

Towards integration of research information: the SK CRIS system as part of research infrastructures

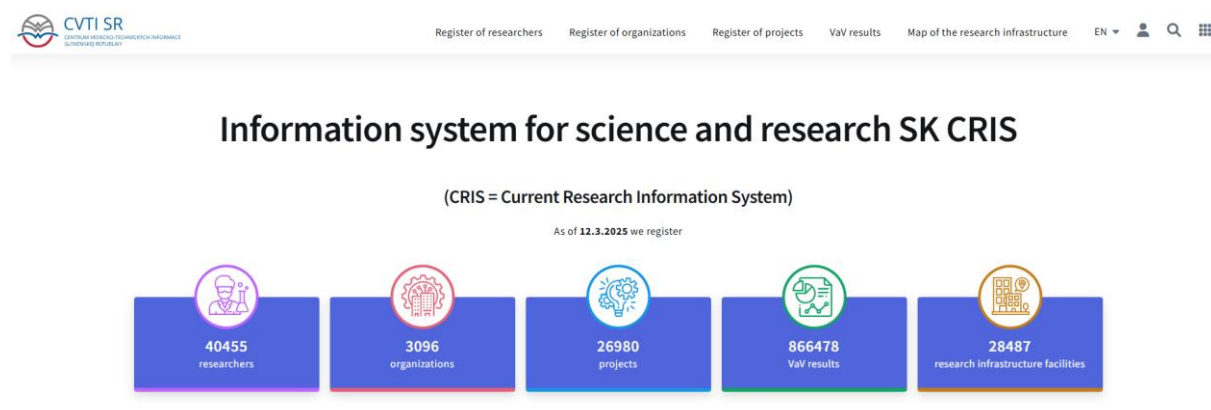
Danica Zendulková, Gabriela Gavurníková, Ján Turňa
Slovak Centre of Scientific and Technical Information

Introduction

The information system about research and development SK CRIS was built in accordance with the standards and best practices of research information in the EU. In addition to the CERIF relational data format, which allowed us to record links between basic objects, we therefore also implemented open science and FAIR principles for the collected data. We focus on the implementation of unique identifiers, data management and metadata quality control, as well as the integration of various data sources into larger whole with the character of research infrastructures. The goal is to use the collected data not only at the national level, but also to provide them for international comparison as part of research infrastructures.

Current status

The information system SK CRIS, which has been in operation since 2013, is updated annually with data on research activities, entities, results and infrastructures at the national level. The system has recently undergone a significant functional and design upgrade, but especially a technological one, and has been operating in a new version since the summer of 2024 (Figure 1).

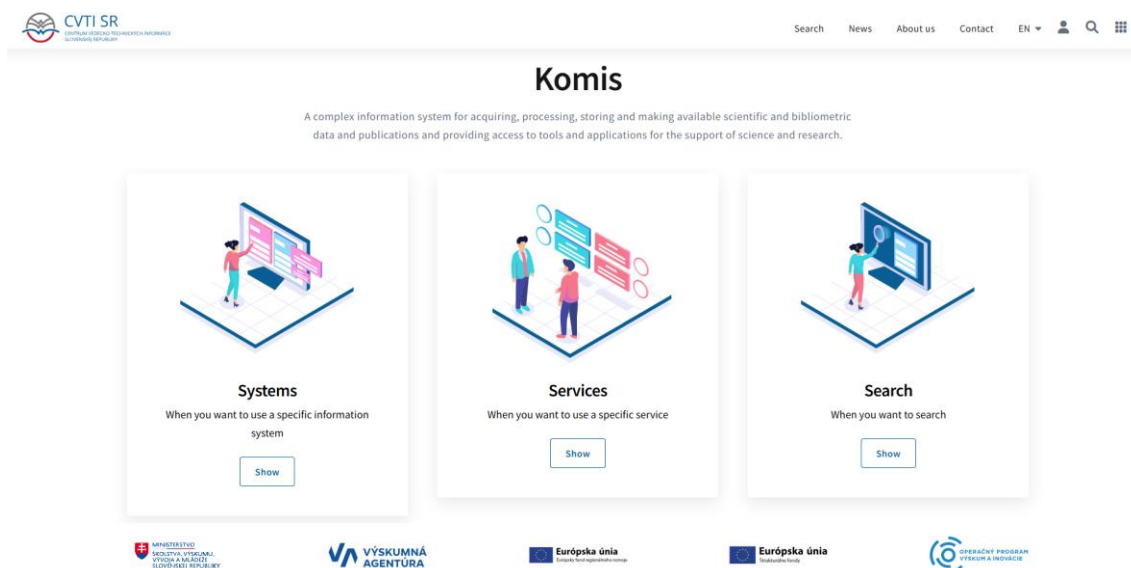


The aforementioned development was part of a larger project, within which SCSTI created a Comprehensive Information System for Acquiring, Processing, Storing and Making Available Scientific and Bibliometric Data and Publications and Ensuring Access to Tools and Applications for Supporting Science and Research (abbreviated KOMIS).

The created national research infrastructure aggregates science support systems operated by SCSTI and makes available the services of the Data Centre for Research and Development (DC VaV), such as the use of storage capacity, data processing and the use of various installed software (Software as a Service - SaaS) mainly from the fields of mathematics, statistics and bioinformatics. The solution includes analytical tools for data processing and a module for searching available data and information sources.

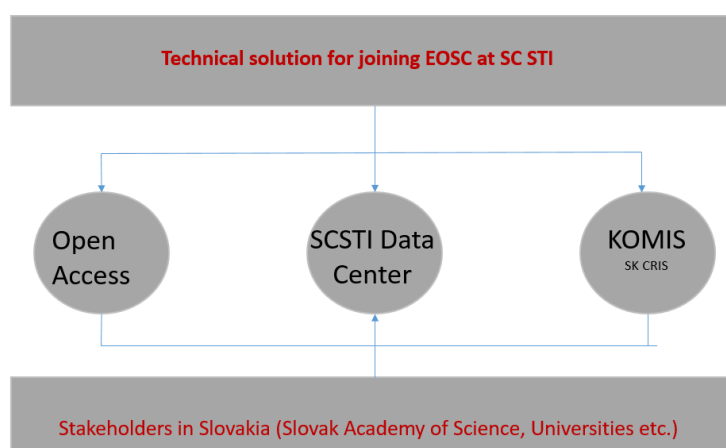
The gateway to the system is a presentation platform (Figure 2) with an implemented SSO authentication process, which will allow you to share your credentials across various systems and applications easily.

KOMIS is currently in pilot operation and its beta version does not yet enable full operation of all functionalities.



Another important moment is that the SCSTI, as the national EOSC coordinator for Slovakia, became part of the pilot consortium of European organizations that will participate in building the EOSC Federation's network of nodes. In a six-month selection process at the European level, SCSTI was selected from 121 applications to be part of a group of thirteen established institutions that will participate in building the initial form of the EOSC Federation. The nomination of SCSTI to the position of national EOSC node will allow SCSTI to rank among the leading European scientific and research institutions supporting the principles of open science and FAIR data.

The technical solution for joining the EOSC assumes the involvement of the KOMIS system, including the SK CRIS (Figure 3).



Current version of SK CRIS

The current version of the SK CRIS, just like the previous version, contains data on projects financed from public resources, their results, as well as a register of research and development (R&D)

organizations and a personal database of researchers. The newest module is the Map of research infrastructure. The administration of the assessment of the competence to perform R&D and statistical survey of R&D potential is carried out through the online forms of the system.

In addition to the new design, the SK CRIS information system has the following new features after the upgrade:

- Implementation of the ID federation for researchers. The offer includes internationally used PIDs, namely ORCID, ResearcherID and SCOPUS ID, as well as the national identifier of the university teacher ID from the University employee register.
- Integration with the Register of legal entities (RPO) consists in use of PID for an organization at the national level, namely the Organization Identification Number - IČO. The RPO is a reference register. Integration with this register allows obtaining data on organizations into SK CRIS based on the IČO check. The "once is enough" principle is applied, the user does not have to enter data that already exists in the RPO.
- Expansion of registered data for research results with DOI and URL of the full text of the publication
- Extended user interface options for searching, addition of multi-criteria search, allowing simultaneous selection of multiple code list items and addition of combined search of basic objects (projects by organization and researcher)

During the operation of the system, central state administration bodies became familiar with the collected data and their structure. For this reason, the data are used to prepare various output reports and analyses that are used to prepare state science policy, monitor several indicators, as well as to deduct the fulfillment of state tasks. The following are among the regularly created outputs:

- Analysis of data on research projects and organizations on an annual basis as part of the government-approved document Report on the State of Science and Technology.
- Publication of additional statistical survey of research and development potential
- Analysis of the proportion of women within project teams on an annual basis and by individual scientific disciplines for the Gender Equality Plan document
- Other thematically focused output reports and analyses

Planned development of SK CRIS

The main moment that determines the directions of further development of SK CRIS is the legislation in preparation. Specifically, the current Act No. 172/2005 Coll. on State Support for Research and Development will be replaced by the new Act on Research, Development and Innovation. This Act is undergoing standard processes and its final version is not published yet. However, it will bring changes to the procedures and workflows implemented through SK CRIS. Two new modules are to be put into operation. Although their software basis still exists today, we expect that the data structure may change depending on the purpose of the registers, defined processes and required outputs.

These are the following registers:

- Register of Research Organizations
- Register of Research Infrastructure

Another key point of development is integration with national registers, especially in the area of researcher identification (Slovak register of natural persons). It is also expected new processes will to support a more widespread use of international identifiers (mainly) of researchers, than at present.