

EOSC contribution to EU Missions & Partnerships

**Blue-Cloud, BY-COVID, EOSC4Cancer &
FNS-Cloud**

20 September 2023

Madrid, Spain

#EOSCSymposium2023

 eosc

 EOSC Future

 EU23
SPANISH PRESIDENCY
COUNCIL OF THE EUROPEAN UNION



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EOSC contribution to EU Missions & Partnerships - Agenda

- **The EU mission objectives and Open Science expectations** - Kostas Repanas (DG RTD Open Science Unit)
- **The EU mission objectives and Open Science expectations** - Marialuisa Lavitrano (EOSC Association)
- **What can EOSC offer to the EU Missions?**
 - **Blue-Cloud 2026** - Patricia Cabrera (VLIZ)
 - **BY-COVID & the COVID-19 Data Portal** - Nadim Rahman (EMBL-EBI)
 - **EOSC4Cancer** - Salvador Capella-Gutierrez (BSC)
 - **FNS-Cloud** - Karl Presser (Premotec)
- **Uptake of EOSC in contribution to EU Missions and partnerships** - EOSC initiatives & you! moderated by Sara Pittonet (Trust-IT & Blue-Cloud2026)
- **Wrap-up** - Sara Pittonet (Trust-IT, Blue-Cloud2026) & Marieke Willems (ELIXIR, BY-COVID)



The EU mission objectives & Open Science expectations



<https://youtu.be/j1slj56cE5c?feature=shared>

The EU mission objectives and Open Science expectations

Marialuisa Lavitrano, VicePresident, EOSC
Association



eosc Open Science, EOSC and EU Missions

Introduction



- The European Union has long been committed to promoting **Open Science** as a fundamental principle in its research and innovation activities. Open Science is a concept that aims to make scientific research and its outcomes more accessible, transparent, and collaborative.
- The **European Open Science Cloud (EOSC)** aims at providing European researchers, innovators, companies and citizens with a federated and open multi-disciplinary environment where they can publish, find and re-use data, tools and services, for research, innovation and educational purposes.
- **EU missions** are large-scale, cross-disciplinary initiatives designed to address some of the most pressing societal challenges, such as climate change, health, and digital transformation, to provide solutions and to deliver concrete results by 2030.

EOSC plays a crucial role in realizing the ambition of the EU missions by facilitating and supporting open science practices and research collaboration across Europe

Ambitious goals



Cancer Mission: Reduce the cancer burden in the European population by at least 30% by 2030, focusing on prevention, early diagnosis, treatment, and improving the quality of life for cancer patients.

Climate-Neutral and Smart Cities Mission: Accelerate the transformation of cities into climate-neutral, smart, and sustainable urban areas by 2030.

Healthy Oceans, Seas, Coastal and Inland Waters Mission: Restore and protect the health of European marine and freshwater ecosystems and promote sustainable management of oceans and waters.

Soil Health and Food Mission: Make soil health a central element of sustainable agriculture and food systems in Europe.

Adaptation to Climate Change, Including Societal Transformation Mission: Accelerate the development and implementation of adaptation strategies and measures to protect European regions and communities from the impacts of climate change.



eosc Open Science, EOSC and EU Missions

Expectations

In all the Missions, Open Science expectations include transparent sharing of data, research findings, methodologies, and fostering collaboration among researchers, institutions, and the public.

Open Science principles can accelerate progress toward achieving the mission objectives by promoting accessibility, transparency, and collaboration in research and innovation efforts.



eosc Open Science, EOOSC and EU Missions

Expectations

The EU Missions and Open Science expectations share **common principles of openness, collaboration, transparency, and engagement.**

The 5 Missions aim to address significant societal challenges while aligning with Open Science practices to ensure that **research and innovation outcomes are accessible, inclusive, and beneficial for society** as a whole.



eosc EU Missions and EOSC Interplay

Expectations

- **Alignment with Societal Challenges:** The 5 EU Missions focus on tackling major societal issues such as climate change, cancer, oceans, cities, and soil health. These missions are directly aligned with the broader goals of sustainability, health, and well-being.

Integrating them into EOSC research activities ensures that the resources and expertise of EOSC contribute to these critical objectives.

- **Collaborative Research:** The EU Missions encourage collaboration across different countries, sectors, including academia, industry, and civil society. **EOSC** aims to break down geographical and institutional barriers, enabling researchers to collaborate across borders **facilitating the cooperation needed to address complex mission objectives effectively.**

Open Science Principles: **EU missions prioritize data sharing practices.** Researchers are encouraged to make their data available in standardized and interoperable formats, enabling reuse and replication of experiments **in line with open science principles and EOSC**, including open access to publications and data. By ensuring that research outputs are openly available, both contributes to transparency, reproducibility, and the widespread dissemination of knowledge, which are essential for EU missions



eosc EU Missions and EOSC Interplay

Socio-economic Impact

The EU Missions will deliver impact by putting research and innovation into a new role, combined with new forms of governance and collaboration, as well as by engaging citizens to boost societal uptake of new solutions and approaches.

- **Public Engagement:** The EU Missions aim to engage and involve the public in addressing societal challenges. EOSC can support outreach and engagement efforts by providing a platform for disseminating mission-related information, educational materials, and interactive tools to involve citizens in mission activities.

Innovation and Technology Transfer: EOSC supports innovation and technology transfer by providing a platform for researchers, industry partners, and startups to collaborate and develop new technologies and solutions to address the challenges posed by EU missions. These innovations can be applied non only to mission-specific challenges but also to broader societal and economic benefits.

- **Capacity Building:** EOSC offers training and capacity-building programs to help researchers and institutions make the most of the available resources and tools. This helps ensure that researchers are well-equipped to contribute effectively to EU missions.



eosc EU Missions and EOSC Interplay

Technical aspects

Data Management and FAIR Principles: EOSC helps researchers manage and make their data Findable, Accessible, Interoperable, and Reusable (FAIR). This ensures that data generated as part of EU missions can be easily discovered and reused by other researchers, maximizing the impact of the missions.

Data Sharing and Integration: EOSC provides a platform for researchers to share and integrate data from various sources and disciplines. This is essential for the success of EU missions, as they often require access to diverse data sets to develop effective solutions.

Interdisciplinary Collaboration: EU missions typically involve collaboration across different scientific domains and sectors. EOSC fosters interdisciplinary collaboration by providing a common framework for researchers from various fields to work together and share knowledge and resources.

Access to Research Infrastructure: EU missions often require access to advanced research infrastructure, such as high-performance computing facilities, data repositories, and laboratories. EOSC can help coordinate access to these resources, ensuring that researchers have the tools they need to carry out their work.

EU Missions and EOSC Interplay

Policy and Governance aspects



Data-driven Decision-Making: Achieving the objectives of the EU Missions often requires data-driven decision-making. **EOSC** can provide the necessary infrastructures and services for researchers to analyze and interpret data effectively, **enabling evidence-based policy recommendations and actions.**



Policy Alignment and Governance: The European Commission strongly supports both EOSC and the EU Missions. **Integrating the Missions into EOSC demonstrates a commitment to aligning research efforts with EU priorities**, which can lead to increased funding and support for research activities. Integrating the EU Missions into EOSC **can help establish a unified policy and governance framework that ensures data sharing and access to resources are in line with the missions' objectives.** This can help overcome barriers related to data ownership, privacy, and access rights.



Policy and Governance: EOSC establishes policies and governance structures that promote responsible data sharing and research practices. This is **important for maintaining ethical standards and data security in the context of EU missions.**

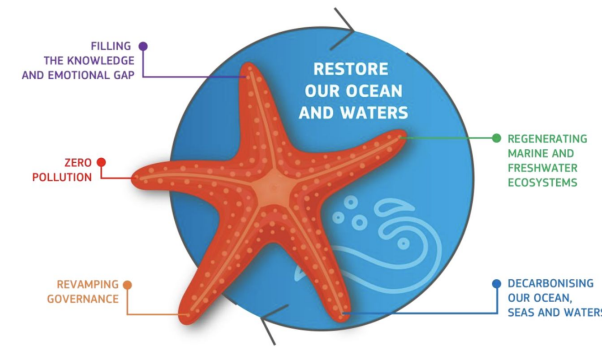




Thank you!



EOSC and EU Missions in practices



HE INFRA projects aligned with **EU Mission “Restore our Ocean and Waters”**



EOSC | AquaINFRA projects have been funded

through the EOSC initiative with 16MEU.

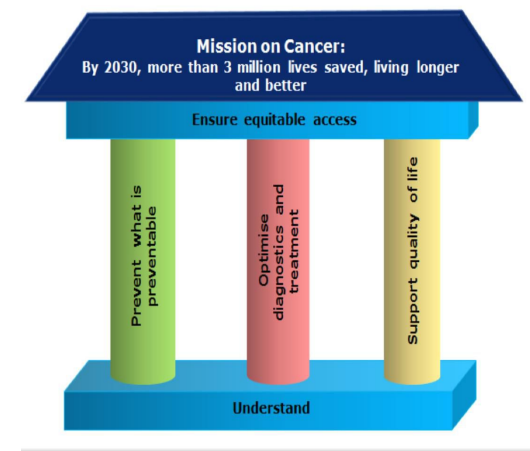
Both projects will demonstrate the interplay between the EOSC data space and the Green Deal data space and act as EOSC blueprints for ‘blue research’.


They will involve several research communities and data infrastructures in **multi-disciplinary use cases demonstrating the value of the EOSC** and contributing to the science base **enabling the Mission’s ‘Digital Ocean and Waters Knowledge System’, and it’s ‘Digital Twin’ of the Ocean** in particular.

Both projects have different, but complementary, foci that will **support the uptake and continued development of the EOSC as a federated European infrastructure.**

EOSC and EU Missions in practices

HE INFRA projects aligned with EU Mission “Cancer”



 **cancer** project has been founded through the EOSC initiative and

brings together 29 organisations from 13 countries: cancer centers, computational infrastructures, research infrastructures, research performing organizations

EOSC4Cancer contributes infrastructures and well-curated data sets for the EU Mission on Cancer.

EOSC4Cancer contributes to EOSC by bringing diverse kind of cancer-related data onto a platform that is free and accessible for the purposes of research and innovation and by developing services and tools for cancer research .

Thank you!





What can EOSC offer to the EU Missions?

By
Blue-Cloud, BY-COVID, EOSC4Cancer
& FNS-Cloud

Madrid, Spain

#EOSCSymposium2023

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 EOSC Future

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What can Blue-Cloud 2026 offer to the EU Mission?

Patricia Martin Cabrera, VLIZ





**EUROPEAN OPEN
SCIENCE CLOUD**

Blue-Cloud2026

A federated European FAIR and Open Research Ecosystem
for oceans, seas, coastal and inland waters

The EOSC enables a step change across scientific communities and research infrastructures towards:

- Seamless access
- FAIR (Findability, Accessibility, Interoperability and Reusability) management
- Reliable reuse of research data produced along the research life cycle (e.g. methods, software and publications)
- A federated European FAIR and Open Research Ecosystem for oceans, seas, coastal and inland waters that:
 - Develops a thematic marine extension to EOSC for open web-based science, serving the needs of the EU Blue Economy and the Marine Knowledge agendas
 - Providing federated access to leading European Marine Data Infrastructures and a Virtual Research Environment with data, models and reusable methodologies that tackle multidisciplinary marine environments

All in all, Blue-Cloud 2026 will expand the federated approach of the previous Blue-Cloud, involving more aquatic data stakeholders, and interacting with EOSC developments, in support of the EU Green Deal, UN SDG, EU Destination Earth, and the EU Mission Starfish on healthy oceans, seas, coastal and inland waters, ultimately to provide a core data service for the Digital Twin of the Ocean



 EUROPEAN UNION



EU MISSIONS

RESTORE OUR OCEAN AND WATERS

29 September 2021

ACTIONS

-  The Horizon Europe programme, the European Maritime Fisheries and Aquaculture Fund, Invest EU and other EU programmes will provide around **€500 million** in seed funding during the period 2021-23;
-  Create a **network of lighthouses at sea and river basin scale** to implement the mission and expand the networks of marine protected areas;
-  Establish an **EU-wide 'Blue Parks' initiative** to provide new restoration and conservation opportunities;
-  Support **effective water management** through a digital knowledge system with a Digital Twin Ocean and improved environmental monitoring of ocean health.



Blue Data Infrastructures

EcoTaxa 2.5

EMODnet

urOBIS
European Ocean Biodiversity Information System

ENA
European Nucleotide Archive

elixir

MGnify

emso ERIC
EUROPEAN RESEARCH INFRASTRUCTURE CONSORTIUM

SeaDataNet

WEkEO

Copernicus Marine Service

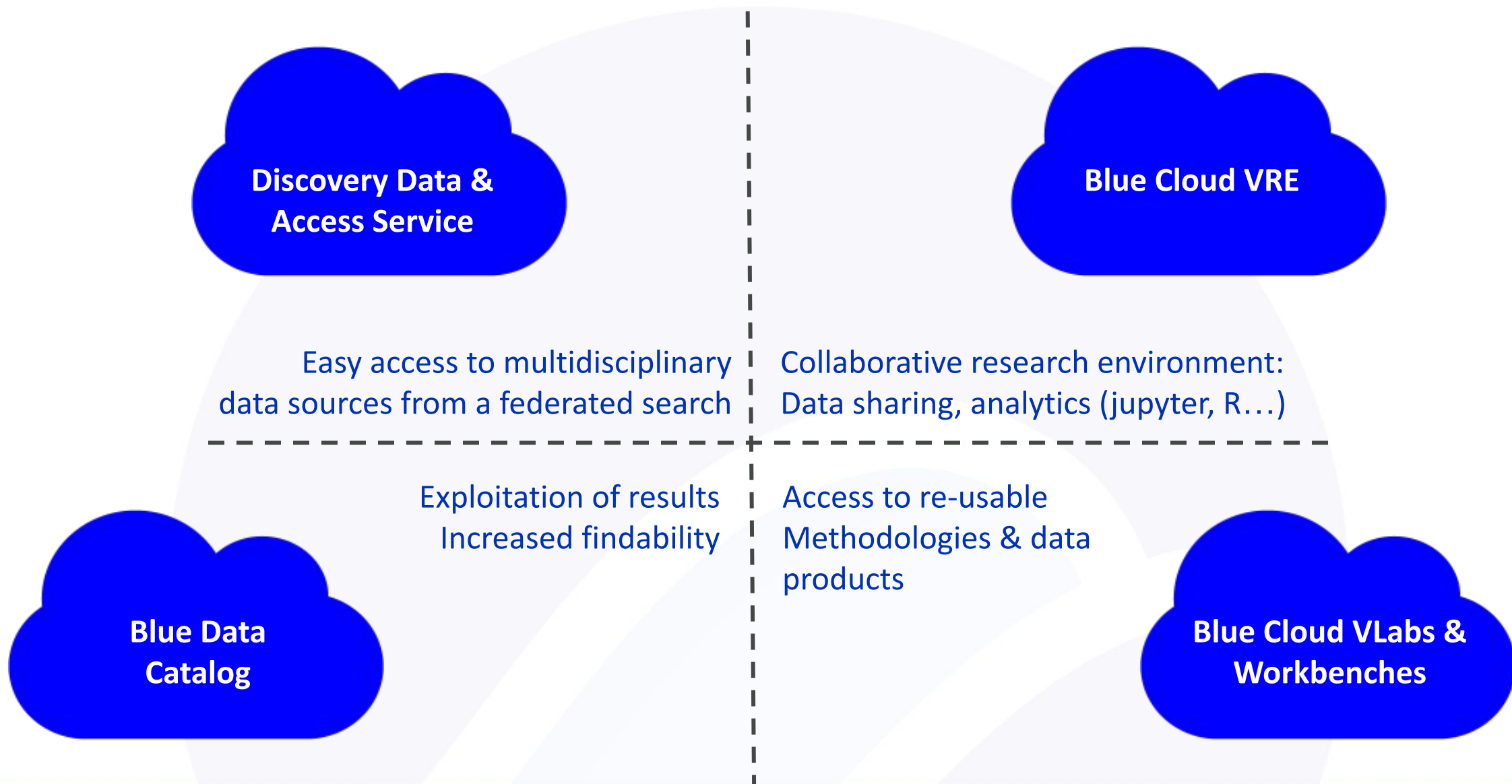
EuroArgo

SOCAT
- SURFACE OCEAN CO₂ ATLAS -

ICOS
Integrated Carbon Observation System

SIOS
SVALBARD INTEGRATED ARCTIC EARTH OBSERVING SYSTEM

JERICO RESEARCH INFRASTRUCTURE



Facilitates users:

- Federated search for discovering interesting data sets (currently more than 10 million) in a two step approach
- Federated retrieval of identified data sets using a shopping basket mechanism
- Download of data sets or push to Blue-Cloud VRE

Facilitates managers of Blue Data Infrastructures:

- Wider outreach to potential users
- Stay informed about data requests & users for their repository
- Periodic reporting of downloads from their repository

Blue-Cloud
Pioneering Innovative services for Marine Research & the Blue Economy

DATA DISCOVERY & ACCESS SERVICE

WELCOME PATRICIA MARTIN CABRERA

Filter search

Free search

Date search
From
To

Geographic search

Blue Data infrastructures	Level 2 Search	Level 1 Results (20488)	Level 1 Total
EcoTaxa	<input type="button" value="Level 2 Search"/>	10	10
ELIXIR-ENA	<input type="button" value="Level 2 Search"/>	32	32
EMODnet Chemistry	<input type="button" value="Level 2 Search"/>	0	0
EuroArgo - Argo	<input type="button" value="Level 2 Search"/>	11434	11434
EurOBIS - EMODnet Biology	<input type="button" value="Level 2 Search"/>	1302	1302
ICOS data portal	<input type="button" value="Level 2 Search"/>	268	268
SeaDataNet	<input type="button" value="Level 2 Search"/>	922	922
SeaDataNet-products	<input type="button" value="Level 2 Search"/>	49	49
Socat	<input type="button" value="Level 2 Search"/>	6471	6471

Blue Cloud Community

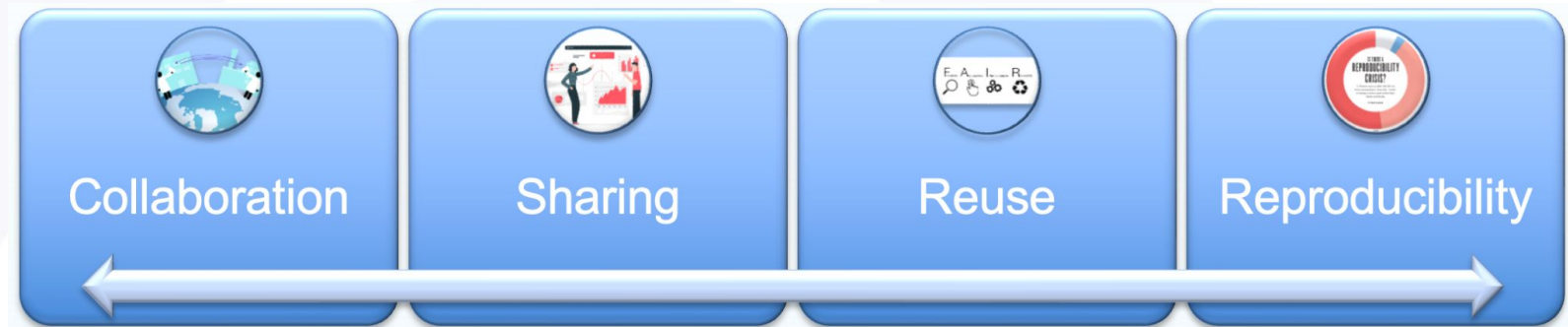
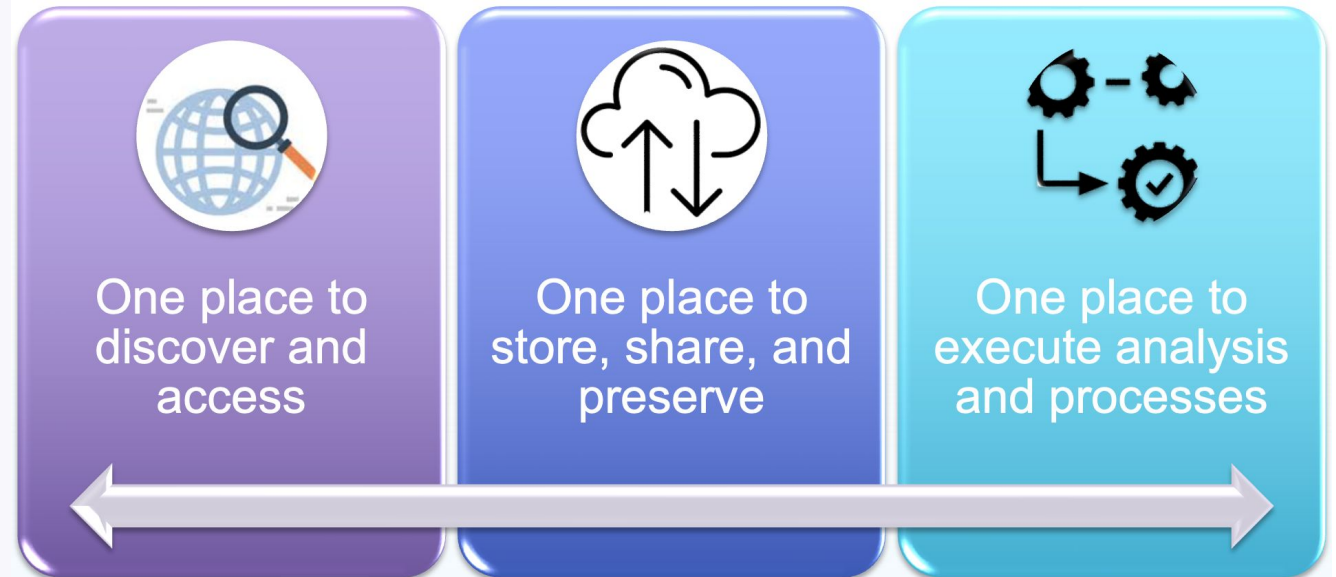
- Workbenches & V Labs
- Other projects
- Hackathons & Workshop

Blue Cloud Core

- Discovery & Access
- Storage
- Analytics
- Communication & Collaboration
- Catalogue

EOSC Core

- Identity Federation
- Monitoring + Alerting
- Marketplace



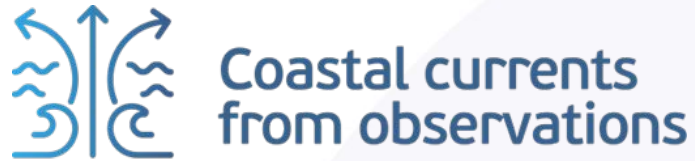
- The objective is to obtain **highly qualified datasets** for some chosen Essential Ocean Variables (EOVs) combining different and various sources as inputs.
- **Workbenches** or pipelines will be built to obtain the highly qualified datasets that can use other data sources or be adjusted depending on expert needs
- The challenge is to deal with large in situ datasets, i.e. to both access the relevant data and make developments on it. Blue Cloud 2026 will allow this thanks to the high level performance D4Science VRE based on cloud computing associated with big data technology, a large datasets repository (Data lake) and an expert data management.



physical workbench for temperature, salinity

chemical workbench, linked to eutrophication: nutrients, chlorophyll, oxygen

ecosystem workbench for plankton biomass and diversity



Virtual Laboratories

Data sharing

- Workspace
- Dataspace
- Repositories

Data analytics

- High Throughput Computing
- Notebook
- RStudio

Social networking

- Messages
- Posts and replies
- User profiling

Research Object Publishing

- Catalogue
- Thredds
- GeoNetwork



Upcoming Training events

• OPEN SCIENCE • FAIR •

WORKSHOP >>> 27 SEPTEMBER 2023

Navigating Data Lakes for Earth and Marine Science: Fair Data Management and Service Interoperability in Practice

11:30-13:30 CEST - SALA CIUDAD ÚBEDA

eosc | Blue-Cloud2026 eosc | FAIR-EASE

Blue-Cloud Event MADRID, SPAIN FEDYT Open4GIS U23 #OSFAIR2023

25 September 2023 09:00 – 27 September 2023 13:30

Blue-Cloud at the Open Science FAIR 2023

Blue-Cloud Training Academy

Webinar 26 Sep 2023 | 16:00 CEST

FAIR Data Principles 1
Foundational components, best practices and standards

Register now

Blue-Cloud Event OTG@ eosc Blue-Cloud2026

26 September 2023 16:00–17:00

FAIR Data Principles 1: Foundational components, best practices and standards

Useful materials for sharing & distribution

About Blue-Cloud 2026

- [Poster](#)
- [Rollup](#)
- [Blue-Cloud Virtual Labs in support of Sustainable Development Goals](#)
- [Flyer](#)

For dissemination & social media share

- [Twitter channel](#)
- [LinkedIn page](#)
- [Youtube account](#)
- [ZENODO account](#)

Blue-Cloud Services

- [In EOSC Marketplace](#)
- [Virtual Research Environment](#)
- [Data Discovery Access](#)
- [Data Catalogue](#)
- [Training Academy](#)

Blue-Cloud Readings

- [Strategic Roadmap](#)
- [Position Paper on EOSC](#)
- [Interfacing Blue Cloud Data Discovery and Access with EOSC](#)
- [Generic publications](#)
- [Newsletters](#)

Blue-Cloud Virtual Labs

- [Plankton Genomics](#)
- [Marine Environmental Indicators](#)
- [Zoo and Phytoplankton EOVI products](#)
- [Fish, a matter of scales](#)
- [Aquaculture](#)
- [Carbon-Plankton Dynamics](#)
- [Global Fisheries Atlas](#)
- [Coastal currents from observations](#)
- [Integration of coastal ocean observations along Europe](#)

eosc | Blue-Cloud2026



blue-cloud.org



[@bluecloudeu](https://twitter.com/bluecloudeu)



[blue-cloud org](https://www.linkedin.com/company/blue-cloud-org)



Funded by
the European Union

The European COVID-19 Data Platform

Nadim Rahman
European Nucleotide Archive (ENA), EMBL-EBI

rahman@ebi.ac.uk



Funded by the
European Union

BY-COVID is funded by the European Union's Horizon Europe research and innovation programme under grant agreement number 101046203.




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



BY-COVID in a nutshell



eosc European COVID-19 Data Platform

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



Background

- Sit on top of existing infrastructure at EMBL-EBI
- Includes 3 main components:

COVID-19 Data Portal

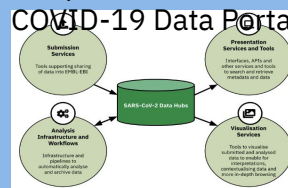
Interface for COVID-19 life sciences data

Publication DOI:
10.1093/nar/gkab417



SARS-CoV-2 Data Hubs

Tools to support submission, analysis, visualisation and presentation of COVID-19 sequence data in the COVID-19 Data Portal*



Federated European Genome-phenome Archive (FEGA)

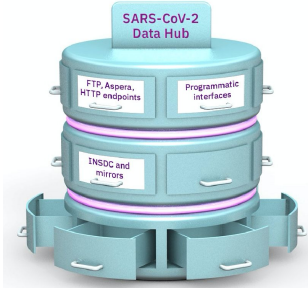
Controlled-access sharing of human COVID-19 biomolecular and phenotypic data, to present in the COVID-19 Data Portal



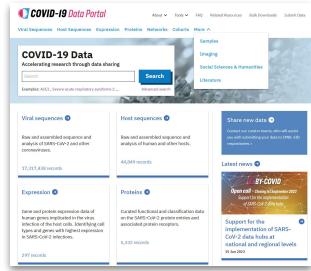
* Preprint: <https://www.biorxiv.org/content/10.1101/2023.04.19.537514v2>

European COVID-19 Data Platform

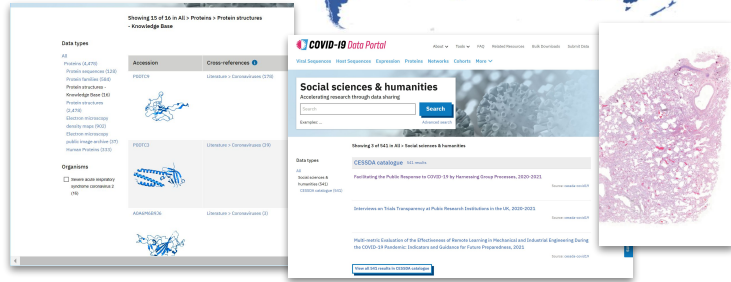
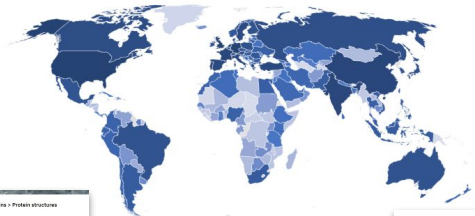
Data Hubs



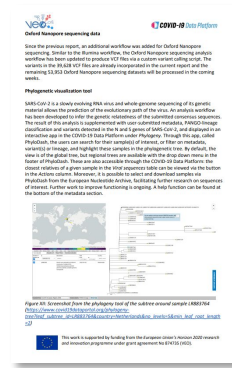
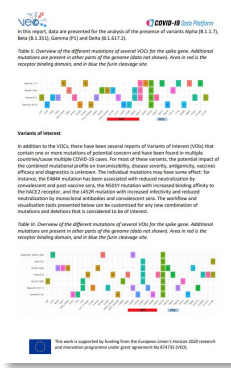
Access



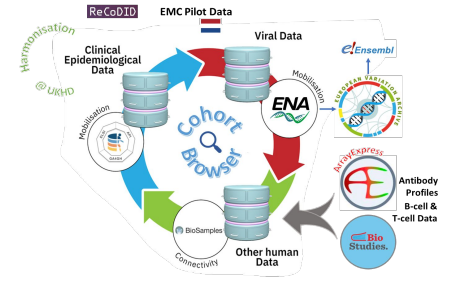
- 25M records across molecular, literature, imaging and social science, backed up by a network of 11 national Data Portals



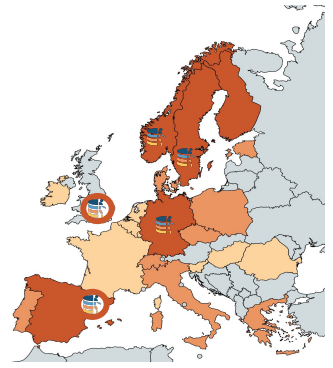
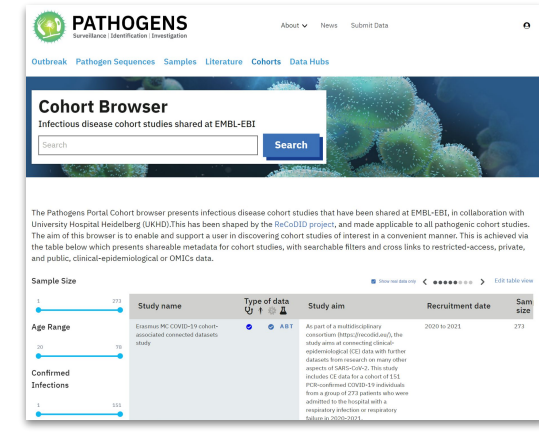
- Mobilisation (>6M) and systematic analysis (>4M) data sets from SARS-CoV-2 isolates from 121 countries
- 15 VEO public health reports



Human data



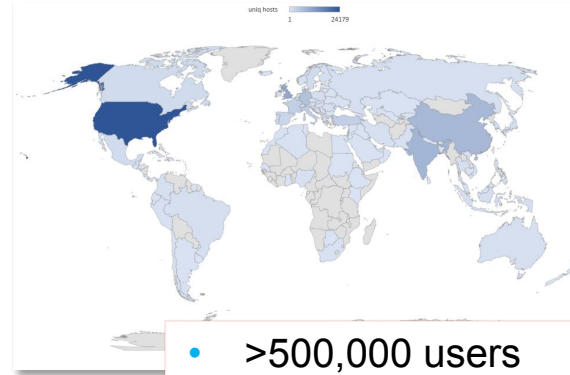
- Demonstrated protocols to link between sensitive research subject and pathogen data, leveraging (federated) European infrastructure



Usage

Open Targets

Open Targets



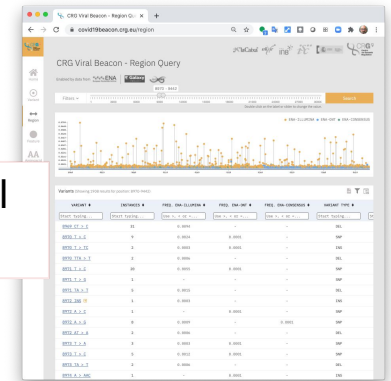
- >500,000 users
- 8.8 million requests

Cloud workflows

ENA upload container

Galaxy PROJECT

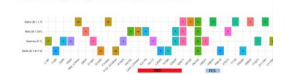
CRG Viral Beacon



VEO Public Health reporting

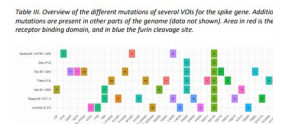
VEO COVID-19 Data Platform

In this report, data are presented for the analysis of the presence of variants Alpha (B.1.1.7), Beta (B.1.351), Gamma (P.1) and Delta (B.1.617.2).



VEO Defect Resequencing data

Since the previous report, an additional workflow for resequencing, similar to the Illumina workflow, the Defect workflow has been updated to produce VCF files for variants in the 39,628 VCF files are already incorporated remaining 53,953 Oxford Nanopore sequencing data reads.

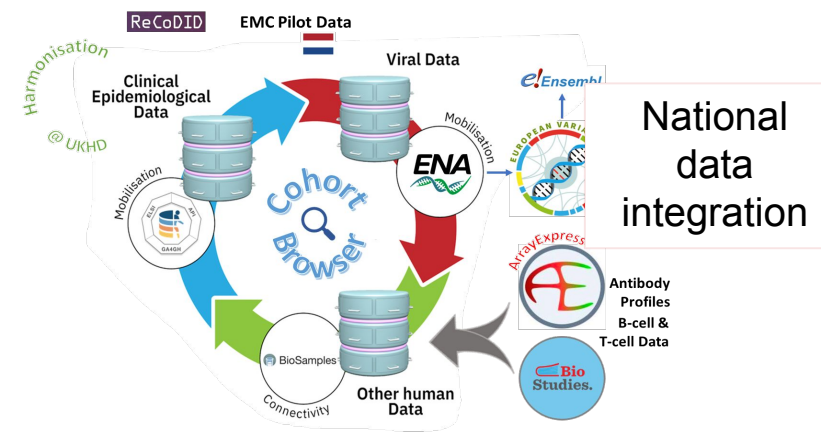
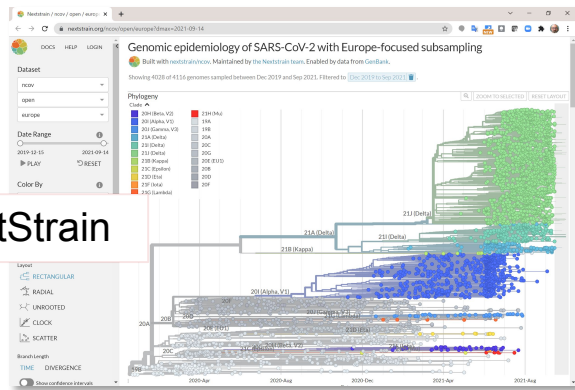


Phylogenetic visualization tool

SARS-CoV-2 is a slowly evolving RNA virus and whole genome sequencing of its genetic material allows the prediction of the evolutionary path of the virus. An analysis workflow has been developed to infer the genetic relationships of the submitted consensus sequences. The result of this analysis is supplemented with user-submitted metadata, PANGO lineage classification and variants detected in the S and E genes of SARS-CoV-2, and displayed in an interactive app in the COVID-19 Data Platform on PhyloPdash. Through this app, called PhyloPdash, the users can search for their sample(s) of interest, or filter on metadata, variants or lineage, and highlight these samples in the phylogenetic tree. By default, the view of the global tree, but regional trees are available with the drop-down menu in the footer of PhyloPdash. These are also accessible through the COVID-19 Data Platform on the closest relatives of a given sample in the VCF of sequences table can be viewed via the button in the Access column. Moreover, it is possible to select and download samples via PhyloPdash from the European Nucleotide Archive, facilitating further research on sequences of interest. Further work to improve functioning is ongoing. A help function can be found at the bottom of the metadata section.

Figure 10: Screenshot from the phylogeny tool of the subtree around sample JAB82764 (https://www.covid19reporter.org/phylogeny/index.html?subtree=JAB82764&country=net&hierarchy=&show=5&min_inf=net_inf_0&net_inf=0)

NextStrain



National data integration



Sustainability by design


- Molecular biology components built on existing ELIXIR data resources
 - Resources with institutional commitment and history of sustained activity
 - Typically globally connected through data exchange collaborations
 - Long-term sustainability: Global Biodata Coalition
- Open standards and software
- High level of distribution of expertise and effort



Infrastructure already shared across projects

Common indexing framework



 **COVID-19 Data Portal**



- Common indexing framework, supporting
 - Metadata indexing with three tiers of granularity
 - Domain-level classification system to define data "partitions", e.g. "blue domain"
 - Coverage spans ELIXIR Deposition and Core Data Resources and broadly connected via FAIRSharing
 - Coverage goes beyond ELIXIR including for image and social science data with further data resources being added
- Continued development work under both BY-COVID and Blue-Cloud26
- Supports metadata feeds to future initiatives in both domains

 **BY-COVID**

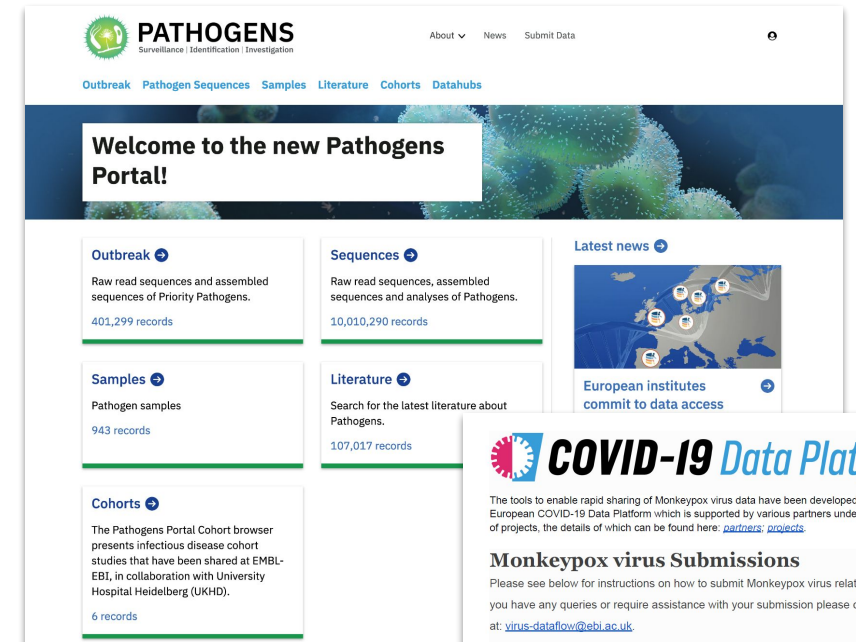
 **Blue-Cloud2026**



A broader Pathogens Platform

- Scope
 - All pathogen, all disease approach
 - Hosts, vectors and pathogens
 - Antimicrobial resistance
- Preparedness and Outbreaks
 - Pathogens Portal
 - Pathogen Data Hubs - responding to outbreaks as they arise
- Applicability
 - Climate change → disease outbreaks
 - Cancer associated viral/bacterial infection
- Future roles
 - Food security, e.g. plant pathogens
 - Biodiversity loss

<https://www.pathogensportal.org/>

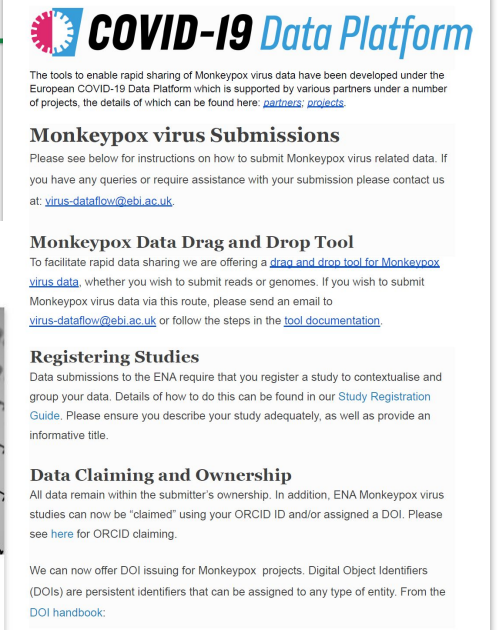


Latest news →



Monkeypox viral data submissions →

24 May 2022



COVID-19 Data Platform

The tools to enable rapid sharing of Monkeypox virus data have been developed under the European COVID-19 Data Platform which is supported by various partners under a number of projects, the details of which can be found here: [partners/projects](#).

Monkeypox virus Submissions

Please see below for instructions on how to submit Monkeypox virus related data. If you have any queries or require assistance with your submission please contact us at: virus-dataflow@ebi.ac.uk.

Monkeypox Data Drag and Drop Tool

To facilitate rapid data sharing we are offering a [drag and drop tool for Monkeypox virus data](#), whether you wish to submit reads or genomes. If you wish to submit Monkeypox virus data via this route, please send an email to virus-dataflow@ebi.ac.uk or follow the steps in the [tool documentation](#).

Registering Studies

Data submissions to the ENA require that you register a study to contextualise and group your data. Details of how to do this can be found in our [Study Registration Guide](#). Please ensure you describe your study adequately, as well as provide an informative title.

Data Claiming and Ownership

All data remain within the submitter's ownership. In addition, ENA Monkeypox virus studies can now be "claimed" using your ORCID ID and/or assigned a DOI. Please see [here](#) for ORCID claiming.

We can now offer DOI issuing for Monkeypox projects. Digital Object Identifiers (DOIs) are persistent identifiers that can be assigned to any type of entity. From the DOI handbook:

EarlyCause - early life stress

- Data portal, search functionalities
- Biodata to support investigations into lifelong effects of early-life stress
- <https://portal.earlycause.eu/>
- Data on organism level or data type (Mouse, Rat, Human, Cell Lines, Literature, Cohorts)
- Reusable infrastructure and framework to bring forward biodata (e.g. soil biodata)

The image shows two overlapping screenshots of the EarlyCause portal. The top screenshot is the main landing page, featuring the 'EARLY CAUSE' logo, navigation links (Home, About, News, Partners, FAQ, Useful information, Submit data), and a menu (Cell Lines, Mouse, Rat, Human, Literature, Cohorts, Tools). The main content area is titled 'Early Cause' and describes the portal's mission: 'Investigating the lifelong effects of early life stress on health'. It mentions that the portal aims to bring together various datasets for research on early life stress and its effects on psychology, cardiology, and metabolism. A 'Read more' link is provided.

The bottom screenshot shows the 'Cohorts' search results page. It includes a search bar with the text 'Enter your search terms' and a 'Search' button. Below the search bar, there are 'Related or examples' such as 'Birth cohort', 'Generation', and 'Pregnancy'. The page displays a list of cohorts with columns for 'Data types', 'Population age groups', 'Country', 'PID', 'Study title', 'Cross-references', and 'Descript'. The first result is 'NFBC1966G0' with the study title 'Parents of NFBC1966'. The second result is 'ALSPAC' with the study title 'Avon Longitudinal Study of Parents and Children'. A 'Download' button is visible above the table.

Data types	Population age groups	Country	PID	Study title	Cross-references	Descript
All (7) Cohorts (7)	<input type="checkbox"/> Prenatal (3) <input type="checkbox"/> Newborn (3) <input type="checkbox"/> Infant (3) More...		<input type="checkbox"/> NFBC1966G0	Parents of NFBC1966		
			<input type="checkbox"/> ALSPAC	Avon Longitudinal Study of Parents and Children	Literature > Publications (2)	Based at Longitud (ALSPAC a world-i

Summarising contribution to EU missions

- **Adaptation to Climate Change**
 - Pathogens Portal and Pathogen Data Hub to support better understanding in disease outbreaks → changing ecosystems
- **Cancer**
 - Supporting EarlyCause in identification of early-life stressors through biodata and tools availability
 - Associated viral/bacterial infection biodata → Pathogens Portal and Pathogen Data Hub
- **Restoring Ocean Waters**
 - Underlying biodata classifications, search functionalities, data brokering, data hubs supporting BlueCloud
 - Pathogens in waterways/oceans and their impacts on disease outbreaks
- **Climate-neutral and Smart cities**
 - OneHealth → interdependence of human, animal and plants within ecosystems, risks to global health
 - Supporting genome sequencing within OneHealth and real-time surveillance
- **Soil Deal for Europe**
 - Underlying biodata portal and functionalities can be spun up, as shown by projects in this talk
 - Biodata related to soil and plant pathogens/health, livestock feed



Thanks!

EMBL-EBI

Ahmad Zvoud
Alexey Sokolov
Amonida Zadissa
Andrew Parton
Andrii Ludin
Andy Yates
Carla Cummins
Claire O'Donovan
Claire Rye
Colman O'Cathail
Craig Russell
Dipayan Gupta
Dylan Spalding
Eloise Stapleton
Gabi Rinck
Galabina Yordanova
Geetika Malhotra
Giselle Kerry
Guy Cochrane
Helen Parkinson
Henning Hermjakob
Jeena Rajan
Jeff Knaggs
Joseph Rosetto

Josephine Burgin
Karoly Erdos
Laura Harris
Mallory Freeberg
Manish Kumar
Marianna Ventouratou
Matt Pearce
Melanie Courtot
Mihai Glont
Milena Mansurova
Nadim Rahman
Nicola Buso
Oana Stroe
Ossama Edbali
Pablo Moreno
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Peter Walter
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Rodica Petrusevschi
Rodrigo Lopez
Rolf Apweiler
Ross Thorne
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Sandeep Selvakumar

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Suran Jayathilaka
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Re CoD ID



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Marie-Catherine
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FLI

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Ariane Belka
Maria Jenckel
Claudia Wylezich
Martin Beer
Anne Pohlmann

RIVM

Dennis Schmitz
Florian Zwagemaker
Annelies Kroneman



Thanks for listening!
Any questions?

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eosc | cancer

EOSC4Cancer

A European-wide foundation to accelerate
Data-driven Cancer Research

2022-2025

Salvador Capella-Gutierrez



**Barcelona
Supercomputing
Center**
Centro Nacional de Supercomputación



**Funded by
the European Union**

This project has received funding from the European Union's Horizon Europe Programme under GA 101058427 — EOSC4Cancer — HORIZON-INFRA-2021-EOSC-01

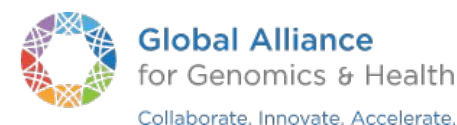


European Health Data Space
European Cancer Mission

Alignment



Open data standards



Stakeholders



...

- EOSC4Cancer as provider of the **infrastructure for the exploitation of cancer data** for the **EU Cancer Mission**.
- EOSC4Cancer brings together comprehensive **cancer centers, research infrastructures**, leading **research groups**, and major **computational infrastructures** across Europe to make the exploitation of the data possible.
- EOSC4Cancer will prepare **EOSC services** for cancer research and enrich EOSC with **data, tools** and **services** from the cancer community.
- **Start:** 1 September 2022 (30 months)
- **Consortium:** 28 full beneficiaries, 1 associated partner & 5 affiliated entities.

Partners, associates, and affiliated entities



-
- Enable **storage, access, sharing, analysis** and processing of research data and other digital **research objects** from basic and clinical cancer research.
 - Mobilise, **interconnect** and **interoperate datasets** relevant in cancer research.
 - Make cancer research **data** and **analysis systems** accessible to basic and clinical scientists in the most used cancer **analysis portals**.
 - Integrate digital tools, data analytics and Artificial Intelligence/Machine Learning tools for the analysis of cancer data in the cancer analysis portals.
 - Contribute to the **European Health Data Space** (EHDS), the Horizon Europe **European Open Science Cloud** (EOSC) Partnership and the **Cancer Mission**
-

→ **Facilitate Cancer Research across Member States and Associated Countries**

Result #1: A platform that will enable **storage, sharing, access, analysis** and processing of research data and other digital research objects from **basic and clinical cancer research**.

Result #2: Mobilisation, interconnection and interoperation of **datasets relevant in cancer research**. Contribute with protocols and operating procedures to facilitate the progressive adoption of the **FAIR principles** across data sources but also for research software.

→ **Researchers, healthcare professionals, cancer patients, and survivors contributing to cancer research**

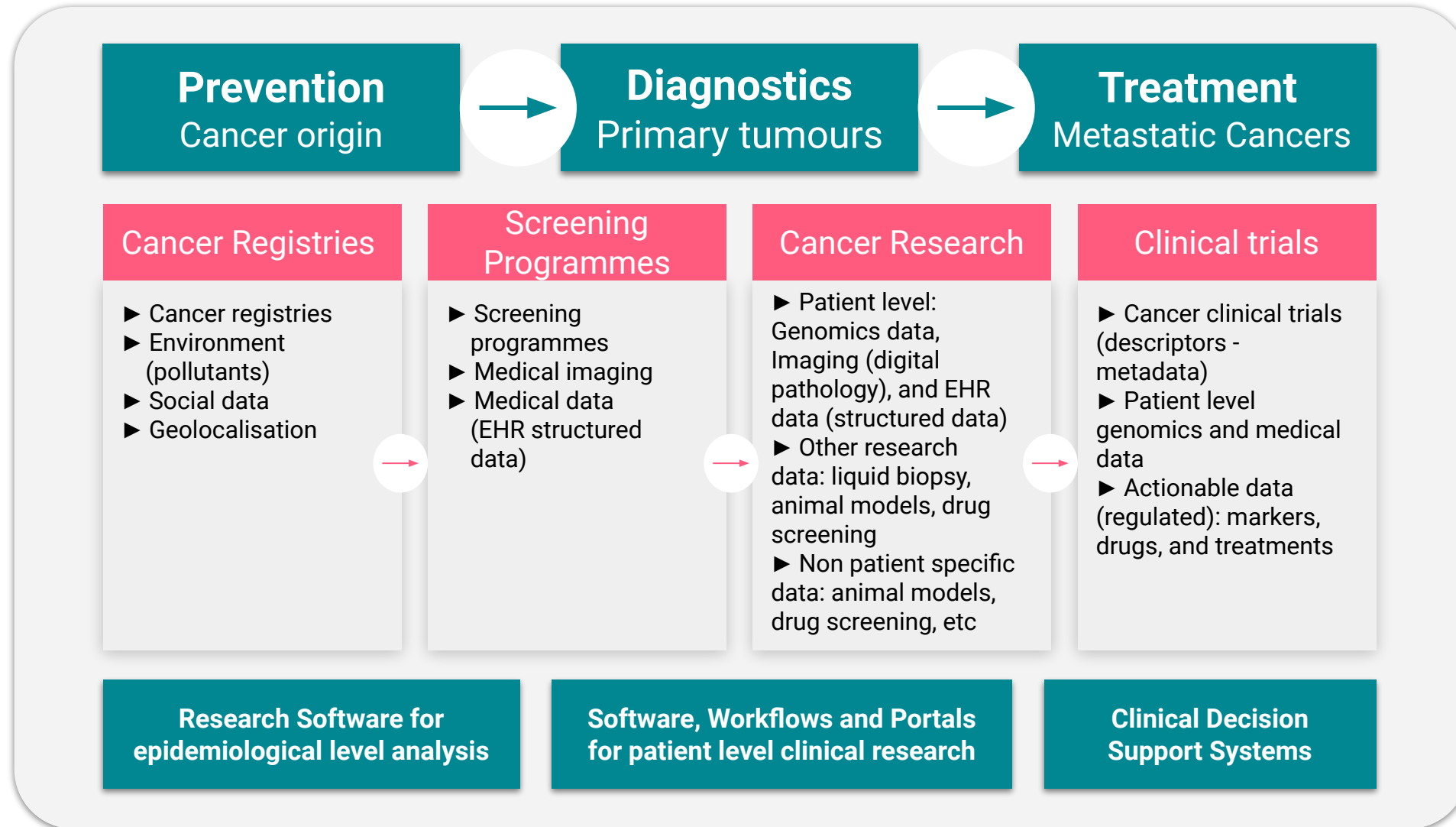
Result #3: Cancer research data and analysis systems made **easily accessible** to basic and clinical scientists in open cancer analysis portals.

Result #4: Integrated **digital tools, data analytics and Artificial Intelligence/Machine Learning methods** for the analysis of cancer-related data in the **cancer analysis environments**.

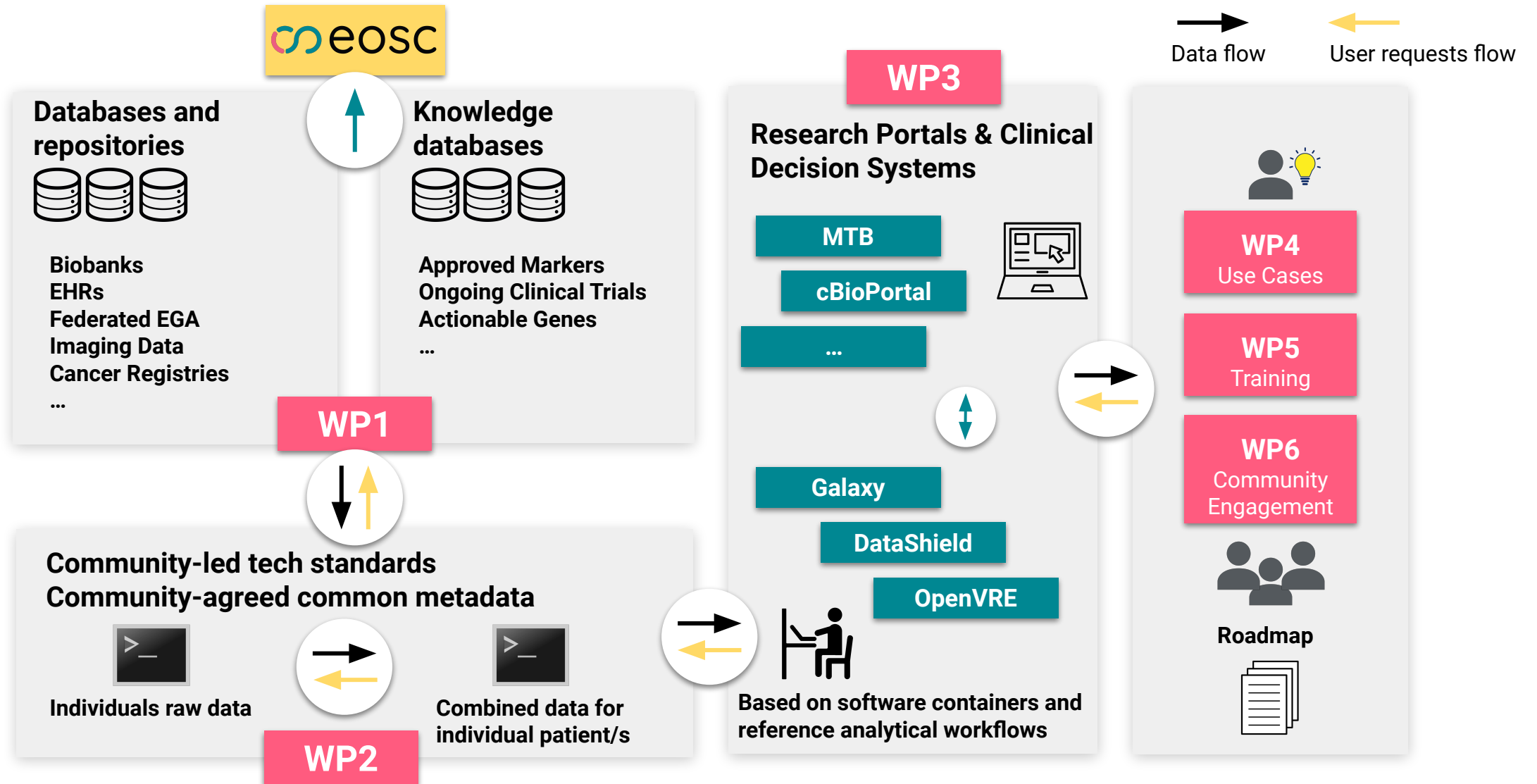
→ ***Contribute to the Horizon Europe EOSC Partnership and other relevant partnerships related to cancer research.***

Result #5: Roadmap for EOSC support to an **European Cancer Data Space in the European Health Data Space (EHDS)** in partnership with the **Cancer Mission**. **Participation of patient/survivors associations** in the project's Stakeholder forum and in the Scientific Advisory Board together with the Ethics Advisory Board.

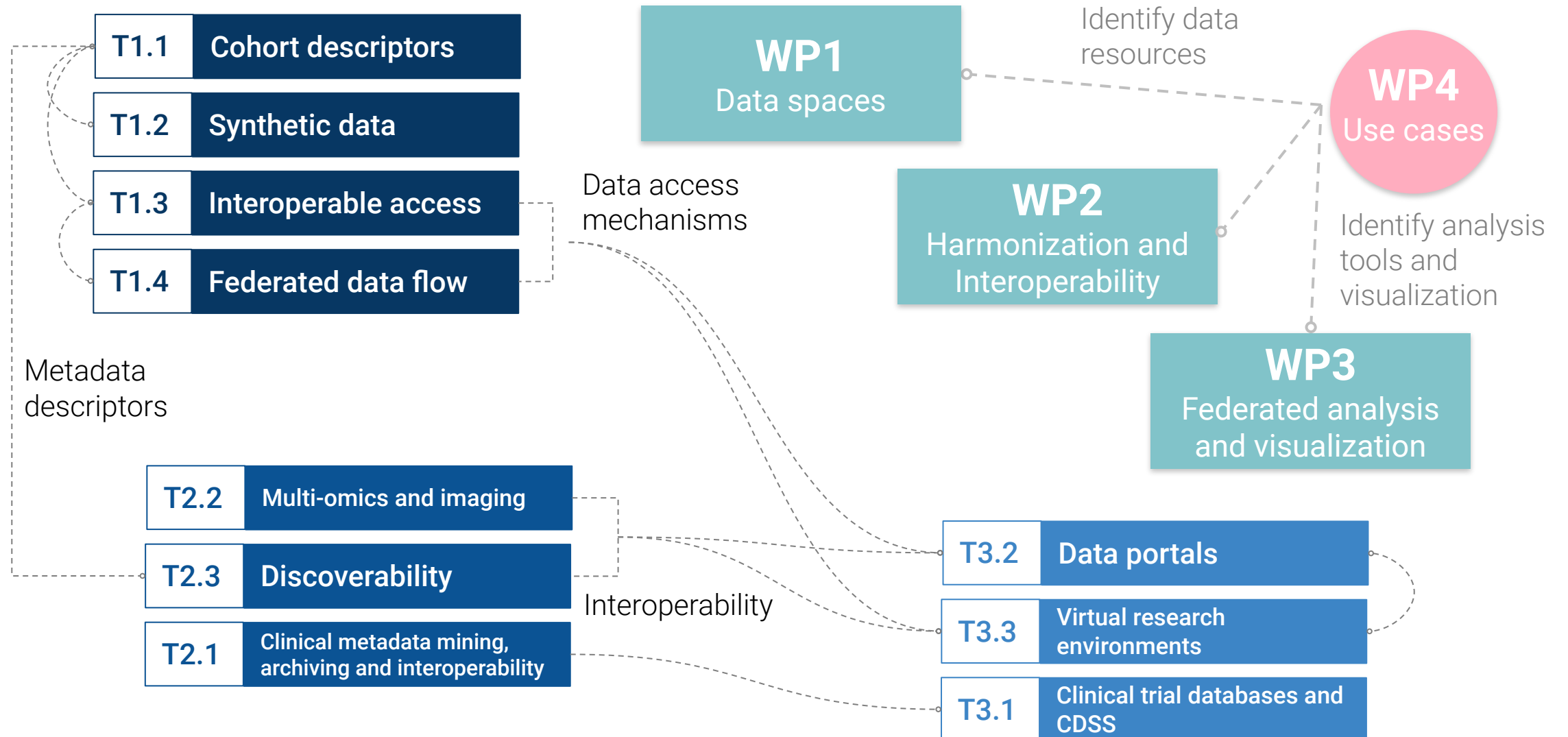
The patient journey



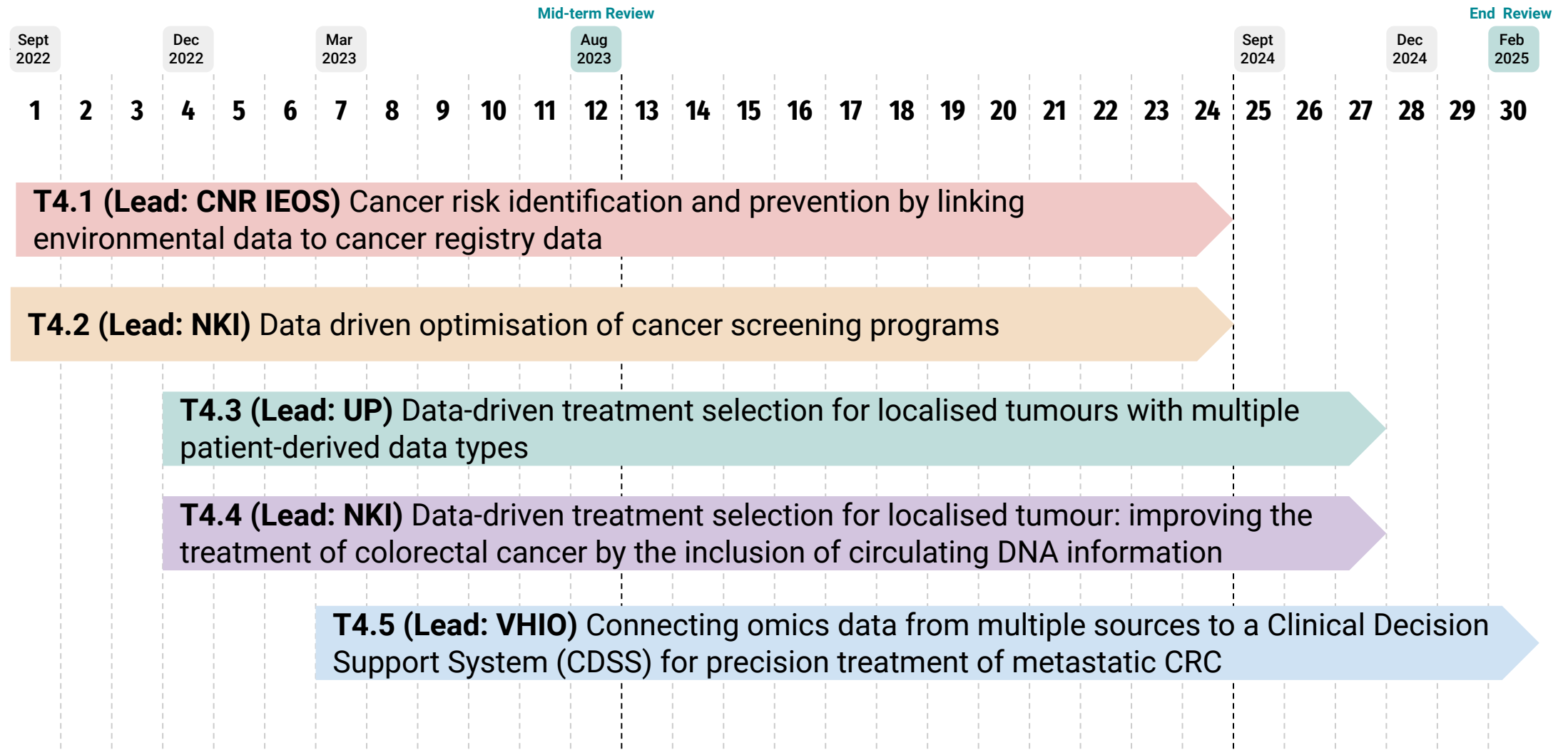
Technical overview



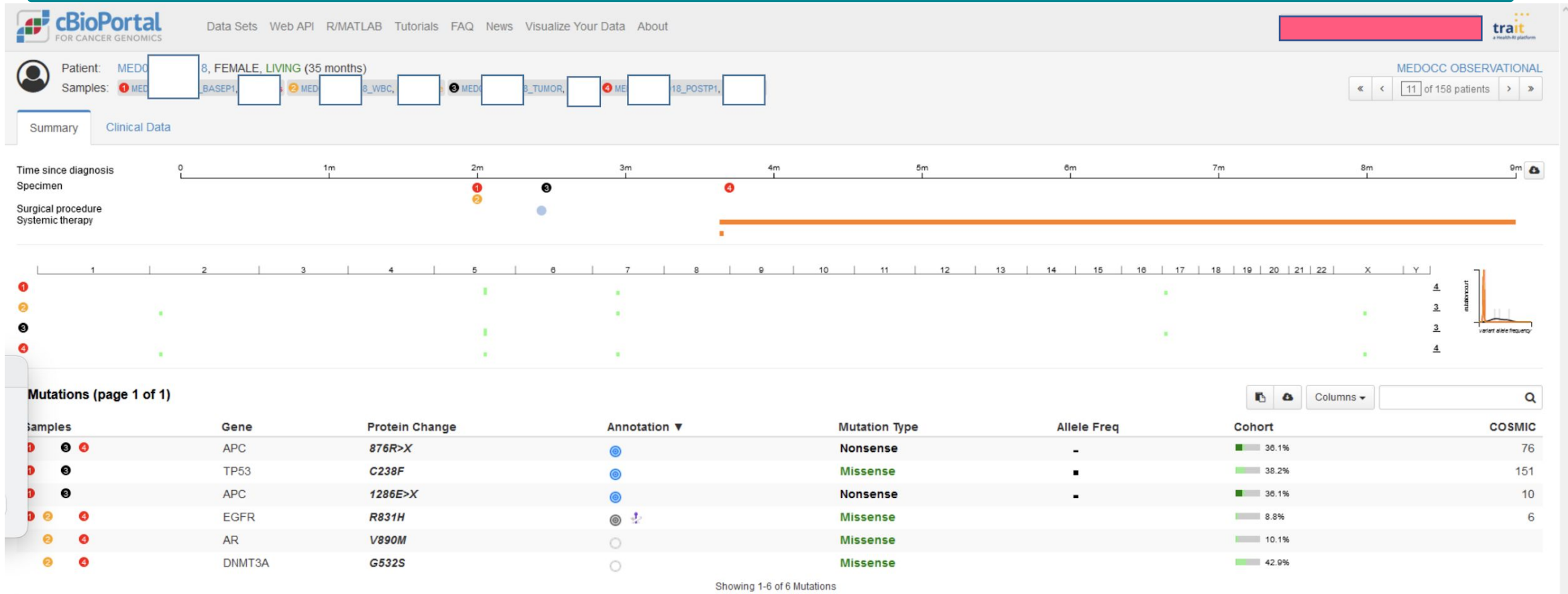
Technical WPs overview



Use-cases overview



T4.4: Data-driven treatment selection for localised tumour

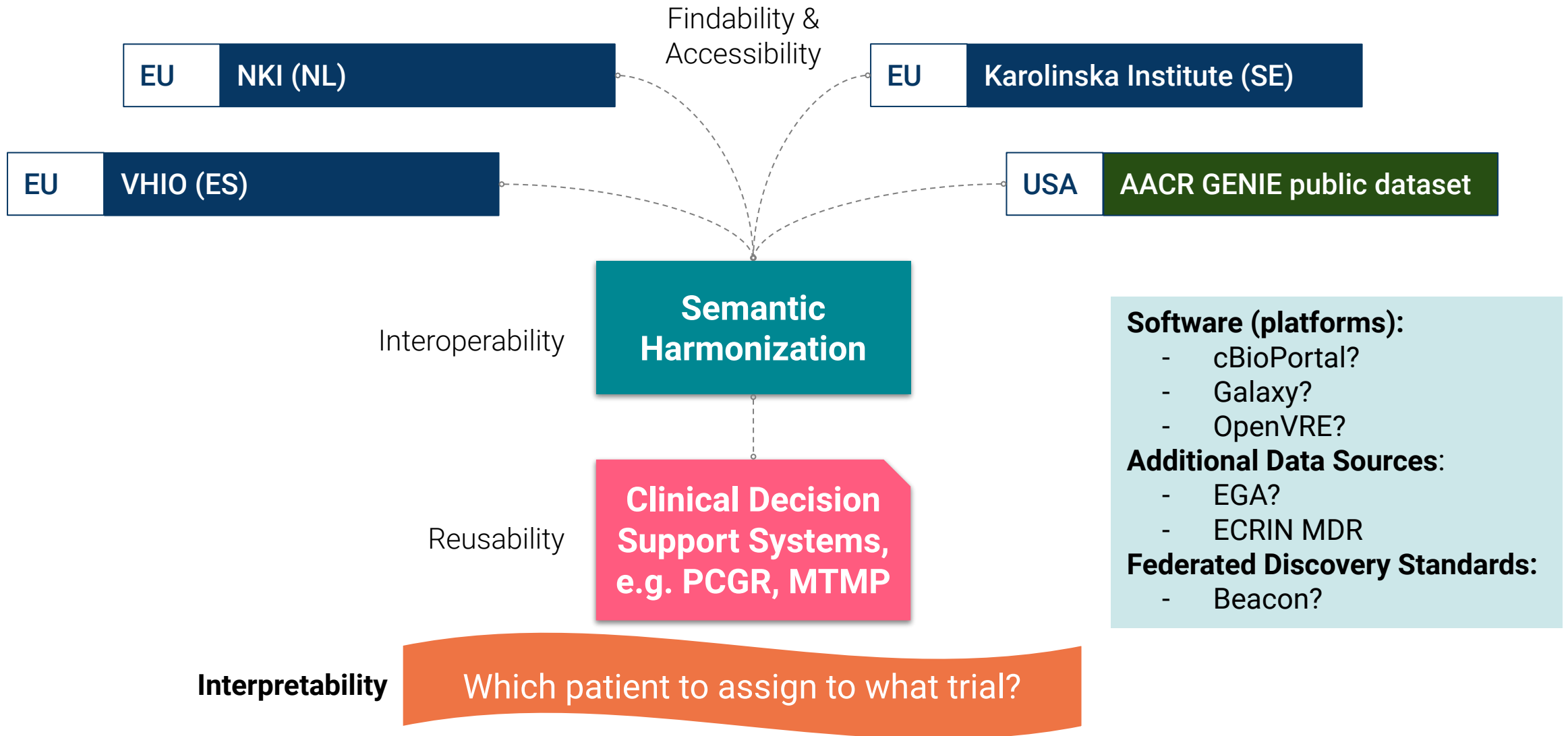


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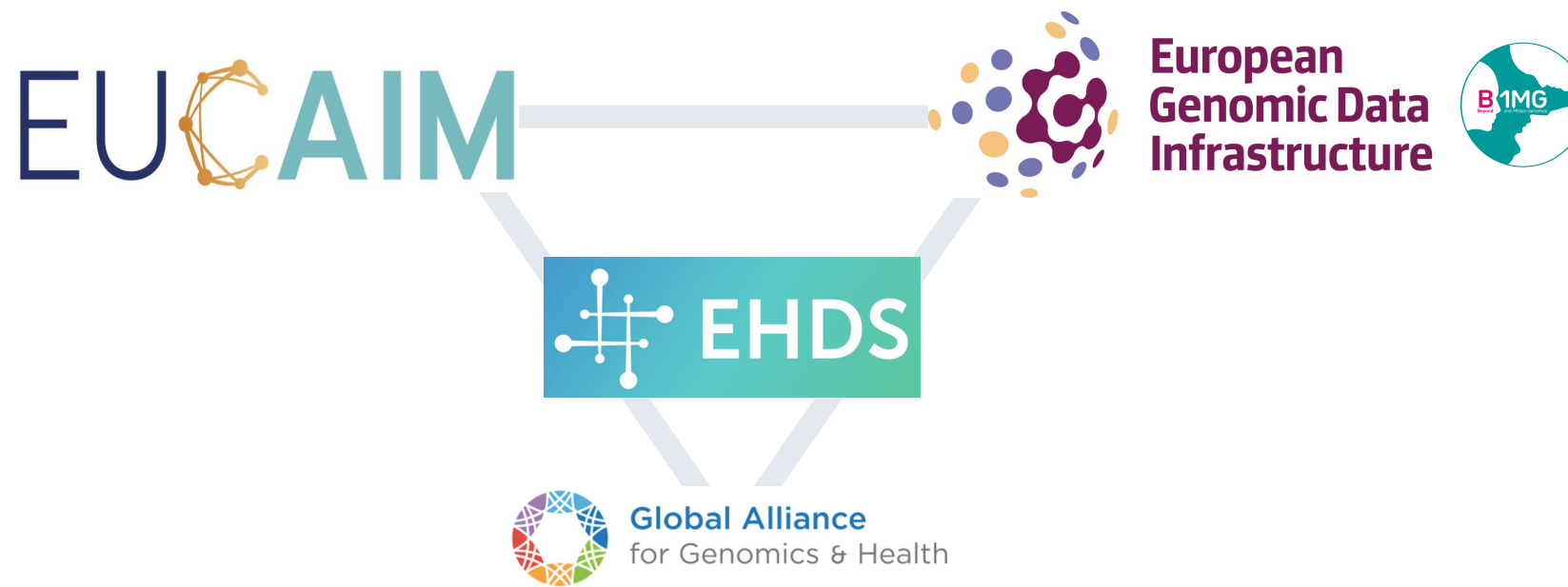
Per patient view
Longitudinal (!)

AACR GENIE-based example on longitudinal patient data

T4.5: Harmonizing Clinical Trials information



Take away message



Thank you!

Contact: info@eosc4cancer.eu

Website: eosc4cancer.eu/

Follow us in social media



This project has received funding from the European Union's Horizon Europe Programme under GA 101058427 – EOSC4Cancer – HORIZON-INFRA-2021-EOSC-01



FNS - Cloud

Food Nutrition Security

What can FNS-Cloud offer to EU Missions?

Karl Presser (Premotec GmbH)

EOSC Symposium

Wednesday 20th September 2023

FNS-Cloud: Project Information

Funding: Horizon 2020 – Innovation Action (SFS-26-2019, Food Cloud Demonstrators)

Duration: 48 Months (Oct 2019 – Sept 2023)

Budget: €10.9m

Beneficiaries: 35



Coordinator (CO): RTDS

Scientific Coordinator (SCO): QIB

Executive Board (EB): WP Leaders (RTDS, PMT, JSI, UCD, QIB, EuroFIR, UWTSD, JdIC)

External Experts Advisory Board (EEAB): variety of relevant experts and stakeholders from different countries and domains

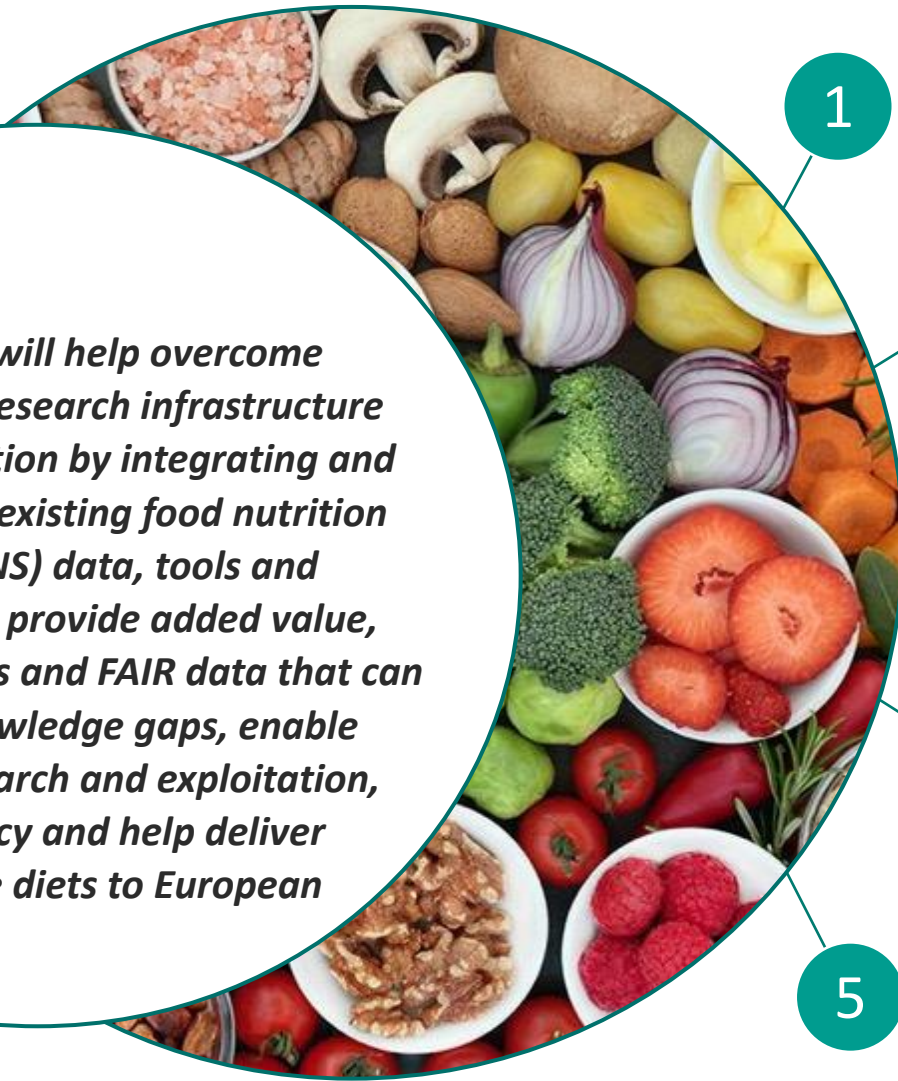
General Assembly (GA): decision-making body consisting of a representative from each partner

FNS-Cloud: Aims & Objectives



VISION

FNS-Cloud will help overcome European research infrastructure fragmentation by integrating and federating existing food nutrition security (FNS) data, tools and services, to provide added value, open access and FAIR data that can reduce knowledge gaps, enable better research and exploitation, inform policy and help deliver sustainable diets to European citizens.



1

Implement and test 'cloud' via Use Cases (WP4) and Demonstrators (WP5) to test existing and new proof-of-principle data and tools across FNS domain

2

Develop, integrate and test innovative FNS Cloud Services

3

Enable harmonisation and standardisation of FNS data (sources and format) and external services for integration and interoperability

4

Engage FNS User Communities (especially researchers) to improve co-operation and reduce barriers to innovation and exploitation

5

Develop sustainable FNS Cloud governance and business models, as part of the wider EOCS

FNS-Cloud in the Research Landscape

ESFRI: METROFOOD, CESSDA, EATRIS, SHARE, ECRIN, BBMRI, ELIXIR

Primary Production

Public-private

International Initiatives
GloboDiet
Quisper®

JPI-HDHL
ENPADASI
DEDIPAC

Past Projects
EuroDISH
RICHFIELDS
EuroMix
ISO-Food

Complimentary Projects
Precious
iFAAM
REFRESH
SUSFANS
Comfocus

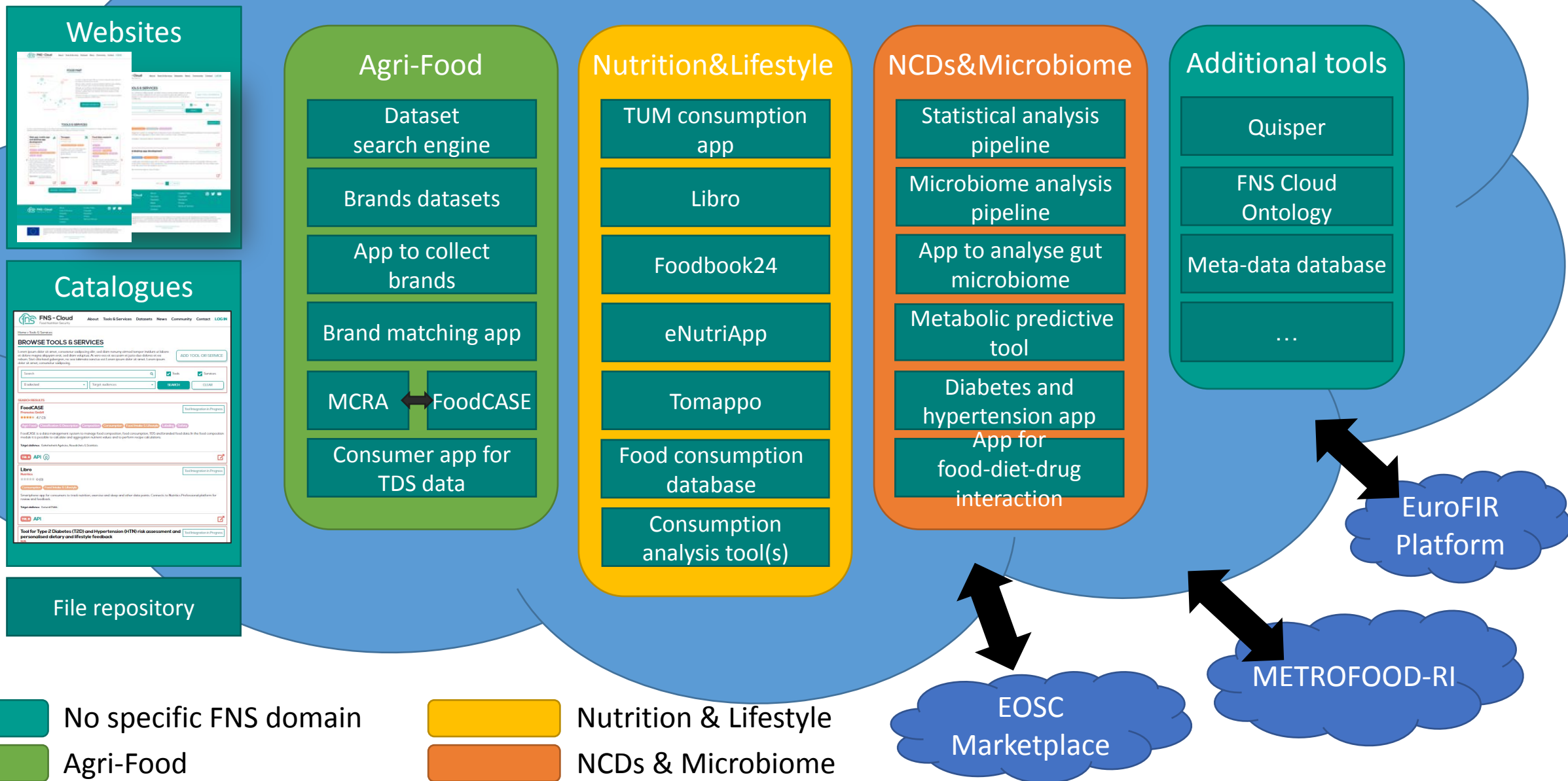


Networks
NUGO
EuroFIR
MoniQA
TDS MCRA
FNHRI
EU Menu

Public-private

Health

Authentication and authorisation infrastructure (AAI)



Key Project Outcomes



List of generated and further improved tools, datasets and other resources



FNS Cloud Catalogues, myFNSCloud (CoP), FNS Cloud website (MVP)



High degree collaboration within and across beneficiaries (OA scientific publications, tools, data)



Interoperability across data & tools as shown by the Demonstrators



D&C materials for end users: videos, training materials, user manuals, guidelines (MVP)



FNS Harmony Ontology and proposed domain experts (MVP)

Contribution to EU Missions



Mission 1: Adaptation to Climate Change

- Experimental fields/farms help to investigate impacts on nutrient and contamination contents in food
- Infrastructure for consumption studies helps to discover changing nutritional patterns caused by climate change (taste, price, availability)

Mission 2: Cancer

- Food-and-drug knowledge base help improve the quality of life for patients and their families

Contribution to EU Missions

Mission 3: Restore our Ocean and Waters

- Infrastructure for consumption studies, food waste, nutritional quality and contamination help to understand the problem and to find feasible solutions
- Communication of over-fishing and “mono-culture nutrition” informs consumers who then can contribute by buying food responsibly
- Infrastructure for food quality helps to understand benefits of bio-diversity for human nutrition
- Infrastructure for food contamination helps to understand how ocean and water contamination accumulates in seafood products

Mission 4: Climate-Neutral and Smart Cities

- Data infrastructure can help to make food supply chains smarter
- Seed exchange and menu planning support citizens in “balcony gardening” and optimising nutrition

Contribution to EU Missions

Mission 5: A Soil Deal for Europe

- Unhealthy soil -> unhealthy food
- Experimental fields/farms help to investigate contamination uptake and contamination resistance

Thank you for your attention!

Acknowledgements



Funding

Food Nutrition Security Cloud (FNS-Cloud) has received funding from the European Union's Horizon 2020 Research and Innovation programme (H2020-EU.3.2.2.3. – A sustainable and competitive agri-food industry) under Grant Agreement No. 863059.

FNS-Cloud Partners



Find out more....

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<https://bit.ly/2PNJRhz>





Uptake of EOSC in contribution to EU Missions

By

Blue-Cloud, BY-COVID, EOSC4Cancer, FNS-Cloud
& YOU

Madrid, Spain

#EOSCSymposium2023



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Spectrum explained

- 3 statements
- 4 opinions per statement
- Examples from the audience
- Have your say on [sli.do #3041396](https://sli.do/#3041396)







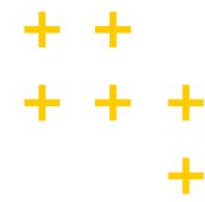
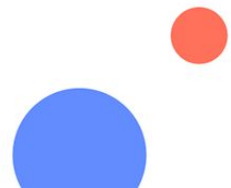
Spectrum Statements

- 1. Tools & services offered by EOSC are ready to be used to respond to the EU Missions**





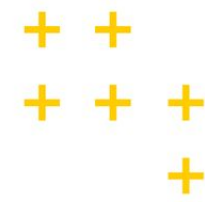
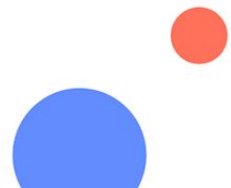


Spectrum Statements

- 1. Tools & services offered by EOSC are ready to be used to respond to the EU Missions**
 - 2. EOSC is well positioned to contribute to the EU Missions**
- 
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Spectrum Statements

- 1. Tools & services offered by EOSC are ready to be used to respond to the EU Missions**
 - 2. EOSC is well positioned to contribute to the EU Missions**
 - 3. All EU Missions communities are involved in EOSC**
- 
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