LifeWatch - e-Infrastructure for Biodiversity Research

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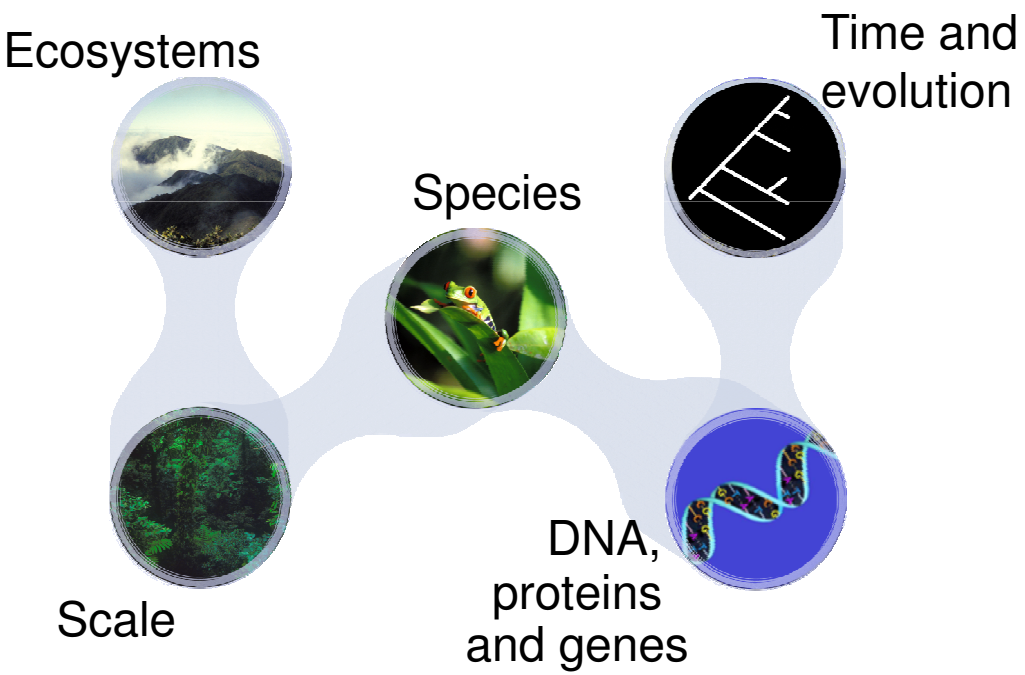
Biodiversity Research

Aspects

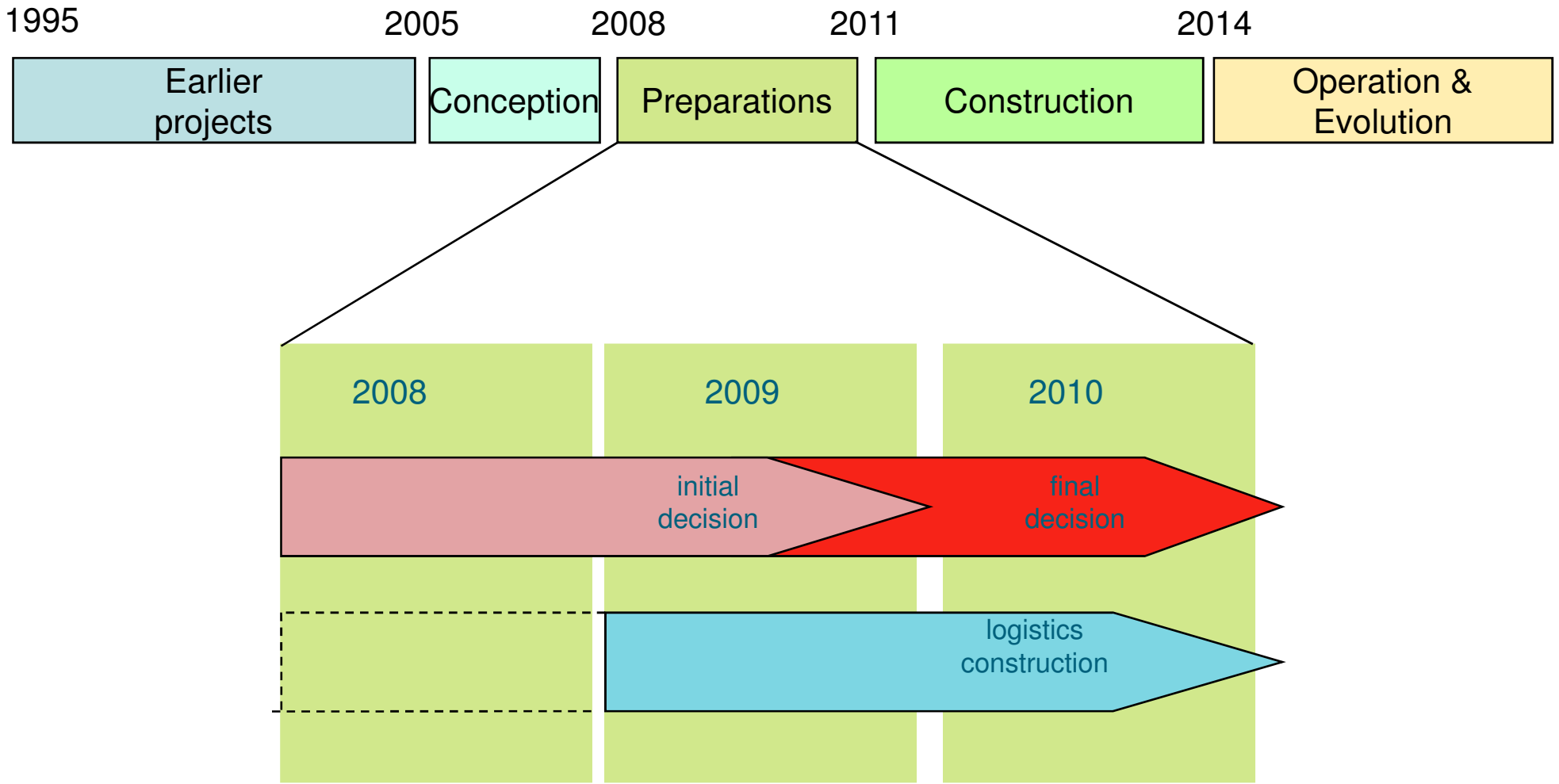


Functions

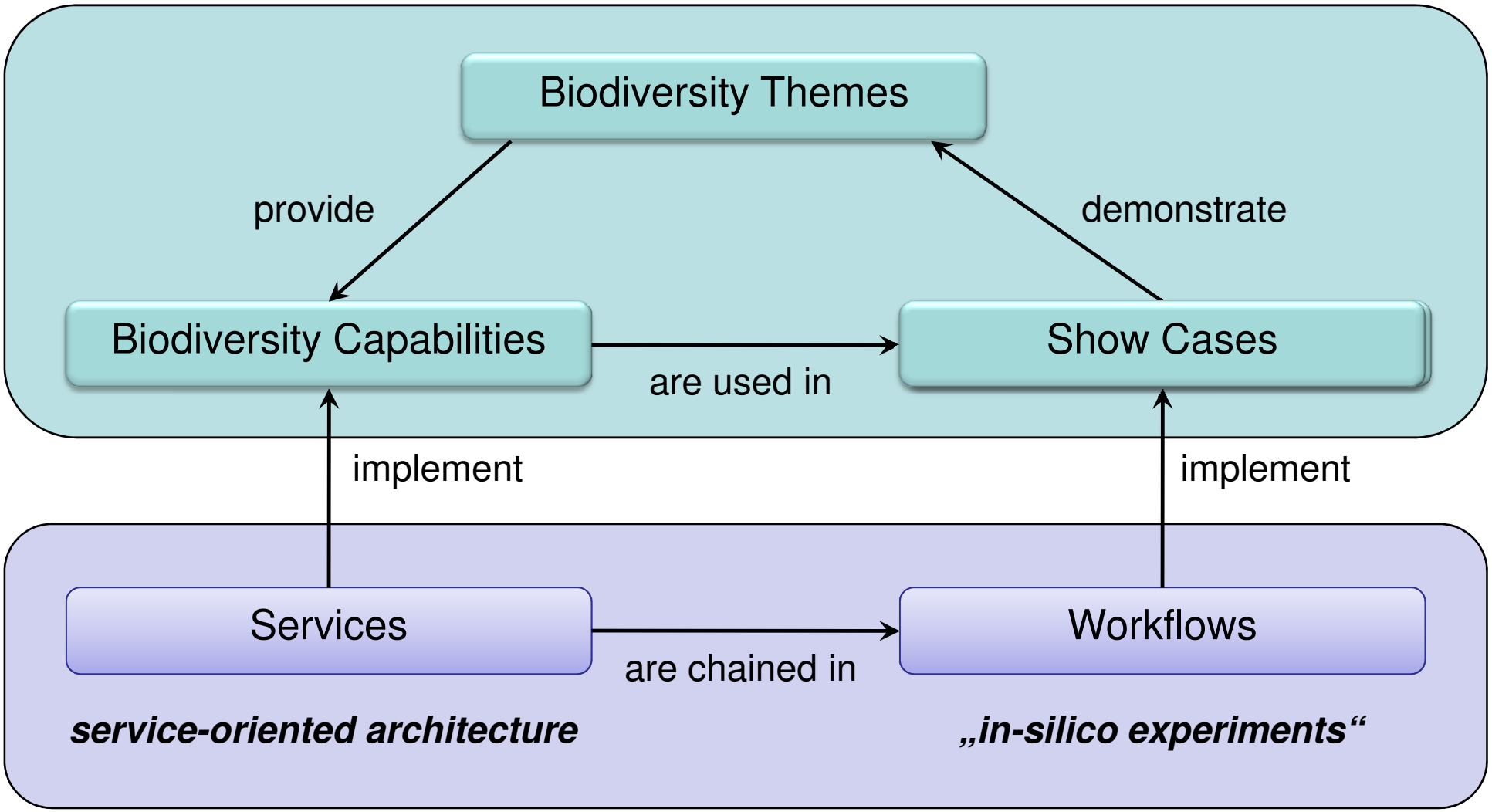
- Data acquisition
- Modelling
  - Niche modelling
  - Habitat modelling
  - Behaviour modelling
- Prediction
  - Plants and animal migration
  - Biodiversity loss
  - impact of changes in climate, pollution, and land/sea-use
  - thresholds in ecosystem structures and functions

LifeWatch provides the ICT Infrastructure

The Life Watch Life Cycle

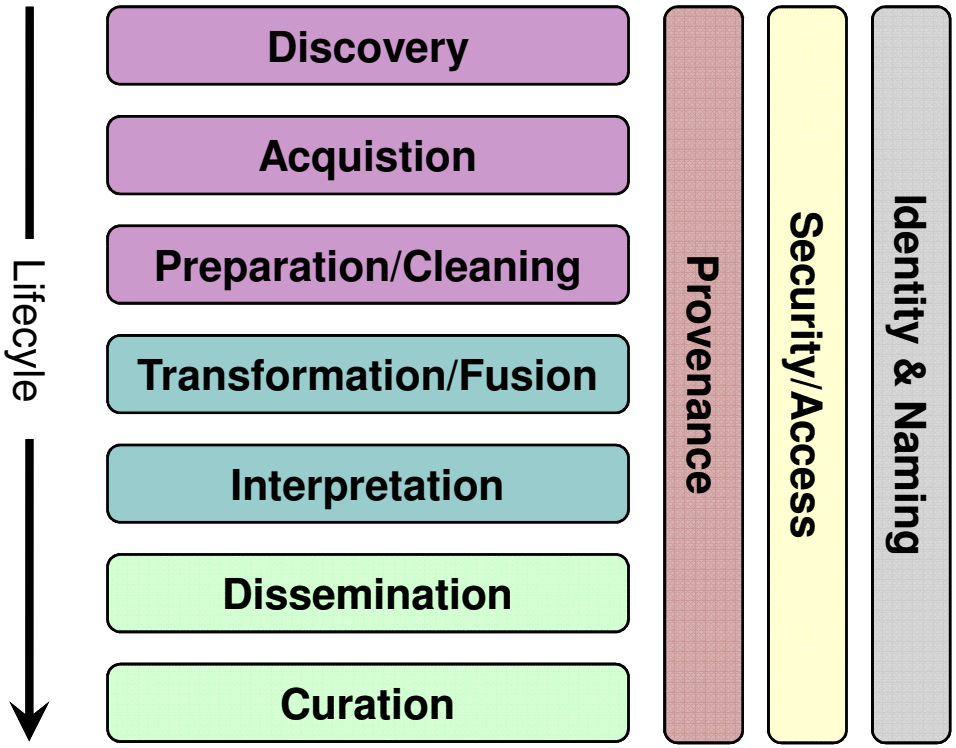


Biology vs ICT Perspective – Workflow paradigm



Capabilities

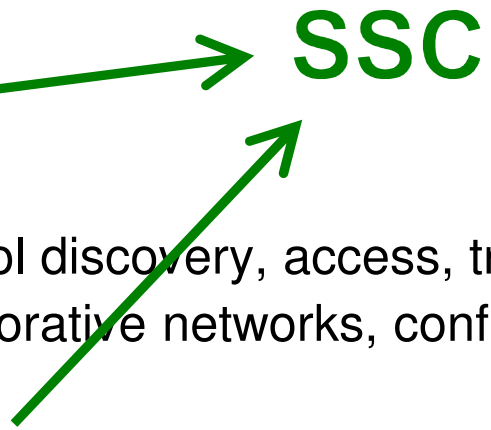
covers full eLab lifecycle



- Provision of Global Unique ID's
- **Provenance** information
- **Support of Workflows**
- Support of Data Integration
- **Semantic Mediation**
  - Data consistency
  - Data + Service access
  - Service connectivity
- Virtual labs

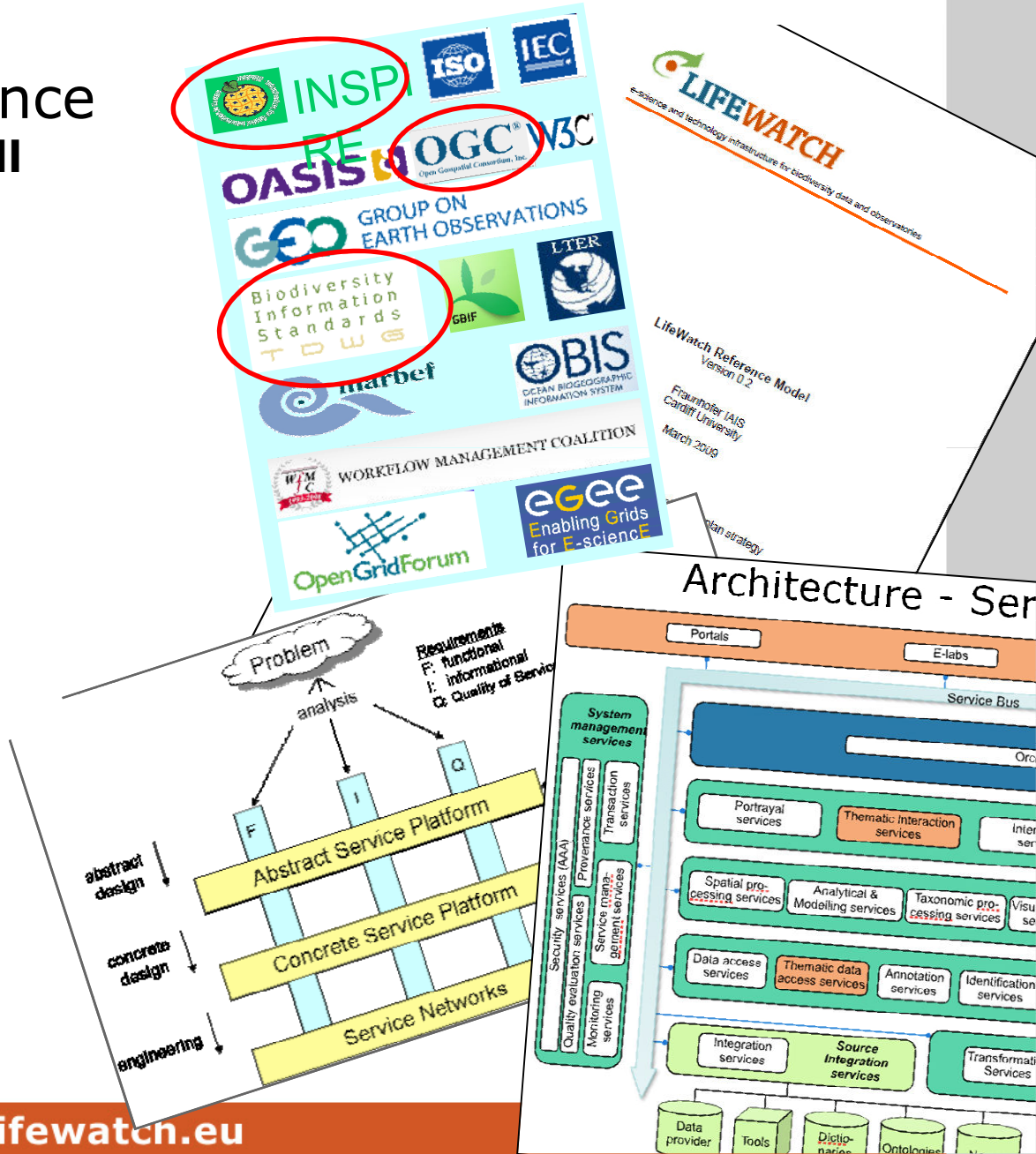
Core Elements

- Technical Framework and Architecture
  - ***LifeWatch Reference Model (SOA)***
  - Processes to support compliance
    - Data Provider “admission” process
    - Tool integration process
    - Middleware development process
- Core ICT infrastructure
- Service Centre(s)
  - For user community
  - Operational support (data/tool discovery, access, training, helpdesk, etc.)
  - Partnering (temporary collaborative networks, conferencing, etc.)
- Technical operations support
  - For Data Providers and Tool Providers
  - Project Office to oversee construction
- Product Management Board
  - To manage the LifeWatch “product”



LifeWatch Reference Model

- Technological independence
  we want to be prepared for all (the next) technologies
- Reliance on Standards
- Distinguish levels
  - meta model
  - platform-neutral level
  - platform-dependent level
  - network level
- Define policies
  - engineering viewpoint
  - technological viewpoint



Concerning Grid / EGI

Data

- heterogenous distributed data sources

Computational

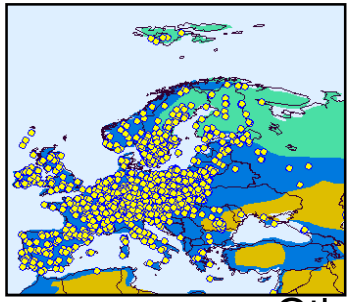
- workflow enactment
- computationally expensive,
  - e.g. phylogenetics
- potentially computationally expensive:
  - niche modelling: mobilisation of data needed

Administrative

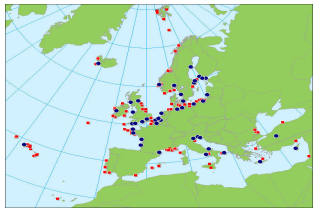
- federated / distributed services
- AAA
- resource management
- virtual organisations
- etc.

Natural Science Collections

Terrestrial LTER sites



Marine reference and focal sites



Other data Providers