Session 4
Clustering of large research infrastructures of the Czech Republic

4th National Day of Large Research Infrastructures of the Czech Republic

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Life Sciences – Data Types

Molecular archives
- European Nucleotide Archive
- European Variation Archive
- European Genome-phenome Archive
- Experimental Factor Ontology
- BioSamples
- Mouse resources

Molecular atlas
- Array Express
- Expression Atlas
- PRIDE

Molecular & cellular structure
- Protein Data Bank in Europe
- PDBe-KB
- Electron Microscopy Data Bank
- EMPIAR

Molecular systems
- BioModels
- IntAct
- OmicsDI
- Reactome

Literature services
- Biostudies
- Europe PMC

Genes, genomes & variation
- 1000 Genomes
- Ensembl
- Ensembl Genomes
- GWAS Catalog
- HGNQ
- VectorBase
- WormBase

Proteins & protein families
- Enzyme Portal
- GOA
- MGNify
- InterPro
- Pfam
- Rfam
- RNAcentral
- UniProt

Chemistry services
- ChEBI
- ChEMBL
- MetaboLights
- SureChEMBL
ELIXIR CZ - Infrastructure for Biological Data

Data/Service Heterogeneity reflected by ELIXIR CZ distributed character

IOCB
IMB
IBT
IMG
ICT
UK
CESNET

CEITEC
MU – CERIT SC
FNUSA

USB
BC AS CR

UPOL
ELIXIR CZ Distributed Infrastructure

Power

More members more knowledge
Integration and Interoperability of archives
Interoperability of resources
Accepting heterogeneity of user needs/communities
Natural clustering of knowledge/fields

Weakness

Funding
Governance models (country dependent, institution dependent)
Communication
Clustering of ELIXIR CZ Areas of Expertises – Clustering of the Infrastructure

- Structural Bioinformatics
- Data Management
- Human Data
- Plant Genomics
- Genomics
- Compute
- Proteomics
- Chemical Biology
**ELIXIR** is distributed Infrastructure of Nodes (22 Nodes)

Each **ELIXIR** Node has distributed character - about 10-20 Research Institutions per country

How to reach a synergy between **ELIXIR** Nodes?

How to establish vital network between Research Institutions at different National Nodes?

How to coordinate and collaborate with other BMS Infrastructures

**Solution:**

Via **ELIXIR** Platforms
Via **ELIXIR** Communities
Via **ELIXIR** Projects (H2020 – ELIXIR Excelerate, ELIXIR-Converge, Internal ELIXIR Projects)
Via **BMS Consortia** Projects
ELIXIR Strategy: Connect national and international services into a Europe-wide federation
A distributed infrastructure to scale with the challenge

**ELIXIR** data infrastructure for Europe’s life science research sector

**ELIXIR** Nodes build local bioinformatics capacity throughout Europe

**ELIXIR** Nodes build on national strengths and priorities
ELIXIR Structure

ELIXIR coordinates activities through at least one of the five ‘areas of activity’ called Platforms:

- Compute
- Data
- Interoperability
- Tools
- Training

These Platforms are driven by eleven ELIXIR Communities which develop standards, services, and training within their life science domains.
Shared services for life-science

Participants
BBMRI-ERIC
EATRIS-ERIC
ECRIN-ERIC
ELIXIR
EMBRC
EMPHASIS
ERINHA
EU-OPENSSCREEN
Euro-BiImaging
INFRAFRONTIER
Instruct-ERIC
ISBE
MIRRI

CORBEL

Infrastructure Service
Integration Platform of Shared Services
Research Project Portfolio - Health
Use-cases and community engagement
Research Project Portfolio - Bioscience
Use-cases and community engagement

Training
Project Management and Communication
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Conclusions:

• Clustering within distributed infrastructure is natural schema of operation
• Clustering makes possible to define interfaces with other BMS Infrastructures
• Distributed character of an Infrastructure is positive element of development
  
• Any funding application requires high level of collaboration and synergy
• Communication between partners is critical step of Infrastructure evolution
• Distributed Infrastructure needs its own „VISION“
Thank you for your attention