



Data Management Plan – First version

Deliverable 1.2

WP1. Management and Coordination

CIRC-PACK - Towards circular economy in
the plastic packaging value chain

Grant agreement: 730423


Prepared by: CIRCE

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DELIVERABLE FACTSHEET

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Approvals

Author/s	Company
	CIRCE
Task Leader	CIRCE
WP Leader	CIRCE

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ABBREVIATIONS

API: Application Programming Interface

DMP: Data Management Plan

DOI: Digital Object Identifier

FAIR: Findable, Accessible, Interoperable and Re-usable

LCA: Life Cycle Assessment

LCC: Life Cycle Cost

PARTNERS SHORT NAMES

CIRCE: Fundación CIRCE – Research Centre for Energy Resources and Consumption

AITIIP: Fundación AITIIP

NOVAMONT: NOVAMONT SPA

MATER: MATER-BIOTECH SPA

MBP: MATER-BIOPOLYMER SRL

BUMAGA BV: BUMAGA BV

TECNOPACKAGING: NUEVAS TECNOLOGIAS PARA EL DESARROLLO DE PACKAGING Y PRODUCTOS AGROALIMENTARIOS CON COMPONENTE PLASTICA SL

MI-PLAST: MI-PLAST DOO ZA PROIZVODNJU TRGOVINU I PRUZANJE USLUGA - MI-PLAST LLC
MANUFACTURING, TRADING AND SERVICES MIPLAST

GRUPO SADA: GRUPO SADA P A SA

SAPONIA D.D.: SAPONIA KEMIJSKA, PREHRAMBENA I FARMACEUTSKA INDUSTRIJA D.D.

FATER: Fater S.p.A.

CRF: CENTRO RICERCHE FIAT SCPA

UNE: ASOCIACION ESPAÑOLA DE NORMALIZACION

RINA: RINA CONSULTING – D'APPOLONIA SPA

EKODENGE: EKODENGE MUHENDISLIK MIMARLIK DANISMANLIK TICARET ANONIM SIRKETI

ECOEMBES: ECOEMBALAJES ESPANA, S.A.

CITY OF RIJEKA: GRAD RIJEKA-GRADSKO VIJECE


KARTALMUN: KARTAL BELEDIYE BASKANLIGI

CALAF IND: CALAF TECHNIQUES INDUSTRIALS SL

OCU EDICIONES: OCU EDICIONES SA

ICLEI EURO: ICLEI EUROPEAN SECRETARIAT GMBH (ICLEI EUROPASEKRETARIAT GMBH)

PLASTIPOLIS: PLASTIPOLIS

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PUBLISHABLE SUMMARY

As part of Horizon 2020, the CIRC-PACK project participates in a pilot action on open research data. The aim is to provide indications as to what kind of data the project will collect, how the data will be preserved and which sharing policies will be adopted towards making these data readily available to the research community.

This Data Management Plan (DMP) details what kind of research data will be created during the project's lifespan and prescribes how these data will be made available - and thus re-usable and verifiable - by the larger research community. The project's efforts in the area of open research data are outlined giving particular attention to the following issues:

- The types of open and non-open data that will be generated or collected by the consortium, via experimental campaigns and research, during the project's lifespan;
- The technologies and infrastructures that will be used to securely preserve the data long-term;
- The standards used to encode the data;
- The data exploitation plans;
- The sharing/access policies applied to each data-set.

The plan can be considered as a checklist for the future and as a reference for the resource and budget allocations related to data management.

The content of this document builds upon the input of the project partners. A short questionnaire, outlining the DMP's objectives and stating the required information in a structured manner, has been edited by CIRCE and will be disseminated to the partners. The compiled answers will be integrated into a coherent plan.

The present DMP will evolve as the project progresses in accord with the project's efforts in this area. At any time, the DMP will reflect the current state of the consortium's agreements regarding data management, exploitation and protection of rights and results.

For each partner involved in the collection or generation of research data a short technical description is given stating the context in which the data has been created. The different data-sets are identified by project-wide unique identifiers and categorized through additional meta-data such as, for example, the sharing policy attached to it. The considered storage facilities are outlined and tutorials are provided for their use (submitting and retrieving the research data). A further appendix lists the format standards that will be used to encode the data and provides references to technical descriptions of these formats.



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INTRODUCTION

This is the first version of DMP to be revised during the course of the project within Task 1.4 Data Management Plan, including new data, changes in consortium policies regarding innovation potential or decision to file a patent, and changes in the consortium composition and external factors.

This plan will establish the measures for promoting the findings during CIRC-PACK's lifecycle and will set the procedures for the sharing of data of the project. Addressing FAIR principle for research data (Findable, Accessible, Interoperable and Re-usable) CIRC-PACK DMP will consider:

- Data set reference and name
- Data set description
- Standards and metadata
- Data sharing and handling during and after the end of the project
- Archiving and preservation (including after the end of the project)

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1 DATA SUMMARY

The data that will be managed in CIRC-PACK is included under the umbrella of the following categories.


- End-user personal data:** During baseline definition and preliminary assessment of packaging value chain, surveys will be implemented in different countries in order to identify public perception and expectations about plastics and plastic packaging value chain, as well as to collect interesting info to be considered during project development regarding products design, waste management measures and dissemination activities. Besides, the exploitation and commercialization of knowledge and technical results achieved will be also addressed.
 This data set is private and will be managed only by the organization hosting the Data Repository where is allocated. This collection will be not shared unless the data are previously anonymized to remove any possible personal link. In those cases where data is shared this process will be according European regulation and requesting users permission for doing it. Data protection and privacy in conjunction with market surveys.
- Processes information of stages involved in demo cases:** Processes information will be required during demo cases execution and to carry out Life Cycle Assessment and Life Cycle Cost analysis (LCA/LCC) of the plastic packaging value chain (before and after the implementation of project innovations). These analyses will consider data such as flow diagrams, materials (input and output), energy consumption, transport of materials, storage conditions, raw materials, materials sorting, waste management, assets value and lifespan, investment and turnover, etc. Certain datasets may not be shared (or will need restrictions), legal and contractual reasons will be explained in that case.
- Sensor Data:** this collection comprises all information collected from sensors involved in waste sorting facilities. This collection is public, as it is not related to any specific person and therefore it will be open.
- Derived Data:** this comprises the result of applying Data Analytics techniques to the data steaming from sensors. At this stage of the project, the vision is that the data in this collection will not serve as means to identify any person, therefore they are considered as public.

Regarding the nature of the data, in order to fulfil the required security and privacy requirements in this project, which are set by the Data Protection Directive (Directive 95/46/EC on the protection of individuals with regard to the processing of personal data and on the free movement of such data), the project assumes the differentiation set in this Directive between Personal and No Personal data. Data are considered as personal data “when someone is able to link the information to a person, even if the person holding the data cannot make this link”. Any data susceptible of being considered as Personal Data will be managed according to this Directive.

2 STANDARDS AND METADATA

There are several domains considered in CIRC-PACK, each of them follow different rules and recommendations. This is a very early stage identification of standards:

- Microsoft Word 2010 for text based documents (or any other compatible version).
- MP3 or WAV for audio files.
- Quicktime Movie or Windows Media Video for video files.

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- Quantitative data analysis will be stored in SAV file format (used by SPSS) from which data can be extracted using the open-source spread Perl script.

These file formats have been chosen because they are accepted standards and in widespread use. Files will be converted to open file formats where possible for long-term storage.

Metadata will be comprised of two formats – contextual information about the data in a text based document and ISO 19115 standard metadata in an xml file. These two formats for metadadata are chosen to provide a full explanation of the data (text format) and to ensure compatibility with international standards (xml format).

3 ALLOCATION OF RESOURCES

CIRCE will be responsible for data management in CIRC-PACK project.

Costs related to open access to research data are eligible as part of the Horizon 2020 grant (if compliant with the Grant Agreement conditions).

Resources for long term preservation, associated costs and potential value, as well as how data will be kept beyond the project and how long, will be discussed by the whole consortium during General Assembly meetings.


4 DATA SHARING, ACCESS AND PRESERVATION

The digital data created by the project will be diversely curated depending on the sharing policies attached to it. For both open and non-open data, the aim is to preserve the data and make it readily available to the interested parties for the whole duration of the project and beyond.

A public API will be provided to registered users allowing them the access to the platform. The database compliance aims to ensure the correct implementation of the security policy on the databases verifying vulnerability and incorrect data. The target is to identify excessive rights granted to users, too simple passwords (or even the lack of password) and finally to perform an analysis of the entire database. At this point, we can assure that at least the following measures will be considered for assuring a proper management of data:

- Dataset minimisation. The minimum amount of data needed will be stored so as to prevent potential risks.
- Access control list for user and data authentication. Depending on the dissemination level of the information an Access Control List will be implemented reflecting there for each user the data sets that can be accessed.
- Monitoring and Log of activity. The activity of each user in the project platform, including the data sets accessed is registered in order to track and detect harmful behaviour of users with access to the platform.
- Implementation of an alert system that informs in real time of violation of procedures or about hacking attempts.
- Liability. Identification of a person who is responsible of keeping safe the information stored,
- When possible, the information will be also made available in the initiative that the EC has launched for open data sharing from research, which is ZENODO.ORG.

The mechanisms explained in this document aim at reducing to the maximum the risks related with data storage. However due to the activities that are going to be carried out in the project, it is still not defined the amount of time that data will be stored in the platform

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since Big Data analysis and services run data analytics procedures and depending of the accuracy of results based on the size of the sets considered.

4.1 Non-Open research data

The non-open research data will be archived and stored long-term in the EMDESK portal administered by CIRCE. The CIRCE platform is currently being employed to coordinate the project's activities and to store all the digital material connected to CIRC-PACK.

If certain datasets cannot be shared (or need restrictions), legal and contractual reasons will be explained.

4.2 Open research data

The open research data will be archived on the Zenodo platform (<http://www.zenodo.org>). Zenodo is a EU-backed portal based on the well established GIT version control system (<https://git-scm.com>) and the Digital Object Identifier (DOI) system (<http://www.doi.org>). The portal's aims are inspired by the same principles that the EU sets for the pilot; Zenodo represents thus a very suitable and natural choice in this context.


The repository services offered by Zenodo are free of charge and enable peers to share and preserve research data and other research outputs in any size and format: datasets, images, presentations, publications and software. The digital data and the associated meta-data is preserved through well-established practices such as mirroring and periodic backups. Each uploaded data-set is assigned a unique DOI rendering each submission uniquely identifiable and thus traceable and referenceable.

5 ETHIC ASPECTS

5.1 Personal data collected through the interviews and surveys imported from Turkey to the EU partners / exported from EU partners to Turkey

Personal data of users will be collected during the social acceptance and participation in eco-design. Regarding personal data from Kartal (non-EU country), KARTALMUN will collect information at local level through digital media (tablets, computers, etc.). These data will be collected and included in an excel file by an external Turkish entity. This excel file will show only aggregated data and will be analysed by OCU EDICIONES, it will not show identity data and will be processed, together with the rest of countries information, in an aggregated way. All surveys will be processed anonymously and no personal data will be exported from EU partners to a non-EU country.

Procedures to be implemented in Turkey to manage personal data in Turkey, will be established by KARTALMUN and the external entity, according to national regulation.

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5.2 Collection, storage and protection of personal data

EU countries surveys will be based on a combined self-administered postal and online sampling and data collection approach. Necessary measures will be taken for guaranteeing optimal anonymization of collected, analysed and stored data. Respondents will be comprehensibly informed about it. Whenever necessary, survey respondents will be requested for their explicit consent (e.g. in case of follow-up/second-layer contacts & questionnaires).

Collected data will be used exclusively within the context and for the purpose of the CIRC-PACK project. No data will be transmitted to any person, company or organization not being involved on the CIRC-PACK project. Collected data will not be used for commercial purposes.

All personal data will be collected, stored and destructed only with and accordingly to the consent of the personal data holder.

The research will comply with:

- ethical principles
- applicable international, EU and national law (in particular, EU Directive 95/46/EC).

Data collection, storage, protection, retention and destruction will be carried out through the intranet system of the project: EMDESK.

Interviewees/beneficiaries/recipients will be informed about data security, anonymity and use of data as well as asked for accordance. Participation happens on a voluntary basis.


6 LIST OF THE DATA-SETS

This section will list the data-sets produced within the CIRC-PACK project.


7 TIMETABLE FOR UPDATES

As established in the Grant Agreement, at the end of the project, a new version of DMP will be provided. Nevertheless, after each Steering Committee meeting, an updating of the document will be performed, if required. This is the current Steering Committee calendar:

Meeting	Month	Dates	Country	Host Partner
I SC	month 7	16-17 November 2017	Italy	RINA
I GA, II SC	month 13	may-18	Italy	NOVAMONT
III SC	month 19	November 2018	The Netherlands	BUMAGA BV
II GA, IV SC	month 25	may-19	Spain	AITIIP

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V SC	month 31	November 2019	Croatia	MI-PLAST
III GA, VI SC, Final meeting	month 36	April 2020	Belgium	CIRCE

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8 REFERENCES


Zenodo platform. <http://www.zenodo.org>

GIT version control system. <https://git-scm.com>

Digital Object Identifier (DOI) system. <http://www.doi.org>

Metadata Standards Directory. <https://www.rd-alliance.org/metadata-standards-directory>

EUDAT B2SHARE tool. <https://b2share.eudat.eu/>

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9 ANNEXES

9.1 Annex A: Tutorial on Zenodo – Open digital repository

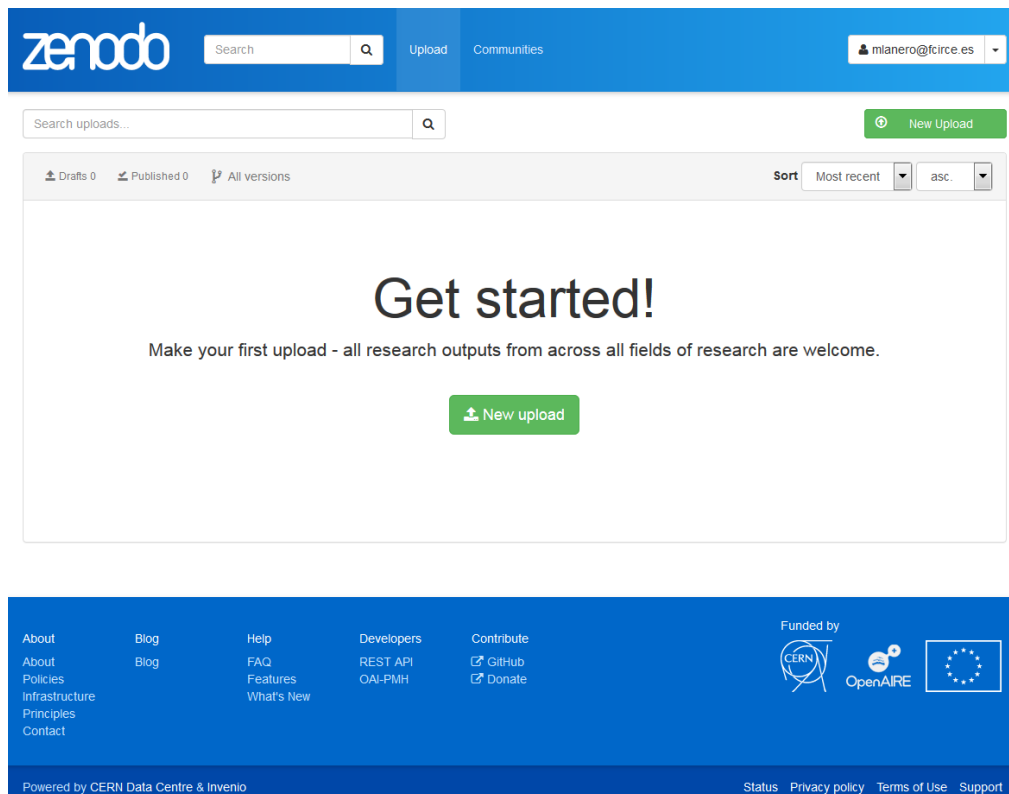
9.1.1 Brief introduction

The portal enables researchers, scientists and institutions to share research data and results in a wide variety of formats including text, spreadsheets, audio, video. To each submitted data-set is attached a unique DOIs that enables referencing the data in research and institutional contexts.

9.1.2 Submitting research data


The submission of research data to Zenodo can be done through the following steps:

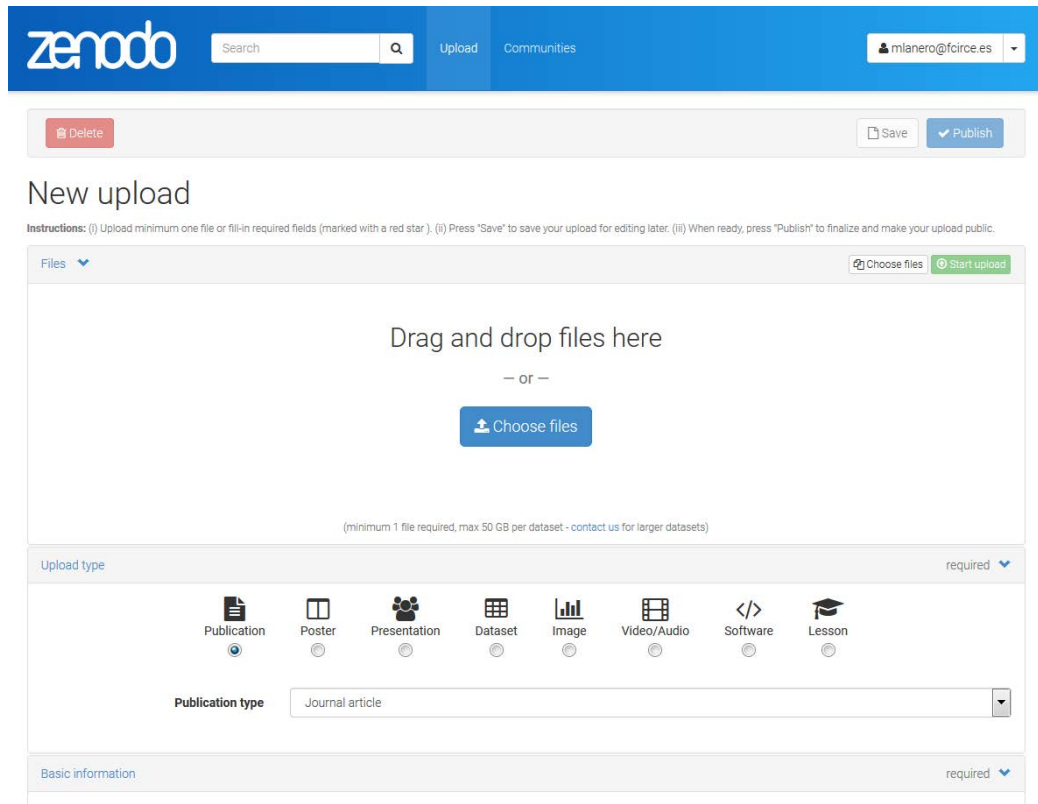
1. The upload procedure starts by prompting the user to select the files that will be part of the data-set and need to be uploaded:
- 2.



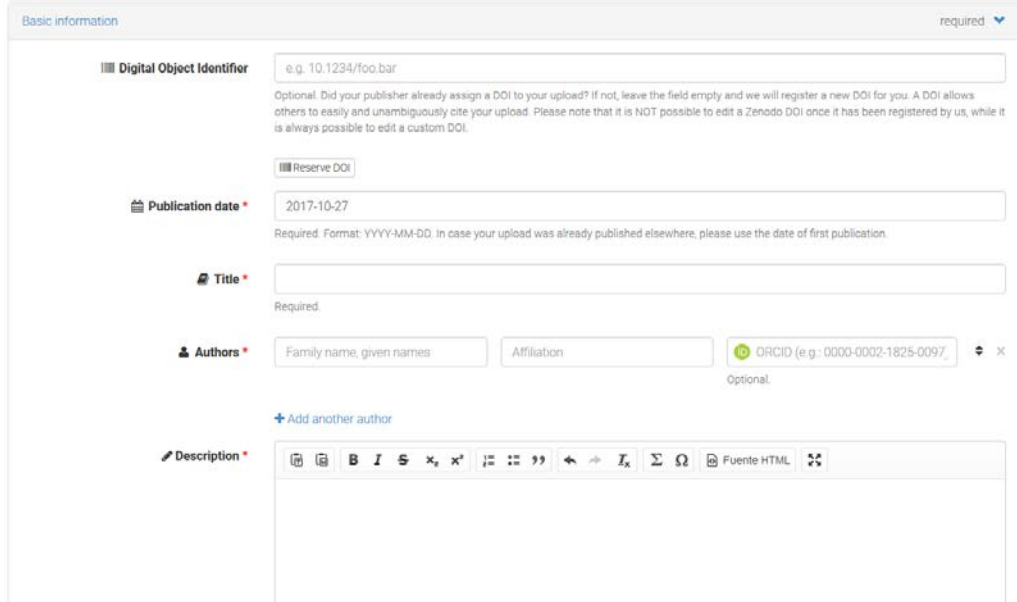
The screenshot shows the Zenodo website interface. At the top, there is a navigation bar with the Zenodo logo, a search bar, and links for 'Upload' and 'Communities'. The user's email 'mianero@fcirce.es' is displayed in the top right. Below the navigation bar, there is a search bar for uploads and a 'New Upload' button. The main content area features a large 'Get started!' heading, a sub-heading 'Make your first upload - all research outputs from across all fields of research are welcome.', and a prominent 'New upload' button. The footer contains a list of links (About, Blog, Help, Developers, Contribute) and logos for funding partners (CERN, OpenAIRE, European Union). It also includes 'Powered by CERN Data Centre & Invenio' and links for 'Status', 'Privacy policy', 'Terms of Use', and 'Support'.


3. Successively the data must be classified according to given categories such as: dataset (i.e., tables of numerical data), image and others:

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4. Finally, the portal prompts for additional meta-data such as authorship of data and sharing policies. The structure of the data-set must be specified here as well:



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Required.

Language

Optional. Primary language of the record. Start by typing the language's common name in English, or its ISO 639 code (two or three-letter code). See [ISO 639 language codes list](#) for more information.

Keywords

[+ Add another keyword](#)

Additional notes

Optional.

License required ▾

Access right *

- Open Access
- Embargoed Access
- Restricted Access
- Closed Access

Required. Open access uploads have considerably higher visibility on Zenodo.

License *

Required. Selected license applies to all of your files displayed on the top of the form. If you want to upload some of your files under different licenses, please do so in separate uploads. If you cannot find the license you're looking for, include a relevant LICENSE file in your record and choose one of the 'Other' licenses available ('Other (Open)', 'Other (Attribution)', etc.). The supported open licenses in the list are harvested from [opendefinition.org](#). If you think that an open license is missing from the list, please contact us.

Communities recommended ▾

Any user can create a community collection on Zenodo ([browse communities](#)). Specify communities which you wish your upload to appear in. The owner of the community will be notified, and can either accept or reject your request.

Communities

[+ Add another community](#)

Funding recommended ▾

Zenodo is integrated into reporting lines for research funded by the European Commission via [OpenAIRE](#). Specify grants which have funded your research, and we will let your funding agency know!

Grants

Optional. OpenAIRE-supported projects only. For other funding acknowledgements, please use the [Additional Notes](#) field.
Note: a human Zenodo curator will need to validate your upload - you may experience a delay before it is available in OpenAIRE.

[+ Add another grant](#)

9.2 Annex B: Details on file formats and standards

Here we will briefly describe and provide additional references related to the format standards that will be used to store and share the project's data. For instance:

- Metadata Standards Directory provided by the Research Data Alliance, can be searched for discipline-specific standards and associated tools.
- EUDAT B2SHARE tool includes a built-in license wizard that facilitates the selection of an adequate license for research data.