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**MODERN METHODOLOGIES OF EVALUATION OF RESEARCH
ORGANIZATIONS IN THE WORLD AND IN UKRAINE USING
SCIENTOMETRIC INDICATORS**

Summary

Evaluation of the activities of scientific institutions according to international standards is based on expert and scientometric assessments. Objective assessment of the effectiveness of scientific research, increase or termination of funding is closely linked with the choice of a system of criteria, which determines the effectiveness of research organizations and individual scientists.

The purpose of our study is to reveal the historical aspects of the development of theoretical and methodological foundations for assessing the performance of research organizations from different countries of the world: the UK, the Netherlands, the USA, Germany, Sweden, France, Scandinavia, China, the post-Soviet countries and Ukraine, and also to propose a new methodology for evaluating scientific institutions for NAAN system.

Consider the international experience of evaluating scientific organizations. According to the OECD's «Assessment of Research Organization» project, there are several different systems for evaluating scientific organizations. For example, the UK Research Excellence Framework is a long-established national research funding system. Since 1986, the UK has been evaluating the quality of research at the national level in institutions of higher education approximately every six years. Institutions must submit materials with full staffing data, publications over the past 6 years, case studies, doctoral degrees, research returns over the past 6 years, impact, and the environment. For journal articles and conferencing materials, the presentation must contain a digital object identifier (DOI), for reports and conference theses - ISSN or ISBN, or if you want to provide electronic copies of the publications. Researchers must have an ORCID ID.

The national research organization's assessment of the Netherlands is presented in a flexible protocol «Assessment of Contextual Research», created at the Institute of Educational Sciences (ERiC). Higher education institutes and research institutes in the Netherlands should demonstrate that the studies they carry out meet the necessary standards and external accountability obligations.

There are two national protocols for research evaluation. The Standard Assessment Report (2009) works at the Association of Dutch Universities (VSNU), along with the Royal Netherlands Academy of Arts and Sciences (KNAW) and the Dutch Research Organization (NWO). The evaluation committee evaluates the researchers based on their self-assessment and interviews with the staff involved.

Legal mechanisms for assessing US research organizations are based on the Performance and Performance Act (GPRA) (1993) and the GPRA 2010 Modernization Act (GPRAMA). The assessment criteria are the quality of the research and the expected benefit, the rigorous individual assessment of the NDU (grant winnings and publication profile). Allocation of US resources is done through project and individual selection.

In Germany, the testing of research institutes was initiated in 1990 and involves evaluating the research program in view of its relevance and innovative orientation.

Current developments in the field of methodology for evaluating the effectiveness of science in a systematic way are set out in the Leiden Manifesto for research metrics (2014).

In the countries of the Commonwealth of Independent States: a typical methodology for assessing the performance of scientific organizations in the Russian Federation, which provides for the analysis and comparison of the basic 44 indicators, in the Republic of Belarus – 90 indicators, and in the Republic of Kazakhstan – 85 indicators. The methodology of the Ministry of Education, Science and Culture is used in Ukraine, which takes into account 42 indicators. Institute for Research in Scientific and Technical Potential and History of Science named after G. M. Dobrova of the National Academy of Sciences of Ukraine developed the Methodology for evaluating the effectiveness of scientific institutions of the National Academy of Sciences of Ukraine according to 16 criteria and 57 indicators, which provides for comparison with international standards in the corresponding branches of science.

The multidivisional activity of the research institutes of National Academy of Agrarian Sciences of Ukraine (NAAS) requires the development of a comprehensive system for evaluating the effectiveness of its work. In accordance with the NAAS Resolution dated June 30, 2015, the National Scientific Agricultural Library of NAAS has launched a science-based support of the Ukrainian Agrarian Science of Ukraine through continuous monitoring of the performance indicators of the scientific research activities of NAAS in the Google Scholar analytical and informational system. In order to evaluate the activity of NAAS research institutions, we propose the use of a methodology for 41 indicators developed and refined in National Scientific Agricultural Library of NAAS, which is based on the application of Harrington's desirability function, taking into account four components of the scientific and technological potential (personnel, publishing, informational, organizational and financial potentials) and scientifically indicators of the scientific potential of agrarian science. The methodology of integrated assessment of the scientific and technological potential of scientific research institutes of NAAS is based on the combination of expert and scientometric assessments in accordance with the principles of the Leiden

Manifesto, taking into account the specifics of the functioning of agrarian institutions, which is an advantage in the evaluation of research organizations of the NAAS system. It can be used for attestation of NAAS research institutions and their scientists. This way of evaluating the scientific institutions of the National Academy of Agrarian Sciences of Ukraine under the international scheme will ensure the efficient operation of the Academy's institutions.

According to the results of the assessment, the level of scientific and technological potential of the results of NAAS research institutions according to the proposed methodology in the analyzed institutions of NAAS is high and average, which testifies to the successful accomplishment of the planned tasks and a decent representation of the objects of scientific organizations in the international scientific community.

Keywords: *assessment of scientific institutions, scientometric bases, Leiden manifesto, UK Research Excellence Framework, National Research Organization of the Netherlands, Legal Instruments for Assessing US Research Organizations, scientific and technological potential, National academy of agrarian sciences of Ukraine.*