

# Glossary for Open Educational Resources (GlossOER)



## Short Description

### Abstract

This glossary provides a structured vocabulary for open educational resources (OERs). It accompanies two works of knowledge organization systems: a. [DIF V1.4 \(DALIA Interchange Format\)](#), a metadata schematization that enables the integration of teaching and learning materials to the [DALIA platform](#). Developed by the DALIA ([Data Literacy Alliance](#)) project and in the context of the German [National Research Data Infrastructure \(NFDI\)](#), it standardizes metadata and controlled vocabularies. b. [MoDALIA](#), the foundational ontology for the DALIA platform's information architecture. GlossOER, MoDALIA, and DIF V1.4 maintain full compatibility. However, GlossOER additionally includes vocabulary items and usage examples not present in the other two systems.

### Authors

Petra C. Steiner (<https://orcid.org/0000-0001-8997-2620>, Technical University of Darmstadt)  
Jonathan D. Geiger (<https://orcid.org/0000-0002-0452-7075>, Academy of Sciences and Literature Mainz)  
Abdelmoneim Desouki (<https://orcid.org/0000-0003-2083-1277>, Technical University of Darmstadt)  
Henrika M. Hüppe (<https://orcid.org/0000-0002-0570-7924>, RWTH Aachen University)  
Charles Tapley Hoyt (<https://orcid.org/0000-0003-4423-4370>, RWTH Aachen University)

## Contributors

Frank Lange (<https://orcid.org/0000-0002-9346-6031>, Leibniz Institute of Plant Biochemistry)

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# Background

The [DALIA \(Data Literacy Alliance\) project](#) aims to develop a platform for FAIR (findable, accessible, interoperable, reusable) teaching and learning materials on data literacy, data competencies, and research data management (RDM) skills within the German [National Research Data Infrastructure \(NFDI\)](#) and the RDM landscape. Such a platform thrives on the participation of users who want to search, create, manage, or use teaching and learning materials.

To achieve interoperability of teaching and learning materials, the DALIA Interchange Format (DIF) version 1.3 was published in 2024 (Geiger, Steiner, Desouki & Lange 2024). This framework had the goal to enable transparent, comparable, and platform-compatible metadata for educational resources. DIF V1.3 has been adopted by multiple consortia and other institutions for submitting the metadata of their open educational resources (OER). Throughout its development, findings have been disseminated at various events (Geiger, Desouki et al. 2025, Geiger, Steiner et al. 2025, Steiner, Geiger et al. 2025a, Steiner, Geiger et al. 2025b, Steiner, Desouki et al. 2025) and intensively discussed within the OER research community. Key discussion forums included the OER.net working group (see Bergmann et al., 2025) and NFDI's Section Education and Training ([EduTrain](#)). As DIF is the data model for OER

metadata, and the underlying [MoDALIA](#) ontology (BMFTR DALIA project 2025) encodes it in an RDF schema, our team also engaged in intensive discussions to address requirements of compatibility.

The research community and our team identified additional requirements specifically regarding values and formats for metadata attributes. Most issues fell into these categories:

- a. Imprecise or missing intensional definitions, e.g., unclear distinctions between learning resource types like "tutorial" vs. "course".
- b. Terminology gaps, e.g., missing learning resource types such as podcasts and coding notebooks.
- c. Inconsistent domain and range specifications between metadata standards and the MoDALIA ontology. For instance, the class *supportinghost* of the Relator list by the Library of Congress (2024) was not consistent with the domain restriction of the MoDALIA ontology. This necessitated developing standardized selection lists (picklists and controlled vocabularies) with revised formal definitions. Consequently, DIF version 1.4 introduced a table dedicated for the vocabulary. However, this information was compiled in a concise manner and excluded most source attribution details, information on scope boundaries or schema mappings. We further recognized that incorporating additional terms with precise definitions would enhance conceptual clarity.

Therefore, this new **Glossary for Open Educational Resources (GlossOER)** was compiled for the picklist items and controlled vocabularies. This resource contains additional details for each entry:

- Lemma: The term (could be an attribute name, picklist item, or controlled vocabulary term).
- Description: A concise definition of the term and other relevant information.
- Definition Language: The language of the definition (e.g., en for English).
- URI: The unique resource identifier for the term.
- RelationWith: Other terms that this term is related to in SKOS terminology (e.g., broadMatch, narrower, relatedMatch).
- Parent: The immediate broader term (if applicable).
- OWL Type: The OWL construct (e.g., Class, Property).

- Source of Definition: The source from which the definition is taken (if any).
- LinkOfSource/IRI of Definition: A link or IRI to the source of the definition.
- Kind of Source: How the definition was derived (Quotation, Modified quotation, See (for paraphrases), Original by DALIA team).
- Constraints/Vocabulary: The constraints on the range or the vocabulary to which the term belongs.
- Notes: Additional notes such as instructions for the selection, information on the compatibility with other standards and classifications.
- EntryBy: The person(s) who added the entry.

A complete list of references and namespaces is provided in a separate table within GlossOER. Containing more entries than the DIF, GlossOER additionally includes both examples of controlled vocabularies (such as licenses) and foundational terms that underpin picklist items or definitions. For instance, the foundational term "teacher", while not part of any picklist itself, serves as the superordinate concept in the class definitions of TeacherSchool and TeacherHigherEducation within the TargetGroup category. This inclusion enhances conceptual clarity. Furthermore, certain terms are essential to the ontology's structure, though absent from DIF V1.4, such as 'role' and 'contribution', which enable unambiguous assignment of contributor roles to individual learning resources.

The **GlossOER** is published alongside this new version of DIF. Both **DIF V1.4** and **GlossOER** are compatible with the underlying **MoDALIA** ontology.

The glossary entries are structured sequentially as follows:

1. Each DIF attribute in the order of mandatory, recommended, and optional attributes
2. Its picklist items and controlled vocabulary terms
3. Representative examples for controlled vocabularies (provided where helpful for understanding or informational context)

The following selection criteria were applied to picklist items and controlled vocabularies:

- a. License: Distinguishing proprietary licenses was prioritized as the most critical criterion for all target groups, serving as the primary differentiator. We reused the SPDX License List (SPDX 2025) as an established standard for reliable license classification.
- b. AccessibilityFeature: No definitive controlled vocabulary standard currently exists for this attribute. However, we recommend using the Schema.org accessibility vocabulary (LaPierre et al. 2024) as a widely adopted interim solution.
- c. Community: Two non-exclusive types were required: supporting and recommending communities. We enumerated representative examples extracted from Wikidata using SPARQL queries.
- d. Discipline: As controlled vocabulary, we chose the disciplines included in the German University Subject Classification System ("Systematik der Fächergruppen, Studienbereiche und Studienfächer") as defined by Statistisches Bundesamt (2024). Pohl et al. (2024) standardized this system, it is persistently identified at <https://w3id.org/kim/hochschulfaechersystematik/scheme>.
- e. FileFormat: As the controlled vocabulary, we selected the file formats documented in the XML Format Description Documents of the Library of Congress (2025), which is overlapping with the MIME file types (extensions) as catalogued at <https://mimetype.io/all-types> and the fileTypes from McCallum (2024). (<https://www.loc.gov/preservation/digital/formats/fddXML/>). Selected examples are included in the glossary.
- f. Keywords: Terms are open, but picklists are recommended, e.g. from <https://id.loc.gov/authorities/subjects.html>, [https://www.wikidata.org/wiki/Wikidata:Main\\_Page](https://www.wikidata.org/wiki/Wikidata:Main_Page), or <https://lobid.org/gnd>.
- g. Language: For annotating OER, we recommend two-letter codes from ISO-639-1 over ISO-639-3 codes. Both standards are included in the Lexvo language vocabulary [Lexvo.org](https://lexvo.org) (Melo 2013, 2015).
- h. LearningResourceType: We incorporated all terms from the Hochschulcampus Ressourcentypen (HCRT) by the Kompetenzzentrum Interoperable Metadaten (KIM) (2024), excluding terms like *text* and *presentation* which are Media Type categories. Since HCRT provides multilingual translations but no definitions, we compiled definitions from multiple sources and resolved ambiguities. For instance, by adding *scriptum* to *script* which might be a false friend of German *Skript*, and preferring specific terms like *worksheet* over the broader *learning materials* suggested by some translations. For additional types, we integrated text-based categories from The Bibliographic Ontology (BIBO) (D'Arcus, Bruce & Frédéric Giasson 2022), and created new entries (e.g., *modalia:Podcast* and *modalia:CodeNotebook*) for emerging resource types.

- i. **MediaType:** The general type of a computer file's data content in terms of its modality (text, audio, picture etc.) is to be used for user learning style(s) preferences, extending Fleming's (1992) VARK model to digital resources. The picklist includes audio, video, text, presentation, code, image, and multipart for complex OER. Multipart resources are further described by Related Work classes such as *isPartOf* or *isSupplementedby*.
- j. **ProficiencyLevel:** We adopted the picklist from Dreyfus's (2004) *Five-Stage Model of Adult Skill Acquisition*: novice, advanced beginner, competent, proficient, and expert. The terms were coined by Benner (1982).
- k. **TargetGroup:** The target group class encompasses non-exclusive OER user groups, reflecting the growing diversity of the providers. It integrates school and LAM institutions, with additional classes newly defined according to ISCED classification levels by UNESCO Institute for Statistics (2012) standardized by DINI AG KIM (2023).
- l. **Teaches:** The values of this attribute may reference the learning objectives matrix (Petersen et al. 2025) but is not limited to them, and is open to any strings.
- m. **RelatedWork:** The picklist integrates terms and definitions from dcterms (DCMI Usage Board 2020), citedcat (Perego et al. 2021), MoDALIA (BMFTR DALIA project 2025), and [schema.org](https://schema.org) (schema.org project 2024). Both citedcat and MoDALIA adopted terms from DataCite (DataCite Metadata Working Group 2024). This picklist is compatible with [Zenodo](https://zenodo.org)'s corresponding classification categories (Zenodo n.d.), which similarly adopted DataCite classes.

More term selection details are documented in the notes.

GlossOER is **provided as a PDF document and in table form (XLSX)** to convey the terms for teaching and learning materials and their definitions in an easily understandable form and to facilitate communication. The first table contains cover page information, the second table lists contributors and their abbreviations, the third table holds the glossary entries, and the fourth table includes references and namespaces. Please note that namespace links may be incomplete URI fragments, not standalone URLs.

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The authors are also looking forward to further feedback for GlossOER. Everyone is invited to contact [petra.steiner@tu-darmstadt.de](mailto:petra.steiner@tu-darmstadt.de) and [jonathan.geiger@adwmainz.de](mailto:jonathan.geiger@adwmainz.de).

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# GlossOER V1.1.1

## Cover Page

<b>Authors</b>	Steiner, Petra : { <a href="https://orcid.org/0000-0001-8997-2620">https://orcid.org/0000-0001-8997-2620</a> } * Geiger, Jonathan : { <a href="https://orcid.org/0000-0002-0452-7075">https://orcid.org/0000-0002-0452-7075</a> } * Desouki, Abdelmoneim : { <a href="https://orcid.org/0000-0003-2083-1277">https://orcid.org/0000-0003-2083-1277</a> } * Hüppe, Henrika Maria : { <a href="https://orcid.org/0000-0002-0570-7924">https://orcid.org/0000-0002-0570-7924</a> } * Hoyt, Charles Tapley : { <a href="https://orcid.org/0000-0003-4423-4370">https://orcid.org/0000-0003-4423-4370</a> }
<b>License</b>	CC-BY-SA-4.0
<b>Link</b>	<a href="https://doi.org/10.5281/zenodo.17870463">10.5281/zenodo.17870463</a>
<b>Title</b>	Glossary for Open Educational Resources (GlossOER)
<b>AccessibilityFeature</b>	
<b>Community</b>	DALIA (SR)
<b>Description</b>	This glossary provides a structured vocabulary for open educational resources (OERs). It accompanies two works of knowledge organization systems: a. DIF V1.4 (DALIA Interchange Format), a metadata schematization that enables the integration of teaching and learning materials to the DALIA platform. Developed by the DALIA (Data Literacy Alliance) project and in the context of the German National Research Data Infrastructure (NFDI), it standardizes metadata and controlled vocabularies. b. MoDALIA, the foundational ontology for the DALIA platform's information architecture. GlossOER, MoDALIA, and DIF V1.4 maintain full compatibility. However, GlossOER additionally includes vocabulary items and usage examples not present in the other two systems.
<b>Discipline</b>	<a href="https://w3id.org/kim/hochschulfaechersystematik/n0">https://w3id.org/kim/hochschulfaechersystematik/n0</a>
<b>FileFormat</b>	.pdf * .xlsx
<b>Keywords</b>	glossary * controlled vocabulary * open educational resources * metadata * schema
<b>Language</b>	en
<b>LearningResourceType</b>	Data * OtherResourceType
<b>MediaType</b>	text

<b>ProficiencyLevel</b>	advanced beginner * competent * proficient * expert
<b>PublicationDate</b>	2026-02-02
<b>TargetGroup</b>	data steward * researcher * content provider
<b>Teaches</b>	metadata * controlled vocabularies
<b>RelatedWork</b>	<a href="#">DALIA Interchange Format</a>
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<b>Contributors</b>	Lange, Frank : {ProjectMember} : {https://orcid.org/0000-0002-9346-6031}

## List of Contributors

Abbreviation	Name	ORCID	Optional: Email
PCS	Steiner, Petra	0000-0001-8997-2620	petra.steiner@tu-darmstadt.de
AAD	Desouki, Abdelmoneim Amer	0000-0003-2083-1277	abdelmoneim.desouki@tu-darmstadt.de
FLA	Lange, Frank	0000-0002-9346-6031	
JDG	Geiger, Jonathan	0000-0002-0452-7075	jonathan.geiger@adwmainz.de
HMH	Henrika Hüppe	0000-0002-0570-7924	
CTH	Charles Tapley Hoyt	0000-0003-4423-4370	cthoht@gmail.com

## Glossary

Lemma (Attribute name, Picklist Item, or Controlled Vocabulary)	Definition	Defi niti on Lan gua ge	URI	RelationWith	Parent Entity/ Class of Individual	OWL Type	Source of Definiti on	LinkOfSource/ IRI of Definition	Kind of Sourc e: Quota tion, Modif ied quota tion, See (para phras e), Origin al by DALIA team	Constraints/Vocabulary	Notes	Entry By
Authors	The name(s) of the person(s) or organization(s) who created (wrote, made, presented, ...) the resource. May include identifier(s).	en	<a href="#">schema:author</a>			Property	DIF1.3	<a href="https://zenodo.org/records/11521029">https://zenodo.org/records/11521029</a>	M	1. for persons: surname, prename : {ORCID} (Mandatory, Recommended, Recommended) 2. for organizations: organization-name : {organization ROR > Wikidata} (Mandatory, Recommended)	Could used for CRediT Formal analysis, Methodology, Validation, and Writing—original draft.	PCS
License	A legal document giving official permission to do something with the resource.	en	<a href="#">modalia:License</a>			Class	dcterms	<a href="http://purl.org/dc/terms/LicenseDocument">http://purl.org/dc/terms/LicenseDocument</a>	Q	Controlled vocabulary: SPDXLicenseList (content of the "Identifier" column from SPDX, e.g. "CC-BY-4.0"), other free licenses, and "proprietary" for proprietary license.		PCS

NonProprietaryLicense	A type of license that grants permission to access and use a work without monetary cost and to redistribute the original work. Some licenses of this type may permit modification and distribution of derivative works, while others may restrict or prohibit these rights.	en	<a href="#">modalia:NonProprietaryLicense</a>		modalia:License	Class			O	non-proprietary licenses from SPDXLicenseList (content of the "Identifier" column from SPDX, e.g. "CC-BY-4.0"), and other non-proprietary licenses		PCS, AAD
SPDXLicenseList	The licenses included in the SPDX License List ( <a href="http://spdx.org/licenses">http://spdx.org/licenses</a> ).	en	<a href="http://spdx.org/licenses">http://spdx.org/licenses</a>			Class	spdx	<a href="https://spdx.org/rdf/terms/#d4e2847">https://spdx.org/rdf/terms/#d4e2847</a>	M		This controlled vocabulary consists of spdx:ListedLicense items.	PCS, AAD, FLA
ProprietaryLicense	A proprietary license is a type of license for a creative work in which the copyright holder retains most of the rights exclusively.	en	<a href="#">modalia:ProprietaryLicense</a>	closeMatch wd:Q3238057	modalia:License	Class	wd	<a href="https://www.wikidata.org/wiki/Q3238057">https://www.wikidata.org/wiki/Q3238057</a>	Q	For proprietary licenses, the entry value is "proprietary".		PCS
CC-BY-4.0	Creative Commons Attribution 4.0 International	en	<a href="#">spdx.license:CC-BY-4.0</a>		modalia:NonProprietaryLicense	Individual	SPDXlicenses	<a href="http://spdx.org/licenses/CC-BY-4.0">http://spdx.org/licenses/CC-BY-4.0</a>	Q			PCS, FLA
CC-BY-SA-4.0	Creative Commons Attribution Share Alike 4.0 International	en	<a href="#">spdx.license:CC-BY-SA-4.0</a>		modalia:NonProprietaryLicense	Individual	SPDXlicenses	<a href="http://spdx.org/licenses/CC-BY-SA-4.0">http://spdx.org/licenses/CC-BY-SA-4.0</a>	Q			PCS, FLA
CC-BY-NC-4.0	Creative Commons Attribution Non Commercial 4.0 International	en	<a href="#">spdx.license:CC-BY-NC-4.0</a>		modalia:NonProprietaryLicense	Individual	SPDXlicenses	<a href="http://spdx.org/licenses/CC-BY-NC-4.0">http://spdx.org/licenses/CC-BY-NC-4.0</a>	Q			PCS, FLA
CC-BY-NC-ND-4.0	Creative Commons Attribution Non Commercial No Derivatives 4.0 International	en	<a href="#">spdx.license:CC-BY-NC-ND-4.0</a>		modalia:NonProprietaryLicense	Individual	SPDXlicenses	<a href="http://spdx.org/licenses/CC-BY-NC-ND-4.0">http://spdx.org/licenses/CC-BY-NC-ND-4.0</a>	Q			PCS, FLA
CC-BY-NC-SA-4.0	Creative Commons Attribution Non Commercial Share Alike 4.0 International	en	<a href="#">spdx.license:CC-BY-NC-SA-4.0</a>		modalia:NonProprietaryLicense	Individual	SPDXlicenses	<a href="http://spdx.org/licenses/CC-BY-NC-SA-4.0">http://spdx.org/licenses/CC-BY-NC-SA-4.0</a>	Q			PCS, FLA
CC-BY-3.0	Creative Commons Attribution 3.0 Unported	en	<a href="#">spdx.license:CC-BY-3.0</a>		modalia:NonProprietaryLicense	Individual	SPDXlicenses	<a href="http://spdx.org/licenses/CC-BY-3.0">http://spdx.org/licenses/CC-BY-3.0</a>	Q			PCS, FLA
CC-BY-SA-3.0	Creative Commons Attribution Share Alike 3.0 Unported	en	<a href="#">spdx.license:CC-BY-SA-3.0</a>		modalia:NonProprietaryLicense	Individual	SPDXlicenses	<a href="http://spdx.org/licenses/CC-BY-SA-3.0">http://spdx.org/licenses/CC-BY-SA-3.0</a>	Q			PCS, FLA
CC-BY-NC-3.0	Creative Commons Attribution Non Commercial 3.0 Unported	en	<a href="#">spdx.license:CC-BY-NC-3.0</a>		modalia:NonProprietaryLicense	Individual	SPDXlicenses	<a href="http://spdx.org/licenses/CC-BY-NC-3.0">http://spdx.org/licenses/CC-BY-NC-3.0</a>	Q			PCS, FLA

CC-BY-NC-ND-3.0	Creative Commons Attribution Non Commercial No Derivatives 3.0 Unported	en	<a href="http://spdx.org/licenses/CC-BY-NC-ND-3.0">spdx.license:CC-BY-NC-ND-3.0</a>		modalia:NonProprietaryLicense	Individual	SPDXlicenses	<a href="http://spdx.org/licenses/CC-BY-NC-ND-3.0">http://spdx.org/licenses/CC-BY-NC-ND-3.0</a>	Q			PCS, FLA
CC-BY-NC-SA-3.0	Creative Commons Attribution Non Commercial Share Alike 3.0 Unported	en	<a href="http://spdx.org/licenses/CC-BY-NC-SA-3.0">spdx.license:CC-BY-NC-SA-3.0</a>		modalia:NonProprietaryLicense	Individual	SPDXlicenses	<a href="http://spdx.org/licenses/CC-BY-NC-SA-3.0">http://spdx.org/licenses/CC-BY-NC-SA-3.0</a>	Q			PCS, FLA
CC0-1.0	Creative Commons Zero v1.0 Universal	en	<a href="http://spdx.org/licenses/CC0-1.0">spdx.license:CC0-1.0</a>		modalia:NonProprietaryLicense	Individual	SPDXlicenses	<a href="http://spdx.org/licenses/CC0-1.0">http://spdx.org/licenses/CC0-1.0</a>	Q			PCS, FLA
MIT	MIT License	en	<a href="http://spdx.org/licenses/MIT">spdx.license:MIT</a>		modalia:NonProprietaryLicense	Individual	SPDXlicenses	<a href="http://spdx.org/licenses/MIT">http://spdx.org/licenses/MIT</a>	Q			PCS, FLA
Apache-2.0	Apache License 2.0	en	<a href="http://spdx.org/licenses/Apache-2.0">spdx.license:Apache-2.0</a>		modalia:NonProprietaryLicense	Individual	SPDXlicenses	<a href="http://spdx.org/licenses/Apache-2.0">http://spdx.org/licenses/Apache-2.0</a>	Q			PCS, FLA
GPL-3.0-only	GNU General Public License v3.0 only	en	<a href="http://spdx.org/licenses/GPL-3.0-only">spdx.license:GPL-3.0-only</a>		modalia:NonProprietaryLicense	Individual	SPDXlicenses	<a href="http://spdx.org/licenses/GPL-3.0-only">http://spdx.org/licenses/GPL-3.0-only</a>	Q			PCS, FLA
Link (of DIF open educational resource)	The hyperlink(s) to the resource.	en	<a href="#">schema:url</a>		broadMatch dcterms:identifier	Class	DIF1.3	<a href="https://zenodo.org/records/11521029">https://zenodo.org/records/11521029</a>	M	DOI > other URLs		PCS
digital object identifier	A digital object identifier (DOI) is a persistent identifier or handle used to uniquely identify various objects, standardized by the International Organization for Standardization (ISO). DOIs are an implementation of the Handle System; they also fit within the URI system (Uniform Resource Identifier). They are widely used to identify academic, professional, and government information, such as journal articles, research reports, data sets, and official publications. DOIs have also been used to identify other types of information resources, such as commercial videos.	en	<a href="#">dbr:Digital_object_identifier</a>	closeMatch wd:Q25670	dbr:Persistent_identifier	Class	dbr	<a href="https://dbpedia.org/page/Digital_object_identifier">https://dbpedia.org/page/Digital_object_identifier</a>	Q			PCS

Uniform Resource Locator	The term "Uniform Resource Locator" (URL) refers to the subset of URIs that, in addition to identifying a resource, provide a means of locating the resource by describing its primary access mechanism (e.g., its network "location").	en	<a href="#">schema:URL</a>	closeMatch wd:Q42253 broadMatch wd:Q61694		Class	Berners Lee2005:7	<a href="https://www.ietf.org/rfc/rfc3986.txt">https://www.ietf.org/rfc/rfc3986.txt</a>	Q			PCS
Title	The title (and subtitle) of the resource.	en	<a href="#">dcterms:title</a>			Property	DIF1.3	<a href="https://zenodo.org/records/11521029">https://zenodo.org/records/11521029</a>	Q	open, subtitle segmented by colon ( : )		PCS
accessibilityFeature	Content features of the resource, such as accessible media, alternatives and supported enhancements for accessibility.	en	<a href="#">schema:accessibilityFeature</a>			Property	schema:accessibilityFeature	<a href="https://schema.org/accessibilityFeature">https://schema.org/accessibilityFeature</a>	Q	Values should be drawn from the approved vocabulary. See schemaaccessibility ( <a href="https://www.w3.org/communitiy/reports/a11y-discov-vocab/CG-FINAL-vocabulary-20241209">https://www.w3.org/communitiy/reports/a11y-discov-vocab/CG-FINAL-vocabulary-20241209</a> ).		PCS, HMH, AAD
Community	The community is the associated organization, institution, project, body, or online group which supports the educational resource, or recommends it, or both. A community gathers users (members) and educational resources/learning paths similar to Zenodo communities.	en	<a href="#">modalia:Community</a>			Class	DIF1.3, modalia	<a href="https://zenodo.org/records/11521029">https://zenodo.org/records/11521029</a>	M	Communities which are listed at <a href="https://www.wikidata.org/wiki/Q61658497">https://www.wikidata.org/wiki/Q61658497</a> (NFDI) and/or at <a href="https://www.wikidata.org/wiki/Q61658497">https://www.wikidata.org/wiki/Q61658497</a> and/or at <a href="https://www.wikidata.org/wiki/Q111582288">https://www.wikidata.org/wiki/Q111582288</a> and/or <a href="https://www.wikidata.org/wiki/Q61658497">https://www.wikidata.org/wiki/Q61658497</a> has_subidiary or is part_of and/or are <a href="https://www.wikidata.org/wiki/Q98270496">https://www.wikidata.org/wiki/Q98270496</a> wd:Q105757481 or have Q61658497 (NFDI) has a parent organization. > ROR name > name (string)		PCS, JDG, AAD



supporting (community)	A community that supports (by allocating facilities, staff, or other resources) a project, program, meeting, event, data objects, material culture objects, or other entities capable of support. In the context of DIF, the supporting community is the organization, institution, project, body, or online group which supports the production, training, curation, dissemination, or administration of the educational resource by allocating facilities, staff, or other resources.	en	<a href="#">modalia:supportingHost</a>	rdfs:range modalia:Community		Property	mrel	<a href="https://id.loc.gov/vocabulary/relators/sht.html">https://id.loc.gov/vocabulary/relators/sht.html</a>	M			PCS, JDG
recommending (community)	A community which provides the recommendation of the educational resource. In the context of DIF, the recommending community is the organization, institution, project, body, or online group which recommends the educational resource.	en	<a href="#">modalia:recommender</a>	rdfs:range modalia:Community		Property	DIF1.3, rec	<a href="https://web.archive.org/web/20250116013621/https://smiv.sourceforge.net/rec/rdf/recommendationontology.owl">https://web.archive.org/web/20250116013621/https://smiv.sourceforge.net/rec/rdf/recommendationontology.owl</a>	S			PCS, JDG
BERD@NFDI	NFDI consortium for business, economic and related data (social and behavioural sciences)	en	<a href="#">wd:Q108542181</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q108542181">http://www.wikidata.org/entity/Q108542181</a>	Q			PCS
Base4NFDI	Basic services for NFDI	en	<a href="#">wd:Q113544452</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q113544452">http://www.wikidata.org/entity/Q113544452</a>	Q			PCS
DAPHNE4NFDI	NFDI consortium for data from photon and neutron experiments	en	<a href="#">wd:Q108542327</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q108542327">http://www.wikidata.org/entity/Q108542327</a>	Q			PCS
DataPLANT	NFDI consortium for data in basic plant research	en	<a href="#">wd:Q98380336</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q98380336">http://www.wikidata.org/entity/Q98380336</a>	Q			PCS
FAIRAgro	NFDI consortium for agrosystems	en	<a href="#">wd:Q113486316</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q113486316">http://www.wikidata.org/entity/Q113486316</a>	Q			PCS
FAIRmat	NFDI consortium for condensed-matter physics and the chemical physics of solids (physics)	en	<a href="#">wd:Q108542373</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q108542373">http://www.wikidata.org/entity/Q108542373</a>	Q			PCS
GHGA	NFDI consortium for the German human genome-phenome archive	en	<a href="#">wd:Q98380337</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q98380337">http://www.wikidata.org/entity/Q98380337</a>	Q			PCS
KonsortSWD	NFDI consortium for the social, educational, behavioural and economic sciences	en	<a href="#">wd:Q98380340</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q98380340">http://www.wikidata.org/entity/Q98380340</a>	Q			PCS

MaRDI	NFDI consortium mathematical research data initiative	en	<a href="http://www.wikidata.org/entity/Q108327788">wd:Q108327788</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q108327788">http://www.wikidata.org/entity/Q108327788</a>	Q			PCS
NFDI-MatWerk	NFDI consortium for materials science & engineering (materials science and engineering)	en	<a href="http://www.wikidata.org/entity/Q108542607">wd:Q108542607</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q108542607">http://www.wikidata.org/entity/Q108542607</a>	Q			PCS
NFDI4BIOIMAGE	NFDI consortium for microscopy and bioimage analysis	en	<a href="http://www.wikidata.org/entity/Q113500855">wd:Q113500855</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q113500855">http://www.wikidata.org/entity/Q113500855</a>	Q			PCS
NFDI4Biodiversity	NFDI consortium for biodiversity, ecology and environmental data	en	<a href="http://www.wikidata.org/entity/Q98380341">wd:Q98380341</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q98380341">http://www.wikidata.org/entity/Q98380341</a>	Q			PCS
NFDI4Cat	NFDI consortium for sciences related to catalysis	en	<a href="http://www.wikidata.org/entity/Q98380342">wd:Q98380342</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q98380342">http://www.wikidata.org/entity/Q98380342</a>	Q			PCS
NFDI4Chem	NFDI consortium for chemistry	en	<a href="http://www.wikidata.org/entity/Q96678459">wd:Q96678459</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q96678459">http://www.wikidata.org/entity/Q96678459</a>	Q			PCS
NFDI4Culture	NFDI consortium for research data on material and immaterial cultural heritage	en	<a href="http://www.wikidata.org/entity/Q98276929">wd:Q98276929</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q98276929">http://www.wikidata.org/entity/Q98276929</a>	Q			PCS
NFDI4DataScience	NFDI consortium for data science and artificial intelligence (computer science, systems and electrical engineering)	en	<a href="http://www.wikidata.org/entity/Q108542422">wd:Q108542422</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q108542422">http://www.wikidata.org/entity/Q108542422</a>	Q			PCS
NFDI4Earth	NFDI consortium for earth system sciences (geosciences)	en	<a href="http://www.wikidata.org/entity/Q108542504">wd:Q108542504</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q108542504">http://www.wikidata.org/entity/Q108542504</a>	Q			PCS
NFDI4Energy	NFDI consortium for interdisciplinary energy system research	en	<a href="http://www.wikidata.org/entity/Q113499626">wd:Q113499626</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q113499626">http://www.wikidata.org/entity/Q113499626</a>	Q			PCS
NFDI4Health	NFDI consortium for personal health data	en	<a href="http://www.wikidata.org/entity/Q98380343">wd:Q98380343</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q98380343">http://www.wikidata.org/entity/Q98380343</a>	Q			PCS
NFDI4Immuno	NFDI consortium for immunology	en	<a href="http://www.wikidata.org/entity/Q113543313">wd:Q113543313</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q113543313">http://www.wikidata.org/entity/Q113543313</a>	Q			PCS
NFDI4Ing	NFDI consortium for engineering sciences	en	<a href="http://www.wikidata.org/entity/Q98380344">wd:Q98380344</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q98380344">http://www.wikidata.org/entity/Q98380344</a>	Q			PCS
NFDI4Memory	NFDI consortium for the historically oriented humanities	en	<a href="http://www.wikidata.org/entity/Q98231721">wd:Q98231721</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q98231721">http://www.wikidata.org/entity/Q98231721</a>	Q			PCS
NFDI4Microbiota	NFDI consortium for microbiota research data	en	<a href="http://www.wikidata.org/entity/Q99534506">wd:Q99534506</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q99534506">http://www.wikidata.org/entity/Q99534506</a>	Q			PCS
NFDI4Objects	NFDI consortium for the material remains of human history	en	<a href="http://www.wikidata.org/entity/Q98229157">wd:Q98229157</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q98229157">http://www.wikidata.org/entity/Q98229157</a>	Q			PCS
NFDIxCs	NFDI consortium for and with computer science	en	<a href="http://www.wikidata.org/entity/Q113501071">wd:Q113501071</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q113501071">http://www.wikidata.org/entity/Q113501071</a>	Q			PCS

PUNCH4NFDI	NFDI consortium for particles, universe, nuclei and hadrons (physics)	en	<a href="http://www.wikidata.org/entity/Q108542637">wd:Q108542637</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q108542637">http://www.wikidata.org/entity/Q108542637</a>	Q			PCS
SaxFDM	Saxon research data management initiative	en	<a href="http://www.wikidata.org/entity/Q67890505">wd:Q67890505</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q67890505">http://www.wikidata.org/entity/Q67890505</a>	Q			PCS
Section (Meta)data, Terminologies, Provenance	Section of the NFDI association	en	<a href="http://www.wikidata.org/entity/Q111582407">wd:Q111582407</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q111582407">http://www.wikidata.org/entity/Q111582407</a>	Q			PCS
Section Common Infrastructures	Section of the NFDI association	en	<a href="http://www.wikidata.org/entity/Q111582309">wd:Q111582309</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q111582309">http://www.wikidata.org/entity/Q111582309</a>	Q			PCS
Section Industry Engagement	Section of the NFDI association	en	<a href="http://www.wikidata.org/entity/Q121415618">wd:Q121415618</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q121415618">http://www.wikidata.org/entity/Q121415618</a>	Q			PCS
Section Training & Education	Section of the NFDI association	en	<a href="http://www.wikidata.org/entity/Q111582410">wd:Q111582410</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q111582410">http://www.wikidata.org/entity/Q111582410</a>	Q			PCS
Section ethical, legal and social aspects	Section of the NFDI association	en	<a href="http://www.wikidata.org/entity/Q111582403">wd:Q111582403</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q111582403">http://www.wikidata.org/entity/Q111582403</a>	Q			PCS
Text+	NFDI consortium for text- and language-based research data	en	<a href="http://www.wikidata.org/entity/Q98271443">wd:Q98271443</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q98271443">http://www.wikidata.org/entity/Q98271443</a>	Q			PCS
WG Research Software Engineering (RSE) at section-infra	Working group in section-infra of the NFDI association	en	<a href="http://www.wikidata.org/entity/Q125747942">wd:Q125747942</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q125747942">http://www.wikidata.org/entity/Q125747942</a>	Q			PCS
arthistoricum.net	Digital platform for the arts to support art historical research and to publish research results	en	<a href="http://www.wikidata.org/entity/Q708067">wd:Q708067</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q708067">http://www.wikidata.org/entity/Q708067</a>	Q			PCS
Digital Curation Centre	UK organization that addresses challenges of digital preservation and digital curation; part of Jisc	en	<a href="http://www.wikidata.org/entity/Q5275828">wd:Q5275828</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q5275828">http://www.wikidata.org/entity/Q5275828</a>	Q			PCS
Research Data Alliance	Research community organization started in 2013	en	<a href="http://www.wikidata.org/entity/Q25338539">wd:Q25338539</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q25338539">http://www.wikidata.org/entity/Q25338539</a>	Q			PCS
Swedish National Data Service	Infrastructure for research data management and publishing	en	<a href="http://www.wikidata.org/entity/Q10684886">wd:Q10684886</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q10684886">http://www.wikidata.org/entity/Q10684886</a>	Q			PCS
Come2Data	Competence center for interdisciplinary data science	en	<a href="http://www.wikidata.org/entity/Q116770578">wd:Q116770578</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q116770578">http://www.wikidata.org/entity/Q116770578</a>	Q			PCS

DACE	Data competence center for circular economy data	en	<a href="http://www.wikidata.org/entity/Q116770731">wd:Q116770731</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q116770731">http://www.wikidata.org/entity/Q116770731</a>	Q			PCS
DIM.RUHR	Data competence center for interprofessional health data use in the Ruhr Metropolis	en	<a href="http://www.wikidata.org/entity/Q116745844">wd:Q116745844</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q116745844">http://www.wikidata.org/entity/Q116745844</a>	Q			PCS
DKZ2R	Rhine-Ruhr center for scientific data competence	en	<a href="http://www.wikidata.org/entity/Q116748772">wd:Q116748772</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q116748772">http://www.wikidata.org/entity/Q116748772</a>	Q			PCS
DataNord	Interdisciplinary data competence center for the Bremen region	en	<a href="http://www.wikidata.org/entity/Q116748742">wd:Q116748742</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q116748742">http://www.wikidata.org/entity/Q116748742</a>	Q			PCS
HERMES	Data competence center for humanities education in research, data, and methods	en	<a href="http://www.wikidata.org/entity/Q116745924">wd:Q116745924</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q116745924">http://www.wikidata.org/entity/Q116745924</a>	Q			PCS
KODAQs	Competence center data quality in the social sciences	en	<a href="http://www.wikidata.org/entity/Q116748687">wd:Q116748687</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q116748687">http://www.wikidata.org/entity/Q116748687</a>	Q			PCS
QUADRIGA	Berlin-Brandenburg data competence center for digital humanities, computer science, information science and administrative science	en	<a href="http://www.wikidata.org/entity/Q116770512">wd:Q116770512</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q116770512">http://www.wikidata.org/entity/Q116770512</a>	Q			PCS
SODa	Data competence center for collections, objects, data literacy: developing a data competency centre for academic university collections	en	<a href="http://www.wikidata.org/entity/Q116748476">wd:Q116748476</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q116748476">http://www.wikidata.org/entity/Q116748476</a>	Q			PCS
WiNoDa	Knowledge lab for natural science collections and object-centered data	en	<a href="http://www.wikidata.org/entity/Q116770659">wd:Q116770659</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q116770659">http://www.wikidata.org/entity/Q116770659</a>	Q			PCS
de.KCD	German competence center cloud technologies for data management and processing	en	<a href="http://www.wikidata.org/entity/Q116770998">wd:Q116770998</a>		modalia:Community	Individual	wd	<a href="http://www.wikidata.org/entity/Q116770998">http://www.wikidata.org/entity/Q116770998</a>	Q			PCS
Description	The description of the resource.	en	<a href="#">dcterms:description</a>			Property	dcterms, DIF1.3	<a href="https://zenodo.org/records/11521029">https://zenodo.org/records/11521029</a>	O	open		PCS, AAD
Discipline	The discipline or university/college subject the learning resource belongs to.	en	<a href="#">fabio:hasDiscipline</a>			Property	DIF1.3, fabio	<a href="http://purl.org/spar/fabio/hasDiscipline">http://purl.org/spar/fabio/hasDiscipline</a>	M	DisciplineDestatisList: Controlled vocabulary from German University Subject Classification System ("Systematik der Fächergruppen, Studienbereiche und Studienfächer") as defined by Statistisches Bundesamt	Currently destatis2024, as in kim.hochschulfachersystematik.	PCS

DisciplineDestatis List	The disciplines included in the German University Subject Classification System ("Systematik der Fächergruppen, Studienbereiche und Studienfächer") as defined by Statistisches Bundesamt ( <a href="https://w3id.org/kim/hochschulfaechersystematik/scheme">https://w3id.org/kim/hochschulfaechersystematik/scheme</a> ).	en	<a href="https://w3id.org/kim/hochschulfaechersystematik/scheme">https://w3id.org/kim/hochschulfaechersystematik/scheme</a>			Class			O			PCS
FileFormat	The (technical) file format(s) of the resource.  If the resource exists in different formats (e.g. pptx and pdf), all of them should be provided. For non-downloadable resources, e.g. streams, no format can be provided (e.g. YouTube videos).	en	<a href="https://www.loc.gov/preservation/digital/formats/fddXML/">dcterms:format</a>			Property	dcterms	<a href="http://purl.org/dc/terms/format">http://purl.org/dc/terms/format</a>	M	The controlled vocabulary LoCFileFormatList which is overlapping with the MIME file types (extensions): <a href="https://mimetype.io/all-types">https://mimetype.io/all-types</a> and the fileTypes from McCallum, Patrick (2024): <a href="https://mimedata.json">mimeData.json</a> . Most definitions are from XML Format Description Documents (fdd).	The file format helps users to choose tools to work with the resource.	PCS, AAD, JDG
LoCFileFormatList	The file formats included in the XML Format Description Documents of the Library of Congress, which is overlapping with the MIME file types (extensions): <a href="https://mimetype.io/all-types">https://mimetype.io/all-types</a> and the fileTypes from McCallum2024 ( <a href="https://www.loc.gov/preservation/digital/formats/fddXML/">https://www.loc.gov/preservation/digital/formats/fddXML/</a> ).	en	<a href="https://www.loc.gov/preservation/digital/formats/fddXML/">https://www.loc.gov/preservation/digital/formats/fddXML/</a>		dcterms:FileFormat	Class			O			PCS, AAD, HMM

.pdf	PDF (Portable Document Format), developed by Adobe Systems Incorporated, is described by Adobe as a general document representation language. PDF represents formatted, page-oriented documents. These documents may be structured or simple. They may contain text, images, graphics, and other multimedia content, such as video and audio. There is support for annotations, metadata, hypertext links, and bookmarks. Later versions provide additional functionalities, for example, to embed geospatial information within documents that represent maps or other geospatial images, such as satellite photographs.	en	<a href="https://www.loc.gov/preservation/digital/formats/fddXML/fdd000030.xml">https://www.loc.gov/preservation/digital/formats/fddXML/fdd000030.xml</a>		dcterms:FileFormat	Individual	fdd, McCallum2024	<a href="https://www.loc.gov/preservation/digital/formats/fddXML/fdd000030.xml">https://www.loc.gov/preservation/digital/formats/fddXML/fdd000030.xml</a> <a href="https://github.com/patrickmccallum/mimetype.io/blob/master/src/mimeData.json">https://github.com/patrickmccallum/mimetype.io/blob/master/src/mimeData.json</a>	Q, S			PCS, HMMH
.html	HyperText Markup Language (HTML) is the primary markup language used for creating pages and applications on the World Wide Web. HTML files are textual files, viewable and editable in plain text editors.	en	<a href="https://mimetype.io/text/html">https://mimetype.io/text/html</a>		dcterms:FileFormat	Individual	fdd	<a href="https://www.loc.gov/preservation/digital/formats/fdd/fdd000475.shtml">https://www.loc.gov/preservation/digital/formats/fdd/fdd000475.shtml</a> <a href="https://www.loc.gov/preservation/digital/formats/fddXML/fdd000475.xml">https://www.loc.gov/preservation/digital/formats/fddXML/fdd000475.xml</a>	Q			PCS, HMMH, JDG
.pptx	The Office Open XML-based presentation format using .pptx as a file extension has been the default format produced for new documents by versions of Microsoft PowerPoint since PowerPoint 2007. The conceptual structure of a slide-based presentation includes: presentation, slide, slide layout, note, handout, and comment.	en	<a href="https://www.loc.gov/preservation/digital/formats/fddXML/fdd000399.xml">https://www.loc.gov/preservation/digital/formats/fddXML/fdd000399.xml</a>		dcterms:FileFormat	Individual	fdd	<a href="https://www.loc.gov/preservation/digital/formats/fdd/fdd000399.shtml">https://www.loc.gov/preservation/digital/formats/fdd/fdd000399.shtml</a> <a href="https://www.loc.gov/preservation/digital/formats/fddXML/fdd000399.xml">https://www.loc.gov/preservation/digital/formats/fddXML/fdd000399.xml</a>	M			PCS, HMMH

.mp3	The MP3 File Format is the de facto file format for sound that wraps MP3_ENC bitstreams, which may be post- or pre-pended by the informally specified ID3 metadata blocks.	en	<a href="https://www.loc.gov/preservation/digital/formats/fdd/fdd000105.shtml">https://www.loc.gov/preservation/digital/formats/fdd/fdd000105.shtml</a>		dcterms:FileFormat	Individual	fdd	<a href="https://www.loc.gov/preservation/digital/formats/fdd/fdd000105.shtml">https://www.loc.gov/preservation/digital/formats/fdd/fdd000105.shtml</a>	M			PCS, HMH
.txt	The txt File Format is plain text consisting of a sequence of character codes, such as ASCII or Unicode.	en			dcterms:FileFormat	Individual			O			PCS, HMH
.zip	ZIP File Format (PKWARE) is designed for cross-platform data exchange and efficient data storage for a set of related files. ZIP_PK is a de facto industry standard, developed, maintained, and openly documented by PKWARE. The original version of the format was developed by Phil Katz (hence the "PK" in PKWARE). ZIP combines data compression, file management, and data encryption within a portable archive format. A ZIP file is a package containing one or more files, usually compressed and sometimes encrypted.	en	<a href="https://www.loc.gov/preservation/digital/formats/fdd/fdd000354.shtml">https://www.loc.gov/preservation/digital/formats/fdd/fdd000354.shtml</a>		dcterms:FileFormat	Individual	fdd	<a href="https://www.loc.gov/preservation/digital/formats/fdd/fdd000354.shtml">https://www.loc.gov/preservation/digital/formats/fdd/fdd000354.shtml</a>	Q			PCS, HMH
.png	The PNG or Portable Network Graphics specification describes PNG as an "extensible file format for the lossless, portable, well-compressed storage of static and animated raster images. PNG provides a patent-free replacement for GIF and can also replace many common uses of TIFF. Indexed-color, grayscale, and truecolor images are supported, plus an optional alpha channel. Sample depths range from 1 to 16 bits." The specification is maintained and developed by the W3C Portable Network Graphics (PNG) Working Group.	en	<a href="https://www.loc.gov/preservation/digital/formats/fdd/fdd000153.shtml">https://www.loc.gov/preservation/digital/formats/fdd/fdd000153.shtml</a>		dcterms:FileFormat	Individual	fdd	<a href="https://www.loc.gov/preservation/digital/formats/fdd/fdd000153.shtml">https://www.loc.gov/preservation/digital/formats/fdd/fdd000153.shtml</a>	Q			PCS, HMH

.mp4	MP4 can be used for MPEG 4 video files, combined video and audio files, or plain MPEG 4 audio.	en	<a href="https://www.loc.gov/preservation/digital/formats/fdd/fdd000155.xml">https://www.loc.gov/preservation/digital/formats/fdd/fdd000155.xml</a>		dcterms:FileFormat	Individual	fdd	<a href="https://www.loc.gov/preservation/digital/formats/fdd/fdd000155.xml">https://www.loc.gov/preservation/digital/formats/fdd/fdd000155.xml</a>	Q			PCS, HMH
Keywords	Essential and characteristic topics or content of the resource.	en	<a href="https://www.loc.gov/preservation/digital/formats/fdd/fdd000155.xml">schema:keywords</a>			Property	DIF1.3	<a href="https://zenodo.org/records/11521029">https://zenodo.org/records/11521029</a>	Q	open, but picklist recommended, e.g. <a href="https://id.loc.gov/authorities/subjects.html">https://id.loc.gov/authorities/subjects.html</a> , <a href="https://www.wikidata.org/wiki/Wikidata:Main_Page">https://www.wikidata.org/wiki/Wikidata:Main_Page</a> , <a href="https://lobid.org/gnd">https://lobid.org/gnd</a>		PCS, AAD, JDG
Language	The language(s) of the resource.	en	<a href="https://www.loc.gov/preservation/digital/formats/fdd/fdd000155.xml">dcterms:language</a>			Property	DIF1.3	<a href="https://zenodo.org/records/11521029">https://zenodo.org/records/11521029</a>	Q	The controlled vocabulary LanguageLexvoList. Two character codes are preferred: ISO 639-1 (two characters, e.g. en) > ISO 639-3 (three character codes) see <a href="https://id.loc.gov/vocabulary/iso639-1.html">https://id.loc.gov/vocabulary/iso639-1.html</a> , <a href="https://www.loc.gov/standards/iso639-2/php/code_list.php">https://www.loc.gov/standards/iso639-2/php/code_list.php</a> , <a href="https://en.wikipedia.org/wiki/List_of_ISO_639_language_codes">https://en.wikipedia.org/wiki/List_of_ISO_639_language_codes</a>	"Lexvo.org, since 2008, has defined URIs of the form <a href="http://www.lexvo.org/id/iso639-3/eng">http://www.lexvo.org/id/iso639-3/eng</a> for all of the 7 000 languages covered by the ISO 639-3 standard. While the Library of Congress has published ISO 639-2 as a controlled vocabulary based on SKOS [23], there is no good Linked Data alternative to Lexvo.org for ISO 639-3. Lexvo.org's language identifiers are used by the British Library, the Spanish National Library (datos.bne.es), and the French academic catalog Sudoc, among many others." (demelo2015, 394)	PCS, AAD, JDG



LanguageLexvolut	The languages included in the lexvo language vocabulary ( <a href="http://www.lexvo.org/data/iso639-1/">http://www.lexvo.org/data/iso639-1/</a> and <a href="http://www.lexvo.org/data/iso639-3/">http://www.lexvo.org/data/iso639-3/</a> ).	en	<a href="http://www.lexvo.org/data/iso639-1/">http://www.lexvo.org/data/iso639-1/</a> and <a href="http://www.lexvo.org/data/iso639-3/">http://www.lexvo.org/data/iso639-3/</a>			Class			O			PCS
de	Two-letter code for New High German (NHG), a term used for the most recent period in the history of the German language. It is a translation of the German Neuhochdeutsch (Nhd). It includes all of the modern High German dialects since the Baroque period, but is often used as a synonym for Standard German.	en	<a href="http://www.lexvo.org/data/iso639-3/deu">lexvo:de</a>		lexvoo:Language	Individual	lexvo	<a href="http://www.lexvo.org/data/iso639-3/deu">http://www.lexvo.org/data/iso639-3/deu</a>	Q			PCS
en	Two-letter code for English, a West Germanic language that arose in the Anglo-Saxon kingdoms of England and spread into what was to become south-east Scotland under the influence of the Anglian medieval kingdom of Northumbria. Following the extensive influence of Great Britain and the United Kingdom from the 18th century, via the British Empire, and of the United States since the mid-20th century, it has been widely dispersed around the world, becoming the leading language of international discourse and the lingua franca in many regions. It is widely learned as a second language and used as an official language of the European Union and many Commonwealth countries, as well as in many world organisations. It is the third most natively spoken language in the world, after Mandarin Chinese and Spanish. ('en' language string).	en	<a href="http://www.lexvo.org/data/iso639-3/eng">lexvo:en</a>		lexvoo:Language	Individual	lexvo	<a href="http://www.lexvo.org/data/iso639-3/eng">http://www.lexvo.org/data/iso639-3/eng</a>	Q			PCS

ISO639-1	ISO 639-1 is the first part of the ISO 639 international-standard language-code family. ISO 639-1 provides two-character lowercase alphabetic strings that serve as identifiers of languages. The list contains approximately 180 discrete codes. All ISO 639-1 languages also have ISO 639-2 three-character code representations. These codes are linked to codes for the same languages in ISO 639-2 and the MARC Language Codes.	en	<a href="http://id.loc.gov/vocabulary/iso639-1/">http://id.loc.gov/vocabulary/iso639-1/</a>			Class	ISO 639-1	<a href="http://id.loc.gov/vocabulary/iso639-1/">http://id.loc.gov/vocabulary/iso639-1/</a>	Q			PCS
ISO639-3	ISO 639-3 is part of the ISO 639 language code family. Like ISO 639-2, it provides three-character identifiers for identifying languages. Whereas ISO 639-2 covers a few hundred languages, ISO 639-3 provides a comprehensive code set for all known languages, both living and historical. It provides identifiers for over 7,500 distinct languages. When the same identifier occurs in both 639-2 and 639-3 it always has the same meaning. SIL International functions as the Language Coding Agency for Set 3 of the ISO 639 language code standard. See <a href="http://iso639-3.sil.org">iso639-3.sil.org</a> .	en	<a href="http://id.loc.gov/vocabulary/iso639-3.html">http://id.loc.gov/vocabulary/iso639-3.html</a>			Class	ISO 639-3	<a href="https://id.loc.gov/vocabulary/iso639-3.html">https://id.loc.gov/vocabulary/iso639-3.html</a>	O			PCS
LearningResourceType	The pedagogical type of the resource: information for the educational use. This includes the most specific type: rather textbook than book.	en	<a href="http://modalia:hasLearningType">modalia:hasLearningType</a>			Property	DIF1.3	<a href="https://zenodo.org/records/11521029">https://zenodo.org/records/11521029</a>	Q	The picklist is compiled from <a href="https://w3id.org/kim/hcrt/schema">https://w3id.org/kim/hcrt/schema</a> (with exceptions), bibo, dcterms, schema, and own definitions. (Modified) definitions were also taken from other sources such as ISO standards, fabio, sio, wikidata.		PCS, AAD, JDG
Article	A written composition in prose, usually nonfiction, on a specific topic, forming an independent part of a book or other publication, as a newspaper or magazine.	en	<a href="http://bibo.org/ontology/bibo/Article">bibo:Article</a>		modalia:LearningResourceType	Class	bibo	<a href="http://purl.org/ontology/bibo/Article">http://purl.org/ontology/bibo/Article</a>	Q			PCS, AAD

Assessment	The description of an activity or resource used to ensure attainment of a learning objective or learning outcome.	en	<a href="#">hcr:assessment</a>		modalia:LearningResourceType	Class	ISO/IEC 19788-5:2014, 14		S		Translation of: Beschreibung einer Bewertungstätigkeit oder Ressource, die zur Sicherstellung eines Lernergebnisses genutzt wird.	PCS, AAD, JDG
BestPractices	A process or method that has been shown to work well, succeeds in achieving its objective(s), is acknowledged and therefore can be recommended as an approach.	en	<a href="#">modalia:BestPractices</a>		modalia:LearningResourceType	Class	ISO 22163:2024, 4		M			PCS, AAD, JDG
Book	A non-serial document that is complete in one volume or a designated finite number of volumes. A book published by a publisher is usually identified by an International Standard Book Number (ISBN), and may be manifested as a physical printed publication on paper bound in a hard or soft cover, or in electronic format.	en	<a href="#">bibo:Book</a>	closeMatch fabio:book	modalia:LearningResourceType	Class	fabio	<a href="http://purl.org/spar/fabio/Book">http://purl.org/spar/fabio/Book</a>	M			PCS, AAD, JDG
CaseStudy	A description of an actual situation, commonly involving a decision, a challenge, an opportunity, a problem or an issue.	en	<a href="#">hcr:case_study</a>		modalia:LearningResourceType	Class	ISO/IEC 19788-5:2014, 30		Q			PCS, AAD, JDG
CodeNotebook	Program used to mix code, comments, and visualizations in an interactive document called notebook that can be shared, reused, and reworked in a web browser.	en	<a href="#">modalia:CodeNotebook</a>		modalia:LearningResourceType	Class	wd	<a href="https://www.wikidata.org/wiki/Q70357595">https://www.wikidata.org/wiki/Q70357595</a>	Q			PCS, AAD, JDG
Cookbook	A thematic collection of useful procedures in IT.	en	<a href="#">modalia:Cookbook</a>		modalia:LearningResourceType	Class	wd	<a href="https://www.wikidata.org/wiki/Q3689925">https://www.wikidata.org/wiki/Q3689925</a>	Q			PCS, AAD, JDG
Course	An educational course comprises one or more educational events and/or creative works that aim to build knowledge, competence or ability of learners.	en	<a href="#">hcr:course</a>		modalia:LearningResourceType	Class	schema	<a href="https://schema.org/Course">https://schema.org/Course</a>	M			PCS, AAD, JDG

Data	Any form of digital representation, e.g. facts, measurements, recordings, records, or observations about the world. Data may be in any format or medium taking the form of writings, notes, numbers, symbols, text, images, films, video, sound recordings, pictorial reproductions, drawings, designs or other graphical representations, procedural manuals, forms, diagrams, work flow charts, equipment descriptions, data files, data processing algorithms, or statistical records.	en	<a href="#">hcr:data</a>	closeMatch obo:T4FS_0000430	modalia:LearningResourceType	Class	CODATA-RDM, p. 6, T4FS:0000430	<a href="https://zenodo.org/records/10626171">https://zenodo.org/records/10626171</a> <a href="http://purl.obolibrary.org/obo/T4FS_0000430">http://purl.obolibrary.org/obo/T4FS_0000430</a>	M			PCS, AAD, JDG
Diagram	An image that illustrates the structure and/or its component substructures and/or relations with other structures by using lines, shapes, text, and other symbols.	en	<a href="#">hcr:diagram</a>		modalia:LearningResourceType	Class	schema	<a href="https://schema.org/diagram">https://schema.org/diagram</a>	M			PCS, AAD, JDG
DrillAndPractice	Exercise(s) or activities for the (repetitive) training of a skill or knowledge.	en	<a href="#">hcr:drill_and_practice</a>		modalia:LearningResourceType	Class			O			PCS, AAD
EducationalGame	An individual or group game intended to teach a subject, skill, or attitude.	en	<a href="#">hcr:educational_game</a>		modalia:LearningResourceType	Class	aat	<a href="http://vocab.getty.edu/page/aat/300262798">http://vocab.getty.edu/page/aat/300262798</a>	M			PCS, AAD, JDG
Experiment	A scientific procedure undertaken to make a discovery, test a hypothesis, or demonstrate a known fact.	en	<a href="#">hcr:experiment</a>		modalia:LearningResourceType	Class	ISO/IEC 19788-5:2014, 31		Q			PCS, AAD
Lecture	An informative talk given to an audience or class and usually prepared beforehand, or the text of such a talk.	en	<a href="#">modalia:Lecture</a>		modalia:LearningResourceType	Class	ISO/IEC 19788-5:2014, 30		M			PCS, AAD, JDG
LessonPlan	Detailed descriptions or outlines for a pedagogical session. Usually includes objective(s), instructional components or methods, and assessment.	en	<a href="#">hcr:lesson_plan</a>		modalia:LearningResourceType	Class	aat	<a href="http://vocab.getty.edu/page/aat/300417283">http://vocab.getty.edu/page/aat/300417283</a>	M			PCS, AAD

Map	Graphic representation of a geographic area, including physical features and political boundaries, where each point corresponds to a geographical or celestial position according to a definite scale or projection. The term may also refer to similar depictions of other planets, suns, other heavenly bodies, or areas of the heavens. Maps are typically depicted on a flat medium, such as on paper, a wall, or a computer screen.	en	<a href="#">hcr:map</a>		modalia:LearningResourceType	Class	aat	<a href="http://vocab.getty.edu/page/aat/300028094">http://vocab.getty.edu/page/aat/300028094</a>	M			PCS, AAD, JDG
Podcast	The learning resource type podcast is an episodic series of digital audio or video files or an episode of that, which a user can download and listen to.	en	<a href="#">modalia:Podcast</a>	narrowMatch schema:PodcastSeries narrowMatch schema:PodcastEpisode	modalia:LearningResourceType	Class	schema	<a href="https://schema.org/PodcastSeries">https://schema.org/PodcastSeries</a>	M			PCS, AAD, JDG
Poster	A large, usually printed placard, bill, or announcement, often illustrated, that is posted to advertise or publicize something.	en	<a href="#">modalia:Poster</a>		modalia:LearningResourceType	Class	schema	<a href="https://schema.org/Poster">https://schema.org/Poster</a>	Q			PCS, AAD, HMH
Questionnaire	A set of questions with a choice of answers, devised for the purposes of a survey or statistical study.	en	<a href="#">hcr:questionnaire</a>		modalia:LearningResourceType	Class	ISO/IEC 19788-5:2014 , 32		Q			PCS, AAD
ReferenceWork	Material to be consulted for authoritative factual information, such as a dictionary, encyclopedia, entry, handbook, standard, or field guide, or an informative web page such as an institutional, research group or project home page.	en	<a href="#">hcr:index</a>	closeMatch fabio:ReferenceWork	modalia:LearningResourceType	Class	fabio	<a href="http://purl.org/spar/fabio/ReferenceWork">http://purl.org/spar/fabio/ReferenceWork</a>	M			PCS, AAD
Report	A document describing an account or statement describing in detail an event, situation, or the like, usually as the result of observation, inquiry, etc.	en	<a href="#">bibo:Report</a>	closeMatch fabio:Report closeMatch aat:300027267	modalia:LearningResourceType	Class	bibo	<a href="http://purl.org/ontology/bibo/Report">http://purl.org/ontology/bibo/Report</a>	Q			PCS, AAD, JDG
Script	A script or scriptum is a textbook or study materials that include the content of a lecture series or course.	en	<a href="#">hcr:script</a>		modalia:LearningResourceType	Class			O			PCS, AAD

SheetMusic	A piece of musical notation.	en	<a href="#">hcr:sheet_music</a>		modalia:LearningResourceType	Class			O			PCS, AAD
Simulation	The reproducing of characteristics, conditions, and/or systems, often by the use of a model or a representation.	en	<a href="#">hcr:simulation</a>		modalia:LearningResourceType	Class	ISO/IEC 19788-5:2014, 32		M			PCS, AAD, JDG
SoftwareApplication	A software application is software that can be directly executed by some processing unit.	en	<a href="#">hcr:application</a>	closeMatch sio:SIO_000101	modalia:LearningResourceType	Class	sio	<a href="http://semanticscience.org/resource/SIO_000101">http://semanticscience.org/resource/SIO_000101</a>	Q			PCS, AAD
SoftwareSourceCode	Source code (also referred to as source or code) is the version of software as it is originally written in plain text (i.e., human readable alphanumeric characters).	en	<a href="#">schema:SoftwareSourceCode</a>		modalia:LearningResourceType	Class	EMMO-CS	<a href="https://w3id.org/emmo#EMMO_348d39f7_6a17_49d1_9860_9b33b69b51de">https://w3id.org/emmo#EMMO_348d39f7_6a17_49d1_9860_9b33b69b51de</a>	Q			PCS, AAD, JDG
Textbook	A book used as standard work for the formal study of a particular subject.	en	<a href="#">hcr:textbook</a>		modalia:LearningResourceType	Class	aat	<a href="https://vocab.getty.edu/aat/300026384">https://vocab.getty.edu/aat/300026384</a>	Q			PCS, AAD, JDG
Thesis	A document created to summarize research findings associated with the completion of an academic degree.	en	<a href="#">bibo:Theses</a>		modalia:LearningResourceType	Class	bibo	<a href="http://purl.org/ontology/bibo/Thesis">http://purl.org/ontology/bibo/Thesis</a>	Q			PCS, AAD
Tutorial	A course with strong instructional components containing exercises, information, etc.	en	<a href="#">modalia:Tutorial</a>		modalia:LearningResourceType	Class	ISO/IEC 19788-5:2014, 32		Q			PCS, AAD, JDG
WebPage	A web page is an online document available (at least initially) on the world wide web.	en	<a href="#">bibo:Webpage</a>	closeMatch hcr:web_page closeMatch aat:300264578 closeMatch fabio:WebPage	modalia:LearningResourceType	Class	bibo	bibo:Webpage	Q			PCS, AAD, JDG
WebPortal	A website that integrates applications, processes, and services.	en	<a href="#">hcr:portal</a>	closeMatch wd:Q186165	modalia:LearningResourceType	Class	wd	<a href="https://www.wikidata.org/wiki/Q186165">https://www.wikidata.org/wiki/Q186165</a>	M			PCS, AAD

WebSite	A collection of related web pages containing text, images, videos and/or other digital assets that are addressed relative to a common Uniform Resource Locator (URL). A website is hosted on at least one web server, accessible via a network such as the Internet or a private local area network.	en	<a href="#">fabio:WebSite</a>			Class	fabio	<a href="http://purl.org/spar/fabio/WebSite">http://purl.org/spar/fabio/WebSite</a>	Q		Definition of WebSite as superordinate of WebPortal.	PCS, JDG
Worksheet	A sheet containing exercises or tasks to be completed for the purpose of imparting knowledge, attitudes, or skills.	en	<a href="#">hcrt:worksheets</a>		modalia:LearningResourceType	Class	aat	<a href="http://vocab.getty.edu/page/aat/300026367">http://vocab.getty.edu/page/aat/300026367</a>	S, O			PCS, AAD
Workshop	A seminar, discussion group, or the like, that emphasizes the exchange of ideas and the demonstration and application of techniques, skills, etc. in a specialized field or occupation.	en	<a href="#">bibo:Workshop</a>	closeMatch aat:300069765	modalia:LearningResourceType	Class	bibo, aat	<a href="http://purl.org/ontology/bibo/Workshop">http://purl.org/ontology/bibo/Workshop</a>  <a href="http://vocab.getty.edu/page/aat/300069765">http://vocab.getty.edu/page/aat/300069765</a>	Q			PCS, AAD, JDG
OtherResourceType	A learning resource type that is not covered by the other listed categories.	en	<a href="#">hcrt:other</a>		modalia:LearningResourceType	Class			O			PCS, AAD
MediaType	The general type of data content encoded in a computer file in terms of its modality (text, audio, picture etc.). The media type is to be used for user preferences for the learning style(s). If the resource consists of multiple items with different DOIs, the MediaType is "multipart" and the relations are provided in the "RelatedWork" field.	en	<a href="#">modalia:hasMediaType</a>			Property	fleming 1992	<a href="https://github.com/patrickmccallum/mimetypes-io/blob/master/src/mimeData.json">https://github.com/patrickmccallum/mimetypes-io/blob/master/src/mimeData.json</a>	S	picklist: audio, video, text, presentation, code, image, multipart		PCS, AAD
Audio	A resource has the media type audio if it mainly consists of aural material.	en	<a href="#">schema:AudioObject</a>	broadMatch dctypes:Sound	modalia:MediaType	Class			O			PCS, AAD
Video	A resource has the media type video if it mainly consists of moving images.	en	<a href="#">schema:VideoObject</a>	broadMatch dctypes:MovingImage	modalia:MediaType	Class			O			PCS, AAD
Text	A resource has the media type text if it mainly consists of written or writing materials.	en	<a href="#">schema:Text</a>	broadMatch dctypes:Text	modalia:MediaType	Class			O			PCS, AAD
Presentation	A resource has the media type presentation if it mainly consists of slides.	en	<a href="#">schema:PresentationDigitalDocument</a>		modalia:MediaType	Class			O			PCS, AAD

Code	A resource has the media type code if it mainly consists of programming code.	en	<a href="#">modalia:Code</a>	broadMatch dcterms:Software	modalia:Media Type	Class			O			PCS, AAD
Image	A resource has the media type image if it mainly consists of (a) still image(s).	en	<a href="#">schema:imageObject</a>	closeMatch dctypes:StillImage	modalia:Media Type	Class			O			PCS, AAD
Multipart	A resource has the media type multipart if it consists of more than one part, each of a different media type.	en	<a href="#">modalia:Multipart</a>	closeMatch dcterms:Collection	modalia:Media Type	Class			O			PCS, AAD
ProficiencyLevel	The proposed level of proficiency in research data management and data literacy of the learners in regard to the learning content.	en	<a href="#">modalia:requiresProficiencyLevel</a>	closeMatch schema:proficiencyLevel, lrmi:educationalLevel		Property	DIF1.3	<a href="https://zenodo.org/records/11521029">https://zenodo.org/records/11521029</a>	Q	picklist according to Dreyfus (2004) "The Five-Stage Model of Adult Skill Acquisition" : novice, advanced beginner, competent, proficient, and expert. The labels are from Benner (1982).		PCS, HMH
Novice	Novice learners are individuals who are unpracticed and have little to no knowledge in the field of learning. They lack a fundamental understanding of basic concepts and are not yet able to assess situations and tasks effectively. They require introductions, descriptions, and guidelines.	en	<a href="#">modalia:Novice</a>	broadMatch aat:300393205	modalia:Proficiency	Individual	Dreyfus 2004: 177, Benner 1982: 403	Dreyfus2004, Benner1982	O, S			PCS, AAD, HMH
AdvancedBeginner	Advanced beginner learners are individuals who possess some basic knowledge of the field of learning and are able to recognize patterns. They require instructions and need to follow examples.	en	<a href="#">modalia:Beginner</a>		modalia:Proficiency	Individual	Dreyfus 2004: 177, Benner 1982: 403f.	Dreyfus2004, Benner1982	S			PCS, AAD
Competent	Competent learners have gained moderate experience in the field of learning through consistent application of skills. They possess significant knowledge of the field, are able to evaluate features, and can efficiently and accurately apply various plans and rules according to situations and tasks. At this stage, problem-solving and decision-making are accompanied by emotional involvement.	en	<a href="#">modalia:Competent</a>		modalia:Proficiency	Individual	Dreyfus 2004: 178f, Benner 1982: 404f.	Dreyfus2004, Benner1982	S			PCS, AAD



Proficient	Proficient learners possess a strong foundation of knowledge and skills, enabling them to perform tasks with a high degree of accuracy and efficiency. They are able to recognize patterns in situations and tasks, and can develop complex solutions through conscious deliberation.	en	<a href="#">modalia:Proficient</a>		modalia:Proficiency	Individual	Dreyfus 2004: 179, Benner 1982: 405f.	Dreyfus2004, Benner1982	S			PCS, AAD
Expert	Expert learners are individuals knowledgeable in a specialized field, particularly people with the special skill or knowledge representing mastery of a particular subject. They possess a deep and comprehensive understanding of the subject matter, enabling them to quickly and intuitively analyze new situations and tasks, and develop complex solutions without conscious deliberation.	en	<a href="#">modalia:Expert</a>	closeMatch aat:300155533	modalia:Proficiency	Individual	getty, Dreyfus 2004: 179f., Benner 1982:406f.	<a href="http://vocab.getty.edu/aat/scopeNote/49454">http://vocab.getty.edu/aat/scopeNote/49454</a>  Dreyfus2004, Benner1982	Q, S			PCS, AAD
PublicationDate	The date of first publication or broadcast.	en	<a href="#">schema:datePublished</a>			Property	schema	<a href="https://schema.org/datePublished">https://schema.org/datePublished</a>	Q	ISO 8601 format (https://www.iso.org/iso-8601-date-and-time-format.html) . If the full date is unknown, month and year (YYYY-MM) or just year (YYYY) may be used.		PCS, AAD
TargetGroup	The target group refers to the learners of the resource: A class of agents for whom the learning resource is intended or useful.	en	<a href="#">modalia:hasTargetGroup</a>	closeMatch schema:EducationalRole closeMatch lrmi:audrole		Property	DIF1.3	<a href="https://zenodo.org/records/11521029">https://zenodo.org/records/11521029</a>	M, Q	picklist from modalia, OCCO and other sources	This does not address who is teaching. The group of (optional) teachers is not considered, only the learners are. If the learning group includes teachers, then this must be selected from the picklist.	PCS, AAD
StudentSchool	A student who is attending a school for achieving levels 1, 2, or 3 of the 2011 version of the International Standard Classification of Education structure.	en	<a href="#">modalia:StudentSchool</a>		modalia:TargetGroup	Class	Unesco 2012:32-42	<a href="https://unesdoc.unesco.org/ark:/48223/pf0000219109">https://unesdoc.unesco.org/ark:/48223/pf0000219109</a>	S			PCS, AAD

StudentOfHigher Education	Students who are attending a university or college (e.g. in USA, GB) for achieving levels 6, 7 or 8 of the 2011 version of the International Standard Classification of Education structure.	en				Class	dbr	<a href="https://dbpedia.org/page/Higher_education">https://dbpedia.org/page/Higher_education</a>	S			PCS, AAD, CTH
HigherEducation	Higher education is education leading to the award of an academic degree. Higher education, also called post-secondary education, third-level or tertiary education, is an optional final stage of formal learning that occurs after completion of secondary education. It represents levels 6, 7, and 8 of the 2011 version of the International Standard Classification of Education structure.	en	<a href="#">dbr:Higher_education</a>	narrowMatch iscsed2011:level6 narrowMatch iscsed2011:level7 narrowMatch iscsed2011:level8		Class	dbr	<a href="https://web.archive.org/web/20250906092402/https://dbpedia.org/page/Higher_education">https://web.archive.org/web/20250906092402/https://dbpedia.org/page/Higher_education</a>	M			PCS, AAD
BachelorDegree	Programmes at ISCED level 6, or Bachelor's or equivalent level, are often designed to provide participants with intermediate academic and/or professional knowledge, skills and competencies, leading to a first degree or equivalent qualification. Programmes at this level are typically theoretically-based but may include practical components and are informed by state of the art research and/or best professional practice. They are traditionally offered by universities and equivalent tertiary educational institutions.	en	<a href="#">iscsed2011:level6</a>	closeMatch dbr:Bachelor's_degree closeMatch dcterm:subject closeMatch dbr:Academic_degree		Class	Unesco 2012:51	<a href="https://unesdoc.unesco.org/ark:/48223/pf0000219109">https://unesdoc.unesco.org/ark:/48223/pf0000219109</a>	Q		more information: BMBFglossar <a href="https://www.datenportal.bmbf.de/portal/de/G293.html">https://www.datenportal.bmbf.de/portal/de/G293.html</a>	PCS
BachelorStudent	A student of higher education who is attending a university or college (e.g. in USA, GB) for achieving level 6 of the 2011 version of the International Standard Classification of Education structure.	en	<a href="#">modalia:BachelorStudent</a>		modalia:TargetGroup	Class			O			PCS, CTH, AAD
MasterDegree	Programmes at ISCED level 7, or Master's or equivalent level, are often designed to provide participants with advanced academic and/or professional knowledge, skills and competencies, leading to a second degree or equivalent qualification.	en	<a href="#">iscsed2011:level7</a>	closeMatch dbr:Master's_degree		Class	Unesco 2012:55	<a href="https://unesdoc.unesco.org/ark:/48223/pf0000219109">https://unesdoc.unesco.org/ark:/48223/pf0000219109</a>	Q		more information: BMBFglossar <a href="https://www.datenportal.bmbf.de/portal/de/G293.html">https://www.datenportal.bmbf.de/portal/de/G293.html</a>	PCS

	Programmes at this level may have a substantial research component but do not yet lead to the award of a doctoral qualification. Typically, programmes at this level are theoretically-based but may include practical components and are informed by state of the art research and/or best professional practice. They are traditionally offered by universities and other tertiary educational institutions.											
Master'sStudent	A student of higher education who is attending a university or college (e.g. in USA, GB) for achieving level 7 of the 2011 version of the International Standard Classification of Education structure.	en	<a href="#">modalia:MasterStudent</a>		modalia:TargetGroup	Class			O			PCS, CTH, AAD
DoctorOfPhilosophy	Programmes at ISCED level 8, or doctoral or equivalent level, are designed primarily to lead to an advanced research qualification. Programmes at this ISCED level are devoted to advanced study and original research and are typically offered only by research-oriented tertiary educational institutions such as universities. Doctoral programmes exist in both academic and professional fields.	en	<a href="#">isc2011:level8</a>	closeMatch dbr:Doctor_of_Philosophy		Class	Unesco 2012:59	<a href="https://unesdoc.unesco.org/ark:/48223/pf0000219109">https://unesdoc.unesco.org/ark:/48223/pf0000219109</a>	Q		more information: BMBFglossar <a href="https://www.datenportal.bmbf.de/portal/de/G293.html">https://www.datenportal.bmbf.de/portal/de/G293.html</a>	PCS
PhDStudent	A student of higher education who is attending a university or college (e.g. in USA, GB) for achieving level 8 of the 2011 version of the International Standard Classification of Education structure.	en	<a href="#">modalia:PhDStudent</a>		modalia:TargetGroup	Class			O			PCS, CTH

DataSteward	Data Steward is an umbrella term for numerous support roles that involve the creation, management and usage of research data. These can be very hands-on roles involving daily data analysis or roles that are more policy and advising-focused. A data steward facilitates the quality, integrity and access to (meta)data in a manner that is consistent with the appropriate laws and institutional policies, ensuring professional treatment of data throughout all stages of the research project. Data Stewards are an important part of scientific communities, supporting recommended data management practices and supporting researchers in these efforts. Often their roles overlap with those of data managers and other professionals who curate data. Data Stewards tend to have scientific backgrounds and can have the technical skills needed to analyse and manage both data and software.	en	<a href="https://purl.obolibrary.org/obo/T4FS_0000178">obo:T4FS_0000178</a>		modalia:TargetGroup	Class	Turing Way2025, T4FS	<a href="https://book.the-turing-way.org/pathways/pathways-data-stewards">https://book.the-turing-way.org/pathways/pathways-data-stewards</a>  <a href="http://purl.obolibrary.org/obo/T4FS_0000178">http://purl.obolibrary.org/obo/T4FS_0000178</a>	Q, M		also at <a href="https://github.com/the-turing-way/the-turing-way/blob/main/book/website/pathways/pathways-data-stewards.md">https://github.com/the-turing-way/the-turing-way/blob/main/book/website/pathways/pathways-data-stewards.md</a>  see also FDIeng <a href="https://forschungsdaten.info/praxis-kompakt/english-pages/glossary/#c403986">https://forschungsdaten.info/praxis-kompakt/english-pages/glossary/#c403986</a>  This term primarily refers to scientific communities, with less relevance to industry. Note that the meaning of this term may differ in industrial contexts. For industrial contexts see plotkin2020.	PCS, CTH
Teacher	A person who helps students to acquire knowledge, competence or virtue. Informally the role of teacher may be taken on by anyone (e.g. when showing a colleague how to perform a specific task). In some countries, teaching young people of school age may be carried out in an informal setting, such as within the family (homeschooling), rather than in a formal setting such as a school or college. Some other professions may involve a significant amount of teaching (e.g. youth worker, pastor). In most countries, formal teaching of students is usually carried out by paid professional teachers.	en	<a href="https://purl.obolibrary.org/obo/GSSO_007973">obo:GSSO_007973</a>			Class	GSSO	<a href="http://purl.obolibrary.org/obo/GSSO_007973">http://purl.obolibrary.org/obo/GSSO_007973</a>	Q			PCS, CTH

TeacherSchool	A teacher who is working at a school for levels 1, 2, or 3 of the 2011 version of the International Standard Classification of Education structure.	en	<a href="#">modalia:TeacherSchool</a>		modalia:TargetGroup	Class	Unesco 2012:32-42	<a href="https://unesdoc.unesco.org/ark:/48223/pf0000219109">https://unesdoc.unesco.org/ark:/48223/pf0000219109</a>	S			PCS, AAD
TeacherHigherEducation	A teacher who is working at a university or college (e.g. USA, GB) for levels 6, 7, or 8 of the 2011 version of the International Standard Classification of Education structure.	en	<a href="#">modalia:TeacherHigherEducation</a>		modalia:TargetGroup	Class			O			PCS, AAD, CTH
Researcher	A person or a group who attempts to answer research questions, establish facts, and reach new conclusions by systematically investigating and studying materials and sources, observing, or conducting experiments in a particular field relevant to the questions.	en	<a href="#">modalia:Researcher</a>	closeMatch citedcat:Researcher closeMatch obo:T4FS_0000220 closeMatch m4i:Researcher	modalia:TargetGroup	Class	FrameNet	<a href="https://framenet.icsi.berkeley.edu/fnReports/data/frame/Research.xml">https://framenet.icsi.berkeley.edu/fnReports/data/frame/Research.xml</a>  <a href="https://framenet.icsi.berkeley.edu/fnReports/data/lu/lu10685.xml?mode=lexentry">https://framenet.icsi.berkeley.edu/fnReports/data/lu/lu10685.xml?mode=lexentry</a>	M			PCS
ContentProvider	Person or group who is providing (an) OER.	en	<a href="#">modalia:ContentProvider</a>		modalia:TargetGroup	Class			O			PCS, AAD
Librarian	A person who administers and maintains libraries or collections of information, for public or private access through reference or borrowing. Librarians work in a variety of settings, such as educational institutions, museums, and corporations, and with various types of informational materials, such as books, periodicals, recordings, films, and databases. Tasks may include acquiring, cataloging, and circulating library materials, and user services such as locating and organizing information, providing instruction on how to access information, and setting up and operating a library's media equipment.	en	<a href="#">obo:OCCO_2540220_Q</a>	closeMatch obo:CRO_0000111	modalia:TargetGroup	Class	OCCO	<a href="http://purl.obolibrary.org/obo/OCCO_2540220_Q">http://purl.obolibrary.org/obo/OCCO_2540220_Q</a>	M			PCS

Archivist	A person who appraises, edits, and directs safekeeping of permanent records and historically valuable documents. Participates in research activities based on archival materials.	en	<a href="http://purl.obolibrary.org/obo/OCOC_2540110_Q">obo:OCOC_2540110_Q</a>		modalia:TargetGroup	Class	OCOC	<a href="http://purl.obolibrary.org/obo/OCOC_2540110_Q">http://purl.obolibrary.org/obo/OCOC_2540110_Q</a>	Q			PCS
MuseumProfessional	A person who works in a museum and has specialized knowledge, training, or expertise related to museums and their functions.	en	<a href="#">modalia:MuseumProfessional</a>		modalia:TargetGroup	Class			O			PCS
teaches	The competency, learning outcome, or learning objective the target group is intended to acquire or achieve by the educational resource.	en	<a href="#">schema:teaches</a>			Property	schema	<a href="https://schema.org/teaches">https://schema.org/teaches</a>	S	May reference the LZM learning objectives but is not limited to them.	(1) Learners are able to name the elements and objectives of research data policies. (2) LZM v3 Lernziel 01_004_0058	PCS
RelatedWork	The relation(s) to other resources. It is required to identify the related resource by means of a URL.	en	<a href="#">dcterms:relation</a>			Property	dcterms	<a href="https://www.dublincore.org/specifications/dublin-core/dcmi-terms/elements11/relation/">https://www.dublincore.org/specifications/dublin-core/dcmi-terms/elements11/relation/</a>	M	DALIA: picklist based on dcterms, citedcat (adopted from DataCite), modalia (adopted from DataCite), schema. For the LINK: DOI > other URLs.		PCS, AAD
isPartOf	A related resource in which the described resource is physically or logically included.	en	<a href="#">dcterms:isPartOf</a>		dcterms:relation	Property	dcterms	<a href="https://www.dublincore.org/specifications/dublin-core/dcmi-terms/terms/isPartOf/">https://www.dublincore.org/specifications/dublin-core/dcmi-terms/terms/isPartOf/</a>	M			PCS, AAD
hasPart	A related resource that is included either physically or logically in the described resource.	en	<a href="#">dcterms:hasPart</a>		dcterms:relation	Property	dcterms	<a href="https://www.dublincore.org/specifications/dublin-core/dcmi-terms/terms/hasPart/">https://www.dublincore.org/specifications/dublin-core/dcmi-terms/terms/hasPart/</a>	Q			PCS, AAD
isContinuedBy	A related resource which is the direct continuation of the described resource. This applies to a story, a series of lessons, a serial, a journal, etc. Successors typically form part of a common whole—such as a series of lectures.	en	<a href="#">citedcat:isContinuedBy</a>	inverseOf citedcat:continues closeMatch edm:isSuccessorOf	dcterms:relation	Property	edm	<a href="https://github.com/eurpeana/metis-schema/blob/master/src/main/resources/schema_xsd/EDM-COMMON-MAIN.xsd">https://github.com/eurpeana/metis-schema/blob/master/src/main/resources/schema_xsd/EDM-COMMON-MAIN.xsd</a>	M		Example: "The Two Towers" is a successor of "Fellowship of the Ring". The issue 57 of "Le Temps" is a successor of issue 56 of the Le Temps. The definition is adapted from edm, the IRI taken from citedcat.	PCS, AAD

continues	A related resource which is the direct predecessor of the described resource. This applies to a story, a series of lessons, a serial, a journal, etc. Predecessors typically form part of a common whole—such as a series of lectures.	en	<a href="#">citedcat:continues</a>	inverseOf citedcat:isContinuedBy	dcterms:relation	Property	edm, DataCite	<a href="https://github.com/europeana/metis-schema/blob/master/src/main/resources/schema_xsd/EDM-COMMON-MAIN.xsd">https://github.com/europeana/metis-schema/blob/master/src/main/resources/schema_xsd/EDM-COMMON-MAIN.xsd</a>  <a href="https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/</a>	S, M		Example: Lecture7 is a predecessor of Lecture8. The definition is adapted from edm (isSuccessorOf, as isPredecessorOf does not exist), the IRI taken from citedcat.	PCS, AAD
isSupplementTo	Resource that is complemented by the described augmenting resource.	en	<a href="#">citedcat:isSupplementTo</a>	inverseOf isSupplementedBy closeMatch bf:supplement	dcterms:relation	Property	bf:supplement	<a href="https://id.loc.gov/ontologies/bibframe/supplement.rdf">https://id.loc.gov/ontologies/bibframe/supplement.rdf</a>	M		While the definition is from bibframe, the term isSupplementTo was chosen according to DataCite, which is used more frequently than the equivalent in bibframe. Besides this, the inverse labels of the terms are not as transparent as the ones by DataCite. The range of citedcat is adequate.	PCS, AAD
isSupplementedBy	Resource that complements the predominant described resource.	en	<a href="#">citedcat:isSupplementedBy</a>	inverseOf isSupplementTo	dcterms:relation	Property	bf:supplementTo	<a href="https://id.loc.gov/ontologies/bibframe/supplementTo.rdf">https://id.loc.gov/ontologies/bibframe/supplementTo.rdf</a>	M		While the definition is from bibframe, the term isSupplementedBy was chosen according to DataCite, which is used more frequently than the equivalent in bibframe. Besides this, the inverse term labels are not as transparent as the ones by DataCite. The range of citedcat is adequate.	PCS, AAD
references	A related resource that is referenced, cited, or otherwise pointed to by the described resource.	en	<a href="#">dcterms:references</a>	inverseOf dcterms:isReferencedBy	dcterms:relation	Property	dcterms	<a href="https://www.dublincore.org/specifications/dublin-core/dcmi-terms/terms/references/">https://www.dublincore.org/specifications/dublin-core/dcmi-terms/terms/references/</a>	Q			PCS, AAD

isReferencedBy	A related resource that references, cites, or otherwise points to the described resource.	en	<a href="#">dcterms:isReferenceBy</a>	inverseOf dcterms:references	dcterms:relation	Property	dcterms	<a href="https://www.dublincore.org/specifications/dublin-core/dcmi-terms/terms/isReferencedBy/">https://www.dublincore.org/specifications/dublin-core/dcmi-terms/terms/isReferencedBy/</a>	Q			PCS, AAD
describes	A related resource that is described by the resource.	en	<a href="#">modalia:describes</a>	closeMatch sio:SIO_000563 closeMatch citedcat:describes	dcterms:relation	Property	dataCite, sio	<a href="https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/</a>  <a href="http://semanticscience.org/resource/SIO_000563">http://semanticscience.org/resource/SIO_000563</a>	M		As citedcat:describes isInverseOf wdrs:describedBy which is not equal to modalia:isDescribedOf, this cannot be used.	PCS, AAD
isDescribedBy	A related resource that provides a description (detailed account) of the described resource. This can be a manual, instructions, a documentation, a cookbook, a README file, or something similar.	en	<a href="#">modalia:isDescribedBy</a>	closeMatch sio:SIO_00055 closeMatch wdrs:describedby	dcterms:relation	Property	dataCite, sio	<a href="https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/</a>  <a href="http://semanticscience.org/resource/SIO_000557">http://semanticscience.org/resource/SIO_000557</a>	S		wdrs:describedby is used in citedcat but was not suitable as this is in xml not rdf. The SIO definition has a domain which is too specific, see <a href="https://ontobee.org/ontology/SIO?iri=http://semanticscience.org/resource/SIO_000015">https://ontobee.org/ontology/SIO?iri=http://semanticscience.org/resource/SIO_000015</a> .	PCS, AAD
isTranslationOf	The related resource that this OER has been translated from. When a resource is shared in one language, then later translated to another language, use "isTranslationOf" to link the translation to the original.	en	<a href="#">modalia:isTranslationOf</a>		dcterms:relation	Property	DataCite	<a href="https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/</a>	M		If the direction of the translation is intransparent or the relatedWork was created in parallel to the resource, hasTranslation is suitable. The label is taken from DataCite, also the modified definition. Not available in citedcat.	PCS, HMH, AAD
hasTranslation	A related resource that is a translation of the content of the described resource. When a resource is shared in one language, then later translated to another language, use "hasTranslation" to link the original resource to its translation. When a resource is released at the same time in multiple languages, use "hasTranslation" to connect the works to each other in both directions.	en	<a href="#">modalia:hasTranslation</a>		dcterms:relation	Property	DataCite	<a href="https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/</a>	M		In contrast to schema:workTranslation, this can be used as symmetric relation. Not available in citedcat. The label is taken from DataCite.	PCS, AAD



isPreviousVersionOf	The related work is a new version or edition of the described resource, where the new version has been modified or updated.	en	<a href="#">modalia:isPreviousVersionOf</a>	inverseOf modalia:isNewVersionOf	dcterms:relation	Property	DataCite dcterms	<a href="https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/</a> <a href="http://purl.org/dc/terms/isVersionOf">http://purl.org/dc/terms/isVersionOf</a>	M		The definition is adapted from DataCite (isPreviousVersionOf) and dcterms (isVersionOf). The IRI could not be taken from prov as indicated by citedcat, as the prov definition refers to revisions while the notion "version" is wider. DataCite uses the term "edition" instead of "version" in its definition.	PCS, HMH, AAD
isNewVersionOf	The related work is a previous version or edition of the described resource, of which the described resource has been modified or updated.	en	<a href="#">modalia:isNewVersionOf</a>	inverseOf modalia:isPreviousVersionOf	dcterms:relation	Property	DataCite dcterms	<a href="https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/</a> <a href="http://purl.org/dc/terms/isVersionOf">http://purl.org/dc/terms/isVersionOf</a>	M		The definition is adapted from DataCite (isNewVersionOf) and dcterms(isVersionOf). The IRI could not be taken from prov as indicated by citedcat, as the prov definition refers to revisions while the notion "version" is wider. DataCite uses the term "edition" instead of "version" in its definition.	PCS, HMH, AAD
isVersionOf	A related resource of which the described resource is a version or edition. Can be used instead of isPreviousVersionOf and isNewVersionOf, if the sequence of versioning is unclear.	en	<a href="#">modalia:isVersionOf</a>	broadMatch dcterms:isVersionOf	dcterms:relation	Property	dcterms	<a href="http://purl.org/dc/terms/isVersionOf">http://purl.org/dc/terms/isVersionOf</a>	M		The definition is adapted from dcterms (isVersionOf). Adaptations should be covered by IsBasedOn.	PCS, AAD
isIdenticalTo	The related work is the same as the described resource but is saved on another location, maybe another institution.	en	<a href="#">modalia:isIdenticalTo</a>		dcterms:relation	Property	DataCite	<a href="https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/</a>	M		citedcat refers to OWL, but this is too general. This property is loosely connected to reproduction in the WEMI model of frbr and its derivatives.	PCS, AAD
isBasedOn	A resource from which this work is derived or from which it is a modification or adaptation.	en	<a href="#">schema:isBasedOn</a>	closeMatch wd:P144	dcterms:relation	Property	schema	<a href="https://schema.org/isBasedOn">https://schema.org/isBasedOn</a>	Q		E.g. Brecht's Dreigroschenoper is based on Beggar's Opera by John Gay.	PCS, AAD

replaces	A related resource that is supplanted, displaced, or superseded by the described resource.	en	<a href="#">dcterms:replaces</a>	inverseOf dcterms:isReplacedBy	dcterms:relation	Property	dcterms	<a href="http://purl.org/dc/terms/replaces">http://purl.org/dc/terms/replaces</a>	Q		Similar to DataCite obsoletes which has no standardized definition. Citedcat refers to dcterms.	PCS, AAD
isReplacedBy	A related resource that supplants, displaces, or supersedes the described resource.	en	<a href="#">dcterms:isReplacedBy</a>	inverseOf dcterms:replaces	dcterms:relation	Property	dcterms	<a href="http://purl.org/dc/terms/isReplacedBy">http://purl.org/dc/terms/isReplacedBy</a>	Q		Similar to DataCite isObsoletedBy which has no standardized definition. Citedcat refers to dcterms.	PCS, AAD
Size	The size of the resource / package (e.g. 18 MB).	en	<a href="#">schema:fileSize</a>			Property	schema	<a href="https://schema.org/fileSize">https://schema.org/fileSize</a>	M	open	Please note: MB will be assumed as the unit. This is not consistent with schema:fileSize, where KB will be assumed.	PCS, JDG, AAD
Version	The version of the learning resource.	en	<a href="#">schema:version</a>			Property	DIF1.3	<a href="https://zenodo.org/records/11521029">https://zenodo.org/records/11521029</a>	Q	open		PCS, JDG, AAD
Contributors	The name(s) of the person(s) or organization(s) who contributed to the resource with the roles from the picklist. May include identifier(s).	en	<a href="#">modalia:Contributor</a>	closeMatch dcterms:contributor closeMatch schema:contributor		Property			O	1. for persons: surname, prename : {contributor role} : {ORCID} (Mandatory, Recommended, Mandatory, Recommended) 2. for organizations: organization-name : {contributor role}: {organization ROR > Wikidata} (Mandatory, Mandatory, Recommended)		PCS, AAD
Role	Function played or provided by a contributor, e.g., author or illustrator.	en	<a href="#">bf:Role</a>			Class	bf	<a href="https://id.loc.gov/ontologies/bibframe.html#bf:Role">https://id.loc.gov/ontologies/bibframe.html#bf:Role</a>	Q	DALIA: picklist from <a href="https://id.loc.gov/vocabulary/relators.html">https://id.loc.gov/vocabulary/relators.html</a> , Metadata4ing, DataCite, schema.org. Consistent with Zenodo. Includes suggestions for CRediT categories.		PCS, AAD
Annotator	A person who makes manuscript annotations on an item.	en	<a href="#">modalia:Annotator</a>	closeMatch mrel:ann	bf:Role	Individual	mrel	<a href="https://id.loc.gov/vocabulary/relators/ann.html">https://id.loc.gov/vocabulary/relators/ann.html</a>	Q		Consistent with Zenodo.	PCS, AAD

ContactPerson	A person with knowledge of how to access, troubleshoot, or otherwise field issues related to the resource.	en	<a href="#">modalia:ContactPerson</a>		bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing/#ContactPerson">http://w3id.org/nfdi4ing/metadata4ing/#ContactPerson</a> <a href="https://datacite-metadta-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadta-schema.readthedocs.io/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  scopeNote from the source: "May also be the 'Point of Contact' in an organisation that controls access to the resource, if that organisation is different from the Publisher, Distributor, and Data Manager."@en	PCS, AAD
DataCollector	Person/institution responsible for finding or gathering/collecting data under the guidelines of the author(s) or Principal Investigator (PI).	en	<a href="#">modalia:DataCollector</a>		bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing/#DataCollector">http://w3id.org/nfdi4ing/metadata4ing/#DataCollector</a> <a href="https://datacite-metadta-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadta-schema.readthedocs.io/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4. While Citecat also has an ID, it does not provide the definition, but the comment from DataCite, making it less preferable.  scopeNote from the source: "May also be used when crediting survey conductors, interviewers, event or condition observers, or persons responsible for monitoring key instrument data."	PCS

DataCurator	A data curator is a person tasked with reviewing, enhancing, cleaning, or standardizing metadata and the associated data submitted for storage, use, and maintenance within a data centre or repository.	en	<a href="#">modalia:DataCurator</a>		bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing#DataCurator">http://w3id.org/nfdi4ing/metadata4ing#DataCurator</a>  <a href="https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/</a>	Q		Consistent with Zenodo. Adopted by Metadata4Ing from DataCite 4.4. While Citecat also has an ID, it it does not provide the definition, but the comment from DataCite, making it less preferable.  Could be used for CRediT Data Curation.  scopeNote from the source: "While the DataManager is concerned with digital maintenance, the DataCurator's role encompasses quality assurance focused on content and metadata. DataCurator responsibilities include: checking completeness of the submitted dataset against the content as described by the submitter; verifying standard metadata according to the applicable system or schema; adding or verifying specialized metadata to add value and ensure access across disciplines; and determining how the metadata might map to search engines, database products, and automated feeds. Repository managers as well as data librarians working in the repository fall within this category. Example: <a href="https://doi.org/10.20375/0000-000D-1D1F-2">@en</a>	PCS
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DataManager	Person (or organisation with a staff of data managers, such as a data centre) responsible for maintaining the finished resource.	en	<a href="#">modalia:DataManager</a>	closeMatch mrel:dtm	bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing#DataManager">http://w3id.org/nfdi4ing/metadata4ing#DataManager</a>  <a href="https://datacite-metadta-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadta-schema.readthedocs.io/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4. While Citecat also has an ID, it it does not provide the definition, but the comment from DataCite, making it less preferable.  scopeNote from the source: "The work done by this person or organisation ensures that the resource is periodically 'refreshed' in terms of software/hardware support, is kept available or is protected from unauthorized access, is stored in accordance with industry standards, and is handled in accordance with the records management requirements applicable to it. Example: <a href="https://doi.org/10.6073/pasta/41b3ed2e152e1e4c3846e646118208e7">@en</a>	PCS
Distributor	Institution tasked with responsibility to generate/disseminate copies of the resource in either electronic or print form.	en	<a href="#">modalia:Distributor</a>	closeMatch bibo:Distributor	bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing#Distributor">http://w3id.org/nfdi4ing/metadata4ing#Distributor</a>  <a href="https://datacite-metadta-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadta-schema.readthedocs.io/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4.  scopeNote from the source: "Works stored in more than one archive/repository may credit each as a distributor."@en	PCS

Editor	A person who oversees the details related to the publication format of the resource.	en	<a href="#">modalia:Editor</a>		bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing#Editor">http://w3id.org/nfdi4ing/metadata4ing#Editor</a> <a href="https://datacite-metadta-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadta-schema.readthedocs.io/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4.	PCS
Producer	A person or organisation responsible for the artistry and form of a media product.	en	<a href="#">modalia:Producer</a>	closeMatch bibo:Producer	bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing#Producer">http://w3id.org/nfdi4ing/metadata4ing#Producer</a> <a href="https://datacite-metadta-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadta-schema.readthedocs.io/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4.  scopeNote from the source: "In the data industry, this may be a company 'producing' DVDs that package data for future dissemination by a distributor."@en	PCS

HostingInstitution	The organisation allowing the resource to be available on the internet through the provision of its hardware/software/operating support.	en	<a href="http://www3id.org/nfdi4ing/metadata4ing#HostingInstitution">modalia:HostingInstitution</a>		bf:Role	Individual	DataCite, m4i	<a href="http://www3id.org/nfdi4ing/metadata4ing#HostingInstitution">http://www3id.org/nfdi4ing/metadata4ing#HostingInstitution</a> <a href="https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4. While Citecat also has an ID, it it does not provide the definition, but the comment from DataCite, making it less preferable.  scopeNote from the source: "This role normally falls on the University, research center or organization where the data center/data repository belongs. EXAMPLE: Université Grenoble Alpes (UGA). May also be used for an organisation that stores the data offline-often a data centre if that data centre is not the 'publisher' of the resource."@en	PCS
Interviewer	A person, family, or organization responsible for creating or contributing to a resource by acting as an interviewer, reporter, pollster, or some other information gathering agent.	en	<a href="http://www3id.org/nfdi4ing/metadata4ing#Interviewer">modalia:Interviewer</a>	closeMatch mrel:ivr	bf:Role	Individual	mrel	<a href="https://id.loc.gov/vocabulary/relators/ivr.html">https://id.loc.gov/vocabulary/relators/ivr.html</a>	Q			PCS
Interviewee	A person, family, or organization responsible for creating or contributing to a resource by responding to an interviewer, usually a reporter, pollster, or some other information gathering agent.	en	<a href="http://www3id.org/nfdi4ing/metadata4ing#Interviewee">modalia:Interviewee</a>	closeMatch mrel:ive	bf:Role	Individual	mrel	<a href="https://id.loc.gov/vocabulary/relators/ive.html">https://id.loc.gov/vocabulary/relators/ive.html</a>	Q			PCS
MetadataContact	A person or organization primarily responsible for compiling and maintaining the original description of a metadata set (e.g., geospatial metadata set).	en	<a href="http://www3id.org/nfdi4ing/metadata4ing#MetadataContact">modalia:MetadataContact</a>	closeMatch mrel:mdc	bf:Role	Individual	mrel	<a href="http://id.loc.gov/vocabulary/relators/mdc">http://id.loc.gov/vocabulary/relators/mdc</a>	Q			PCS

SoftwareDeveloper	A person primarily responsible for programming, software development, designing computer programs, implementation of the computer code and supporting algorithms, and testing of existing code components.	en	<a href="#">modalia:SoftwareDeveloper</a>	closeMatch mrel:swd	bf:Role	Individual	CRediT	CRediT, p. 8	Q		Could be used for CRediT Software.	PCS
ProjectLeader	Person officially designated as head of project team or sub-project team instrumental in the work necessary to development of the resource.	en	<a href="#">modalia:ProjectLeader</a>	closeMatch mrel:rth	bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing#ProjectLeader">http://w3id.org/nfdi4ing/metadata4ing#ProjectLeader</a>  <a href="https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4. While Citecat also has an ID, it it does not provide the definition, but the comment from DataCite, making it less preferable.  scopeNote from the source: "The Project Leader is not 'removed' from the work that resulted in the resource; he or she remains intimately involved"@en	PCS
ProjectManager	Person officially designated as manager of a project.	en	<a href="#">modalia:ProjectManager</a>	closeMatch citedcat:projectManager	bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing#ProjectManager">http://w3id.org/nfdi4ing/metadata4ing#ProjectManager</a>  <a href="https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4.  Could be used for CRediT Project administration.  scopeNote from the source: "The manager of a project normally has more administrative responsibility than actual work involvement."@en	PCS



ProjectMember	Person on the membership list of a designated project/project team.	en	<a href="#">modalia:ProjectMember</a>	closeMatch citedcat:projectMember	bf:Role	Individual		<a href="http://w3id.org/nfdi4ing/metadata4ing#ProjectMember">http://w3id.org/nfdi4ing/metadata4ing#ProjectMember</a>  <a href="https://datacite-metadta-schema.readthedocs.io/_/downloads/en/4.6/pdf/">https://datacite-metadta-schema.readthedocs.io/_/downloads/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4.  scopeNote from the source: "This vocabulary may or may not indicate the quality, quantity, or substance of the person's involvement."@en	PCS
RegistrationAgency	Institution/organisation officially appointed by a Registration Authority to handle specific tasks within a defined area of responsibility.	en	<a href="#">modalia:RegistrationAgency</a>		bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing#RegistrationAgency">http://w3id.org/nfdi4ing/metadata4ing#RegistrationAgency</a>  <a href="https://datacite-metadta-schema.readthedocs.io/_/downloads/en/4.6/pdf/">https://datacite-metadta-schema.readthedocs.io/_/downloads/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4. While Citecat also has an ID, it does not provide the definition, but the comment from DataCite, making it less preferable.  scopeNote from the source: "DataCite is a Registration Agency for the International DOI Foundation (IDF). One of DataCite's tasks is to assign DOI prefixes to the allocating agents who then assign the full, specific character string to data clients, provide metadata back to the DataCite registry, etc."@en	PCS

RegistrationAuthority	A standards-setting body from which Registration Agencies obtain official recognition and guidance.	en	<a href="#">modalia:RegistrationAuthority</a>	closeMatch citedcat:registrationAuthority	bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing#RegistrationAuthority">http://w3id.org/nfdi4ing/metadata4ing#RegistrationAuthority</a>  <a href="https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4. While Citecat also has an ID, it it does not provide the definition, but the comment from DataCite, making it less preferable.  scopeNote from the source: "The IDF serves as the Registration Authority for the International Standards Organisation (ISO) in the area/domain of Digital Object Identifiers."@en	PCS
ResearchGroup	A group of individuals with a lab, department, or division that has a specifically defined focus of activity.	en	<a href="#">modalia:ResearchGroup</a>	closeMatch citedcat:researchGroup	bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing#ResearchGroup">http://w3id.org/nfdi4ing/metadata4ing#ResearchGroup</a>  <a href="https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4.  scopeNote from the source: "May operate at a narrower level of scope; may or may not hold less administrative responsibility than a project team. Example: Space Research & Planetary Sciences Division of the University of Bern (WP Unibe) Source: <a href="https://doi.org/10.26302/SSHADE/EXPERIMENT_OP_20201104_001">https://doi.org/10.26302/SSHADE/EXPERIMENT_OP_20201104_001</a> "@en	PCS

Researcher	A person involved in analyzing data or the results of an experiment or formal study. May indicate an intern or assistant to one of the authors who helped with research but who was not so "key" as to be listed as an author.	en	<a href="#">modalia:ResearcherRole</a>	closeMatch mrel:rtm	bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing#Researcher">http://w3id.org/nfdi4ing/metadata4ing#Researcher</a>  <a href="https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/</a>	Q		<p>Not identical with TargetGroup Researcher (modalia:Researcher).</p> <p>Consistent with Zenodo.</p> <p>Adopted by Metadata4Ing from DataCite 4.4. While Citecat also has an ID, it does not provide the definition, but the comment from DataCite, making it less preferable.</p> <p>Could be used for CRediT Investigation.</p> <p>scopeNote from the source: "Should be a person, not an institution. Note that a person involved in the gathering of data would fall under the contributorType 'DataCollector.' The researcher may find additional data online and correlate it to the data collected for the experiment or study, for example."@en</p>	PCS
RightsHolder	Person or institution owning or managing property rights, including intellectual property rights over the resource.	en	<a href="#">modalia:RightsHolder</a>	closeMatch dcterms:rightsHolder	bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing#RightsHolder">http://w3id.org/nfdi4ing/metadata4ing#RightsHolder</a>  <a href="https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/</a>	Q		<p>Consistent with Zenodo.</p> <p>Adopted by Metadata4Ing from DataCite 4.4.</p>	PCS

Speaker	A performer contributing to a resource by speaking words, such as a lecture, speech, etc.	en	<a href="#">modalia:Speaker</a>	closeMatch mrel:spk	bf:Role	Individual	mrel:spk	<a href="http://id.loc.gov/vocabulary/relators/spk">http://id.loc.gov/vocabulary/relators/spk</a>	Q			PCS
Sponsor	Person or organisation that issued a contract or under the auspices of which a work has been written, printed, published, developed, etc.	en	<a href="#">modalia:Sponsor</a>	closeMatch citedcat:sponsor, closeMatch mrel:spn	bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing#Sponsor">http://w3id.org/nfdi4ing/metadata4ing#Sponsor</a>  <a href="https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4.  Could be used for CRediT Resources.  scopeNote from the source: "Includes organisations that provide in-kind support, through donation, provision of people or a facility or instrumentation necessary for the development of the resource, etc."@en	PCS
Supervisor	Designated administrator over one or more groups/teams working to produce a resource, or over one or more steps of a development process.	en	<a href="#">modalia:Supervisor</a>	closeMatch citedcat:supervisor	bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing#Supervisor">http://w3id.org/nfdi4ing/metadata4ing#Supervisor</a>  <a href="https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4.  Could be used for CRediT Supervision.	PCS
Teacher (contributor)	A performer contributing to a resource by giving instruction or providing a demonstration.	en	<a href="#">modalia:TeacherContributorRole</a>	closeMatch mrel:tch	bf:Role	Individual	mrel:	<a href="https://id.loc.gov/vocabulary/relators/tch.html">https://id.loc.gov/vocabulary/relators/tch.html</a>	Q		Not identical with modalia:TeacherRole.	PCS
Translator	A person, organization, or automated system responsible for converting the content of a resource from one language into another, preserving its meaning and intended message.	en	<a href="#">modalia:Translator</a>		bf:Role	Individual	DataCite	<a href="https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/</a>	Q			PCS

WorkPackageLeader	A Work Package is a recognized data product, not all of which is included in publication. The package, instead, may include notes, discarded documents, etc. The Work Package Leader is responsible for ensuring the comprehensive contents, versioning, and availability of the Work Package during the development of the resource.	en	<a href="#">modalia:WorkPackageLeader</a>	closeMatch citedcat:workPackageLeader	bf:Role	Individual	DataCite, m4i	<a href="http://w3id.org/nfdi4ing/metadata4ing#WorkPackageLeader">http://w3id.org/nfdi4ing/metadata4ing#WorkPackageLeader</a>  <a href="https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4.	PCS
RelatedPerson	A person without a specifically defined role in the development of the resource, but who is someone the author wishes to recognize.	en	<a href="#">modalia:RelatedPerson</a>		bf:Role	Class	m4i:RelatedPerson	<a href="http://w3id.org/nfdi4ing/metadata4ing#RelatedPerson">http://w3id.org/nfdi4ing/metadata4ing#RelatedPerson</a>  <a href="https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/</a>	Q		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4.  Could be used for CRediT Conceptualization.  scopeNote from the source: "This person could be an author's intellectual mentor, a person providing intellectual leadership in the discipline or subject domain, etc."	PCS

Other	Any person or institution making a significant contribution to the development and/or maintenance of the resource, but whose contribution is not adequately described by any of the other values for the role.	en	<a href="#">modalia:OtherRole</a>		bf:Role	Class	m4i:Other	<a href="http://w3id.org/nfdi4ing/metadata4ing#Other">http://w3id.org/nfdi4ing/metadata4ing#Other</a> <a href="https://datacite-metadta-schema.readthedocs.io/download/en/4.6/pdf/">https://datacite-metadta-schema.readthedocs.io/download/en/4.6/pdf/</a>	M		Consistent with Zenodo.  Adopted by Metadata4Ing from DataCite 4.4.  Could be used for CRediT Funding acquisition, Visualization, and Writing - review and editing.  scopeNote from the source: "Could be a photographer, artist, or writer whose contribution helped to publicize the resource (as opposed to creating it), a reviewer/proofreader of the resource, someone providing administrative services to the author (such as depositing updates into an online repository, analysing usage, etc.), or one of many other roles."  Could be used for CRediT review.	PCS
TechnicalRequirement	Information concerning the attributes of a resource related to the technical creation, encoding, storage, and use of a resource, such as software, time required, or the platform required for reviewing or running an object, and accessibility information.	en		narrowMatch obo:T4FS_0000255		Property	zengqin 2022:512		M			PCS, HMH, JDG, AAD
hasSourceCode	The version of text or software as it was originally written in plain text (i.e., human-readable alphanumeric characters).	en	<a href="#">modalia:hasSourceCode</a>	inverseOf isSourceCode Of narrowMatch sd:hasSourceCode		Property	EMMO-CS	<a href="https://emmo-repo.github.io/emmo.html#EMMO_348d39f7_6a17_49d1_9860_9b33b69b51de">https://emmo-repo.github.io/emmo.html#EMMO_348d39f7_6a17_49d1_9860_9b33b69b51de</a>	M		For example: a tex document for a pdf.	PCS, JDG, AAD

isSourceCodeOf	The version of text or software as it was compiled or generated by an application program from the source code in plain text (e.g. a pdf file from latex).	en	<a href="#">modalia:isSourceCodeOf</a>	inverseOf hasSourceCode	Property	EMMO-CS	<a href="https://emmo-repo.github.io/emmo.html#EMMO_348d39f7_6a17_49d1_9860_9b33b69b51de">https://emmo-repo.github.io/emmo.html#EMMO_348d39f7_6a17_49d1_9860_9b33b69b51de</a>	M		For example: the pdf document for a tex document.	PCS, AAD
isCompiledBy	Either a traditional text compilation, or the compiler program used to generate executable software.	en	<a href="#">citedcat:isCompiledBy</a>		Property	DataCite	<a href="https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/</a>	M			PCS
requires	A related resource that is required by the described resource to support its function, delivery, or coherence.	en	<a href="#">dcterms:requires</a>		Property	dcterms	<a href="http://purl.org/dc/terms/requires">http://purl.org/dc/terms/requires</a>	Q		For example: a specific version of a platform.	PCS
timerequired	Approximate or typical time it usually takes to work with or through the content of this work for the typical or target audience.	en	<a href="#">schema:timeRequired</a>		Property	schema	<a href="https://schema.org/timeRequired">https://schema.org/timeRequired</a>	Q	<a href="#">ISO 8601, see https://www.iso.org/iso-8601-date-and-time-format.html</a>		PCS
hasMetadata	Additional metadata besides the current metadata.	en	<a href="#">modalia:hasMetadata</a>		Property	DataCite	<a href="https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/en/4.6/pdf/</a>	O, S			PCS
coreferentWith	An (internal) identifier of the metadata that refers to the same learning resource on the same platform.	en	<a href="#">modalia:isDuplicateOf</a>		Property			O			PCS, HMH

## References of Namespaces, and Sources of Definitions

Abbreviation	Name	Namespace/Link of Reference	Reference
aat	Art & Architecture Thesaurus Online	<a href="https://www.getty.edu/research/tools/vocabularies/aat">https://www.getty.edu/research/tools/vocabularies/aat</a>	Getty Research Institute (n.d.). Art & Architecture Thesaurus Online. <a href="https://www.getty.edu/research/tools/vocabularies/aat/">https://www.getty.edu/research/tools/vocabularies/aat/</a> .
Benner1982	From Novice To Expert	<a href="https://journals.lww.com/ajnonline/fulltext/1982/82030/from_novice_to_expert.4.aspx">https://journals.lww.com/ajnonline/fulltext/1982/82030/from_novice_to_expert.4.aspx</a>	Benner, Patricia (1982). From Novice To Expert. In: AJN The American Journal of Nursing 82 (3). <a href="https://journals.lww.com/ajnonline/fulltext/1982/82030/from_novice_to_expert.4.aspx">https://journals.lww.com/ajnonline/fulltext/1982/82030/from_novice_to_expert.4.aspx</a> .
BernersLee2005	Uniform Resource Identifier (URI)	<a href="https://www.ietf.org/rfc/rfc3986.txt">https://www.ietf.org/rfc/rfc3986.txt</a>	Berners-Lee, T., R. Fielding & L. Masinter (2005). Uniform Resource Identifier (URI): Generic Syntax. <a href="https://www.ietf.org/rfc/rfc3986.txt">https://www.ietf.org/rfc/rfc3986.txt</a> .
bf	BIBFRAME 2 Ontology	<a href="https://id.loc.gov/ontologies/bibframe">https://id.loc.gov/ontologies/bibframe</a>	Library of Congress, The (2024). BIBFRAME 2 Ontology. Version 2.4.0. <a href="https://id.loc.gov/ontologies/bibframe.html">https://id.loc.gov/ontologies/bibframe.html</a> .
bibo	The Bibliographic Ontology	<a href="http://purl.org/ontology/bibo/">http://purl.org/ontology/bibo/</a>	D'Arcus, Bruce & Frédéric Giasson (2022). The Bibliographic Ontology. <a href="http://purl.org/ontology/bibo">http://purl.org/ontology/bibo</a> .
BMBFglossar	Bundesministerium für Bildung und Forschung, ed. (2024). Glossar.	<a href="https://www.datenportal.bmbf.de/portal/de/glossary.html">https://www.datenportal.bmbf.de/portal/de/glossary.html</a>	Bundesministerium für Bildung und Forschung, ed. (2024). Glossar. <a href="https://www.datenportal.bmbf.de/portal/de/glossary.html">https://www.datenportal.bmbf.de/portal/de/glossary.html</a> .
citedcat	DataCite to DCAT-AP Mapping	<a href="https://w3id.org/citedcat-ap/">https://w3id.org/citedcat-ap/</a>	Perego, Andrea, Timothy Austin, Anders Friis-Christensen, Lorenzino Vaccari & Chrisa Tsinariki (2021). DataCite to DCAT-AP Mapping: Unofficial Draft 31 March 2021. Ed. by Andrea Perego & Timothy Austin. <a href="https://ec-irc.github.io/datacite-to-dcat-ap/">https://ec-irc.github.io/datacite-to-dcat-ap/</a> .
CODATA-RDM	CODATA RDM Terminology (2023 version)	<a href="https://zenodo.org/records/10626170">https://zenodo.org/records/10626170</a>	CODATA RDM Terminology Working Group (2024). CODATA RDM Terminology (2023 version): overview. Ed. by Laura Molloy. DOI: 10.5281/zenodo.10626170.
CRedit	ANSI/NISO Z39.104-2022, CRediT, Contributor Roles Taxonomy	<a href="https://groups.niso.org/higherlogic/ws/public/download/26466/ANSI-NISO-Z39.104-2022.pdf">https://groups.niso.org/higherlogic/ws/public/download/26466/ANSI-NISO-Z39.104-2022.pdf</a>	NISO CRediT Working Group (2022). ANSI/NISO Z39.104-2022, CRediT, Contributor Roles Taxonomy. DOI: 10.3789/ansi.niso.z39.104-2022.
CRO	Contributor Role Ontology	<a href="http://purl.obolibrary.org/obo/cro/">http://purl.obolibrary.org/obo/cro/</a>	Vasilevsky, Nicole, Marijane White, Kristi Holmes, Matthew Brush & Melissa Haendel (2019). data2health/contributor-role-ontology: 2019-12-11 Release. DOI: 10.5281/zenodo.3570089.
DataCite	DataCite Metadata Schema Documentation for the Publication and Citation of Research Data and Other Research Outputs — DataCite Metadata Schema 4.6 documentation	<a href="https://datacite-metadata-schema.readthedocs.io/en/4.6/">https://datacite-metadata-schema.readthedocs.io/en/4.6/</a>	DataCite Metadata Working Group (2024). DataCite Metadata Schema Documentation for the Publication and Citation of Research Data and Other Research Outputs — DataCite Metadata Schema 4.6 documentation. <a href="https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/">https://datacite-metadata-schema.readthedocs.io/_/downloads/en/4.6/pdf/</a> , DOI: 10.14454/mzv1-5b55.
dbr		<a href="http://dbpedia.org/resource/">http://dbpedia.org/resource/</a>	
dcterms	DCMI Metadata Terms	<a href="http://purl.org/dc/terms/">http://purl.org/dc/terms/</a>	DCMI Usage Board (2020). DCMI Metadata Terms. <a href="https://www.dublincore.org/specifications/dublin-core/dcmi-terms/">https://www.dublincore.org/specifications/dublin-core/dcmi-terms/</a> .



dctypes	DCMI Type Vocabulary	<a href="https://www.dublincore.org/specifications/dublin-core/dcmi-terms/#section-7">https://www.dublincore.org/specifications/dublin-core/dcmi-terms/#section-7</a>	DCMI Usage Board (2020). DCMI Type Vocabulary. In: DCMI Metadata Terms. <a href="https://www.dublincore.org/specifications/dublin-core/dcmi-terms/#section-7">https://www.dublincore.org/specifications/dublin-core/dcmi-terms/#section-7</a> .
demelo2015	Lexvo.org: Language-related information for the Linguistic Linked Data cloud	<a href="https://journals.sagepub.com/doi/epub/10.3233/SW-150171">https://journals.sagepub.com/doi/epub/10.3233/SW-150171</a>	Melo, Gerard de (2015). Lexvo.org: Language-related information for the Linguistic Linked Data cloud. In: Semantic Web 6 (4), S. 393–400. DOI: 10.3233/SW-150171.
destatis2024	Systematik der Fächergruppen, Studienbereiche und Studienfächer.	<a href="https://www.destatis.de/DE/Methoden/Klassifikationen/Bildung/studenten-pruefungsstatistik.html">https://www.destatis.de/DE/Methoden/Klassifikationen/Bildung/studenten-pruefungsstatistik.html</a>	Statistisches Bundesamt (2024). Systematik der Fächergruppen, Studienbereiche und Studienfächer. <a href="https://web.archive.org/web/20250313144835/https://www.destatis.de/DE/Methoden/Klassifikationen/Bildung/studenten-pruefungsstatistik.pdf?__blob=publicationFile&amp;v=12">https://web.archive.org/web/20250313144835/https://www.destatis.de/DE/Methoden/Klassifikationen/Bildung/studenten-pruefungsstatistik.pdf?__blob=publicationFile&amp;v=12</a> .
destatis2025	Systematik der Fächergruppen, Studienbereiche und Studienfächer.	<a href="https://www.destatis.de/DE/Methoden/Klassifikationen/Bildung/studenten-pruefungsstatistik.html">https://www.destatis.de/DE/Methoden/Klassifikationen/Bildung/studenten-pruefungsstatistik.html</a>	Statistisches Bundesamt (2025). Systematik der Fächergruppen, Studienbereiche und Studienfächer. <a href="https://www.destatis.de/DE/Methoden/Klassifikationen/Bildung/studenten-pruefungsstatistik.html">https://www.destatis.de/DE/Methoden/Klassifikationen/Bildung/studenten-pruefungsstatistik.html</a> .
DIF1.3	DALIA Interchange Format 1.3	<a href="https://zenodo.org/records/11521029">https://zenodo.org/records/11521029</a>	Geiger, Jonathan, Petra Steiner, Abdelmoneim Amer Desouki & Frank Lange (2024). DALIA Interchange Format (1.3). DOI: 10.5281/zenodo.11521029.
Dreyfus2004	The Five-Stage Model of Adult Skill Acquisition	<a href="https://journals.sagepub.com/doi/10.1177/0270467604264992">https://journals.sagepub.com/doi/10.1177/0270467604264992</a>	Dreyfus, Stuart E. (2004). The Five-Stage Model of Adult Skill Acquisition. In: Bulletin of Science, Technology & Society 24 (3), S. 177–181. DOI: 10.1177/0270467604264992.
edm	EDM-COMMON-MAIN.xsd	<a href="http://www.europeana.eu/schemas/edm/">http://www.europeana.eu/schemas/edm/</a>	Europeana (2022). EDM-COMMON-MAIN.xsd. <a href="https://github.com/europeana/metis-schema/blob/master/src/main/resources/schema_xsd/EDM-COMMON-MAIN.xsd">https://github.com/europeana/metis-schema/blob/master/src/main/resources/schema_xsd/EDM-COMMON-MAIN.xsd</a> .
EMMO-CS	Elementary Multiperspective Material Ontology (EMMO): Computer science	<a href="https://github.com/emmo-repo/EMMO/blob/master/disciplines/computerscience.ttl">https://github.com/emmo-repo/EMMO/blob/master/disciplines/computerscience.ttl</a>	Ghedini, Emanuele, Gerhard Goldbeck & Jesper Friis (2025). Elementary Multiperspective Material Ontology (EMMO): Computer science. <a href="https://github.com/emmo-repo/EMMO/blob/master/disciplines/computerscience.ttl">https://github.com/emmo-repo/EMMO/blob/master/disciplines/computerscience.ttl</a> .
fabio	FaBiO, the FRBR-aligned Bibliographic Ontology.	<a href="http://purl.org/spar/fabio/">http://purl.org/spar/fabio/</a>	Shotton, David & Silvio Peroni (2019). FaBiO, the FRBR-aligned Bibliographic Ontology. <a href="https://sparontologies.github.io/fabio/current/fabio.html">https://sparontologies.github.io/fabio/current/fabio.html</a> .
fdd	XML Format Description Documents	<a href="https://www.loc.gov/preservation/digital/formats/fddXML/">https://www.loc.gov/preservation/digital/formats/fddXML/</a>	Library of Congress, The (2025). XML Format Description Documents. <a href="https://www.loc.gov/preservation/digital/formats/fddXML.zip">https://www.loc.gov/preservation/digital/formats/fddXML.zip</a> .
FDleng	Glossary at <a href="https://forschungsdaten.info">forschungsdaten.info</a>	<a href="https://forschungsdaten.info/praxis-kompakt/english-pages/glossary/">https://forschungsdaten.info/praxis-kompakt/english-pages/glossary/</a>	forschungsdaten.info (2023). Glossary   English Pages   Praxis kompakt   Forschungsdaten und Forschungsdatenmanagement. <a href="https://forschungsdaten.info/praxis-kompakt/english-pages/glossary/">https://forschungsdaten.info/praxis-kompakt/english-pages/glossary/</a> .
fleming1992	Not Another Inventory, Rather a Catalyst for Reflection	<a href="https://quod.lib.umich.edu/t/tia/1706388.0011.014?view=text;rgn=main">https://quod.lib.umich.edu/t/tia/1706388.0011.014?view=text;rgn=main</a>	Fleming, Neil D. (1992). Not Another Inventory, Rather a Catalyst for Reflection. In: To Improve the Academy 11 (20210331). DOI: 10.3998/tia.17063888.0011.014.
FrameNet	FrameNet Database	<a href="https://framenet.icsi.berkeley.edu/frameIndex">https://framenet.icsi.berkeley.edu/frameIndex</a>	FrameNet Project. (2020). FrameNet Database. Version 1.7. <a href="https://framenet.icsi.berkeley.edu/frameIndex">https://framenet.icsi.berkeley.edu/frameIndex</a> .
GSSO	GSSO - the Gender, Sex, and Sexual Orientation ontology	<a href="http://purl.obolibrary.org/obo/gssso.owl">http://purl.obolibrary.org/obo/gssso.owl</a>	Kronk, Clair A. (2021). GSSO - the Gender, Sex, and Sexual Orientation ontology. <a href="https://akswnc7.informatik.uni-leipzig.de/dstreitmatter/archivo/purl.obolibrary.org/obo--gssso--owl/2021.06.05-070032/obo--gssso--owl_type=pyLodeDoc.html">https://akswnc7.informatik.uni-leipzig.de/dstreitmatter/archivo/purl.obolibrary.org/obo--gssso--owl/2021.06.05-070032/obo--gssso--owl_type=pyLodeDoc.html</a> .
hcrt	Hochschulcampus Ressourcentypen (Werteliste für Typen von Lernressourcen).	<a href="https://w3id.org/kim/hcrt/">https://w3id.org/kim/hcrt/</a>	Kompetenzzentrum Interoperable Metadaten (KIM) (2024). Hochschulcampus Ressourcentypen (Werteliste für Typen von Lernressourcen). In collaboration with Adrian Pohl, Torsten Simon, Axel Klingner, Stephan Kulla, Steffen Rörtgen, Mirjan Hoffmann et al. <a href="https://w3id.org/kim/hcrt/scheme">https://w3id.org/kim/hcrt/scheme</a> .

iscd-2011	ISCED 2011	<a href="https://w3id.org/kim/iscd-2011">https://w3id.org/kim/iscd-2011</a>	DINI AG KIM (2023). ISCED 2011. <a href="https://github.com/dini-ag-kim/vocabs-edu/blob/master/iscd-2011.ttl">https://github.com/dini-ag-kim/vocabs-edu/blob/master/iscd-2011.ttl</a> .
ISO639-1	ISO 639-1: Codes for the Representation of Names of Languages - Part 1: Two-letter codes for languages.	<a href="https://id.loc.gov/vocabulary/iso639-1.html">https://id.loc.gov/vocabulary/iso639-1.html</a>	Library of Congress, The (2009). ISO 639-1: Codes for the Representation of Names of Languages - Part 1: Two-letter codes for languages. <a href="https://id.loc.gov/vocabulary/iso639-1.html">https://id.loc.gov/vocabulary/iso639-1.html</a> .
ISO639-3	ISO 639-3: Codes for the Representation of Names of Languages - Part 3: Alpha-3 code for comprehensive coverage of languages.	<a href="https://id.loc.gov/vocabulary/iso639-3.html">https://id.loc.gov/vocabulary/iso639-3.html</a>	Library of Congress, The (2025). ISO 639-3: Codes for the Representation of Names of Languages - Part 3: Alpha-3 code for comprehensive coverage of languages. <a href="https://id.loc.gov/vocabulary/iso639-3.html">https://id.loc.gov/vocabulary/iso639-3.html</a> .
ISO/IEC 19788-5:2014	Information technology - Learning, education and training - Metadata for learning resources - Part 5: Educational elements (ISO/IEC 19788-5:2012); German version EN ISO/IEC 19788-5:2014		DIN-Normenausschuss Informationstechnik und Anwendungen (NIA), Information Technology and selected IT Applications Standards Committee, CEN/TC 353 Technologies supporting education and learning processes, ISO/IEC JTC 1/SC 36/WG 4 Management and delivery, NA 043-01-36 AA Learning technologies. 2014. DE: Informationstechnik - Lernen, Ausbildung und Weiterbildung - Metadaten für Lernressourcen - Teil 5: Ausbildungselemente (ISO/IEC 19788-5:2012); Deutsche Fassung EN ISO/IEC 19788-5:2014 EN: Information technology - Learning, education and training - Metadata for learning resources - Part 5: Educational elements (ISO/IEC 19788-5:2012); German version EN ISO/IEC 19788-5:2014 FR: Technologies de l'information - Apprentissage, éducation et formation - Métadonnées pour ressources d'apprentissage - Partie 5: Éléments pédagogiques (ISO/IEC 19788-5:2012); Version allemande EN ISO/IEC 19788-5:2014 DIN EN ISO/IEC 19788-5.
ISO 22163:2024	Railway applications – Railway quality management system – ISO 9001:2015 and specific requirements for application in the railway sector hdr (ISO 22163:2023)		ISO/TC 269 "Railway applications". 2024. Bahnanwendungen – Eisenbahn-Qualitätsmanagementsystem – ISO 9001:2015 und spezifische Anforderungen für die Anwendung im Bahnsektor (ISO 22163:2023); Deutsche und Englische Fassung prEN ISO 22163:2024 Railway applications – Railway quality management system – ISO 9001:2015 and specific requirements for application in the railway sector hdr (ISO 22163:2023); German and English version prEN ISO 22163:2024 Applications ferroviaires – Système de management de la qualité ferroviaire – w Exigences de l'ISO 9001:2015 et exigences particulières concernant les applications dans le w secteur ferroviaire (ISO 22163:2023); Version allemande et anglaise prEN ISO 22163:2024 DIN EN ISO 22163.
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m4i	Metadata4Ing Ontology	<a href="http://w3id.org/nfdi4ing/metadata4ing#">http://w3id.org/nfdi4ing/metadata4ing#</a>	Iglezak, Dorothea, Giacomo Lanza, Susanne Arndt, Marc Fuhrmans, Džulija Terzijska, Sophia Leimer, Johannes Theissen-Lipp, Stephan Hachinger, Johannes Munke, Benjamin Farnbacher, Vasiliki Sdralia & Alexander Wellmann (2025). Metadata4Ing: An ontology for describing the generation of research data within a scientific activity. DOI: 10.5281/zenodo.14982558.

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rec	The Recommendation Ontology Specification	<a href="https://web.archive.org/web/20250116013621/https://smiv.sourceforge.net/rec/rdf/recommendationontology.owl">https://web.archive.org/web/20250116013621/https://smiv.sourceforge.net/rec/rdf/recommendationontology.owl</a>	Ferris, Bob & Kurt Jacobson (2010). The Recommendation Ontology Specification. <a href="https://smiv.sourceforge.net/rec/spec/recommendationontology.html">https://smiv.sourceforge.net/rec/spec/recommendationontology.html</a> , <a href="https://web.archive.org/web/20250105164652/https://smiv.sourceforge.net/rec/spec/recommendationontology.html">https://web.archive.org/web/20250105164652/https://smiv.sourceforge.net/rec/spec/recommendationontology.html</a> .
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schemaaccessibility	Schema.org Accessibility Properties for Discoverability Vocabulary	<a href="https://www.w3.org/community/reports/a11y-discov-vocab/CG-FINAL-vocabulary-20241209">https://www.w3.org/community/reports/a11y-discov-vocab/CG-FINAL-vocabulary-20241209</a>	LaPierre, Charles; Rothberg, Madeleine; Garrish, Matt (2024). Schema.org Accessibility Properties for Discoverability Vocabulary. Final Community Group Report 09 December 2024. <a href="https://www.w3.org/community/reports/a11y-discov-vocab/CG-FINAL-vocabulary-20241209">https://www.w3.org/community/reports/a11y-discov-vocab/CG-FINAL-vocabulary-20241209</a> .
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sio	Semanticscience integrated ontology	<a href="http://semanticscience.org/resource/">http://semanticscience.org/resource/</a>	Dumontier, Michel (2024). Semanticscience Integrated Ontology. <a href="https://raw.githubusercontent.com/micheldumontier/semanticscience/master/ontology/sio/release/sio-release.owl">https://raw.githubusercontent.com/micheldumontier/semanticscience/master/ontology/sio/release/sio-release.owl</a> .

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wd	Wikidata	<a href="http://www.wikidata.org/entity/">http://www.wikidata.org/entity/</a>	Wikimedia Foundation, ed. (2025). The Free Knowledge Base. <a href="https://www.wikidata.org/">https://www.wikidata.org/</a> . Wikidata: The Free Knowledge Base.
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