## Chapter 9 Open Science in Universities: Ukrainian Experience

#### Iryna Drach

(b) https://orcid.org/0000-0001-7501-4122 Institute of Higher Education of the National Academy of Educational Sciences of Ukraine, Ukraine

## ABSTRACT

One of the essential resources for preserving/restoring the research potential of Ukrainian universities in the conditions of the war of Russia against Ukraine and post-war recovery is the implementation of the policy of open science, which ensures improving research efficiency by reducing duplication and the costs of creating, transferring and reusing data. The relevance of implementing open science in the European Research Area is considered. The chapter analyses the documents of the European Research Area, scientific works on the development of open science in European universities, and documents related to implementing the principles of open science in Ukraine. The survey "Open Science in Higher Education Institutions of Ukraine" results are presented. Academic staff of 110 Ukrainian universities (1,517 respondents) participated in the survey. The survey highlights the current use of research e-infrastructure services in Ukrainian universities and the academic community's understanding of using artificial intelligence in research.

## INTRODUCTION

A powerful destructive impact on the country's infrastructure, economy, and all spheres of public life resulted from russia's large-scale invasion of Ukraine, which began on February 24, 2022, and is still in progress. Higher education suffered

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significant losses from the war. It also faced unforeseen challenges related to the complete or partial destruction of higher education institutions, the everyday threat to the life and health of participants in the educational process, the aggravation of the problem of ensuring the stability of university activities, the reduction of state budget expenditures for higher education and others. All this creates an urgent need for rethinking strategies for developing higher education in martial law conditions and post-war reconstruction of the country.

To transform higher education in the post-war period into a driving force of society, capable of providing an innovative breakthrough in the scientific-technological, industrial-economic, and social-humanitarian spheres, higher education institutions should play an essential role in the modernization of the economy and its innovative development, European integration, ensuring Ukraine's entry into global markets, guaranteeing the steady and stable progress of the Ukrainian state, its security in the long term. To effectively implement such a role, one of the critical priorities for universities should be to increase their research capacity. This process involves harnessing open science's potential, which increases research efficiency by reducing duplication and the costs of creating, transferring, and reusing data.

The relevance of implementing open science in Ukraine's higher education institutions is strengthened by the state's acquisition of the status of a candidate for accession to the European Union. An essential step in the implementation of the Agreement between Ukraine, on the one hand, and the European Union and the European Atomic Energy Community, on the other hand, in the participation of Ukraine in the Framework Program for Research and Innovation "Horizon Europe" and the Program for Research and training of the European Atomic Energy Community (2021-2025), complementary to the Framework Program for Research and Innovation "Horizon Europe" (2021-2025) (Agreement between Ukraine, 2023), is the implementation of the principles of open science in Ukraine.

Thus, the urgency of implementing open science policies and procedures in Ukraine's higher education institutions is determined by the need to implement large-scale transformations in various sectors of the economy for the recovery and development of the state in the post-war period and by Ukraine's European integration aspirations. Domestic higher education institutions should become an environment where a culture of research openness is formed and cultivated.

The chapter aims to analyze the possibilities of open science and the current use of research e-infrastructures and Artificial Intelligence in Ukrainian universities.

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