

BY-COVID

**FAIR and open data sharing in support to European preparedness for
COVID-19 and other infectious diseases**

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Funded by the
European Union

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The question is not *if* the next pandemic will happen but *when*

Recent outbreaks:

- 2002-2004 SARS (Severe Acute Respiratory Syndrome)
- 2009 Swine Flu
- 2011 Germany E. coli O104:H4
- 2013-2016 Western African Ebola virus
- 2015-2016 Zika virus


BY-COVID is developing the infrastructure to deal with the next pathogen.

 **Funded under HORIZON-INFRA-2021-EMERGENCY-01:**
FAIR and open data sharing in support to European preparedness for COVID-19 and other infectious diseases

TIME magazine, May 2017





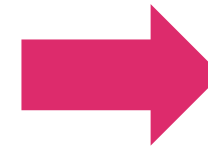
Total budget	€12 million
Organisations	53
Countries	19
Duration	36 months
Coordination	

eosc BY-COVID Key Contributions to EOSC SRIA

Contributing to the 3 strategic objectives

To boost FAIR and open data sharing in support for European preparedness for COVID-19 and other infectious diseases, BY-COVID works to:

- Enable researchers, healthcare professionals and citizens (in terms of consent to share) fighting the spread of infectious diseases **to store, document, share, access, analyse, link and process research and clinical data across disciplines and national borders;**
- **Federate research and clinical data (human and viral) through national and international centres,** so as to enable pan-European and global sharing and hence research advances for better preparedness;
- **Develop the necessary digital tools and data analytics,** including for the identification and tracking of variants of concern, in support of public health action;
- **To improve linkages of FAIR data (and associated metadata) on pathogens, on their diseases and on their socio-economic consequences, considering a range of research fields,** such as omics, clinical, and epidemiological research, social sciences and humanities, so as to take a holistic approach to preparedness and response.



Open Science practices and skills are rewarded and taught, becoming the 'new normal'

Standards, tools and services allow researchers to find, access, reuse and combine results

Sustainable and federated infrastructures enable open sharing of scientific results

eosc COVID-19 Data Platform

Obj 3: Establish a sustainable and federated infrastructure enabling open sharing of scientific results



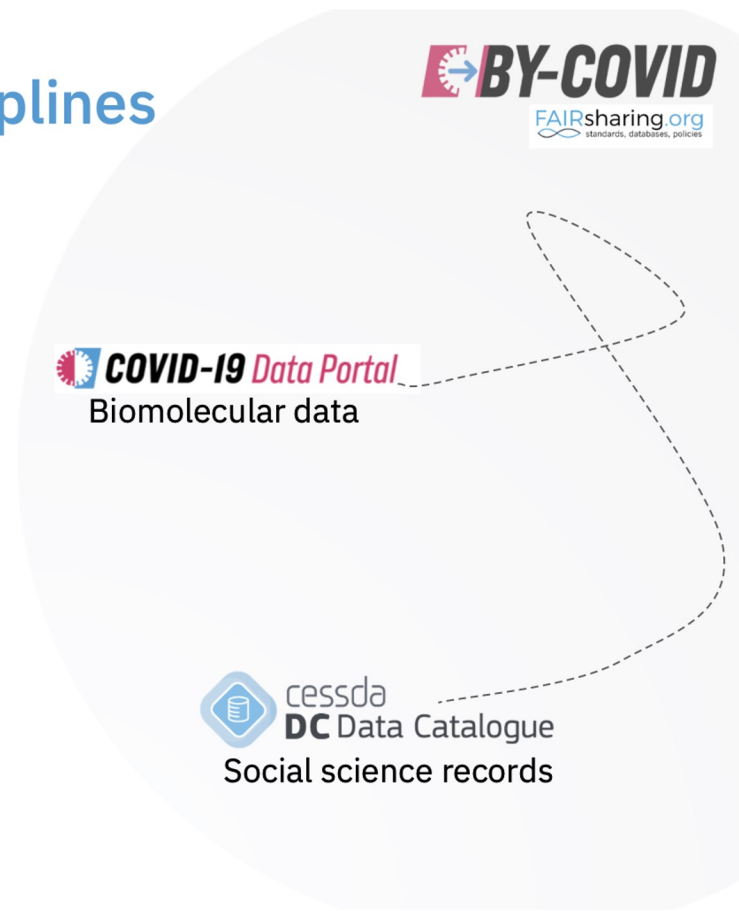
Obj. 2: Enable the definition of standards, and the development of tools and services, to allow researchers to find, access, reuse and combine results.

Linking [Meta]Data across disciplines

Describing data connections via a flexible indexing system:

- **Tier 1:** Comprehensive and harmonised metadata allow relevant records to be found across multiple resources
- **Tier 2:** Discovery of individual record level data in a resource
- **Tier 3:** Finding of data resources (e.g., database)

<https://by-covid.org/news-events/by-covid-data-indexing-system/>



Tackling the inability to integrate and link diverse data preventing researchers from asking big scientific questions that span across disciplines



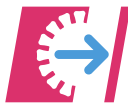
The **indexing system** has been developed as part of the project, allowing over **400 social science records to be accessible through the European COVID-19 Data Platform**


eosc BY-COVID Technologies & Standards

Obj. 2: Enable the definition of standards, and the development of tools and services, to allow researchers to find, access, reuse and combine results.



Tools developed in the EOSC-Life project and EuroScienceGateway, already adopted in the EOSC framework are taken forward in BY-COVID to be embedded in the European infectious disease preparedness, as well as **EOSC4Cancer**.

 **FAIRsharing.org** allows the rapid construction of catalogues that capture data resources, standards and guidelines for a field while maintaining links across the domain oriented catalogues.

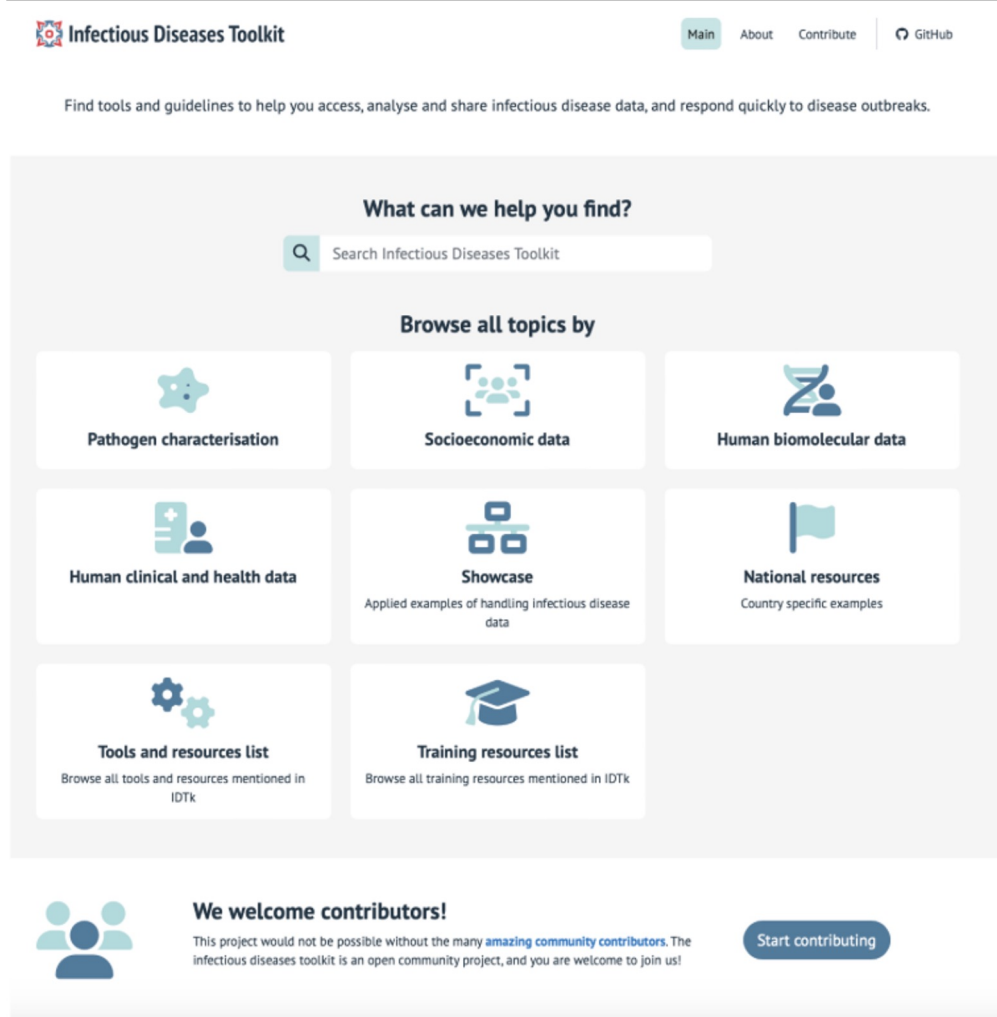
 **RO-Crate and the WorkFlowHub.eu** are essential to capture open, reproducible analysis workflows and make these portable and reusable across countries, institutes and compute centres.

 Already **42 COVID-19 Workflows** in the WorkFlowHub



eosc Infectious Disease Toolkit

Obj 2: Enable the definition of standards, and the development of tools and services, to allow researchers to find, access, reuse and combine results.



Find tools and guidelines to help you access, analyse and share infectious disease data, and respond quickly to disease outbreaks.



Community built





Across disciplines & countries


eosc Citizen Engagement


Obj 1: Ensure that Open Science practices and skills are rewarded and taught, becoming the 'new normal'



 Public engagement with focus on patient and citizen empowerment.

 [8 stories in EN & FR](#)

 upcoming booklet for high-school teachers

 Contributing to “improved trust, quality and productivity in science” (EOSC SRIA benefit Obj.1)

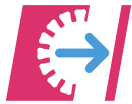
eosc Key impacts and deliverables

BY-COVID Impact

Key Impacts & Deliverables



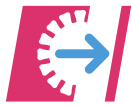
BY COVID was mentioned in 14 European and international policy documents, from bodies such as the European Commission, Swedish Presidency of the Council of the European Union, UKRI, WHO, Wellcome Trust and BEIS for the G7 Open Science Working Group.



BY-COVID Policy Brief on **Open data to support European pandemic preparedness** (DOI: 10.5281/zenodo.7950479)



HORIZON-HLTH-2023-DISEASE-03-07 encourages applicants to establish contact with the **COVID-19 Data Platform** in order to ensure that data is made available for others to use.

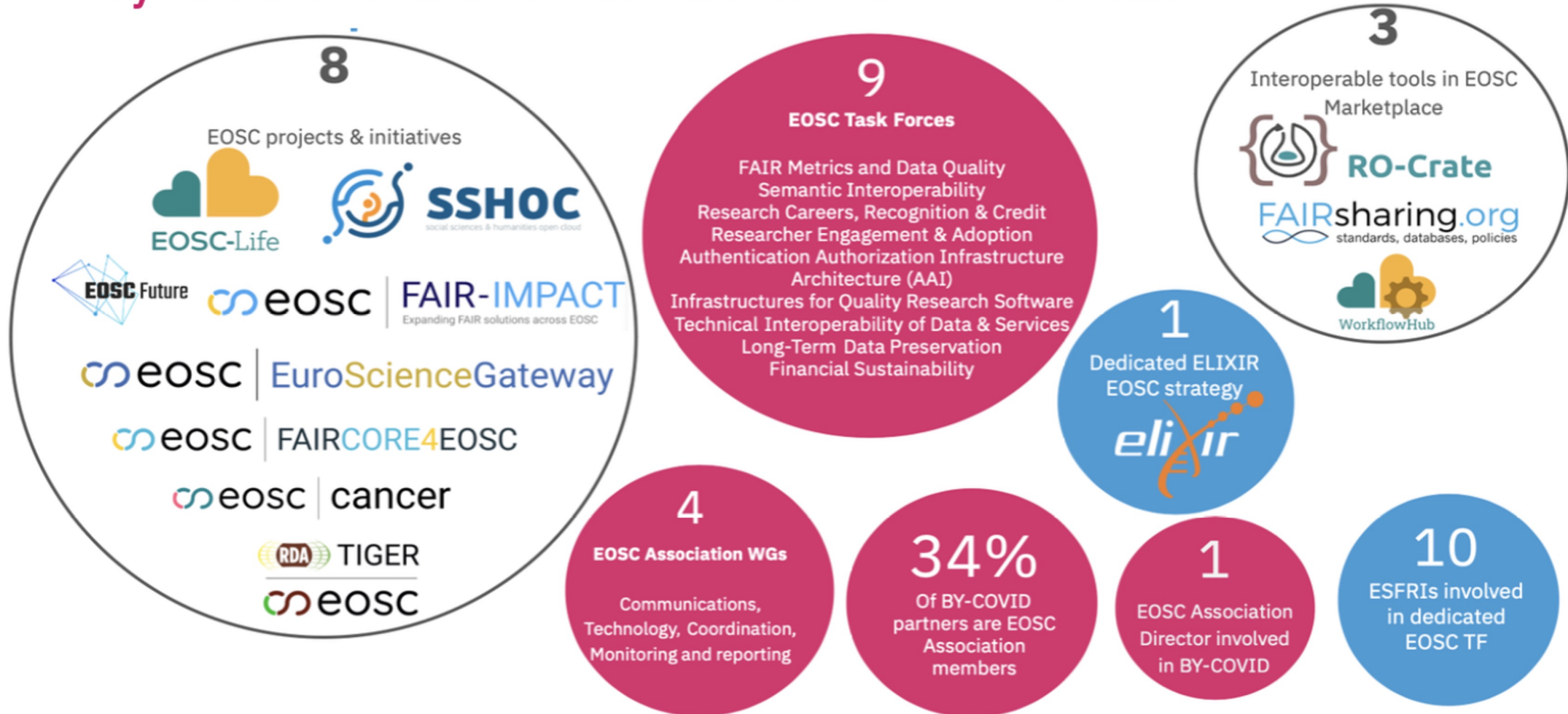


Plans to integrate FAIR data: Lessons from the ISIDORe and BY-COVID consortia for pandemic preparedness. Data Science Journal. 2023 Jan 9; doi: 10.5281/zenodo.7520086

Monitoring: BY-COVID is actively monitoring its expected impacts and at M18 it is well underway to achieve all 17 KPIs.

eosc Dependencies and Collaborations

By-COVID Partners contribute to EOSC via..



BY-COVID



BY-COVID has developed a methodology for **mobilising distributed data from many different disciplines and index this for interdisciplinary research**. How we can build on this template and link in further disciplines (e.g. environmental sciences and biodiversity).



The COVID-19 pandemic has shown the importance of Open Science - from understanding the genetic basis of the virus and monitoring new mutations to tracking the spread of the disease across populations, open data has played a critical role in enabling new scientific knowledge and facilitating public health interventions.



Engagement with the EOSC Partnership and the European Health Data Space (EHDS), via its dedicated task BY-COVID has worked to create and strengthen communication channels so that RIs can convey EOSC-related input to the EOSC Partnership & align with already established standards.



BY-COVID actively contributes to **Health Emergency preparedness and Response Authority (HERA)**, via improved data collection and sharing on COVID-19 through the COVID-19 Data Platform.



BY-COVID joined forces with the ISIDORE project, via their shared RIs the two projects make the dataflows from ISIDORE pilot projects into COVID-19 DataPortal a reality. **This framework example accelerating RI services for rapid research responses infectious disease epidemics, can be applied to other domains & RIs.**



Join the BY-COVID Community!

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