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Analysis of the mechanism for combining personal scientific information with ORCID profiles

Modern scientific-metric databases, including such as Scopus and Web of Science, are analyzed in the report. Existing multidisciplinary databases are considered. The problem of the growth of scientific information is also revealed, which causes the creation of false relations between the author and their works by distorting personal information based on the existence of multilingual world. The existing mechanism of the ORCID system used to solve this problem is analyzed, which allows to identify the scientist and link their works from various scientific bases.

At present, the rapid development of information technology for the formation and maintenance of links between scientists in the world space is relevant to the use of scientific-metric databases.

The global process of developing an information society is not territorial in nature, but in terms of time, it is characterized by exponential growth that conceals, as a consequence, a global problem, namely the information explosion. For example, the open non-profit organization ORCID, whose purpose is to create a single, international register of scientists, has already noted the creation of the already 5 000 000th profile in their database, and every day the figure is increasing.

A large number of industries and the lack of interconnections encourage the formation of separate bases in relation to the specifics of the work of various scientific areas (Table 1).

In the Ukrainian scientific community, the use of such databases as Scopus, Web of science, IndexCopernicus, ORCID, ResercherID, Google Scholar and others can be found more often. For example, in accordance with the Order of the Ministry of Education and Science of Ukraine dated January 15, 2018, No. 32 "On Approval of the Procedure for the Formation of the List of Scientific Professional Publications of Ukraine", only those scientific periodicals of Ukraine, which are included in the scientific and metric bases of Scopus and/or Web of Science Core Collection are on the List regarding the category "A".





Scopus is the largest reference database in the world and a scientific-metric platform (since 1995), which is updated daily and is the largest database of scientific publications without full texts. It is commercial and its full version is only available on subscription terms through the web interface. However, it is possible to view Scopus database resources in limited mode.



Web of Science (WoS) is The Thomson Reuter Master Journal List database, and covers more than 9,000 editions in English and partly in German (since 1980) and includes three categories - Science Citation Index Expanded (Natural Sciences), Social

Sciences Citation Index, Arts and Humanities Citation Index (Arts and Humanities). The scientific-metric platform of the device provides tracking of citation indicators of publications with retrospective up to 1900. These resources do not contain full texts of articles, but include links to full texts in primary sources and lists of all bibliographic references (depth of the archive is 20 years). Its full version is available through the web interface on subscription terms.

Table 1.

An example of multi-branch databases

Name	Description
 <p>MathSciNet</p>	<p>One of the most authoritative abstract database on math, supported by the American Mathematical Society (AMS). Over 1,800 mathematical journals are indexed, in addition there are records of 85,000 monographs and 300,000 scientific conferences. Contains more than 3 million records, 2.2 million of them are provided with an essay/review. Coverage is from the beginning of 1900 to the present. (Access is limited by subscription).</p>
 <p>BusinessSourcePremier</p>	<p>Database on business and economics, including finance, management, accounting, international business and other full texts. More than 2,800 scientific journals, including over 900 editions, which are reviewed by the scientific community, and abstracts from 3350 journals. Contains more than 5000 descriptions of the world's largest companies, as well as economic reports from around the world. It is updated every day.</p>
 <p>Econlit</p>	<p>This database contains more than one million records with quotations and theses since 1886. Capital markets; country studies; econometrics; economic forecasting; economics of nature use; government regulations; labor economics; theory of money; city economy.</p>
 <p>WilsonSocialSciencesAbstracts</p>	<p>The database highlights the latest concepts, theories and methods of applied and theoretical aspects of the social sciences.</p>

 <p>Wilson Humanities Abstracts</p>	<p>This database contains abstracts and bibliographic indexes of the most famous scientific sources in the branches of the humanities.</p>
 <p>ERIC (Educational Resource Information Center)</p>	<p>Database on education issues. Provides access to the full texts of more than 2200 collections of articles on education issues, and also contains abstracts and descriptions of articles from more than 1000 scientific journals on educational subjects. Established by the US Department of Education and the Research and Development Division in the field of education.</p>

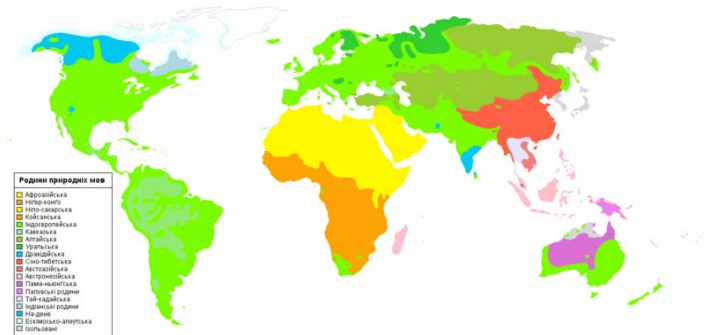


Fig. 1. Families of natural languages

However, in spite of the considerable advantages of science metric bases, the problem of the diverse character of languages in Ukraine and in the CIS countries was formed in accordance with the genealogical classification and, as a result, the transliteration of personal data in the alphabets of different countries, based on the use of Latin (Fig.1) is rather complicated. This problem is an obstacle to the full use of international scientific bases.

One of the solutions that helps solve this problem is assigning each scientist a personal identifier. (Now the question of changing the name for girls-scientists is solved). ORCID is one of the organizations working on this topic. The authors' profiles of ORCID scientists provide the opportunity to combine the information as much as possible about each person, for example, personal data, where it is possible to specify different variations of the surname, name and patronymic used in the publications, and attach pages from other profiles. This kind of completeness of the database provides the opportunity to best identify the scientist and directions of their scientific activity.

An important aspect of this database is its technical side. After registering a profile, each user gets access to technical tools. ORCID provides the ability to use the API (Application Programming Interface), which allows you to connect other systems and applications with the ORCID registry using interworking machine technology. There are two types of APIs available on the site: Public API and Member APIs.

Public API is free, but its features are limited:

- allow users to sign into your system/application with their ORCID username and password;
- get a user's authenticated ORCID iD;
- retrieve a machine-readable version of a user's public ORCID record;
- perform a machine-generated search of the ORCID registry.

Unlike the Public API, when using Member APIs, the organization provides a number of additional services.

Based on this report, it can be concluded that in order to increase the performance of scientists with the aim of establishing a synergistic effect in interdisciplinary works, it is efficient to use a mechanism that would provide an opportunity to obtain reliable and transparent scientific links between scientists from different countries.

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