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For more information about the project, please visit our dedicated web site:

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D4Science-II

Data Infrastructures
Ecosystem for Science

www.d4science.eu



D4SCIENCE-II

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D4Science-II is a European e-infrastructure project that supports research by creating virtual communities in which scientists from different disciplines and locations share access to data, applications, processing and communications.

D4Science-II is co-funded by the European Commission's Seventh Framework Programme for Research and Technological Development. It builds upon the work of the DILIGENT and D4Science projects.

DILIGENT

A test bed for the management of data, metadata, software and hardware resources for the provision of integrated digital library services over grid-enabled infrastructures.

Software: gCube 0.9

Level: Test-bed

D4SCIENCE

An infrastructure of on-demand provided Virtual Research Environments, that allows scientists to collaborate for the use and generation of knowledge.

Software: gCube 1.6

Level: Production

D4SCIENCE-II

An ecosystem of eInfrastructures that share resources across technological, administrative and disciplinary barriers, based on systemic standards and interoperability capacities.

Software: gCube 2

Level: Production

Virtual Research Environments (VREs)

VREs offer on-demand grid-based services to users with no development or maintenance costs. By exploiting the large information space available through the ecosystem the D4Science e-infrastructure support powerful VREs.

Through these VREs D4Science-II will address the needs of five scientific scenarios for which interacting with a knowledge ecology and sharing across e-infrastructure plays a fundamental role in enhancing the quality and efficiency of research.

October 2004
November 2007

January 2008
December 2009

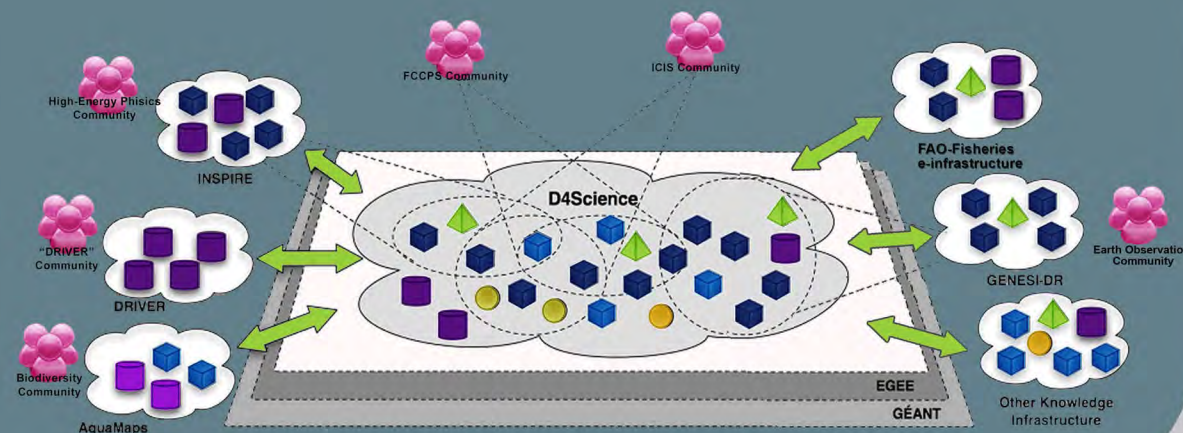
October 2009
September 2011

D4Science-II works to provide interoperability between D4Science and other autonomous e-infrastructure in order to build the core of a cooperative **e-infrastructure ecosystem** that shares resources and processing power.

D4Science-II rests upon gCube (www.gcube-system.org), a technology that enables virtual research environments. gCube harnesses a grid infrastructure, linking multiple gCube-enabled computers by providing a single access point to large processing and storage capabilities.

D4Science-II as a knowledge ecosystem

This is the Knowledge Ecosystem. Interoperable data e-Infrastructures and repositories integrated seamlessly with services and scientific communities. The D4Science e-Infrastructure is reflective, acting as a virtual aggregator of e-Infrastructure resources while also offering those aggregate resources back to participating e-Infrastructures.



INSPIRE

This next-generation High Energy Physics information system empowers scientists with innovative tools to promote successful research.

The INSPIRE VRE enables the INSPIRE system with new capabilities and services:

- Parallel full-text indexing of large document sets.
- Optical Character Recognition, offered as a generic service.
- Computationally intensive processing of bibliographic information to provide better metrics on high-energy physics literature.

The new capabilities will be exploited to offer advanced dynamic services to the more than 30000 users of the INSPIRE system.

DRIVER

Enriches DRIVER data infrastructure with resources hosted on D4Science infrastructure and vice versa, allowing:

- Cross infrastructure information retrieval and access
- Objective-driven content transformation for DRIVER documents
- Other features such as bibliometric analysis, author disambiguation and massive parallel grid and cloud processing of DRIVER repository documents.

The results are indirectly accessible through the DRIVER infrastructure and D4Science portal.

AQUAMAPS

Produces maps calculated by fitting geo-referenced species occurrence data with the known physicochemical distribution parameters of the aquatic milieu.

Combines data obtained from multiple sources with the computational capability of the Grid to generate more precise maps.

Exploited by the AquaMaps portal and by other infrastructures that take advantage of generated predictive data.

FCCPS (Fishery Country Profiles Production System)

Support management of collaborative efforts for the development of comprehensive FAO Fishery Country Profiles.

Facilitates requested data sharing across fishery, biology, commodity, and taxonomic information systems.

Maintains provenance of intermediate data generated during the process of producing country reports.

Requires on-demand access to computational resources, retrieval and access to heterogeneous shared data, storage and management of compound dynamically generated information objects.

Serves FAO Fisheries and Aquaculture Department.

ICIS (Integrated Capture Information System)

Improves species occurrence data in synergy with AquaMaps.

Allows the inclusion of vessel monitoring system catch data at extremely high resolution to improve aquatic resource assessments.

Requires interoperability with different data sources, data harmonization and large on-demand processing capabilities.

Used by a community of regional fishery bodies in charge of monitoring and managing fisheries and aquatic resources in the world's oceans.