

# Living in NZT LT housing - as easy as peeling an apple?

Opportunities to scale up residents' acceptance  
of LT: design, collaboration and regulations

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## In this presentation

- Learning from use
- Design
- Collaboration
- Regulations



## Learning from use

Our research group at Industrial Design Engineering: inclusive design – designing for as many people as possible.

Through a focus on the interaction between people, their environments, and physical and digital things



## Learning from use

Past 4 years:

- Case studies: small numbers, in-depth
- Home visits with NZE renovated homes, long-term IAQ monitoring
- Interviewing and collaborating with manufacturers, installation companies, building companies and housing corporations.





## Learning from use

Installation boxes added to the outside of houses and apartments

- Popular, efficient solution
- Little bother for residents

Only problem: how do we get residents to clean the filters?

“Oh, we already know we have to tell them often to do that – and some still won’t”.



## Learning from use

Well... would you want to regularly do something that is physically difficult, unpleasant, confusing, feels dangerous, and has nothing to do with how you live your life?

And do this in a scary, cold, complicated place outside of your home?



## Learning from use

If we put ourselves in their shoes...

“... so they want me to peel an apple with a dirty garden shovel, regularly.”

Would you?



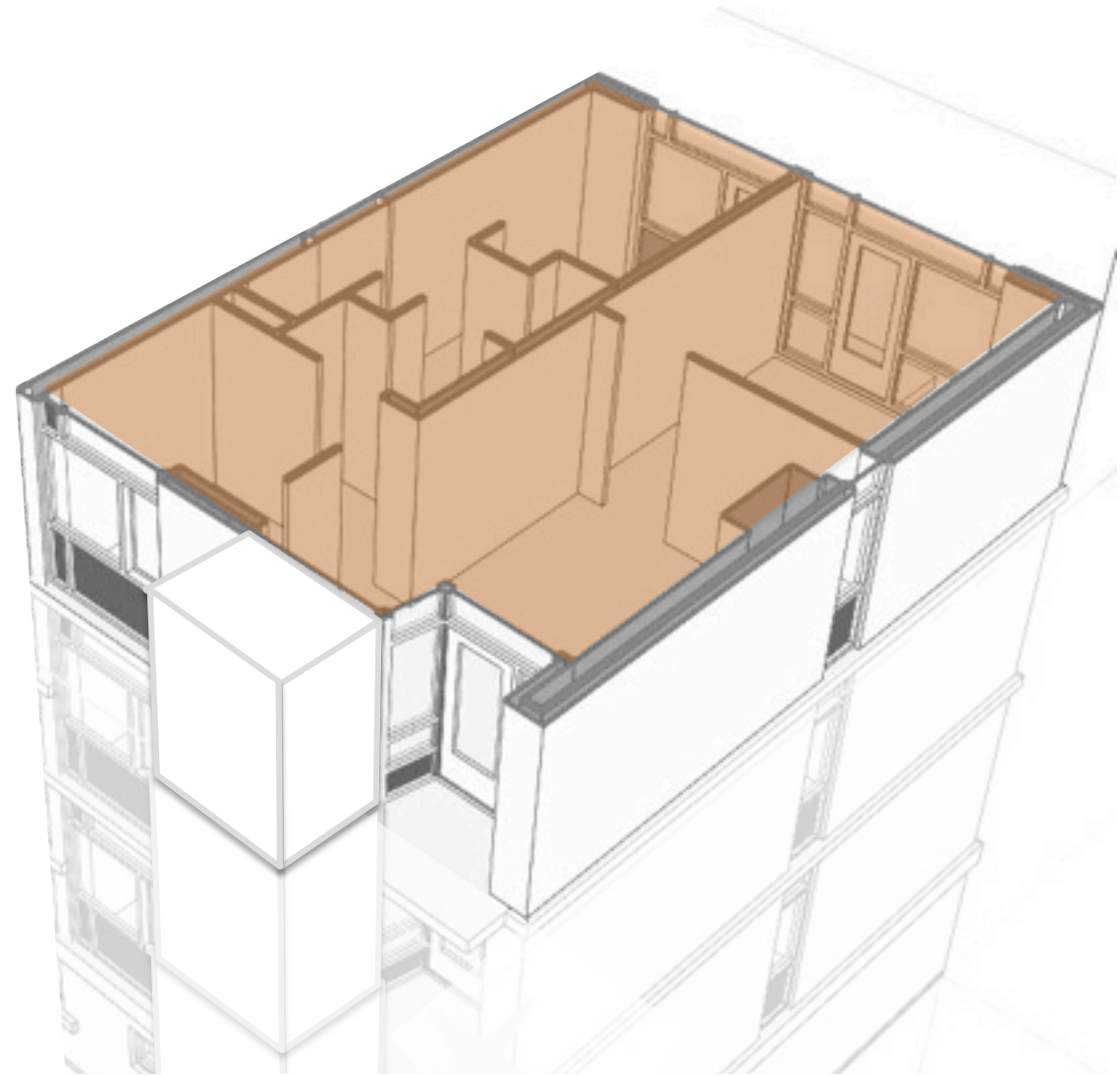
## Design

If we want people to do something - regularly, then we should make this ...

- very, very easy to do
- and part of their regular life, part of the inside of their home.

This means...

we should plan for what people do in their home.

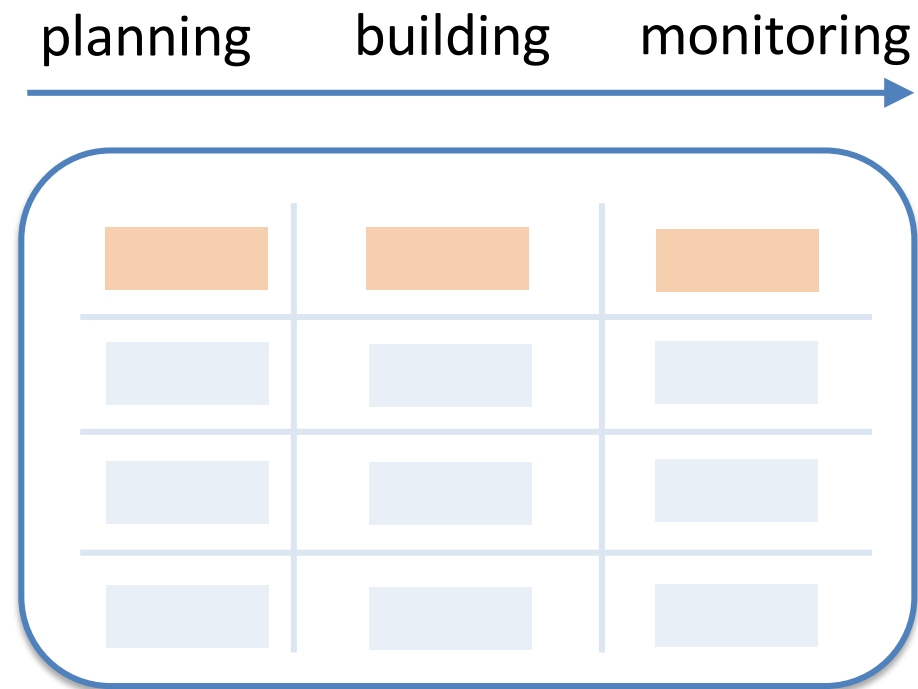




# Design

Planning a renovation project:

We'd need an **Interaction concept**  
Installation concept  
**Renovation concept**  
Performance



## Design

But also ... we'd need better integration of installation and renovation concepts.



## Collaboration

Building products manufacturers:

“By the time our products are used, they were developed two+ years ago, and we are doing the next generation. Your insights are useless to us”.

Building products design




Renovation project


# Collaboration

It is like saying ...

sorry to hear about that old shovel ...  
but we have already made a better, nicer shovel.



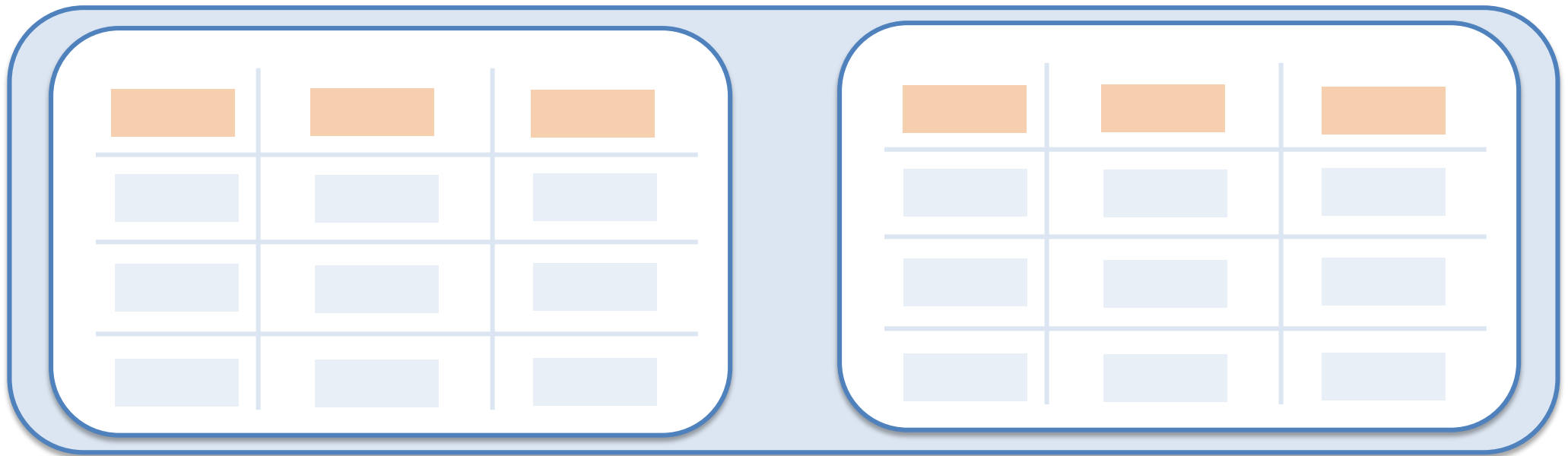


# Collaboration

How to connect?

Building products design

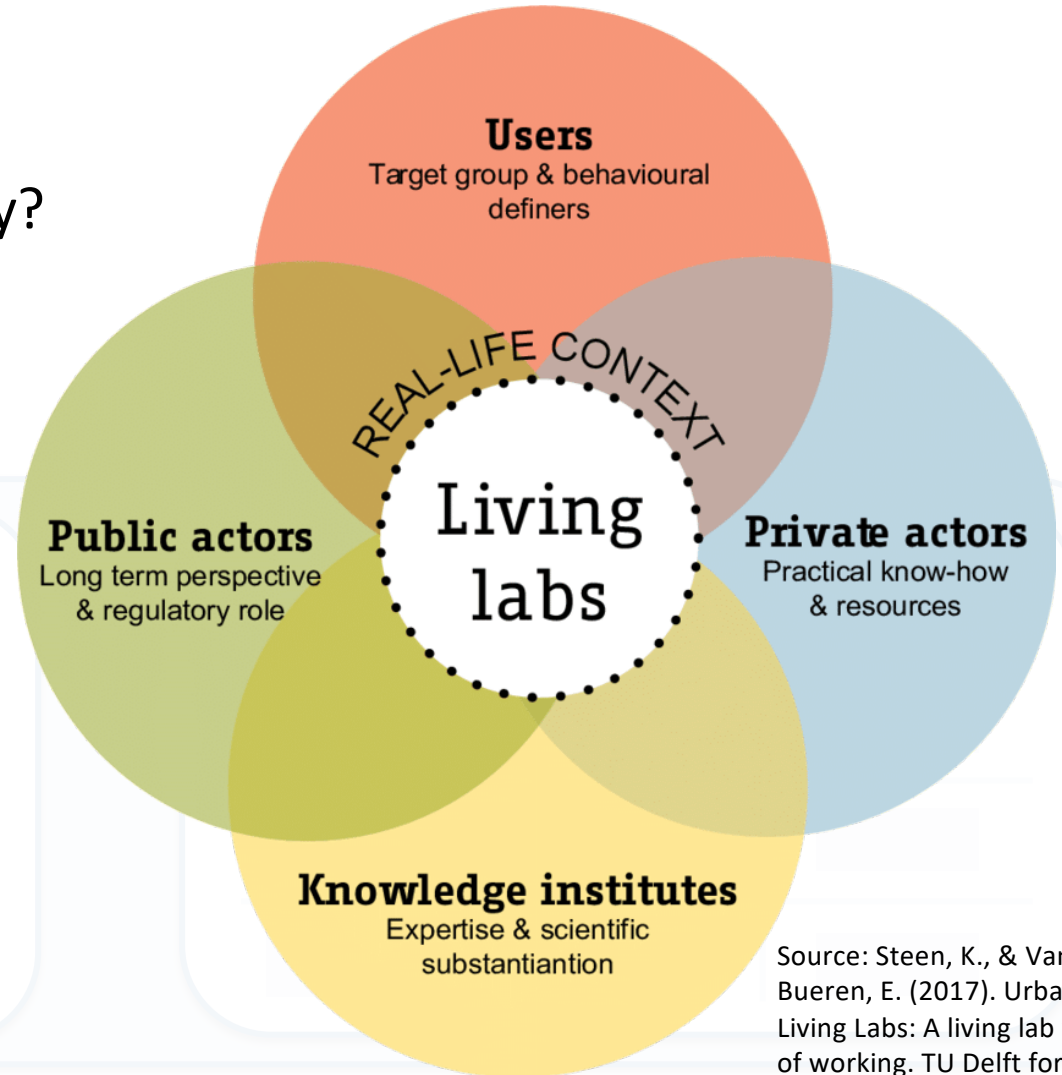
Renovation project



# Collaboration

Living labs for the building industry?

Building products design



Source: Steen, K., & Van Bueren, E. (2017). Urban Living Labs: A living lab way of working. TU Delft for AMS.

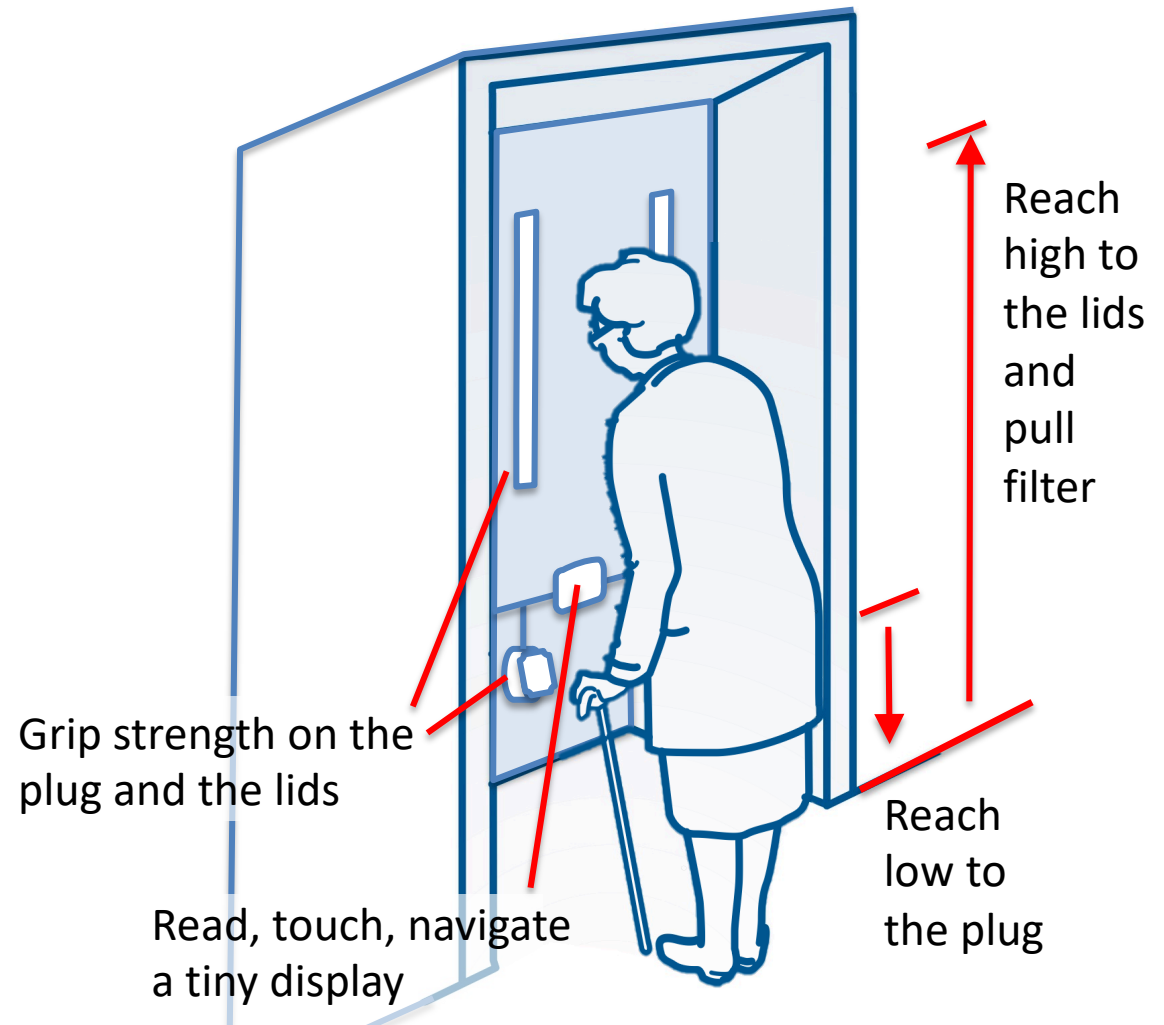
## Regulations

This box outside this lady's home contains the ventilation unit.

Even if we assume that she would be willing to clean the filters ... would she be able to do so?

Better regulations for accessibility and usability are needed.

✗ Vacuum clean a floppy filter bent over to the floor

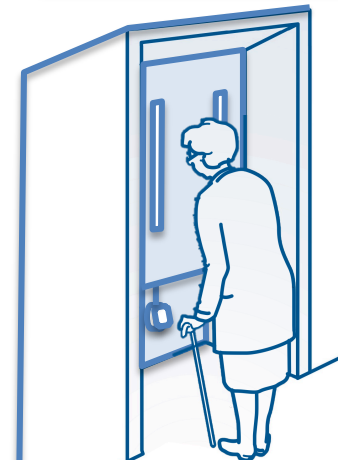
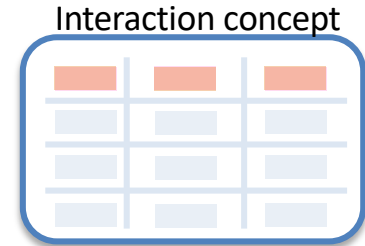


# Conclusion: opportunities to scale up NZE LT housing

**Design** To reduce failure costs and energy loss,  
make Interaction concepts

**Collaborate** To speed up acceptance,  
learn from real use, earlier

**Regulate** Provide orientation on  
what can be asked of users



Then users can peel that apple.

