# eInfraCentral – Building the EOSC Catalogue of e-Services and Resources

One of the main challenges for research communities is the fragmentation of the e-infrastructure landscape. End-users, such as researchers, innovators or industry actors, often are unaware of the e-infrastructure services available in Europe that could aid them in their work. Similarly, service providers and data producers have difficulties reaching out to potential users due to the lack of coordination and harmonisation across various e-infrastructures. Even if users find out about the availability of a certain e-service, it is difficult to gather further information and compare it with other existing services. Service providers also lack user feedback on the ways they could improve their offerings. This leads to inefficient funding patterns through the emergence of overlapping efforts and slower rates of open innovation due to the lack of competition in the field.

eInfraCentral wants to make the services and resources offered by numerous e-infrastructures more visible to the end users to give them a bigger and better picture of what is available to them. In this way, the project aims to address the challenge of fragmentation that research communities face by focusing on service harmonisation and uniform representation of European e-infrastructures.

eInfraCentral has received funding from the European Union's Horizon 2020 research and innovation programme (Grant Agreement No 731049). The project started in January 2017, with the goal of promoting the discovery and utilisation of existing and developing e-infrastructure capacity by a broader and more varied set of users (including industry) by 2020. The project is being delivered by a Consortium of nine organisations – EFIS Centre (Project Coordinator), JNPartners Co., University of Athens, University of Hannover and five leading e-infrastructures including GÉANT, EGI, EUDAT, OpenAIRE and PRACE.

## eInfraCentral – Delivering Effective Data and Systems for EOSC

It is important to note that eInfraCentral was designed before the European Open Science Cloud was in place and other EOSC-related projects (e.g. EOSC-hub) had started. However, as the scene evolved, so did the project. One of its key evolutions was integrating the eInfraCentral catalogue into the development of the EOSC Portal. The European Commission has mentioned eInfraCentral (alongside other H2020 funded projects EOSC-hub and OpenAIRE-Advance) as being one of the key building blocks of the EOSC Portal as recognised in the Implementation Roadmap for the European Open Science Cloud. The focus on the other three major outcomes of eInfraCentral has remained unchanged.

A harmonised Service Description Template: Back in 2017 when the project started, there were visible differences in how e-infrastructures described their services, ranging from good to poor descriptions, to no description at all. In some cases, services were given multiple different descriptions, making it difficult for the users to compare them to other services. Hence the first area of focus for the project and its key achievement was to come up with a harmonised template for the description of services/resources. The e-Infrastructure community now recognises that a common approach to both describing and exchanging service-

related information is the way forward to enhance the discoverability and thus potential uptake of services.

The Service Description Template (SDT) addresses this goal and has been adopted as the standard scheme for the representation of service-related information in the EOSC Catalogue. The SDT is based on prior modelling efforts (FitSM, FedSM,e-IRG KPIs, TMForum) and it is the proposition for:

- a common service management scheme applicable to different service providers from the public and private sector; and
- a common representation format for the exchange of service-related information between different service catalogues.

The current version of the SDT, as agreed by the flagship e-Infrastructures, is available online at **https://github.com/eInfraCentral/docs**. It is an evolving standard, which incorporates new emerging features from incoming e-infrastructures and research infrastructures in the EOSC ecosystem.

**A catalogue of e-infrastructure services and resources**: Started as the eInfraCentral catalogue, this output of the project grew into the EOSC Catalogue (**http://catalogue.eosc-portal.eu/home**). The catalogue makes it easier for researchers to find information about a broad range of e-infrastructure services they may be interested in, discover new ones, compare various service offerings

in one place, and assess the relevance of the offered services, rating them and leaving feedback. The catalogue enables various e-infrastructure service offerings to be aligned according to a commonly agreed service description. This approach to defining and monitoring e-infrastructure services is bound to increase their uptake and enhance understanding of where improvements can be made in delivering services, which in turn supports research processes to ultimately advance scientific knowledge and the cause of open science.

The beta version of the Catalogue was announced during the official launch of the European Open Science Cloud on 23 November 2018 in Vienna, Austria.

**Harvesting of information via an Application Programming Interface:** Service registration in the Catalogue (which was done manually by the Service Providers at the start of the process) is now automated. Once Service Providers are familiar with how the Service Description Template works, they can then access a rich set of REST API methods (**available at https://catalogue.eosc-portal.eu/openapi**) for the exchange of information between the service providers and the EOSC Catalogue as well as its provisioning to third party applications. The API offers authenticated users the ability to programmatically add and update a service, as well as access, search and retrieve the contents of the catalogue.

## Next Steps

The official end date of the project is June 2019 but the eInfraCentral outputs will continue to be used by other initiatives. The Service Description Template is being adopted by the EOSC-hub and partners of eInfraCentral are involved in other projects linked either to EOSC or other service cataloguing efforts for public and private research infrastructures. These projects will utilise or further develop the outcomes of eInfraCentral, and include EOSC-hub, EOSC Secretariat, thematic and regional EOSC projects, and projects such as OCRE and CatRIS.

eInfraCentral's work has the potential to deliver both social and economic advantages. As the e-infrastructures listed in the catalogue are mostly publicly funded, the more these e-services/resources are used by a growing group of researchers, the better use will be made of such funding. The EOSC Catalogue and portal can also simplify and speed up access to needed e-services and resources to facilitate the work of researchers which could contribute to new discoveries and innovations, potentially leading to further societal and financial benefits.

**Further information:**

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