GenOA week 2025

17 – 21 novembre 2025

Gestione dei prodotti digitali della ricerca nelle Infrastrutture di Ricerca: l'esperienza di LifeWatch Italia.

Ilaria Rosati | National Research Council

Open Science principles & practices

Open science is a set of principles and practices that aim to make scientific research from all fields accessible to everyone for the benefit of scientists and society as a whole. The production of that knowledge itself is inclusive, equitable and sustainable.

UNESCO Recommendation on Open Science 2022 version 1.
https://doi.org/10.54677/UTCD9302

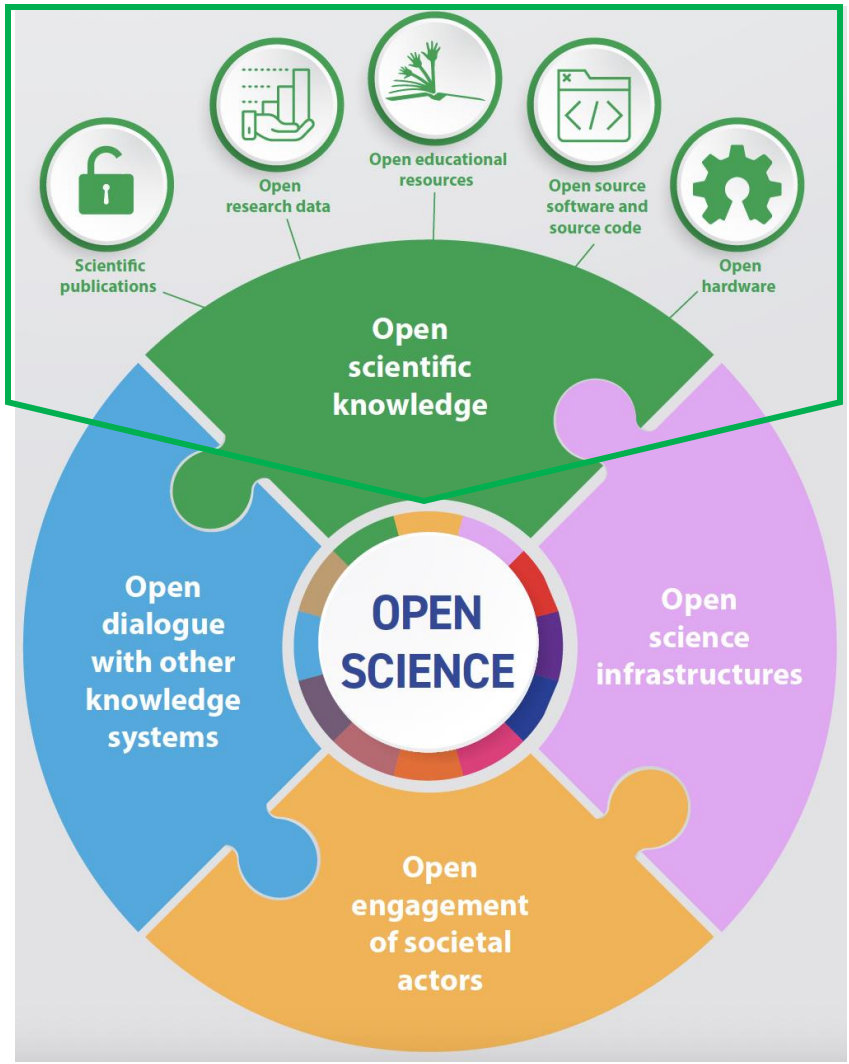

Image: UNESCO Open Science brochure

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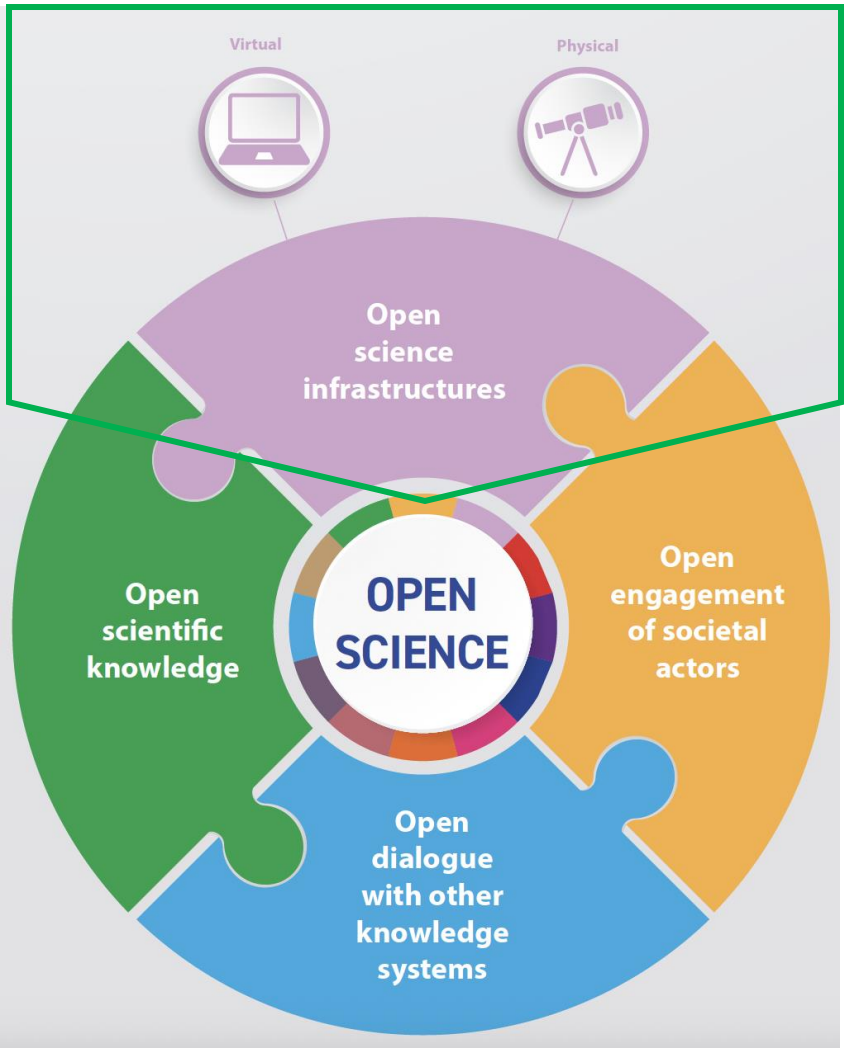


Image: UNESCO Open Science brochure

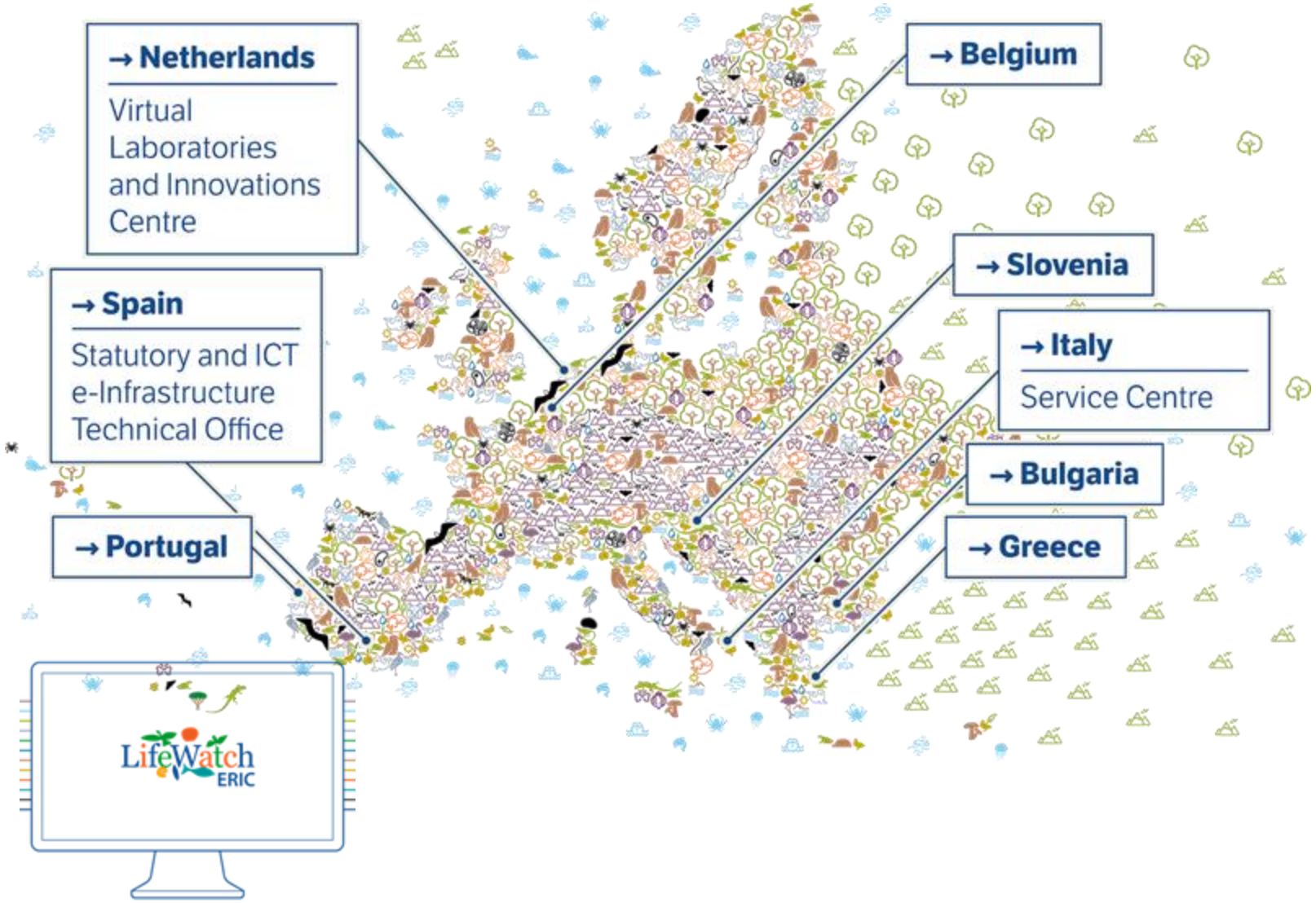
What are Research Infrastructures?

Research Infrastructures are facilities that provide resources and services for research communities to conduct research and foster innovation. They can be used beyond research e.g. for education or public services and they may be single-sited or distributed.

ESFRI **Environment RIs**

ACTRIS	Aerosol, Clouds and Trace Gases Research Infrastructure	DISTRIBUTED	landmark
DANUBIUS-RI	International Centre for Advanced Studies on River-Sea Systems	DISTRIBUTED	project
eLTER RI	Integrated European Long-Term Ecosystem, critical zone and socio-ecological Research Infrastructure	DISTRIBUTED	project
DiSSCo	Distributed System of Scientific Collections	DISTRIBUTED	project
EMSO ERIC	European Multidisciplinary Seafloor and water-column Observatory	DISTRIBUTED	landmark
EISCAT_3D	Next generation European Incoherent Scatter radar system	SINGLE-SITED	landmark
EURO-ARGO ERIC	European contribution to the international Argo Programme	DISTRIBUTED	landmark
EPOS ERIC	European Plate Observing System European Research Infrastructure Consortium	DISTRIBUTED	landmark
IAGOS	In-service Aircraft for a Global Observing System	DISTRIBUTED	landmark
ICOS ERIC	Integrated Carbon Observation System	DISTRIBUTED	landmark
LifeWatch ERIC	e-Infrastructure for Biodiversity and Ecosystem Research	DISTRIBUTED	landmark

LifeWatch ERIC



Is a European Research Infrastructure Consortium providing **eScience research facilities** to scientists investigating biodiversity and ecosystem functions and services in order to support society in addressing key planetary challenges

https://www.lifewatch.eu

LifeWatch Italy

LifeWatch Italy has been established as a Joint Research Unit (JRU) in 2010 coordinated by the CNR. It has now 36 members including research institutes, universities and associations seeking to reinforce integrated scientific research on biodiversity and ecosystems.

LifeWatch Italy Strategic Objective

National Hub for biodiversity and ecosystem research and knowledge

- Main point access to **FAIR** and **Open data** and other **research products**
- **e-Science services** and **platforms** for supporting a **FAIR** and **Open** research lifecycle

LifeWatch Italy Digital Infrastructure

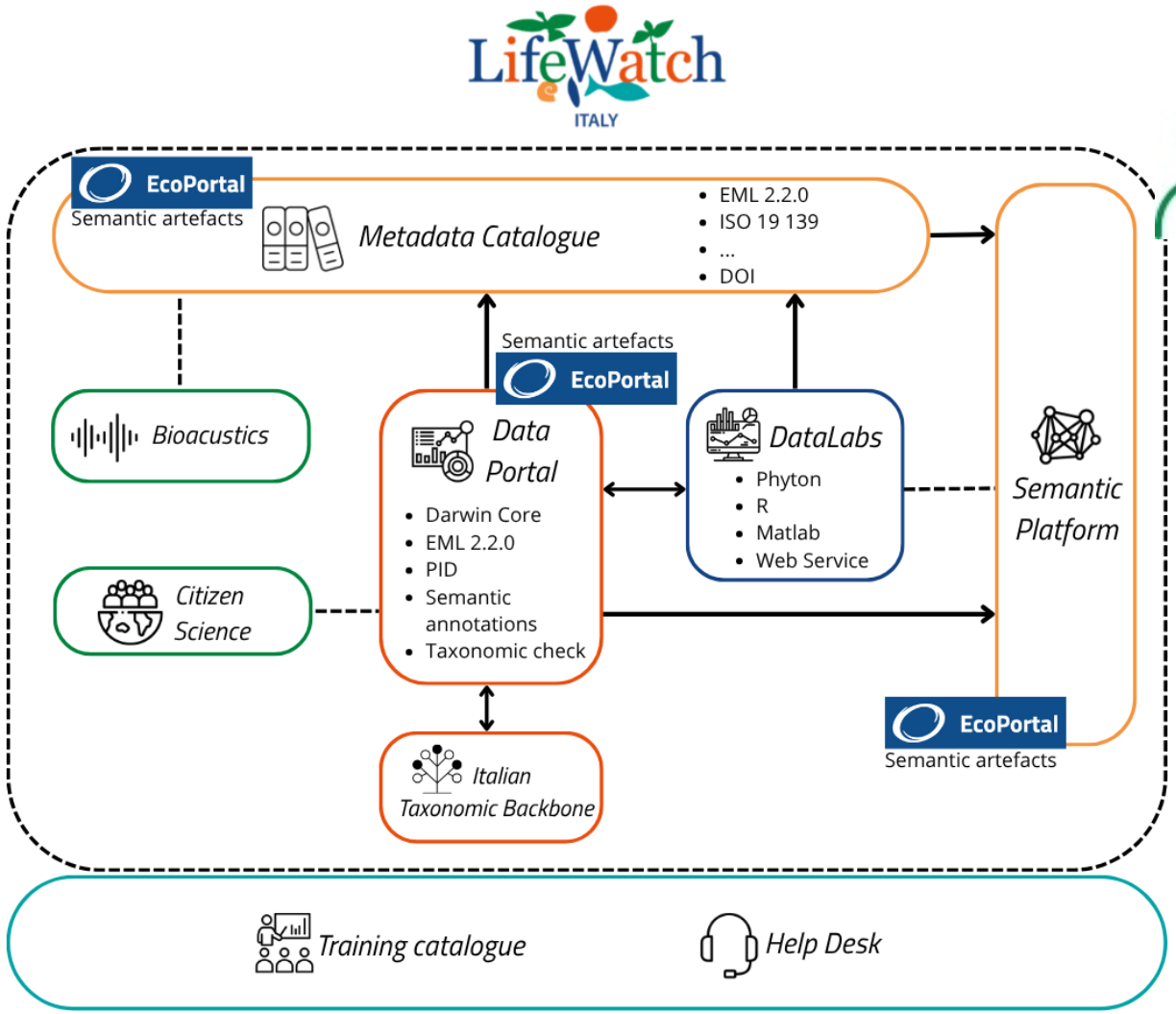
Open & FAIR Research Lifecycle

- Findable
- Accessible
- Interoperable
- Reusable
- Open

Image: Muresan, Alexandra Nicoleta; Rosati, Ilaria (2025). Data Lifecycle Framework for LifeWatch Italy. figshare. Figure. https://doi.org/10.6084/m9.figshare.30847574.v1

Image: Icons by Freepik from www.flaticon.com and ARDC https://conference.eresearch.edu.au/fair-go-new-resources-to-support-fair-data/

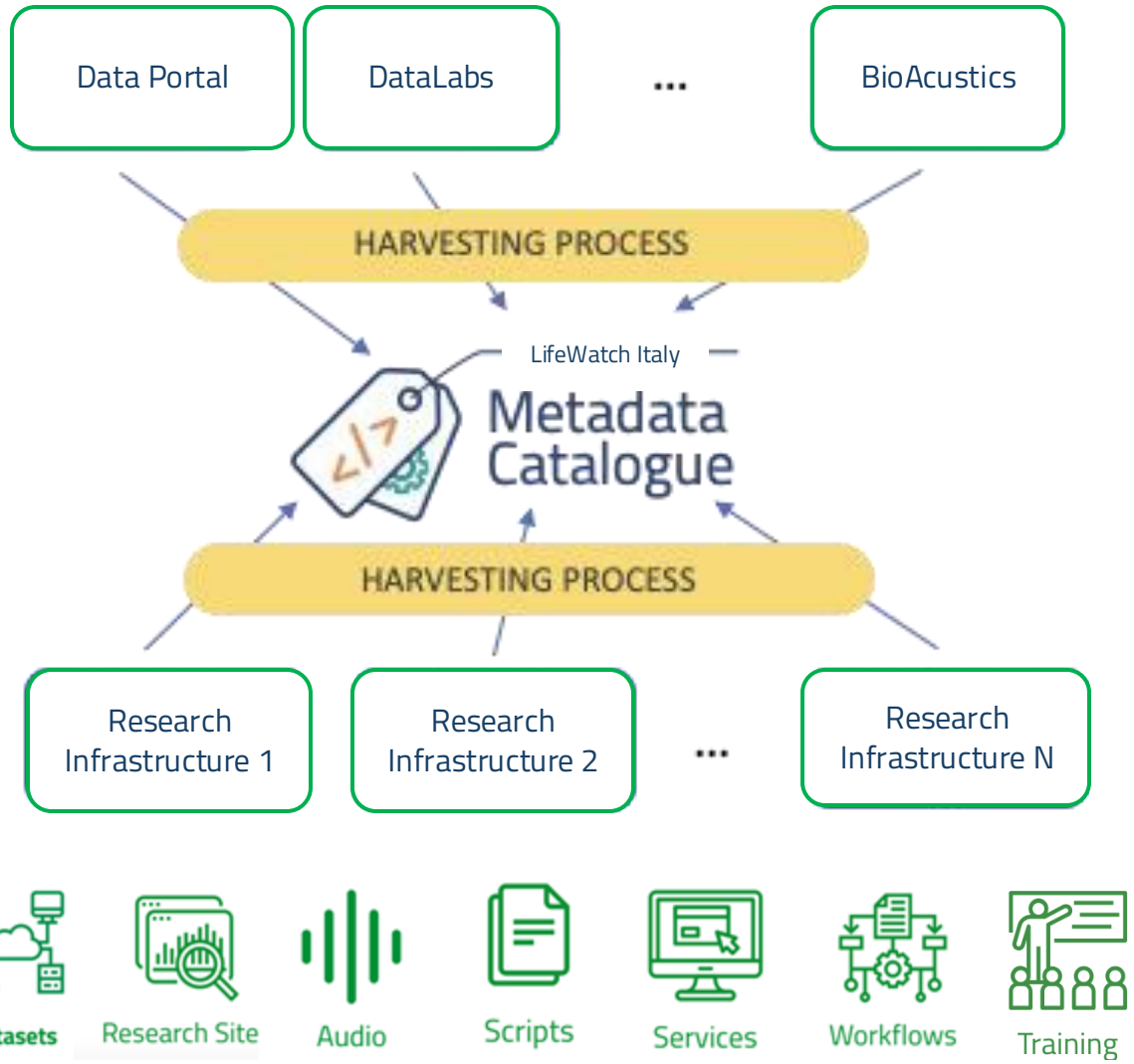
LifeWatch Italy Digital Infrastructure



- Researchers
- Citizen Scientists
- Data Scientists
- Semantic experts
- Data Managers
- Data Stewards
- Data Custodians
- Software/Application Developers
- Training Officer
- Research Infrastructure Managers
- ……..

Modified from New Trends in Theory and Practice of Digital Libraries. TPDL 2025. Communications in Computer and Information Science, vol 2694. Springer, Cham. https://doi.org/10.1007/978-3-032-06136-2_31, 2026 by Springer Nature

LifeWatch Italy FAIR & Open Research Products



LifeWatch ERIC

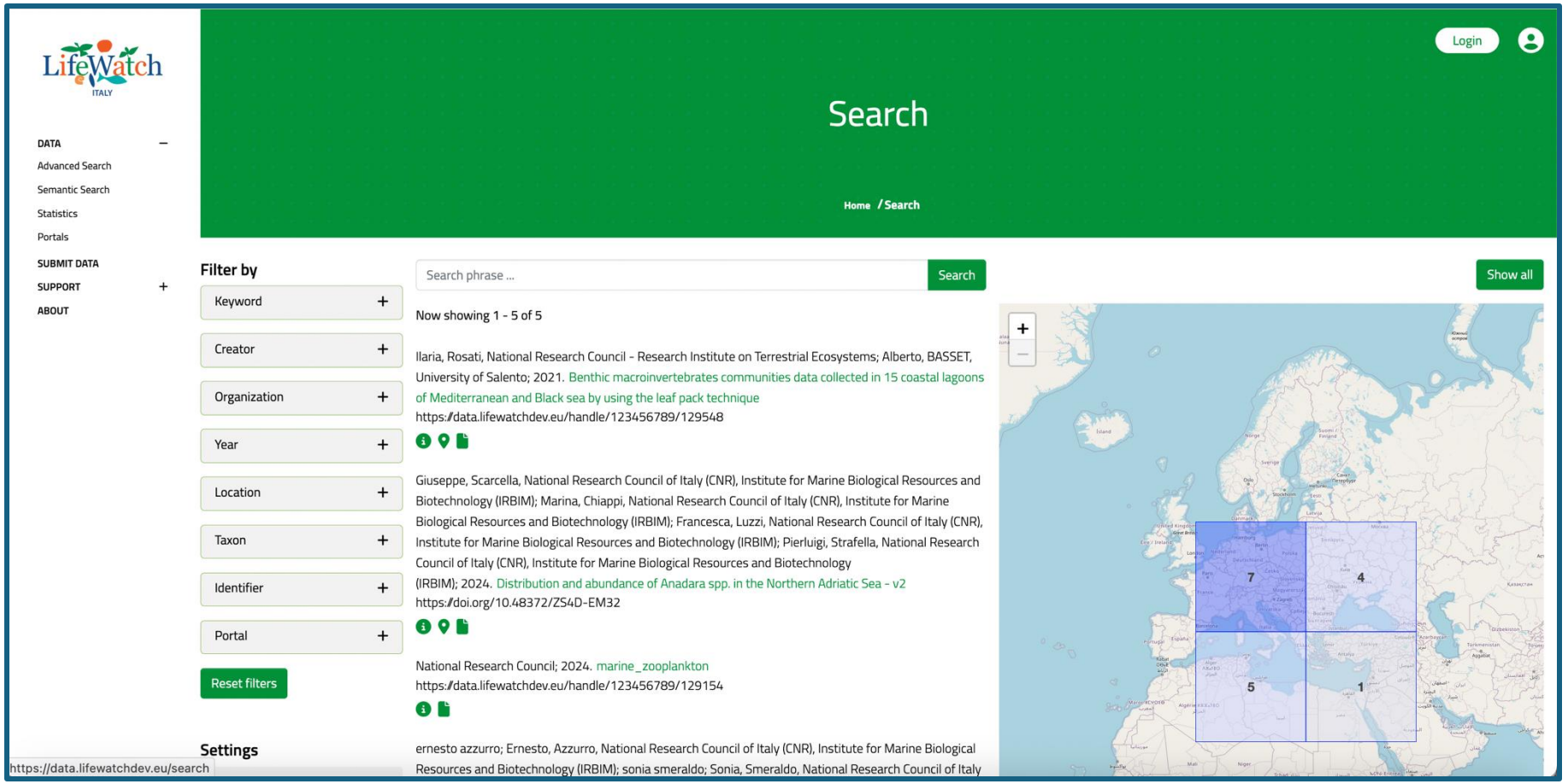
Metadata Catalogue

eosc

https://metadatacatalogue.lifewatchitaly.eu

LifeWatch Italy Data Portal

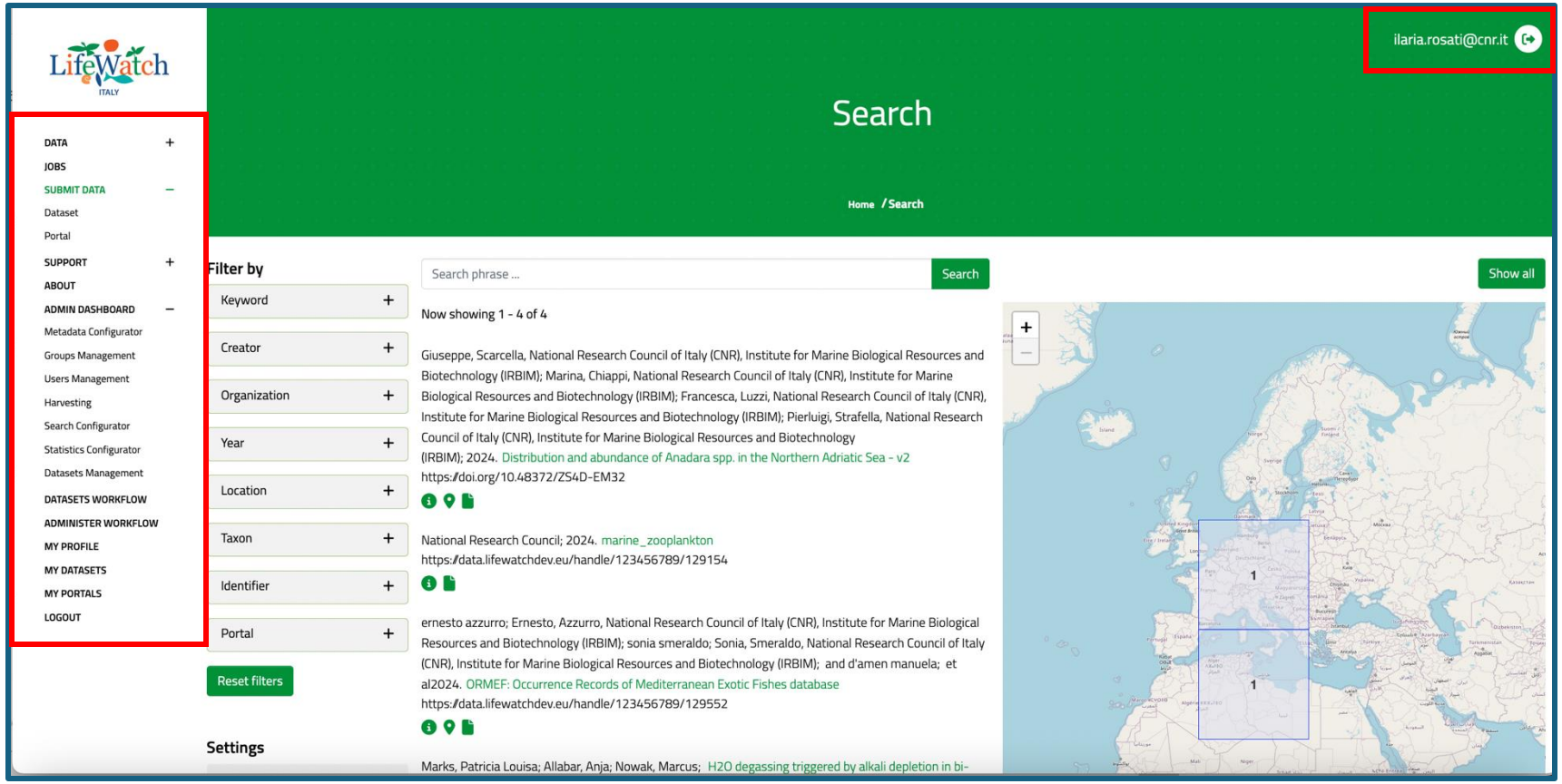
- Share, search and use datasets and associated metadata



https://data.lifewatchitaly.eu

LifeWatch Italy Data Portal

System overview, users categories, roles and main functionalities



Researcher= Data Provider
Reviewer= Data Steward or Data Manager
Administrator= Data Custodian

LifeWatch Italy Data Portal

System overview, users categories, roles and main functionalities

Section	Functionality	Role		
		Researcher	Reviewer	Administrator
JOBS (or MY JOBS)	Data Curation	x	x	x
SUBMIT DATA	Dataset	x	x	x
	Portal	x	x	x
ADMIN DASHBOARD	Metadata Configurator			x
	Groups Management			x
	User Management			x
	Harvesting			x
	Search Configurator			x
	Statistics Configurator			x
	Dataset Management			x
DATASETS WORKFLOW	Data and Metadata Review Workflow		x	x
ADMINISTER WORKFLOW	Data and Metadata Review Workflow			x
MY PROFILE	Owner Profile Management	x	x	x
MY DATASETS	Owner Datasets Management	x	x	x
MY PORTALS	Owner Portals Management	x	x	x

Researcher= Data Provider
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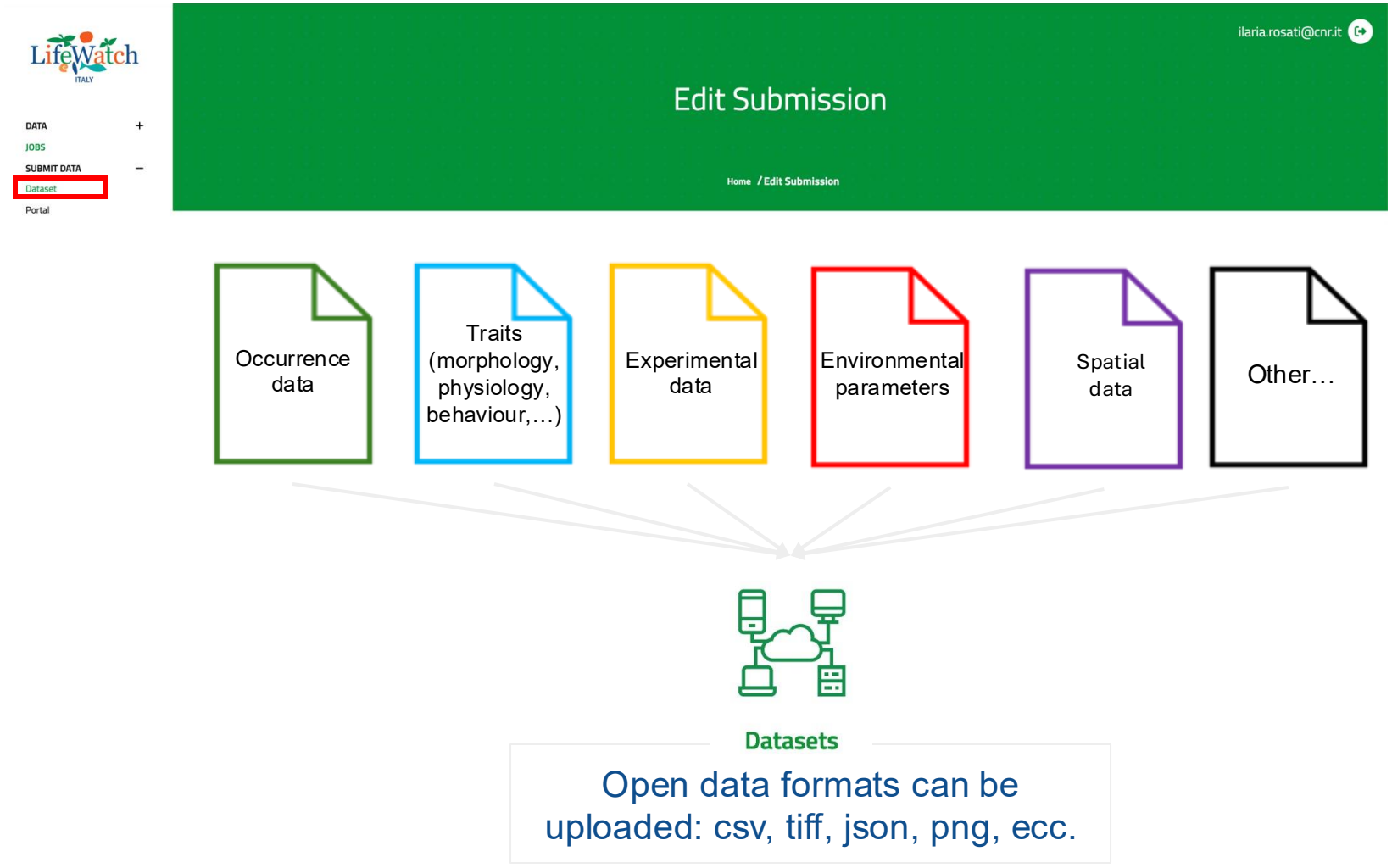
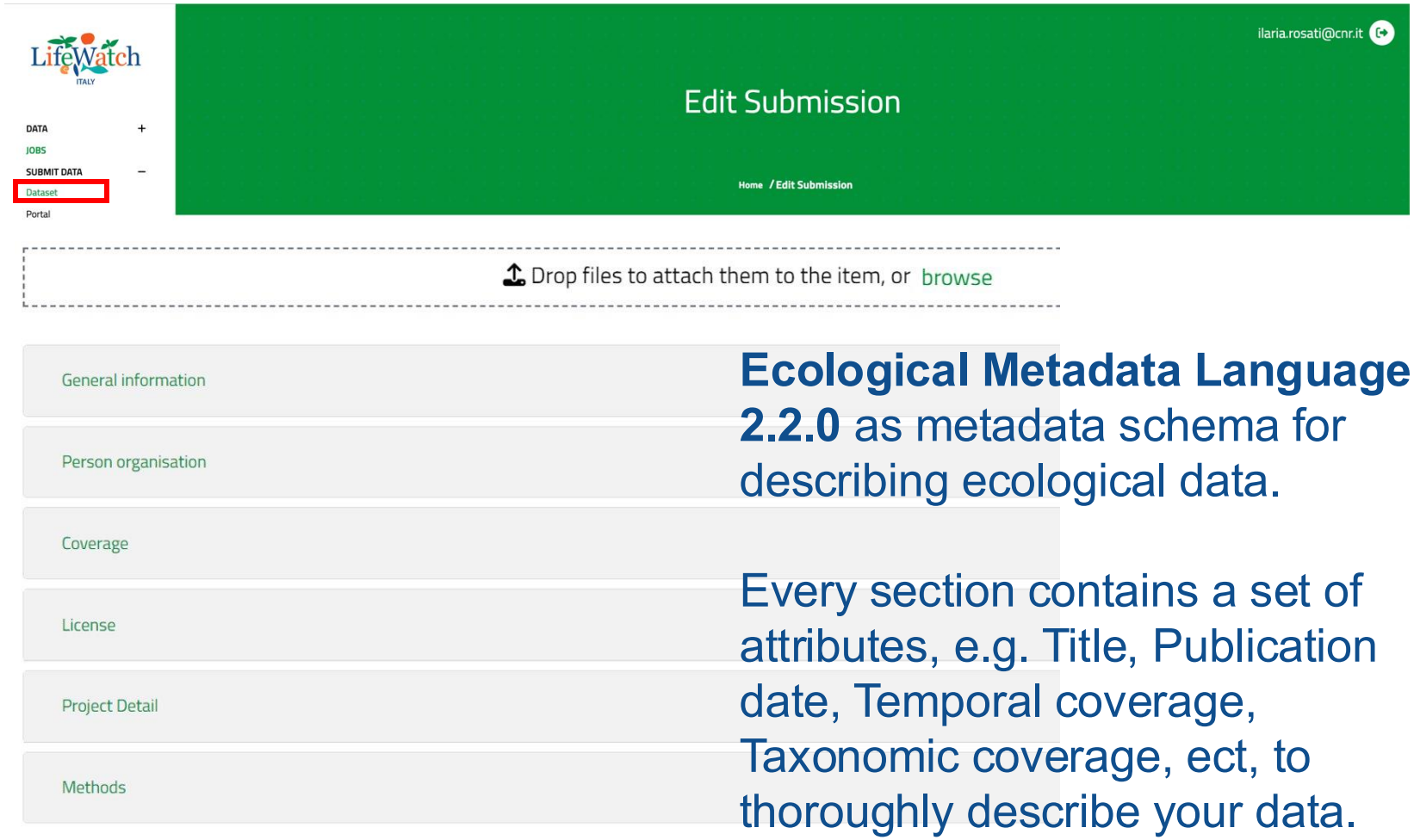
LifeWatch Italy Data Portal

Researcher
Reviewer



LifeWatch Italy Data Portal

Researcher
Reviewer



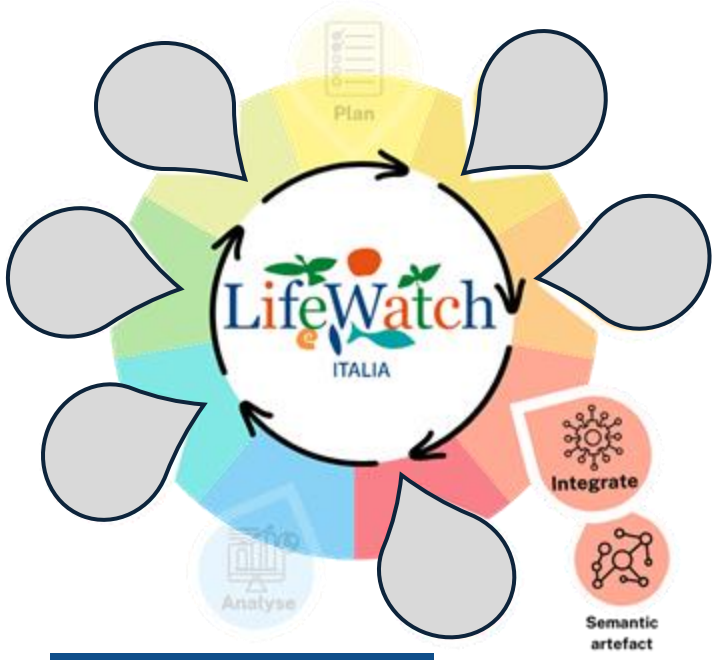
Ecological Metadata Language 2.2.0 as metadata schema for describing ecological data.

Every section contains a set of attributes, e.g. Title, Publication date, Temporal coverage, Taxonomic coverage, ect, to thoroughly describe your data.

https://eml.ecoinformatics.org/eml-schema

LifeWatch Italy Data Portal

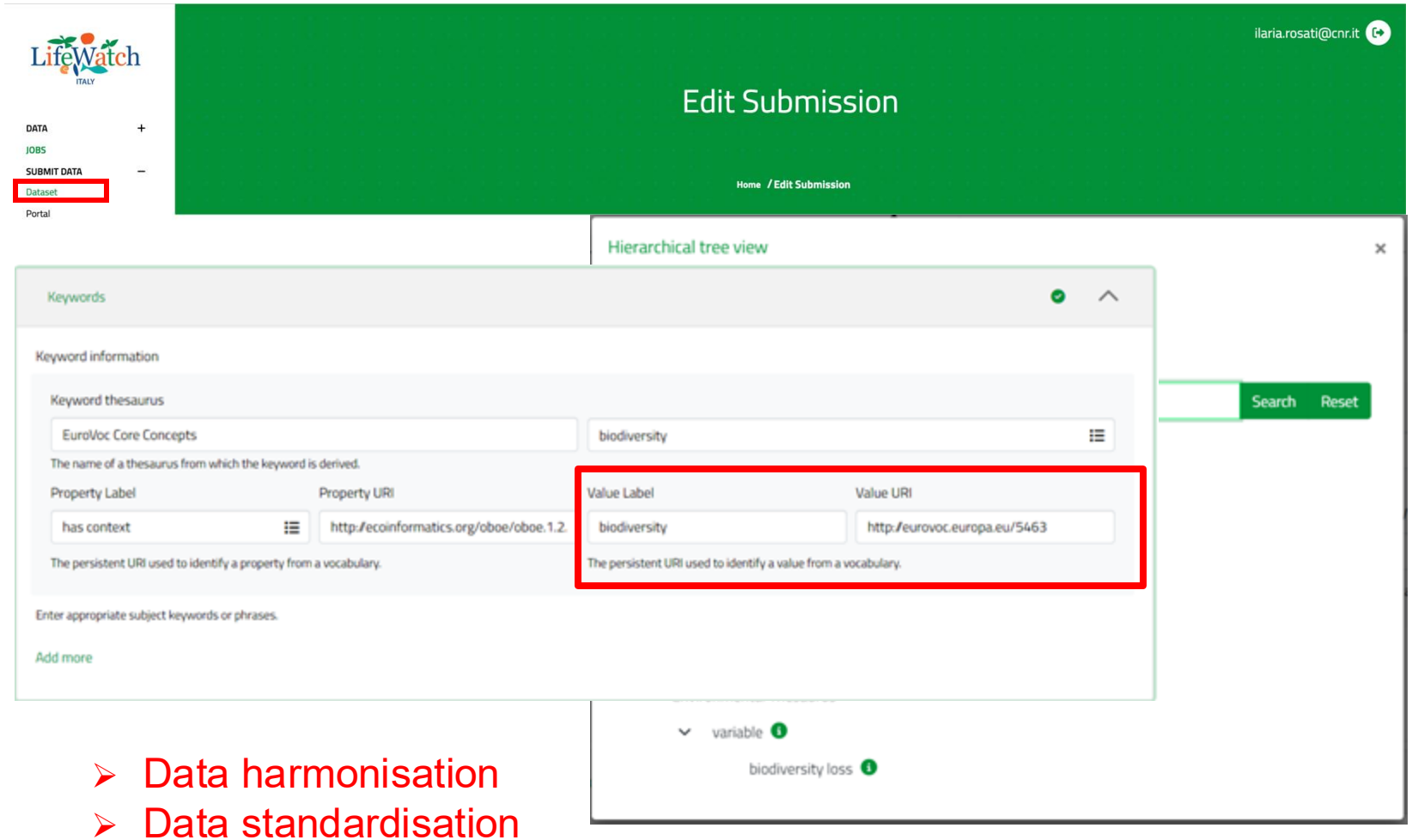
Researcher
Reviewer
Semantic experts



EcoPortal

https://ecoportal.lifewatch.eu

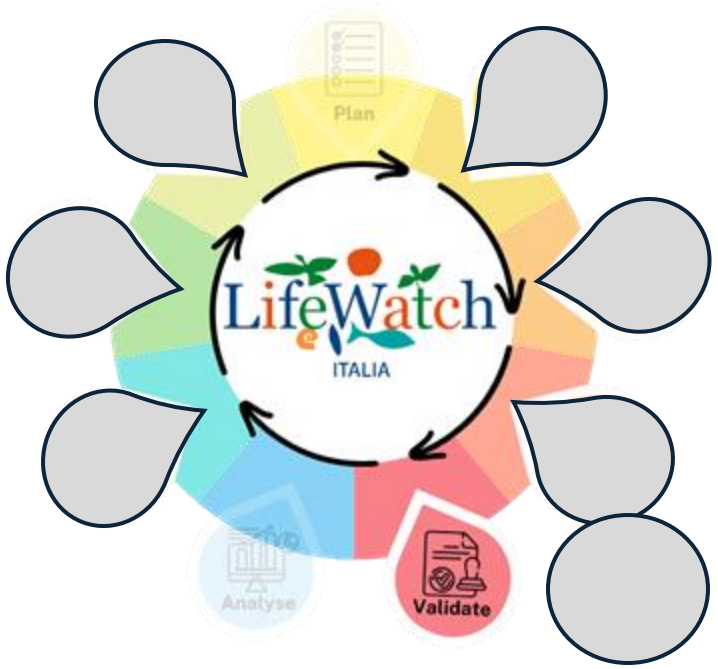
Semantic Annotation



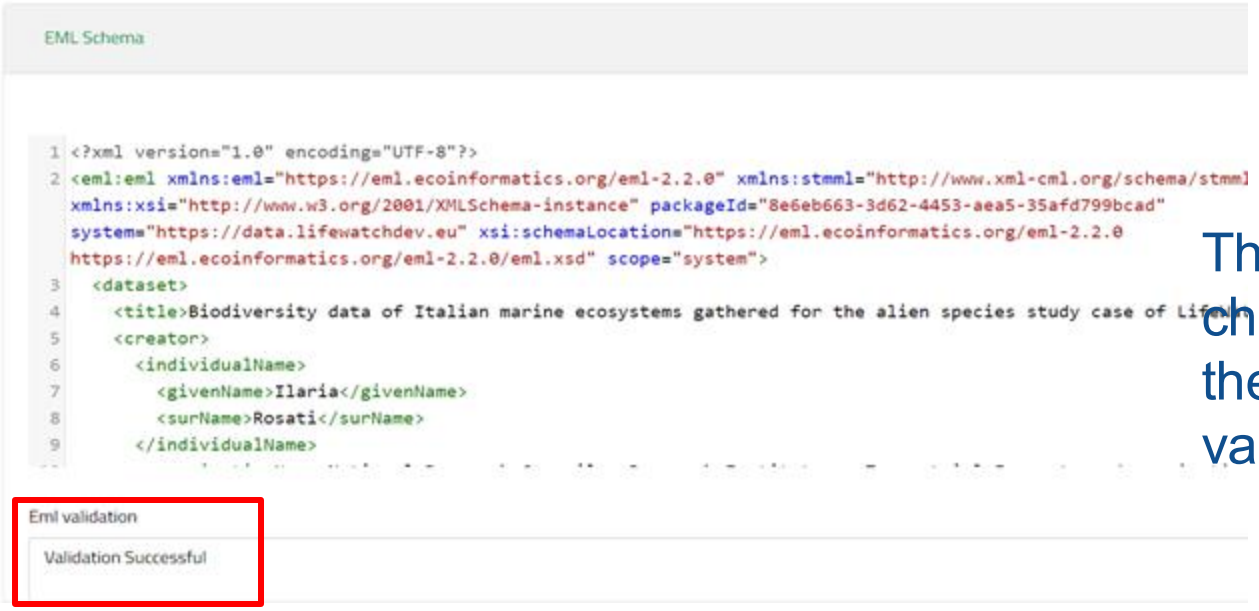
- Data harmonisation
- Data standardisation
- Data reuse

LifeWatch Italy Data Portal

Researcher
Reviewer



Metadata Validation



The xml file is checked against the EML schema validator (.xsd file)

LifeWatch Italy Data Portal

Researcher
Reviewer

Data Curation and Validation

Drop files to attach them to the item, or browse

CSV

LW-ITA Data Schema based on DarwinCore and controlled vocabularies

scientificName	samplingProtocol	bodyLenght
Idotea balthica	hand operated ekman grab	4.5

scientificName
Idotea balthica

Taxonomic check

Validated data

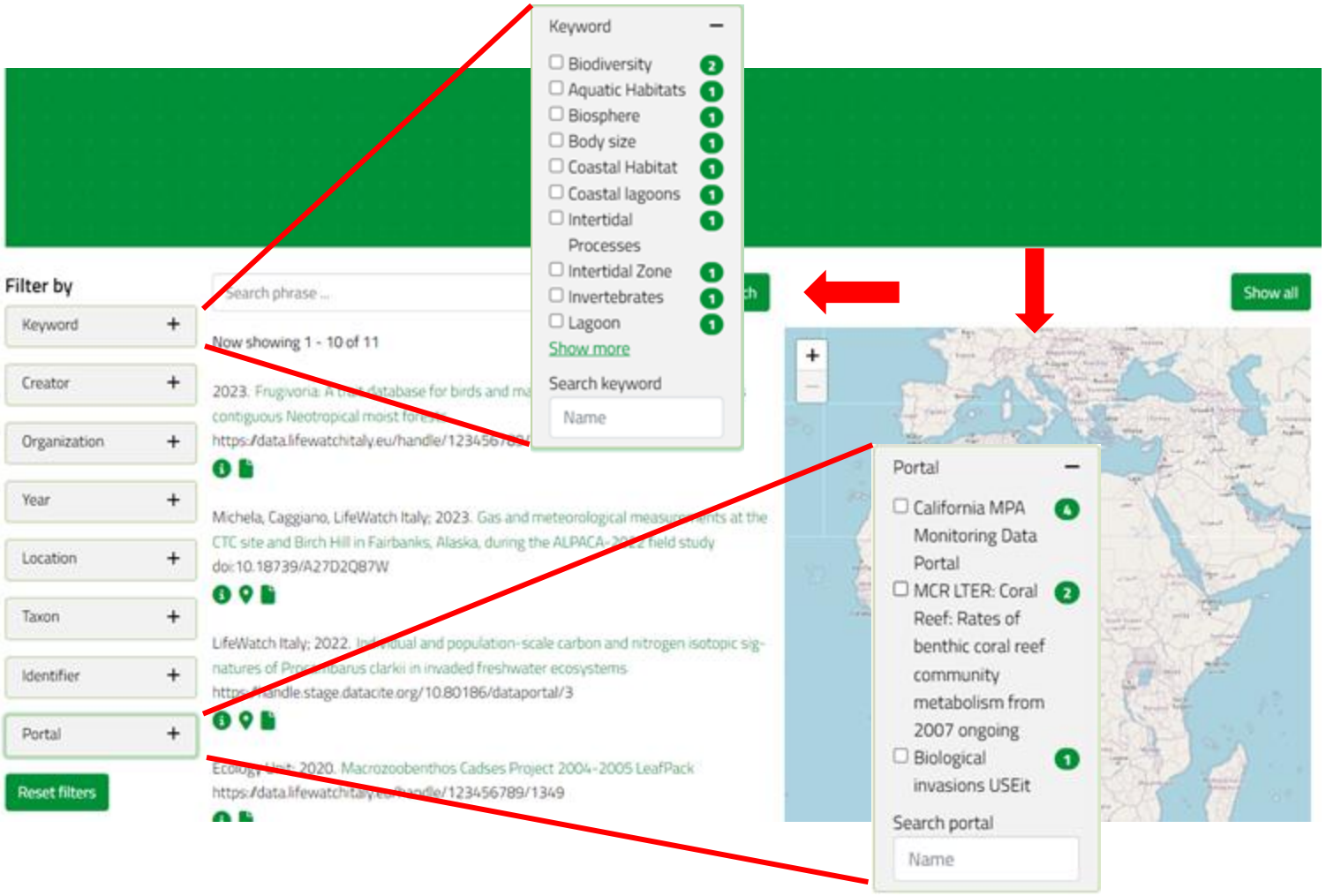
WoRMS World Register of Marine Species

Catalogue of Life

LifeWatch Italian Taxonomic Backbone

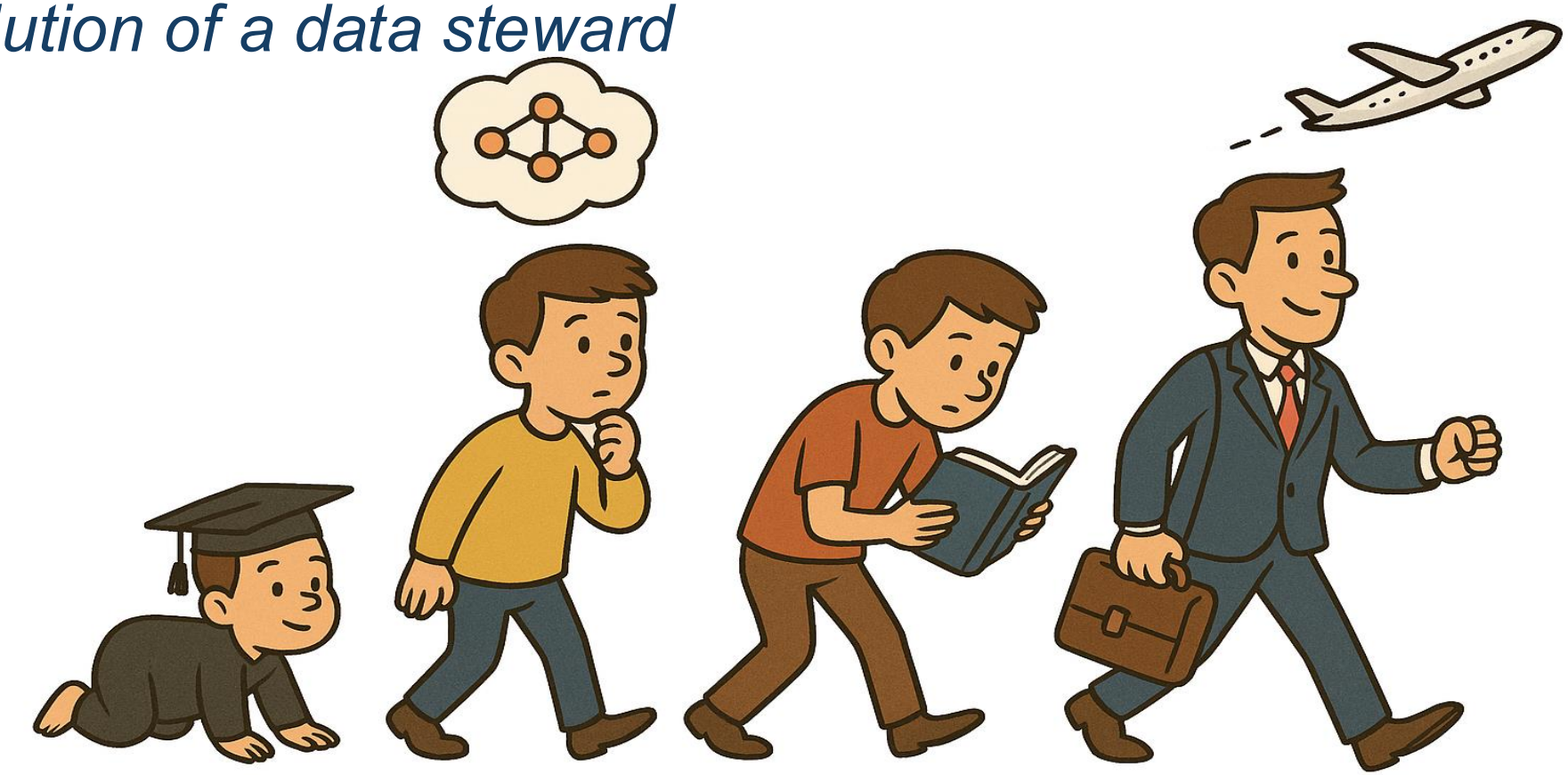
LifeWatch Italy Data Portal

Researcher
Administrator



LifeWatch Italy Data Steward

The evolution of a data steward



GRADUATE
The newborn DS got a Bachelor, Master, or PhD in any discipline, BUT data management

RDM CURIOSITY
The DS begins to explore RDM concepts, questioning how data should be managed and shared

SELF-TAUGHT
The DS studies independently: reading articles, learning from international initiatives, and building expertise through personal effort.

PROFESSIONAL DS
Eventually, the DS becomes knowledgeable. Now **seek opportunities abroad**, where the position is more established and valued.

Figure by OpenAI ChatGPT (DALL-E) generative AI model, 2025.

Team

Ilaria Rosati

CNR-IRET

Lucia Vaira

LifeWatch ERIC

Davide Raho

CNR-IRET

Francesco De Leo

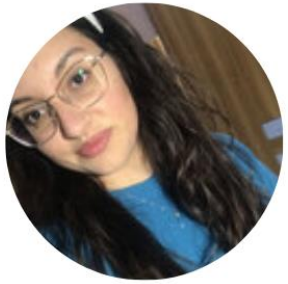
CNR-IRET

Cristina Di Muri

CNR-IRET

Andrea Tarallo

CNR-IRET



Martina Pulieri

University of Salento

Mariantonietta La Marra

University of Salento

Eftychia Tzafesta

LifeWatch ERIC

Majid Fiaz

LifeWatch ERIC

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Thank you
for your attention!

ilaria.rosati@cnr.it

CNR IRET

Consiglio Nazionale delle Ricerche

LifeWatch ITALY