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Classification: PUBLIC
What is ELIXIR?

The mission of ELIXIR is to construct and operate a sustainable infrastructure for biological information in Europe to support life science research and its translation to medicine and the environment, the bio-industries and society.

If interested, you may subscribe to the elixir-stakeholders email distribution list.

**Latest News**

**ELIXIR seeks input to help shape its construction**
Why do we need ELIXIR?

Addressing European Grand Challenges

Healthcare for an ageing population
By linking biomedical and biological data resources, ELIXIR will facilitate understanding of diseases of old age and will drive earlier diagnosis, improved disease management and preventive strategies.

A sustainable food supply
ELIXIR will provide ready access to information on plant genomes, insect pests and plant pathogens, enabling crop researchers to develop healthier, more productive crops in the face of a rapidly growing population.

Competitive pharma and biotech industries
ELIXIR will support our pharma and biotech industries by facilitating pre-competitive collaboration and attracting more companies to Europe.

Protection of the environment
ELIXIR will help environmental scientists to monitor life in the oceans, understand the effects of climate change on species diversity and develop new methods to tackle pollution and waste.

• Data Growth
• Global context
• Very large user community:
  • 3.3 m web hits/day
  • 20,000 unique users per day
The Preparatory Phase project

Two phases:

- Committee meetings of stakeholders to achieve consensus and make recommendations
  - Jan 2008 – July 2009
  - Define scope and remit of ELIXIR
  - Work package reports on specified domains
  - Produce ‘business plan’ for Elixir services by end 2009

- Documentation and negotiation phase
  - July 2009 – Dec 2011
  - Develop ‘International Consortium Agreement’
  - Define funding and legal model
Elixir work packages

See Elixir wiki site – http://www.elixir-europe.org

WP 2 – Elixir strategy for data resources
WP3  - Coordination and participation (user communities, industrial)
WP4  - Organisational and legal
WP5 – Elixir funding strategy
WP6 – Physical infrastructure
WP7 – Data integration and interoperability
WP8 – Scientific literature resources
WP9 – Medical health and nutrition
WP10 – Plants, agriculture, small molecules and environmental
WP11 – Training strategy
WP12 – Infrastructure for tools integration
WP13 – Five pilot studies

   Cell phenotype imaging, Supercomputing, Systems Biology
   EB-eye feasibility, European genotyping archive.
ESFRI
Biology Research Infrastructure proposals.

INSTRUCT
(Structural biology)

Infrafrontier
(Mouse)

EATRIS
(Translational Research)

BBMRI
(Biobanking)

ECRIN
(Clinical Trials)

ELIXIR
(Biological Information)
Databases: Molecules to systems

Genomes
- Ensembl, Ensembl Genomes, EGA

Gene expression
- ArrayExpress

Protein families, motifs and domains
- InterPro

Protein interactions
- IntAct

Pathways
- Reactome

Proteomes
- UniProt, PRIDE

Protein structure
- PDBe

Chemical entities
- ChEBI, ChEMBL

Nucleotide sequence
- EMBL-Bank

Literature and ontologies
- CitExplore, GO

Systems
- BioModels
Elixir – Needs and applications within WP10

- Small molecules
  - Therapeutic compounds for humans, other animals
  - Metabolites in plants, animals, experimental data (NMR/MS)
  - Agrochemicals, herbicides, fungicides, insecticides.
  - Toxicology
  - Compound bioactivity, physical properties.
  - Links to other biomolecular species (Enzymes or other protein targets)
Elixir – Needs and applications within WP10

● Plant sciences / agricultural applications
  - Molecular data for crop plants (Wheat, Maize, Rice, Sorghum...)
  - Non crop plants -e.g. model such as Arabidopsis, weeds.
  - Plant pests – insects, nematodes, non pest invertebrates (e.g. bee)
  - Plant pathogens – fungi, oomycetes, viruses, bacteria

● Animal / veterinary / agriculture
  - Farm animals,
  - Aquaculture, fisheries – e.g. Cod, Salmon
  - Pet animals
  - Animal pests, parasites, bacteria (harmful and beneficial)
Elixir – Needs and applications within WP10

• Elixir - Environmental domain
  - Biomolecular data such as DNA barcodes, 16S or 18S r-RNA.
  - Meta genomic samples – soils, lakes, rivers, sea
  - =>Derived data (sequences, metabolite information, location)
  - Distribution of small molecules in environment
  - Links to environmental or sensor data (temperature, rainfall, etc)
Elixir – Industry drivers (WP3)

• Avoid duplication of effort

• Interoperability / compatibility of public / private Data

• Private access to public infrastructure

• Storage / network cost minimization
Elixir – Not just data, services! (WP3)

• Service components
  – Data (download)
  – Query interfaces (web)
  – Application programming interfaces (Perl, Java, Semantic)
  – Core analysis tools (download)
  – Private server(s) (close to public data)
  – Cloud based servers (Disk/CPU charge, Elixir premium)
  – Service level agreements
Status - Dec 2011

- Elixir business case and memorandum of understanding (MoU)
  - Now available (March 2011)
  - MoU establishes Elixir as an EMBL special project
  - Came into effect September 2011, Elixir now a legal entity.

10 M GBP BBSRC funding new London data centres (Aug 2009)
Denmark, Finland, Spain, Sweden committed fund for
53 European institutes submitted proposals for ‘nodes’
74M GBP  BBSRC funding for Elixir Hub / Data Centres (5 Dec 2011)
http://www.elixir-europe.org/news