

General Information	
Preliminary title of the European Partnerships	European Partnership on EOSC (European Open Science Cloud)
Short description of the partnership	The Partnership aims to implement and realise the EOSC: a trusted, federated ecosystem for the scientific community to share and process publicly funded research data across borders and scientific domains.
Services directly involved	RTD and CNECT
Context and problem definition	<p>The EOSC initiative has emerged as a clear policy priority for European research and innovation. It has been strongly supported by the European scientific community in the EOSC Summit and Declaration, by the Council (in its Conclusions of May 2015, May 2016 and May 2018) and by the European Parliament (in a Resolution of January 2017).</p> <p>There is an agreement among Member States, major research (e-) infrastructures, research institutions and other stakeholders that an integrated approach to research data infrastructures that goes beyond national and disciplinary silos is urgently needed. The EOSC aims to offer European researchers a virtual environment with free, open and seamless services for storage, management, analysis and re-use of the data that are linked to their research activities, across borders and disciplines. It will federate existing and newly developed scientific data infrastructures under a common governance structure, assist shared procurement of additional required capacity (public/private) and support the development of added-value services for data analysis and exploitation.</p> <p>The need for better coordination and seamless access to interoperable research data services has been confirmed by Member States and Associated Countries official documents regarding research data and infrastructures. Furthermore, a multi-stakeholders governance of the EOSC is needed to prevent duplication of efforts, fragmentation and isolated solutions.</p> <p>The EOSC is part of Europe's ambition to support the transition to Open Science in the context of the Digital Single Market; it aims to meet an urgent, real and specific need of the scientific community to streamline access to and reuse of research data and to reduce the cost of data storage and analysis for research funders by pooling existing capacity and by aggregating demand (initially by researchers in the public sector).</p> <p>The Commission is providing the necessary financial support to implement the prototyping phase (till 2020) of the EOSC along the policy orientations of the Communication by means of projects under the EU Framework Programme for Research and Innovation (Horizon 2020). Actions were included in the Work Programme (WP) 2016-2017, and in the WP 2018-2020, for an aggregate budget of about €600m. This includes the launch in 2018 of the INFRAEOSC dedicated Call, which is notably supporting the integration of services and the federation mechanism; the setting/operationalization of the principles of FAIR data (findable, accessible, interoperable and reusable); the development of a FAIR-compliant certification scheme for data infrastructure and the connectivity of the pan-European Research Infrastructures such as the ESFRI projects and landmarks. FAIR research data encompasses the way to create, store and publish research data in a way that they are Findable, Accessible, Interoperable and Reusable. In their effort to produce high quality data, researchers have to follow good data management and data stewardship, which are yet not common practices throughout the EU.</p> <p>The impact of not having FAIR data on research activities concerns, but is not limited to, research development, planning of the research project, creation of the data, collection of the data, pre-processing and cleansing of the data, integration and transformation of the data, etc. In these activities, a</p>

	<p>lot of time is wasted due to research data not being FAIR.</p> <p>Regarding impact on collaboration, there is an opportunity cost for the research community but also individuals and organisations using research data. This cost manifests itself in the form of missed opportunities for collaboration or cross-fertilization between research groups within and across disciplines. The cost of not having FAIR research was computed from five quantifiable indicators: time spent, cost of storage, licence costs, research retraction and double funding. The overall opportunity losses from not having the FAIR principles implemented have been estimated as amounting to at least €10.2 billion per year. Because technological advancements have made research and science more data intensive and interconnected, with researchers producing and sharing increasing volumes of data, the cost of not having FAIR research data will increase over time.</p>
Objectives and expected impacts	<p>With a view to consolidating and developing the landscape of European research infrastructures, the EOSC should become an effective and comprehensive delivery channel for research infrastructures services. It should provide Europe's research communities with the next generation of data services for harvesting, storing, processing (e.g. analytics, simulation, visualisation services) and sharing big science data according to the FAIR principles.</p> <p>The objectives of this initiative, to be attained within the timeframe of Horizon Europe, are:</p> <ul style="list-style-type: none"> • Creating a FAIR data ecosystem that enables research data to be used throughout the value chain for scientific, societal and industrial purposes. • Accelerating the transition towards Open Science and advances in digital technologies for science, offering every European researcher the possibility to access and reuse all publicly funded research data in Europe, across disciplines and borders. <p>Expected impacts of the proposed partnership:</p> <ul style="list-style-type: none"> • Constant learning, mutual alignment of research data management practices and progressive expansion of the EOSC federation across borders and communities. The objective of the EOSC is to give the Union a global lead in research data management and ensure that European scientists reap the full benefits of data-driven science, by offering 1.7 million European researchers and 70 million professionals in science and technology a virtual environment with free at the point of use, open and seamless services for storage, management, analysis and re-use of research data, across borders and scientific disciplines. • Positive effects on innovation and growth by placing European research in the digital age and accelerating free circulation and reuse of scientific data by both humans and machines. • Significant societal impact – The EOSC should ultimately lead to a fundamental transformation of the whole research lifecycle, to make it more open and accessible, more credible with increased integrity and reproducibility, more reliable and transparent, more efficient and collaborative, and more responsive to the societal challenges. <p>The EOSC will consist of a fit-for-purpose pan-European federation of research data infrastructures, with a view to moving from the current fragmentation to a situation where data is easy to store, find, share and re-use.</p>

Necessity test: rationale for a European Partnership	<p>While a grant approach in Horizon 2020 was judged appropriate to prototype the EOSC till 2020, this approach is bringing more diversity than alignment. Extending this approach in the period 2021-2027 might not be suited to the next EOSC phase Post-2020 where operational consolidation will be the main objective.</p> <p>The EOSC Governance – currently set until end of 2020 - is mandated to define options for the business model(s) and best legal vehicle of the EOSC post-2020. Without pre-judging of the final options that will be tabled by this Governance, it is reasonable to anticipate that developing a research partnership under Horizon Europe would be an advisable way to consolidate a wide user perspective in the operational EOSC post 2020.</p> <p>A partnership approach would align with the need to involve the Member States and associated countries as the main funders of national and community research infrastructures contributing to the EOSC. It would reflect the strong European nature of the EOSC as a federated ecosystem for all researchers in Europe. It would also bring opportunities to involve existing community capacities across all scientific disciplines, but also relevant capacities by the commercial sector in Europe.</p> <p>In addition, following Council conclusions (May 2018), the EOSC implementation phase post-2020 should become mainly stakeholder-driven, following an inclusive, voluntary and gradual process of expansion.</p>
Relevant for the following parts of Horizon Europe	<p>Pillar II 'Global Challenges and European Industrial Competitiveness'</p> <p><input type="checkbox"/> Cluster Health</p> <p><input type="checkbox"/> Cluster Culture, creativity and inclusive society</p> <p><input type="checkbox"/> Cluster Civil Security for Society</p> <p><input type="checkbox"/> Cluster Digital, Industry and Space</p> <p><input type="checkbox"/> Cluster Climate, Energy and Mobility</p> <p><input type="checkbox"/> Cluster Food, Bioeconomy Natural Resources, Agriculture and Environment</p> <p><input checked="" type="checkbox"/> Cross-cluster</p> <p><input type="checkbox"/> Pillar III 'Innovative Europe'</p>
Currently identified links with other partnership candidates / Union programmes	<p>In addition to the federation of ESFRI projects in the EOSC, specific actions (thematic clouds) in scientific areas with a tradition of research data sharing and services like transport, food, marine, health and Earth-observation shall be federated into the EOSC. For instance, the Health Research and Innovation Cloud (HRIC) is directly aligned to the EOSC. Similar developments are expected in the field of transport, following recommendations by a Commission expert group on the transport cloud. Moreover, the EU Copernicus programme is contracting commercial companies in Europe to develop and operate the Copernicus's Data and Information Access Services (DIAS) which will provide additional services in the EOSC under commercial conditions.</p> <p>Other synergies should be built with contributors to the European Data Infrastructure (EDI) such as the EuroHPC Joint Undertaking on High Performance Computing.</p>
Does the proposed partnership build on currently active ones?	<p>No</p>

Expected type and composition of partners	<p>Type and composition of partners/stakeholders: At the Competitiveness Council held on 28-29 May 2018 it was agreed that “the EOSC model should be based on a pan-European federation of data infrastructures in order to be flexible and adaptable to changing needs of the stakeholders; with regard to enabling this federation of national and European data infrastructures, [the Council encouraged] Member States to invite their relevant communities, such as e-infrastructures, research infrastructures, Research Funding Organisations (RFO’s) and Research Performing Organisations (RPO’s), to get organized so as to prepare them for connection to the EOSC. ? The council also urged the Commission and the Member States to ensure that the EOSC is a user-centred environment, serving the research community foremost at the start and then expanding further to the broader user community, including SMEs, citizens and public authorities</p> <p>Planned provisions for inclusiveness: The EOSC is conceived as an inclusive (of all disciplines, countries and researchers), sustainable open research data commons for Europe’s research and innovation system. The EOSC Governance Framework post-2020 will have to guarantee full transparency and openness for all partners in this process. The EOSC will aim to establish a level playing field for the researchers in Europe, by enabling researchers from less advanced countries to gain access to significantly broader set of research infrastructures and -data.</p>
Contributions and commitments expected from partners	Partners will participate with both financial and/or in-kind contributions, such as skilled human resources, existing research infrastructures.
Currently envisaged implementation mode(s).	<p><input checked="" type="checkbox"/> Co-programmed European Partnership</p> <p><input checked="" type="checkbox"/> Co-funded European Partnership</p> <p><input type="checkbox"/> Institutionalised European Partnership</p> <p><input type="checkbox"/> Article 185</p> <p><input type="checkbox"/> Article 187</p> <p><input type="checkbox"/> EIT-KIC</p> <p>The selection of a co-programmed or co-funded European Partnership will very much depend on the level of ambition by the current governance for the the EOSC post-2020.</p>
Justification of the implementation mode	<p>A co-programmed European Partnership would be particularly suited to accelerate the implementation of the EOSC from 2020 onwards. This type of partnership would:</p> <ul style="list-style-type: none"> • Support inclusion of various types of public and private stakeholders; • Allow different types of actions (CSA, RIA and PI/PCP) to consolidate an inclusive EOSC along the whole research data life cycle; • Test new, flexible funding schemes and governance practices in partnership with different types of stakeholders.
Proposed starting year	2021