Plan Overview

A Data Management Plan created using DMPonline

Title: A multi-criteria decision making model for the circular adaptive reuse of buildings

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Template: TU Delft Data Management Plan template (2021)

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Project abstract:

Buildings worldwide are responsible for 39% of the global carbon emissions. Besides the consumption of raw materials and the emissions of greenhouse gasses like CO2, buildings also account for a vast majority of the world's total waste. It is estimated that construction and demolition waste (CDW) accounts for 40% of the total waste stock, and includes waste generated from construction, renovation and demolition activities. Most buildings that are demolished have not yet reached the end of their physical use life. The most common reason for building demolition is functional obsolescence. The adaptive reuse of buildings is considered a good strategy in reducing the environmental impacts of buildings, while preserving the cultural and historic significance. Finding a new use for the building is a difficult problem in the decision making process since it includes many decision criteria and stakeholders. A lack of guidance is often mentioned as a common barrier in the adaptive reuse process, and there also seems to be a lack of agreement in the scientific community to achieve a more uniform vision surrounding the decision criteria for adaptive reuse. Multi-criteria decision making models have become increasingly popular In helping decision makers make informed decisions, by providing a structured approach to assess and compare alternative solutions for adaptive reuse. Determining the alternatives for the new use is an important aspect in decision making for adaptive reuse, but most alternatives used in prior studies have either been really broad (functional use), or really specific (pre-defined design options). A general overview of what is possible when pursuing adaptive reuse in the form of holistic typologies for adaptive reuse scenarios, is currently missing. Most current decision models on adaptive reuse also do not consider circularity strategies beyond reusing the building itself. Tools to assess the impacts and orient adaptive reuse interventions in the perspective of the circular economy are lacking. Therefore the main aim of this research is developing a holistic decision making tool that incorporates appropriate decision criteria for adaptive reuse, and circular adaptive reuse scenarios, that could help decision makers in choosing the best circular adaptive re-use strategies for functionally obsolete buildings. This aim will be addressed by designing, developing and testing such a comprehensive decision making tool for circular adaptive reuse, together with partners from the Reincarnate project trhough a mixed methods approach involving participatory action research, semi-structured interviews and desk reseach. This circular adaptive reuse decision making model will function as a guiding tool for decision makers in adaptive reuse projects, during the early stages of the process. The holistic circular intervention scenarios will provide decision makers with an overview of what is possible when pursuing adaptive reuse. The results from the decision model will provide a ranked overview of these scenarios, according to the decision criteria, that could help decision makers in setting up a plan for adaptive reuse. The outcomes of the model reflect a preliminary consensus on the general direction of the adaptive reuse project, as well as give tangible strategies and approaches going forward.

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A multi-criteria decision making model for the circular adaptive reuse of buildings

0. Administrative questions

1. Name of data management support staff consulted during the preparation of this plan.

My faculty data steward, Janine Strandberg, has reviewed this DMP on May 22th 2023.

2. Date of consultation with support staff.

2023-05-22

I. Data description and collection or re-use of existing data

3. Provide a general description of the type of data you will be working with, including any re-used data:

Type of data	File format(s)	How will data be collected (for re-used data: source and terms of use)?	Purpose of processing	Storage location	Who will have access to the data
Qualitative interview results (recordings of the interviews)	mp4	Recorded through Zoom meeting, signed in by TU Delft account	Understanding of measurement/ evaluation methods by practitioners	project storage drive (permanent location)	The project team (Brian van Laar - PhD candidate, Vincent Gruis, Hilde Remoy, Angela Greco - supervisors)
Qualitative interview results (Interview transcript)	txt	Recorded through Zoom meeting, signed in by TU Delft account,	Understanding of measurement/ evaluation methods by practitioners	project storage drive (permanent location)	The project team (Brian van Laar - PhD candidate, Vincent Gruis, Hilde Remoy, Angela Greco - supervisors)
Qualitative workshop results (Interview recordings)	mp4,	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	project storage drive (permanent location)	The project team (Brian van Laar - PhD candidate, Vincent Gruis, Hilde Remoy, Angela Greco - supervisors)
Qualitative workshop results(workshop transcripts)	txt	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	project storage drive (permanent location)	The project team (Brian van Laar - PhD candidate, Vincent Gruis, Hilde Remoy, Angela Greco - supervisors)
Qualitative workshop results(notes)	txt	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	project storage drive (permanent location)	The project team (Brian van Laar - PhD candidate, Vincent Gruis, Hilde Remoy, Angela Greco - supervisors)

Qualitative workshop results(photos of workshop drawings)	jpg /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	project storage drive (permanent location)	The project team (Brian van Laar - PhD candidate, Vincent Gruis, Hilde Remoy, Angela Greco - supervisors)
Qualitative workshop results(photos of whiteboard notes)	jpg / 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	project storage drive (permanent location)	The project team (Brian van Laar - PhD candidate, Vincent Gruis, Hilde Remoy, Angela Greco - supervisors)
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	project storage drive (permanent location)	The project team (Brian van Laar - PhD candidate, Vincent Gruis, Hilde Remoy, Angela Greco - supervisors)
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	project storage drive (permanent location)	The project team (Brian van Laar - PhD candidate, Vincent Gruis, Hilde Remoy, Angela Greco - supervisors)
Metadata	txt	-	-	project storage drive (permanent location)	The project team (Brian van Laar - PhD candidate, Vincent Gruis, Hilde Remoy, Angela Greco - supervisors)
Email addresses and/or other addresses for digital communication	txt	Collected from workshop participants	To communicate with workshop participant	(temporary storage through outlook, only as long as communication is necessary) project storage drive (permanent location)	The project team (Brian van Laar - PhD candidate, Vincent Gruis, Hilde Remoy, Angela Greco - supervisors)
photo of case study drawings	jpg / 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	project storage drive (permanent location)	The project team (Brian van Laar - PhD candidate, Vincent Gruis, Hilde Remoy, Angela Greco - supervisors)
case study photographs of the building site	jpg /pdf	Collected through field observation, using phone camera	Document the process and current condition	project storage drive (permanent location)	The project team (Brian van Laar - PhD candidate, Vincent Gruis, Hilde Remoy, Angela Greco - supervisors)
Age, occupation	txt	Collected from workshop participants during the workshop	For context of the workshop, and to get to know the participants	project storage drive (permanent location)	The project team (Brian van Laar - PhD candidate, Vincent Gruis, Hilde Remoy, Angela Greco - supervisors)

4. How much data storage will you require during the project lifetime?

- 250 GB - 5 TB

As mp4 recordings take in considerable amount of space I foresee to require between 250 GB- 5TB of data storage.

II. Documentation and data quality

5. What documentation will accompany data?

- Methodology of data collection
- I will adhere to disciplinary metadata standards - please explain which standards in the box below
- README file or other documentation explaining how data is organised

I will adhere to to metadata standards offered by: The Research Data Alliance (Directory of Metadata Standards)
I will adhere to the 4TU Research data Guidelines for creating a README file

III. Storage and backup during research process

6. Where will the data (and code, if applicable) be stored and backed-up during the project lifetime?

- Project Storage at TU Delft
- OneDrive

Recordings will be saved to the project storage drive (permanent location), after which they will be deleted from the laptop /phone. (temporary storage through outlook for emails and communication with workshop particpants, only as long as communication is necessary)

IV. Legal and ethical requirements, codes of conduct

7. Does your research involve human subjects or 3rd party datasets collected from human participants?

- Yes

8A. Will you work with personal data? (information about an identified or identifiable natural person)

If you are not sure which option to select, first ask your Faculty Data Steward for advice. You can also check with the privacy website . If you would like to contact the privacy team: privacy-tud@tudelft.nl, please bring your DMP.

- Yes

8B. Will you work with any other types of confidential or classified data or code as listed below? (tick all that apply)

If you are not sure which option to select, ask your Faculty Data Steward for advice.

- No, I will not work with any confidential or classified data/code

9. How will ownership of the data and intellectual property rights to the data be managed?

For projects involving commercially-sensitive research or research involving third parties, seek advice of your Faculty Contract Manager when answering this question. If this is not the case, you can use the example below.

The datasets underlying the published papers will be publicly released following the TU Delft Research Data Framework Policy. During the active phase of research, the project leader from TU Delft will oversee the access rights to data (and other outputs), as well as any requests for access from external parties. They will be released publicly no later than at the time of publication of corresponding research papers.

10. Which personal data will you process? Tick all that apply

- Names and addresses
- Email addresses and/or other addresses for digital communication
- Gender, date of birth and/or age
- Photographs, video materials, performance appraisals or student results
- Signed consent forms
- Data collected in Informed Consent form (names and email addresses)
- Other types of personal data - please explain below

Occupation

11. Please list the categories of data subjects

Industry professionals that have worked or have expertise on adaptive reuse.

12. Will you be sharing personal data with individuals/organisations outside of the EEA (European Economic Area)?

- No

13. To which countries will you be transferring personal data:

14. Please contact the privacy team (privacy-tud@tudelft.nl) for advice on data transfer. Please also bring your draft DMP when contacting the privacy team.

Please record below their advice, the data transfer mechanism used and agreed security measures:

15. What is the legal ground for personal data processing?

- Informed consent

16. Please describe the informed consent procedure you will follow:

All study participants will be asked for their written consent for taking part in the study and for data processing before the start of the interview, focus group, workshop discussion and questionnaire.

17. Where will you store the signed consent forms?

- Other - please explain below

project storage drive, the informed consent form and contact information will be encrypted seperately from the rest of the data in the Project storage drive

18. Does the processing of the personal data result in a high risk to the data subjects?

If the processing of the personal data results in a high risk to the data subjects, it is required to perform a Data Protection Impact Assessment (DPIA). In order to determine if there is a high risk for the data subjects, please check if any of the options below that are applicable to the processing of the personal data during your research (check all that apply).
If two or more of the options listed below apply, you will have to complete the DPIA. Please get in touch with the privacy team: privacy-tud@tudelft.nl to receive support with DPIA.
If only one of the options listed below applies, your project might need a DPIA. Please get in touch with the privacy team: privacy-tud@tudelft.nl to get advice as to whether DPIA is necessary.
If you have any additional comments, please add them in the box below.

- None of the above applies

22. What will happen with personal research data after the end of the research project?

- Other - please explain below

the question is not relevant because you will share anonymised (non-personal) data, and therefore personal data will not be shared/stored

23. How long will (pseudonymised) personal data be stored for?

- Other - please state the duration and explain the rationale below

the question is not relevant because you will share anonymised (non-personal) data, and therefore personal data will not be shared/stored

24. What is the purpose of sharing personal data?

- Other - please explain below

the question is not relevant because you will share anonymised (non-personal) data, and therefore personal data will not be shared/stored

25. Will your study participants be asked for their consent for data sharing?

- Yes, in consent form - please explain below what you will do with data from participants who did not consent to data sharing

If participants did not consent to data sharing, their participation will be treated as anonymous participation and they will be informed about that at the beginning. If particpants want only part of the data this will be made possible through the consent form.

V. Data sharing and long-term preservation

26. What data will be publicly shared?

- All data (and code) underlying published articles / reports / theses

27. Apart from personal data mentioned in question 22, will any other data be publicly shared?

- All other non-personal data (and code) underlying published articles / reports / theses

28. How will you share your research data (and code)?

- All data will be uploaded to 4TU.ResearchData

29. How will you share research data (and code), including the one mentioned in question 22?

- All anonymised or aggregated data, and/or all other non-personal data will be uploaded to 4TU.ResearchData with public access

30. How much of your data will be shared in a research data repository?

- 100 GB - 1 TB

31. When will the data (or code) be shared?

- At the end of the research project
- As soon as corresponding results (papers, theses, reports) are published

32. Under what licence will be the data/code released?

- CC BY-NC-SA
- CC BY-NC-ND

VI. Data management responsibilities and resources

33. Is TU Delft the lead institution for this project?

- No - please provide details of the lead institution below and TU Delft's role in the project

The Reincarnate project is a EU horizon project undr theEuropean Health and Digital Executive Agency (HADEA), with the project number being: 101056773.

The coordinator of this project is: TECHNISCHE UNIVERSITAT BERLIN (TUB), PIC 999986678, established in STRASSE DES 17 JUNI 135, BERLIN 10623, Germany,
TU Delft role is a project beneficiary and research participant.

34. If you leave TU Delft (or are unavailable), who is going to be responsible for the data resulting from this project?

The head of the chair and section of real estate management (REM) at the Faculty of Architecture and the Built Environment, Dr.

Hilde Remøy (H.T.Remoy@tudelft.nl).

35. What resources (for example financial and time) will be dedicated to data management and ensuring that data will be FAIR (Findable, Accessible, Interoperable, Re-usable)?

4TU.ResearchData is able to archive 1TB of data per researcher per year free of charge for all TU Delft researchers. We do not expect to exceed this and therefore there are no additional costs of long term preservation.