

Research e-Infrastructure for biodiversity and ecosystem research





- Emerging deseases invading micro-organisms epidemiology
- Evolutionary adaptation reduced fitness resistance to medicine
- Veterinary model organisms



Architecture



Collaboration

- Common Exploratory Environment
- Collaborative Virtual Organisations

Workflow development

- Semantic matching
- Visualisation

Analysis & Processing

- Integration of resources
- Quality controls
- Grid computation

Data; Computing

- Existing measurements & observations
- Real-time sensor networks (earth-based & remote)
- Other infrastructures & HPC



A European structure for Grid related Health and LS communities

- Yes, especially for new approaches and innovation.
- The system biology approach:
 - Ecosystems are complex and cannot be described by the simple sum of its components and relations
 - Experimentation on a few parameters is not enough
 - Add a new methodology to support the generation and analysis of large-scale data-sets. Find patterns and learn processes.
- Not only data sharing but also sharing of analytical, modeling and simulation tools.
- Restructure our data and tool domains









Data providers & Users / Humans & Instruments

RolesSensorsCuratorsObserversAggregators Public

Researchers

Functionalities

Virtual Environments & Collaborative organisations Security & Protection

Data discovery & Navigation

(meta) data tagging tools Data submission tools Operational Semantic Interoperability

Workflow Generator

Data correlation Knowledge management Virtualisation

Persistant storage capacity

24/7 operation Preservation & Sustainability (digital asset management)

Authenticity

Certification & Integrity GUIDs

<u>Generic interoperability</u> Technical Legal Semantic



Roles and supporting infrastructure

- Support distributed infrastructures
 - Data; HPC; virtual communities
- Enhanced data communications
 - Digital connections and operation of remote and/or mobile instruments and observatories.
 - Intelligent networks of autonomous sensors and observatories.
- Large scale data preservation, management, and -access
 - Capabilities over environmental scientific domains.
 - Semantic interoperability and ontology provenance.
- Multidisciplinary data analysis, modeling and visualisation
 - Fast and data-intensive communication between various data domains and work flow applications (and workflow development).
 - Virtualization.
- Virtual environments
 - Interactive and experimental environments for cooperating in institutes, mobile stations or field situations. Special attention for the position of collaborative organisations in science and policy, both in the public and private sector.



Thank you

Wouter Los

University of Amsterdam w.los@uva.nl