



Distributed colLaboratories
Infrastructure on Grid ENabled
Technology 4 Science

Project acronym: D4Science
Web site: www.d4science.eu

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Duration: 24 months

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The D4Science project will deploy, progressively consolidate and expand the e-Infrastructures built so far by the EGEE and DILIGENT projects so that they address the needs of two major target disciplines: Environmental Monitoring and Fisheries and Aquaculture Resource Management. As a result, thousands of scientists will obtain increasingly more facilities for creating Virtual Research Environments based on shared computation, storage, and generic service resources offered by EGEE and DILIGENT at a European level, as well as on data and domain-specific service resources offered by large international organizations, such as the European Space Agency, the Food and Agriculture Organization of the United Nations, and the Consultative Group on International Agriculture Research.

OBJECTIVES

The D4Science project will deploy the e-Infrastructures built by the EGEE and DILIGENT projects so that they address the needs of scientific communities affiliated with the broad disciplines of Environmental Monitoring and Fisheries and Aquaculture Resource Management. A D4Science production quality e-Infrastructure will be created, progressively enriched and consolidated. It is expected that the D4Science e-Infrastructure will have a multiplicative benefit to many scientific fields, and it will also act as a catalyst for the kind of cooperation and cross-fertilization among multiple communities that is necessary for addressing many grand challenges of science and society.

ACTION PLAN

The D4Science infrastructure, which will be brought into production at the end of the first year of the project, will be managed and upgraded by periodically deploying new community-specific resources as well as more consolidated and extended releases of the services in the underlying system. Three Virtual Research Environments (VREs) serving specific scenarios identified by the scientific communities will be set-up. This process will require the adaptation of new community-specific data and service resources to exploit the e-Infrastructure capabilities.

NETWORKING ACTIVITIES

They will serve the needs of the target scientific communities and will extend the offering of the e-Infrastructure capabilities to other scientific communities. Primarily these activities will be dedicated to: (i) analyze the D4Science user communities in order to identify resources suitable for integration into the



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In parallel to these activities, gCube, the infrastructure framework released by the DILIGENT project, will be consolidated by focussing on coding-for-performance and by empowering existing mechanisms. Finally, the cooperation between Fisheries and Aquaculture Resource Management and Environmental Monitoring scientific research communities will be enhanced by creating a framework and a process for further cooperation of this type across other related communities.

e-Infrastructure and define virtual research environments covering the communities' scenarios needs; and (ii) disseminate D4Science results and knowledge, and train software engineers, administrative personnel and end users in order to raise awareness within the largest pool of potential user communities.

SERVICE ACTIVITIES

They will consolidate the result of the DILIGENT project in order to make available and maintain a stable, reliable and usable infrastructure to the D4Science user communities. In order to achieve this aim the DILIGENT sites will be moved from prototyping to production quality by defining

and implementing the necessary policies, procedures, and support mechanisms. These activities will prepare the way for the operation of a generic e-Infrastructure offering secure sharing and dynamic allocation of resources and configurable GUIs for scientific communities.

JOINT RESEARCH ACTIVITIES

They will address the technical requirements raised by the Environmental Monitoring and Fisheries and Aquaculture Resource Management communities against the gCube framework. Solutions will be based on the instantiation,

customisation, and consolidation of existing gCube functionality, but also on the addition of novel functionality required by these communities which will then also become available for exploitation across other scientific communities.



USER COMMUNITIES

The **Environmental Monitoring community** is represented in the project by the European Space Agency (ESA) and by the scientists accessing the User Services provided by the Ground Segment Operation department, while the **Fisheries and Aquaculture Resource Management community** comprise the Fisheries and Aquaculture Department and the Knowledge and Communication Department of the Food and Agriculture Organization of the United Nations (FAO), the WorldFish Center (member of the CGIAR) and some of their collaborating institutes and organizations. Both communities include institutional/service organizations, which are in charge of the operational aspects and the research organizations which provide the scientific/technical background to probe the environmental system and understand its evolution.

INTERNATIONAL ASPECTS

D4Science is inherently international both in the nature of its consortium and in the research communities involved. Five of its partners are large international organisations collaborating and focussing on coordinating international efforts to provide solutions to global issues. The primary clients of the VREs serving specific scenarios are researchers, decision-makers, international and government officers, and NGOs worldwide. D4Science exploits the worldwide grid infrastructure that has been established by the EGEE project.

PARTNERS

GEIE ERCIM (France)

Consiglio Nazionale delle Ricerche (Italy)

National and Kapodistrian University of Athens (Greece)

European Organization for Nuclear Research (Switzerland)



Engineering Ingegneria Informatica SpA (Italy)

University of Strathclyde (United Kingdom)

Universität Basel (Switzerland)

European Space Agency (France)



Food and Agriculture Organization of the United Nations (Italy)

International Center for Living Aquatic Resources (Malaysia)

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