## Interoperability, metadata and data exchange guidelines

Iryna Kuchma, Open Access Programme Manager LIBSENSE Workshop II, March 11, 2019, Accra, Ghana



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## Interoperability

"is the technical "glue" connecting content and systems in the network of repositories and other tools, enabling value added services to be built on this integrated infrastructure.

The real value of repositories lies in the potential to interconnect them to create a network of repositories, a network that can provide unified access to research outputs and be (re-) used by machines and researchers. In order to achieve this potential, we need interoperability."

https://coartraining.gitbook.io/coar-repository-toolkit/interoperability

### Metadata and vocabularies

"Interoperability across repositories requires standardized approaches to metadata and vocabularies...

Metadata is "data about data" – descriptive information related to each resource in the repository.

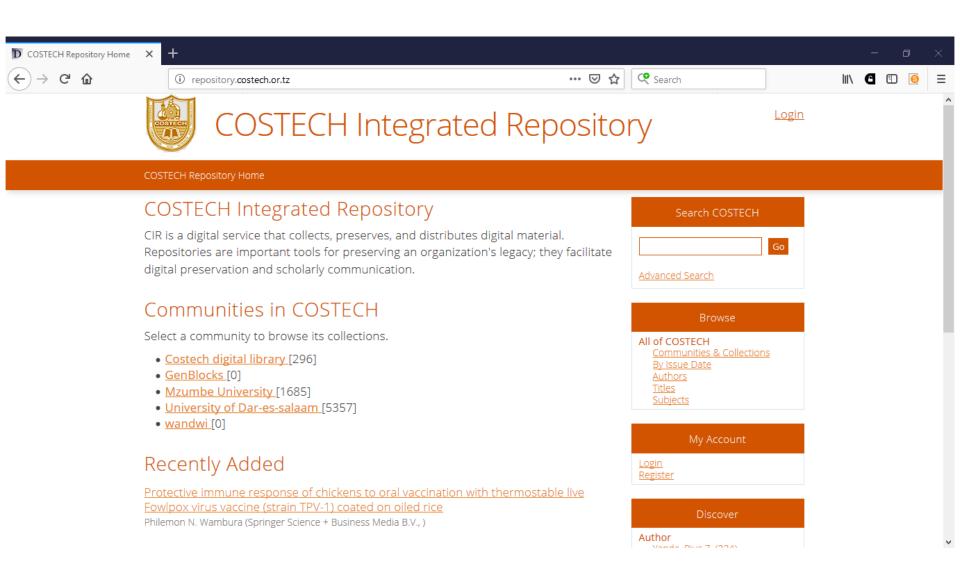
Ideally, repositories will expose their metadata using common schema and vocabularies so that the records can be standardized, and aggregated by repository networks. In turn, these networks can develop more useful services with the metadata, such as tracking open access, discovery of content, and analytics."

https://coartraining.gitbook.io/coar-repository-toolkit/interoperability

## Metadata and vocabularies (2)

"Currently most repositories expose their metadata through the Open Archives Initiative - Protocol for Metadata Harvesting (OAI-PMH). This protocol allows the repository to use a variety of metadata profiles, in addition to the simple OAI-DC metadata format based on Dublin Core. For generic data repositories, the DataCite metadata schema is the most widely used. Domain-based metadata schemas may also be used by repositories that specialize in collecting content from a specific discipline."

https://coartraining.gitbook.io/coar-repository-toolkit/interoperability/metadata-and-vocabularies



## Regional metadata guidelines

"In addition, there are regional guidelines for repositories defined by certain repository networks, such as LA Referencia (Latin America) and OpenAIRE (Europe) require the adoption of certain specific metadata elements and vocabularies in order to provide services based on the metadata they aggregate."

https://coartraining.gitbook.io/coar-repository-toolkit/interoperability/metadata-and-vocabularies

### What shall we include in the metadata guidelines for African repositories?

### **Draft for comments:**

https://docs.google.com/document/d/ 1n9O7tXbaXLcqp8da-9XtymZSMmFDu78GCLBjMp\_SRXU/edit#

## **Comprehensive metadata**

Aim for as comprehensive metadata as possible

Try to include all descriptive information provided in the resource that you are going to upload in your repository

## **Optimal metadata**

**Title** (dc.title) - the original wording, order and spelling of the resource title. Capitalize proper nouns only. [Punctuation need not reflect the usage of the original. Subtitles should be separated from the title by a colon. This instruction would result in Title:Subtitle (i.e. no Space). <a href="https://guidelines.openaire.eu/en/latest/literature/field\_title.html">https://guidelines.openaire.eu/en/latest/literature/field\_title.html</a>]

**Title in English**, if different, in a separate field.

## **Optimal metadata (2)**

Author(s) (dc.contributor.author) - each author in a separate field. Use inverted name, so the syntax will be the following: "surname", "initials" ("first name") "prefix". For example Jan Hubert de Smit becomes <dc:creator>Smit, J.H. (John) de</dc:creator> . Use a standardised writing style for names, e.g. the writing style used by the publisher when this is available. Generational suffixes (Jr., Sr., etc.) should follow the surname. Omit titles (like "Dr"). For example: "Dr. John H. de Smit Jr." becomes <dc:creator>Smit Jr., J.H. (John) de</dc:creator>

https://guidelines.openaire.eu/en/latest/literature/field\_creator.html

## Optimal metadata (3)

Abstract (dc.description.abstract).

**Abstract in English**, if different, in a separate field.

**Date** (dc.date.issued) - recommended best practice for encoding the date value is defined in a profile of ISO 8601 [W3CDTF] and follows the YYYY-MM-DD format. In DSpace you could mention the year only for journal articles.

## **Optimal metadata (4)**

**Digital Object Identifier** (dc.identifier or dc.identifier.doi or dc.identifier.other), e.g. 10.1186/s13027-017-0170-5 or http://doi.org/10.1007/s12374-017-0088-x

**Keywords** (dc.subject) - each keyword in a separate field.

**Language** (dc.language.iso) in <u>ISO 639</u> standard (2 or 3 letter code, e.g. en or eng for English).



#### **BROWSE**

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Communities & Collections

By Issue Date

Authors

Titles

Subjects

#### This Collection

By Issue Date

Authors

Titles

Subjects

#### MY ACCOUNT

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#### First Hominoid from the Late Miocene of the Irrawaddy Formation (Myanmar)





For over a century, a Neogene fossil mammal fauna has been known in the Irrawaddy Formation in central Myanmar. Unfortunately, the lack of accurately located fossiliferous sites and the absence of hominoid fossils have impeded paleontological studies. Here we describe the first hominoid found in Myanmar together with a Hipparion (s.l.) associated mammal fauna from Irrawaddy Formation deposits dated between 10.4 and 8.8 Ma by biochronology and magnetostratigraphy. This hominoid documents a new species of Khoratpithecus, increasing thereby the Miocene diversity of southern Asian hominoids. The composition of the associated fauna as well as stable isotope data on Hipparion (s.l.) indicate that it inhabited an evergreen forest in a C3-plant environment. Our results enlighten that late Miocene hominoids were more regionally diversified than other large mammals, pointing towards regionally-bounded evolution of the representatives of this group in Southeast Asia. The Irrawaddy Formation, with its extensive outcrops and long temporal range, has a great potential for improving our knowledge of hominoid evolution in Asia.

Collections Department of Geology

Download journal.pone.0017065.PDF (921.9Kb)

Date 2011

Author Jaeger, Jean-Jacques

Aung Naing Soe Chavasseau, Olivier Coster, Pauline

Emonet, Edouard-Georges

Guy, Franck
Lebrun, Renaud
Aye Maung
Aung Aung Khyaw
Hla Shwe
Soe Thura Tun
Kyaw Linn Oo
Rugbumrung, Mana
Bocherens, Herve
Benammi, Mouloud

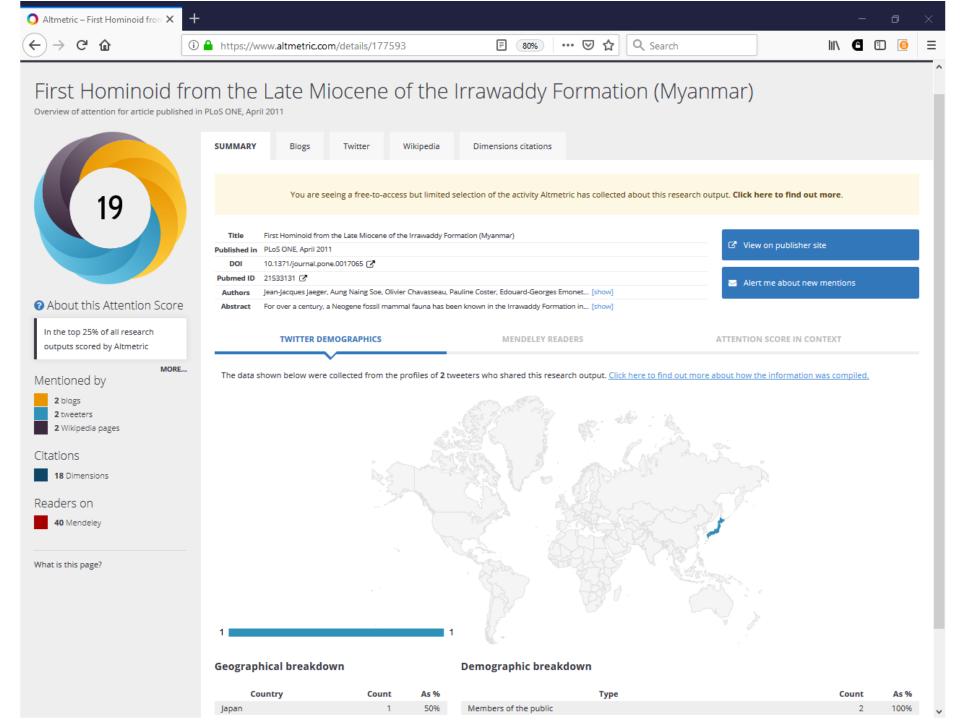
Chaivanich, Kamol Tafforeau, Paul

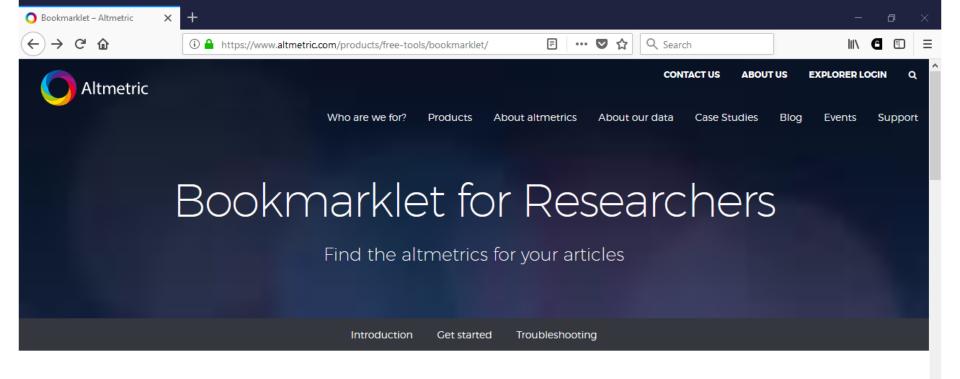
Chaimanee, Yaowalak

Type Article

Publisher PLoS ONE

https://uyr.uy.edu.mm/handle/123456789/182





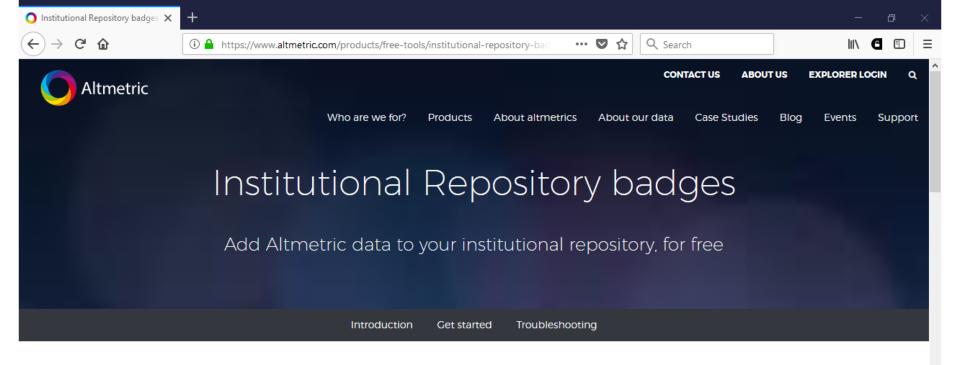
### Article insights for individual researchers

Want to find out the Altmetric details for a paper you've published? Install our free bookmarklet for Chrome, Firefox and Safari to view the online shares and mentions of an article with a single click.



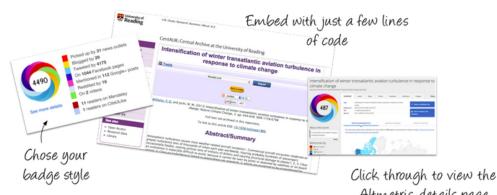
https://www.altmetric.com/products/free-tools/bookmarklet/

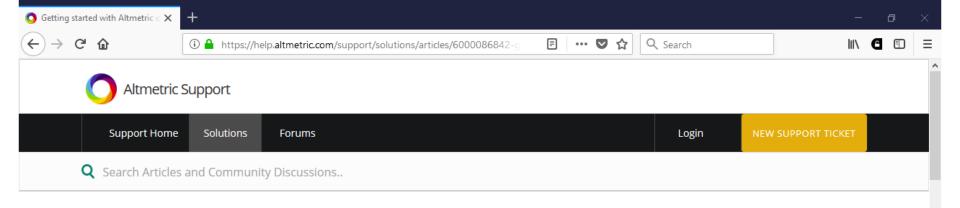
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Solution home / Altmetric Data / API and Integrations

### Getting started with Altmetric on your journal, books or institutional repository

Modified on: Mon, 4 Sep, 2017 at 4:19 PM

Altmetric.com embeds allow you to add new altmetrics data to your content with a minimum of fuss and technical effort – all you need to do is add two lines of code to your HTML. We host the altmetrics data that your readers will see, but give you control over their presentation.

The process involves three steps:

- 1. Ensure we are tracking your domains;
- 2. Ensure you have identifying metadata on your article pages;
- 3. Add our badge code to your pages;

#### Ensure we are tracking your domains

For publishers: if any journals on your platform have their own custom domain a tymetric-on-your-journal-or-institutional-myjournal.com, please tell us about those too by emailing support@altmetric.com.

repository

#### More articles

- How can I access the Altmetric API docum...
- Getting started with Altmetric on your jou...
- Sample API response
- Using the Altmetric embeds on EPrints

## **Optimal metadata (5)**

Journal title / Conference title (dc.publisher) for journal articles / conference proceedings.

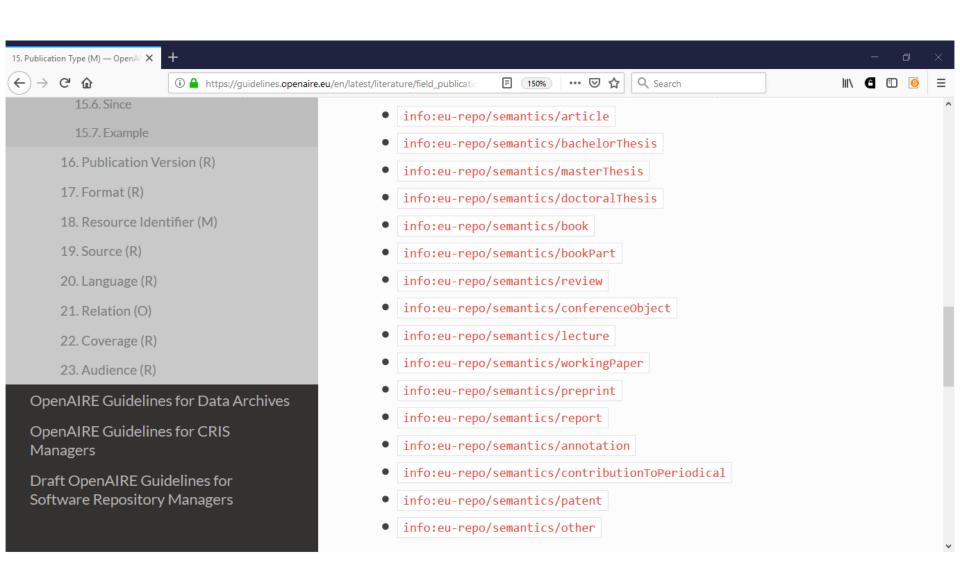
### Journal volume and number

(dc.relation.ispartofseries or dc.citation.issue, dc.citation.spage, dc.citation.epage).

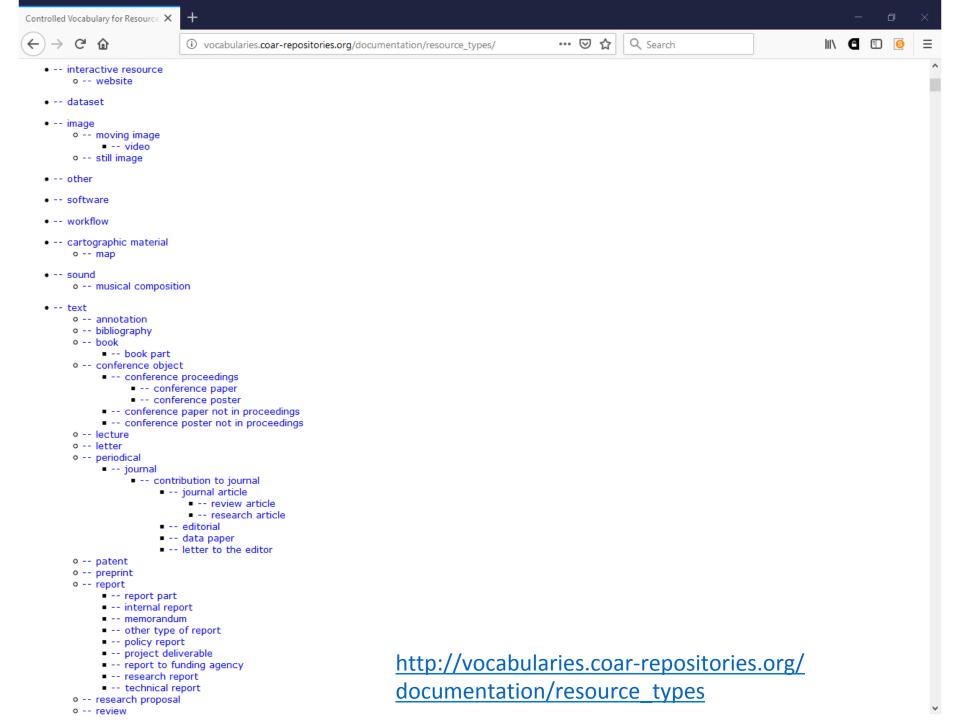
Journal ISSN (dc.identifier.issn) / Book ISBN

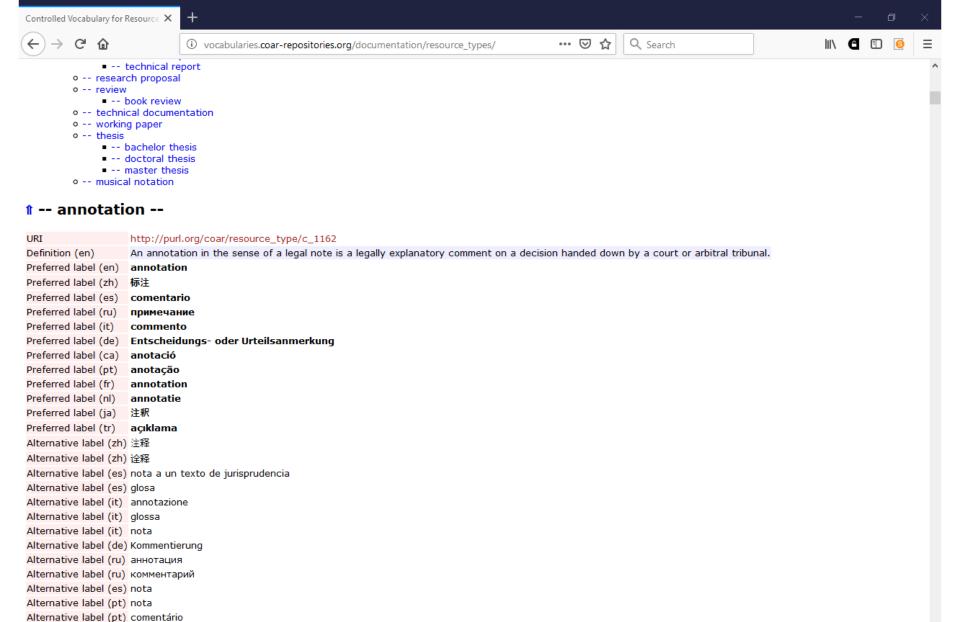
## **Optimal metadata (6)**

**Type** (dc.type) - publication type. Indicate the type of publication based on a local repository vocabulary or use COAR Resource type vocabulary to indicate the type of your resource



https://guidelines.openaire.eu/en/latest/
literature/field publicationtype.html





Alternative label (pt) apontamento Alternative label (pt) glosa Alternative label (zh) 標注 Alternative label (zh) 註釋 Alternative label (zh) 註釋 Alternative label (tr) dipnot

## **Optimal metadata (7)**

**Access** (dc.rights) - provide access information (e.g. Open Access). Use COAR Access Rights Vocabulary to indicate access rights to your resource

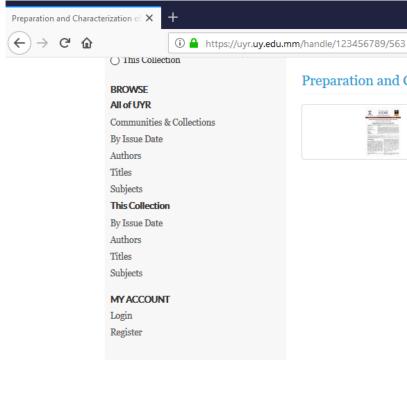
<a href="http://vocabularies.coar-repositories.org/">http://vocabularies.coar-repositories.org/</a>
<a href="documentation/access rights">documentation/access rights</a>

- -- open access
- -- embargoed access
- -- restricted access
- metadata only access or restrictedAccess as recommended in OpenAIRE Guidelines for Literature Repositories v3

## **Optimal metadata (8)**

Information about re-use - for materials published under Creative Commons licence in the dc.rights or dc.rights.license field mention the license, for example Creative Commons Attribution 4.0 International, and in dc.rights.uri - the licence URL, e.g.

http://creativecommons.org/licenses/by/4.0/



#### Preparation and Characterization of Chickpea Protein Concentrate



Many protein concentrates have been developed for providing different functional or physical properties to meet the requirement of various food systems. The main purpose of this research work was to isolate the most refined form of protein from chickpea and to combat the problem of malnutrition. In this research work, Chickpea (Cicer arientum L.) was collected from Monywa Township, Sagaing Region and nutritional values of chickpea flour like moisture content, ash content, protein content, crude fiber content, fat content and carbohydrate content were determined. The fat from chickpea flour was removed by soaking in ethanol and also by soxhlet extraction using ethanol as solvent before isolating the protein. The fat removal efficiency of these two methods were investigated. Moreover, combined effect of these two methods on the removal percentage of fat from chickpea was studied. 46.15±0.01% protein content (defatted chickpea) was obtained by soaking in ethanol solution for 20 hr and followed by soxhlet extraction (meal to solvent ratio were1:6).

C Search

Collections Department of Industrial Chemistry Collection

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Date 2017

Zar Zar Oo Author

> Thwe Linn Ko Soe Soe Than

Article

Type

**Publisher** International Journal of Development Research

Show full item record Metadata

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## **Optimal metadata (9)**

**Citation** (dc.identifier.citation) - suggested citation of an item (e.g. journal's name, volume and issue for a journal article); these details allow a better retrieval of your documents.

### Additional information & metadata

**ORCID** - add an ORCID iD to author names. Promote the adoption of ORCID iDs to uniquely identify authors (even in case of name ambiguity). Encourage authors to register with ORCID in order to obtain an ORCID iD. In Dublin Core ORCID iDs should be provided directly as a part of the author's name (e.g. <dc:author>Summan, Friedrich (ORCID-ID 0000-0002-6297-3348)</dc:author>).

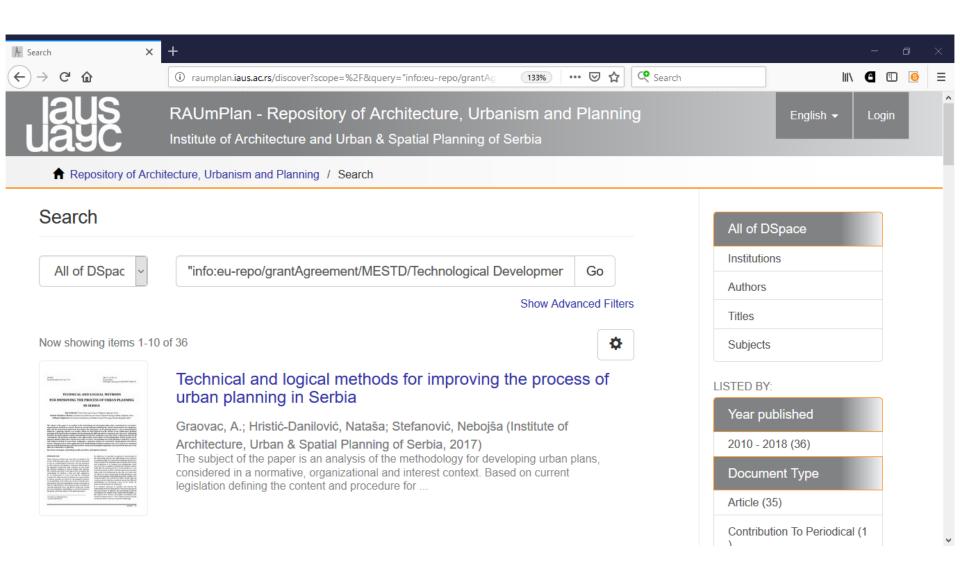
# Additional information & metadata (2)

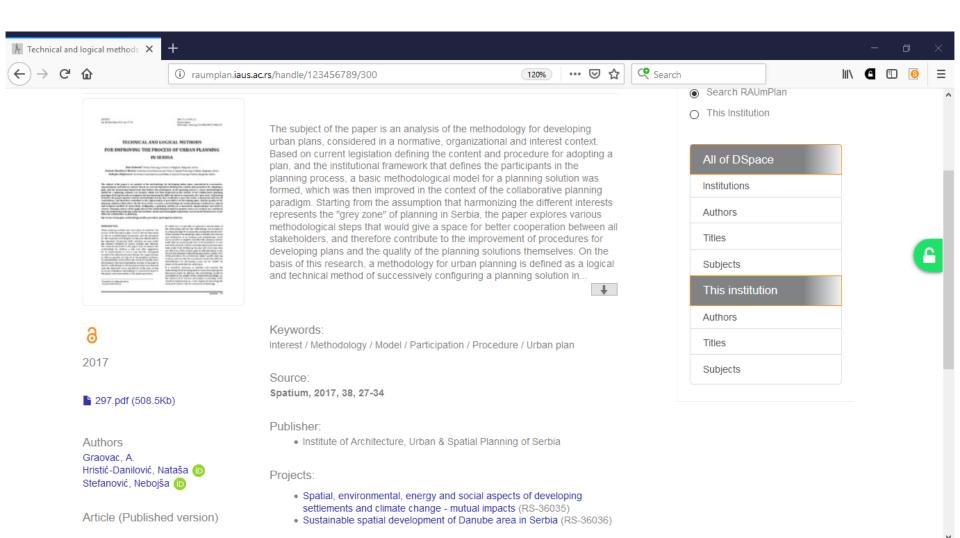
**Description** - add additional description, if needed, in dc.description. For example, provide more details about a thesis/dissertation: "A Research dissertation submitted to the School of Public Administration and Management for the requirement to undertake the field study (in Semester 3) for the fulfillment of the Master Degree in Public Administration (MPA) of Mzumbe University" (from

http://scholar.mzumbe.ac.tz/handle/11192.1/2408).

# Additional information & metadata (3)

**Project information** - add grant/project information, when applicable in dc.relation if a resource was supported by a project/grant.





# Additional information & metadata (4)

An authoritative <u>list of projects</u> is exposed by OpenAIRE through OAI-PMH, and available for all repository managers. Values include the project name and project ID. The projectID equals the Grant Agreement identifier, and is defined by the info:eu-repo namespace term grantAgreement. The three-part namespace is mandatory when applicable ( info:eu-repo/ grantAgreement/Funder/FundingProgram/ProjectID), while the six-parts namespace is recommended. https://guidelines.openaire.eu/en/latest/literature/ field projectid.html

# Additional information & metadata (5)

**Publication Version** - when applicable, indicate the status of the resource in the publication process / the version of the article in dc.type.version - for example, publishedVersion.

# Additional information & metadata (6)

Use the following controlled vocabulary for the version of the scientific output based on the DRIVER-version info:eu-repo version terms.

info:eu-repo/semantics/draft

info:eu-repo/semantics/submittedVersion

info:eu-repo/semantics/acceptedVersion

info:eu-repo/semantics/publishedVersion

info:eu-repo/semantics/updatedVersion

https://guidelines.openaire.eu/en/latest/literature/field\_publicationversion.html

# Additional information & metadata (7)

Format (dc.format) - the physical or digital manifestation of the resource. Typically, format may include the media-type or dimensions of the resource. Format may be used to determine the software, hardware or other equipment needed to display or operate the resource. Examples of dimensions include size and duration. Recommended best practice is to select a value from a controlled vocabulary (for example, the list of Internet Media Types [MIME] defining computer media formats). Based on best practice, the IANA registered list of Internet Media Types (MIME types) is used to select a term from. For the full list see

http://www.iana.org/assignments/media-types.

# Additional information & metadata (8)

If a specific resource has more than one physical formats (e.g. postscript and pdf) stored as different object files, all formats are mentioned in the DC element format, for example:

<dc:format>application/pdf</dc:format>

<dc:format>application/postscript</dc:format>

<dc:format>application/vnd.oasis.opendocument.text/

Do not confuse with publication type and resource identifier.

# Additional information & metadata (9)

### Some examples:

```
<dc:format>video/quicktime</dc:format>
<dc:format>application/pdf</dc:format>
<dc:format>application/xml</dc:format>
<dc:format>application/xhtml+xml</dc:format>
<dc:format>application/html</dc:format>
<dc:format>application/vnd.oasis.opendocument.text</dc
dc:format>
```

https://guidelines.openaire.eu/en/latest/literature/field\_format.html

## Additional information & metadata (10)

Embargo end date (dc.date) - when access is set to embargoedAccess the end date of the embargo period must be provided. The corresponding term is defined by info:eu-repo/date/embargoEnd/<YYYY-MM-DD>. Encoding of this date should be in the form YYYY-MM-DD conforming to ISO 8601.

https://guidelines.openaire.eu/en/latest/ literature/field\_embargoenddate.html



### https://www.base-search.net







Search 136,280,107 documents from 6,642 sources

Q

### **About BASE**

What is BASE?

Content sources

Statistics

### Services / How To

Suggest source

Validate source (OVAL)

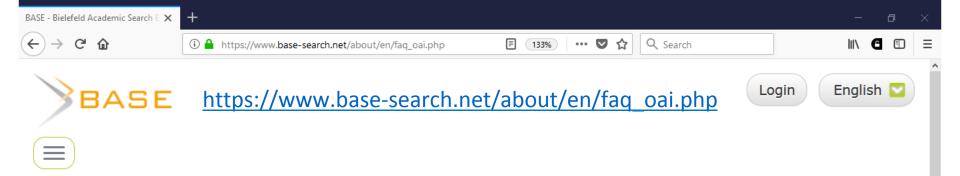
Add ORCID iD

### **Further information**

Help

FAQ

Twitter



### Golden rules for repository managers

We are indexing all kinds of academically relevant resources - journals, institutional repositories, digital collections etc. - which provide an OAI interface and use OAI-PMH for providing their contents (learn more about OAI at the Open Archives Initiative or Wikipedia). In case your source does not provide an OAI interface, upload your documents to aggregators like DataCite or Zenodo, to subject repositories like RePEC or add your open access journal to DOAJ. We are indexing these sources regularly.

However, the best way to get your documents indexed by BASE is to provide an OAI interface. We have compiled some *golden* rules that might be helpful to optimize your OAI interface. If your OAI interface complies with these rules, we can assure fast and smooth indexing of your source. Data from your source will be presented completely and in the best possible way.

You can check some of the following items using our OAI-PMH validator OVAL.

### : OAI interface working

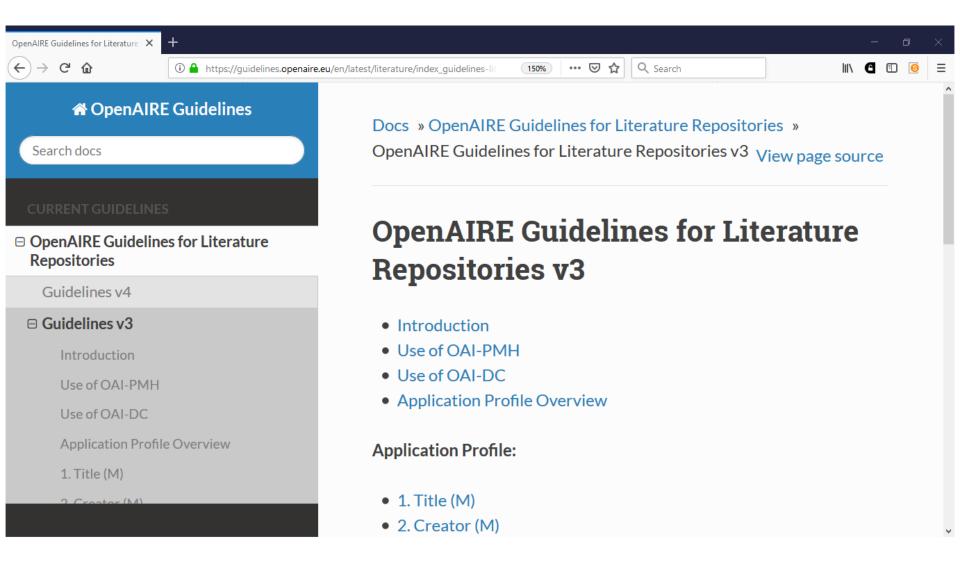
♀ Your OAI interface is stable and responds to requests. *ListRecords* delivers results without timeout or other issues, e.g. an XML error.

▲ Otherwise, it is not possible to index your source.

### : Marking modified / deleted records

Any subsequent change to a record must be marked in your OAI interface by updating the document's datestamp. If a document is deleted from your source, the record in the OAI interface must be marked as "deleted". Under no circumstances may the record be completely deleted from the OAI interface.

All indexed sources are regularly updated in BASE. If the "datestamp" is not updated or if a document is not marked as "deleted" (but instead completely removed from the OAI interface) an update in the BASE index is not possible and the document remains unchanged and therefore incorrect in the index.



https://guidelines.openaire.eu/en/latest/literature/index guidelines-lit v3.html

# Data exchange model agreement

Draft for comments:

https://docs.google.com/document/d/1mfuYnZCMtP43wllvsJ-aYSQxK3LS9RbwG1ZhyZp4-vc/edit#heading=h.xju3bh76qxj

### Data acquisition & data usage policies

For national/regional repository/aggregator: how the data is retrieved, how often, what processes it goes through [e.g. aggregating, cleaning, transforming, inferring, de-duplicating], what the quality checks are along all data processing stages; and data usage policy: who is able to retrieve aggregated data and what the licenses are.

### Data acquisition policy

The OAI-PMH (Open Archives Initiative Protocol for Metadata Harvesting) interoperability protocol is used, which consists of a set of rules and methods that standardize the access to content of repositories. Repositories are harvested [once a week - adjust to your workflows].

### Data acquisition policy (2)

Aggregation policies for publications, datasets and other research outputs: National/regional aggregator accepts the metadata records of all scientific output. This means that both open access and non-open access material will be included.

### Data acquisition policy (3)

Full-text publications: A national/regional aggregator collects bibliographic metadata records [open access publications files whenever these are accessible from the URL provided in the metadata record/bibliographic metadata records only - check and keep if this is the case]. Endusers willing to access, download, and read the actual files [will/will not - select one] be able to do so from a national aggregator, but will be forwarded to the original source of deposition.

### Terms of Agreements (ToU) for Content Providers

Agreement for Content Exchange between a national/regional aggregator and external content provider, in the following referred to as [ORGANIZATION]

### **Objectives of the ToU**

A national/regional aggregator harvests bibliographic metadata records [and Open Access articles full-text from content providers - check and keep if this is the case].

The [ORGANIZATION] may request a national/ regional aggregator not to collect the full text of open access publications.

### Benefits for content providers

A national/regional aggregator increases the visibility of the [ORGANIZATIONs] content provider and its publications by exposing metadata and URLs leading to the provider's web site (provenance information).

### Terms of Use: Consent for re-use of metadata

By registering the [ORGANIZATON]'s content provider with a national/regional aggregator, the [ORGANIZATION]:

Provides metadata records compliant to the national/regional aggregator guidelines.

Allows a national/regional aggregator to BULK DOWNLOAD metadata records via at least one of the following protocols: OAI-PMH, FTP (and REST APIs if agreed with a national/regional aggregator).

## Terms of Use: Consent for re-use of metadata (2)

Allows a national/regional aggregator to TRANSFORM metadata records, if necessary, to make it uniform to the national/regional aggregator data model.

Allows a national/regional aggregator to ENRICH the metadata, using national/regional aggregator best efforts of deduplication, text-mining, and end-user feedback.

## Terms of Use: Consent for re-use of metadata (3)

Allows a national/regional aggregator to PUBLISH the harvested and transformed records, thus to provide public access to them as <a href="CC-BY International 4.0">CC-BY International 4.0</a> or subsequent without any restrictions on reuse in original and derivative forms.

### Terms of Use: Consent for re-use of metadata & full text

Metadata: Allows a national/regional aggregator to PUBLISH the harvested and transformed records, thus to provide public access to them as <a href="CC-BY International 4.0">CC-BY International 4.0</a> or subsequent without any restrictions on reuse in original and derivative forms.

[Consent for re-use of full texts is described here: <a href="https://docs.google.com/document/d/">https://docs.google.com/document/d/</a>
<a href="mailto:1mfuYnZCMtP43wllvsJ-aYSQxK3LS9RbwG1ZhyZp4-vc/edit#">1mfuYnZCMtP43wllvsJ-aYSQxK3LS9RbwG1ZhyZp4-vc/edit#</a>] The [ORGANIZATION] may request a national/regional aggregator not to collect the full text of open access publications.

## Additional provisions ensuring quality of service

The [ORGANIZATION] will ensure the following good practices are respected:

Whitelisting a national/regional aggregator harvesting services: agrees not to block the IP address range used by the a national/regional aggregator crawling and/or download service;

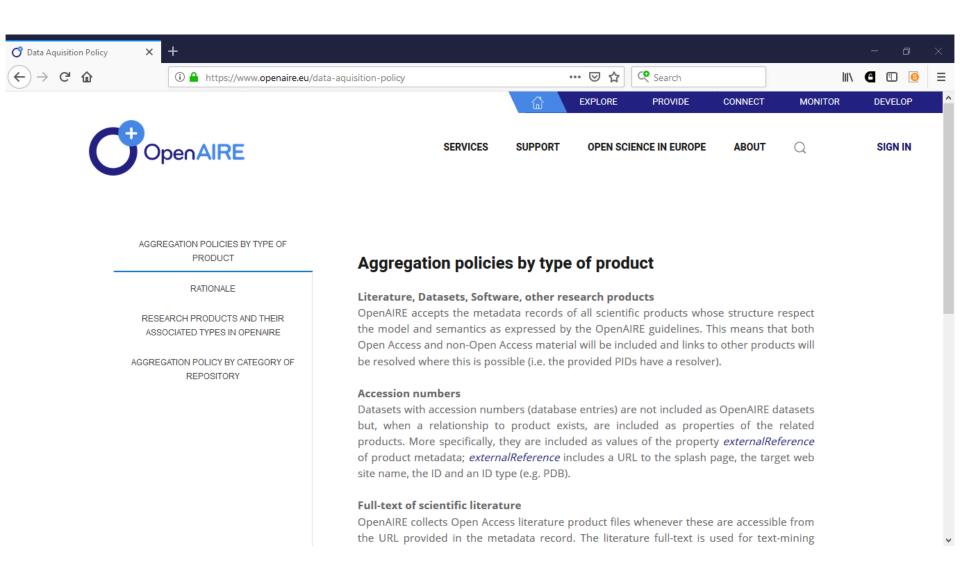
Data integrity: informs a national/regional aggregator about changes of existing record identifiers (e.g. due to platform migrations or updates)

[ORGANIZATION]'s representations and warranties

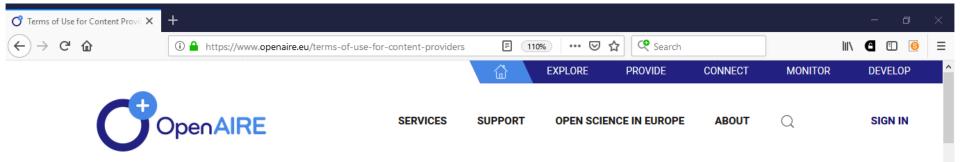
## Additional provisions ensuring quality of service (2)

A national/regional aggregator published metadata under <a href="CC-BY International 4.0">CC-BY International 4.0</a> or subsequent without any restrictions on reuse in original and derivative forms.

The agreement will terminate when a national/regional aggregator or [ORGANIZATION] gives notice of termination to the other Party (including end of project or service), in which case a minimum notice of three months will be given. In this case a national/regional aggregator will take down all copies made of [ORGANIZATION]'s data. Downloaded data that are licensed under CC-BY International 4.0 or subsequent are not affected by the termination of the agreement.



https://www.openaire.eu/data-aquisition-policy



### **Terms of Use for Content Providers**

### Terms of Agreements for Content Providers

Agreement for Content Exchange between OpenAIRE and external content provider, in the following referred to as [ORGANIZATION]

Rationale

OpenAIRE

Objectives of the ToU

Benefits for content providers

Terms of Use

Consent for re-use

Additional provisions ensuring quality of service

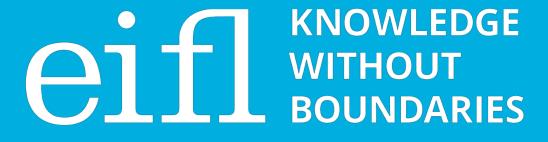
[ORGANIZATION]'s representations and warranties

Licensing the enriched metadata

https://www.openaire.eu/terms-of-use-for-content-providers

# Thank you! Questions?

iryna.kuchma@eifl.net Twitter: @irynakuchma



www.eifl.net