Plan Overview

A Data Management Plan created using DMPonline

Title: PhD Research Brian van Laar

Creator: Brian van Laar

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Funder: European Commission

Template: Horizon Europe Template

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Project abstract:
   I will conduct research on developing a multi-criteria decision making model for the circular adaptive reuse of buildings.

ID: 123477

Start date: 01-09-2022

End date: 01-09-2026

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PhD Research Brian van Laar

Data Summary

Will you re-use any existing data and what will you re-use it for?

No, there is no data available that answers our research questions.

What types and formats of data will the project generate or re-use?

Type of data	File Format	How will data be collected?	Purpose of processing	Size of data and storage location	Who will have access to the data?
Qualitative interview results (questions on how to evaluate and measure decision criteria for adaptive reuse)	mp4, txt	Recorded through Zoom meeting, signed in by TU Delft account	Understanding of measurement/ evaluation methods by practioners	less than 250 GB, project storage drive	The project team (Brian van Laar, Vincent Gruis, Hilde Remoy, Angela Greco)
Qualitative workshop results (results on the co-creation of scenarios for adaptive reuse)	mp4, txt, pdf	Recorded through Zoom meeting, signed in by TU Delft account, collected through post-it notes and drawings during the workshop	Understanding and generating general circular adaptive reuse scenarios, so they can be integrated in the decision model	less than 250 GB, project storage drive	The project team (Brian van Laar, Vincent Gruis, Hilde Remoy, Angela Greco)

Quantitative survey data (weighting of decision criteria through pairwise comparison/ Likert scale)	csv	Online questionnaire, web-based questionnaire (e.g. Qualtrics)	Understanding the different in importance of decision criteria per stakeholder for the inclusion in the decision model	less than 250 GB, project storage drive	The project team (Brian van Laar, Vincent Gruis, Hilde Remoy, Angela Greco)
Quantitative and qualitative workshop data (evaluation of results and decision model , interview and online survey (Likert scale))	txt, csv, mp4	Recorded through Zoom meeting, signed in by TU Delft account, collected through post-it notes and drawings during the workshop, Online questionnaire, web-based questionnaire (e.g. Qualtrics)	Validating and interpreting the results of the model	less than 250 GB, project storage drive	The project team (Brian van Laar, Vincent Gruis, Hilde Remoy, Angela Greco)
Metadata	txt	-	-	less than 250 GB, project storage drive	The project team (Brian van Laar, Vincent Gruis, Hilde Remoy, Angela Greco)
Email addresses and/or other addresses for digital communication	txt	Collected from workshop participants	To communicate with workshop participant	less than 250 GB, project storage drive	The project team (Brian van Laar, Vincent Gruis, Hilde Remoy, Angela Greco)

Case study drawings	pdf	Recorded through Zoom meeting, signed in by TU Delft account, collected through post-it notes and drawings during the workshop,	To analyze the visual representation of the circular adaptive reuse scenarios	less than 250 GB, project storage drive	The project team (Brian van Laar, Vincent Gruis, Hilde Remoy, Angela Greco)
Workshop and case study photographs	jpg	Collected through field observation, using phone camera	Document the process and current condition	less than 250 GB, project storage drive	The project team (Brian van Laar, Vincent Gruis, Hilde Remoy, Angela Greco)

Whenever possible, we will use file formats suitable for long-term preservation and re-use of research data. In our choices, we will adhere to the guidance provided by [4TU.ResearchData](#). Table above provides an overview of the types of data which will be collected and the associated file formats.

What is the purpose of the data generation or re-use and its relation to the objectives of the project?

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What is the expected size of the data that you intend to generate or re-use?

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What is the origin/provenance of the data, either generated or re-used?

The data will be collected/generated via [surveys/ interviews/ workshop] by [Brian van Laar] for the purpose of [data analysis for my PhD research]. Data analysis will be done by [Brian van Laar]. The steps taken for data collection, analysis and visualization will be documented in [Word, Excel, Miro, Zoom].

Additionally, all data files will be named using the following elements in the file name:

- Date or date range of experiment: YYYYMMDD
- Descriptive file name
- Initials of the person who last modified the file
- Version number of file

To whom might your data be useful ('data utility'), outside your project?

The data underlying the figures and conclusions in academic papers could be suitable for reuse for researchers in our field of Adaptive reuse.

FAIR data

2.1. Making data findable, including provisions for metadata: Will data be identified by a persistent identifier?

All data will be made openly available through 4TU.ResearchData, a trusted and certified data repository. Every dataset will be assigned a Digital Object Identifier (DOI), to make them citable and persistently available.

2.1. Making data findable, including provisions for metadata: Will rich metadata be provided to allow discovery? What metadata will be created? What disciplinary or general standards will be followed? In case metadata standards do not exist in your discipline, please outline what type of metadata will be created and how.

All data will be made openly available through 4TU.ResearchData, a trusted and certified data repository. All datasets will be accompanied by rich metadata, adhering to the DataCite Metadata Standard, to ensure that they are findable.

2.1. Making data findable, including provisions for metadata: Will search keywords be provided in the metadata to optimize the possibility for discovery and then potential re-use?

All data (underlying the published papers) resulting from the project will be made openly available through 4TU.ResearchData. To further aid their discoverability, keywords describing the datasets will be added.

2.1. Making data findable, including provisions for metadata: Will metadata be offered in such a way that it can be harvested and indexed?

All data (underlying the published papers) will be made openly available through 4TU.ResearchData which uses schema.org metadata, meaning that all datasets are indexed in Google Dataset Search.

2.2. Making data accessible - Repository: Will the data be deposited in a trusted repository?

All data (underlying the published papers) will be made openly available through 4TU.ResearchData, a trusted and certified data repository. It has a CoreTrustSeal certification.

2.2. Making data accessible - Repository: Have you explored appropriate arrangements with the identified repository where your data will be deposited?

We have prepared this Data Management Plan with the support of our Faculty Data Steward who works closely with the 4TU.ResearchData repository and has informed us about the policies and procedures of the 4TU.ResearchData repository. If needed, the Faculty Data Steward will refer us to professionals at 4TU.ResearchData to discuss appropriate arrangements.

2.2. Making data accessible - Repository: Does the repository ensure that the data is assigned an identifier? Will the repository resolve the identifier to a digital object?

All data (underlying the published papers) will be made openly available through 4TU.ResearchData, which is a trusted and certified data repository and assigns a Digital Object Identifier (DOI) to datasets and code to make them citable and persistently available.

2.2.   Making data accessible - Data:
Will all data be made openly available? If certain datasets cannot be shared (or need to be shared under restricted access conditions), explain why, clearly separating legal and contractual reasons from intentional restrictions. Note that in multi-beneficiary projects it is also possible for specific beneficiaries to keep their data closed if opening their data goes against their legitimate interests or other constraints as per the Grant Agreement.

All raw data (underlying the published papers) will be retained for [...] on TU Delft servers for the purposes of validation, with consent from the participants.

All anonymised or aggregated data, and/or all other non-personal data (underlying the published papers) will be uploaded to 4TU.ResearchData with public access, with consent from the participants.

All pseudonymised data (underlying the published papers) will be uploaded to 4TU.ResearchData with restricted access, with consent from the participants.

2.2.   Making data accessible - Data:
If an embargo is applied to give time to publish or seek protection of the intellectual property (e.g. patents), specify why and how long this will apply, bearing in mind that research data should be made available as soon as possible.

Not applicable. All data (underlying the published papers) will be made openly available through the 4TU.ResearchData repository.

2.2. Making data accessible - Data:
Will the data be accessible through a free and standardized access protocol?

4TU.ResearchData uses the HTTPS protocol (Hypertext Transfer Protocol Secure) which is based on TCP/IP.

2.2. Making data accessible - Data:
If there are restrictions on use, how will access be provided to the data, both during and after the end of the project?

Not applicable. All data (underlying the published papers) will be made openly available through the 4TU.ResearchData repository.

2.2. Making data accessible - Data:
How will the identity of the person accessing the data be ascertained?

Identity of individuals accessing the data on 4TU.ResearchData can only be established when restricted access is in place. Contributors can leave their contact details in the README file if they would like to be contacted when the dataset is reused.

2.2. Making data accessible - Data:
Is there a need for a data access committee (e.g. to evaluate/approve access requests to personal/sensitive data)?

no

2.2. Making data accessible - Metadata:
Will metadata be made openly available and licenced under a public domain dedication CC0, as per the Grant Agreement? If not, please clarify why. Will metadata contain information to enable the user to access the data?

yes the metadata will be available. In 4TU.ResearchData, metadata may be freely reused under the CC0 waiver. Information about the accessibility of the dataset is also included in the metadata.

2.2. Making data accessible - Metadata:
How long will the data remain available and findable? Will metadata be guaranteed to remain available after data is no longer available?

TU Delft researchers can archive their research data using 4TU.ResearchData, which will archive and preserve the data for at least 15 years.

2.2. Making data accessible - Metadata:

Will documentation or reference about any software be needed to access or read the data be included? Will it be possible to include the relevant software (e.g. in open source code)?

no additional software is needed to acces or read the data.

2.3. Making data interoperable:

What data and metadata vocabularies, standards, formats or methodologies will you follow to make your data interoperable to allow data exchange and re-use within and across disciplines? Will you follow community-endorsed interoperability best practices? Which ones?

No community-agreed metadata standards exist for this discipline. To ensure interoperability the data will be documented appropriately (README files etc.) to allow re-use and operability across disciplines. Additionally, the data underlying the publications will be available through 4TU.ResearchData (which uses DataCite metadata schema and Dublin Core).

2.3. Making data interoperable:

In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies? Will you openly publish the generated ontologies or vocabularies to allow reusing, refining or extending them?

We will use common terminology used in the field to describe the data.

2.3. Making data interoperable:

Will your data include qualified references[1] to other data (e.g. other data from your project, or datasets from previous research)?

[1] *A qualified reference is a cross-reference that explains its intent. For example, X is regulator of Y is a much more qualified reference than X is associated with Y, or X see also Y. The goal therefore is to create as many meaningful links as possible between (meta)data resources to enrich the contextual knowledge about the data. (Source: https://www.go-fair.org/fair-principles/i3-metadata-include-qualified-references-metadata/)*

To ensure interoperability the DOIs of research outputs are linked whenever possible.

2.4. Increase data re-use:

How will you provide documentation needed to validate data analysis and facilitate data re-use (e.g. readme files with information on methodology, codebooks, data cleaning, analyses, variable definitions, units of measurement, etc.)?

All documentation needed to validate data analysis and facilitate data re-use will accompany the data via a README file created in accordance with the 4TU.ResearchData guidelines.

2.4.   Increase data re-use:

Will your data be made freely available in the public domain to permit the widest re-use possible? Will your data be licensed using standard reuse licenses, in line with the obligations set out in the Grant Agreement?

All data and accompanying documentation needed to validate the results of the research will be made available under a CC-BY license using 4TU.ResearchData, in line with the Grant Agreement.

2.4.   Increase data re-use:
Will the data produced in the project be useable by third parties, in particular after the end of the project?

The data underlying the publications will be available at 4TU.ResearchData under a CC-BY license, allowing third parties to use the data.

2.4.   Increase data re-use:
Will the provenance of the data be thoroughly documented using the appropriate standards?

Yes, see section 2.3.

2.4.   Increase data re-use:
Describe all relevant data quality assurance processes.

For all the data involved in the project the relevant data quality assurance processes will be followed, according to the relevant benchmarks and standards.

2.4.   Increase data re-use:
Further to the FAIR principles, DMPs should also address research outputs other than data, and should carefully consider aspects related to the allocation of resources, data security and ethical aspects.

See the answers to the following questions.

Other research outputs

In addition to the management of data, beneficiaries should also consider and plan for the management of other research outputs that may be generated or re-used throughout their projects. Such outputs can be either digital (e.g. software, workflows, protocols, models, etc.) or physical (e.g. new materials, antibodies, reagents, samples, etc.).

All other research outputs such as the software related to the decision model will be carefully managed and planned.

Beneficiaries should consider which of the questions pertaining to FAIR data above, can apply to the management of other research outputs, and should strive to provide sufficient detail on how their research outputs will be managed and shared, or made available for re-use, in line with the FAIR principles.

The FAIR principles will be followed pertaining to the management of other research outputs.

Allocation of resources

What will the costs be for making data or other research outputs FAIR in your project (e.g. direct and indirect costs related to storage, archiving, re-use, security, etc.) ?

- Personnel costs
- Data publication in data repositories other than [4TU.ResearchData](#) (where TU Delft researchers can publish free of charge for up to 1TB of data per researcher per year).
- Publication of papers about datasets or software in dedicated journals.

How will these be covered? Note that costs related to research data/output management are eligible as part of the Horizon Europe grant (if compliant with the Grant Agreement conditions)

These costs will be covered through the funds from the Horizon Europe grant.

Who will be responsible for data management in your project?

Brian van Laar

How will long term preservation be ensured? Discuss the necessary resources to

accomplish this (costs and potential value, who decides and how, what data will be kept and for how long)?

TU Delft researchers can archive their research data (up to 1TB per researcher per year) free of charge at 4TU.ResearchData. 4TU.ResearchData will take care of data archiving and preservation for at least 15 years.

Data security

What provisions are or will be in place for data security (including data recovery as well as secure storage/archiving and transfer of sensitive data)?

During the course of the research project, all data will be stored on local servers maintained and automatically backed up by TU Delft ICT. Every night the data will be automatically backed up. The data will be replicated over multiple sites/data centers. Data can be recovered with the help of TU Delft ICT services in the event of an incident.

Only team members have access to the designated server, limited to the principal investigator of the project (Brian van Laar, Vincent Gruis, Hilde Remoy, Angela Greco). The storage security is ensured by TU Delft ICT services.

The [Faculty Data Steward](#) will provide additional advice, as needed, on data storage during the research project. This data storage solution offers secure storage and transfer.

After the end of the project, all datasets will be published in [4TU.ResearchData](#). The data will be openly accessible to all.

Ethics

Are there, or could there be, any ethics or legal issues that can have an impact on data sharing? These can also be discussed in the context of the ethics review. If relevant, include references to ethics deliverables and ethics chapter in the Description of the Action (DoA).

At TU Delft, all projects processing personal research data need to answer to TU Delft questions on the management of personal research data. Answering these questions will help you comply with the requirements of the General Data Protection Regulation ([GDPR](#)) and determine whether you need to undertake any additional steps.

Will informed consent for data sharing and long term preservation be included in questionnaires dealing with personal data?

yes

Other issues

Do you, or will you, make use of other national/funder/sectorial/departmental procedures for data management? If yes, which ones (please list and briefly describe them)?

We are going to be in compliance with the TU Delft Research Data Framework Policy stating that research data, code and any other materials needed to reproduce research findings are appropriately documented and shared in a research data repository in accordance with the FAIR principles (Findable, Accessible, Interoperable and Reusable) for at least 10 years from the end of the research project, unless there are valid reasons not to do so.
The project will be conducted in line with the Netherlands Code of Conduct for Research Integrity which contains a framework for good research practice.