



... cioè ...

training

● ... cos'è RAISE?

school

summer

● ... e l'Ecosistema ligure?

● ... ma soprattutto, cosa c'entra l'Open Access?

ambiente

management

ecorobotica

progetti

data

decade

unesco

workshop

disseminazione

energia

laboratori

genova

famelab

assemblea

robotica

ricerca

digital

RAISE

scienza festival

raise

village

convegno

imaging





**RAISE**



# RAISE

## Robotics and AI for Socio-economic Empowerment

- È un **progetto** concepito e coordinato da **UNIGE, CNR** e **IIT**
- avviato l'**1 ottobre 2022**
- selezionato dal **Ministero dell'Università e della Ricerca** nell'ambito del **PNRR - Missione 4 - Componente 2**.

**3**

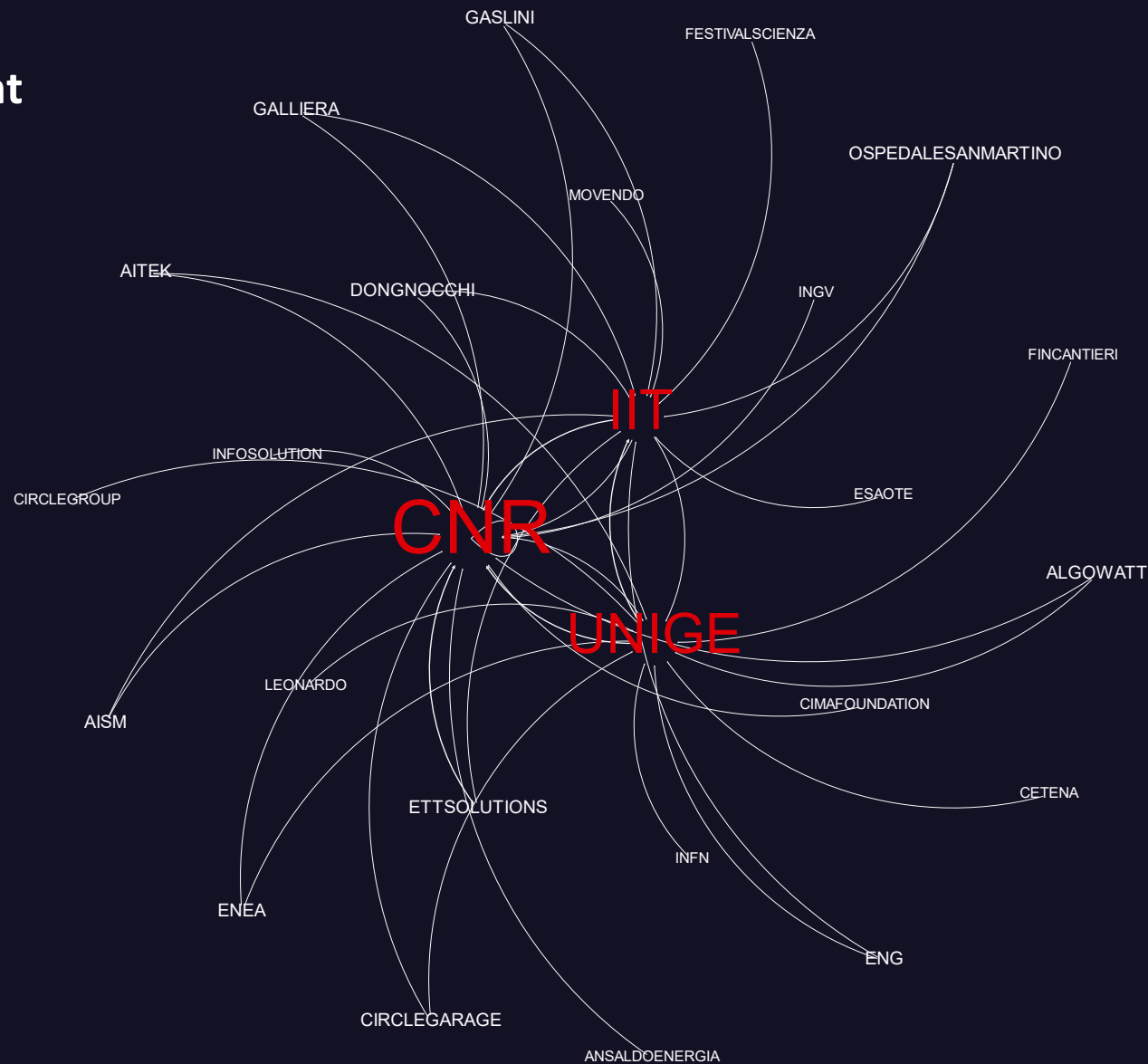
anni

**26**

partner

**110**

milioni €





# RAISE

## Robotics and AI for Socio-economic Empowerment

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anni

**26**

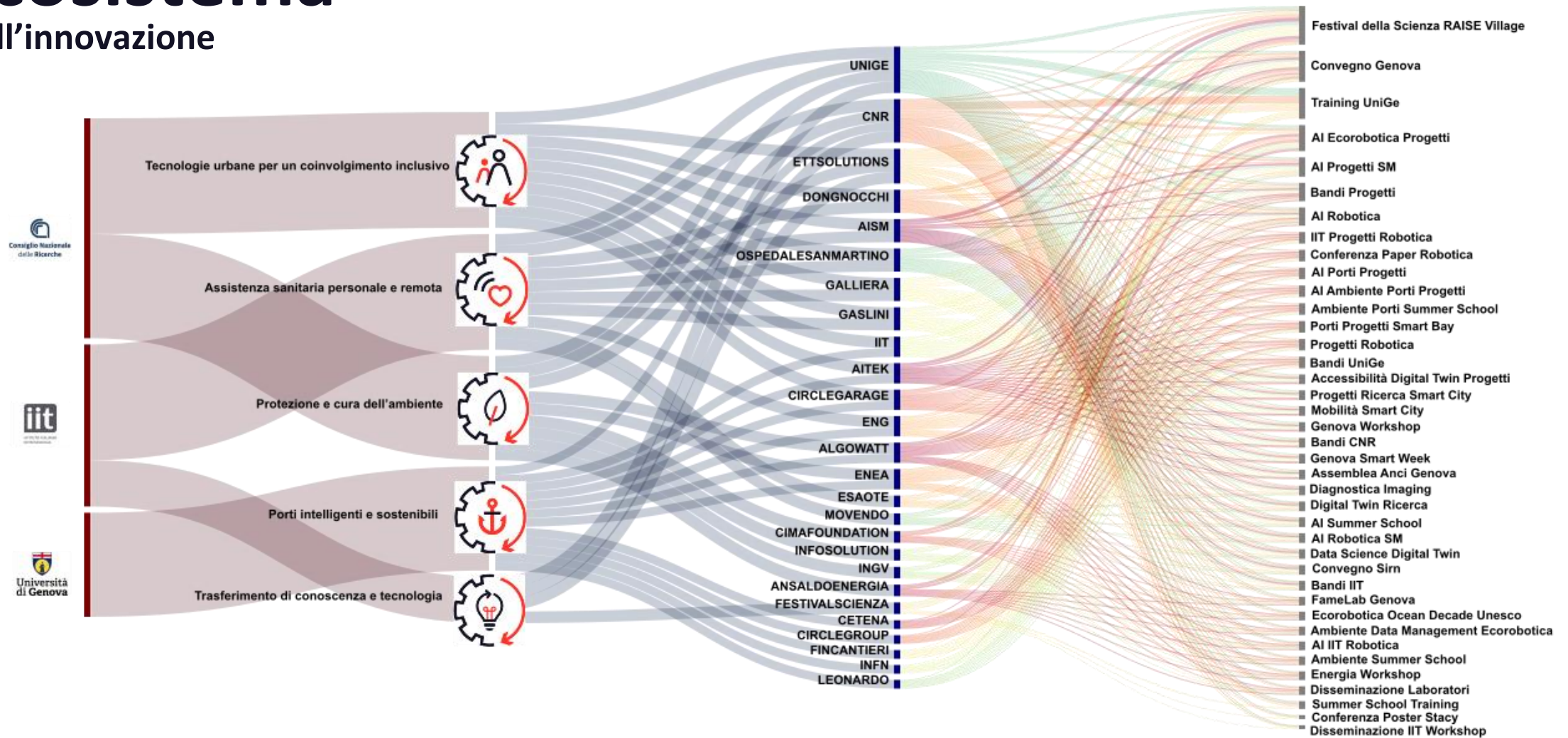
partner

**110**

milioni €

RAISE mira a sviluppare e commercializzare **soluzioni tecnologiche** basate su **sistemi robotici e intelligenza artificiale**, che rispondano alle reali esigenze produttive e sociali del territorio ligure. Il progetto si propone di valorizzare e potenziare la ricerca e lo sviluppo in queste tecnologie per diverse aree di interesse, tra cui la **sanità**, la **sostenibilità** ambientale, i **porti intelligenti** e **le smart city** accessibili e inclusive. L'approccio di RAISE mette al centro i bisogni delle persone e del territorio favorendo il **trasferimento di tecnologie** innovative dalla ricerca al mercato, fornendo risorse, conoscenze e supporto per generare un'innovazione sostenibile, inclusiva e resiliente. Inoltre, il progetto mira a creare un **ecosistema** altamente attrattivo per aziende, investitori e ricercatori, sia a livello nazionale che internazionale.

# Ecosistema dell'innovazione



# Ecosistema dell'innovazione

- sistema di governance **Hub & Spoke**
- **5 aree di intervento** su singole tematiche, dedicate allo sviluppo di tecnologie innovative in aree strategiche per il territorio



Tecnologie urbane per un coinvolgimento inclusivo



Porti intelligenti e sostenibili



Assistenza sanitaria personale e remota



Protezione e cura dell'ambiente



Trasferimento di conoscenza e tecnologia



# Ecosistema ligure

## dell'innovazione

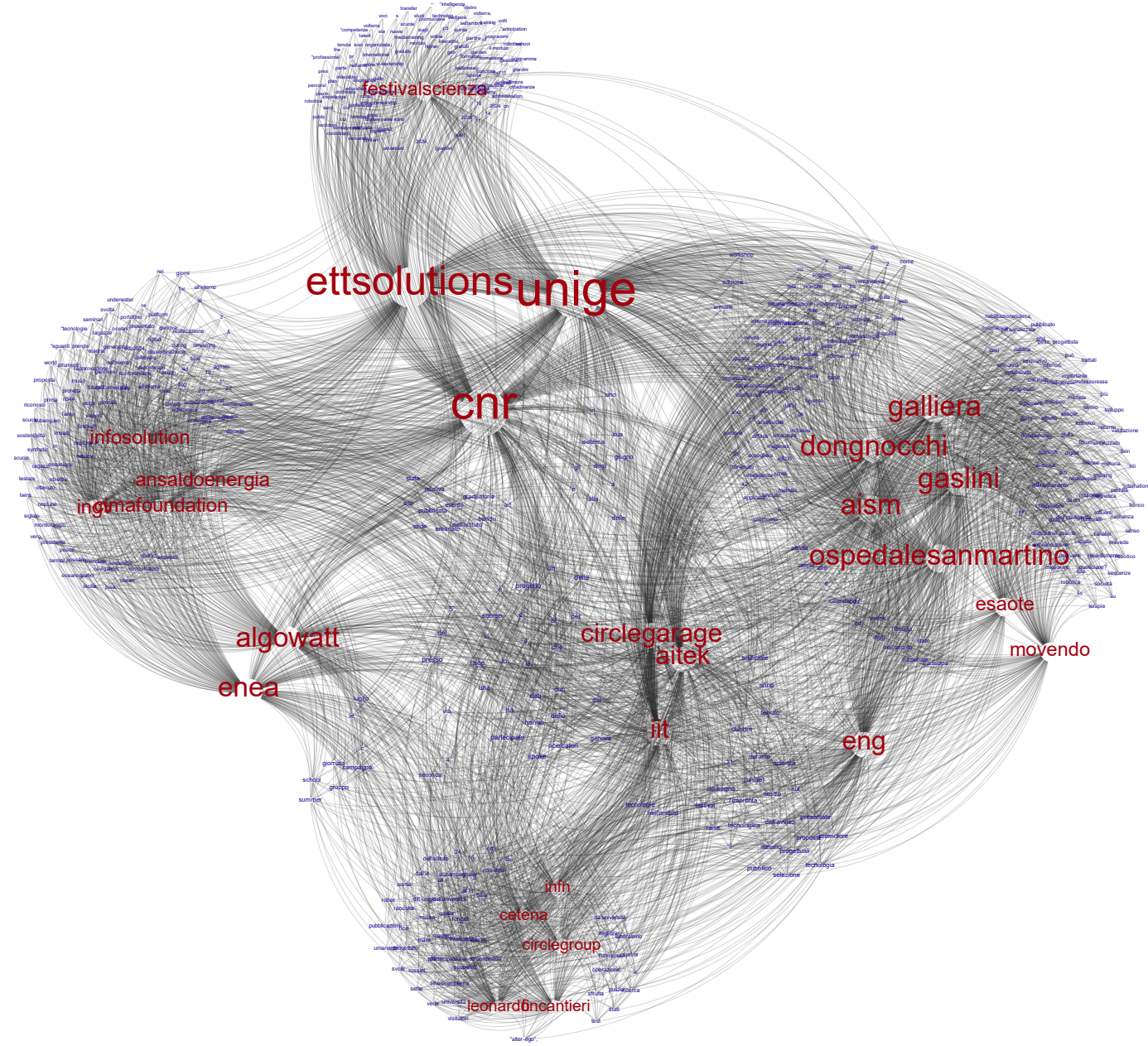
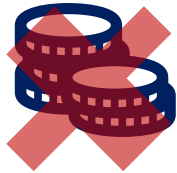
- sistema di governance **Hub & Spoke**
- **5 aree di intervento** su singole tematiche, dedicate allo sviluppo di tecnologie innovative in aree strategiche per il territorio

La Liguria appare come un **laboratorio a cielo aperto** in cui i **trend demografici** si sono manifestati prima che in qualsiasi altra parte del mondo (per una serie di ragioni storiche) e proprio qui sono presenti alcuni dei più grandi laboratori di **ricerca robotica e di IA** presenti in Italia con programmi scientifici che esplorano la compresenza di macchine intelligenti accanto all'uomo per migliorare la **qualità della vita e del lavoro** ("Robot Valley").



# Open access

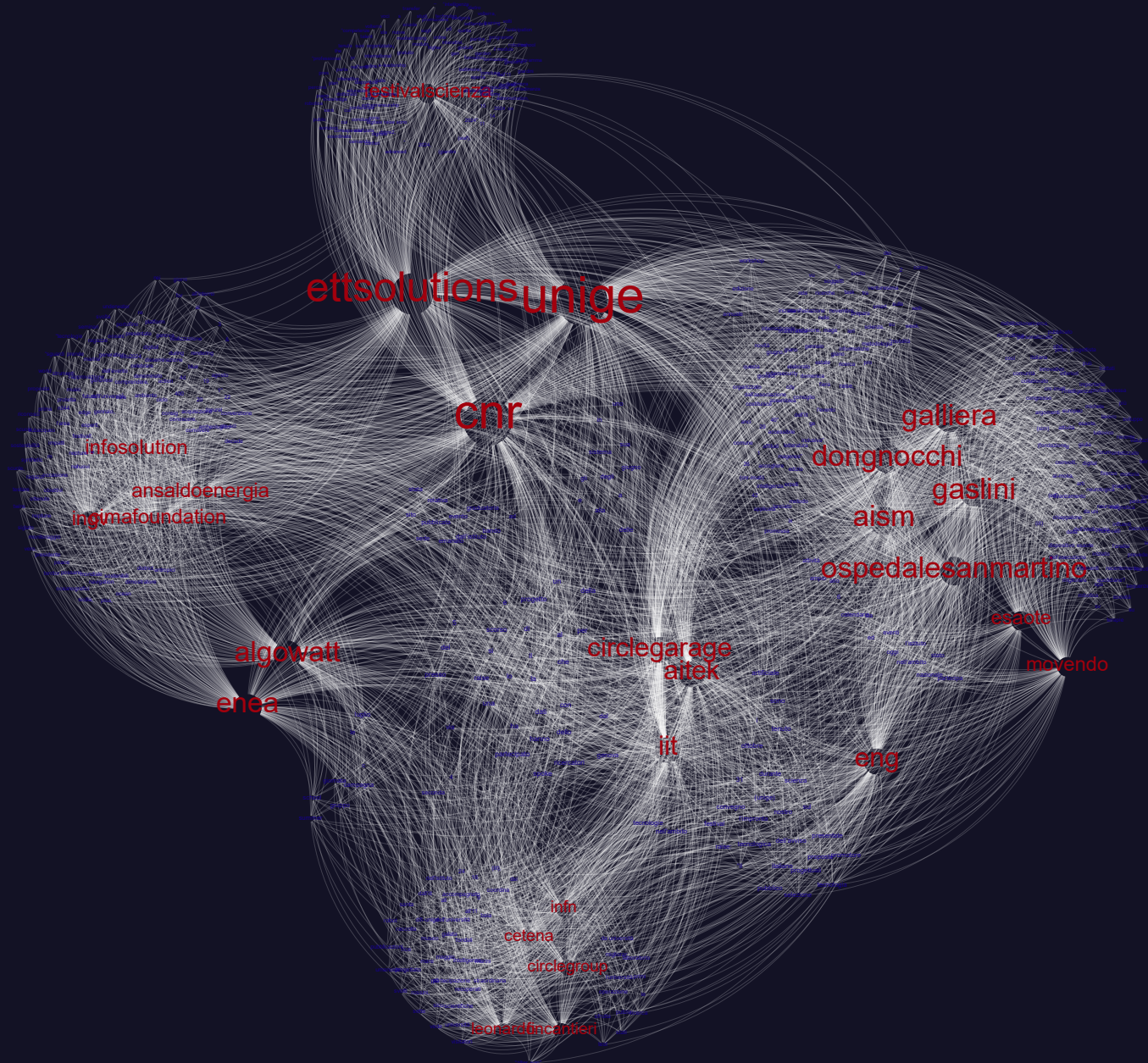
Open access is the practice of providing **online** access to scientific information that is **free** of charge to the user and is **reusable**. [[EU Commission](#)]





# Open access

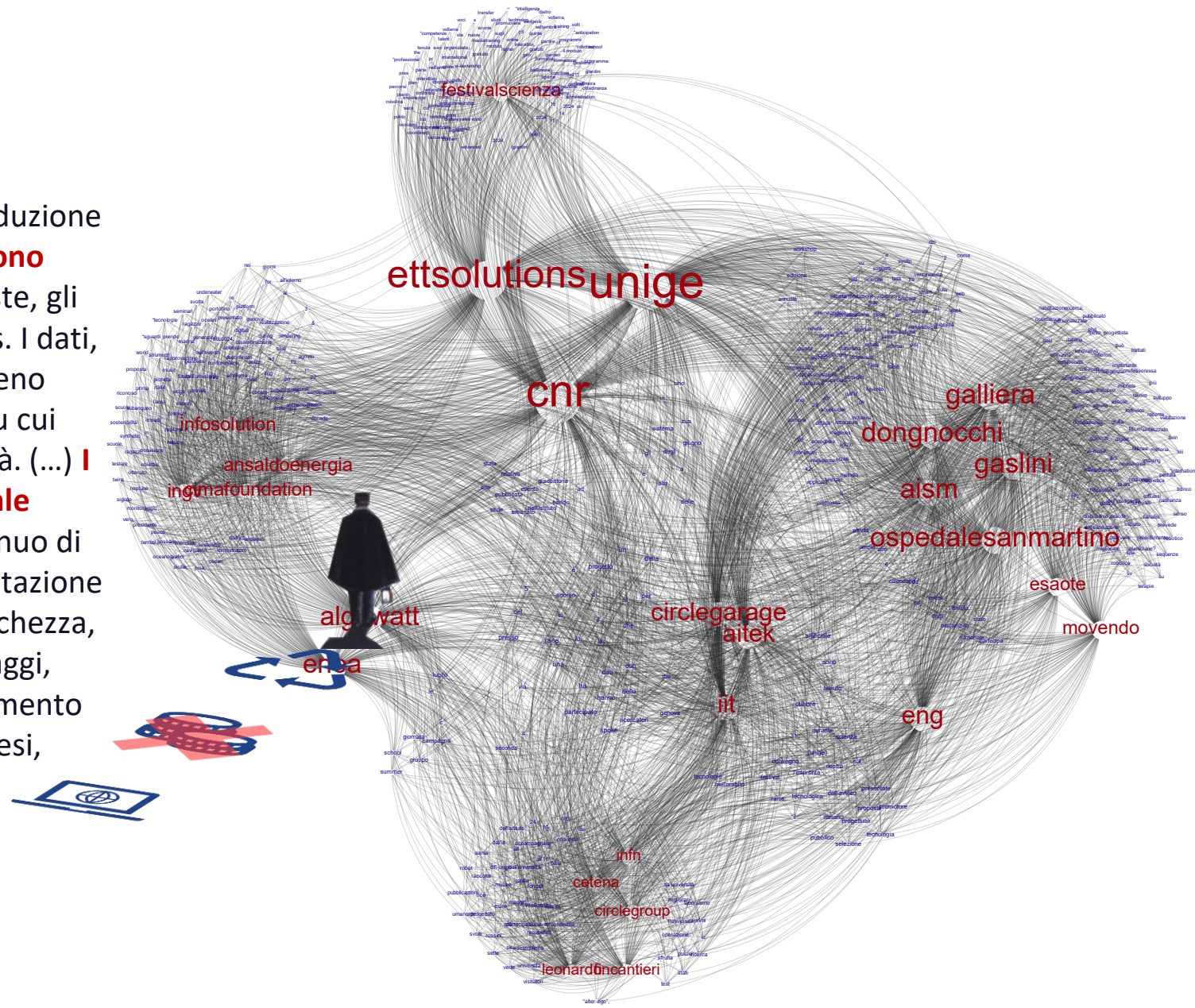
Opening up data and processes, using open licenses and formats all are **necessary** items, **but not sufficient**. If these actions do not match cultural, social, philosophical ones, they remain ineffective in society. **Open Data**, as of now, remains a tool for the few, for those researchers, engineers and designers who **mediate** it for others. [S. Iaconesi, 2017]





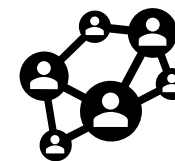
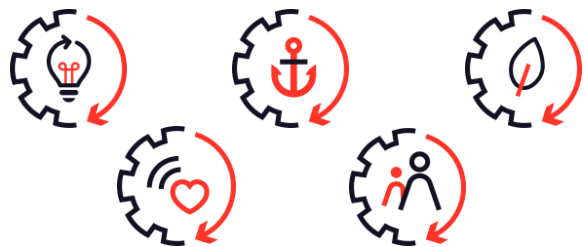
# Open data

... Dati come common ground, computazione come traduzione e per stabilire nuove relazioni. **Tutti producono e possono produrre dati**: le persone, gli animali, le piante, le foreste, gli edifici, le città, le comunità, le aziende, i territori, i virus. I dati, quindi, possono costituire un **common ground**, un terreno comune per tutti questi attori del nostro ecosistema, su cui incontrarsi e stabilire nuove relazioni e nuove sensibilità. (...) **I dati e la computazione sono il più grande bene culturale prodotto dall'umanità**. Questo enorme processo continuo di traduzione di dati in artefatti culturali tramite la computazione non ha pari nell'intera storia dell'essere umano, per ricchezza, diversità, varietà e capacità di esprimere culture, linguaggi, luoghi, tempi, usanze, metodi, processi e ogni altro elemento del nostro **ecosistema** e delle nostre civiltà ... [S. Iaconesi, Principi del Nuovo Abitare]



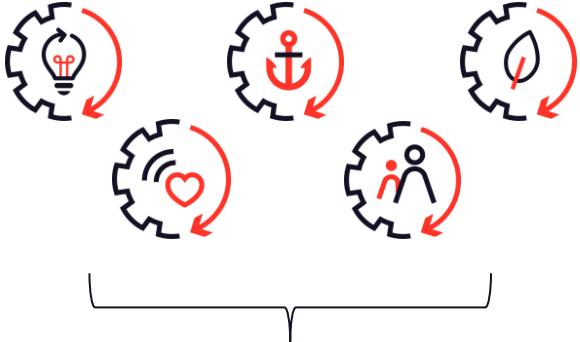
# Tecnologia

della mediazione



# Tecnologia

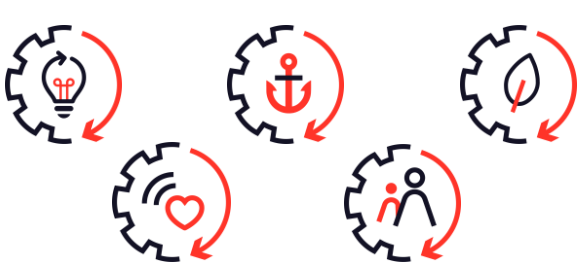
della mediazione





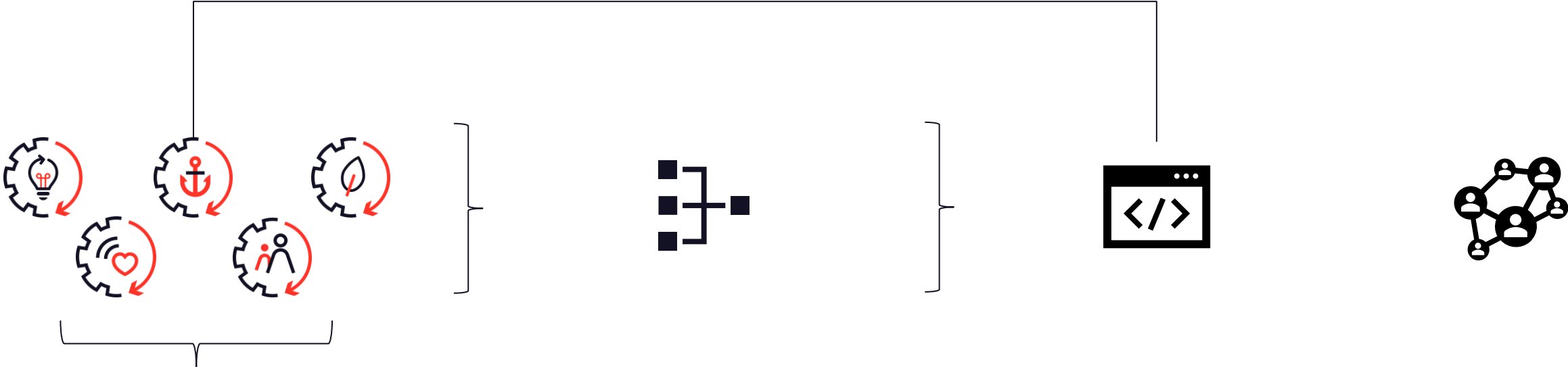
# Tecnologia

della mediazione



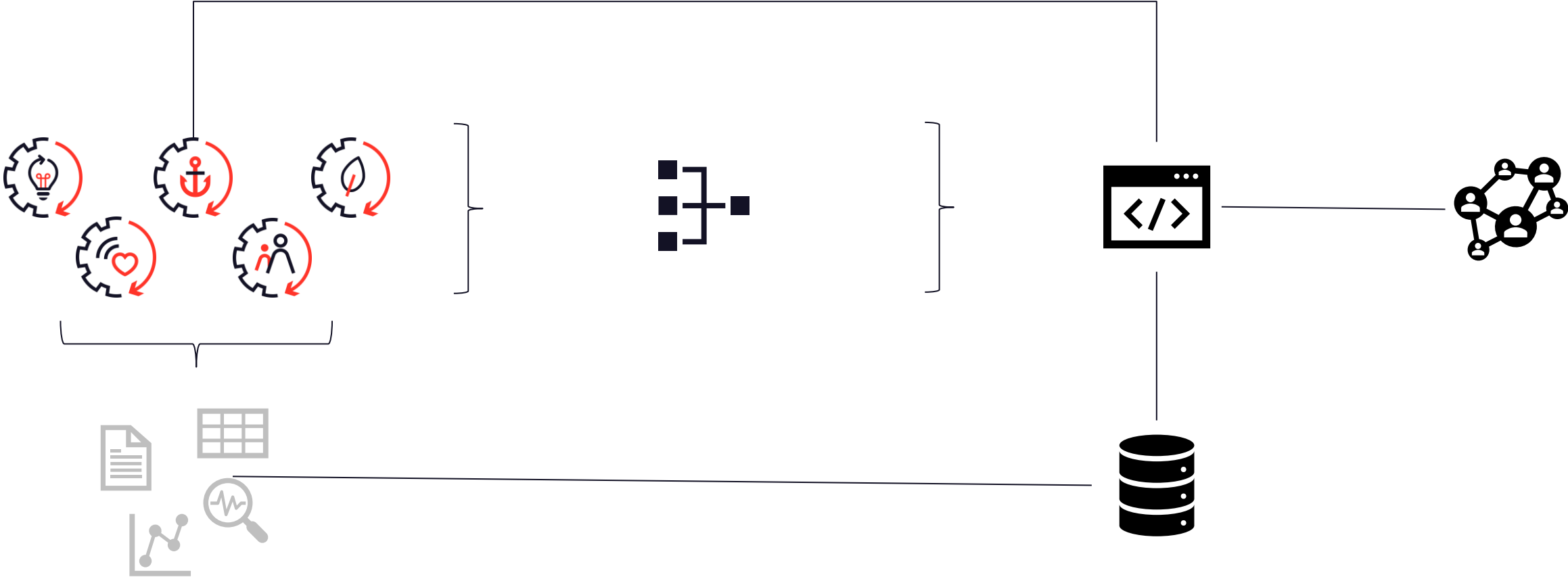
# Tecnologia

della mediazione



# Tecnologia

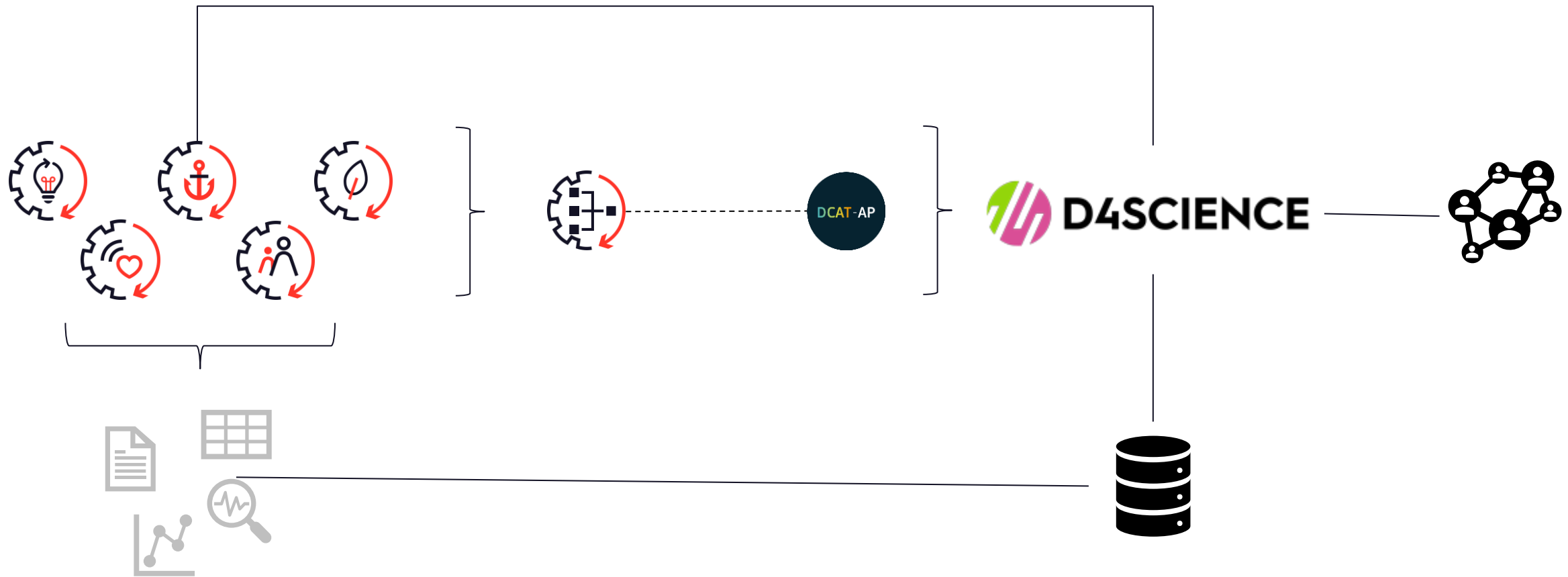
della mediazione





# Tecnologie

della mediazione



# Tecnologie della mediazione

**DCAT** is an **RDF vocabulary** designed to facilitate **interoperability** between data catalogs published on the **Web**.

DCAT enables a publisher to **describe datasets and data services** in a **catalog** using a standard model and vocabulary that facilitates the consumption and aggregation of **metadata** from multiple catalogs. This can increase the **discoverability** of datasets and data services. It also makes it possible to have a **decentralized approach** to publishing data catalogs and makes federated search for datasets across catalogs in multiple sites possible using the same query mechanism and structure. Aggregated DCAT metadata can serve as a manifest file as part of the digital preservation process.



D4SCIENCE



# Tecnologie della mediazione

D4Science is a **Data Infrastructure** connecting +24.000 scientists in +50 countries, integrating +50 heterogeneous data providers, executing +50,000 models & algorithms/month; providing access to over a billion quality records in repositories worldwide.

D4Science hosts +175 **Virtual Research Environments** to serve the biological, ecological, environmental, social mining, culture heritage, and statistical communities world-wide.



**D4SCIENCE**





# Workflow



## dataset

Accumulated precipitation 3h  
 Adaptive cueing to mitigate freezing of gait:  
 Algawarning  
 Buildings (Edifici)  
 Chlorophyll  
 Chlorophyll concentration  
 Chlorophyll satellite spectrography  
 Cittadinanza HDI  
 Cloud cover  
 Energy production and consumption data; resource flows data  
 Environment Data: temperature, pressure and humidity  
 Environmental data  
 Fall detection and mapping through mobile devices:  
 Geospatial data  
 Geospatial data for Container areas in the Port of Genoa  
 Gusts  
 Individual abilities characterization  
 Italian version of the 14-item Resilience Scale (RS-14) (Questionnaire)  
 MEDA2 buoy  
 Mathematical Competence Data  
 Monitoring data  
 Monumental Trees (Alberi monumentali - d.d. n.3881/2023)  
 Oceanographic time-series  
 Physiological data  
 Port Operations and Multi Docks/Multi Ships Management data  
 Psychological General Well Being - Short (PGWB-S) (Questionnaire)  
 RAISE Early Warning Jellies (P1.5) - Data from MITO model  
 RAISE Early Warning Jellies (P1.5) - Data from imaging device GUARD-1  
 RAISE Early Warning Mussels (P1.6)  
 RAISE Fluorescent sensor for the detection of organic compounds in seawater (P1.3)  
 RAISE Smart Observatory (P1.1)  
 Ranking ISTAT professioni  
 Relative humidity at ground level  
 Residenti  
 SELFY-BRIEF-MPI (Questionnaire)  
 Sea Surface Temperature  
 Sea water salinity  
 Sea water temperature  
 Sea waves monitoring  
 Semantically annotated urban 3D models  
 Sezioni censimento  
 Significant wave height  
 Single Dock/Single Ship Management data  
 Static tabular data  
 Surface temperature Citizen Science  
 Temperature 50hPa  
 Temperature 85hPa  
 Temperature 925hPa  
 Temperature at 2 m  
 Temperature at 2 m+  
 Toponymy (MAPPA REGIONALE FISICA SC. 1:200000);  
 User feedback data (questionnaire)  
 Vessel Traffic Management data  
 Visual control and inspection: videocamera  
 Water column temperature  
 Wind animation at 10 m  
 Wind at 10 m  
 biopotential ECG data  
 crowd monitoring in urban outdoor areas; crowd density; pedestrian flow; videocamera  
 outdoor environmental data in urban areas; temperature, rel. humidity, wind speed and direction, |  
 time series of acoustic values (harmonica index)

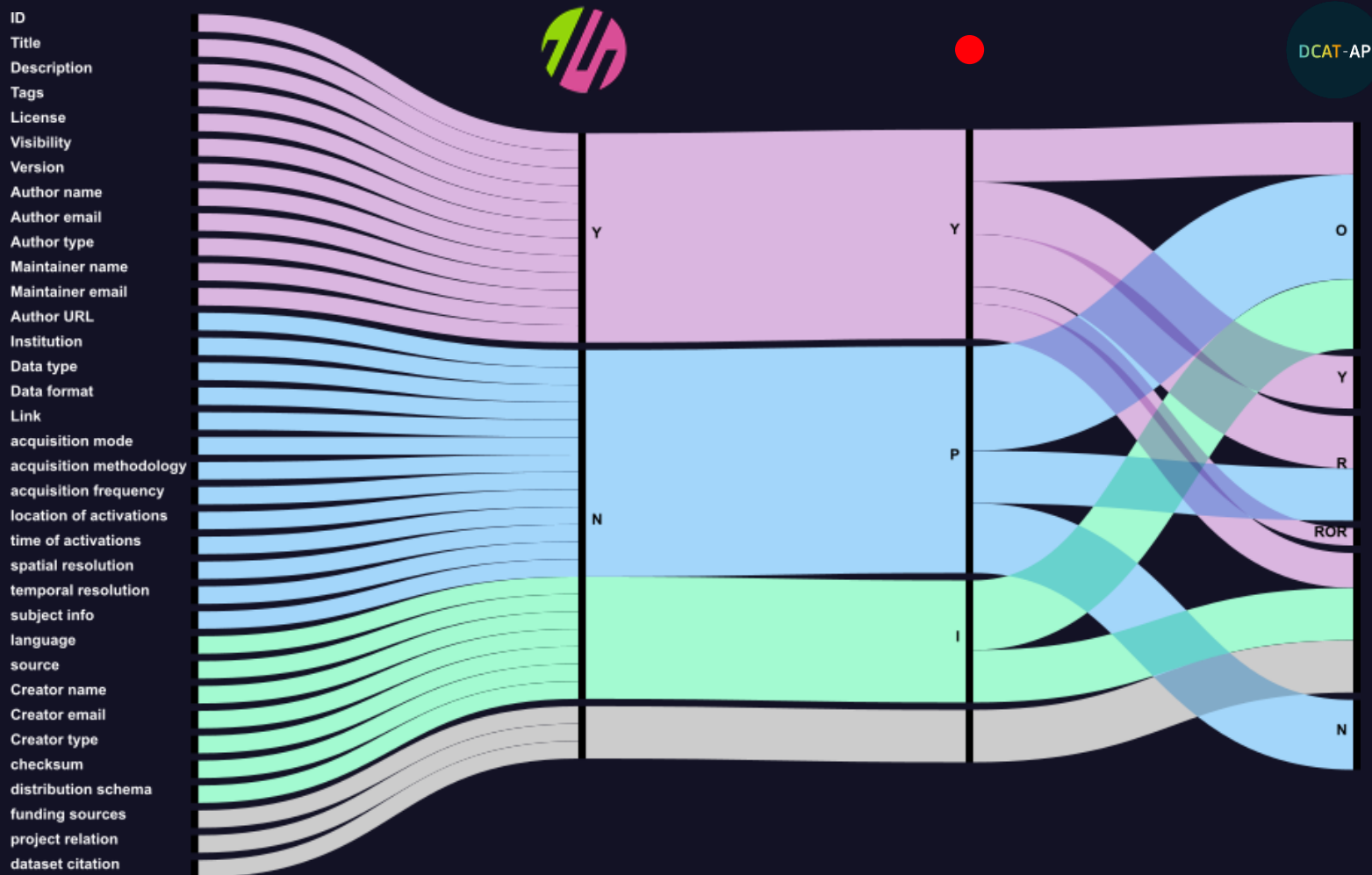
## metadata

ID  
 Title  
 Description  
 Tags  
 License  
 Visibility  
 Version  
 Author name  
 Author email  
 Author type  
 Maintainer name  
 Maintainer email  
 Author URL  
 Institution  
 Data type  
 Data format  
 Link  
 acquisition mode  
 acquisition methodology  
 acquisition frequency  
 location of activations  
 time of activations  
 spatial resolution  
 temporal resolution  
 subject info  
 language  
 source  
 Creator name  
 Creator email  
 Creator type  
 checksum  
 distribution schema  
 funding sources  
 project relation  
 dataset citation



DCAT-AP

# Workflow



# Metadata

TERM	TERM_DEFINITION	FIELD	DESCRIPTION
dct:identifier	A unique identifier of the resource being described or cataloged.	ID	An identifier (automatically generated)
dct:title	A name given to the resource.	Title	The title of the item
dct:description	A free-text account of the resource.	Description	A brief description of the item (e.g. the abstract)
dcat:keyword	A keyword or tag describing the resource.	Tags	A list of keywords
dct:license	A legal document under which the resource is made available.	License	License
dct:accessRights	Information about who can access the resource or an indication of its security status.	Visibility	Public or Restricted
dcat:version	The version indicator (name or identifier) of a resource.	Version	A number representing the specific “edition” or “release” of the item
dct:publisher	The entity responsible for making the resource available.	Author name	The name of the person who compiles the item record
		Author email	The email address of the person who compiles the item record
		Author type	Type of data author (e.g., person, institution)
dcat:CatalogRecord -> dct:creator	Relevant contact information for the cataloged resource.	Maintainer name	The name of the person that will play the role of contact person/maintainer of the published item

# Metadata

TERM	TERM_DEFINITION	FIELD	DESCRIPTION
dct:creator	The entity responsible for producing the resource.	Creator	entity responsible for producing the dataset
dct:rightsHolder	A person or organization owning or managing rights over the resource.	Rights holder	entity that owns the data
dct:publisher	The entity responsible for making the resource available.	Publisher	The entity responsible for making the dataset available.
dct:type	The nature or genre of the resource.	Data type	Type of dataset (for item)
dct:Distribution	A specific representation of a dataset.	Distribution	A specific representation of a dataset.
dcat:mediaType	The media type of the distribution as defined by IANA [IANA-MEDIA-TYPES].	Data format	The file format of the distribution
foaf:page	A Web page that can be navigated to in a Web browser to gain access to the catalog, a dataset, its distributions and/or additional information.	Documentation	A page or document about the dataset

# Metadata

TERM	TERM_DEFINITION	FIELD	DESCRIPTION
dct:spatial	The geographical area covered by the dataset.	Spatial coverage	A geographic region that is covered by the Dataset.
dct:temporal	The temporal period that the dataset covers.	Temporal coverage	A temporal period that the Dataset covers.
dcat:spatialResolutionInMeters	The minimum spatial separation resolvable in a dataset distribution, measured in meters.	Spatial resolution	The minimum spatial separation resolvable in a dataset, measured in meters.
dcat:temporalResolution	Minimum time period resolvable in the dataset distribution.	Temporal resolution	The minimum time period resolvable in the dataset.



# Metadata

TERM	TERM_DEFINITION	FIELD	DESCRIPTION
dct:language	A language of the resource. This refers to the natural language used for textual metadata (i.e., titles, descriptions, etc.) of a cataloged resource (i.e., dataset or service) or the textual values of a dataset distribution	Language	A language used in the Dataset.
spdx:Checksum	A Checksum is a value that allows to check the integrity of the contents of a file. Even small changes to the content of the file will change its checksum. This class allows the results of a variety of checksum and cryptographic message digest algorithms to be represented	Checksum	
spdx:checksumValue		Checksum value	A lower case hexadecimal encoded digest value produced using a specific algorithm.
spdx:algorithm		Checksum algorithm	The algorithm used to produce the subject Checksum.

# Prototipo

The screenshot displays the RAISE Lab community interface. At the top, there is a navigation bar with 'Home', 'Catalogue', 'Members', and 'How-tos'. The user 'Herbert Natta' is logged in. The main content area is divided into several sections:

- Statistics:** 'Your Stats in RAISE\_Lab' with a profile icon and activity metrics (0 likes, 0 shares, 0 follows).
- Trending Topics:** A list of hashtags including #raise, #artificial\_intelligence, #ligurian\_sea, #mpa, #intelligent\_observatories, #ocean\_monitoring, and #edge\_computing.
- RAISE Lab:** A section for a folder named 'RAISE Lab' which is currently empty. It includes a 'Recent' link and a 'Go to shared workspace' button.
- Share updates:** A text input field for sharing updates, with a 'Notify members' toggle set to 'OFF' and a 'Share' button.
- News feed:** A list of recent posts sorted by 'newest Post'. The first post is from 'Catalogue' (October 28, 9:41 AM) about a 'RAISE Smart Observatory (P1.1)'. The second post is from 'Leonardo Candela' (October 22, 1:13 PM) about a 'RAISE Sample Item'.
- About:** A section with the RAISE logo and a description: 'The RAISE Lab serves the homonymous community (RAISE stands for Robotics and AI for Socio-economic Empowerment is an innovation ecosystem). It is conceived to provide the RAISE community with a working environment for experiencing and practicing with D4Science services, primarily the resource catalogue.' Below this is a 'View Managers' button.

# Prototipo

**Publish Item**

1. Edit Common Metadata | 2. Edit Item Specific Metadata & Publish | 3. Add Resources

Insert Item Information \* is required

\* Title : RAISE Smart Observatory (P1.1) ⓘ

Description: The dataset will be produced by the Smart Observatory developed within the project 1.1 of the project 1 and deployed in the Portofino MPA. The dataset will include measures of temperature and conductivity of the water, dissolved oxygen, pH, dissolved CO2, Chlorophyll-a, turbidity, C-DOM. ⓘ

\* Tag: Write a tag here (push ENTER to attach it to the Item) ⓘ

Intelligent observatories | Ligurian Sea | MPA | Ocean Monitoring | Edge Computing | Artificial Intelligence

License: Creative Commons Attribution 4.0 ⓘ

Selected License Url: <https://creativecommons.org/licenses/by/4.0/>

Visibility: Public ⓘ

Publish in: RAISE Lab ⓘ

Version: 1

\* Author: Natta Herbert ⓘ

\* Author Email: herbert.natta@ge.imati.cnr.it ⓘ

RAISE Lab Additional Info

# Prototipo

## Publish Item

1. Edit Common Metadata   2. Edit Item Specific Metadata & Publish   3. Add Resources

Insert Item Information \* is required

\* Title : RAISE Smart Observatory (P1.1)

Description: The dataset will be produced by the Smart Observatory developed within the project 1 and deployed in the Portofino MPA. The dataset will include measures of conductivity of the water, dissolved oxygen, pH, dissolved CO2, Chlorophyll-a, turt

\* Tag: Write a tag here (push ENTER to attach it to the Item)

License: Academic Free License 3.0

Selected License Url: <http://www.opensource.org/licenses/AFL-3.0>

Visibility: Restricted

Publish in: RAISE Lab

Version: 1

\* Author: Natta Herbert

\* Author Email: herbert.natta@ge.imati.cnr.it

### Tags

Tags are meaningful information that can be associated to the item and by means of them it can be retrieved. A tag can contain only alphanumeric characters. If the tag is composed by a single word it must have a size of at least two characters. Examples of good tags: "This is a sample tag", "tagY". Example of bad tag: "c". You must push ENTER for attaching a tag, or use the provided list of predefined tags. In the latter case hold down the CTRL or CMD button to select multiple options.

# Prototipo

**Publish Item**

Intelligent observatories x Ligurian Sea x MPA x Ocean Monitoring x Edge Computing x Artificial Intelligence x

License: Creative Commons Attribution 4.0 *i*

Selected License Url: <https://creativecommons.org/licenses/by/4.0/>

Visibility: Public *i*

Publish in: RAISE Lab

Version: 1

\* Author: Natta Herbert *i*

\* Author Email: herbert.natta@ge.imati.cnr.it *i*

Maintainer: Francesco Massa (UNINGE-DISTAV) *i*

Maintainer Email: francesco.massa@unige.it *i*

Types: Dataset *i*

**Continue**

Reset



# Prototipo

The screenshot shows a web application interface for a data catalogue. At the top, there is a navigation bar with icons for home, search, and user profile. The main navigation menu includes 'Home', 'Catalogue', 'Members', and 'How-tos'. The 'Catalogue' tab is active. Below the navigation, there are links for 'Home', 'Publish Item', 'Update Item', 'Delete Item', and 'Share Link'. The main content area is divided into two columns. The left column displays the item details for 'RAISE Smart Observatory (P1.1)', including a 'Followers' count of 0, a 'Follow' button, a 'Rating' section with five stars and 0 reviews, and a 'Your rating' section with five stars and 'no rating given'. The right column shows the item title, a description, tags, and a QR code. The 'Organisation' section at the bottom left features the RAISE logo and the text 'RAISE Lab Items published by the'.

Go to 1 Herbert Natta

Home Catalogue Members How-tos

Home Publish Item Update Item Delete Item Share Link

RAISE Smart Observatory (P1.1)

Item Groups

RAISE Smart Observatory (P1.1)

The dataset will be produced by the Smart Observatory developed within the product P1.1 of the project 1 and deployed in the Portofino MPA. The dataset will include measures of temperature and conductivity of the water, dissolved oxygen, pH, dissolved CO2, Chlorophyll-a, turbidity, C-DOM.

Tags

Artificial Intelligence Edge Computing Intelligent observatories Ligurian Sea MPA Ocean Monitoring

Data and Resources

This item has no data, [why not add some?](#)

Item URL

[https://data.d4science.org/ctlg/RAISE\\_Lab/raise\\_smart\\_observatory\\_p1\\_1\\_](https://data.d4science.org/ctlg/RAISE_Lab/raise_smart_observatory_p1_1_)

Additional Info

Organisation

RAISE

RAISE Lab  
Items published by the

# Prototipo

Navigation icons: Home, Folder, Document, Mail, Search

Go to 1 Herbert Natta

### test2

Followers  
**0**

[Follow](#)

**Rating**  
☆☆☆☆☆ (0)

**Your rating**  
☆☆☆☆☆  
no rating given

**Organisation**

**RAISE**

**RAISE Lab**  
Items published by the Robotics and AI for Socio-economic Empowerment (RAISE) innovation ecosystem. [read more](#)


**License**  
Academic Free License 3.0

Item Groups

### test2

PRIVATE


**Dataset extent**



Map data © OpenStreetMap contributors  
Tiles by MapBox

**Tags**  
test2

**Data and Resources**  
*This item has no data, why not add some?*

**Item URL**  
[https://data.d4science.org/ctlg/RAISE\\_Lab/test2](https://data.d4science.org/ctlg/RAISE_Lab/test2) 

**Additional Info**

# Sfide

- Tradurre è un po' tradire: **interoperabilità** dei modelli.
- Ceci n'est pas une pipe: vocabolari **cross-dominio**
- Black box: **trasparenza**, tra interfaccia e linguaggio.

