RENergetic

Horizon 2020 project

Understanding Acceptance of Heat Demand Response

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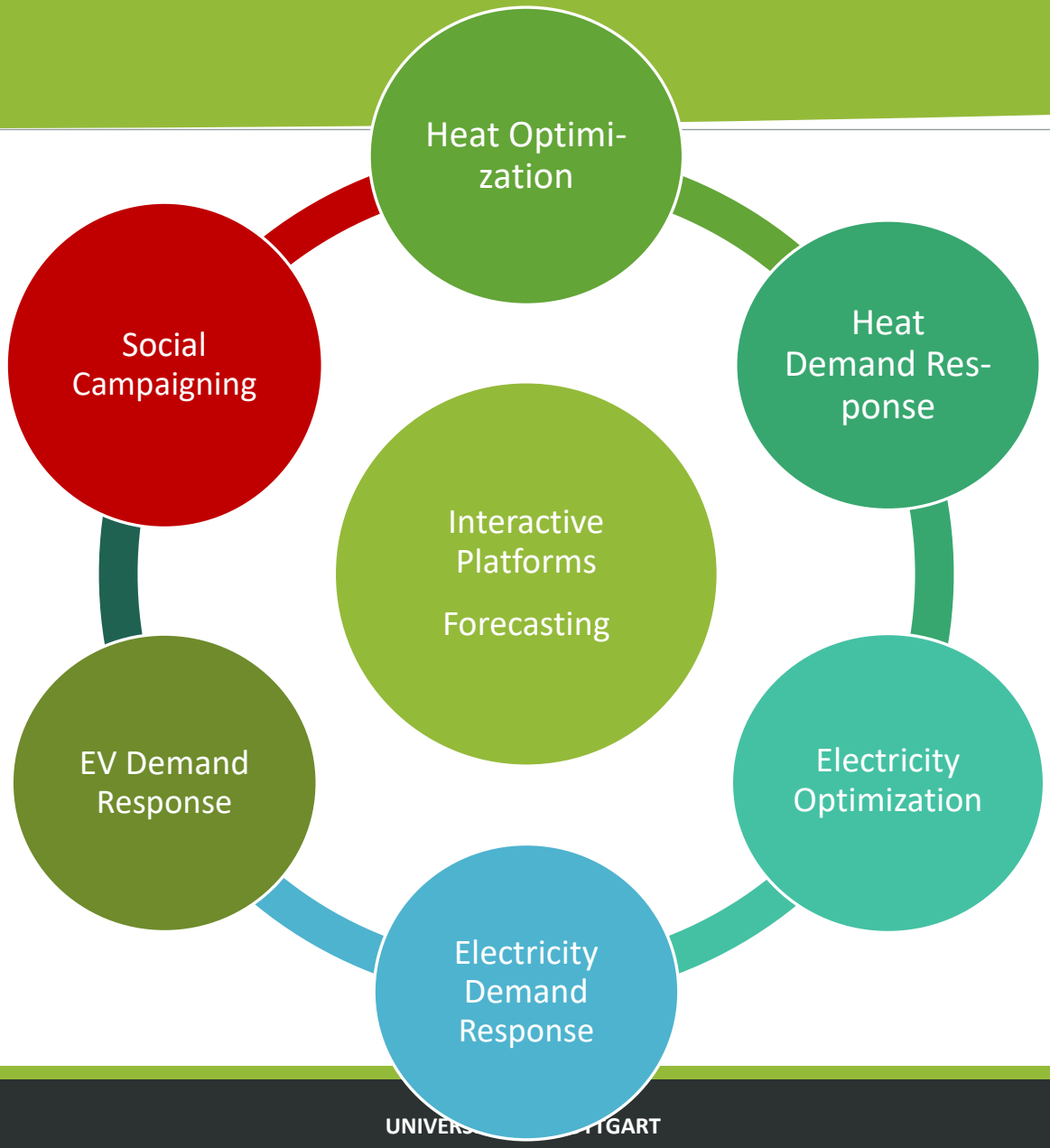
RENergetic – Creating “Urban Energy Islands”

- **Space**: a geographically delineated area
- **Energy**: highly self-sufficient from local renewable sources; all energy vectors
- **Society:** autarchy vs. responsibility
- **Psychology:** communication toolbox for trust
- **Organization:** REC or EC with less formal underpinning
- **Economy:** Benefits beyond profit max, min profit as requirement
- **Regulation:** inside current or expected regulation

RENergetic – Solution Components



Heat Demand Response

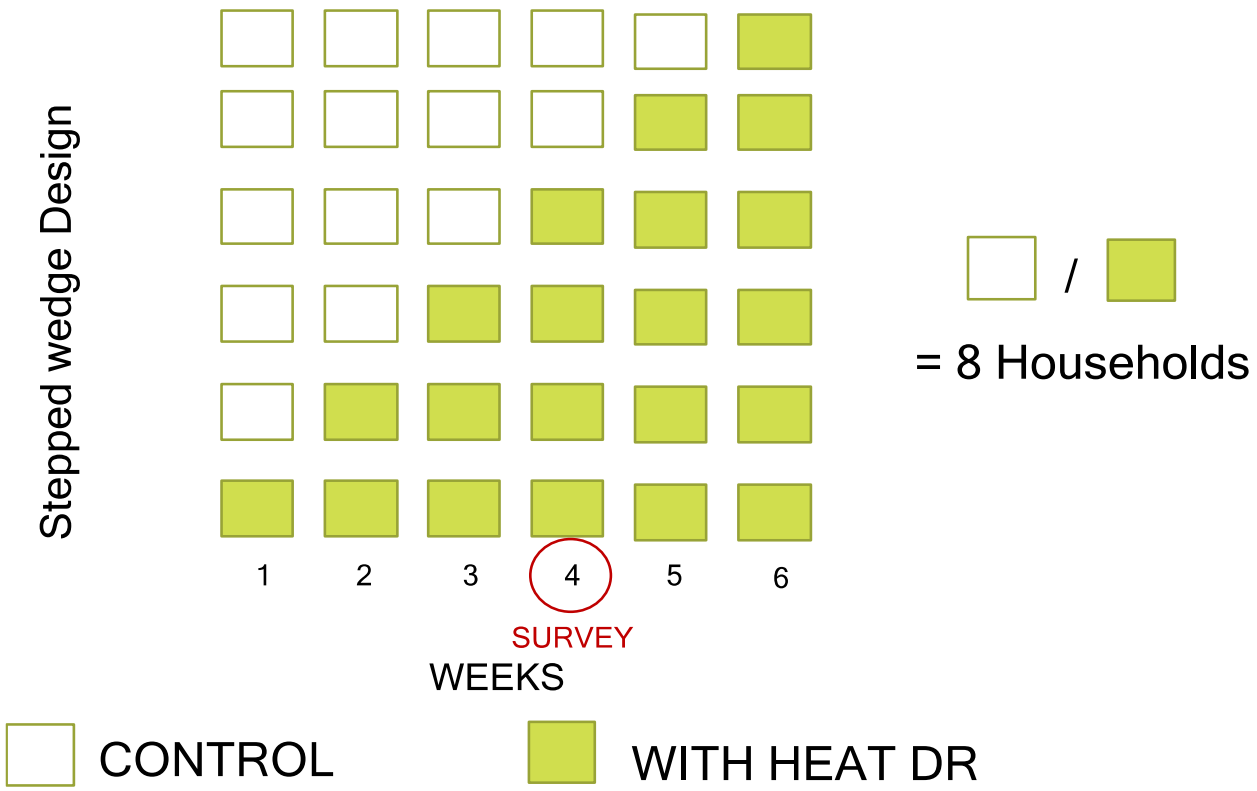
- =: Temporarily increase or decrease room temperature in response to a requirement on the heat supply side
- Test case: Supply of waste heat „for free“ in early morning hours
- Strategy:
  - Automated „pre-“ floor-heating in the early morning hours
  - Shutting down heating in the mornings between 8-10 by local heat network provider through manipulating thermostats
  - People can overrule

➔ inhabitants acceptance needed!

Heat Demand Response Experiments

1. HeatDR behavioural experiment in RENergetic pilot site Nieuwe Dokken Ghent (origine of use case) ➔ specific acceptance
2. HeatDR survey (emulating the same use case) ➔ technology acceptance model

1. HeatDR Experiment Gent: Step-Wegde-Design



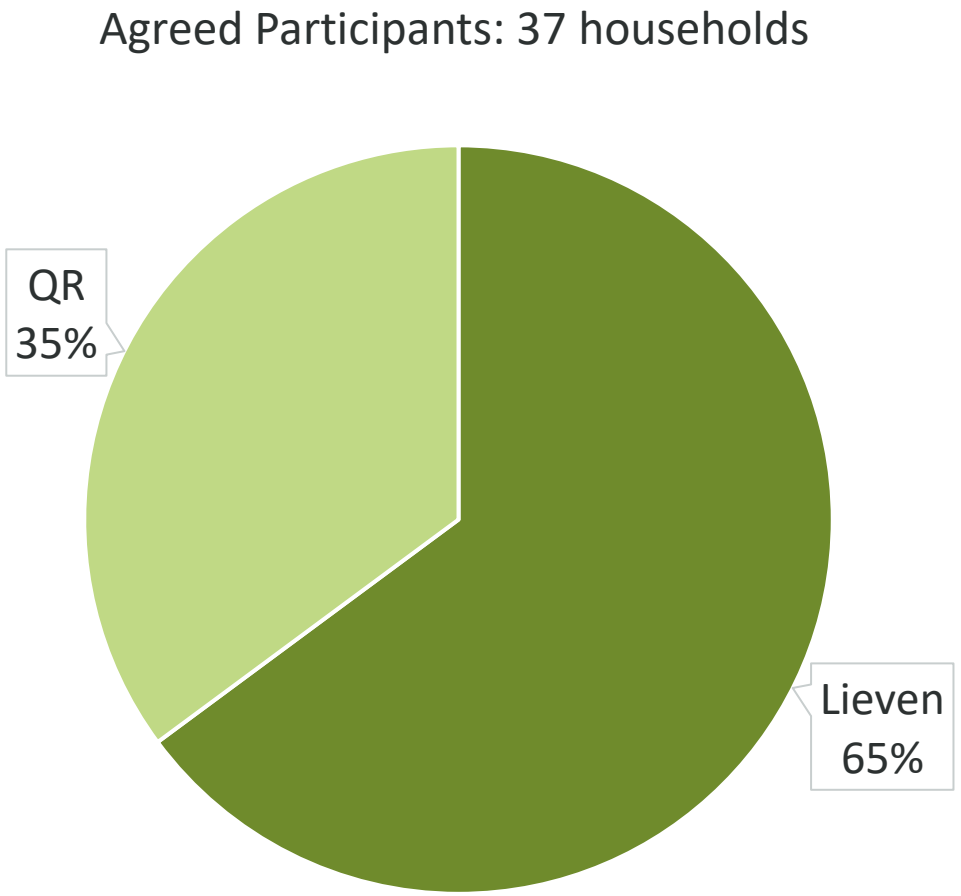
- N= 48
- Intervention introduced „step-by-step“
- Inhabitants turn from control group to intervention group
- Helps to control time-based changes (e.g. external political events, temperature) for low number of participants
- Survey at week 4

Intervention

Individualized Flyer (THU)

„Lieven Joker“ (MO)

Results: Agreement

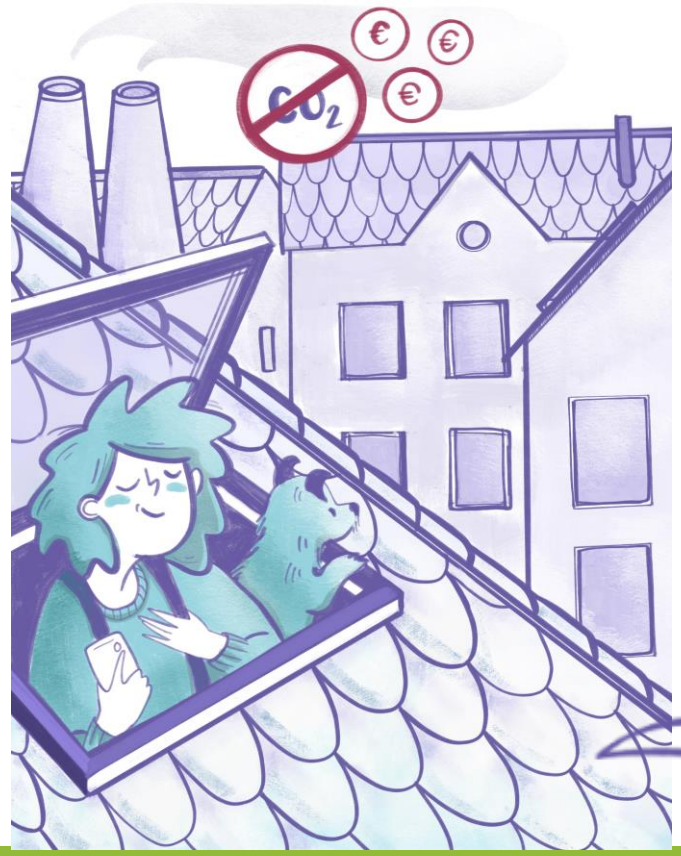


2. HeatDR Survey Experiment

- Panel participants from 7 countries, 400 per country
- Understanding the relevance of predictors of a technology acceptance model on behavioural intentions via a questionnaire

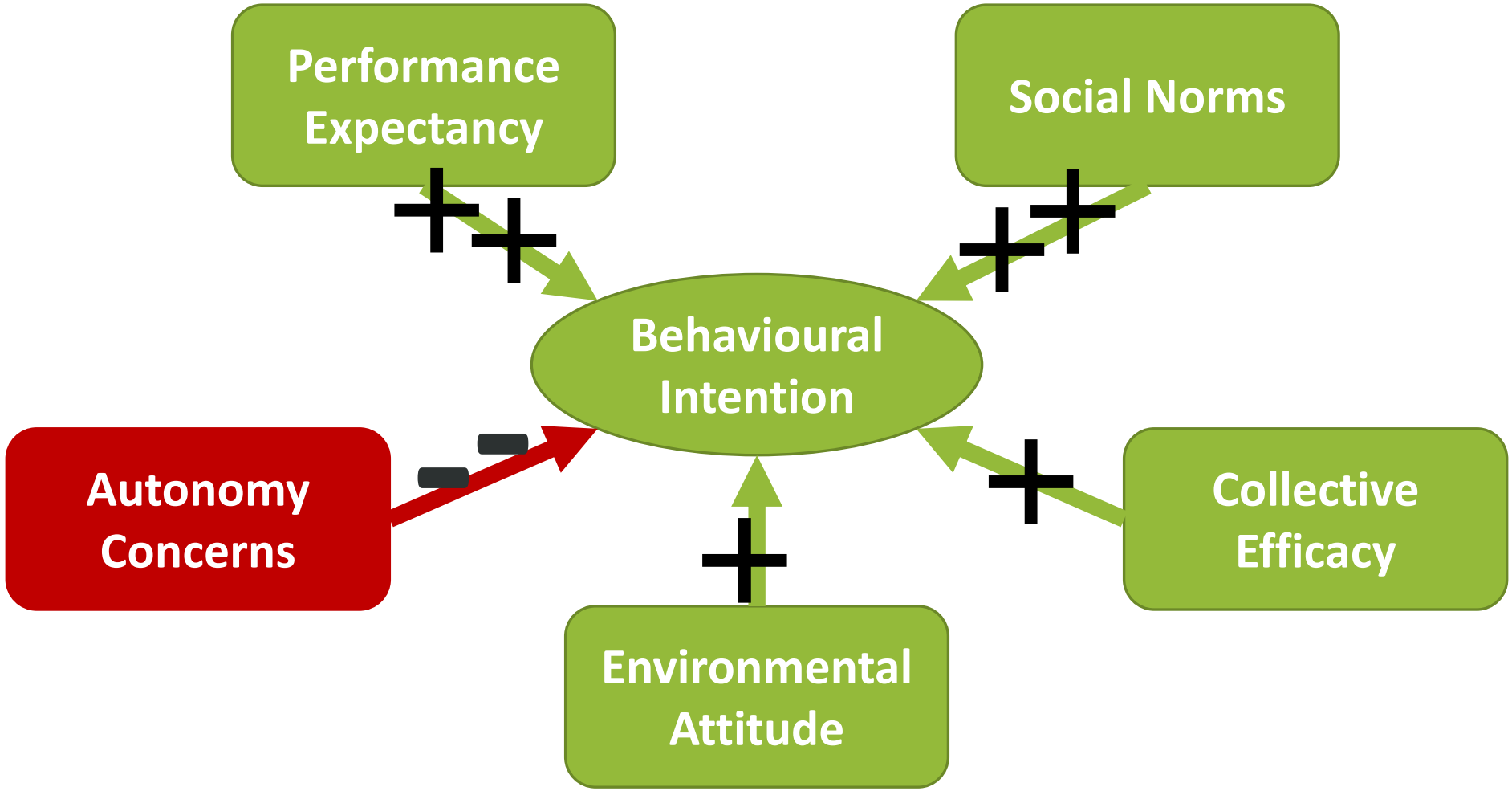
Survey Experiment: Setup

Alice think it‘s her duty to participate in automatic temperature adjustment.



I can prevent climate change and avoid losing money!

Results: Technology Acceptance



Conclusions

- Trusted and personal relationship counts!
- Frame it collectively!
- Understand and use social norms in communication!
- Technical soundness must be transparent!

Thanks for your attention

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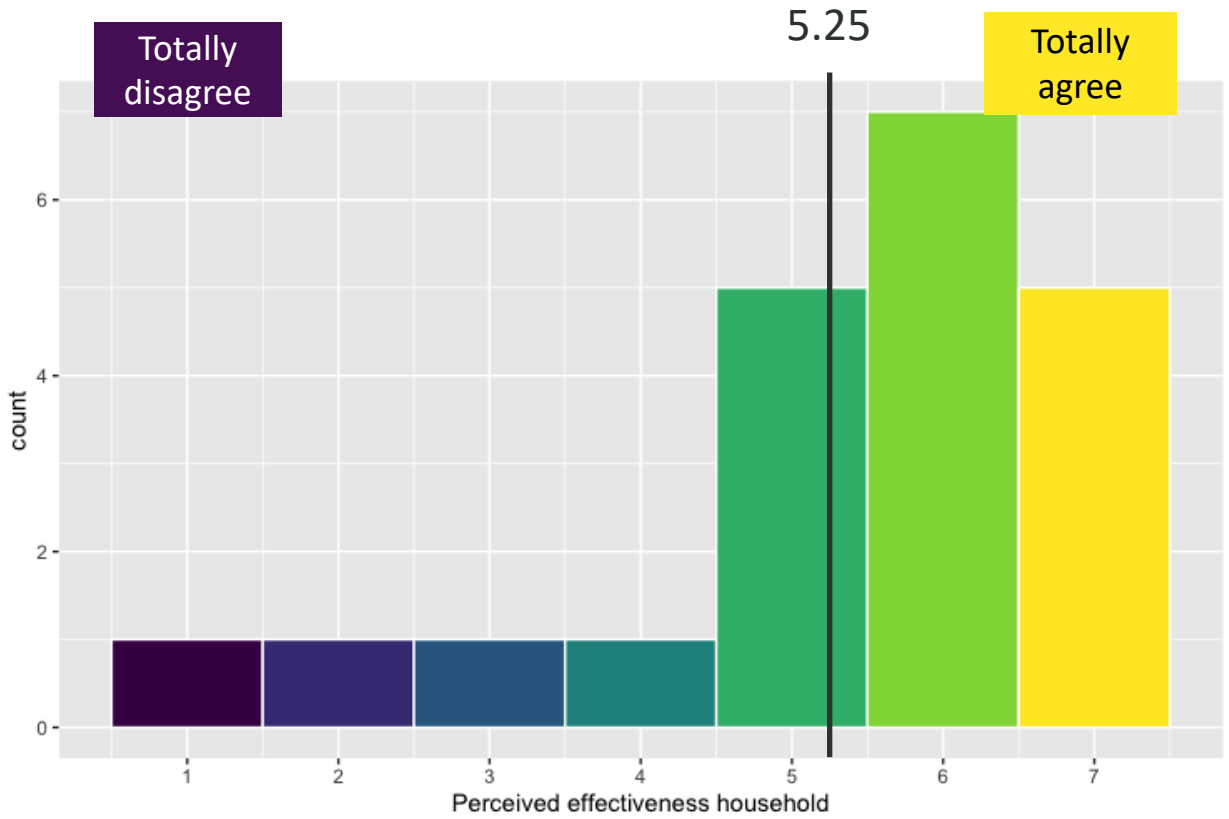
Results Survey (n=21, female: 33%)

„We – as a household – can make a big difference ecologically by cooperating in a smart scheduling system with our heating“



„We – as a New Dokkens Community – can make a big difference ecologically by cooperating in a smart scheduling system with our heating“