DATA MANAGEMENT AND STORAGE: PROCEDURES AND GUIDELINES OF THE EINDHOVEN SCHOOL OF EDUCATION

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CONTENT OF THIS DOCUMENT

This document is about research data management at ESoE. It is composed to share procedures that need to be used by ESoE researchers to safely file their documents and protect them against loss. Also guidelines are provided to share data with other researchers within and outside of ESoE.

The content of this document is meant for new and existing ESoE employees with research tasks. This includes external PhD students (buitenpromovendi) that have a “0-contract” at ESoE. Particular attention goes out to what to do when an employee leaves ESoE to work elsewhere.

The following information will be provided:

1. Scientific integrity and ethical review of research projects
2. Procedures regarding the storage and sharing of research data and other files;
3. Options for storing large amounts of data;
4. Options for sharing data;
5. Procedures regarding the transfer of research data of employees leaving ESoE;
6. Questions and background information.

On 9 December 2019 this document has been established by the management team of ESoE. This implies that all employees are obliged to follow the procedures described.

WHY IS DATA MANAGEMENT AND STORAGE IMPORTANT?

Data management and storage is important for several reasons:

1. **Data safety**

Data safety concerns protecting data against loss by ensuring safe storage and making regular back-ups of your data. This includes data organization (in order to find the right data quickly) and data security (in order to protect data from unwanted (or “accidental”) changes.

2. **Data sharing**

Another purpose of research data management is to make data available to others in order to collaborate or exchange information. Sharing data may have several reasons, such as:

   - Cooperation with other researchers (inside ESoE or elsewhere);
   - Making research data available for reuse by other researchers;
   - Scientific integrity (for example, making data available for quality checks, audits);
   - Obligation to share data by research funding bodies\(^1\)

As can be concluded from the above, there is a link between research data management and scientific integrity.

SCIENTIFIC INTEGRITY AND ETHICAL REVIEW

\(^1\) Since 2016 in NWO projects, researchers are obliged to store data for reproducibility reasons. NWO encourages sharing data that are relevant for reuse (for example final data files). See [this link](#).
Scientific integrity is demanded from all TU/e employees:

>"Everyone involved in education and research at TU/e bears personal responsibility for observing and maintaining scientific integrity. At TU/e we require strict compliance with the overall principles of professional scientific conduct in all cases."

*The Netherlands Code of Conduct for Research Integrity* endorsed by 6 umbrella organizations, including the VSNU, which entered into force with effect from 1 October 2018, provides details of these principles. This Code replaces *The Netherlands Code of Conduct for Academic Practice* from the VSNU. Next to that TU/e has its own *Code of Scientific Conduct*. This TU/e Code of Conduct offers a more concise version, which also takes into account the specific characteristics of scientific activities at a university of technology.

Sources: click [here](#) and [here](#)

ESoE researchers are obliged to adhere to, amongst other codes\(^2\), the code of conduct of the VSNU, \(^3\). This code states that raw research data need to be stored for at least 10 years\(^4\).

From January 1\(^{st}\) 2020, all research projects conducted at TU/e including human participants need to be reviewed by the [ethical review board](#). See the [website](#) of the board for more information on their procedure. Permission of the ethical review board is necessary before the data collection starts. To apply for permission by the ethical review board, first [this form](#) needs to be filled out. For obtaining permission, researchers need to show how they obtain informed consent of their participants. Informed consent templates and instructions can be found via the ESoE [sharepoint](#).

### OPTIONS FOR STORING LARGE AMOUNTS OF DATA

ESoE employees (including buitenpromovendi) are urged to use Zadara and Surfdrive for data storage. Zadara (mass network storage at TU/e) should be used for video and audio data (as these are biometrical data). Surfdrive can be used for other files. Data on your personal Surfdrive are stored on servers in the Netherlands, under European legislation, and are never forwarded to third parties. Capacity is 250 GB. Install the desktop client to automatically synchronize files and folders. Access to your files anytime, anywhere and with any device using your TU/e account.

If the capacity of Surfdrive is insufficient\(^5\), TU/e provides additional options for data storage. Contact [m.koopman@tue.nl](mailto:m.koopman@tue.nl) or [c.m.m.cantrijn@tue.nl](mailto:c.m.m.cantrijn@tue.nl) for information about possibilities. If you are applying for new funding at NWO, please take into account costs for data storage beyond Surfdrive’s capacity in the project budget.

If your research project is finished, data and other files should be stored in ESoE’s digital archive instead of on your laptop. Contact [m.koopman@tue.nl](mailto:m.koopman@tue.nl) or [e.neleman@tue.nl](mailto:e.neleman@tue.nl). They can create a folder and upload your files. Data will be stored for 10 years after the end date of the project and is removed afterwards\(^6\). Nobody else is allowed to (re)use your data without your explicit permission.

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\(^2\) The Code of Scientific Conduct of TU/e (effective on January 31, 2019), and the code of conduct of the Dutch Educational Research Association (VOR) for doing scientific research.

\(^3\) See [https://www.nwo.nl/en/policies/scientific+integrity+policy/netherlands+code+of+conduct+for+research+integrity](https://www.nwo.nl/en/policies/scientific+integrity+policy/netherlands+code+of+conduct+for+research+integrity)

\(^4\) See the DANS [website](#)

\(^5\) When gathering video data please select the resolution you need on the camera beforehand. Otherwise files may be unnecessarily large. If you need high resolution files, consider compressing files after the analyses.

\(^6\) In case of NWO or EU funding this period is obligatory; if you have other funding and want to store data for a shorter period, please contact [m.koopman@tue.nl](mailto:m.koopman@tue.nl) before asking your participants for their consent.
Storing data only on stand-alone devices such as computers, laptops, USB drives or external hard drives is strongly discouraged. Computers and laptops need to be encrypted by ICT services by means of Bitlocker.

OPTIONS FOR SHARING DATA

Surfdrive allows for sharing files and folders with colleagues. As everybody at ESoE is able to work with Surfdrive, this is the preferred option for sharing data. We advise not to use external platforms such as GoogleDrive, WeTransfer, iCloud, or Dropbox, because data is not stored in the Netherlands and because of regularly changing privacy policies of such platforms.

There are some options to share data with non-TU/e employees. We recommend the following options:

- **SURFfilesender**: for sharing files up to 500 GB (encrypted up to 250 MB); [https://filesender.surf.nl/](https://filesender.surf.nl/) (can be used by non-TU/e employees if you send them a voucher; a safe alternative to WeTransfer)
- **DataverseNL**: for sharing data of active research projects; [https://dataverse.nl/](https://dataverse.nl/)
- **The 4TU.ResearchData** ([http://researchdata.4tu.nl/home/](http://researchdata.4tu.nl/home/)) as a repository for sharing finished research projects (first 100 GB for free; storage for 15 years; a restricted access version will be available soon)

Please contact [rdmsupport@tue.nl](mailto:rdmsupport@tue.nl) for more information.

DATA SHARING AND STORAGE WHEN AN EMPLOYEE LEAVES ESOE

Since data need to be stored safely after the project end date, ESoE feels responsible for storing data that was collected by former ESoE employees after their work at ESoE has finished. This implies that the following steps need to be taken before the end date of an employee’s contract:

- Managers will have an exit conversation with employees that leave in which data storage at ESoE is discussed;
- Final versions of data files that are suitable for sharing with other researchers (inside and outside TU/e) will be made available for use by others via the 4TU.ResearchData centre by the employee;
- All data need to be stored at the ESoE digital archive; employer will transfer the data to the research coordinator or secretariat who will take care of storage;

The employee is free to make and use a copy of his or her research data. ESoE will not use research data without permission of the employee that collected the data and only if participants gave permission for re-use too.

SUMMARY OF ESOE GUIDELINES FOR DATA MANAGEMENT:

- !!!! Use Zadara (video and audio files) and Surfdrive to store and backup your research data and other files. See [intranet](http://intranet) for practical information.
- !!!! Have ICT services encrypt your computer or laptop with Bitlocker.
- Write a data management plan (particularly if you are a PhD student or if you are doing a NWO funded project; see the [NWO website](http://www.nwo.nl)) Ask yourself:
  - Are the research data stored safely (in Zadara/SURFdrive)?
  - Meta data and documentation: can data be retrieved easily and is meta data included so that data remains comprehensible?
  - Access and reuse: can your colleagues (and – if necessary – other researchers) access and use your data?

7 Please note: Folders that are shared on Surfdrive will disappear 30 days after the end date of the contract of an employee.
- **Store raw data at least for 10 years after the project end date.** For information on which data (files) should be selected for storage, click [here](#).
- **Name files and arrange folders in a systematic and consistent manner.** See [intranet](#) for examples.
- Keep your original raw data in a separate folder and use a copy for the analyses.
- **Do not use USB sticks and/or external hard drives for backups.**
- For PhD students: participate in PROOF courses on scientific integrity and open science.

### MORE INFORMATION

If you have any questions, please feel free to contact:

- Maaike Koopman (research coordinator ESoE; experience with several TU/e data management options)
- Leon Osinski (TU/e Information Expertise Centre; expert on data management; click [here](#) for support options)

**Or check the following websites**

- [Data coach](#): all information of the TU/e IEC on data management and storage
- [PROOF course](#) on open science and information literacy for PhD students (obligatory for all ESoE PhD students)
- [PROOF course](#) on scientific integrity for PhD students (obligatory for all TU/e PhD students)
- [Data coach training](#) for other employees