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Research infrastructures in scientific activities:

practical aspects of use

EU Horizon 2020 Framework Program: Opportunities for the Use of Research Infrastructures for Ukrainian Scientists and Entrepreneurs – Odesa, December 6-7, 2019

Research infrastructures

Research infrastructures are facilities, resources and services used by the research communities to conduct research and foster innovation:

- ➢ **Scientific collections, archives and structured information (scientific data);**
- ➢ **ICT-based infrastructures (data and computing systems and communication networks) ;**
- ➢ **Major scientific equipment (or sets of instruments).**

Research infrastructures

E-infractructures:

- databases,

- computing systems,

- communication networks including ICT-based infrastructures such as GRID,

- computer infrastructures,

- software infrastructures and middleware.

Why are the RIs important?

- Reboot the science base to increase competitiveness

- A new service-oriented approach (user access)

- Diversity in research and innovation (defined by national roadmap for RI development)

- Relations with the regional economy

- Increasing political value (EU and ESFRI priority)

- New EU legal framework (ERIC consortia)

- Support for individual projects

Main tasks of RIs

- Providing research (research service)
- Education, including school
- Provision of public services
- "Centers of gravity" for the development of regional technology clusters
- Science popularization among general public

The main directions of development of RIs in Horizon 2020

- Earth and environment sciences
- Biological and medical sciences
- Energy
- Material science and analytical tools
- Physics
- Social sciences and humanities
- Mathematics and ICT

Transnational Access (TA)

'Free of charge' provision of access to a research infrastructure to ***selected*** researchers or research teams usually working in a country other than the country where the RI is located.

TA:

- **Personal ('hands-on') –** to users visiting the infrastructure, *e.g. access to a research vessel,*

- **Remote scientific services**, no visit needed, *e.g. performance of sample analysis*

Research Ship

The Portuguese Institute for Sea and Atmosphere, Lisbon, Portugal.

The EU-Netherlands joint infrastructure.

[M. Gorokhovatska]

Current Research Information Systems (CRIS)

WHAT.

The CRIS are information systems for the storage and management of institutional scientific research data.

Current Research Information Systems (CRIS)

WHY.

The CRIS allow:

- combining disparate data from different sources,
- compiling scientific reports,
- assessing the effectiveness of research institutions,
- creating profiles of scientific institutions and scientists,
- developing a research network, ...

Current Research Information Systems (CRIS)

HOW.

The joint Ukrainian-German research project by the State Scientific and Technical Library of Ukraine and the German National Library of Science and Technology "FAIR Research information in open infrastructures (FAIRIO)", 2019-2020, aims at creation of a roadmap for the implementation and development of the CRIS technologies in national scientific communication systems using the principles of FAIR - findable, accessible, interoperable and reusable research information.

Current Research Information Systems (CRIS)

IF.

The realization of this project will:

- promote the activization of the scientific work of researchers, doctoral students and graduate students by their fair financial motivation in accordance with professional achievements;
- ensure transparency and openness of managerial decisions of the institution's administration;
- promote the development of scientific cooperation, saving time resources and reducing paper workflow;
- enhance the quality of scientific and educational services provided by the universities.

Virtual Terminographic Laboratories (VTLs)

Unique up to date technological resources based on the cloud and *GRID* technologies

allowing to

create and keep super large arrays of various terminological information (i. e. millions of terms in different languages along with related synonyms, as well as their explanations and illustrations) and work with the term system online anywhere and worldwide.

Ukrainian Lingua-Information Fund of NASU.

Virtual Terminographic Laboratories (VTLs)

Virtual Terminographic Laboratories (VTLs)

Virtual Terminographic Laboratories (VTLs)

Not just a complex multilingual translational and explanatory dictionary

but also a medium in which content can be amended constantly.

This warrants steady development of the given terminology accounting for the latest achievements in the field.

Virtual Terminographic Laboratories (VTLs)

Possibility to continuously carry out
various terminological researches:

- extract terms,
- retrieve and extract information,
- build semantic fields,
- study lexical semantic relations,
- reveal lexicographic effects,
- create ontologies, …

[Grishman 1994; Uszkoreit 1997; Mitkov 2004; Shyrokov 2004; Shyrokov 2011; Shyrokov and Ostapova 2015; Arp et al. 2015; Vakulenko 2017].

Virtual Terminographic Laboratories (VTLs)

Modern technologies of the computational linguistics make it possible to conduct such investigations in scales and at the level, unattainable for the traditional linguist.

A powerful and multifaceted tool for general and corpus linguistics as well as translation studies, education, and artificial intelligence development.

A basis for the most ambitious international projects such as the FrameNet or WordNet.

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