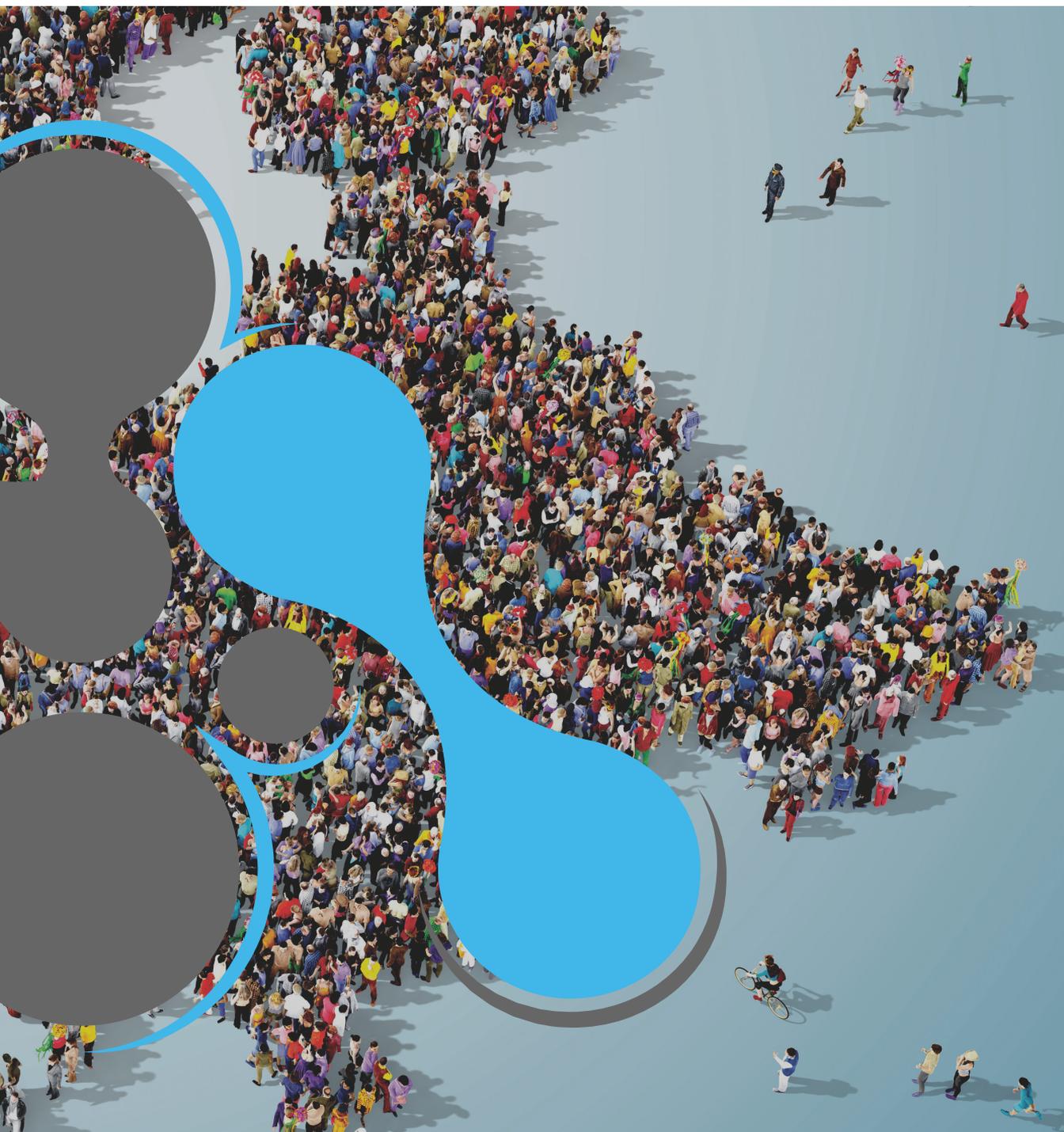


# EOSC PILOT:

SHAPING THE EUROPEAN  
OPEN SCIENCE CLOUD



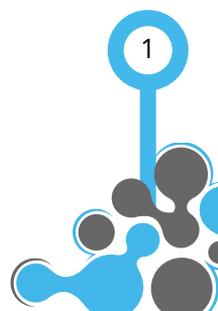
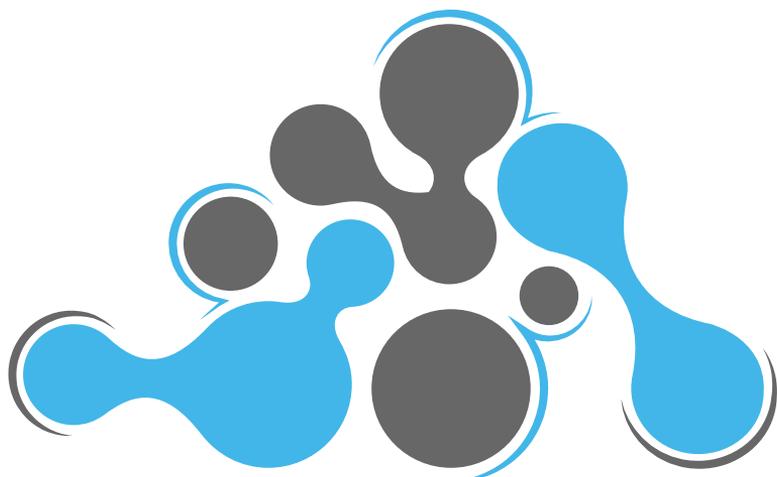


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# Foreword

“...But now, as the 21st century is upon us, we’re on the cusp of another frontier of science. Again, technology has a role to play. We now need an internet for scientific data. And the Cloud is exactly that. **It will allow a new generation of scholars to share and communicate data and discoveries in a way that has never been done before.** Not just results that are published in journals. And not just data that is kept within the confines of a discipline. The European Science Cloud is the next leap forward. It will be a New Republic of Letters.”



“... I imagine researchers using the Cloud on a daily basis. Every researcher will be able to find and access data from all publicly funded research in Europe in a single click. They will be able to access data from different disciplines. And to combine the data and analyse it in new ways. Each researcher will also be able to store and manage their own data. And share their data with others in a secure and trusted environment.”

Commissioner Moedas: The European Open Science Cloud –  
The New Republic of Letters, 12 June 2017

# The European Open Science Cloud: moving from policy to practice

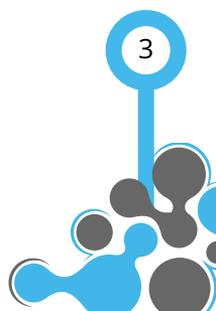
Over the last 5 years, many policy makers around the world have articulated a clear and consistent vision of global Open Science as a driver for accelerating innovation and enabling a new paradigm of data-driven science. In Europe, this vision is being realised through an ambitious programme of research and development under the heading of the European Open Science Cloud (EOSC). This programme will deliver an Open Data Science Environment that federates existing scientific data infrastructures to offer European science and technology researchers and practitioners seamless access to services for storage, management, analysis and re-use of research data presently restricted by geographic borders and scientific disciplines. The EOSCpilot project is the first project in this programme. It is exploring some of the scientific, technical and cultural challenges that need to be addressed in the deployment of the EOSC.

## Science Demonstrators

How the EOSC can help address scientific challenges is being investigated through a number of pilot science demonstrators across a range of research domains. Each demonstrator shows some aspect of how the EOSC services can enable greater data re-use and drive development of the EOSC. A total of 15 science demonstrators will be engaged. The Science Demonstrators will pursue solutions to any “showstoppers”, investigating how any obstacles in data and infrastructure interoperability can be overcome, possibly identifying additional challenges.

## Interoperability and Service Architectures

The EOSC is envisaged as a distributed, decentralised, System-of-Systems based on components independently provided and managed by different organizations. The technical challenges inherent in establishing this vision are being investigated in work on service architecture and interoperability. EOSCpilot is developing an architectural framework for tools to work together with open interfaces between them to provide a comprehensive and evolving set of services. This will support an open knowledge production lifecycle where outputs of the research process can be created, deposited, analysed, published and preserved, and also discovered, accessed and reused. This will enable the EOSC service portfolio to grow incrementally according to stakeholder-defined principles and user needs.



## Skills and Community

EOSCpilot is engaging with a broad range of stakeholders to build the consensus required to address some of the cultural challenges inherent in adoption of an open approach to scientific research. Developing the necessary skills and capabilities to enable the scientific community to take full advantage of the EOSC is key to creating wider awareness and bringing the opportunities offered by the adoption of Open Science to researchers. Building upon existing work, EOSCpilot is establishing a skills framework that will help infrastructures, institutions, and other stakeholders to find, access and benefit from relevant skill developments. This will favour the emergence of data stewardship and other related roles required to sustain data science services, such as those exemplified by the Science Demonstrators.

## Governance and Policy

A further cultural challenge is the establishment of a governance mechanism for the EOSC. The oversight of the EOSC needs to be capable of supporting the definition, management and coordination of its many components without imposing a strict hierarchical model or supply chain. This will imply definition of organisational, operational and managerial interoperability, with due recognition that the System of Systems will evolve and adapt over time. EOSCpilot is developing a proposal for a governance framework for the EOSC and contributing to the development of European Open Science policy and best practice. This governance framework will need to engage with the key stakeholder communities and therefore has to align with many existing structures and services at disciplinary, national and international levels.

## Conclusion

EOSCpilot is undertaking initial work in some key areas that are critical to the development of the EOSC. Further explanation of these activities is given in the following sections of this booklet. However, EOSCpilot is just a beginning. Many more EOSC projects are being prepared. Some are already planned and will start in 2018. Others are expected to begin in 2019 and 2020 and run through to 2022.

Together these projects will deliver the EOSC as a rich ecosystem with many stakeholders providing and using a broad collection of services and technologies operating across a wide range of organisational, community and geographic boundaries. In this way the vision articulated in policy statements over the last 5 years will be operationalised over the next 5 years.

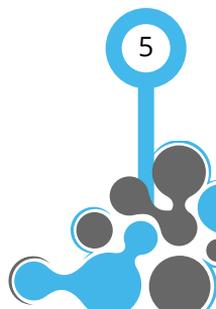
Juan Bicarregui  
EOSCpilot Coordinator  
November 2017

# How EOSCpilot is addressing scientific, technical and cultural challenges

The EOSCpilot is driven by its stakeholders. It addresses challenges that arise from and relate to specific stakeholders, with the underlying infrastructures providing technical support in meeting the challenges. EOSCpilot is constructing a framework for collaboration that allows disparate stakeholders to work together effectively.

In this section we give a snapshot on how after one year, the EOSCpilot is addressing three kinds of challenges:

- » **Scientific Challenges:** deploying the EOSC to deliver Open Science,
- » **Technical Challenges:** developing technical solutions that meet the scientific needs,
- » **Cultural Challenges:** adopting new, more collaborative ways of working.



# EOSC Scientific Challenges

## Deploying the EOSC to deliver Open Science

### Verifiable Research

- » How can complex **research workflows** be made **reproducible**?
- » How can I publish **Open Science** data and tools for others to re-use?
- » Where do I submit or find Open Science data and **publications**?

🔑 **Keywords:** Open Publication | Data Processing Pipelines | Data Citation | Persistent Identifiers | Trustworthy Repositories | Certification | Data Provenance.

### Multidisciplinary collaborations

- » How will EOSC meet the needs of multidisciplinary collaborations?
- » How can EOSC support more stakeholders: from **industry**, the **public sector** and **EU citizens**?

🔑 **Keywords:** Rules of Engagement | Open to the World | FAIR Principles | Business Models.

### Scientific Services

- » What criteria should the EOSC services meet in order to be **appealing** to research collaborations?
- » What are the cross-disciplinary **common needs** of Open Science?
- » What are the key **requirements** and main **use cases** for EOSC services to serve **long tail research** data users?

🔑 **Keywords:** Quality of Service | Agility | User-Friendliness | Security | Transparent Access to Computational Resources | GDPR compliance | Scientific Data Software | Collaborative Services | Open Data.

### Fair Principles

Implementation of the FAIR principles must be pragmatic and technology-neutral, encompassing all four dimensions: findability, accessibility, interoperability and reusability

**The Open Science Policy Toolkit** contains model agreements, guides to policy issues, procurement best practices and data management planning support services and tools.

### Science Demonstrators

- » **CryoEM** workflows in Scipion.
- » **Genome Research** complex workflows reproducibility with nextflow and containers.
- » **Large-scale, long-term, data preservation** in High Energy Physics.

The EOOSC success will rely on technical achievements and efficient collaborations. **A stakeholder engagement strategy** and various forums and events ensure stakeholder groups shape the EOOSC.

**EOOSC education & training programme** to develop the capabilities and competencies to ensure EOOSC resources and open data sciences are openly accessible and reusable for all stakeholders.

### Science Demonstrators

- » **High Energy Physics** recommends due consideration of the specific needs of communities in terms of data types, volume and conversion issues.
- » **PanCancer** a portable, cloud-based federated solution for collaborative cancer genomics and associated health data management.
- » **TextCrowd** developed collaborative tools for text mining.
- » **LOFAR** will provide easy access to Astrophysics data to a broad range of users.

### User-driven Services

Services and functionalities shall be user-driven and determined by clear use cases. Federated services will be offered at highest Technology Readiness Levels and kept future-proof based on a cutting-edge cloud-based environment.

**The EOOSCpilot Service Portfolio** will include validated EOOSC services supporting the entire data lifecycle and research process. This includes rules of engagement for services providers.

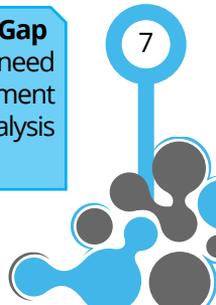
### Science Demonstrators

**EPOS/VERCE:** Agile Data Intensive Frameworks for earthquake analysis.

### Synergies

Engagement with key projects such as EUDAT, eInfraCentral, EOOSC-hub and OpenAIRE-Advance.

**e-Infrastructure Gap Analysis** shows the need for workflow management systems and data analysis pipelines.



# EOSC Technical Challenges

Developing technical solutions to meet scientific needs

## Interoperability

- » How can EOSC ensure **federated provisioning** across multiple suppliers?
- » What can EOSC do to improve **data interoperability**?

🔑 **Keywords:** AAI: Authentication and Authorisation Infrastructure | Virtualisation | Container Technologies | Interoperability Testbed | Data Format Standards | Network Connectivity.

## Computational Resource Access

- » Where can researchers find the resources they need to perform **very large computations**?
- » Can EOSC make access to computational resources **user-friendly**?
- » How can EOSC help researchers store their data in a **persistent** way?

🔑 **Keywords:** Open Science Registry.

## EOSC Architecture

- » What **services** can EOSC provide to enable the **transition to Open Science**?
- » Who **designs** the EOSC Architecture?
- » What are the major challenges for **research infrastructures** to be part of an EOSC architecture?

🔑 **Keywords:** EOSC is a System of Systems

**e-Infrastructure Gap Analysis**

- » AAI is the cornerstone of interoperability and the main issue that prevents exploitation and usage of existing e-infrastructures and distributed resources.
- » Data transfer API standardisation.
- » Common strategy on data interoperability.

**Science Demonstrators**

- » ENVRI: Environmental Interoperability.
- » EGA: Genomics studies interoperability.

**Reports on Data Interoperability**

- » FAIR principles.
- » Recommendations on EOSC architecture and standards.

**Science Demonstrators**

- » **PanCancer:** Analysis of whole genomes on both Academic & Public Clouds.
- » **PROMINENCE:** HPCaaS for Fusion with a Scheduler/Cloud API.
- » **High Energy Physics:** Persistent Data Preservation.

Specifications for an **Open Science Registry**. Providing machine-readable policies and an interactive policy validation service based on existing and emerging requirements.

**A one-stop-shop**

Users should see the EOSC as a one-stop-shop to find, access, and use research data and services from multiple disciplines and platforms.

**e-Infrastructure Gap Analysis**

- » Data and services to reflect diversity of providers.
- » New services: data mining, container management, accounting and traceability.

**The EOSC service architecture** includes a wide spectrum of services following a system of systems approach. This is based on scientific user requirements and experiences; interoperability recommendations and best practices; Open Science and EOSC policies; sustainability and business models.

**The EOSC Service Portfolio Roadmap** identifies what the future EOSC should offer its users based on the results of EOSCpilot and the Demonstrators.

# EOSC Cultural Challenges

Adopting new, more collaborative ways to work

## Skills

- » How can EOSC help develop the **competencies** and **capabilities** for open data science?
- » How can services **adapt** to the skills of their users?

🔗 **Keywords:** Data Management | Research Data Skills | Coding Skills | Graphical Interfaces | Standard Data Analysis Pipelines.

## EOSC Policies

- » How can EOSC coordinate **national-level policies, strategies** and **reward mechanisms** to stimulate open research data practices?
- » What are the key EOSC-related policies facilitating the **free flow of information** and **seamless provision** of services across Europe?

🔗 **Keywords:** Open Science & Interoperable EU Policies | Federated services | Data Sharing Incentives | Cooperation | Service Portfolio Management

## EOSC Governance

- » How can EOSC governance be **user driven**?
- » How can **certification** be organised to ensure that the **EOSC service portfolio** meets a list of community-defined requirements?
- » How will the EOSC governance **align all stakeholders** from **all Member States** for Open Science Publication?

🔗 **Keywords:** EOSC Funders Summit | EGDF webinars | Alignment

**EOSC Training as a Service:** Materials and workshops based on FAIR principles and user needs.

**Research infrastructures, projects and institutions** are key to EOSC skills acquisition. EOSCpilot is consulting with stakeholders to define a skills strategy.

**Data stewardship** is central to the EOSC competence framework: Domain management, data science engineering, data science analytics and domain research.

### Science Demonstrator

**Skills and training are based on the outcomes of the Science Demonstrators.**

» **LOFAR:** Astrophysics services for power and non-expert users.

**Policy recommendations** on how the EOSC will operate in an EU Research Area with EU policy modules such as DSM policy areas, Smart Specialisation Policies and EU Research Area Policies.

Policy elements support **frictionless flow of information** and **FAIR** principles.

### Science Demonstrator

» **ENVRI:** Data integration and harmonised access across multiple research communities.

### Stakeholder Driven Governance

The EOSC governance framework will be co-designed, stakeholder driven and composed of three main layers:

- 1) institutional, including EU Member States and European Commission,
- 2) operational, including a governance board and relevant working committees (e.g. thematic and functional), and
- 3) advisory, including a **stakeholder forum**.

EOSC as a **sustainable ecosystem** requires the coordination of national infrastructures, funding for the central components of the EOSC and cost recovery of international and interdisciplinary usage at the service provider level.

**Organizational Principles of Engagement** for organisational scientific users and service providers in the EOSC. Legal/financial/ethical and other organizational aspects could pose barriers for usage or provision of services. The EOSCpilot identifies a set of principles that is small and generic enough to accommodate all players from the outset.

# Science Demonstrator Catalogue

**Science Demonstrators are driving the development of the EOSC, substantiating the relevance and usefulness of the services provided and how they will enable data re-use.**

The Science Demonstrators are early adopters of EOSC, selected from a range of science areas. These early adopters help stimulate the engagement of the science communities and stakeholders in Open Science by building on the expertise of the Research Infrastructures and their service providers.

Their requirements are used to drive and prioritize the integration of the candidate EOSC services to meet the functional and non-functional needs of researchers and to ensure that the proposed technical governance structures deploy sufficient control mechanisms to satisfy the researcher's needs.

The functional and non-functional requirements gathered from the Science Demonstrators will be used to ensure that the integration of the EOSC services meets the needs of researchers across Europe.

## Environmental & Earth Sciences

- » **ENVRI – Radiative Forcing Integration:** Enabling comparable data access across multiple research communities through data integration and harmonised access.  
Demonstator lead: Integrated Carbon Observation System (ICOS) ERIC, ENVRI-Plus, ACTRIS, IS-ENES2.
- » **EPOS/VERCE - Earthquake Data Environment:** Creating a virtual Earthquake and Computational Earth Science & e-science environment in Europe. Producing data products to meet research needs in the field such as simulated seismic waveform images and 3D volumetric meshes.  
Demonstator lead: University of Liverpool, Royal Netherlands Meteorological Institute (KNMI), Fraunhofer SCAI.
- » **eWaterCycle & SWITCH-ON – FAIR Data for Hydrology:** Developing a large-scale simulation-based science for reproducible, reusable, open, data-driven science in Hydrology. This demonstrator will be Switching on the EOSC for Reproducible Computational Hydrology by FAIR-ifying the results of the eWaterCycle and SWITCH-ON projects.  
Demonstrator leads: Delft University of Technology, Netherlands eScience Center, SMHI, Common Workflow Language, SURFsara, EGI Foundation, CYFRONET, LRZ

## Life Sciences and Health Research

- » **Pan-Cancer Analyses – Portable Federated Cloud-based Solution: Enabling** for collaborative cancer genomics and associated health data management, and an environment accessible to European scientists for analysis. Solutions can be applied in other areas e.g. cardiovascular & neuro-degenerative diseases.  
Demonstator lead: European Molecular Biology Laboratory (EMBL).
- » **EGA – FAIR Genomic Datasets:** Leveraging EOSC to offload the updating and standardizing of life science datasets to the European Genome-phenome Archive (EGA). This will improve their reproducibility, reusability and interoperability and adhere to FAIR principles.  
Demonstator lead: Centre for Genomic Regulation (CRG)
- » **CryoEM – Life Science Data Workflows:** Linking distributed data and data analysis resources as workflows in Structural Biology with cryo-electron microscopy (CryoEM), making the data more FAIR and increasing reproducibility in Science  
Demonstator lead: The Spanish National Centre of Biotechnology (CSIC)
- » **Genome Mining – Bioimaging for human gene function:** Mining a large image repository to extract new biological knowledge about human gene function. Analysis of image data from genome-scale RNAi screens and small molecule screens will give insight into cellular functions of human genes and inhibitors of these functions.  
Demonstrator lead: University of Dundee, EMBL-EBI.

## Energy Research

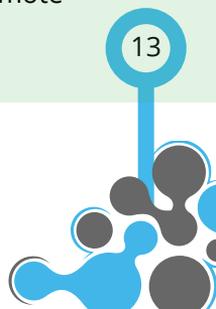
- » **PROMINENCE - HPCaaS for Fusion:** Providing access to HPC-class nodes through a cloud interface (EGI FedCloud) to external communities who are able to assess the impact and usefulness on their work.  
Demonstator lead: Culham Centre for Fusion Energy

## High Energy Physics

- » **Data Preservation – An Open Data Portal pop up:** Providing large-scale, long-term, data preservation and re-use of physics data through the deployment of HEP data open to other research communities and which respects (FAIR) Data Management Plans.  
Demonstator lead: CERN

## Physics / Materials Science

- » **Photon-Neutron – Virtual Platform:** Enabling cloud-based storage, compute solutions, fostering standardised data formats and allowing transparent and secure remote access to scientific data.  
Demonstator lead: DESY



## Physical Sciences / Astronomy

- LOFAR - Astrophysics Data:** Providing easy access to LOFAR (LOW Frequency ARray) data and knowledge extraction through the European Open Science Cloud to a broad audience. Data integration and data interoperability will allow users to exploit the sensitivity of multiple instruments, re-analyse existing astronomy data and enable novel scientific breakthroughs. Demonstrator lead: Netherlands Institute for Radio Astronomy, Netherlands eScience Centre, SURFsara, CWL Project, Pythonic, Italian National Institute for Astrophysics
- » **VisIVO - Data Knowledge Visual Analytics Framework for Astrophysics:** Adopting Open Science criterion within EOSCpilot by publishing a data analysis and visualization environment fully integrated with a relevant set of astrophysical datasets. Demonstrator lead: INAF Catania

## Generic Technology

- » **Frictionless Data Exchange - Across Research Data, Software and Scientific Paper Repositories:** Fast and highly-scalable exchange of data across repositories storing research datasets, manuscripts and scientific software. This work will enable more efficient and effective information exchange between EOSC data providers and services. Demonstrator lead: The Open University.

## Social Sciences and Humanities

- » **TextCrowd - Collaborative Platform: Enabling** semantic enrichment of text-based datasets through cooperative, supervised crowdsourcing benefitting scientists in the long-tail who face challenges around interoperability and multi-lingualism. Demonstrator lead: PIN Srl.
- » **VisualMedia - Sharing and visualizing visual media files on the web:** Transforming visual media files into an efficient web format ready for web-based visualisation. This will enable data sharing on the web, improve collaborative research for teams working on the same images and reuse of images for new investigations. Demonstrator lead: ISTI-CNR, PIN, MIBACT-ICCU.

# The EOSC Stakeholders

The EOSCpilot project has an essential role to play in engaging with stakeholder groups to ensure that the EOSC is built with them and that Open Science and Open Innovation are fostered in the Digital Single Market.

The EOSC Advisory Stakeholder Forum is a key way for the project to reach out to the stakeholder groups that are detailed in this section. Each group stands to gain in different ways from the EOSC and can benefit greatly from interacting with EOSCpilot in order to give their views and help to shape key issues such as policy, governance and skills development.

## Research Producing Organisations, Academic Institutions and Research Libraries

### The core users of the European Open Science Cloud.

Together these organisations connect the EOSC infrastructure and EOSC service providers with research users and are already actively engaged in supporting and promoting the Open Science approach to research and scholarships all over Europe.



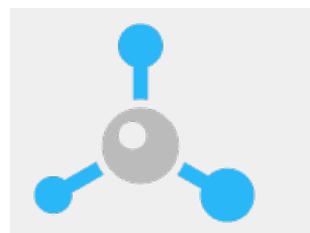
### Benefits of EOSC

- » Contribute to shaping and developing the EOSC governance.
- » Access to sustainable high-quality interoperable data and new federated services.
- » Train support staff and librarians on EOSC services

## e-infrastructures, VREs and H2020 projects

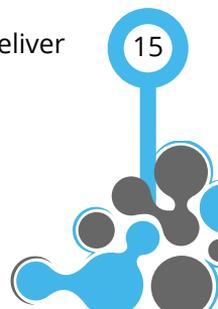
### Key building blocks of the European Open Science Cloud.

This group provides key services to meet the digital needs of European researchers and foster the emergence of Open Science and the circulation of knowledge in Europe online. These include European e-infrastructures such as GÉANT, PRACE, EUDAT, OpenAIRE and EGI.



### Benefits of EOSC

- » Engage to coordinate and interoperate existing services, policies and organisational structures with EOSC.
- » Access for users to integrated online research resources and tools.
- » Extend VRE user communities to broader disciplines and scientific environments.
- » Cooperate with other e-Infrastructures to set up, coordinate, harmonise and deliver service portfolios.



## National, Regional or Local Government Agencies



### The EOSC promotes Open Science adoption in collaboration with Government Agencies.

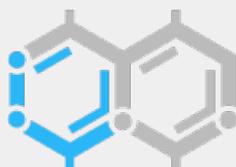
The EOSC will offer Europe's researchers and science and technology professionals a virtual environment to move, share and reuse data seamlessly across European borders.

EOSC supports agencies in their capacity as organisations monitoring, performing and using research, to fully exploit the possibilities around Big Data.

#### Benefits of EOSC

- » Access to efficient storage and computing facilities.
- » Establish cross-disciplinary pilots for innovation, cross-fertilisation and discovery.
- » Improve standardisation and infrastructures for government agencies leading to better services for researchers, policy makers and citizens.
- » Access to a one-stop-shop for researchers to access data from government agencies.

## Research Funding Bodies



### Key stakeholders and catalysts for the development of the EOSC and essential drivers of Open Science.

Policies, grants, calls for proposals and activities from Research Funding Bodies are key enablers for institutions and individuals to use the EOSC.

Many of these funders are part of EU institutions and programmes – e.g. Joint Research Centres. Others are managed by the European Research Council, the European Science Foundation, the European University Institute, the

European Association of National Metrology Institutes (EURAMET), etc.

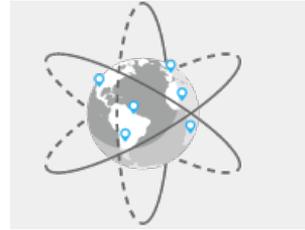
#### Benefits of EOSC

- » Support in strategic direction and funding actions through the EOSC governance framework and policies.
- » Increase impact of funding instruments and policies through wider access, federation and re-use of research data.
- » Align policies to increase excellence and impact of funded research through EOSCpilot.

## Research Infrastructures

### The motor driving EOSC and base on which the future federated EOSC will be built.

Research Infrastructures (RI) provide several types of services to the EOSC and are often already very experienced in providing cloud services and distributed facilities to researchers. The EOSC will increase the capability of RIs to combine and integrate data and resources in a common environment.



#### Benefits of EOSC

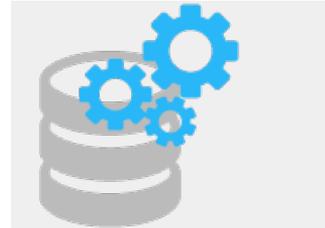
- » Embed the RI in the EOSC and increase the ability to share resources and data, increase flexibility and create economies of scale.
- » Enhance and broaden the RI portfolio of services.
- » Increase usage thanks to technical education and training and new interconnected research opportunities.

## Service Providers

### Service Providers are the heart of EOSC's value proposition

Both academic and commercial Service Providers have the opportunity to make sure their service has a central and prominent role the EOSCpilot, and in the future EOSC.

They are essential in addressing the full-research lifecycle, including data gathering, management and further research in an Open Science context.



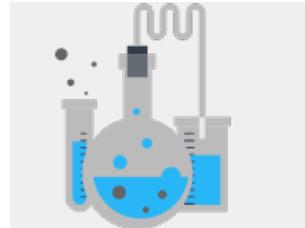
#### Benefits of EOSC

- » Enlarge market, visibility and broaden user base thanks to service interoperability.
- » Increase service value through interconnection of data and services.
- » Improve user experience through a federated offer.

## Learned Societies, Research Communities, Scientific & Professional Associations

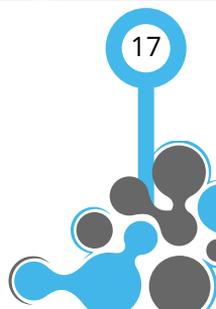
### Key allies to build, use and promote the EOSC.

The EOSC enables these communities to increase scale and efficiency of research. The EOSCpilot catalogue of services will facilitate the mapping of requirements and identification of new services and competencies in open data science and stewardship.



#### Benefits of EOSC

- » Access to catalogue of services and capacity building framework.
- » Increase scale and efficiency of research and capacity building.
- » Shape the EOSC through the EOSC Governance Development Forum.



## Enterprise



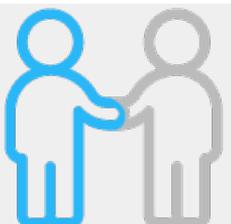
### Opportunities for industrial uptake of results strengthening Europe's global position.

EOSC targets all types of enterprise including Large and Small & Medium sized Enterprises, start-ups & entrepreneurs, from both supply and demand sides and all vertical sectors.

#### **Benefits of EOSC**

- » Access to Open Science data, publications and software.
- » Facilitated knowledge and technical skills transfer.
- » New business opportunities on top of open data and services.
- » Participation in the requirements and specification phases of EOSC.

## The General Public



The democratisation of science and open access to scientific data has a positive indirect effect on society. EOSCpilot is linked to everyday issues impacting citizens, such as new services, new job opportunities and how public investment is used by Government Agencies, at a local and international level.

#### **Benefits of EOSC**

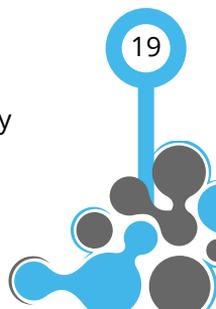
- » Improve research domains such as Medicine, Biology, Environment and Social Science.
- » Create new job opportunities and new skill-set fostering public investments and GDP growth.
- » Improve everyday life thanks to the democratisation of science and open access to scientific data.

# EOSCpilot Consortium

The EOSCpilot project brings together a wide consortium of over 50 partners from across Europe covering a broad range of disciplines and providing a variety of services. The organisations involved from the outset of the project are listed below.

Additional partners are in the process of joining the consortium.

- » Science and Technology Facilities Council (STFC)
- » CSC-Tieteen Tietotekniikan Keskus Oy
- » Max-Planck-Gesellschaft zur Forderung der Wissenschaften EV
- » European Molecular Biology Laboratory (EMBL)
- » SURFsara
- » Stichting EGI
- » Centre National de la Recherche Scientifique (CNRS)
- » Karlsruher Institut fuer Technologie (KIT)
- » The University of Edinburgh
- » Stichting LIBER
- » Trust-IT Services Limited
- » Athena - Research and Innovation Center in Information, Communication and Knowledge Technologies
- » JISC LBG
- » Partnership for Advanced Computing in Europe AISBL
- » Consiglio Nazionale delle Ricerche
- » Istituto Nazionale di Fisica Nucleare (INFN)
- » Stiftung Deutsches Elektronen - Synchrotron DESY
- » Istituto Nazionale di Geofisica e Vulcanologia (INFN)
- » Barcelona Supercomputing Center (BSC)
- » Georg-August-Universitaet Goettingen Stiftung Oeffentlichen Rechts
- » Koninklijke Nederlandse Akademie van Wetenschappen (KNAW) – represented by DANS
- » ICOS ERIC
- » GÉANT Vereniging
- » Istituto Nazionale di Astrofisica (INAF)
- » Biobanks and Biomolecular Research Infrastructure Consortium
- » European Spallation Source ERIC
- » Natural Environment Research Council (NERC)
- » European X-Ray Free-Electron Laser Facility GmbH
- » ECRIN European Clinical Research Infrastructure Network
- » The University of Manchester
- » PIN SOC.CON.S. A R.L. - Servizi Didattici e Scientifici per La Università di Firenze
- » Commissariat à l’Energie Atomique et Aux Energies Alternatives
- » Consorzio Interuniversitario CINECA
- » The Heidelberg Academy of Sciences and Humanities
- » Netherlands Organisation for Scientific Research
- » Zajmove Sdruzeni Pravnickyh Osob
- » Academic Computer Centre CYFRONET
- » Universty of Glasgow
- » Fraunhofer Institute for Surface Engineering and Thin Films IST
- » Grand Equipement National pour le Calcul Intensif
- » Swiss National Supercomputing Centre
- » University of Helsinki
- » Finnish Meteorological Institute
- » GÉANT Limited
- » The Greek Research and Technology Network



- » Consortium GARR
  - » The Poznan Supercomputing and Networking Centre
  - » Réseau National de Télécommunications
  - » European Organization for Nuclear Research - CERN
- pour la Technologie, l'Enseignement et la Recherche

## EOSCpilot Project

The European Open Science Cloud will offer 1.7 million European researchers and 70 million professionals in science and technology a virtual environment with open and seamless services for storage, management, analysis and re-use of research data, across borders and scientific disciplines by federating existing scientific data infrastructures, currently dispersed across disciplines and Member States.

The **EOSCpilot project** has been funded to support the first phase in the development of the European Open Science Cloud (EOSC). It will:

- » Propose and trial governance frameworks for the EOSC and contribute to the development of European open science policy and best practice;
- » Develop a number of demonstrators functioning as high-profile pilots that integrate services and infrastructures to show interoperability and its benefits in a number of scientific domains; and
- » Engage with a broad range of stakeholders, crossing borders and communities, to build the trust and skills required for adoption of an open approach to scientific research.

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