

A design-driven Living Lab to explore innovation for societal challenges: A dementia case study

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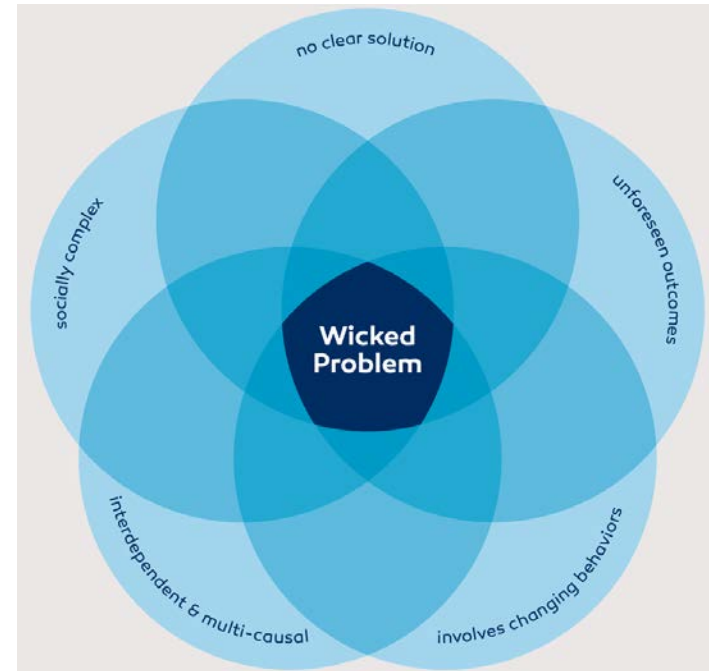


Societal challenges

Societal challenges are complex connected 'wicked' problems¹, Multi-perspective approach needed to address such problems.

Through living labs we are able to aid in innovation for such complex challenges

Design as a discipline contributes as well
In creativity, conceptualizing and making



Dementia

Number of people with dementia
Increases with the ageing population¹

This trend unbalances the economy and
pressures informal care systems

This increases the burden for informal
caregivers, and lowers the quality of life
for people with dementia²

Focus on later stages of dementia in this study



Introduction

References: [1] (Prince, Prina, & Guerchet, 2013)
[2] (Knapp, Iemmi, & Romeo, 2013)

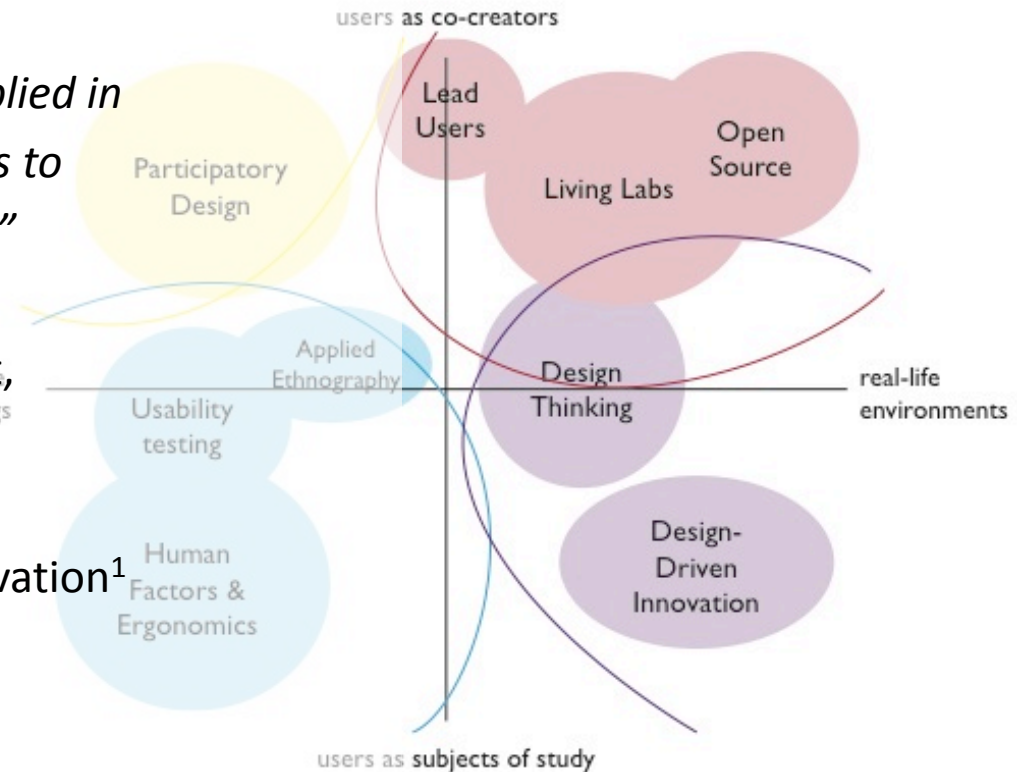
Living Labs

“Allows for different methods to be applied in Collaboration with various stakeholders to Find and evaluate innovative solutions.”

Performing research in real-life context, settings increases the validity of the results.

Stakeholder based, market viable innovation¹

Involving users through co-creation²



Introduction

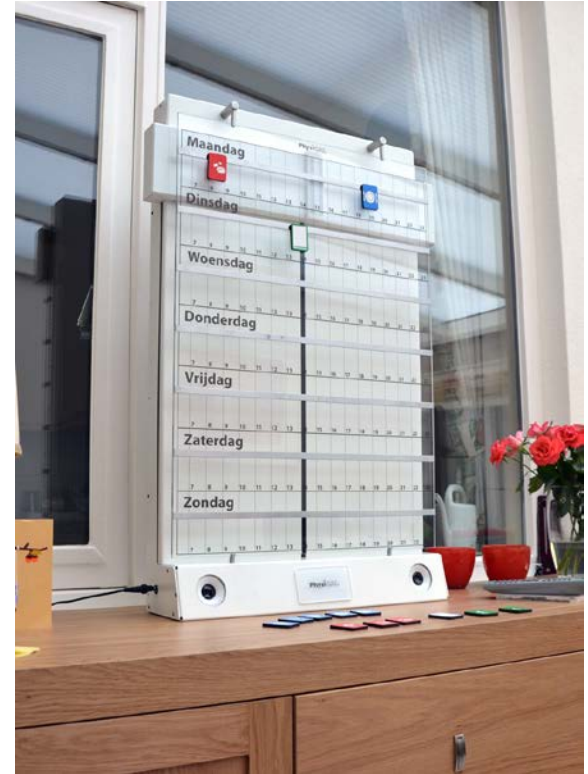
References: [1] (Leminen et al. 2012)
[2] (Bergvall-Kareborn and Stahlbrost 2009)
Picture: Based on Almirall et al. 2012

Design

Use the strengths of design to enhance
The Living Lab approach

Include need finding, conceptualization,
Prototyping, implementation, commercialize
and ability to take perspectives¹

Allow for innovation and specific challenge to
'co-evolve' into a well-explored hybrid²



Introduction

References: (Krogstie, 2012)
(Cross, 2006)

Design-driven Living Lab

A design perspective allows for exploration,
Need-finding, and probing²

Focus on open-ended results to navigate
The fuzzy-front end of innovation

Advances in technology allow us to prototype
much faster, adding to the realism of
Living Lab studies



Method

References: [1] (Brankaert, den Ouden en Groothuis 2013)
[2] (Peeters & Megens, 2014)
Picture: ODE Design



Design case

References: <https://www.youtube.com/watch?v=2JQvP9itBq0>



Design Case

TU/e



Design Case

This study

Evaluation of the Qwiek.Up solution with nurses, carers and patients

Probe-driven exploration of care context

Focus on open-ended results to navigate
The fuzzy-front end of innovation

Participants situated as co-creators in the design

The nurses could use the device as they wanted, question log and focus groups



Method

Three case contexts

Case 1: NL – Care home

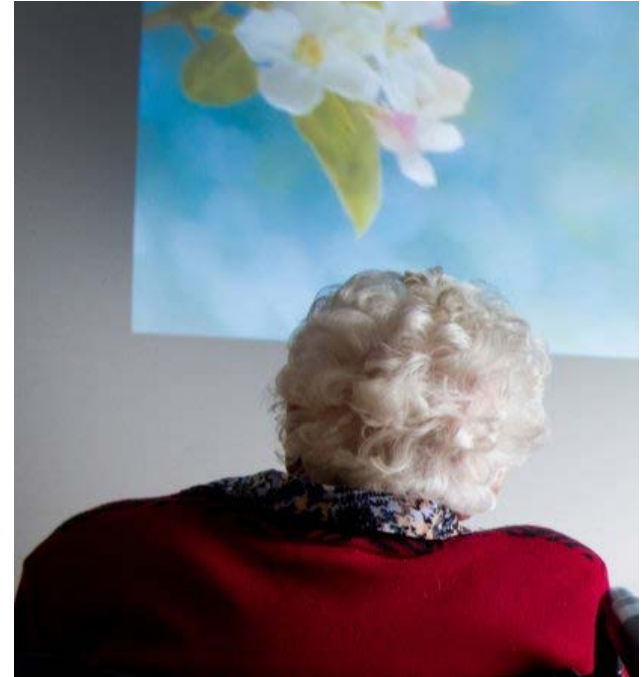
14 Residents, 6 caregivers, closed ward, 29 days

Case 2: DE – Care home

11 Residents, 4 caregivers, closed ward, 33 days

Case 3: DE – Day care center

28 Visitors, 3 caregivers, day program, 35 days



CASE 1: NL – Care home findings

General positive experience, also used for group entertainment sessions

Some modules ('aquarium' and 'forest') strong
some other should be avoided and new ideas
were added (flowers & animals)

Improved care efficiency, real solution for
'problem' residents in the care home

Opportunity in remote control for usability
and interactivity for experience.



Vitalis Wissehaege – care home in the Netherlands

CASE 2: DE – Care home findings

Residents were in a more advanced state of Dementia (CDR 3), received less positive

Used to get people to sleep with the 'nightsky' module, used as therapy session to start conversation with depressed users

Technology issues experienced by staff, interface sometimes too difficult



Krefeld Alexianer – care home in Germany

CASE 3: DE – Day care center findings

In this center the visitors were earlier in their disease process (CDR 1/2), very positive reception

Used as a multi-purpose device for different Activities for visitors (entertainment, calming, Group, one-on-one, individual etc.)

Open-ended games played with 'aquarium'
And 'forest' modules, design of some modules had a mismatch in image and sound



Krefeld Alexianer – day care centre in Germany

Overall discussion

Potential of Qwiek.up, probe-based evaluation and the design-driven Living Lab

Contributed to a sub-challenge of the societal challenge of dementia by focusing on caregiver efficiency

Multi-stakeholder perspective included and already
Complex for this part of societal challenge



Thematic Analysis

Topic 1: Application in Care

Overall Qwiek.Up was greatly appreciated in care domain and showed new uses. Dynamic purpose that goes further than the original proposition (games and group)

Topic 2: Technology and Usability

Evaluation results show bottleneck issues in technology (projector technology) and usability of interface.

Topic 3: Design opportunities

New additional features such as interaction, play and other target groups, experience modules should be retuned with a stronger image/mood/sound match

Successful in explorative way of performing
Design-driven Living Lab evaluations

Potential of disruptive and open-ended
collaboration in Living Labs

Participants a co-creators supports new
design opportunities

Future developments with project
From the start and enable the approach
in other contexts



Conclusion



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Thank you!

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