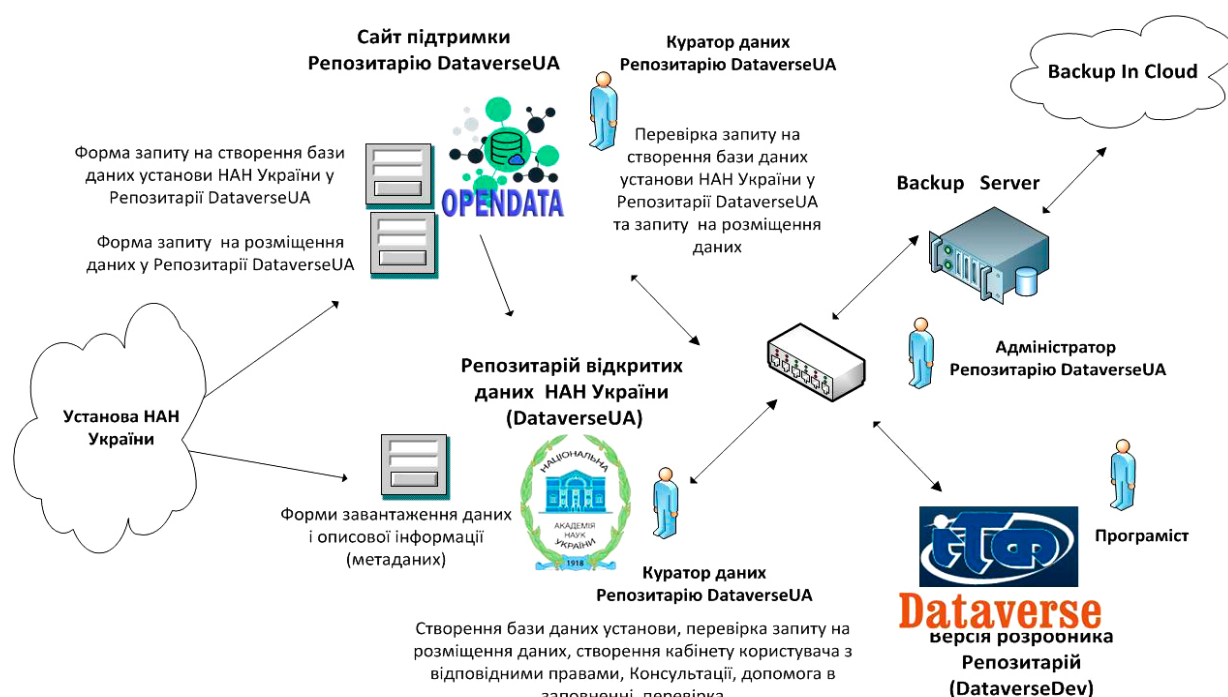


Fig. 1. The general infrastructure of the DataverseUA

To be able to post research data, the depositor must go through the registration procedure in the Repository DataverseUA and receive a login and password to access the internal part of the Repository DataverseUA. The process of data posting into the DataverseUA repository involves the following steps: submission of the agreement regarding personal data processing and privacy policies; dataset and metadata submission; selection of an appropriate license for the data set; validation of data and metadata of the dataset by the repository curator on data types, completeness of metadata and compliance with FAIR principles; data publication with assignment of a digital object identifier (DOI) for the dataset.

The metadata of the published datasets is indexed by the Harvester of the (<https://harvester.nas.gov.ua>), and we are working on the registrations in the re3data and OpenAIRE harvesting services. A regular data backup process with 3-2-1 strategy has been implemented with backup destinations to the local data center at the BITP and to the cloud storage in a separate region. There are ongoing works with the Institute of Cybernetics to produce full localization for Dataverse version 6.1 and later versions.

There is also an ongoing process to certification for the DataverseUA repository via CoreTrustSeal. In terms of this process, the important documents like the Disaster Recovery Plan and the Backup plan have been developed.

RESULTS. The DataverseUA repository has currently in operational mode since 2024 and is offering its service to the researchers from the institutions of the National Academy of Sciences of Ukraine. At the moment, 5 institutions have registered in the repository. Interoperability with third-party services has been set up to provide compatibility with the FAIR principles. There is ongoing work to provide more functionality to the repository users.

CONCLUSION. The talk presented the current status, issues, and plans for the Repository DataverseUA.

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ВІДКРИТИЙ РЕПОЗИТАРІЙ ДАНИХ DATAVERSEUA: ПРАКТИЧНИЙ ДОСВІД

АНОТАЦІЯ. Розглянуто проєкт створення Репозитарію DataverseUA, який функціонує в робочому режимі з 2024 року та надає послуги дослідникам установ Національної академії наук України. Для забезпечення відповідності принципам FAIR реалізовано інтеграцію із зовнішніми сервісами та налаштовано механізми інтероперабельності. Триває подальший розвиток функціональних можливостей платформи для користувачів. У статті представлено поточний стан, основні виклики та перспективи розвитку репозитарію DataverseUA.

КЛЮЧОВІ СЛОВА: FAIR дані, відкрита наука, репозитарій відкритих даних, відкрита дослідницька інфраструктура.