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*The plan should not be longer than 1–2 pages (Plans drafted with DMP Tuuli are slightly longer). If your project will not produce any research data to be stored, please provide a brief account of the situation in the appendix. You should submit the appendix even though no data will be produced. The information in the appendix is completed where applicable.*

*Draft the data management plan according to the structure below or by using the data management planning tool Tuuli (DMPTuuli). The questions and guidance in DMPTuuli are similar as those provided here, but DMPTuuli also includes additional guiding instructions, so using it is recommended!*

*NOTE difference between Research plan and Data management plan:*

<b>Research Plan</b>	<b>Data Management Plan</b>
Research material to be used and its significance for the research project. Justification for the research material, how the data will be collected and used.	Data management, storage, access and rights
Ethical issues that concern data collection and research implementation	How will ethical issues concerning data management (e.g. sensitive personal information, third-party access to data) be taken into account? How will copyright and IPR issues be managed?

## **How to use DMPTuuli?**

Sign up to the DMPTuuli ([www.dmpuuli.fi](http://www.dmpuuli.fi)) system and confirm the confirmation email.

Log in to the system and choose: Create plan.

When creating an Academy of Finland application, choose:

- **Funder:** Academy of Finland
- **Organisation:** University of Eastern Finland
- **Other sources of guidance:** For additional guidance, choose Finnish DMP guidance

Choose: Create plan.

Answer each question carefully. You can also share your DMP and add notes to it. By exporting the completed DMP you can save your plan (e.g. docx, pdf) and add it as an appendix of your funding application.

For more information:

Data Management Plan / UEF

<http://www.uef.fi/en/web/open-uef/aineistonhallintasuunnitelma>

Research Data Management: Data management plan / University of Helsinki Library

<http://libraryguides.helsinki.fi/rdm/dmp>

**Ohjeet suomeksi Suomen Akatemian sivulla**

## **Data Management Plan**

**PI:**

**Research title:**

**Application number:** (you get this when you have opened the application in the Academy online service, can be seen in the page Own applications)

**Date of the Data Management Plan:**

### **1. Types of data**

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*The qualities of data and the choice of file formats support researchers' research activities and collaboration with other scholars. Both are important information regarding the best practices in opening and sharing research data. Use standardised or validated protocols of data collection and standard data types to ensure data sharing and reuse. The types of data to be stored and archived depend on the type of research and the scientific discipline. Details on the data collection and analyses should be described in research plan.*

## 1.1 What kinds of data are collected or reused?

*Give a brief description of your research data including the data you are collecting and any existing data that you will reuse. Outline how the data will be collected. Outline the types of data (e.g. survey, interview, observation, machine or instrument collected, models, physical samples) that are expected to be used.*

*Tips for best practices:*

- *You do not need to explain your methods in a DMP again, you can refer your research plan.*
- *Use standard data collection methods or validated protocols, if these exist for your research field.*
- *By reusing data, produced by you or others, you will avoid duplicating work already done.*

**UEF Guidelines:**

**Questions to consider:**

- *What data will be generated or re-used in this research? What kind of data? (Consider the generated/re-used data especially from the point of view of personal or sensitive information and privacy protection).*

## 1.2 What are the file formats of the data?

*File format is a primary factor in accessing and reusing your data in the future. List the file formats of the data (e.g. .csv, .txt, .mp3).*

*Tips for best practices:*

- *Consider your research field's and the collaboration partner's usual methods for presenting metadata.*
- *When listing the data formats you will be using, make sure to include software necessary to view the data.*
- *Use software and formats based on open standards to enable data reuse, interoperability and sharing.*

**UEF Guidelines:**

**Questions to consider:**

- *Which formats - paper, digital, image, audio, other - will the data be in?*
- *Are you using data formats and software that enable global interoperability and data sharing and that also ensure the long-term preservation of data, e.g. non-proprietary software and software based on open standards?*

More information:

### **Storing practices and data formats recommended in the long-term preservation of data**

The future preservability and usability of data must be ensured even when technology changes. Data should be saved in formats that are non-proprietary and unpatented by nature, in accordance with the documented standards, as well as the general practices of the academic communities, open, unencrypted, uncompressed and using a character encoding standard (e.g. ASCII, Unicode). Such data formats are, for example, ODF data formats (*Open Document Format for Office Applications*, instead of e.g. Word documents), data formats according to the ASCII character encoding standard (instead of Excel), with videos MPEG-4 format (instead of QuickTime), with pictures TIFF and JPEG2000 (instead of GIF or JPG formats), XML or RDF (instead of RDBMS format).

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A good practice is to store a copy of the original files in the original format. For the long-term preservation of data, the files must be saved in the recommended form (see below for details). When transferring files to the data archive they can be converted into a newer file format in order to ensure their future usability.

From the point of view of the long-term preservation of data, different software's own data formats might not be suitable. If converting files into the recommended form is not possible for some reason, the long-term preservation of data or its future usability cannot be guaranteed.

Source: <http://libraries.mit.edu/data-management/store/formats/>

### **Recommended long-term preservation formats**

#### **Tables containing a lot of metadata**

Table form data with extensive metadata should be saved in SPSS supported POR form (.por), as separated text and command files, i.e. setup file (SPSS, Stata, SAS software) or as a structured text file, such as DDI XML file.

#### **Tables containing little metadata**

Table form data with minimal metadata should be saved as a separated text file in CSV or TAB form (.csv, .tab).

#### **Geographic information (geospatial data)**

Geographic information in vector and raster form should be saved as ESRI Shapefile files (.shp, .shx, .dbf, .prj, .sbx, and .sbn), geo-referenced TIFF files (.tif, .tfw), CAD files (.dwg), tabular GIS data files, and GML files (*Geography Markup Language*, .gml).

#### **Textual data**

Formatted textual data should be saved in RTF form (*Rich Text Format*, .rtf). Unformatted textual data can be saved in TXT form (.txt) in accordance with the character encoding standard ASCII. Text according to an appropriate Document Type Definition (DTD) or schema is best saved in XML format (.xml).

#### **Image data**

Recommended long-term preservation format for images is TIFF (.tif).

#### **Audio data**

Recommended format for audio data is FLAC (*Free Lossless Audio Codec*, .flac).

#### **Video data**

Recommended formats for video data are MPEG-4, OGG and Motion JPEG2000 (.mp4, .ogv, .ogg, .mj2).

#### **Documentation and scripts**

Recommended formats for documentation and scripts are RTF, PDF, XHTML, HTML or OpenDocument Text (.rtf, .pdf, .xhtml, .html, .odt).

Source: <https://www.ukdataservice.ac.uk/manage-data/format/recommended-formats>

Contact information: [opendata@uef.fi](mailto:opendata@uef.fi)

## 2. Documentation and quality

*Standardised data documentation and quality measures of data throughout the whole research project create effective links between the particular study and the scientific community, especially in order to enable the validation of results presented in scientific publications and the reusability of shared data. The data produced or used in the project need to be discoverable, identifiable and locatable with metadata.*

### 2.1 How will the data be documented?

*Data documentation explains terms, variable names, codes or abbreviations used. Consider what information is needed to find, use and interpret the data in the future and describe the types of documentation that will accompany the data.*

*Metadata provides standardised, structured information explaining the purpose, origin, time references, geographic location, creator, access conditions and terms of use of a data collection.*

*Tips for best practices:*

- *Consider how the data will be organised during the project; mention, for instance, file naming conventions, version control and folder structure.*
- *At the start of the project you might not know what metadata standards you will be using, but you need to ensure that “all variables will be described and suitable metadata standards will be used, if available”.*

#### UEF Guidelines:

##### Questions to consider:

- *What metadata standards will you use? E.g. Dublin Core (DC), Federal Geographic Data Committee (FGDC), Directory Interchange Format (DIF), Data Documentation Initiative (DCI) etc.*
- *Is your data and associated software discoverable and identifiable by means of a standard identification mechanism (e.g. Digital Object Identifier, DOI)?*

##### More information:

Research Data Alliance, list of metadata standards by subject  
<http://rd-alliance.github.io/metadata-directory/subjects/>

Digital Curation Centre, Disciplinary Metadata Standards  
<http://www.dcc.ac.uk/resources/metadata-standards>

Metadata / UEF Library  
<http://www.uef.fi/en/web/kirjasto/metadata>

[Data Description and Metadata / Finnish Social Science Data Archive \(in Finnish\)](http://www.fsd.uta.fi/aineistonhallinta/fi/aineiston-kuvailu-ja-metadata.html)  
<http://www.fsd.uta.fi/aineistonhallinta/fi/aineiston-kuvailu-ja-metadata.html>

### 2.2 How will the consistency and quality of data be controlled and documented?

*Data quality control ensures that no data will be lost or accidentally changed during the research process. Quality control of data is an integral part of all research and takes place during data collection, data entry or digitisation, and data checking.*

*Tips for best practices:*

- *Explain how the data collection methods will affect the quality of data. Remember that documenting in detail how data are collected provides evidence of data quality.*
- *Quality control measures can include using standardised methods and protocols for capturing observations, alongside recording forms with clear instructions, taking multiple measurements, observations or samples and calibrating instruments.*

### 3. Storage and backup

*Arrangements for storage and backup are important themes during the research process, especially if the amount of data is exceptionally large or the various data collected create a complex material. Applicants should describe their plans for securely and reliably storing data during the whole life cycle of the research project.*

#### 3.1 How will the data be stored and backed up?

*Attention should focus on the lifespan and subsequent use of the materials throughout the research process. Researchers should ensure the storing of their data both during and after the research process. Consider who will be responsible for backup and recovery. If there are several researchers involved, create a plan with your collaborators and ensure safe transfer between participants.*

*Tips for best practices:*

- *The use of robust, managed storage provided by your organisation's IT support is preferable.*
- *Estimate the volume of the needed storage space.*
- *Do you have sufficient storage or will you need to include charges for additional services (if the amount of data is exceptionally big)?*
- *Note that using secure network drives is a more professional alternative than using hard drives.*

#### **UEF Guidelines:**

##### IT services and information security at the UEF

The UEF IT services produces most of the IT services for researchers, e.g. workstation services, network connections and server resources. Besides the IT services produced by the UEF, the researchers can use some external services, e.g. from CSC.

The UEF information security guides must be complied with in the management of research data. The UEF IT services are in charge of the technical implementation of information security. Information security updates and malware protection of the software on the university's workstations are administered centrally. Laptop computers have encrypted hard drives. The information security of servers and transformers is secured with regular updates and technical security scans. The UEF IT services are responsible for the centralised backing up of the university's servers and the information on them. The management of user accounts is centralised and automated. The user accounts of staff members will remain active as long as the employment contract is in effect. All units have access to lockable information security containers for destroying papers and the process of decommissioning workstations includes overwriting the information on the hard drives.

##### Research data security

The university's general instructions on information security in information processing also applies to research data. (<https://www2.uef.fi/en/intra/tipa/aineistojen-kasittelyohjeet>)

Research data is divided into three different groups based on the confidentiality and publicity requirements: high protection level, base protection level and public information.

##### High protection level

- information comparable to patient records or otherwise related to health conditions and other sensitive personal data (e.g. client relationship with social welfare), research subject's ex-directory phone number or contact information

##### Base protection level, for example:

- private business or professional secrets of third parties
- protected intellectual property rights (IPR) of the university
- business or professional secrets of the university

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- personal identification code and other similar personal data (e.g. contact information and family status)
- confidential information related to studies and study performance (e.g. test or examination results, student welfare, or exemptions granted from teaching)
- thesis or research plans, and technological or other development work
- research subject's annual income, net assets and other information related to a person's financial standing
- information security and other security and safety precautions undertaken in order to protect persons, facilities and IT systems
- procurement or tender documents until they enter the public domain
- information related to accounting or funding
- information released to the statistics authority for statistical purposes
- recorded information and documents at the stage of internal preparation, drafts and memoranda

A higher level of protection can be applied to research data by one's own discretion or if the contract or commission requires it.

#### Research data storage service

Principally the base protection level or public research data is saved to Microsoft Office365 environment acquired by the university and situated within the EU. High protection level research data is saved to LocalDrive site in the university's own server rooms.

Personal storage/workspace:

- for base protection level or public research data: Office365 OneDrive for Business, storage capacity of 1 TB
- for high protection level research data: personal LocalDrive, storage capacity of 2 GB

OneDrive for Business storage space is automatically created to all users. Researcher can request for the LocalDrive storage space from: <http://eservices.uef.fi>.

Research project's or department's storage space:

- for base protection level or public research data: Office365 Sharepoint workspace, no storage capacity limits
- for high protection level research data: project's or department's LocalDrive workspace, storage capacity of 1-16 GB

Research project can request for the O365 Sharepoint and/or LocalDrive workspace from: (<http://eservices.uef.fi>). Office365 OneDrive for Business and Sharepoint services can be used with a remote access connection through a web browser and mobile devices. The service providers' environments are fault-tolerant but the researchers themselves must take care of the backups and long-term storing of research data.

LocalDrive services are situated in the university's own server rooms and can be accessed from the workstations within the university network or from outside the university network through the VPN connection with workstations administered by the university. The UEF IT services takes care of the daily backups of the material on the university's own servers.

Aforementioned services are sufficient for most researchers as the basic storage services of the research data but it is possible that they are not sufficient for all research purposes due to the features

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or capacity. If there are some special needs regarding the storage services, the UEF IT services should be contacted in order to find a suitable solution.

If a researcher uses research data produced or stored by others, s/he must describe the key storing principles or refer to the data processing instructions of the organisation in question.

According to the UEF's data policy, research data should be made openly available in cooperation with relevant national and international actors (a data repository of openly accessible research) if possible. Remember ethical and legal issues.

Data management services / Bioinformatics center, UEF

<http://www.uef.fi/web/bioinformatics/services>

Research data storage service / Open science, CSC

<http://openscience.fi/ida>

### 3.2 How will you control access to keep the data secure?

*During the research project you will want to keep your research data safe and secure. You will want to determine who has access to your data and what they are authorised to do with it. Providing unauthorised people with access to the data may be unlawful. Access controls should always be proportionate to the kind of data and level of confidentiality involved.*

#### UEF Guidelines:

##### Public and base protection level

- personal OneDrive, user can define permissions
- O365 sharepoint for groups/teams/units, site owner/administrator can define permissions

##### High protection level

- personal LocalDrive, cannot be shared
- LocalDrive for groups/teams/units, folder permissions are defined user-specificly

#### More information

<http://eservices.uef.fi>

## 4. Ethics and legal compliance

*Ethical questions and intellectual property rights are key issues regarding the limitations on storing and opening the research data. The Academy of Finland aims to maximise access to data and the reuse of data, but reminds that research data should be closed when necessary. Researchers need to find a balance between openness, privacy concerns, commercialisation and IPRs.*

*Make the necessary plans and arrangements to solve possible ethical or legal issues that could affect data sharing. Details of the ethical issues, ethical committee statements and use of laboratory animals should be described in the research plan. Here, describe only ethical aspects as regards data management.*

### 4.1 How will ethical issues be managed?

*Researchers obtaining data from humans are requested to maintain high ethical standards and comply with relevant legislation. If you manage personal or sensitive information, how will you ensure privacy protection and data anonymisation? Informed consent is an ethical requirement for most research. It must be considered and implemented throughout the research lifecycle, from planning to publication, and should include making provisions for sharing and future use of data.*

*Tips for best practices:*

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- *If your research is to be reviewed by an ethical committee, outline how you will comply with the protocol (i.e. remove personal or sensitive information from your data to ensure privacy protection before data sharing or use restricted access procedures). See, for example, [the Finnish Advisory Board on Research Integrity](#) for more information about the responsible conduct of research.*

### UEF Guidelines:

First of all, consider if your research needs an ethical review. Committees on research ethics carry out reviews of the ethical aspects of research projects and studies and issue statements on their ethical acceptability. For a research carried out at the UEF, the ethical review is done either by the research ethics committee of the North Savo Hospital District or the UEF's Committee on Research Ethics. The ethical review should be requested only from one ethical committee for a single research project (in a research consortium you have to decide from which university's/hospital's ethical committee the review is requested).

When a research project in health sciences or medicine intervenes with the physical integrity of a person, the project or study is required by law to undergo an ethical review by the ethics committee of the hospital district. Research projects and studies in medicine and health sciences carried out at the UEF are reviewed by the research ethics committee of the North Savo Hospital District. <https://www.psshp.fi/web/en/research/research-ethics-committee>

There are certain rules about when research projects in the humanities and social and behavioural sciences are required to undergo review on research ethics, see instructions from: <http://www.uef.fi/en/research/instructions-and-forms>. The Committee on Research Ethics of the University of Eastern Finland carries out reviews and issues statements on research projects and studies in the humanities and social and behavioural sciences.

The UEF's Committee on Research Ethics carries out ethical reviews for all disciplines if necessary for other reasons, e.g. if the subject, funder or partner so requires or if the results are to be published in a scientific journal which requires an ethical review.

If you plan to open your research data, you have to request an informed consent from the study subjects before you begin your research.

<http://www.uef.fi/en/web/open-uef/lait-ja-eettiset-ohjeet>

## 4.2 How will copyright and IPR issues be managed?

*Indicate who will own the data and who can give permission to reuse the data. If you use third-party data, consider copyright issues and permissions to reuse the data.*

*Tips for best practices:*

- *Consider the relevant funding agency, institutional or departmental policy on copyright or IPR.*
- *It is recommended that research data created by a research project is available for reuse under Creative Commons or other relevant licences. The recommended CC licence for open science is CC BY.*

### UEF Guidelines:

#### Questions to consider:

- *How will responsibilities for data management and costs be split across partner sites in collaborative research projects?*
- *It is recommended that research data created by research project is available for re-use, e.g. under Creative Commons or relevant licence. The recommended CC licence for open science is CC-BY license.*



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- *Have you gained consent for data preservation and sharing?*
- *How will sensitive data be handled to ensure it is stored and transferred securely?*
- *How will you protect the identity of participants (e.g. via anonymisation or using managed access procedures)?*

According to the UEF's rules for concluding agreements, the ownership and access rights in the research data must always be agreed upon before beginning the research. In addition, the legislation, terms and conditions of the funder and agreements, and limitations in the processing, publishing and transferring the data must be taken into consideration. The findings of a research, especially commissioned research, carried out at the university belong to the university in the extent that the legislation and each commissioned research's funding terms and conditions and/or agreements require. More detailed instructions and principles for concluding an agreement can be found from: <https://www2.uef.fi/en/intra/tip/sopimussaannot>

Before research data is opened, you must find out if the access rights to the research data in question are extensive enough to enable making it openly available. The access rights are extensive enough when you have the right to produce copies of the research data, process it and transfer the access right to a third party. In practice it is best to agree on the right to make the research data in question open for everybody. Even in that case the openness does not apply to the privileged or otherwise confidential information or background material of the parties to an agreement. The agreement is made when the project starts or the funding has been confirmed.

Before research data is opened, it must be licensed. Licensing means that access rights to the research data are given to other users. When opening research data, the access rights are granted through licensing the data with a Creative Commons licence (CC licence). Having a Creative Commons licence means that some of the rights belonging to the creator are given to any user of the data. This enables open use of the research data. The University of Eastern Finland recommends that the research data is licensed with a Creative Commons licence CC-BY 4.0. Using the licence in question means that re-users must always credit the original author when using the research data. The licence allows the data to be edited and to be used for both research and commercial purposes.

For more information on the Creative Commons licences and help for the licensing of research data: <http://creativecommons.fi/lisenssit/>  
<https://creativecommons.org/licenses/?lang=en>

<http://www.uef.fi/web/open-uef/lait-ja-eettiset-ohjeet>

## **5. Data sharing and long-term preservation**

*Research data are important outputs of the public research funding provided by the Academy of Finland. Therefore, open access to all publicly funded data is the default policy. Access and sharing of data helps increase the scope and outcomes of scientific discoveries, often beyond the initial boundaries of the original research project. Open data compilations are also merits for the scholars and the research team that have collected, stored and opened them.*

*Applicants should describe their plans for preserving the data after the project as well as specify the intended established and safe data repositories, data archives or databases.*

### **5.1 How, when, where and to whom will the data be made available?**

*Describe whether you are able to share all data or whether you share your data only partially and for how long. If your data or part of them cannot be shared, explain why. The reasons may include confidentiality issues, trade secrets or ownership issues (licence, copyright). Sometimes data cannot be shared due to the unreasonable effort required for data sharing (e.g. legacy data or big volumes of analogical data).*

*Tips for best practices:*

- Consider data sharing both during and after the research.
- The openness and sharing of research data promote its reuse.
- When sharing your data, it is recommended that the data be available for re-use, for example, under Creative Commons or other relevant licences. The recommended CC licence for open science is C BY.
- There are different solutions for long-term preservation and sharing.
- Use persistent identifiers (PID) to enable access to the data via a persistent link (e.g. DOI, URN).

**UEF Guidelines:**

According to the UEF's data policy, research data should be made openly available in cooperation with relevant national and international actors (a data repository of openly accessible research) if possible. Remember ethical and legal issues.

*Some information about persistent identifiers:*

A persistent identifier (PID) is a long-lasting reference to a digital resource. When a persistent identifier (usually an internet link) is assigned to a digital publication, it receives a unique identifier, e.g. URN or DOI. PIDs to research data can be acquired e.g. via Etsin research data finder service or via data repositories.

• *DOI (Digital Object Identifier) – an identifier that becomes actionable when embedded in a URL. DOIs are very popular in academic journal publishing. They are resolved at: <http://dx.doi.org>. Resolution depends on HTTP redirection and the Handle identifier protocol, and can be managed through an API or a user interface. Annual fees apply to each DOI.*

• *Handle – an identifier that becomes actionable when embedded in a URL. Handles are resolved at: <http://handle.net>. Resolution depends on HTTP redirection and the Handle protocol, and can be managed through an API or a user interface. Annual fees apply to each local Handle server.*

• *URL (Uniform Resource Locator) – the typical "address" of web content. It is a kind of URI (Uniform Resource Identifier) that begins with "http://" and consists of a string of characters used to identify or name a resource on the Internet. Such identification enables interaction with representations of the resource over a network, typically the World Wide Web, using the HTTP protocol. Well-managed URL redirection can make URLs as persistent as any identifier. Resolution depends on HTTP redirection and can be managed through an API or a user interface. There are no usage fees.*

• *URN (Uniform Resource Name) – an identifier that becomes actionable when embedded in a URL. Resolution depends on HTTP redirection and the DDDS protocol, and can be managed through an API or a user interface. A browser plug-in can save you from typing a hostname in front of it. There are no usage fees.*

Before research data is opened, it must be licensed. Licensing means that access rights to the research data are given to other users. When opening research data, the access rights are granted through licensing the data with a Creative Commons licence (CC licence). Having a Creative Commons licence means that some of the rights belonging to the creator are given to any user of the data. This enables open use of the research data. The University of Eastern Finland recommends that the research data is licensed with a Creative Commons licence CC-BY 4.0. Using the licence in question means that re-users must always credit the original author when using the research data. The licence allows the data to be edited and to be used for both research and commercial purposes.

For more information on the Creative Commons licences and help for the licensing of research data:  
<http://creativecommons.fi/lisenssit/>  
<https://creativecommons.org/licenses/?lang=en>

## 5.2 How and where will the data with long-term value be made available?

*The aim of long-term preservation is to store and keep data usable and comprehensible for tens or even hundreds of years. Data selected for long-term preservation will be submitted to a data repository or data archive. Long-term preservation will ensure your data can be found, understood, accessed and used in the future for generations to come.*

*Tips for best practices:*

- *Briefly describe what data to preserve and for how long, and what data to dispose of after the project.*
- *Remember to check funding agency, disciplinary or national recommendations for data repositories, data archives or data banks.*
- *Use persistent identifiers (PID) to enable access to the data via a persistent link (e.g. DOI, URN, Handle).*

### UEF Guidelines:

#### Questions to consider:

- *Have you made arrangements for the long-term storage and preservation of your data (both physical and digital collection items)?*
- *If there are costs associated with depositing your data in a digital repository, or otherwise ensuring their long-term preservation, do you have funding to cover those costs?*
- *How will your data be destroyed if necessary?*
- *If you allow others to re-use your data, how will the data be discovered and shared?*
- *Have you checked to see if your funder has any sharing requirements?*
- *Address the intended audience of your dataset. Who will use it now? Who will use it later?*

The UEF's data policy defines principles of promoting open science and data sharing at the UEF. According to the UEF's data policy, research data relating to published findings obtained through public funding are open whenever this is possible in view of the agreements concluded (ownership, access rights, immaterial property rights and non-disclosure), legislation and the principles of research ethics, while not compromising the interests of the university. The Principal Investigator is responsible for making sure whether the research data can be made openly accessible. The costs of making the data openly available must be taken into consideration already in the research and funding plan.

The UEF offers its researchers storage services for research data and, in cooperation with national and international actors, a data repository of openly accessible research. Open databases maintained by others can be used within the framework allowed by legislation, the agreements concluded, the terms of funding and the ethical principles. In these cases, it must be ensured that the use of such databases does not cause any limitations to the research data's ownership or access rights.

The UEF uses international and national services to open research data. Research data should be made openly available in cooperation with relevant national and international actors (a data repository of openly accessible research). A researcher can select the most appropriate actor for data sharing. Please remember to include data storage and sharing costs in your funding plan.

According to the UEF's data policy, if the research data involves rights of third parties, the research data is not, as a rule, made openly available. In general, research involving patient data is confidential and thus not made openly available.

How long to store? According to the UEF's archive policy, research data and documentation (notebooks/laboratory books, collections, records, questionnaires, interviews etc.) from all projects should be stored for 10-25 years in a paper or electronic format. Data and documentation from research

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projects, which can be considered to be historically significant, should be archived permanently in the UEF's archive. All research plans and reports are to be stored permanently in the UEF's archive. Research data and documents in paper format should be destroyed in a shredder.

Reliable erasing of the hard drives of obsolete devices is included in the leasing agreements. If a computer contains highly confidential information, it should be delivered to the UEF IT services. In which case the UEF IT services will overwrite the information on the hard drive before the device is returned to the leasing company.

Electronic media (flash drives, hard drives, CDs etc.) that need to be destroyed can be delivered to the UEF IT services for disposal.

Where to store? Research materials and data in a paper format should be kept in a locked space at the university. Materials should be stored at the unit concerned during the research and 10 years after the collection of the data (after 10 years, materials are to be sent to central archive of the UEF, if needed). For research data in electronic forms, please check the UEF IT services and data storage recommendations (See the UEF Guidelines from section 3.1.). It is also recommended to take additional copies of the data and keep them in a locked space and/or encrypt the copies. There are national services (CSC services) available for the long-term preservation of data.

The UEF uses national and international services to open research data. The research group can decide on an appropriate data opening service.

Clarify also how you will destroy/store your research materials according to the instructions of your research methodology (e.g. standard operating procedure of your laboratory, instructions from biobank etc.).

More information:

- Digital Curation Centre <http://www.dcc.ac.uk/resources/how-guides-checklists/where-keep-research-data>
- Links to the data archives <http://www.uef.fi/web/open-uef/tietoarkistot>

### **5.3 Have you estimated costs in time and effort to prepare the data for preservation and sharing?**

*Tips for best practices:*

- Remember to mention that you will specify your data management costs in the budget.
- Will you need specialist expertise to manage, preserve and share the data?
- Do you have sufficient storage or will you need to include charges for additional services?
- Consider if additional computational facilities and resources need to be accessed, and what will be the costs associated with this.
- How will responsibilities for data management and costs be divided between partner sites in collaborative research projects?

**UEF Guidelines:**

According to the UEF's data policy, the costs of making the data openly available must be taken into consideration already in the research and funding plan.

### **UEF guidelines for data management**

Rules for concluding agreements in the name of UEF  
<https://www2.uef.fi/en/intra/tip/sopimussaannot>

17.3.2017

UEF publishing and data policy

<http://www.uef.fi/en/web/open-uef/uef-n-julkaisu-ja-datapolitiikka>

Archive formation plan (in finnish only, more information kirjaamo@uef.fi):

<https://www2.uef.fi/fi/intra/kirjaamo/arkistonmuodostussuunnitelma>

UEF information security rules

<http://www.uef.fi/en/web/tipa/tietoturva/tietoturvasaannot>

UEF general instructions on information security in information processing

<https://www2.uef.fi/en/intra/tipa/aineistojen-kasittelyohjeet>

UEF opening research data

<http://www.uef.fi/en/web/open-uef/tutkimusaineistojen-avaaminen>