

Towards a Reference Model for the LifeWatch ICT Infrastructure

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The European Strategy Forum on Research Infrastructures (ESFRI) identified the opportunity to strengthen biodiversity research in Europe by selecting LifeWatch for its 1st Roadmap. The Life Watch project (<http://www.lifewatch.eu>), co-ordinated by the University of Amsterdam, has brought together eight European networks in biodiversity science, 19 national governments and, through its committees, further platform providers and users. The European Commission is funding the preparatory phase February (2008 - 2011) through the Framework Program (FP7) Infrastructures, were a roadmap as well as the legal, financial, and technical arrangements for an operational phase of 30 years is been prepared.

The LifeWatch ICT Infrastructure will be a distributed system of nodes that provide access to and processing of biodiversity data from a variety of sources through common open interfaces. Whilst it is difficult to predict future developments, even on the conceptual level, the infrastructure is based on common principles such as reusability, modularity, portability, interoperability, discoverability, and, in particular, compliance with standards. To meet these requirements, one of the technical arrangements of the preparatory phase is the development of a reference model for the specification of a service-oriented architecture.

This paper presents the current status of the Reference Model for the LifeWatch ICT infrastructure. The Reference Model provides guidelines for the specification and implementation of infrastructure as well as defining a number of generic information models and services. The LifeWatch infrastructure is based on the assumptions that:

- Functionality is broken into component services based on the principles of *Service Oriented Architecture*
- *Workflows* are used for the chaining of operations from multiple distributed services in order to perform specific user tasks
- *Semantic Services* provide uniform semantically defined interfaces enabling syntactical and semantic interoperability between and substitution of components
- *Provenance* information about documents, data, and methods replaces the traditional “laboratory notebooks” capturing information about origin and derivation of objects.

The present paper only touches upon the first item providing a reference model for the information and services models to be constructed in LifeWatch.