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## Plan Overview

*A Data Management Plan created using DMPonline*

**Title:** Behavioural theory in ABMs about household load shifting

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**Affiliation:** Delft University of Technology

**Template:** TU Delft Data Management Plan template (2021)

### Project abstract:

This dissertation had four research lines:

RL 1) review status quo of ABMs

RL 2) survey research

RL 3) behavioural experiments

RL 4) ABM or tool design

**ID:** 138538

**Start date:** 01-02-2023

**End date:** 01-02-2027

**Last modified:** 09-04-2024

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# Behavioural theory in ABMs about household load shifting

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## 0. Administrative questions

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

Nicolas Dintzner

### 2. Date of consultation with support staff.

2024-04-11

## 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 d
anonymized survey data of Dutch households (knowledge about, perceived barriers to and preferences for load shifting)	Excel and/or SPSS	via a survey company	to understand how household perceive different kinds of load shifting, and what they perceive as barriers	dedicated U drive (ETLWP1)	me and my promotor (Gerdien de Vries)
anonymized or pseudo- anonymized hourly smart meter energy readings of customers of energy suppliers	Excel	via energy supplier	to understand how households can be incentivized to load shift	dedicated U drive (ETLWP1)	me and my promotor (Gerdien de Vries)

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

- 250 GB - 5 TB

not sure yet, but will probably on the low side in this category

## II. Documentation and data quality

### 5. What documentation will accompany data?

- Methodology of data collection
- README file or other documentation explaining how data is organised
- Data dictionary explaining the variables used

- Data will be deposited in a data repository at the end of the project (see section V) and data discoverability and re-usability will be ensured by adhering to the repository's metadata standards

### 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

### 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](mailto:privacy-tud@tudelft.nl), please bring your DMP.*

- Yes

Survey data will be personal (demographics but also preferences and opinions from households on their perceived psychological barriers to load shifting). The survey is programmed by me and performed by a bureau that provides a panel. These data will be anonymized before I get them.

Field experiments (smart meter) data are coming from an energy supplier. Energy suppliers cannot share personal data with researchers according to law and their code-of-conduct, so data will be pseudo anonymized at minimum and fully anonymized and aggregated at best.

#### 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.*

In RL2 I will work with a panel bureau that does not aspire IP rights of the results.

In RL3 I will ideally work together with several energy suppliers (either in existing projects or directly). IP rights and data management procedures are set-up in cooperation agreements.

--> Jan-2024: collaboration in existing project with Eneco are set up

--> Apr-2024 collaborations with Greenchoice are being set up

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

- Gender, date of birth and/or age
- Data collected in Informed Consent form (names and email addresses)
- Email addresses and/or other addresses for digital communication

RL2 (survey): Demographics (gender, age, household types, size of household, household habits etc) are gathered, and will be coupled with an email-address if respondents like to be updated on the results of the project.

RL3 (trial): Hourly smart meter reading will be coupled to survey questions. Measures are taken to fully anonymize the data.

**11. Please list the categories of data subjects**

RL2 (survey): Households that own solar panels, heat pumps and electric vehicle charging points. Home owners vs tenants, general households (doing laundry and dishes)

RL3 (trials): clients of energy suppliers (same as above)

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

- No

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

- Informed consent

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

For RL2 (survey): all respondents will be asked for their (digital) consent for taking part in the study and for data processing before the start of the surveys.

For RL3 (trials): consent for using the hourly smart meter readings for research purposes is (already) given to the energy supplier, or consent is not necessary if data are fully anonymized

**17. Where will you store the signed consent forms?**

- Same storage solutions as explained in question 6

**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 [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](mailto: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](mailto: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.

- Matching or combining datasets
- Data processed on a large scale

- Evaluation or scoring

RL3 (trials)

Scoring - in the field experiments, hypothesis are tested if people change the timing of their households practices (e.g. doing the laundry or charging the car) based on 'change components' (e.g. goal setting, reminders, commitment, loss avoidance, incentive provision).

Large scale data processing - For Eneco trial we use their client base of solar panels owners, which is 200.000 households. Eneco is handling data transfer

Matching - Eneco combines answers to survey question to hourly meter readings.

#### **19. Did the privacy team advise you to perform a DPIA?**

- No

we meet Apr-11 (2024)

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

- Personal research data will be destroyed after the end of the research project
- Anonymised or aggregated data will be shared with others

After publication of my PhD thesis, any non-anonymized data (if any) will be destroyed. Aggregated or anonymized data will be saved for further analysis purposes

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

- 10 years or more, in accordance with the TU Delft Research Data Framework Policy

Depends on if my work is followed up for. Decision will be made later in the process.

#### **24. What is the purpose of sharing personal data?**

- For research purposes, which are in-line with the original research purpose for which data have been collected

#### **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  
these data will be gathered and therefore not stored and analyzed

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

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

- All other non-personal data (and code) produced in the project
- All other non-personal data (and code) underlying published articles / reports / theses
- All validated non-positive results which do not contain personal data

**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
- I will upload the data to another data repository (please provide details below)

when published under DOI

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

- < 100 GB

**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?**

- CC0

not sure, have to check with data steward

## **VI. Data management responsibilities and resources**

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

- Yes, leading the collaboration - please provide details of the type of collaboration and the involved parties below

RL2 (survey): TUD is lead institution

RL3 (trials): either direct collaboration with Dutch energy suppliers (Greenchoice), or cooperation in a project where a collaboration with the energy supplier is already set-up (Eneco)

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

My promotor, or head of department of MAS within TPM when she leaves TUD.

**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)?**

Should the time of the TPM data steward be included here?

No extra other costs on storage or software or publication are foreseen yet