A network of data nodes

- **ELIXIR** Nodes are funded nationally

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

- **ELIXIR** Nodes provides a national framework for long-term resource management.
The data challenges

- Geographically distributed data production
- Secure access and governance of human data
- Open data mandates of National and European funders
Human genomics in research & health needs…

- Standards
- Networks of trust
- Reference archives
ELIXIR Compute: 3 core pan-ELIXIR services for data sharing

Link national resources using common standards, shared services and user management protocols.
Find and Access human genomic data

- Accept that much sensitive data are stored locally
- Data discovery & data access services
- EGA Central to ELIXIR approach
- Underpinned by GA4GH standards
ELIXIR and Beacons

- Project to drive implementation of the Beacon technology within ELIXIR nodes
- ELIXIR Authentication and Authorization Infrastructure

www.elixir-europe.org/beacons
Query: Do you have allele: T at position: 166226587 on: chromosome 2?
Developing the GA4GH **Metadata** Schema

- arrayMap for GA4GH
  - metadata schema development through implementation of arrayMap resource data
  - OntologyTerm objects for biodata
  - implementation w/ ontology services

Driving **Beacon** Development

- Beacon
  - CNV/CNA as first type of structural variants
  - disease specific queries
  - quantitative reporting

Michael Baudis, SIB - U Zürich, arraymap.org
ELIXIR – GA4GH partnership

• Standards – and global working group for standards!
  • A. Senf – Using data from EGA (UK) on a secure cloud in Finland - accessed using European single-sign-on

• Data discovery & data access services
  • 7 national cohorts in beacons, more in progress
  • Controlled access infrastructure
  • Extension to oncology – more complex queries for clinicians
ELIXIR – Integration into national infrastructure TraIT-NL

Scoping study to develop IT infrastructure for translational research (processed, clinical, translational data resources)

Secure data analysis workflow in a Galaxy framework

Use case is the TraIT consortium (NL)

Publication: *Integration of EGA secure data access into Galaxy*, doi: 10.12688/f1000research.10221.1
ELIXIR and GA4GH

Key partnership
ELIXIR to feed into standards being developed and disseminate across Europe to the users
Thank you!

www.elixir-europe.org

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