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Research data and open access to outputs/results

Version 1 (2023)

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Introduction

Open access to results and data has been a trend in the EU in recent years, which is gradually coming to the Czech Republic as well.

The 2022 amendment to Act 130/2002 Coll., enacted the obligation to publish/provide research data on results funded by state aid for all projects from calls for proposals in research, development and innovation, international calls and public tenders in R&D announced after 9 January 2022.

Therefore, TA CR requires compliance with the legal conditions for the provision of research data after this date in all its programmes. For selected programmes, it also requires open access to selected types of results. It assumes the gradual introduction of mandatory open access in all its programmes. By gradually introducing the principles of open access, TA CR wants to prepare beneficiaries for further research collaboration not only within the framework of European programmes and initiatives. The aim is to apply the common principle in the EU that research results and research data are not published only in justified cases.

The purpose of open access is to make research outputs/results and the data necessary for their validation available to the widest possible audience and as soon as possible after their creation. Open access supports the preservation, possibility of verification or wider use of outputs/results and research data in practice or in subsequent research (also in other fields). It accelerates the achievement of outputs/results and significantly supports innovation. Open access also contributes to transparency and control over the use of state aid, increasing quality, trust, and creativity in research.

The task of TA CR is to support applied research. Therefore, the commercial or other use of the results of projects supported by TA CR is at highest importance in all cases. Project beneficiaries should always first consider whether it is possible to use the outputs/results or the generated data in practice, especially commercially.

1. Open Access to Research Data

Research data means¹ information, other than scientific publications, in electronic form that is collected or created during research or development and is used as evidence in the research process or development or that are generally accepted by the research community as necessary to validate research or development findings and results.

Open access means ensuring free online access by anyone to research data for their further exploitation, use, reproduction, and dissemination. Research data are used to validate the presented outputs/results, contribute to further and faster innovations, and increase the citation of publications. The “as open as possible, as closed as necessary” approach should apply to open data and its sharing, i.e., as open as possible, but closed as necessary, taking into account the interests of the beneficiary. In addition to the openness of data, it is also important to adhere to the FAIR principles when sharing them:

- **Findable** – data can be easily found by humans and machines, it is described by high-quality metadata with a unique identifier.
- **Accessible** – data are stored in a suitable repository and available in open access, with clear information on the conditions and possibilities of using the data, guaranteeing long-term free access.
- **Interoperable** – data are stored in a standardised format and described using controlled vocabularies and standardised expressions.
- **Reusable** – data are sufficiently described and shared under the least restrictive license so that data users know how the data was created, what they describe, and how they can be used.

Beneficiaries should responsibly manage research data generated during their project in accordance with the above principles. High-quality data management improves transparency, efficiency, risk management, organisation, and preservation of data, ensures continuity and consistency during any changes in staff, prevents duplication of activities, and facilitates writing publications and data sharing.

Therefore, the management and provision of research data for projects (not only the data necessary to verify the result published in open access) is now regulated by Act 130/2002 Coll. The obligations listed below shall apply to all projects from calls for proposals, international calls, and public tenders in R&D, with any differences always being indicated.

1.1. Obligations Towards TA CR – Calls for Proposals in Research, Development and Innovation and International Calls

For **calls for proposals** in research, development and innovation and for **international calls**, TA CR has set, on the basis of Act 130/2002 Coll., the following **obligations** for the beneficiary:

1. In the project proposal, describe the method of managing research data and provide information on the availability and method of dissemination of research results and research data, if they

¹ Article 2(2)(o) of Act 130/2002 Coll.

were created with funding from state aid pursuant to this Act, in accordance with the principle that research results and research data are not published only in justified cases;

2. Submit the Data Management Plan together² with the first interim report, which will contain information about;
 - a. which data will be created, processed, or collected;
 - b. what methods and principles of their management will be used with regard to the FAIR principles (findability, accessibility, interoperability, and reusability);
 - c. how the data will be shared and published;
 - d. and in what way will the data be stored during the implementation of the project and preserved after the end of the project;
3. Submit an updated version of the Data Management Plan to the provider as part of the next interim and final report;
4. Provide information about research data to the RIV (box R97³) and update data for 5 years from the end of the project e.g., if the reasons for non-disclosure of data have already passed, e.g., if the result could not be used commercially.

1.2. Differences in Procedures for Tenders in Research, Development and Innovation

For tenders in R&D, the rules given in Chapter 1.1 shall apply with the following differences:

- The first Data Management Plan is submitted by the selected supplier/project manager/beneficiary of funding before signing the Contract.
- Changes to the Data Management Plan are announced by the beneficiary on an ongoing basis (when they occur, not on a regular date).
- The final version of the Data Management Plan is submitted by the beneficiary at the end of the project.

1.3. Which Data Management Plan Form to Use?

- In tenders in R&D, the Data Management Plan form is determined by the contracting authority (TA CR) for each tender.
- For calls for proposals and international calls, beneficiaries may choose between the TA CR form or the translated template of the European Commission for the Horizon Europe programme.

² "For international calls, the submission deadline together with the first interim report is the latest possible. If the international rules state an earlier submission deadline, the beneficiary must comply with this deadline."

³ "A URL link to research data (set of research data) published, for example, in an institutional or thematic archive or repository, which are the result of scientific research activities funded by state aid or co-financed by public and private entities, should be provided. Research data represent a specific category of documents prepared as part of scientific research, namely the outputs of the process of scientific discovery (experiments, surveys, etc.). A persistent link is preferred as the URL."

- For international calls, you may also use the untranslated template of the European Commission for the Horizon Europe programme or another type of form that is determined by the international rules of the call.
- The forms are attached to the call documentation/conditions for participation in the call.
- The form “Information on open access to results and data” shall be used to report open access to research results and data in interim and final reports.

1.4. Publication of Research Data

It follows from the Act that the beneficiary does not have to (but can) automatically publish project data. However, the Act states that if another person requests research data resulting from the project, the **beneficiary must provide the data** whenever:

- the data are created with 100% state aid (also a combination of special and institutional);
- the data are not protected according to the laws governing the protection of the results of copyright, invention or similar creative activity, or which are protected only by a special right of the creator of the database according to another legal regulation of which the beneficiary is the executor; and
- if 12 months have passed since the end of the provision of support⁴.

At the same time, nothing prevents the beneficiary from providing the research data earlier if he decides so.

In TA CR calls for proposals with mandatory open access to selected types of results, the obligation to publish the research data necessary to verify the result with open access applies beyond the scope of the Act, at the latest at the end of the project.

Data are provided free of charge. The beneficiary provides research data and information about them in an open and machine-readable format and under conditions that are objective, reasonable, non-exclusive, non-discriminatory, and do not limit the manner or purpose of subsequent use of the provided research data. (see FAIR data).

Neither the Act nor TA CR determines whether primary data or modified (secondary) data should be provided. It always depends on the customs in a specific field. We recommend publishing such data that you consider to be the most suitable for verifying the result or for further use in the given case.

1.5. Exceptions to the Obligation to Make Data Available

The beneficiary and other project participants **are not obliged to make research data accessible**, if making them accessible would result in unreasonable interference with:

- rights to protect intellectual property;
- privacy and personal data protection rights;
- rights to protect trade secrets, state security or other legitimate interests of the beneficiary (e.g., in the case of the possibility of commercial use).

The beneficiary, who is not obliged to provide information according to Act 106/1999 Coll., as amended,

⁴ According to the explanatory report to the Act, “The length of this period was determined with regard to scientific practice, where the utilisation of research results continues for some time after its completion. The reason for this adjustment is to ensure the protection of the beneficiary’s legitimate interests related to its scientific work, so that thoughts and ideas cannot be taken over before their originator has a chance to process them properly”

and Act 123/1998 Coll., as amended, may refuse to provide research data in cases where research or development was not fully supported from public resources.

The obligation to provide data can be also fulfilled by a link to already published research data.

If open access (to some or all research data) is not provided, beneficiaries must fully justify this in the **Data Management Plan and at least publish metadata** (information about the research data). However, the beneficiary should review at least once a year for a period of 5 years from the end of the support whether the reasons for non-disclosure of research data are still valid. If the reasons have already passed (e.g., the result could not be used commercially), they should publish information about the research data through the research, development and innovation information system.

Metadata of stored research data must be publicly available (to the extent legitimate interests or limitations are protected) and machine-readable in accordance with FAIR principles. Metadata should include the title of the data, full names of creators and contributors, support provider, programme, and project information, and include the publication date, data language, embargo length, and persistent (permanent) identifier (e.g., Digital Object Identifier "DOI"). It is also recommended to include other data such as: license conditions, permanent identifiers of persons, organisations and title of support. Beneficiaries should provide sufficient information through the repository on any additional research results or tools and instruments needed to reuse or validate research data.

TA CR does not define a specific method of data storage, type of repository, etc.; however, it prefers the use of already existing solutions, ideally with a European or at least nationwide reach.

2. Open Access to Outputs/Results and Research Data of Outputs/Results

In some calls for proposals and international calls, TA CR may also require, beyond the scope of Act 130/2002 Coll., mandatory open access to the results and research data necessary to verify these results. Open access is generally understood to mean ensuring permanent, immediate, and free online access to the results of science, research and innovation for any user.

The types of results to which this obligation applies are listed in the call documentation of the relevant call for proposals or international R&D call. These are mainly publication results for which publication in the form of open access is simple or the obligation to publish them flows directly from the definition of the given type of result.

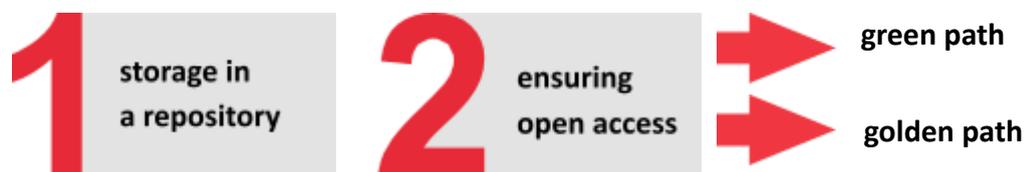
In these cases, the beneficiary is obliged to ensure open access to all outputs/results specified in the call documentation and to all research data related to such outputs/results (so-called "underlying data" and metadata). In the case of results of other types for which disclosure is technically easy (an article in a collection, a chapter in a professional book, etc.), disclosure is particularly welcome and recommended.

In the case of international calls, the rules established at the international level take precedence in the event of any conflict.

The output/result together with the underlying data (obtained as part of the project solution) must be made available without undue delay. The exception is the situation where disclosure would make it difficult or even preclude its use, usually commercial, but theoretically possibly also others (e.g., in follow-up research or teaching). In which case, it is necessary to document why and for how long the

aforementioned difficulty or use can realistically be expected. In such a case, publication can also take place with a time delay (6 months or 12 months in the case of social sciences and humanities), but no later than by the end of the project solution. Output/outcome data should be findable, accessible, interoperable and reusable ([FAIR](#)).

2.1. Open Access Publishing Process



The condition of open access is considered to be met if both of the following steps are met:

- 1. The output/result is saved in a repository** – the beneficiary must **save** the machine-readable final version of the text (i.e., the publisher’s version, or postprint) in the repository without unnecessary delay after completing the output/result. The beneficiary should store underlying data in the repository at the same time as saving the output/result.
- 2. Open access to the output/result is ensured** – the beneficiary must **ensure open access (publish)** in one of the following ways:
 - 2.1.** Auto-archiving (the green path of open access) - Making the full text available in an open, trusted repository within 6 months (12 months in the case of social sciences and humanities) from publication (of an article or similar publication results) or from completion (for other types) of the result, but by the end of the project at the latest. For this purpose, the beneficiary may conclude an addendum to the publication contract with the publisher, an example can be found [here](#).
 - 2.2.** Publishing in an open journal (the golden path of open access) - Immediate open access through the publication of an article in an “open journal”. The publisher usually requires the author to pay a fee (an article processing charge - APC).

Steps 1 and 2 may or may not occur at the same time, depending on the open access path selected in step 2, whereby in the case of the green path (2.1), publication of the stored output/result depends on the embargo period specified by the publisher. Even when selecting the golden path, it is necessary to deposit the output/result in the repository to ensure its long-term preservation.

Due to the differences between the fields, TA CR does not determine which type of license or type of access (green or gold) the beneficiary should prefer.

The beneficiary must enable open access to the bibliographic information (metadata) of the published output/result in the selected repository. **Metadata** should include the title of the publication, full names of creators and contributors, information about the support provider, programme, and project, and indicate the date of publication, the language of the output/result, the length of the embargo, and a persistent (permanent) identifier (for example, a Digital Object Identifier “DOI”). It is also recommended to include other data such as: license conditions, permanent identifiers of persons, organisations, and support. The metadata should also contain permanent identifiers to other outputs (e.g., research data) or a permanent link to any other tools needed to verify the conclusions of the output/result.

Any publication costs associated with publishing in open journals or publication platforms or costs associated with data preparation and storage shall be eligible costs for the duration of the project.

It is common for **intellectual property rights** to pass to the publisher upon publication. One of the principles of open access is for **the author to retain these rights**. When publishing, it is necessary to request the retention of these rights and enter into a contract that allows this.

The TA CR recommends that the beneficiaries do not transfer the copyright to the outputs/results and grant the publisher only the necessary license for publication. TA CR further recommends publishing outputs/results under public licenses, e.g., [Creative Commons](#) (CC-BY), which allows others to access, exploit, use, disseminate, and reproduce the research work and data and works derived from it. The only limitation is the attribution of the author.

2.2. Additional Obligations Regarding Open Access

In addition to the obligations set out in Chapter 1, **beneficiaries** must:

- include information on open access results in the Data Management Plan;
- store the research data used to validate the output/result (including metadata) in a trusted repository (if possible together with the result to which they relate);
- in accordance with the Data Management Plan, ensure open access to the data as soon as possible under the conditions of an appropriate public license, or their non-disclosure, or access restrictions, stated and justified in the Data Management Plan;
- together with the Data Management Plan, report information on results and data with open access.

The beneficiary and other project participants **are not obliged to make research data available**, if making them available would result in unreasonable interference with:

- protection of intellectual property rights;
- privacy and personal data protection rights;
- rights to protect trade secrets, state security, or other legitimate interests of the beneficiary (e.g., in the case of the possibility of commercial use).

If open access (to some or all research data) is not provided, beneficiaries must fully justify this in the Data Management Plan and the Open Access Results and Data Information form.

3. Data Management

Data management recommendations:

- Update the Data Management Plan every year so that it describes and reflects the real progress of the project solution.
- For calls for proposals, update the Data Management Plan on an ongoing basis and report changes to the provider.
- Create a backup or use online synchronisation.
- Describe the metadata data in a [standardised format](#) as soon as they are collected.
- Store data in an open format in trusted repositories as soon as possible.
- In order to store research data in the open mode, we recommend using branch, university, and

institutional repositories.

Processing of the Data Management Plan is facilitated by special **platforms** (so far only in English), which, among other things, allow the achievement of the FAIR principles to be verified, for example:

[DMPonline](#)

[Data Stewardship Wizard Argos](#) of the OpenAIRE project

You may also take inspiration from the DCC [checklist](#) when creating a Data Management Plan. Advice on data management can be found at <https://fairsharing.org/>

You can check the principles of FAIR here: in Czech [Jak FAIR jsou má výzkumná data](#) / in English [How FAIR are my data?](#)

4. Additional Information

Open repositories

Beneficiaries may use the Czech [NUŠL](#) repository (it will be replaced by the National Repository, which will receive a wider range of outputs), the Academy of Sciences [ASEP](#) repository (only for employees of the Academy of Sciences of the Czech Republic), or [branch-specific repositories](#), e.g., [ČSDA](#), [Lindat/Clarín repository](#). Among the international ones, the best-known European multidisciplinary repository is [Zenodo.org](#).

A list of suitable open repositories is available, for example, in the international database [OpenDOAR](#), the register of open repositories [ROAR](#), the register of data repositories [re3data](#), or in the catalogue of databases [FAIRsharing](#).

Other data repositories

[GitHub](#)

[EUDAT B2SHARE](#)

[Databib](#)

[Dryad](#)

Open journals

A suitable open journal may be found in the citation registers [Web of Science](#), [Scopus](#), or in the international database of open journals [DOAJ](#).

The [SHERPA/RoMEO](#) service provides information on open access for individual publishers of scientific journals.

Other useful educational links

[OpenAIRE](#) (EN)

[FOSTER project E-learning](#) (EN) [Openaccess.cz](#) (CZ/EN) [Open data](#) (CZ)

[Open Science na MUNI](#) (CZ/EN)

[Open Science Support Centre at Charles University](#) (CZ/EN)

5. Glossary of Terms

Open Science – a concept promoting greater transparency, openness, and collaboration in research based on the dissemination of knowledge using digital and collaborative technologies. Open science involves the sharing and reuse of scientific methodology, data, tools, and materials, and the availability of research results to researchers and the general public (particularly when funded by state aid)

Open access – permanent, immediate, and free online access to full texts of scientific publications/research data

Open data – data freely available via the Internet for their further extraction, use, reproduction, and dissemination

Repository – a data repository, online archive for scientific publications or research data

Open Repository – a repository for documents and data in the open access mode

Open journal – professional / scientific journal freely available in the open access mode

Embargo – the period from the publication of an author's work during which the publisher prohibits its publication in the open access mode

Research data – information, with the exception of scientific publications, in electronic form that is collected or created during the course of research or development and is used as evidence in the research or development process or that is generally accepted by the research community as necessary to validate research findings and results or development

Metadata – bibliographic data used for the identification and searchability of datasets/publications/results

Data management – a group of activities associated with data management

Data Management Plan – a formal document describing the management cycle of data collected, processed, or generated during the solution and after the end of the project