Research Infrastructures supporting FAIR and Open Data

Tools and Practices in the SSH: the Example of CLARIN

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Sources

This presentation is the result of adapting the following sources:

- van der Lek, I., Fišer, D., Frontini, F., & Pedonese, G. (2024, agosto 30). Introduzione ai Dati Linguistici: Standard e Archivi Digitali. Zenodo. https://doi.org/10.5281/zenodo.13911935
- van der Lek, I., Fišer, D., Samardzic, T., Simonovic, M., Assimakopoulos, S., Bernardini, S., Milicevic Petrovic, M., & Puskas, G. (2023). Integrating research infrastructures into teaching: Recommendations and best practices (Versione 2) https://doi.org/10.5281/zenodo.8114407. CC BY 4.0.
- CLARIN ERIC Official Website: https://www.clarin.eu/ . CC BY 2.0

In this presentation

- Why Apply Open Science Best Practices

- What are the FAIR principles for

- Language Resources and Language Technologies in CLARIN

- What is a repository and how does it work

- What is a Research Infrastructure? The example of CLARIN ERIC

- Discovering published resources: the Virtual Language Observatory

- How to apply a user license

- How to properly cite a resource: the TASL scheme

- What is a Data Management Plan and why it is useful for research

Ice breaker

Open Science: a new paradigm

Open Science is a new approach to the scientific process based on cooperative work and new ways of disseminating knowledge through the use of digital technologies and new collaboration tools (European Commission, 2016)

Open science includes free access to scientific articles, access to public research data and collaborative research enabled by ICT tools and incentives (OECD, 2015)
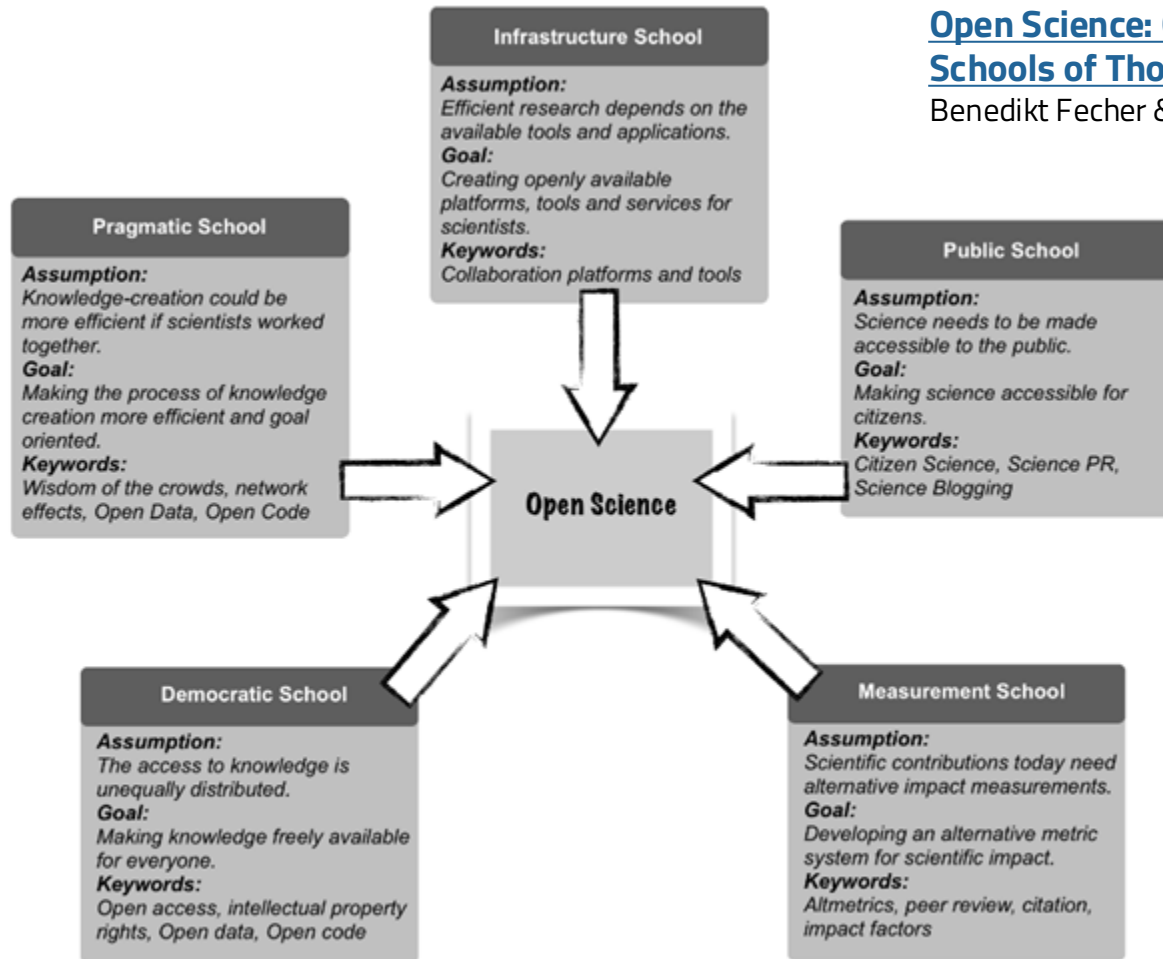
https://open-science.it/cos-e-l-open-science

Research Data Lifecycle

1. Plan

2. Collection

3. Processing

4. Analysis

5. Archiving

6. Sharing

7. Reuse

Open Science: One Term, Five Schools of Thought
Benedikt Fecher & Sascha Friesike

Infrastructure School

Assumption:
Efficient research depends on the available tools and applications.
Goal:
Creating openly available platforms, tools and services for scientists.
Keywords:
Collaboration platforms and tools

Pragmatic School

Assumption:
Knowledge-creation could be more efficient if scientists worked together.
Goal:
Making the process of knowledge creation more efficient and goal oriented.
Keywords:
Wisdom of the crowds, network effects, Open Data, Open Code

Public School

Assumption:
Science needs to be made accessible to the public.
Goal:
Making science accessible for citizens.
Keywords:
Citizen Science, Science PR, Science Blogging

Open Science

Democratic School

Assumption:
The access to knowledge is unequally distributed.
Goal:
Making knowledge freely available for everyone.
Keywords:
Open access, intellectual property rights, Open data, Open code

Measurement School

Assumption:
Scientific contributions today need alternative impact measurements.
Goal:
Developing an alternative metric system for scientific impact.
Keywords:
Altmetrics, peer review, citation, impact factors

FAIR principles

The FAIR Principles for the Management and Preservation of Scientific Data were published in 2016 with the main goal of providing guidelines to improve the management of digital objects in the Semantic Web. FAIR is an acronym for:

- **Findability -** Trovabilità
- **Accessibility -** Accessibilità
- **Interoperability -** Interoperabilità
- **Riusability -** Riusabilità

FAIR data management

'FAIR Guiding Principles for scientific data management and stewardship', 2016
https://www.go-fair.org/fair-principles/

FAIR Principles | Compliance

Findability
Resource and its metadata are easy to find by both, humans and computer systems. Basic machine readable descriptive metadata allows the discovery of interesting data sets and services.

- ✔ **F1.** Resource is uploaded to a public repository.
- ✔ **F2.** Metadata are assigned a globally unique and persistent identifier.

Accessibility
Resource and metadata are stored for the long term such that they can be easily accessed and downloaded or locally used by humans and ideally also machines using standard communication protocols.

- ✔ **A1.** Resource is accessible for download or manipulation by humans and is ideally also machine readable.
- ✔ **A2.** Publications and data repositories have contingency plans to assure that metadata remain accessible, even when the resource or the repository are no longer available.

Interoperability
Metadata should be ready to be exchanged, interpreted and combined in a (semi)automated way with other data sets by humans as well as computer systems.

- ✔ **I1.** Resource is uploaded to a repository that is interoperable with other platforms.
- ✔ **I2.** Repository meta-data schema maps to or implements the CG Core metadata schema.
- ✔ **I3.** Metadata use standard vocabularies and/or ontologies.

Reusability
Data and metadata are sufficiently well-described to allow data to be reused in future research, allowing for integration with other compatible data sources. Proper citation must be facilitated, and the conditions under which the data can be used should be clear to machines and humans.

- ✔ **R1.** Metadata are released with a clear and accessible usage license.
- ✔ **R2.** Metadata about data and datasets are richly described with a plurality of accurate and relevant attributes.

Example of data management: Linguistic Resources in CLARIN

What are language resource?

Language Resources are defined as the set of data and metadata relating to language in machine-readable form. They are used to build, improve or evaluate algorithms or systems of natural language (human language) and speech and, increasingly, for machine learning. They are also used as fundamental resources for, for example, linguistic and translation studies, for electronic publishing, for international transactions, for subject area specialists and for end users.

Source: ELRA/ELDA

Types of Language Resources

Language or linguistic resources are typically divided into categories according to the type of content that include:

Textual resources > written and spoken corpora
Lexical resources > lexicons, dictionaries and terminology databases
NLP tools > lemmatisers, PoS taggers, parsers etc.

Linguistic resources include not only the data, but also their description, or metadata, which enrich the data with additional information, such as the structural division into books or linguistic features such as PoS tags and syntactic functions

Why are they useful?

Language resources (LR) are the raw material for the development and upgrade of language technologies (LT), the medium for transmitting information and knowledge (if possible in the most efficient and effective way), the content for developing culture and civilising societies.

LR, in combination with LT, have greatly changed the user experience and the interactive possibilities of apps, tools and systems and public media over the years. Therefore, LR – in combination with LT – have a huge economic and social impact.

Source: LT Innovate

Language Technologies

Language technologies are computational methods, computer programs and specialized electronic devices for analyzing, producing or modifying texts and speech, e.g. spell checkers, machine translation services, speech synthesis, translation memories, computer-assisted translation, etc.

To know more: Nimdzi Language Technology Atlas
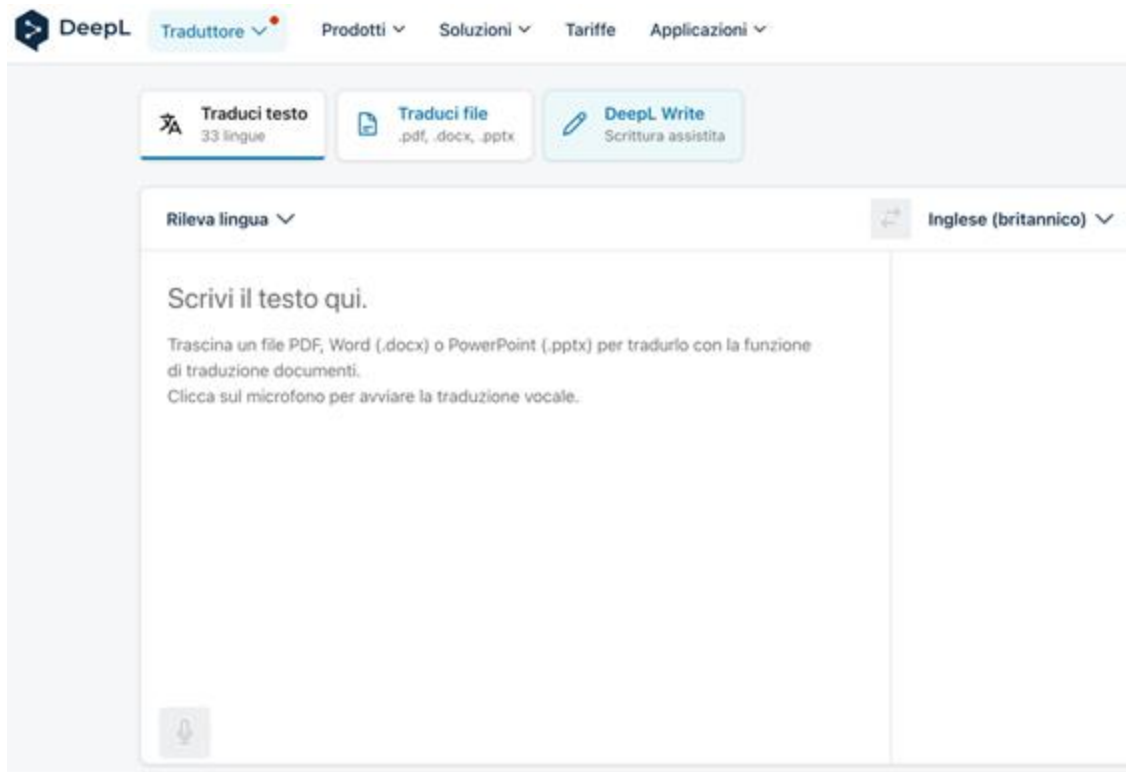
Where to find linguistic resources: repositories

"We define a repository – or digital archive or repository – as a service managed by research organizations, where research materials are preserved, managed and made accessible."
 Source: DataCite

To view the different types of linguistic resources and understand how they are described (the metadata model), you can consult the page
ELRC-SHARE repository
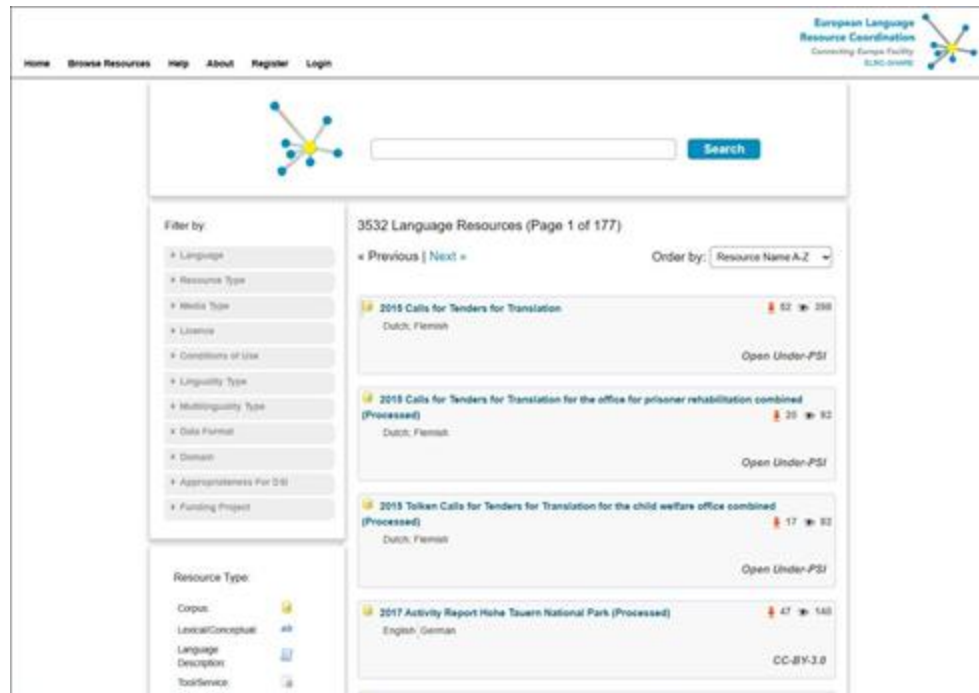
ILC4CLARIN: finding published resources

Linguistic Resources in ILC4CLARIN

To see the different types of Language Resources and understand the metadata model, see for example the ILC4CLARIN repository

Showing 1 through 5 out of 5 results

1   ⚙ ▾

Type	
corpus	443
languageDescription	1
lexicalConceptualResource	59
text	393
toolService	17

Example of a corpus in ILC4CLARIN

1. Citation information via handle
2. Metadata fields describing the corpus
3. Corpus is cited in a journal
4. Corpus is described, e.g. texts are available in UTF-8 and TEI-XML
5. Publisher information
6. Download instructions

Linguistic Resources in CLARIN

https://www.clarin.eu/

CLARIN Resource Families

Resource Families

- Well-curated corpora and lexical resources organized by data type and language

- NLP tools

- Licensing information

- Can be downloaded directly

- Some corpora are available through concordances, e.g. Korp, Corpuscle or KonText

CLARIN Resource Families

Corpora

- Computer-Mediated Communication Corpora
- Corpora of Academic Texts
- Historical Corpora
- L2 Learner Corpora
- Legal Corpora
- Literary Corpora
- Manually Annotated Corpora
- Multimodal Corpora
- Newspaper Corpora
- Oral History Corpora
- Parallel Corpora
- Parliamentary Corpora
- Reference Corpora
- Sign Language Resources
- Spoken Corpora

Lexical Resources

- Language Models
- Lexica
- Dictionaries
- Conceptual Resources
- Glossaries
- Wordlists

Tools

- Corpus Query Tools
- Normalisation
- Named Entity Recognition
- Part-of-Speech Tagging and Lemmatisation
- Tools for Sentiment Analysis

What is CLARIN

CLARIN stands for **Common Language Resources and Technology Infrastructure**

CLARIN is a distributed digital infrastructure that provides easy and sustainable access to a wide range of linguistic data and tools to support research in the humanities, social sciences and beyond. CLARIN provides access to multimodal digital linguistic data (text, audio, video) and advanced tools to explore, analyse or combine these data sets.

CLARIN...

- It belongs to the Social Sciences and Humanities cluster and is an integral part of the European Open Science Cloud
- It has had ESFRI ERIC status since 2012, Landmark status since 2016
- It acts as an ecosystem for knowledge sharing and training
- It provides easy and sustainable access to scholars in the humanities and social sciences and beyond, to digital linguistic data (in written, spoken or multimodal form); to advanced tools to discover, explore, exploit, annotate, analyse or combine them through single sign-on

CLARIN Today

- Una rete distribuita di 72 centri ([Centre Registry](#))

- 25 membri: AT, BE, BG, CY, CZ, DK, EE, ES, FI, GR, HR, HU, IS, IT, LT, LV, NL, NO, PL, PT, SE, SI, ZA, UK

- 1 osservatore: CH

- Terza parte: Università Carnegie Mellon, USA
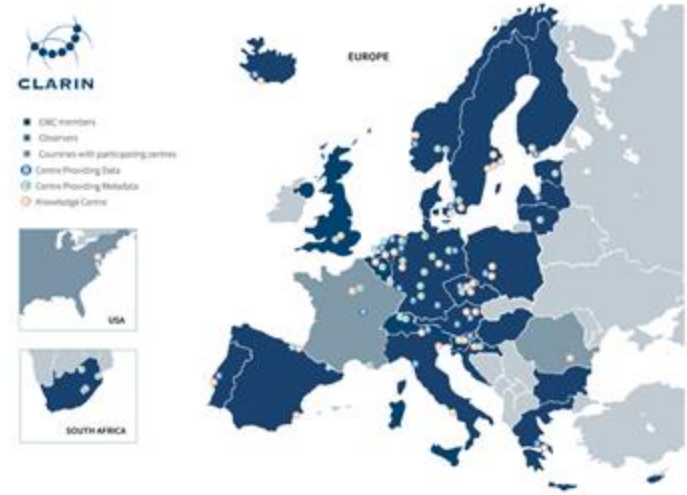
CLARIN ERIC → Consorzi Nazionali → Centri CLARIN

National Consortia: CLARIN-IT

CLARIN-IT is the Italian node of CLARIN. Italy became the 16th full member of CLARIN ERIC in 2015. The founding member of the national Consortium is the Institute for Computational Linguistics "Antonio Zampolli" of the National Research Council. CLARIN is involved in the H2IOSC project through its Italian national consortium CLARIN-IT

CLARIN-IT

CLARIN-IT comprehends the following centres:

- ILC4CLARIN istituito presso il CNR Istituto di Linguistica Computazionale "Antonio Zampolli" di Pisa, è un centro di fornitura servizi (Type B)
- EURAC Research CLARIN Centre (ERCC) presso l'EURAC Research Association di Bolzano, che è un centro di fornitura metadati (Type C)
- The Knowledge Centre for Computer-Mediated Communication and Social Media Corpora (CKCMC), che è un centro CLARIN di Tipo K, che mette a disposizione le proprie competenze e la propria conoscenza su aspetti del dominio disciplinare di CLARIN
- The CLARIN Knowledge Centre for Digital and Public Textual Schholarship (DiPText), anch'esso un centro di tipo K distribuito fra due partner: CNR-ILC e l'Università Ca' Foscari di Venezia

FAIR principles in CLARIN

- FINDABLE through access points such as the Virtual Language Observatory and Federated Content Search

- ACCESSIBLE through CLARIN centers that provide repositories, metadata, and a federated login system

- INTEROPERABLE through the Language Switchboard, the use of vocabularies (Concept Registry), and clear and well-documented ways of linking metadata

- REUSABLE through licensing, formats, and standards, active curation of metadata, and link controls

CLARIN core services

- Repository services to ensure that language resources can be archived and made available to the community in a reliable manner and to help researchers maintain their resources sustainably
- Virtual Language Observatory provides an easy-to-use interface, which enables a process of searching and discovering resources from a wide variety of domains
- Federated Content Search a search engine that links to local data collections available in the centers.
- Language Resource Switchboard helps users find a web application to process their linguistic data
- Virtual Collection Registry provides a registry where users can create and publish their virtual collections

CLARIN Depositing Services

Many CLARIN centers offer a storage service. This provides many advantages:

- Long-term archiving and curation of language resources, data sets and tools
- Description of resources with specific metadata and assignment of persistent identifiers (PIDs), e.g. Handles, that allow easy search and citation
- Password-protected resources can be made available via an institutional login
- Once integrated into the CLARIN infrastructure, resources can be more easily analyzed and enriched with various language tools

Servizi di Deposito

Depositare una risorsa in CLARIN:

- Search for a repository hosted by a CLARIN Centre curating the type of data you produced [Depositing Services](#)

- Check for data compatibility in the [CLARIN Standards Information System](#)

- Contact the type B center hosting the repository for data preparation

- Follow the procedure described in the repository guidelines

[How to deposit](#)

How to access CLARIN

All users can freely explore CLARIN central services to search for language resources and expertise. Due to licensing restrictions, some resources are only available to academic users and login is required using institutional credentials or CLARIN credentials.

Academic users from all participating countries can access and use the language resources available in the CLARIN data centers with a single sign-on through the CLARIN Service Provider Federation using their institutional credentials.

CLARIN Service Provider Federation

📇 Sign in via the CLARIN Service Provider Federation

CLARIN

Select your home organisation below. This is usually the organisation where you work or study. Signing in here will allow you to access certain CLARIN resources and services which only available to users who have logged in. If you cannot find your organisation in the list below, please select the clarin.eu website account and use your CLARIN website credentials. If you don't have such credentials you can register an account here. For questions please contact spf@clarin.eu.

Warning: It appears as if you visited this page directly, this will not work. Please login via the service you are trying to access.

Home organisation list

🔍 Palermo

All countries ▾

IRCCS ISMETT - Palermo
🇮🇹 Italy
ISMETT

University of Palermo
🇮🇹 Italy
UNIVERSITÀ DEGLI STUDI DI PALERMO

CLARIN Identity Provider

Trovare risorse linguistiche pubblicate

Virtual Language Observatory

- A catalog that collects metadata about language resources available in distributed repositories

- Does not contain language resources, but helps locate them through persistent identifiers

- Even if a resource has restricted access, metadata is always freely accessible

  - Uses faceted search to narrow searches

NB: use of **licenses**

CLARIN Virtual Language Observatory

I Metadati

The purpose of metadata for a learning resource is to enable cataloging and discovery through standardized means to report:

- Who created the resource
- What the content of the resource is
- When the resource was created
- Where the resource is located
- Why the resource was created

Metadata must be in standard (i.e. compatible and shared with other resources) and machine-readable formats to be indexable, searchable, comparable, and storable

Persistent Identifiers (PIDs)

A persistent identifier (PID) is a type of metadata. Its purpose is to uniquely label a digital object and ensure that this label does not change over time

There are different types of PIDs, such as DOI (digital object identifier), Handle (HNDL), ARK (Archival Resources Key)
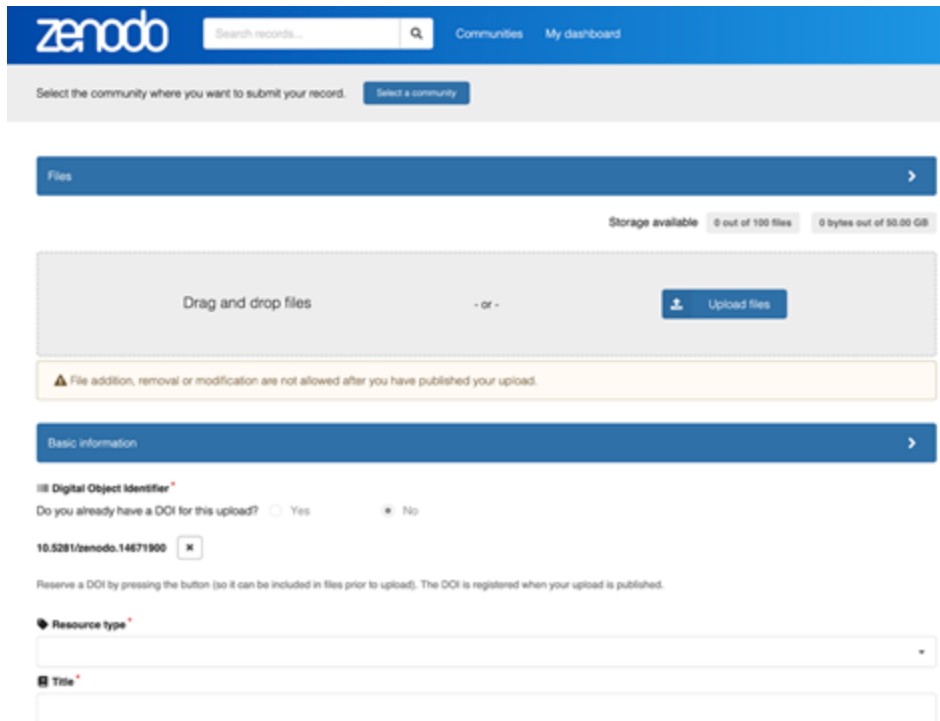
Examples:
- DOI: 10.5281/zenodo.8305539
- Handle: hdl.handle.net/20.500.11752/ILC-567

Persistent Identifiers (PIDs)

Using a PID you can get to an accessible page with the listed digital object and its metadata. Actual access to the digital object from this page can be restricted. PIDs are machine readable and help distinguish between:

- Different materials
- Different versions of the same material, for example: https://zenodo.org/records/13816183

Intellectual Property Rights

Intellectual property refers to the creation of intellectual assets. Intellectual property rights (IPR) protect the interests of creators and owners by providing them with rights to their creation.

For the purpose of research, copyright and related rights, the main branches of IPR, are used. They are defined to protect literary and artistic creations, performances and phonograms, defining the rights of authors, owners, performers, producers and broadcasters.

Note: Any work created by the user is by default the copyright holder for the user himself or his institution/employer.

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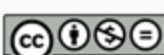
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- Creative Commons license Wikipage (16 gen 2025) su Wikipedia distribuito con licenza Creative Commons Attribution-ShareAlike 4.0
- CC License Compatibility Chart

How to apply a CC license?

A license defines the rights and obligations regarding the use of your work. One of the best sources of information for licensing reusable educational materials is Creative Commons. There are many CC license options available that are based on the four fundamental rights:

Icon	Right	Description
	Attribution (BY)	Licensees may copy, distribute, display, perform and make derivative works and remixes based on it only if they give the author or licensor the credits (attribution) in the manner specified by these. Since version 2.0, all Creative Commons licenses require attribution to the creator and include the BY element.
	Share-alike (SA)	Licensees may distribute derivative works only under a license identical to ("not more restrictive than") the license that governs the original work. (See also copyleft.) Without share-alike, derivative works might be sublicensed with compatible but more restrictive license clauses, e.g. CC BY to CC BY-NC.)
	Non-commercial (NC)	Licensees may copy, distribute, display, perform the work and make derivative works and remixes based on it only for non-commercial purposes.
	No derivative works (ND)	Licensees may copy, distribute, display and perform only verbatim copies of the work, not derivative works and remixes based on it. Since version 4.0, derivative works are allowed but must not be shared.

How to apply a CC license?

License name	Abbreviation	Icon	Attribution required	Allows remix culture	Allows commercial use	Allows Free Cultural Works
Attribution	BY		Yes	Yes	Yes	Yes
Attribution-ShareAlike	BY-SA		Yes	Yes	Yes	Yes
Attribution-NonCommercial	BY-NC		Yes	Yes	No	No
Attribution-NonCommercial-ShareAlike	BY-NC-SA		Yes	Yes	No	No
Attribution-NoDerivatives	BY-ND		Yes	No	Yes	No
Attribution-NonCommercial-NoDerivatives	BY-NC-ND		Yes	No	No	No

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Choosing a license

It is recommended to use the less restrictive CC BY 4.0 license, which only requires crediting the creator when reusing, when creating new teaching materials. The ND right is at the other extreme and is not recommended for licensing FAIR teaching materials, as it severely limits their reusability in adaptations.

The CC0 public domain license is also not recommended, as different rules apply in different countries.

Choosing a license

The wizard <u>CC License Chooser</u> helps authors share their work in a standardized way, providing copyright licenses that allow sharing and reusing the creative work under the conditions chosen.

To apply a license, simply indicate which CC license you intend to apply to your work. It is then necessary to check the terms of the chosen license and comply with the requirements contained therein.

Choosing a license

It is recommended to include a link to the relevant CC license act (for example https://creativecommons.org/licenses/by/4.0) or the full text of the license (in the README file).

Example «This work is licensed under Creative Commons Attribution 4.0 International License.»

License compatibility

If my lesson is a combination of pre-existing material from different sources and reused as is, I just need to properly credit each part and state where it came from and what license it is under.

If you are adapting material that has previously been released under a CC license, the original CC license always applies to the material you are adapting, even after it has been adapted. The license you can choose for your reworking (called the "adapter license") depends on which license applies to the original material.

NOTE: A modification reaches the level of an adaptation under copyright law when the modified work builds on the earlier work but exhibits enough new creativity to be protected by copyright.

Adapter's license chart		Adapter's license						
		BY	BY-NC	BY-NC-ND	BY-NC-SA	BY-ND	BY-SA	PD
Status of original work	PD	🟩	🟩	🟩	🟩	🟩	🟩	🟩
	BY	🟩	🟩	🟩	🟩	🟩	🟩	🟨
	BY-NC	🟨	🟩	🟩	🟩	🟨	🟨	🟨
	BY-NC-ND	⬜	⬜	⬜	⬜	⬜	⬜	⬜
	BY-NC-SA	⬜	⬜	⬜	🟩	⬜	⬜	⬜
	BY-ND	⬜	⬜	⬜	⬜	⬜	⬜	⬜
	BY-SA	⬜	⬜	⬜	⬜	⬜	🟩	⬜

License compatibility

Note: CC does not recommend using a license if the corresponding box is yellow, even if this is technically allowed by the license terms. If you do so, you should be careful to indicate that the adaptation involves multiple copyrights with different terms, so that downstream users are aware of their obligations to respect the licenses of all rights holders.

Dark gray boxes indicate licenses that cannot be used as an adapter license.

Attribution

Attribution is a moral right of authors that protects the personal relationship between the author and the work created, even if the creator does not own the copyright. Recognition of reused materials through attribution is always necessary (even if it is not a requirement of the license, as in the case of public domain licenses). Ideal attribution follows the TASL approach

Title – what is the name of the work
Author – who allows the work to be used (name and link)
Source – where the work can be found (link added to the title)

License – how the work can be used (name and link to the license)

How to attribute correctly?

If your work is a modification or adaptation of another work, indicate that and provide attribution to the creator of the original work. You should also include a link to the work you modified and indicate which license applies to that work.

For works created by others and that you are incorporating into your own work, you should make it easy for others to know who created which parts of the work, using the TASL approach.

See also Recommended practices for attribution

Come Attribuire Correttamente?

If you reuse a complete resource, it is recommended that you provide attribution at the beginning of the unit. The same applies to reused parts of a lesson unit (text only or a combination of text and images).

Attribution for reused images and tables should be placed below the content.

https://h2iosc-training-platform.ilc4clarin.ilc.cnr.it/

Attribuzione

Questo corso traduce in italiano e aggiorna i materiali di:

van der Lek, Iulianna; Fišer, Darja. (2023). *Introduction to Language Data: Standards and Repositories*. In UPSKILLS Learning Content. https://upskillsproject.eu/project/standards_repositories/. CC BY 4.0.

L'adattamento si è svolto nell'ambito del progetto Humanities and cultural Heritage Italian Open Science Cloud Work Package 8 "Training, Capacity Building, Engagement", a cura del personale CNR-ILC dedicato all'Attività 8.2 "Teach CLARIN, Teach with CLARIN".

Progetto H2IOSC - Humanities and cultural Heritage Italian Open Science Cloud finanziato dall'Unione Europea NextGenerationEU – PNRR M4C2 – Codice progetto IR0000029 – CUP B63C22000730005.

Immagine tagliata da: van der Lek, Iulianna, Darja Fišer, Francesca Frontini, e Giulia Pedonese. «Introduzione Ai Dati Linguistici: Standard E Archivi Digitali». 31 agosto 2024. https://doi.org/10.5281/zenodo.13911935, con licenza CC BY 4.0.

Come Attribuire Correttamente?

To summarize:

- o Pay attention to the ways indicated by the authors and give them precedence
- o Check the README file or the presence of a .cff file
- o If necessary, adapt the citation style to the bibliography you are composing
- o If there is no indication, follow the TASL scheme

How to correctly attribute?

In order for others to cite our work properly, we recommend that a standard citation be established and explicitly communicated (at the bottom of the Syllabus, in the Introduction, in the Reuse Guide, in the .cff file for deposit, etc.).

Example:

Modalità di citazione

È possibile adattare e condividere il contenuto sotto la licenza CC-BY 4.0 a condizione che:

- si dia il giusto credito agli autori utilizzando la **modalità di citazione standard:**

van der Lek, Iulianna, Darja Fišer, Francesca Frontini, e Giulia Pedonese. «Introduzione Ai Dati Linguistici: Standard E Archivi Digitali». 31 agosto 2024. https://doi.org/10.5281/zenodo.13911935.

- si includa il link alla licenza.
- si indichi se sono state apportate modifiche al contenuto.

Quiz

What is a Data Management Plan?

A Data Management Plan

A **Data Management Plan (DMP)** is a formal document that describes how data will be managed during and after a research project.

Its main purpose is to **ensure that data are well-organized, accessible, usable, and preserved over time**, in line with FAIR (Findable, Accessible, Interoperable, Reusable) principles and open science best practices.

Key elements

A DMP usually includes information on:

Type of data

- What data will be collected, generated, or reused?

- In what format will it be stored?

Standards and metadata

- What standards will be followed to ensure interoperability and reuse?

- How will the data be documented?

Key elements

- **Storage and Security**
  - Where and how will data be stored during the project?
  - What security measures will be taken to protect them?
- **Sharing and access**
  - What data will be made publicly accessible?
  - Will there be specific restrictions or licensing requirements?

Key elements

- **Responsibility and long-term management**
  - Who will be responsible for data management?
  - Where and for how long will they be stored after the end of the project?

Why having a DMP is important?

- Helps researchers organize and manage data efficiently

- Facilitates sharing and reuse by other scholars

- Is often a requirement for obtaining funding from public and private entities

- Reduces the risk of data loss or corruption over time

Some funding agencies, such as the European Commission and the National Science Foundation (NSF), require a DMP as part of project proposals.

https://argos.openaire.eu/splash/
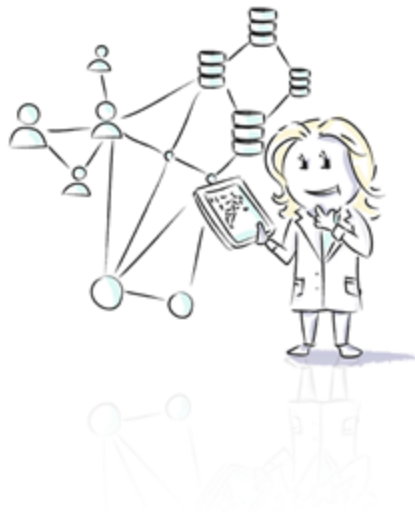
Exercise

Guided tour of a DMP with a case study

https://docs.google.com/document/d/1p38h1jUdP8iFT-lpc9iR2MNXa44NP9j-NEoz5x3Rb2s/edit?tab=t.0

Workshop

Try and fill in a DMP with the template

Register now!

What is the
H2IOSC Training Environment?

The H2IOSC Training Environment is a training management platform designed to **offer a highly interactive virtual learning environment**. It ensures a smooth and inclusive experience for all users through:

- A user-friendly interface
- Access from desktop and mobile
- No time or space limits

The platform emphasizes interactivity by offering quizzes, simulations, hands-on exercises and, gamification tools that make learning more engaging.

Questionnaire

Iniziative della Comunità CLARIN

Call for H2IOSC Transnational Mobility Grants

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The H2IOSC project is pleased to announce a new opportunity for researchers: the Transnational Mobility Grants. These grants are designed to **encourage research collaborations and knowledge exchange between CLARIN centres in Italy and across Europe**.

Grant Opportunities

Long Mobility Grants: 5 grants available for research visits of 2 weeks, each funded between €6,000 – €7,000.

Short Mobility Grants: 11 grants available for visits of up to 1 week, each funded between €3,000 – €4,000.

The European RIs
INVOLVED

CLARIN
ERIC from 2012
National nodes 24
Observers 2
Third party 1

DARIAH
ERIC from 2014
National nodes 22
Cooperating partners 19

E-RIHS
Implementation phase from 2022
Future ERIC in 2024
National nodes 14
Observers 1

OPERAS
Preparatory phase from 2022
Future ERIC in 2028
National nodes 22

https://www.h2iosc.cnr.it/call-for-transnational-mobility-grants/

CLARIN Community Initiatives

CLARIN Newsflash

CLARIN Café

Thank you!

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