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An innovative research EU project in the EOSC framework DICE - Data Infrastructure Capacity for EOSC

DICE (Data Infrastructure Capacity for EOSC), supported by the European Union's Horizon 2020 INFRAEOSC-07 programme, and built upon EUDAT services and network, was officially launched with its kick-off meeting held online on the 18th of January 2021.

Funded under the [H2020-INFRAEOSC-2020-2](#) call entitled "Increasing the service offer of the EOSC Portal" within the "Development, deployment and operation of ICT-based e-infrastructures" work programme, DICE, over its 30-month duration, aims to enable a European storage and data management infrastructure for EOSC, providing generic services and building blocks to store, find, access and process data in a consistent and persistent way.

The main objective of DICE is to strengthen the EOSC initiative by supporting researchers with resources and state-of-the-art services for their multidisciplinary data management workflows: **14 different services** are offered with a joint capacity of **more than 50 Petabytes from a network of 18 providers across Europe**. The offering coming through DICE consists not only of the services and the resources behind it, but also includes effort from technical staff at the provider side to enable and properly configure or customise the services for the target research workflow to be in line with the research community needs.

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DICE operates in a European landscape of developing research infrastructures, which often have ready-developed solutions and tools for managing their data. The goal of the project is not to replace these infrastructures, but to support and enrich them by providing strong underlying components and generic services on which they can rely to build up their data strategy and e-infrastructure capacity.

Debora Testi, Project Manager at CINECA, Member of the Board of Directors of PRACE and **DICE Project Coordinator**, states that DICE's strength lies in the connections between major scientific data centres, the resilience resulting from the geographically distributed network, but also in its ability to store research data right alongside some of the most powerful supercomputers in Europe and to ensure fast connectivity between the sites. "I am really enthusiastic and honoured to lead this consortium to enrich EOSC with advanced data management services and resources", she says.

What challenges does DICE face in the months ahead?

Along with the increasing amount of generated and collected data, communities need more processing power to generate and handle data but also require more cost-efficient storage capacity for medium- and long- term data storage. The fast storage resources at the computing facilities are often too expensive and/or do not provide sufficient preservation capabilities to keep the data stored for medium and/or long term.

Via the **Virtual Access (VA) mechanism**, DICE will make large volumes of storage capacity available for communities to store research data for mid and long-term duration. Additionally, DICE partners will provide tools and different mechanisms to support efficient data transfers from where the data is being generated and processed, and needs to be stored and made available to the researcher.

DICE aims to demonstrate the effectiveness of the data services offered by the project through EOSC by integrating them with **community platforms**, consolidating the collaboration with communities already within EUDAT and engaging with new communities coming through EOSC. For this reason, research communities will be closely associated with the exploitation of the services. DICE begins with a solid bedrock of more than **25 research communities** (including nine ESFRI communities) in the areas of social sciences and humanities, earth and atmospheric science, climate science, biodiversity, life sciences, and physics.

What kind of services will be offered?

The services offered through DICE provide solutions for Research Infrastructures, service providers, research teams and individual researchers, and citizen scientists to support them in every step of the research data lifecycle. These services can be categorised as:

- **Personal/project workspaces**, containing different kinds of data services used by researchers and research teams when doing active research and when data is not yet stable.
- **Data archives**, containing high volume cost-efficient data services in which bit preservation level durability is ensured. These kinds of services are often used to safely store data to bridge projects and/or computing grants.
- **Policy-based data archives**, a service category that offers services with the capability for advanced data management practices on the basis of policies.
- **Data repository**, gathering services allowing communities to easily implement a FAIR digital repository in which research data can be maintained and preserved for long-term.
- **Data discovery**, a category of services via which research data are made discoverable from many different communities and scientific disciplines to support cross-disciplinary research.



DICE Partnership

The DICE consortium is a network of 24 partners, distributed in 12 different EU countries, representing research organisations, data and storage service and resource providers, high-performance computing and data centres covering the large variety of thematic and technical expertise needed by the project.

The Coordinator partner, **CINECA**, the largest Italian computing centre, will ensure a continuous and thorough monitoring of the activities.

The majority of partners act as service providers to support the scale-up of EOSC with VA resources and to contribute with the technical and operational experience to enable a light and effective interoperability layer among the services themselves and with EOSC and to support multidisciplinary data management use cases. Among those, we can find **CINECA, CSC, FZJ, BSC, GRNET, SURF, KIT, MPG, IT4I, DKRZ, CESNET, GWDG, ETHZ, INFN, SNIC, SIGMA, Datacite**, and **Cyl**.

The consortium boasts also the presence of four partners representing different community domains in order to ensure that the outcome of the projects will be in line with the researchers' expectations. These include **ASTRON, University of Lund** and **SURF**, together with the **University College London**.

The Data Archiving and Networked Services (**DANS**), an institute of the Royal Netherlands Academy of Arts and Sciences (KNAW), will provide its expertise in the field of long-term preservation.

The technical and scientific partners will be supported by **TRUST-IT** for the communication and dissemination aspects, and **EUDAT** to support the definition of an appropriate exploitation and sustainability plan.

All partners have long experience in offering services and resources to multidisciplinary user communities and have already been working with success in EOSC-related projects and related initiatives, which give them the necessary knowledge and experience to achieve the DICE objectives.

For further information about DICE you are invited to use the following channels:

Website: www.dice-eosc.eu

Twitter: [@DICEosc](https://twitter.com/DICEosc)

LinkedIn: [/company/diceosc](https://www.linkedin.com/company/diceosc)

Email: info@dice-eosc.eu

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