

Product development and end user involvement

Case: Mylifeproducts AS & Memas[®]

Background: Reminding technology projects

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Mylifeproducts AS & Karde AS

Karde AS
Innovation Development Management

Mylife
products AS



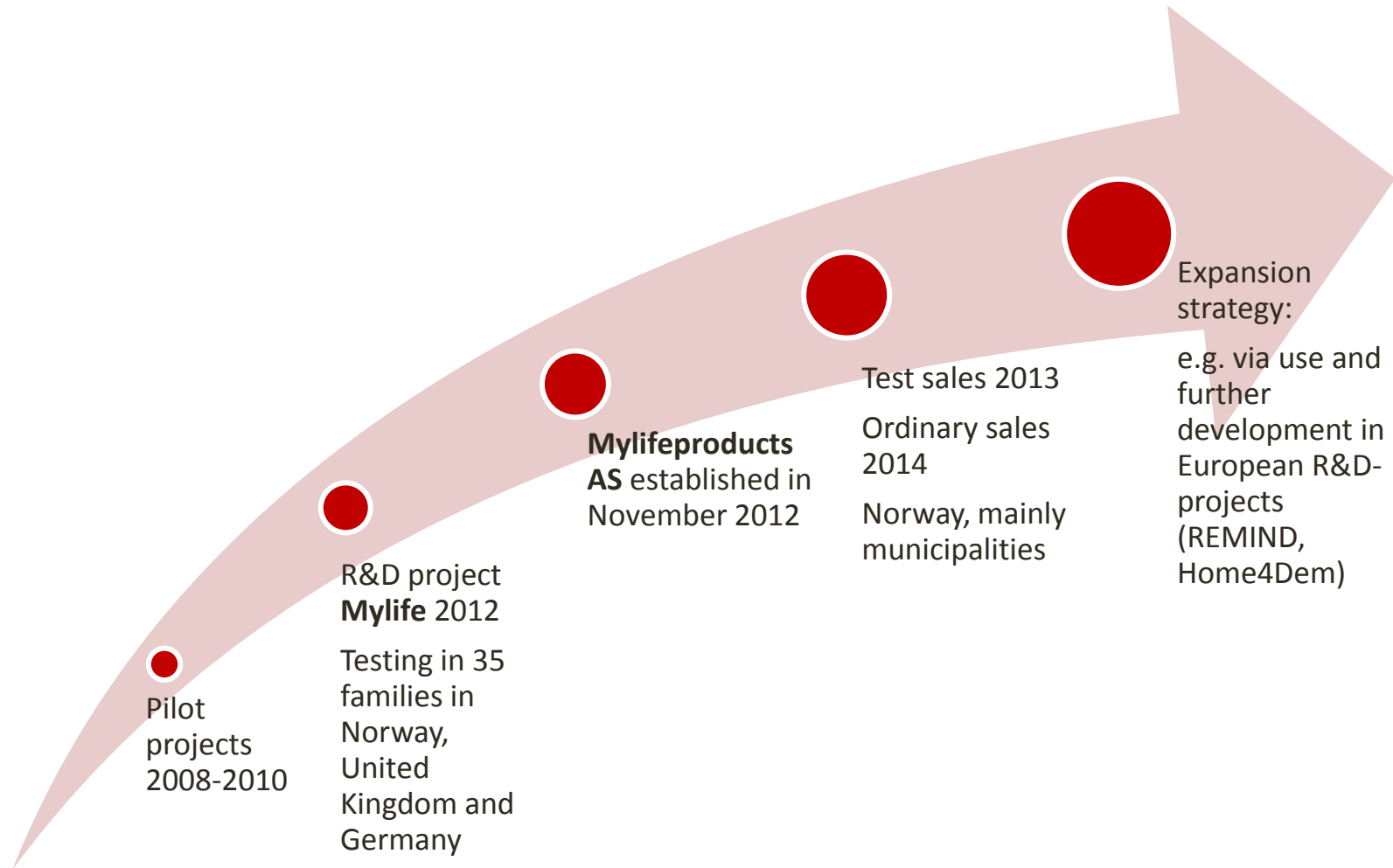
Increasing demand for assistive and health technologies



Mylifeproducts AS

Develops and sells assistive technologies for people with cognitive impairment (e.g. dementia).

Memas[®] – based on research



Facts about Karde

- Norwegian SME founded in 2004
- Business idea: Innovation projects within ICT
- Together with sister company Tellu AS, we are 10-15 persons
- Participation in several AAL JP projects
- Main areas:

Collaboration in public sector

- Information governance
- Semantics
- Organisational aspects

Assistive technologies for persons with cognitive decline

- Memory impairment (e.g. dementia)
- Intellectual disability (e.g. Down's Syndrome)

www.karde.no

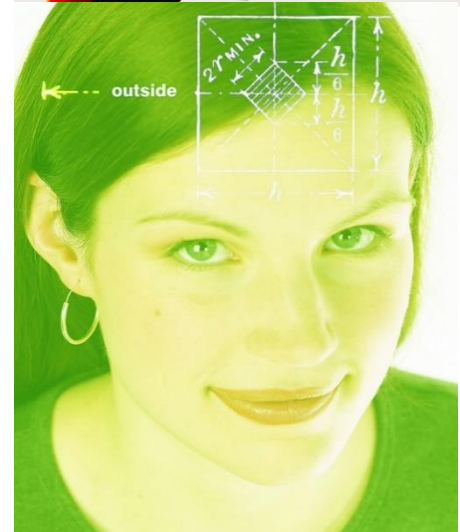
Focus 1: cognition

Memory or other thinking skills are cognitive abilities.

These include **thinking, knowing, learning, remembering, judging, paying attention, and problem-solving.**

These are higher-level functions of the brain and encompass language, imagination, perception, and planning.

These go on in our brains when we receive, store and process information that comes through the senses (vision, hearing, taste, smell, movement and body perception).

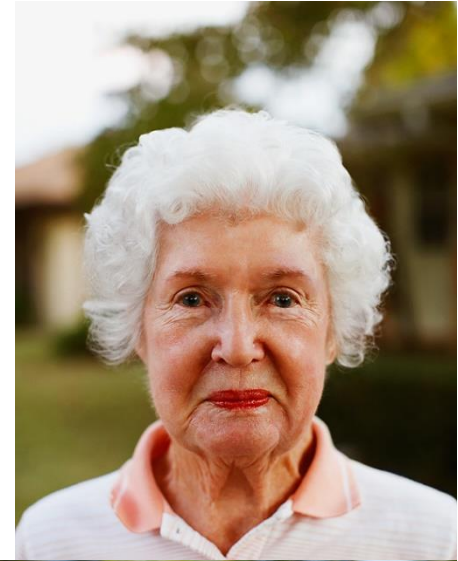


Focus 2: Well-being and Quality of Life

It is possible to maintain good Quality of Life (QoL) despite of dementia or other reasons for memory impairments.

Support to well-being and activities of daily living contribute to this, and may enable living at home a bit longer.

Reminding technologies are of key importance.



Previous AAL JP projects



Mylife

Time orientation,
well-being

(**coordinator**
concept
HCI
user studies
app development
commercialisation)



T&Tnet

Navigation,
social platform

(**partner**
HCI
user studies
app development
sensor technology)



PIA

Support for Instrumental
Activities of Daily Life at home

(**coordinator**
concept
HCI
user studies
app development
sensor technology)

Mylife

"Multimedia technology to support independence for and participation by people with dementia"



Joy and pleasure

Daily structure

Independence

Mastery and wellbeing

Contact with family and friends

Reduced stress for carers



Memas[®] today (the app)

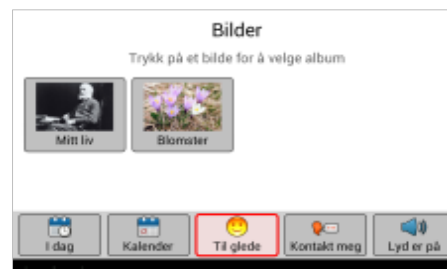
Memas[®] tablet displays:

- Day, date, time
- Appointments and reminders today
- Calendar
- For pleasure: pictures, newspapers, radio, weather and personalised documents (to-do lists, guides, tasks etc.)
- Contact me

Caregivers use dedicated website to configure the app, add appointments and reminders, upload content and monitor the use.

www.mylifeproducts.no

memas[®]
Your memory assistant



On-going AAL JP projects



Home4Dem

Home sensors,
helpful apps for caregivers

(partner
concepts
HCI
user studies, trials
app development
commercialisation)



MedGuide

Polypharmacy management,
e-learning, social platform

(partner
HCI
user studies
app development
e-learning)

Aim of REMIND (H2020)

The overarching aim of REMIND is to create an international and intersectoral network to develop the necessary critical mass and knowledge exchange framework to advance the state-of-the-art in reminding solutions to be deployed within smart environments to support persons with dementia.

<http://www.karde.no/remind>




Aim of Home4Dem (AAL JP)

The aim of Home4Dem is to create an innovative and modular, sensor-based home solution to support people with dementia and their caregivers. The goal is to enable people with dementia to live at home independently and to maintain an active social life, thus improving their quality of life and that of their caregivers.



Memas[®], too, goes green

My page
Touch a picture to view slides.



The room in the upper left corner is ...?

Rooms



3 differences



Good Friday
Good Friday is a public holiday.
Right?
or
Wrong?

Seasons

6 daily exercises

Please sit down.
Sit beside Memas.
Leaf through the pictures and do the exercises.

Daily gym



Today



Calendar



Pleasure



Contact me



Sound is on

Basic working principles

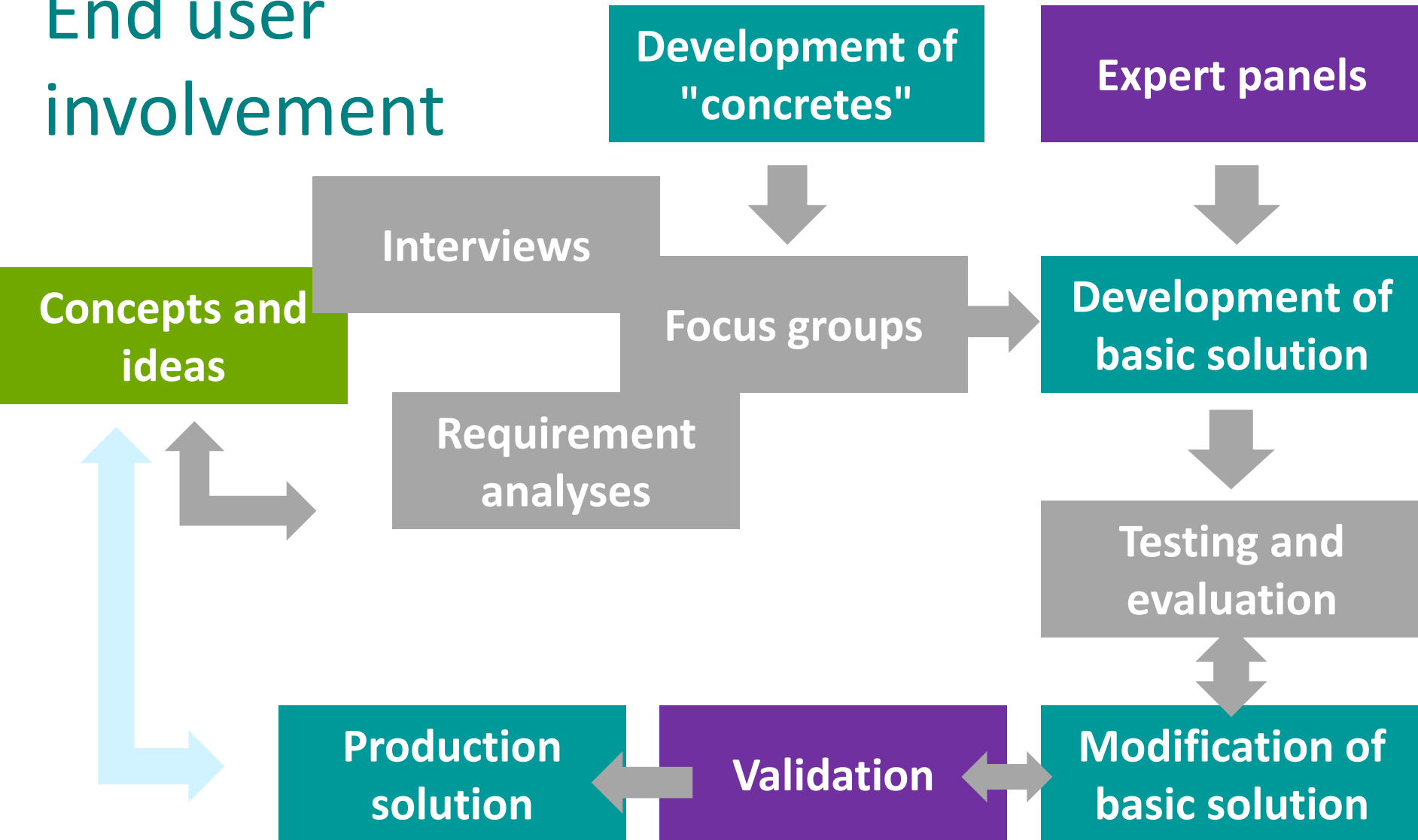
Project

- End user involvement
- Expert involvement
- Carer competence
- Ethical guidelines
- Multidisciplinary

Product / service

- Start with end user needs
- Keep it simple
- Accessible design
- Adaptive, personalisable
- Non stigmatising






End user involvement








Typical work flow

- Analysis of requirements, wished and needs of
- Prototype development
- HCI approvability, usability and accessibility assessment
- Trials (prototype in real use)
- Interviews, observations, simple questionnaires or diaries (😊 😞)

Personas

Aud Gjerdrum		Gjerdrum, Akershus		
Retired housewife		The Skeptic		
Mobility:	Technology:	Economy:	Social:	
				
Age:	67	Limitations:		Travel story: <i>"My husband drives me if I want to go somewhere special. I do have a driver's license but I haven't been driving since 30 years ago. And then I take the bus. It's practical and cheap. I call Ruter if I need to know the timetables. And then of course, we have the senior bus tours to all over Europe. We use to travel every fall and spring."</i>
Family:	Married to Hans, children, grandchildren.	Cognitive:	Healthy. Cross-words for experts keep her memory sharp.	
Social:	Family and sewing club.	Sensory:	Good vision and good hearing.	
Economy:	She has enough money but does not spend much. She saves a lot so that her children and grandchildren can inherit a nice sum of money.	Motor:	A bit slow walker; stiff legs.	
Geography:	Lives on the countryside. She enjoys the nature around, and the calmness.	Attitude: <i>"I think we need to travel a bit. To see around, just for our grandchildren's sake. They deserve grandparents who have seen something else, too, than the Gjerdrum village. We travel by bus or by train. It is practical, and very social as many other couples we know travel along. We do not fly. It is very expensive and not so safe. You can lose your luggage and they can cancel the flights. Hans agrees on this."</i>		
Technology use:	She has an old Nokia cellphone. She is starting to realize that a more modern phone might be convenient. Her grandchildren have given her an old PC that she uses for online banking and simple e-mails.	Touristic interests: <i>"Bus tours to European cities with other seniors are really interesting. We go to theater and museums. Musicals are also very nice. I'm sure Hans agrees. There is just one problem. We have a new tour leader and she makes the tour programmes on her PC and we should participate in this affaire somehow. The previous leader called us to discuss. Now it is all on PCs. I do not know anything about the next tour yet, and I notice that others do already."</i>		Accessibility story: <i>"I am not a risk-taker. I think that the ground should be stable and safe for elderly people. What would happen to Hans if I broke my leg and arrived at a hospital? And another thing... I'm not a great fan of huge crowds of people either. I feel sort of trapped"</i>
		Technology story: <i>"I find all the new gadgets rather unnecessary and expensive. All those silly things people do ... I've seen grown-ups stare at their telephones on a bus, with ear-plugs and music that everybody around can hear! It's not even music, I say."</i>		

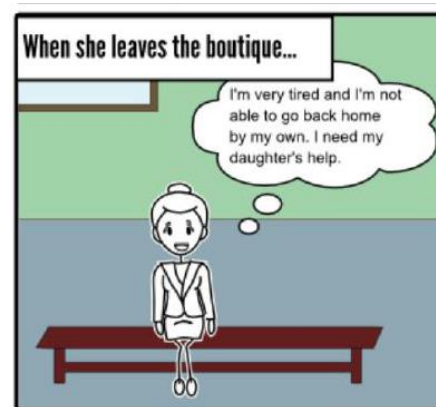
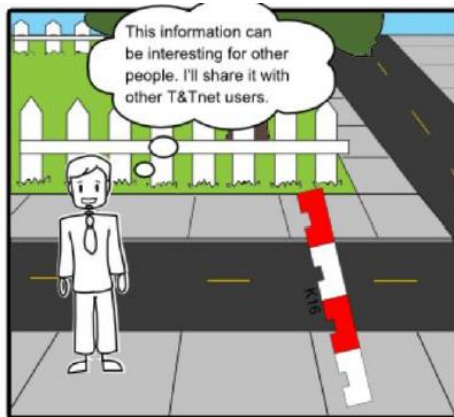
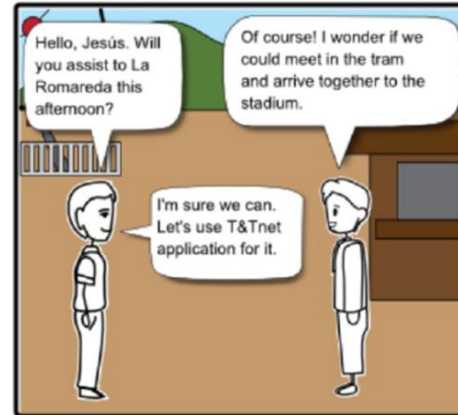
Christian Dahl		Bærum, Norway		
Early retirement		Techno-freak		
				
Age:	65	Limitations:		Travel story: <i>"I have two cars, and drive my Mercedes whenever I can. When I'm in France, I usually rent a boat, I really enjoy sailing. I often travel far by plane, and then economy class is not an option, I want comfort!"</i>
Family:	Wife (Lene Storm Dahl), ex-wife, children from previous marriage.	Cognitive:	Has experienced stress-related symptoms during the last years, some concentration problems.	
Social:	Large social network. Plays golf, active in Rotary.	Sensory:	No problems at all.	
Economy:	Very good. He can travel anywhere. Villa on Neslya, summerhouse in France, ski-in-ski-out apartment on Kvitfjell.	Motor:	No problems, really well fit. Runs marathons.	
Geography:	Christian has two cars. He uses rental cars when in France or other places. Travels a lot by plane.	Attitude: <i>"I really like trying out new things, I get bored rather easily. I am always online, that way I will not miss out on anything."</i>		Accessibility story: <i>"I have no physical problems with getting around. However, I always make detailed planning and lists, so that I'm always in full control."</i>
Technology use:	Christian is kind of a techno-nerd, and has double of everything: iPhone and Samsung-phone, iPad and galaxy Tab, PC and Mac. He enjoys trying out new things, and his friends often ask him for advice. Cost is not an issue.	Touristic interests: <i>"When travelling, I always make detailed plans before I go. I'm a very active person and I love sailing, diving and things like that. I'm a passionate art-collector, and buy art on auctions abroad. I also have to help my wife finding the places she wants to go to. She loves shopping!"</i>		Technology story: <i>"I'm really into all things technologically, and take my pride in always having the latest gadgets and apps. When travelling, I always make my reservations for hotels and tickets online."</i>

Focus groupus

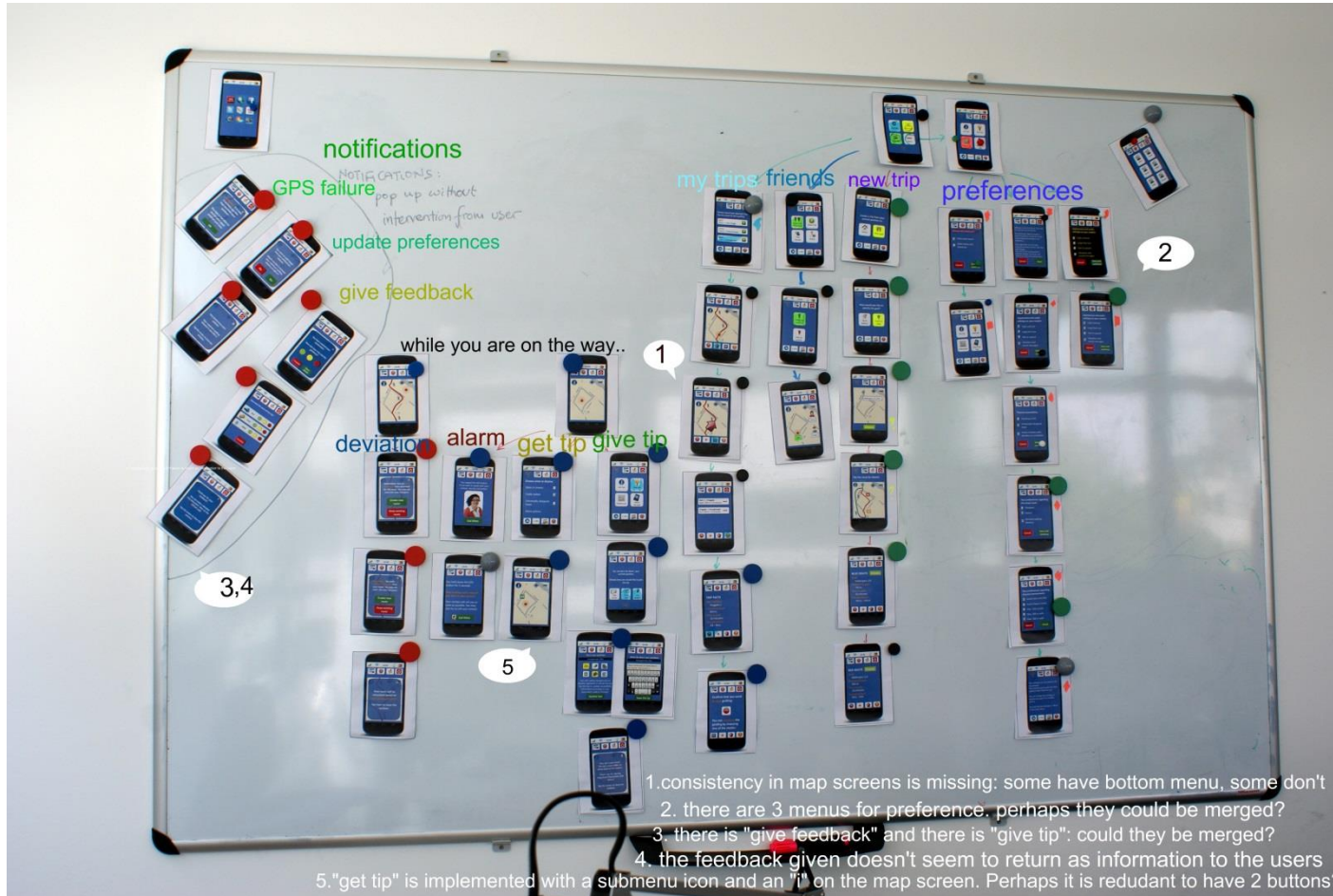


(Photo: Cure)

Scenarios and story-boards



Functionality tree (mock-ups)

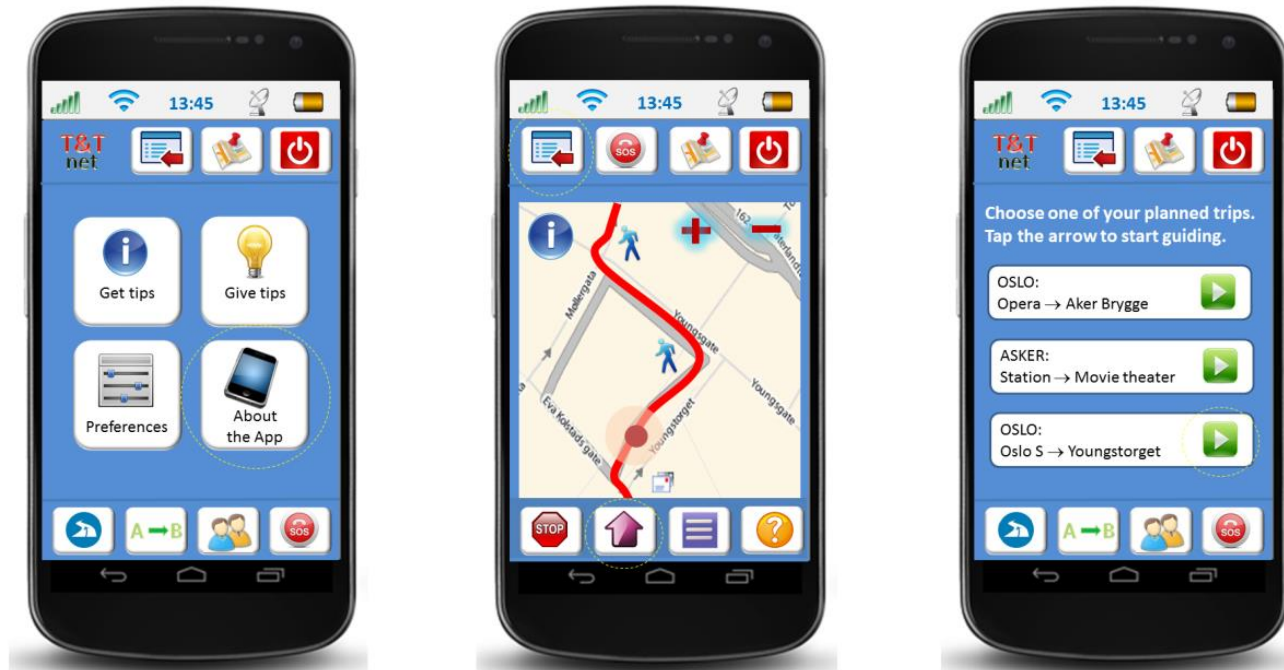


Mock-up tasks organised in realistic sequences of sub tasks

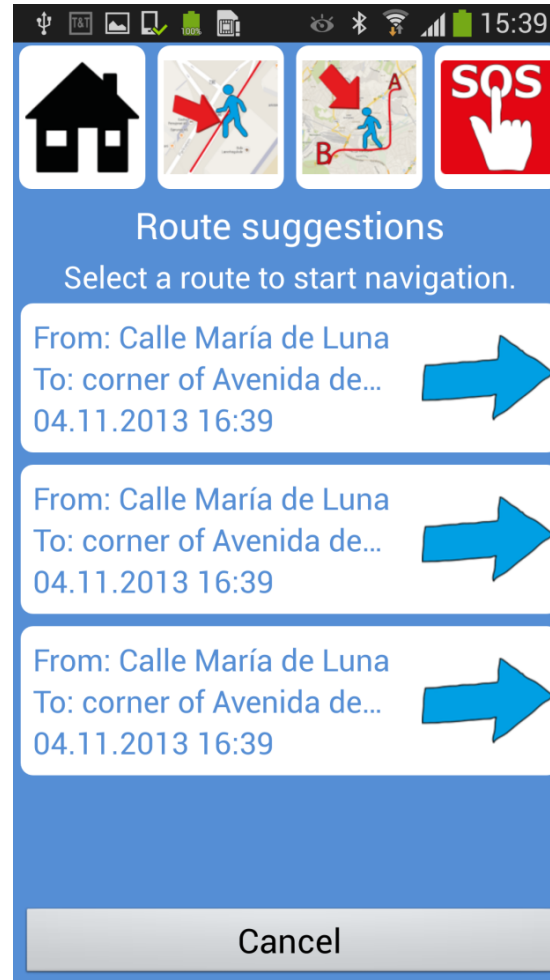
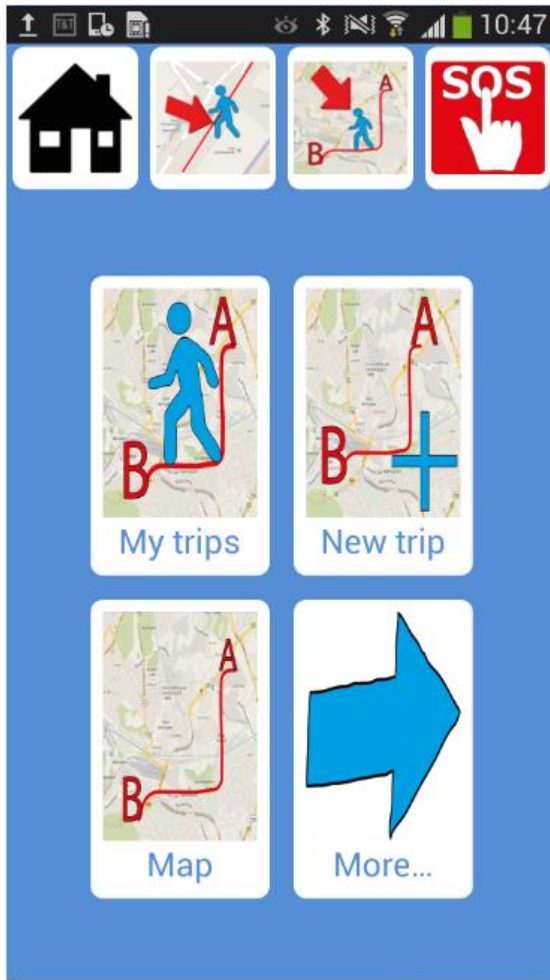
Now you shall ...

- What would you do if you should ... instead?
- What do you think this button does?
- Is there anything that you feel is missing?
- What do you think about the general appearance?

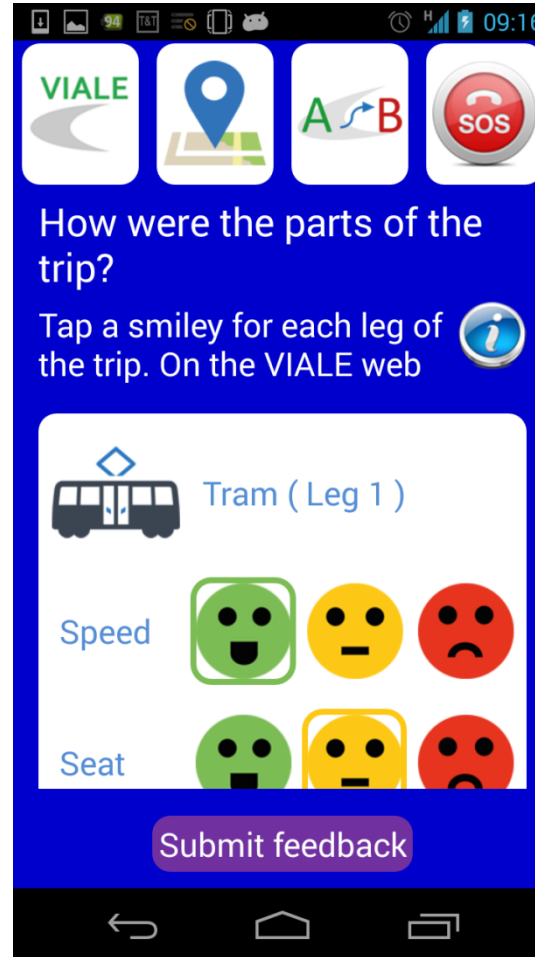
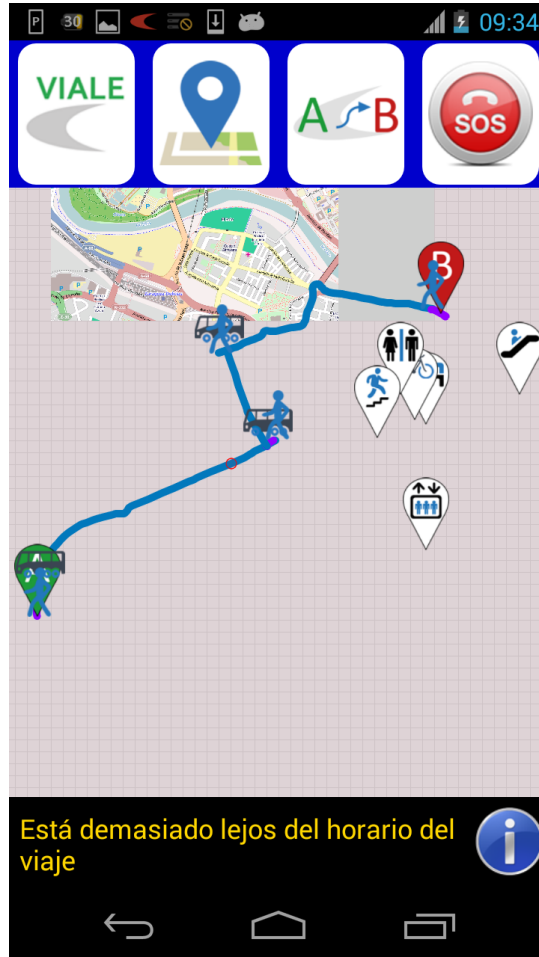
Mock-ups (paper prototypes made as realistic as possible)

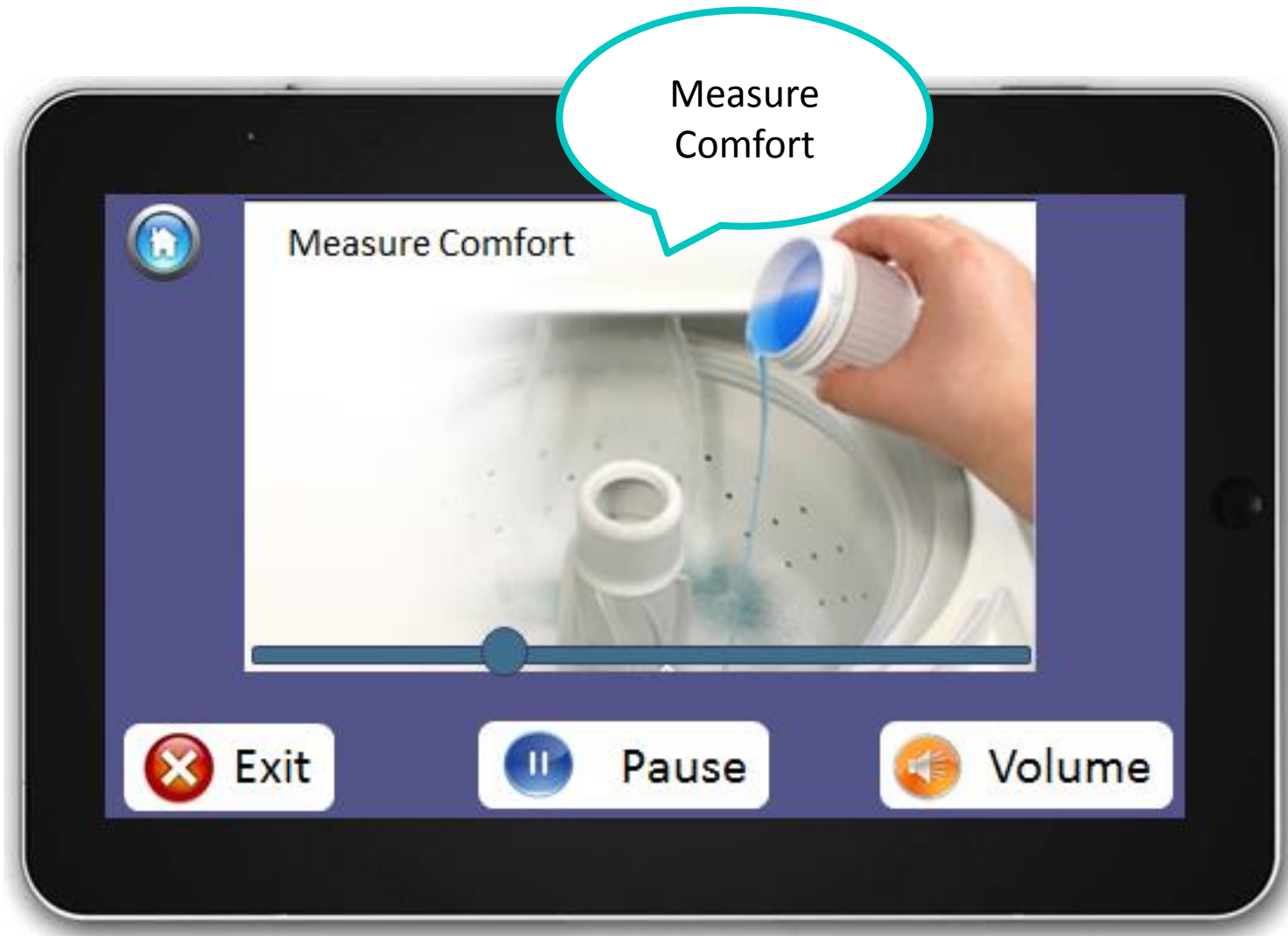


Real app with "sketch finish"



Final app





Tests and trials



Evolving design practice

The goal is to design as simple and intuitive user dialogues and interaction as possible.

10 basic rules, based on end user involvement, tests and trials:

1. Enable gradual simplification.
2. Enable direct manipulation.
3. Offer alternative modalities.
4. Simplify the language.
5. Make visualisations relevant .
6. Offer alternative presentation styles.
7. Model real world artefacts and their behaviour.
8. Make it easy to start from the beginning.
9. Acknowledge external communication.
10. Let the users be users.

Thank you!

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