

Research Infrastructure Map as a tool of the Information System for Research, Development, and Innovation

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Key words

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Introduction

The registration of research infrastructures is an integral part of the R&D information system. Its development at national level follows from EU activities in this area.

It is based primarily on the documents of the European Strategy Forum on Research Infrastructures (ESFRI) followed by national documents formulating policy aimed at the development and use of research infrastructures and their involvement in European and international initiatives.

From a technical point of view, the ideal tool for registering research infrastructures is the research and development information system, which contains all the basic objects describing the subjects, activities, and results of research, including the laboratory infrastructure.

For this purpose, the SK CRIS information system has been in operation in Slovakia since 2013 and is currently undergoing a process of technological upgrade. A new module, the Research Infrastructure Map, is being prepared as part of the Data Management for Science and Research project, funded by the EU SF. This module will serve as a tool for registering research infrastructures and will be compatible with international standards for research information.

Starting point

The main starting point is the European policy on research infrastructures as defined by ESFRI. ESFRI was established in 2002 and since 2006 has regularly published an Action Plan - the ESFRI Roadmap (the latest version is from 2021), defining research infrastructures of pan-European relevance and responding to the long-term needs of the European research community.

This document is followed by the Roadmap for Research Infrastructures - SK VI Roadmap 2020 - 2030, which is a key document of the Slovak Republic for the field of research infrastructures and its task is to monitor the development and status of public and private research infrastructure on the territory of the Slovak Republic, and its interconnection with the economy, domains of smart specialization, international cooperation in the context of ESFRI and the forthcoming Framework Programme of the European Union in the field of research and innovation for the years 2021 - 2027 Horizon Europe.

The research infrastructure consists of research facilities, instrumentation, professional and support staff, materials, resources, and related services of a unique nature. The issue of research infrastructures and their registration is well covered in professional literature.

Several authors around the world have been working on their definition and categorization, as well as on the assessment of their impact and use.

Several European projects (MERIL, CatRIS and ONLINE S3 or VRE4EIC) dealt with the inventory of research infrastructures. They have resulted in a methodology for the registration of research infrastructures and in the creation of European registers of research infrastructures. Finally, the EU standards for research information (CERIF format) also mention research infrastructures as an essential entity. The literature also directly addresses the use of CRIS in the registration and evaluation of research infrastructures.

Software solution

Our design of the Research Infrastructure Map software solution, is based on international standards and experience with similar applications across the EU:

- The current version of the CERIF 1.6 data format contains data structures for the registration of laboratories (cf.Facility), laboratory equipment (cf.Equip) and services (cf.Serv) provided by the laboratory infrastructure. Geolocation data (cf.GeoBBox) will also be recorded to provide information on the location of the infrastructure.
- The infrastructure classifications recommended by the methodology and used within the available software solutions of pan-European database solutions. These will be mainly the categories of MERIL scientific areas and the categories of ESFRI areas. A comparison of MERIL and CatRIS data structures will also be carried out. The resulting solution will reflect any differences.
- The analysis of existing research infrastructure modules already implemented in CRIS at national level (e. g. Estonia, Finland, Poland, Slovenia).

The solution will be implemented simultaneously with the technological upgrades of SK CRIS, where we will also upgrade the CERIF 1.3 data model to CERIF 1.6. As part of the solution, we will consider the specifics of collecting and processing research information, implemented at the national level through the SK CRIS system. These will be mainly:

- Method of collecting data on research infrastructures. There will be two ways, namely an online form for research organizations and APIs - to import data from external systems, mainly grant agencies.
- Classification schemes for research infrastructure will respect the system of classification schemes SK CRIS. This means that, in addition to internationally used classifications, the data model will also allow the implementation of other classifications, such as groups of science and technology, as well as RIS3 science areas.
- The solution will include interlinking with the existing SK CRIS core entities, especially with the organizations that operate the infrastructure. In the event the infrastructure has been created as part of a research project or is funded or used as part of a project, this link will be recorded. A link to the responsible person will also be established if the relevant data is available.

Summary

The implementation of the software solution of the research infrastructure map follows from chapter 4.6 of the document Roadmap for research infrastructures - SK VI Roadmap 2020 - 2030. This chapter deals with the information provision of Slovakia's activities in the field of research infrastructures. According to this document, the Research Infrastructure Map module will contain "information on the instrumentation of the research infrastructures, but also the possibilities of using the instrumentation together with information on whether the institution has trained staff who can operate a particular instrument and whether the actual equipment is used for the given purpose. It will also provide information on the use of research infrastructure for remuneration. The data will be intended for the professional public and the private sector, which do not currently have information on publicly purchased research infrastructures. "

On the basis of I. Action Plan for the Implementation of the Roadmap for Research Infrastructures, the Ministry of Education, Science, Research and Sports will prepare legally binding rules and obligations of R&D entities to provide the required information on a regular basis, including effective sanctions for non-compliance.

The research infrastructure map will be available to users as part of the SK CRIS system in the first quarter of 2023.