

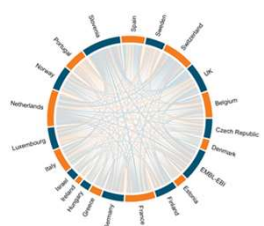
Good practice: synergy between H2020 and ERDF in case of ELIXIR European research infrastructure in Slovenia and importance of this investment for University of Ljubljana capacity building in life sciences




Brane Leskošek, Head of Node ELIXIR-SI
LERU-CE7 widening seminar, 17 June 2021

www.elixir-slovenia.org

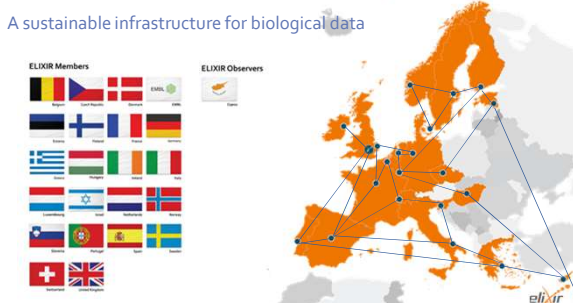
ELIXIR Slovenia - embedding European connections



- ELIXIR Commissioned Services: <https://elixir-europe.org/about-us/commissioned-services>
- Help connect, integrate and sustain life science data resources
- Improve collaboration between ELIXIR Slovenia and connections to other ELIXIR Nodes




A sustainable infrastructure for biological data



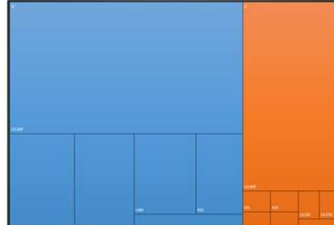
ELIXIR Members

ELIXIR Observers




Cohesion infrastructure project of ELIXIR-SI Node

- 5,26 mio EUR for a new research infrastructure
- equipment + human resources!
- contract signed 21 Dec 2019
- COVID-19 pandemic
- funding until 31 Aug 2021
- 70% - east cohesion region
- 30% - west cohesion region

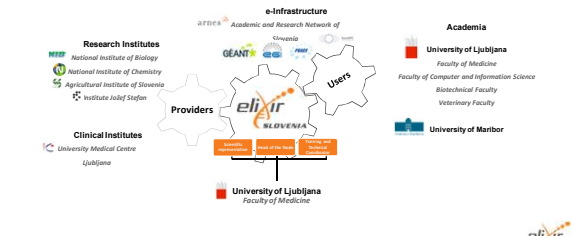


REPUBLIC OF SLOVENIA
MINISTRY OF EDUCATION,
SCIENCE AND SPORT

EUROPEAN UNION
EUROPEAN COHESION FUND
ERDF



Node ELIXIR Slovenia (ELIXIR-SI)



Research Institutes


Clinical Institutes

Providers

e-Infrastructure


Academia

Users




Aims of the cohesion project ELIXIR-SI RI-SI-2

1. Establish national data node in accordance with other national roadmap (ESFRI) RI
2. Establish national core high throughput wet lab RI
3. Establish Center for education, training and capacity building in life sciences for bioinformatics tools and services




Aims of the cohesion project ELIXIR-SI RI-SI-2

1. **Establish national (distributed) data node**
 - a. **FEGA** -> national "whole genomes" repository for the data "made" in Slovenia
 - b. "small" compute cluster (GPU, CPU) for development and testing of algorithms and workflows -> complementary with related supercomputers in Slovenia and wider (through ELIXIR network)
 - c. **data sources at consortium partners (biological not only medical)**
 - d. following standards and recommendations
 - i. FAIR (*Findable, Accessible, Interoperable, Reusable*)
 - ii. 1+MG, B1MG, GoE, EOSC, EuroHPC, GA4GH, RDA



Aims of the cohesion project ELIXIR-SI RI-SI-2

2. **Establish national core high throughput wet lab RI**
 - a. **Laboratory for single cell analyses (west region)**
 - b. **Core NGS laboratory (east region)**





Aims of the cohesion project ELIXIR-SI RI-SI-2

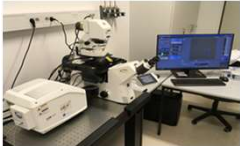




1. **Establish national (distributed) data node**
 - a. **FEGA**
 - i. **ELIXIR-CONVERGE**
 1. European COVID-19 portal
 2. B1MG, GoE, Instand-NGS4P, SGP

"Federated EGA strives to support the discovery of and secure access to human data globally, while respecting national data protection regulations, with the goal of accelerating disease research and understanding and improving human health."

FEGA will ensure, that raw sequences, generated in Slovenia, will stay in Slovenia, while metadata will exchange.

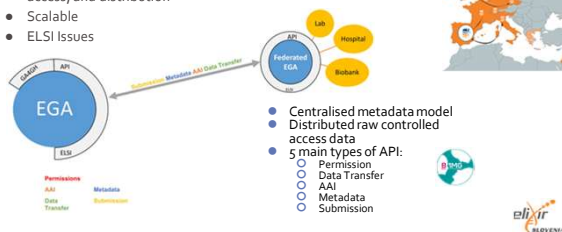



10x Genomics and Illumina technology – DNA in RNA seq of human, animal, plant, bacterial or viral origin also at the single cell level








Federated EGA

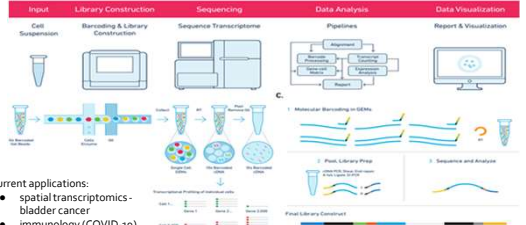
- Harmonised platform for human data discovery, access, and distribution
- Scalable
- ELSI Issues



- Centralised metadata model
- Distributed raw controlled access data
- 5 main types of API:
 - Permission
 - Data Transfer
 - AAI
 - Metadata
 - Submission




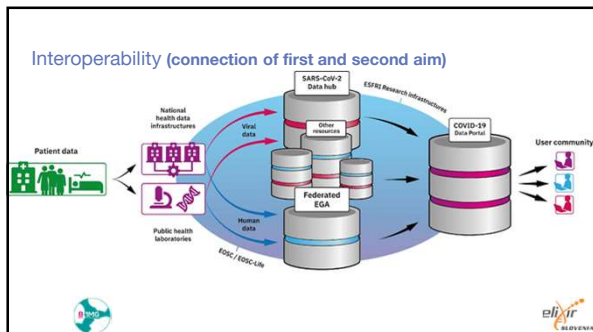
10x Genomics in Illumina technology



Current applications:

- spatial transcriptomics - bladder cancer
- immunology (COVID-19)
- perinatal derivatives





Trainground - EeLP functionalities as a service

1/2

- User management**
 - AAI – ELIXIR AAI and eduGAIN
 - Community tools
 - Groups (self-select), Cohorts
- Materials**
 - Static (presentations, all kinds of multimedia formats ...)
 - Interactive – can be developed by many different external authoring tools and imported to EeLP using SCORM standard
- Activities and resources (selection of)**
 - Lessons
 - Surveys
 - STF and LTF, including reporting
 - Instant voting

Aims of the cohesion project ELIXIR-SI RI-SI-2

3. **Establish Center for education, training and capacity building in life sciences (for use of bioinformatics tools and services)**

- ELIXIR-SI website - <https://elixir-slovenia.org>
- EeLP - <https://elixir.mf.uni-lj.si>

Trainground - EeLP functionalities as a service

2/2

- Embedded bioinformatics tools and services**
 - Terminal
 - connection to Cloud and HPC servers/VMS/containers
- Video-conferences**
 - for synchronous courses
 - embedded or external H.323 or SIP compatible VC systems
- Assessments**
 - Certificates/Badges – digitally signed and auto-generated PDFs based on assessment results

ELIXIR-SI website - <https://elixir-slovenia.org>

- website - everything on one site
 - list of equipment
 - (e-)learning training materials and manuals for equipment
 - within EeLP - <https://elixir.mf.uni-lj.si>
 - form for (non-obligatory) order of services
 - calendar for time slots reservations (when service is confirmed)
- website upgrades
 - use of equipment reports - for staff scientists
 - user guidelines and regulations (+ including service prices)
- human resources needed



