

# Speed up the workflow to derive key EOVs data products

*Simona Simoncelli (INGV)*

*Alessandra Giorgetti (OGS)*



# for Sustainable Development 2021-2030

The Ocean Decade is promoting a revolution in ocean science and identified 10 challenges for collective impact



## Challenge 7

### Expand the Global Ocean Observing System

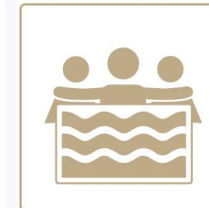
Ensure a sustainable ocean observing system across all ocean basins that delivers accessible, timely, and actionable data and information to all users.



## Challenge 8

### Create a digital representation of the ocean

Through multi-stakeholder collaboration, develop a comprehensive digital representation of the ocean



## Challenge 9

### Skills, knowledge and technology for all

Ensure comprehensive capacity development and equitable access to data, information, knowledge and technology across all aspects of ocean science and for all stakeholders.

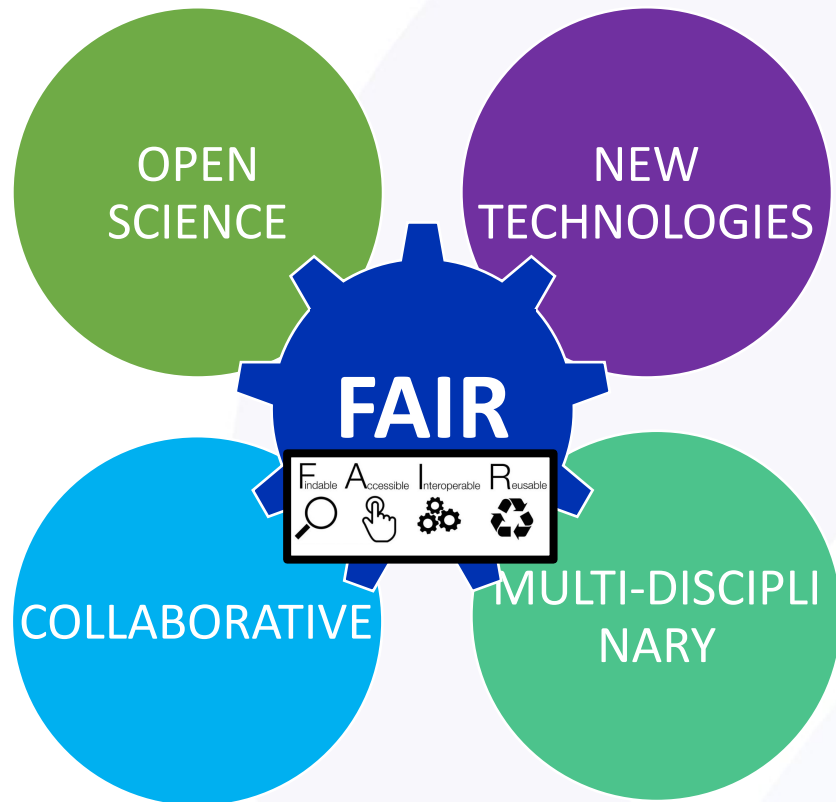


## An accessible ocean

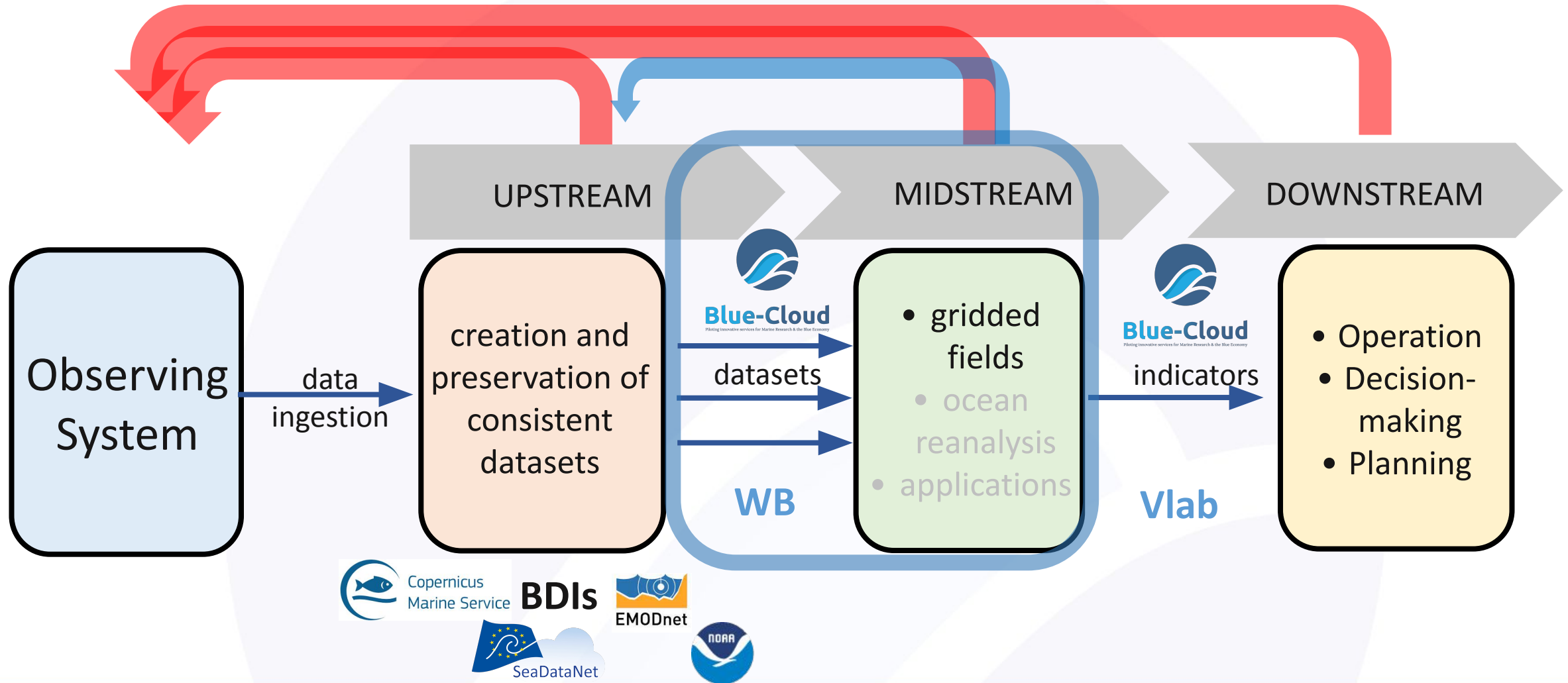
with open and equitable access to data, information and technology and innovation.

□ data, information and knowledge needed for more robust science-informed policies and stronger science-policy interfaces from global, to local levels

Societal benefit of science can be enhanced through a community effort to collect, manage and share the data acquired with a specific purpose for further re-use  data driven science



**FAIR principles applied to data and digital artefacts (software, services) are key enablers of the expected ocean science revolution, speeding up information and knowledge generation process**

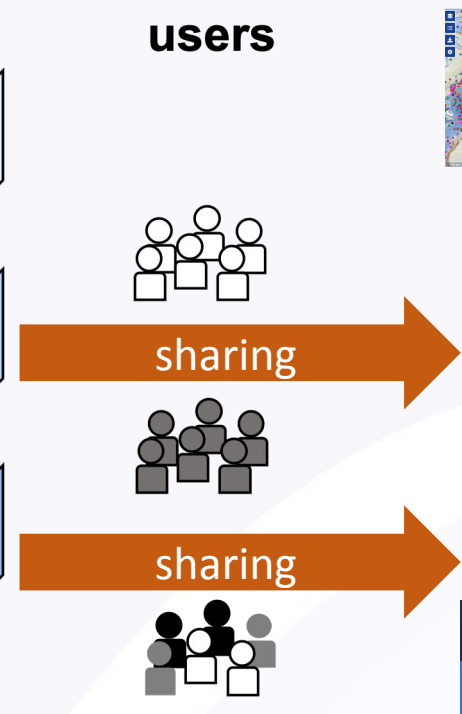
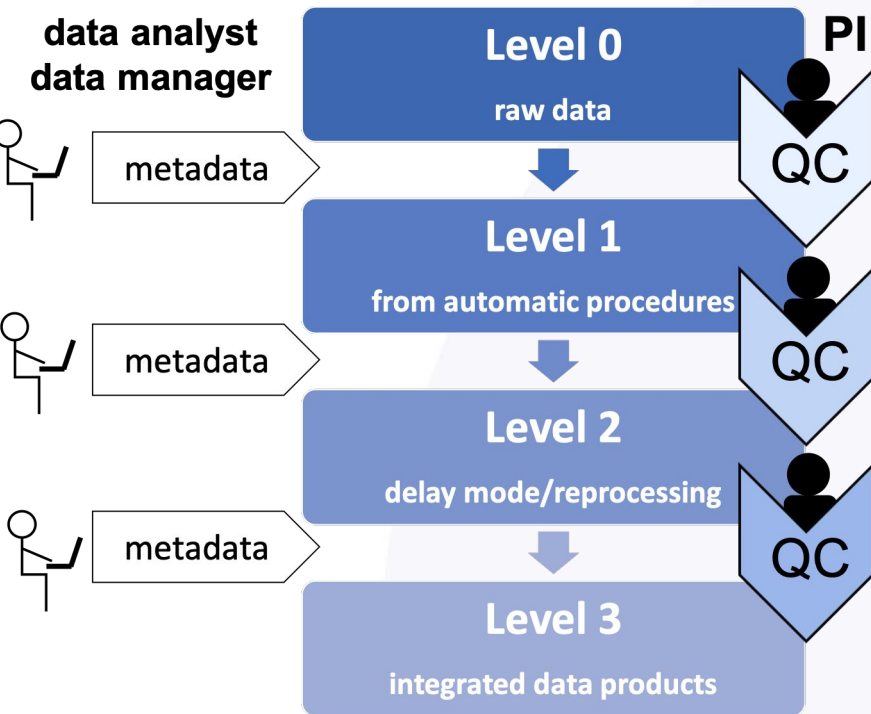
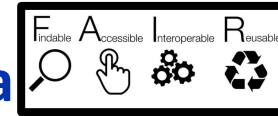


# Data life-cycle and management

## Data Provider

## Blue Data Infrastructures

end users



EMODnet

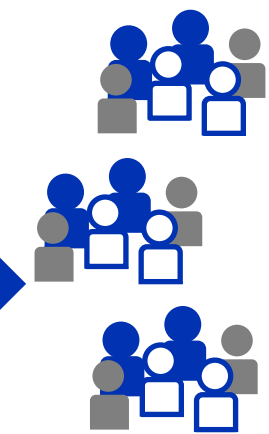
Euro Argo

Copernicus Marine Service

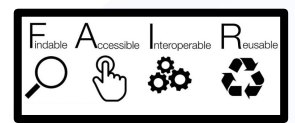
SeaDataNet

emso ERIC

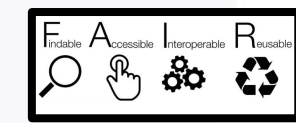
National Centers for Environmental Information  
World Ocean Database



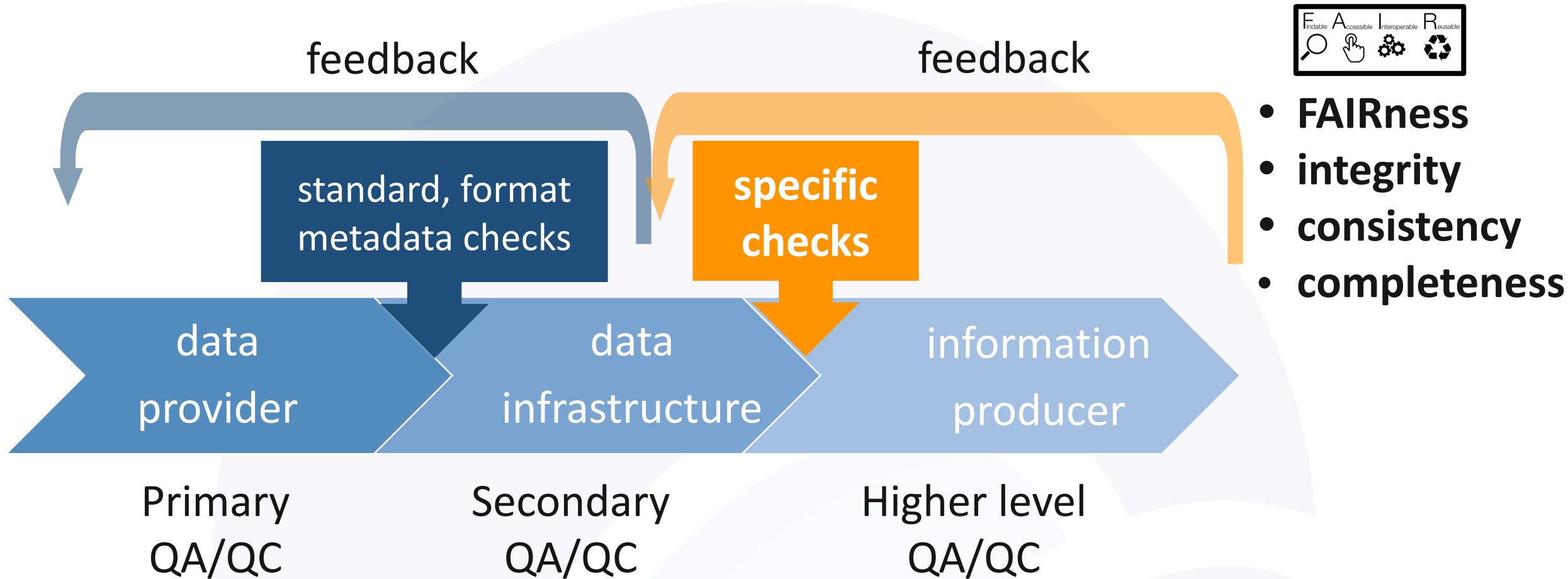
*DOI assignment + dataset paper + scientific paper*



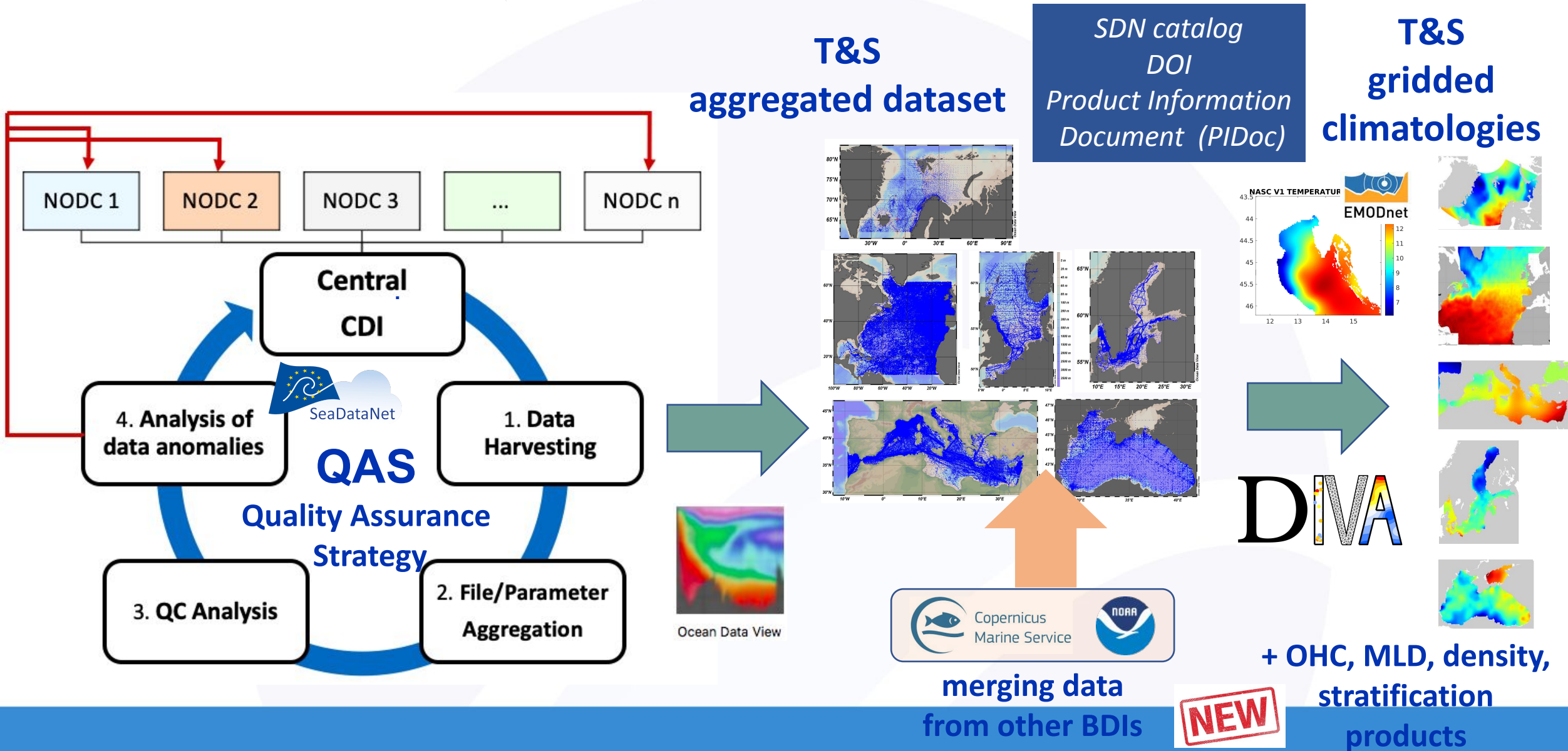
data integration & metadata harmonization



# Data life-cycle and Quality Control



- several actors apply QA/QC procedures along with the data value chain
- provenance and quality information are key elements to preserve

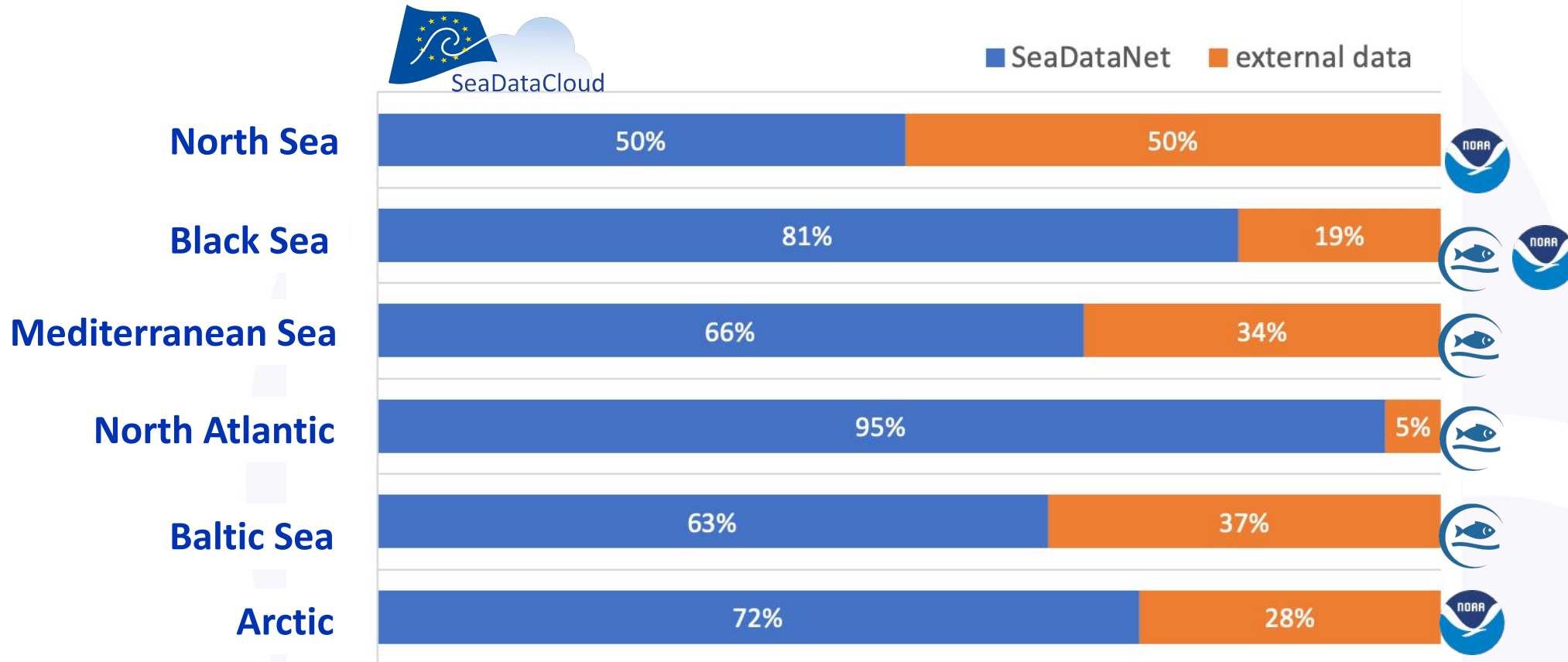




Integration of SeaDataNet T&S data with external sources for climatologies

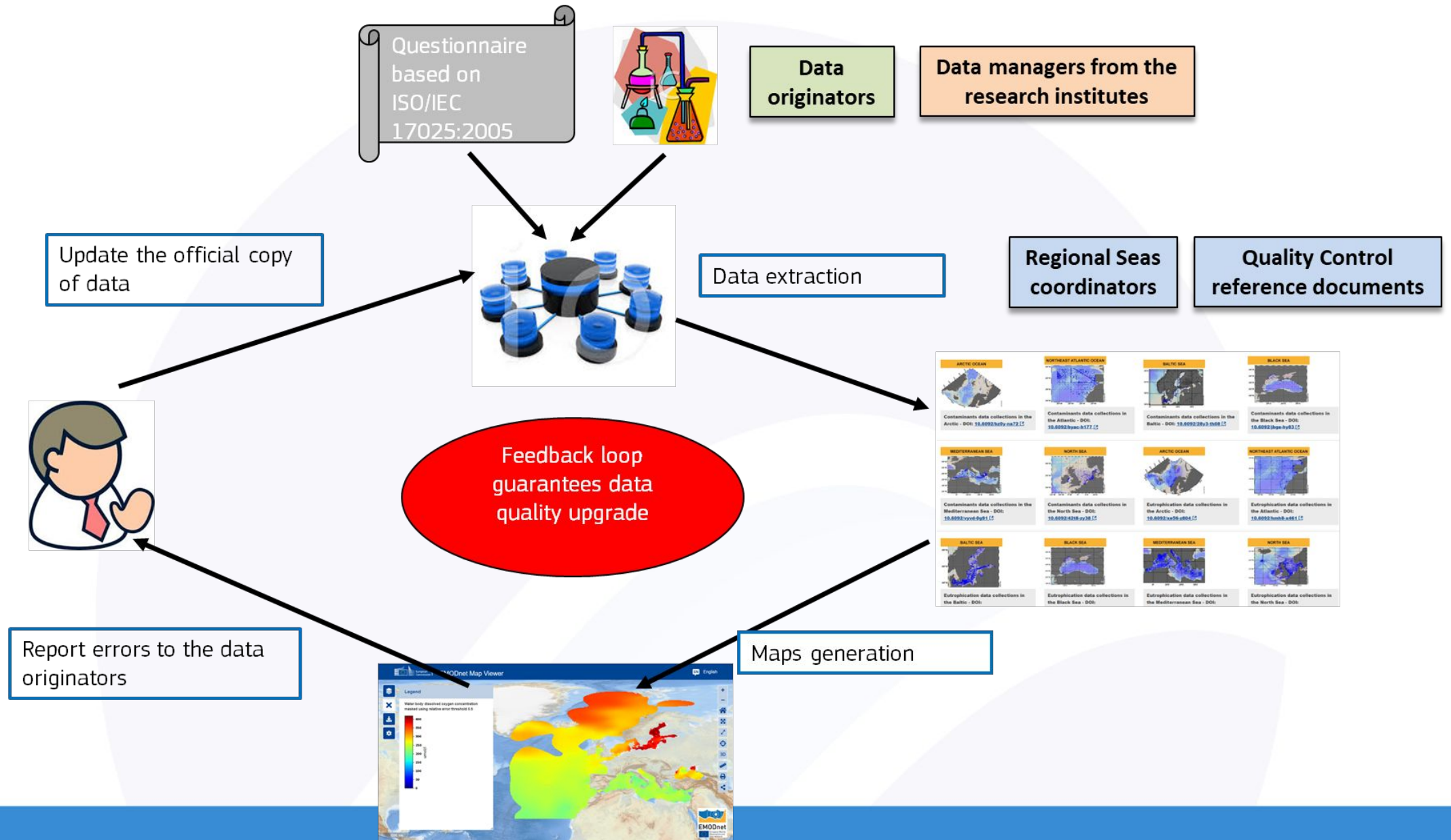
**duplicates  
removal**

DATA INTEGRATION STATS PER SEA BASIN



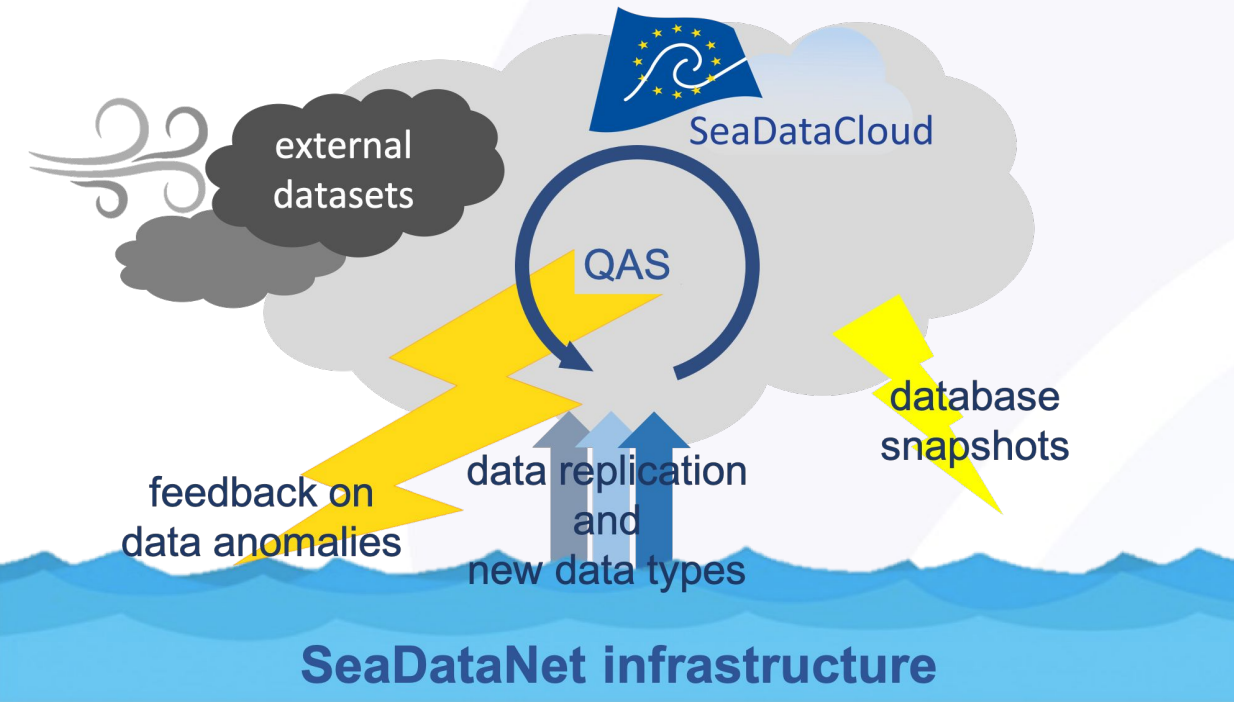


# EMODnet Chemistry: the value chain

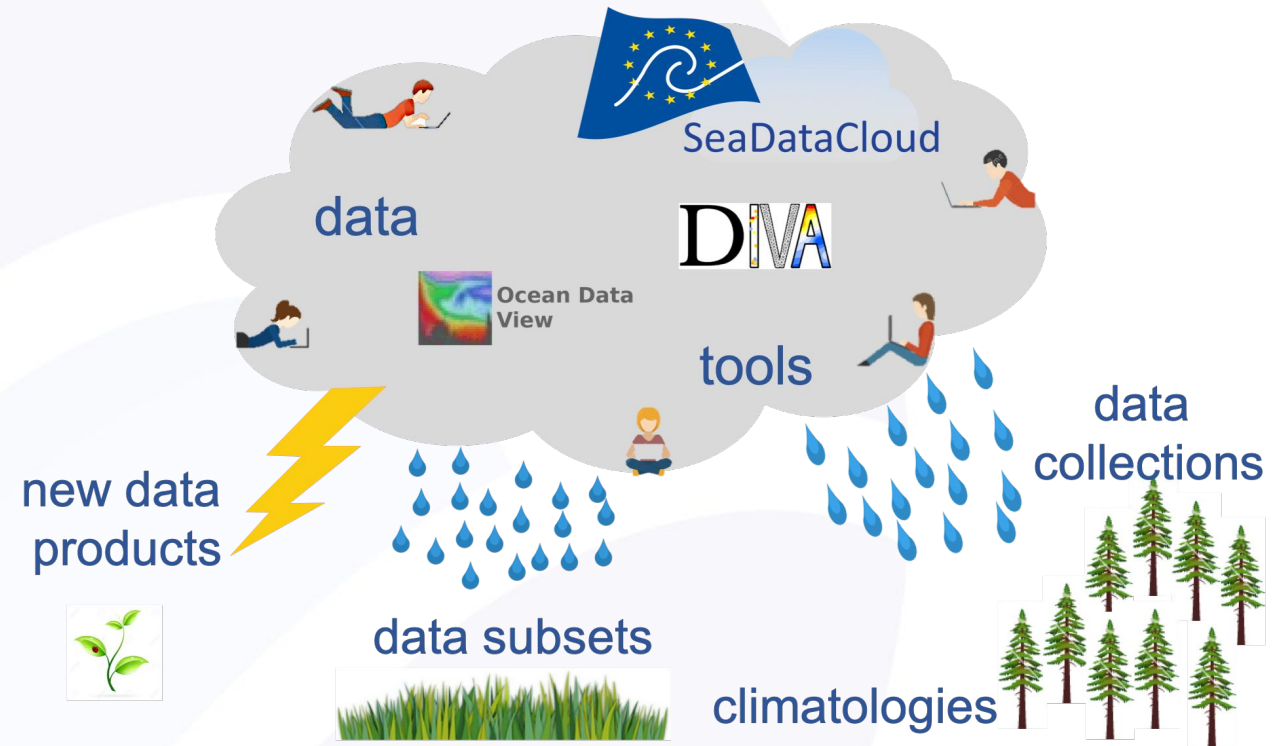


A **cloud environment** and a **VRE** were first implemented to have data replication for faster data access and a co-working environment with shared tools to derive products

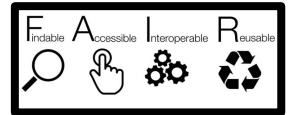
## Cloud



## Virtual Research Environment (VRE)



- a workflow is the series of activities that are necessary to complete a task
- its automation and management process increase efficiency, optimize the results and promote transparency
- its implementation builds on advanced services and FAIR principles





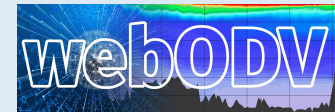
**Data Discovery & Access Service**



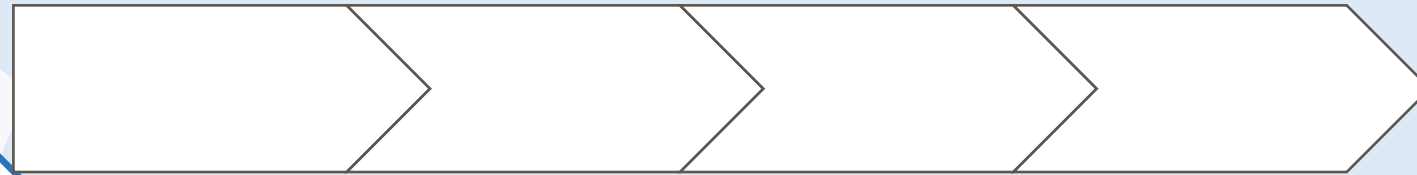
**Virtual Research Environment**



Interactive data navigation & visualization

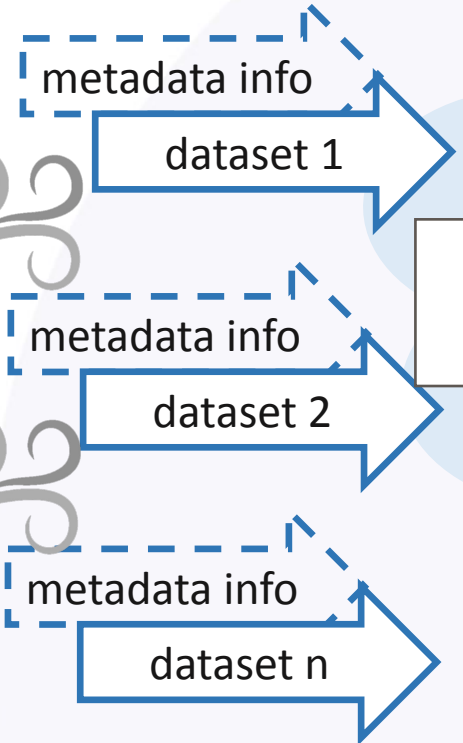


**added value EOVs datasets**



□ our task is to implement an analytical workflows that can rapidly derive added-value products from ocean data

NOAA WOD  
Copernicus Marine Service  
EMODnet  
SeaDataNet  
Euro-Argo  
emso ERIC



- **Open science** and **FAIR** (Findable, Accessible, Interoperable and Reusable) principles drive the development of a digital ocean ecosystem capable of supporting the preservation and sharing of a wide array of data, knowledge and information products
- **FAIRness of data, software and services** are key enablers of this transformation and need investments to be fully applied
- **Cloud and Virtual Research Environments** will allow to the new generation of scientists an easy access to big amount of data and HPC resources to create innovative applications and tackle the emerging societal challenges (Digital Twin of the Ocean)
- **FAIRness assessment of digital artefacts** by producers and users will increase awareness and optimize the results

# eosc | Blue-Cloud2026



[blue-cloud.org](https://blue-cloud.org)



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



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



Funded by  
the European Union