■ REFLECTIONS ON THE REGIONAL APPROACH FOR OPEN SCIENCE IN EUROPE – EOSC-PILLAR AND THE OTHER "5B PROJECTS"

by Paolo Budroni and Lisa Hönegger

Abstract: The H2020 project "EOSC Pillar" and its three "sister projects" (5b Projects) are an excellent example of how different European projects can effectively participate in the EOSC building process united in a serious, determined effort formalized by a consensual agreement between the projects. The regional approach, responding to individual, regional needs, has demonstrated the importance of jointly addressing challenges related to the European Open Science Cloud in order to reach the diverse and fragmented European research infrastructure landscape. The resulting FAIR data and conclusions are essential building blocks for continuing similar efforts.

Keywords: European Open Science Cloud (EOSC); Open Science; EOSC building process; European research; research support; research infrastructure

ÜBERLEGUNGEN ZU EINEM REGIONALEN ANSATZ FÜR OFFENE WISSENSCHAFT IN EUROPA – EOSC-PILLAR UND DIE ANDEREN "5B PROJEKTE"

Zusammenfassung: Das H2020-Projekt „EOSC Pillar" und seine drei „Schwesterprojekte" (5b Projekte) sind ein hervorragendes Beispiel dafür, wie unterschiedliche europäische Projekte geeint in einer ernsthaften, entschlossenen Weise, die durch eine Konsensualvereinbarung zwischen den Projekten formalisiert wird, effektiv am EOSC-Aufbauprozess teilnehmen können. Der regionale Ansatz, der auf individuelle, regionale Bedürfnisse eingeht, hat gezeigt, wie wichtig es ist, gemeinsam Herausforderungen im Zusammenhang mit der European Open Science Cloud anzugehen, um die vielfältige und fragmentierte europäische Forschungsinfrastrukturlandschaft zu erreichen. Die daraus resultierenden FAIR Daten und Schlussfolgerungen bilden wesentliche Bausteine für die Fortsetzung ähnlicher Bemühungen.

Schlagworte: European Open Science Cloud (EOSC); Open Science; EOSC-Aufbauprozess; europäische Forschung; Forschungsunterstützung; Forschungsinfrastruktur

EOSC-Pillar, together with other regional projects (see Annex – The "5b Projects"), is a European initiative aimed at supporting the transition to Open Science by contributing to a European infrastructure, the European Open Science Cloud (EOSC).

These so-called "5b projects" each focused their research and developments at a certain region to tackle its specific and individual challenges to integrate these regions into the European-wide Research Infrastructure (RI) landscape.

The University of Vienna (UNIVIE) is a main partner in the EOSC-Pillar project[1], which covers the region Austria, Belgium, France, Germany, and Italy. The project started in July 2019, the other projects followed with a kick-off a couple of months later.

1. Coordinating efforts

As the goals of the "5b projects" were broadly similar, namely the harmonization and support of national and regional initiatives for EOSC, Open Science and research data management, a close collaboration was regarded as paramount and has been practiced from before the official start of all projects. A first coordination meeting for this purpose was held in Turin in early June 2019. During the two-day session, important aspects of possible coordination were discussed. In addition to representatives of the projects, representatives of the European Commission, of ESFRIs and of the disciplinary, so-called "Cluster Projects" were attending this preparatory meeting as well as to establish a basis for discussion and future cooperation.

As a result of the official launch of the projects, this cooperation was later formalised with a Memorandum of Understanding and further continued through codified forms of cooperation – through cross-project, thematic task forces.

2. Starting point of joint activities – The EOSC-Pillar survey

EOSC-Pillar aims to assess and harmonise initiatives to help facilitate the federation of services to EOSC and support the implementation of EOSC. EOSC-Pillar's goal is to propose new services and tools, establish sustainable business models, promote the FAIR principles and their implementation, and ensure the engagement of stakeholders from

research communities and research infrastructures. Through the "National Initiatives Survey", information on existing national and thematic initiatives and research data infrastructures were collected and analysed as a first step. The aim was to build a representative picture of the RI landscape in the region and in a second step, with the cooperation of the other "5b projects" across Europe. The cooperation of the projects and the practice of Open Science made it possible to pursue this land-scaping/monitoring activity with alignment. The materials were prepared in coordination and shared among the projects early on. As a result, the other projects reused the EOSC-Pillar questionnaire. This allowed for a more harmonized picture of the landscape. With this structured information from different regions at hand, EOSC-Pillar was able to design further project activities according to the current RI landscape and inform all EOSC stakeholders on the status quo of national and thematic initiatives from a technical, legal, and policy perspective. The survey to assess these national and thematic initiatives was conducted among universities, funding bodies, research infrastructures, and e-infrastructures. More than 2.200 organisations were contacted in the fall of 2019, and almost 700 responses were gathered (response rate of 31%) – which gave an insight into the existence of different infrastructures and their services (including operational details, funding schemes, business models, the implementation of FAIR principles, etc.). The report with a description of all results[2] is available for reuse, as well as the underlying data[3], via AUSSDA – The Austrian Social Science Data Archive. The questionnaire and method report are available together with the data.

Of course, and from today's perspective, the various projects have their own orientation as well as ways and means to reach their individual goals. However, with this contribution, we want to discuss the broader EOSC context that these projects are part of as integral components and the possible impact of this clustering of projects in the EOSC-building process.

Now that the "5b Projects" have passed half their lifetime, representatives from different regions[4] were asked about a preliminary resumé and reflections about their project and its regional approach, as well as benefits of collaboration and possible next steps or challenges to tackle. For this purpose, we gathered some personal impressions that arise from some of the actors' experiences, which we consolidate in this contribution.

3. Main impact of regional approach to Open Science and EOSC

According to the project representatives, a main impact of the participation in a regional project is the stronger engagement and participation from various actors in the RI and Research Performing Organisation (RPO) Landscape. Another important aspect is the better coordination of EOSC activities in order to support the establishment of a national or regional initiative to promote Open Science on site. Such a national initiative or National Cloud for Open Science (NOSC) is, for example, the Croatian Open Science Cloud (locally HR-OOZ), or the French national EOSC initiative, which was kicked off with the contribution of partners from the regional project. The Italian National Open Science and Cloud Initiative is another example. Another regional initiative can be found in the Nordic countries, where the regional project aims to foster and advance the take-up of the European Open Science Cloud at the Nordic level by creating awareness and speeding up the EOSC developments in multiple North European and Baltic countries. The regional approach and cross-border cooperation should enable the capacity building of a research area and, in general, increase its scientific ability. It also provides a benchmark based on data from neighboring countries on various topics concerning Open Science. A major benefit of the interaction between the projects and the national initiatives is the sustainability of activities, services, and tools that are being developed, as they can be continued and serve in the framework of the national initiative.

4. Current developments and possible follow-up activities

National and regional initiatives are currently being shaped, and the regional projects and their partners are contributing to this process through their efforts of coordination, engagement, and by providing a link to EOSC. Formalization procedures and the definition of goals of these initiatives are in focus in many regions at the moment, and this is being supported by the "5b projects" as well. The specific national approaches differ significantly due to their vast differences in the RI landscape – however, the coordination of EOSC activities also on a national level is considered to be paramount. Furthermore, the projects serve as valuable experimentation areas for new approaches or testbeds for new services. It is recommended to keep this kind of environment alive in the years to come and ensure this cross-border collaboration in any way after the end of the projects in

2022. One idea would be to create a kind of platform for national initiatives to exchange ideas and best practices and to connect with each other – as much as now through the regional projects.

5. Main benefit of cross-project collaboration

The collaboration of different H2020 projects that follow a similar path or pursue similar goals offers the possibility of exchange, of learning from other ways of dealing with similar challenges, or from adopting each other's approaches. This common ground, which has been formalised by a Memorandum of Understanding between the projects, helped create strong links between existing partners and gain new partners. The main benefits of this cross-project collaboration include knowledge exchange and cooperation regarding joint activities, such as workshops, position papers, or presentations at relevant stakeholder events. The coordination of external communication has been flagged as particularly useful. Overall, several aspects of the project's joint activities have created benefits, such as the landscape activity that provided much-needed information to base the national strategies on and allow for a benchmark with other countries. In the next phase, collaboration in areas such as training, onboarding services, and policy development will become critical. Moreover, one way to achieve this will be by strengthening the national initiatives as they are the bridge between national and regional infrastructures and communities to the European sphere of EOSC.

6. Conclusion

From our own experience as project partners at the University of Vienna and in the context of our national RI landscape and national EOSC developments, we perceive the regional approach to tackle challenges regarding the European Open Science Cloud as essential to reach the diverse and fractured Research Infrastructure landscape. In order to adequately address regional particularities and to bring about new developments in Open Science, we have to take regional needs better into account and provide support structures also below a European-wide level. EOSC-Pillar and the other regional "5b projects" so far have evaluated the fragmentation in the RI landscape, pointing to individual, regional needs, and will continue to address them to help make EOSC a reality.

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Annex – The 5b Projects

EOSC-Pillar – Grant agreement No 857650 – 01.07.2019 to 30.06.2022

EOSC-Pillar is one of the projects funded in the INFRAEOSC-05 call, dedicated to thematic and regional initiatives. The project aims to support the coordination and harmonisation of national initiatives relevant to EOSC in Austria, Belgium, France, Germany, and Italy. The project intends to integrate a bottom-up approach (by voicing the requirements and needs expressed by the different scientific communities operating at the national level) and a top-down one (by harmonising the national strategies and translating them into a viable work plan).

EOSC-Nordic – Grant agreement No 857652 – 01.09.2019 to 31.08.2022

EOSC-Nordic aims to foster and advance the take-up of the EOSC at the Nordic level by coordinating the EOSC-relevant initiatives taking place in Denmark, Estonia, Finland, Germany, Iceland, Latvia, Lithuania, the Netherlands, Norway, and Sweden. It also exploits synergies to achieve broader harmonisation of policy and service provisioning across these countries in compliance with EOSC-agreed standards and practice.

NI4OS-Europe – Grant agreement No 857645 – 01.09.2019 to 31.08.2022

NI4OS aims to be a core contributor to the European open science cloud initiatives in 15 EU MS and AC in the overall scheme of the EOSC governance. The overall approach is that the national open science landscape in all countries will be systematically mapped and analysed to facilitate both the creation of national open science cloud initiatives to support the overall EOSC governance and to engage all stakeholders. NI4OS will federate the existing EOSC-relevant services in the target countries by making them visible and compatible with the core building blocks of EOSC. NI4OS will collaborate with the other EOSC-related initiatives to contribute to the common EOSC platform, including a set of policies, rules, and principles for managing services and research data across the EOSC ecosystem.

EOSC-synergy – Grant agreement No 857647 – 01.09.2019 to 28.02.2022

EOSC-synergy delivers services and supports selected scientific use cases that span several countries by pushing the state-of-the-art in software and

services life-cycle through a quality-driven approach to services integration. It focuses on the identification of obstacles and barriers preventing close international collaboration and minimises them by harmonising policies and federating relevant national research e-infrastructures, scientific data, and thematic services. All this bridges the gap between national initiatives and the EOSC and expands service adoption by developing new capabilities and by opening national thematic services to European access based on a robust human network and advanced training tools.

1   Other project partners are: GARR, CNR, CINECA, INFN, CMCC, CINES, CNRS, INRA, IFREMER, INSERM, KIT, DKRZ, Fraunhofer, GFZ, U.Gent and TRUST_IT.
2   Bodlos, Anita; Hönegger, Lisa; Kaczmirek, Lars; Beckmann, Volker; Breton, Vincent; Romier, Geneviève; Van Wezel, Jos; Streit, Achim; Stevanovic, Uros; Galeazzi, Fulvio; Tanlongo, Federica; Van Nieuwerburgh, Inge (2020). EOSC-Pillar D3.1 Summary report of the EOSC-Pillar National Initiatives Survey. Zenodo. https://doi.org/10.5281/zenodo.3937318
3   Bodlos, Anita; Hönegger, Lisa; Kaczmirek, Lars; Beckmann, Volker; Breton, Vincent; Romier, Geneviève; Van Wezel, Jos; Streit, Achim; Stevanovic, Uros; Galeazzi, Fulvio; Tanlongo, Federica; Van Nieuwerburgh, Inge (2019). EOSC Pillar "National Initiatives" Survey (SUF edition), V2. AUSSDA. https://doi.org/10.11587/VOSVGK
4   Experts from the 5b projects that provided input: Volker Beckmann (Special adviser for the implementation of the European Open Science Cloud (EOSC) in France at the Ministry of Higher Education, Research and InnovationI, French Delegate in the EOSC SB, EOSC-Pillar), Minna Lappalainen (Marketing and Communications Director at CSC, EOSC Nordic), Ivan Maric (Director/CEO at University of Zagreb, University Computing Centre, Croatian Delegate in the EOSC SB, NI4OS-Europe), Federica Tanlongo (GARR, Coordination EOSC-Pillar)