

KIT Helps Build the European Open Science Cloud

EU Funds Setup of a European Cloud with Services for the Exchange, Use, and Reuse of Research Data – KIT Coordinates One of Thirteen Work Packages on “IT Service Management”



KIT is active partner in the setup of a European big data cloud infrastructure for the exchange of scientific data. (Photo: Andreas Drollinger)

Early this year, setup of the European Open Science Cloud (EOSC) started. It is to be a Europe-wide cloud platform, on which scientists can store, share, use, and reuse research data. As scientific data volumes may be gigantic, special know-how is needed for the setup and administration of the big data cloud infrastructure. Karlsruhe Institute of Technology (KIT) will contribute its vast expertise in the administration of big data volumes to many activities, including the security concept. In particular, KIT is responsible for the IT service management, such as establishment of a service catalog, support processes and tools, and a central service desk for user inquiries.

In the next years, the European Commission will invest several hundred million euros in the setup of a cloud infrastructure for the easy exchange of scientific data across disciplines and countries. This will enhance European cooperation in science and provide about 1.7 million scientists in Europe with better conditions and IT services for the transformation of data into knowledge. More than 75 research partners cooperate for this purpose.



KIT Information · Systems · Technologies Center

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KIT's Steinbuch Centre for Computing (ESCC) possesses long-standing experience in the management of big scientific data due to the operation of GridKa for the world's largest particle accelerator, the Large Hadron Collider (LHC), at CERN in Geneva or the coordination of the Helmholtz Data Federation (HDF). Within the HDF, research data of the Helmholtz Association are already being stored similar to what the EOSC is planned to do for entire Europe. "As a reliable partner, we will contribute this experience to the setup of the EOSC and to the EU projects EOSC-hub and EOSCpilot," Professor Achim Streit, Director of the SCC, says. In particular, work of KIT will focus on security aspects, such as authentication and authorization in the service infrastructure of the EOSC. "In a federated research cloud for entire Europe, i.e. a cloud that will bring together many different, already existing service infrastructures and their users, it must be guaranteed that only those persons and institutions are given access to services and data, which are supposed to have access," Streit says.

It is these different existing infrastructures that make the envisaged uniform solution a challenge. In the different science disciplines, various cultures prevail, which have to be brought together. To guarantee searchability of data, for instance, the meta data of the stored datasets have to be available in standardized form in all storage systems (repositories).

To support the central data storage and exchange services, an infrastructure will be developed with solutions for the transfer of files containing big data volumes or the connection to supercomputers for direct data analysis. In this area, the KIT is responsible for a work package on IT service management. "We have certified experts and more than 15 years of expertise in the development, setup, and operation of federated IT infrastructures and services. We are happy and very proud of the fact that we were asked to coordinate this important work package in the EOSC-hub project," Streit points out. This package will also include establishment of an EOSC-wide help desk and ticketing system based on GGUS (Global Grid User Support) as a central point to which user inquiries can be addressed similar to what KIT has been offering for more than a decade for worldwide LHC computing.

Presently, the KIT is contributing its expertise in big data management to several infrastructure projects: The Smart Data Innovation Lab SDIL offers a research platform with most modern analysis functions for companies throughout Germany. The Smart Data Solution Center Baden-Württemberg SDSC supports small and medium-sized enterprises that are based in Baden-Württemberg in accessing smart data technologies. The GridKa data center is part of the worldwide distributed network for the European particle accelerator center CERN. With

the Large-Scale Data Facility (LSDF) for science in Baden-Württemberg and the Large-Scale Data Management and Analysis (LSDMA) initiative of the Helmholtz Association, KIT has already established a basis for its role as coordinator of the Helmholtz Data Federation. In addition, KIT informatics institutes study data-intensive computing, algorithm engineering for big data, and data security.

More about the KIT Information · Systems · Technologies Center:
<http://www.kcist.kit.edu>

Being “The Research University in the Helmholtz Association,” KIT creates and imparts knowledge for the society and the environment. It is the objective to make significant contributions to the global challenges in the fields of energy, mobility and information. For this, about 9,300 employees cooperate in a broad range of disciplines in natural sciences, engineering sciences, economics, and the humanities and social sciences. KIT prepares its 26,000 students for responsible tasks in society, industry, and science by offering research-based study programs. Innovation efforts at KIT build a bridge between important scientific findings and their application for the benefit of society, economic prosperity, and the preservation of our natural basis of life.

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