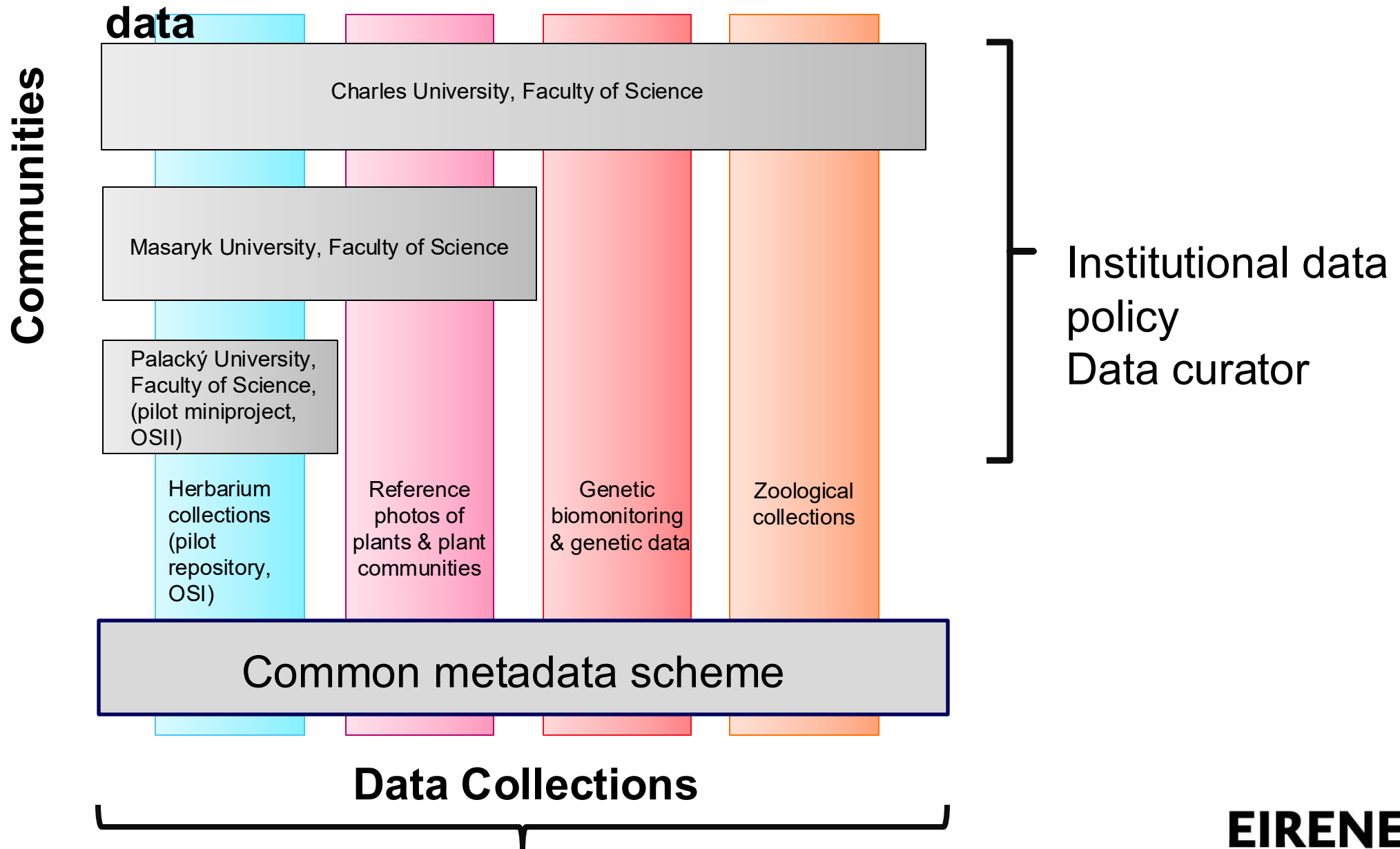
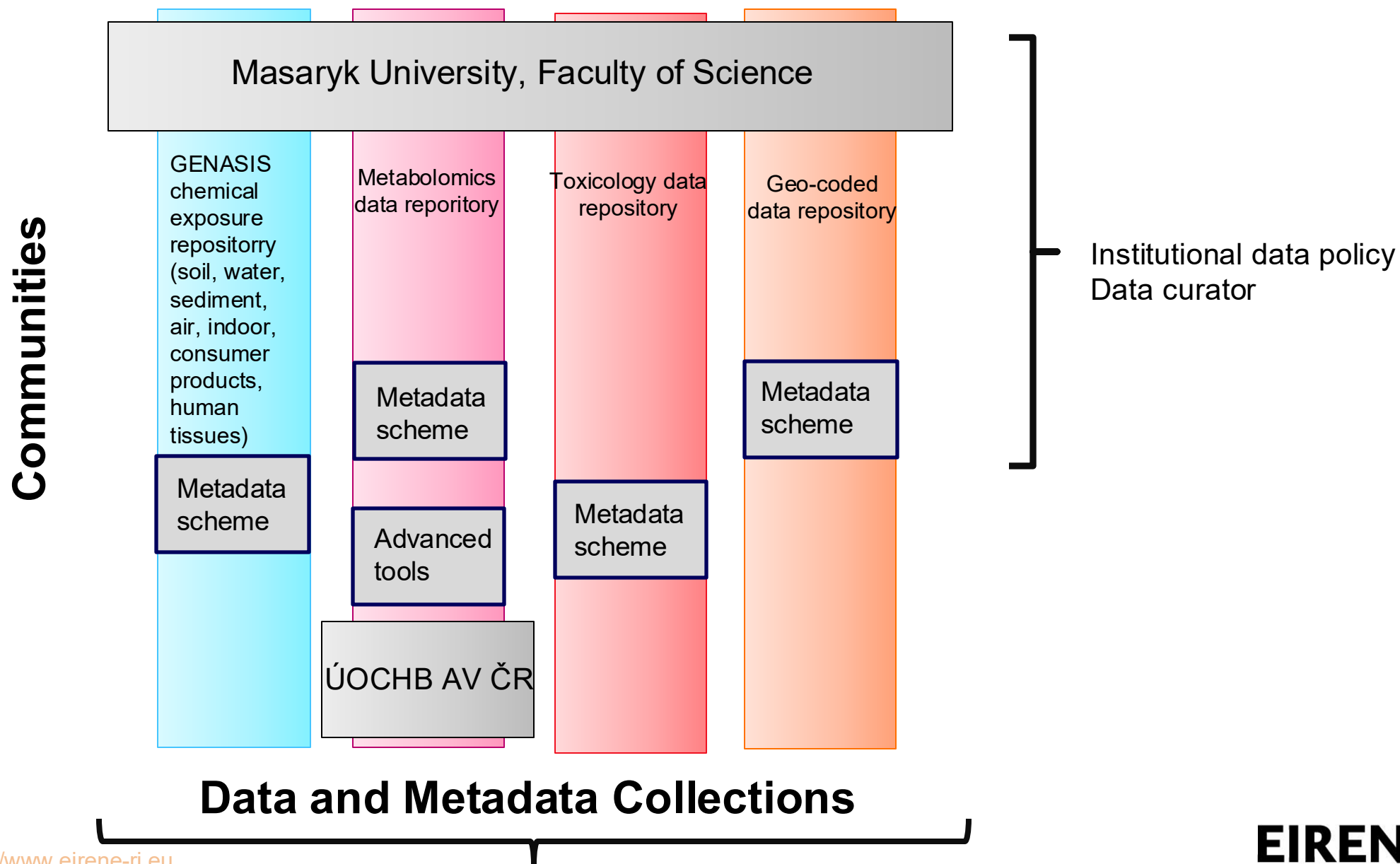


BioDiv - Repository for biodiversity

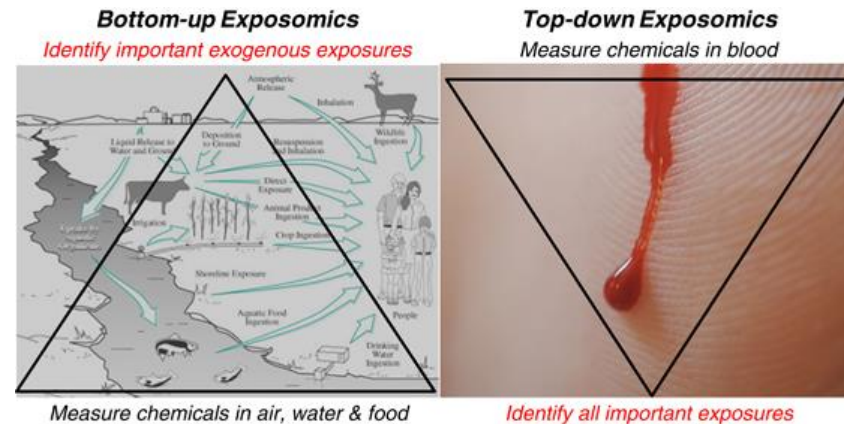


Repositories for data on chemical exposures and their effects



Exposomics challenge

- To support integration into the biomedical sciences, exposomics should provide a **readily deployable toolbox** including methods of **high-resolution mass spectrometry for detection of environmental chemicals and metabolic perturbations**, **epigenomics** to measure environmentally mediated alterations to DNA, or **geospatial techniques** for mapping proximity to exposure sources.



- Such a toolkit should be **accessible to researchers** from multiple fields demanding the analyses of tens of thousands (and potentially millions) of samples **through the open-access services** of the harmonized network of (laboratory and data) research infrastructures.

16.7 Environmental sciences

RECETOX Research Infrastructure



Accronym:
RECETOX RI

Hosting Institution:
Masaryk University

Phase/construction:
Character: single-sized

Responsible person:
Prof. Jana Klučnická, Ph.D.
klucnicka@recetox.muni.cz

Website:
oid.recetox.muni.cz/index-en.php

Year of inclusion on the Czech Roadmap: 2010

Motto:
Science for a healthy future.

► 30

MUNI | RECETOX

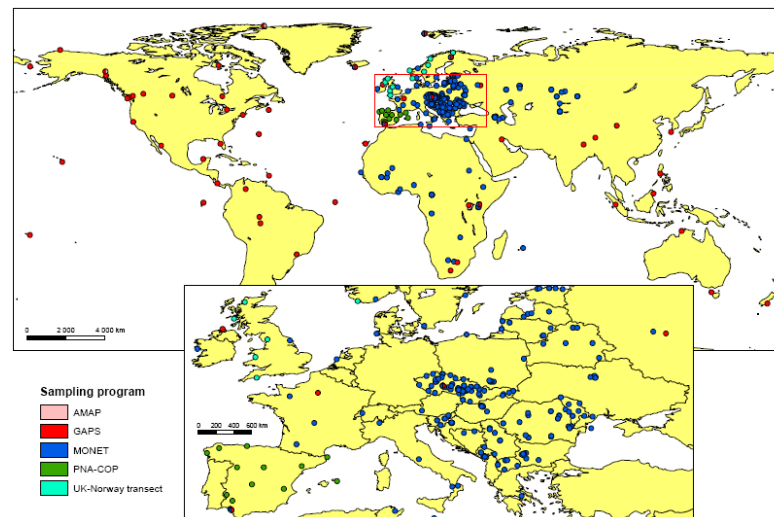
Characteristics

RECETOX RI enables research on both environmental and human health risks related to environmental contamination, and supports the safe management of chemicals. The existing and newly built capacities of the RECETOX RI core facilities offer a wide range of expertise needed for making environmental impact assessments for a variety of users. They provide access to analytical, chemical, biological, and toxicological laboratories, the environmental monitoring network [MONET](#) (Monitoring Networks), population studies [CELSPAC](#) (Central European Longitudinal Study of Parents and Children), and related data sources. They allow for the presentation of external data through the [GENASIS](#) (Global Environmental Assessment and Information System) information platform. The capacities for data analysis, interpretation and modelling are also available together with advanced biostatistics and bioinformatics offering a portfolio of services to users from both the academic and private sectors in the Czech Republic and abroad. The comprehensive interdisciplinary approach taken by RECETOX RI is unique in the European context. RECETOX RI offers capacities for the assessment of environmental impacts on human health, a platform for the development of innovative methods, know-how and technology transfer, teaching and consulting. The education and training activities of RECETOX RI at all levels of higher education improve the quality and professional readiness of its graduates. The training courses, workshops, and the international summer schools are also organized for attendees from universities, research institutes, health facilities, industrial enterprises, regional and state authorities, ministries, governments and international organizations. RECETOX RI is associated with the Czech nodes of the [MONET](#) (Monitoring, Chemicals and Environmental Research Infrastructure), [CELSPAC](#) (European Life-Science Infrastructure for Biological Information), and [GENASIS](#) (Global and Biomolecular Resources Infrastructure) European research infrastructures. It contributes to the [GENASIS](#) (European Environmental Exposure Assessment Network) project for the updated [ESPA](#) Roadmap, and the [CELSPAC](#) (Global Earth Observation) initiative [GEO](#) (Global Earth Observation System for Persistent Organic Pollutants). It also contributes to the implementation and management of joint European programmes such as [HBM4EU](#) (Human Biomonitoring for Europe) and [PHE](#) (European Network for Observing our Changing Planet).

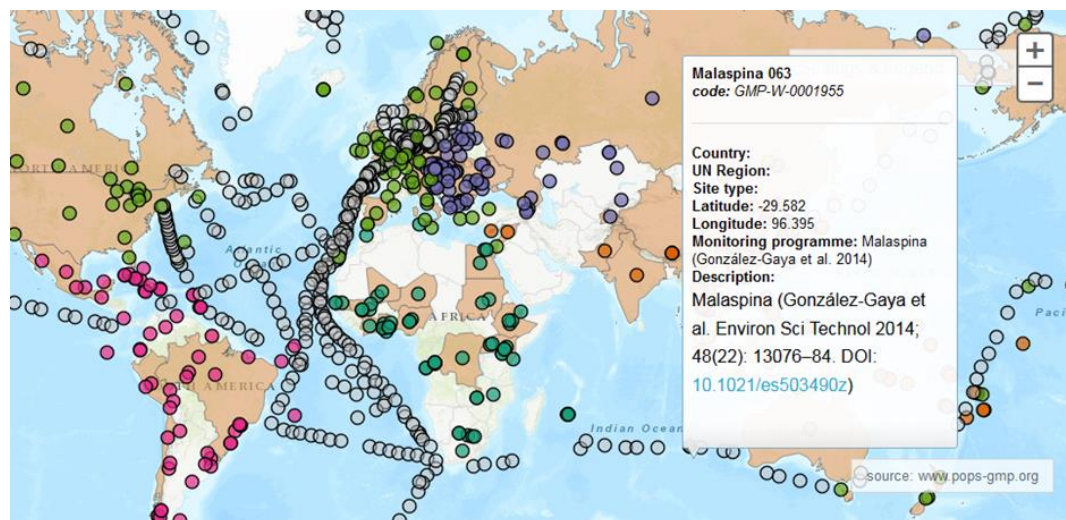
Socio-economic benefits

RECETOX RI develops new approaches to assess the causal links between human exposure to toxic substances and the development of chronic diseases, and improves our understanding of the mechanisms of such interactions. It identifies toxic mixtures in the environmental samples, consumer products and human tissues, as well as sources of such chemical mixtures, their health effects and most vulnerable populations. It explores the links between these environmental exposures and social and economic factors that affect human health, and allows for the prioritization and better targeting of the relevant legislation. It contributes to the better management of toxic chemicals, the safe production of food and consumer products, and safe waste processing. It enhances the protection of human health, the development of preventive measures, and sustainability of healthcare. It collaborates with [WHO](#) (World Health Organization) and [EU](#) (European Union) (Global Health Organization), and supports the implementation of the concept of a circular economy and healthy practices. It also provides university education and builds internal and external capacities for assessing environmental exposures.

RECETOX RI at the roadmap since 2011



RECETOX accredited trace laboratories
CELSPAC population studies
MONET air and water monitoring networks
GENASIS/GMP information platforms



EIRENE RI

EIRENE RI: Prioritised in the 2021 ESFRI Roadmap

EIRENE RI

Research Infrastructure for Environmental Exposure assessment in Europe

Website
pending

Headquarters
Masaryk University
Brno, Czech Republic

Legal status
pending

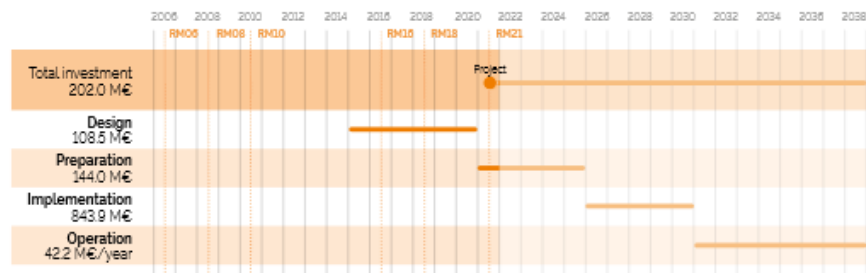
Type
distributed

DESCRIPTION

The Research Infrastructure for Environmental Exposure assessment in Europe (EIRENE RI) pioneers the first European Research Infrastructure on environmental determinants of human health, the Human Exposome. EIRENE RI intends to support large-scale research for the interdisciplinary assessment of environmental determinants of health, including indoor and outdoor environment factors, lifestyle, socioeconomic, and the individual's ability to cope with various stressors such as infection or disease. EIRENE RI will provide harmonised workflows and integrated services for data and sample collection, as well as knowledge and tools that will be made accessible to academic researchers, private companies, public authorities and citizens through the EIRENE open-access system and the EIRENE knowledge hub.

The concept of a pan-European Infrastructure supporting research on the effects of long-term exposures to various types of stressors on population health and the roles these exposures play in the development of chronic diseases is based on ten-year experience of Czech national RECENTOX RI. Entered in the ESFRI Roadmap 2021, EIRENE RI already connects 50 research institutions from 17 countries. It builds on the legacy of the European environmental monitoring networks and their databases (EMEP, GMP, GMOS), GEO Initiatives (GOS4POP and GOS4M) and related H2020 projects (ERA PLANET, e-SHAPE), EU biomonitoring initiatives (DEMOCOPHES, HBM4EU), UNEP/WHO global biomonitoring efforts, EU exposome (HELEX, EXPOSOMICS, HEALS and EHEN cluster) and other related projects (HERA, EURION cluster).

TIMELINE & ESTIMATED COSTS



INTERCONNECTIONS



POLITICAL SUPPORT



Lead

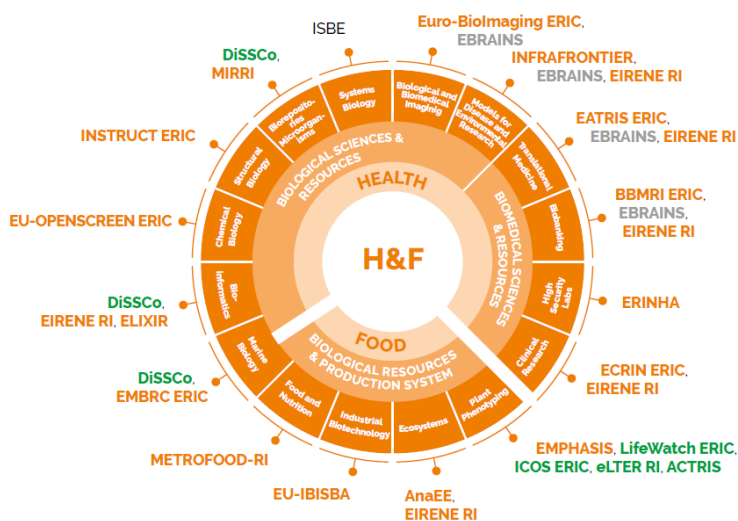
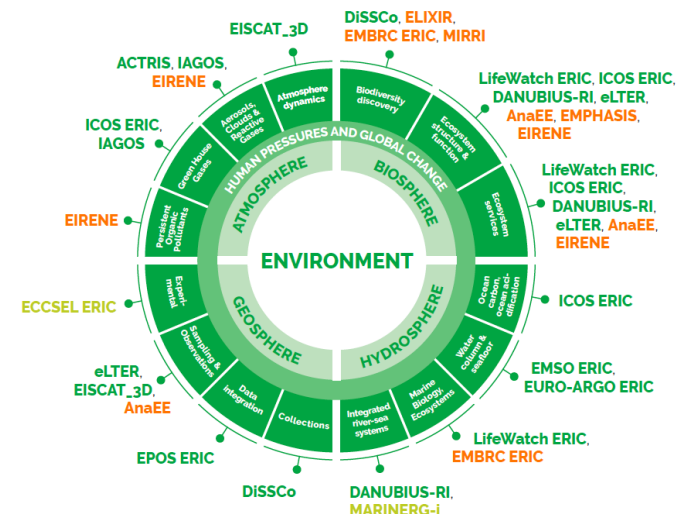
CZ

Prospective member

AT, BE, DE, EL, ES, IS, IT, NL, SK

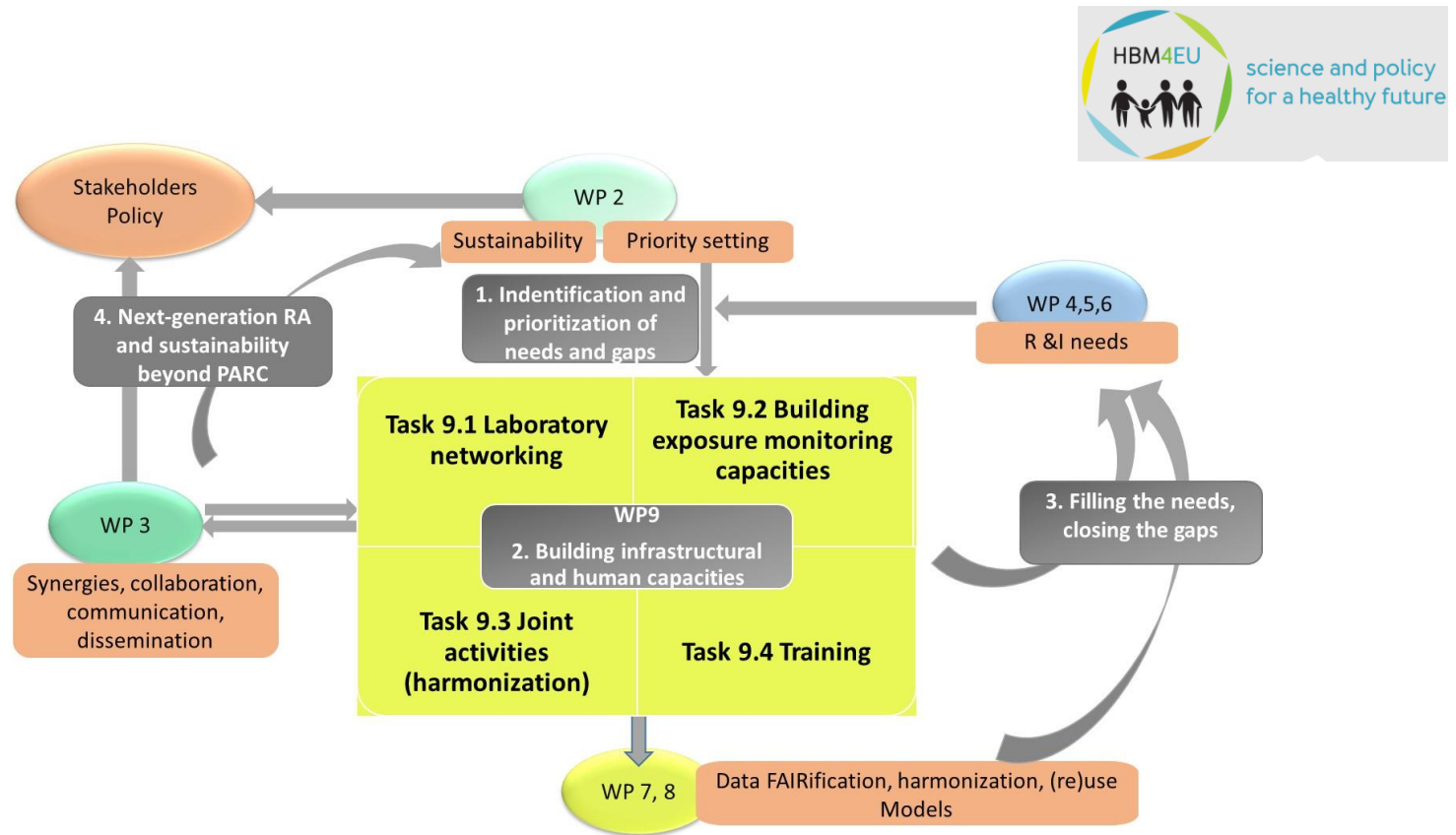
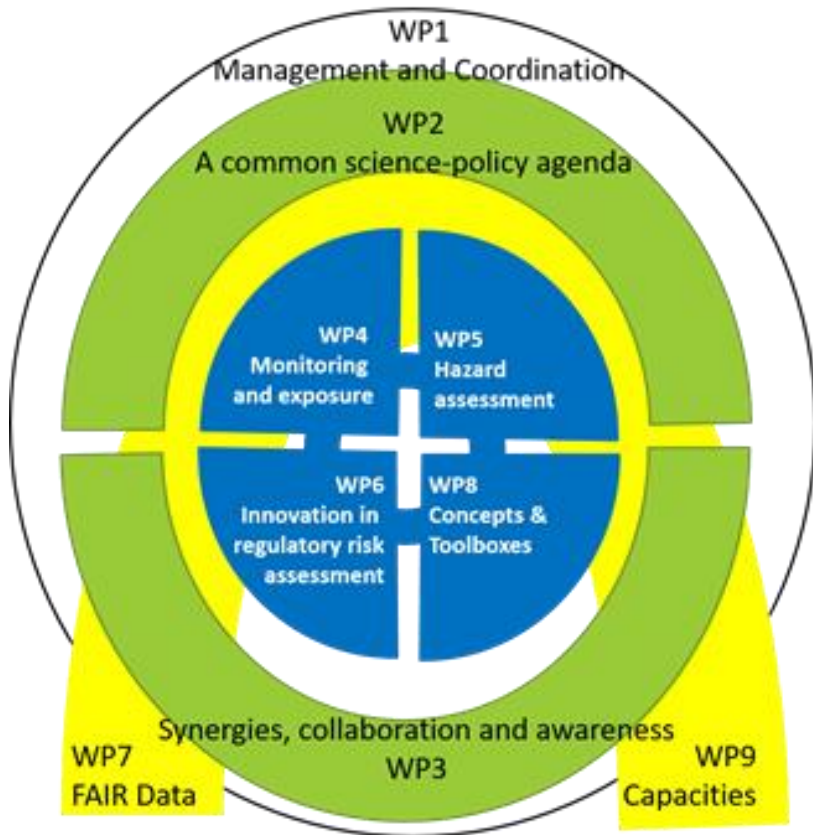
Members

- Austria, Belgium, Czechia, Italy, Netherlands
- Germany, Greece, Island, Slovakia
- France, Norway, Sweden
- Finland, Slovenia, Spain, UK, US
- Cyprus, Denmark, LX, Portugal
- Australia
- EMBL/EBI



EIRENE RI

Partnership for Assessment of Risks from Chemicals (PARC)



VISION: Building infrastructural and human capacities in PARC

Repositories for data on chemical exposures and their effects

