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Identifying Customer Needs

MEC 3002 Methods in Early Product Development

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Agenda

Discussion of last lesson's homework
Opportunity Screening
Gathering customer needs

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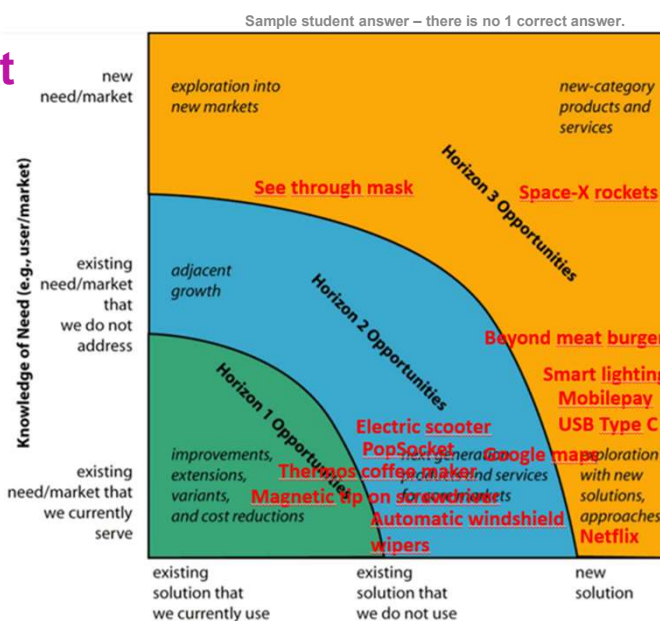
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Task 1: There is no exact right answer, but to clarify a bit:

New solution means a novel technology was needed, so if magnets existed, making a tip magnetic is an existing solution

Beyond meat products were places in all corners of the image!! (Depending on what market you think they are for (e.g. vegetarians or omnivores) the market dimension can vary, but it is new technology/solution.)

You had same and opposite arguments for having most opportunities in all horizons1,2, or 3. In a live class, we would discuss these more. All have very valuable views on it, and many different ones. Ask your classmate afterwards, what they did!

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Sample student answer – there is no 1 correct answer.

new need/market

Knowledge of Need (e.g., user/market)

exploration into new markets

new-category products and services

Horizon 3 Opportunities

See through mask   **Space-X rockets**

existing need/market that we do not address

adjacent growth

Horizon 2 Opportunities

Beyond meat burger

Smart lighting
Mobilepay
USB Type C

Horizon 1 Opportunities

existing need/market that we currently serve

improvements, extensions, variants, and cost reductions

Electric scooter
PopSocket
Thermos coffee maker
Magnetic tip on screwdrivers
Automatic windshield wipers

exploration with new solutions, approaches
Netflix

existing solution that we currently use

existing solution that we do not use

new solution

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On grading

Pass/fail per task (2 tasks) -> possible grades 0, 50% or 100%

Easy pass, if some effort.

Note for future graded assignments – tell me what you did and how. E.g. for identifying user needs, which is more convincing, a single list of needs, or the same list with a description where and how the needs came from? This week, many of you just gave me the mission statement with no evidence of the opportunity identification process.

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Homework + opportunity screening

Join the Miro board to view the opportunities you identified (same, as before: https://miro.com/app/board/o9J_ktflo2k=/)

Multi-voting as an example of idea screening*

* it's also known as dot-voting, read more e.g. here: https://www.thedesignexchange.org/design_methods/59

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Learning Objectives:

Understand the importance of involving many stakeholders
Learn customer needs gathering methods

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Need finding as part of the PD process

Planning → Concept Development → System-Level Design → Detail Design → Testing and Refinement → Production Ramp-Up

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Types of Needs

Needs can be seen as
- Must-haves,
- Baseline needs and
- delights

as shown on the Kano diagram on the right, or as
- explicit needs and
- latent needs.
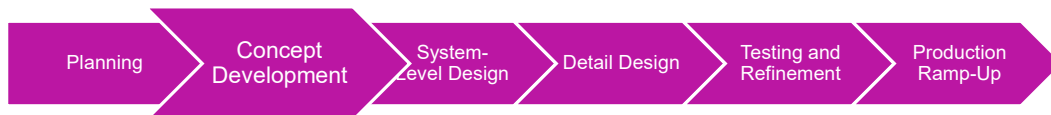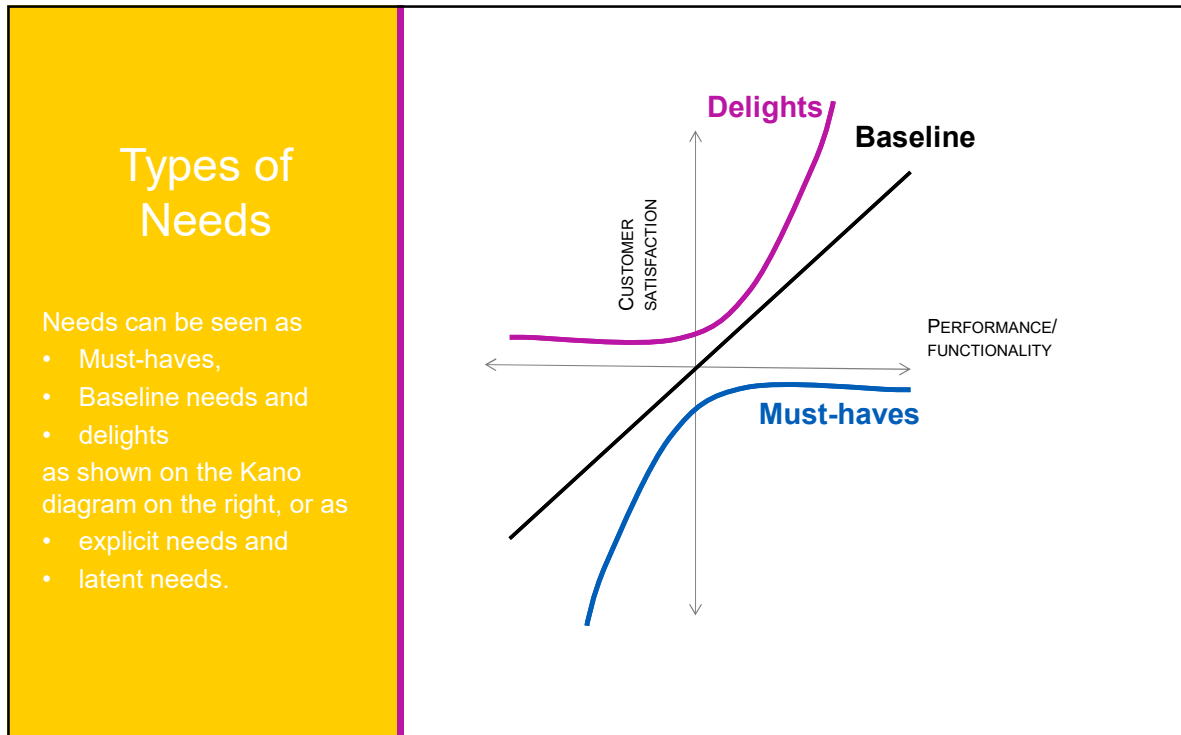
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Goals of customer needs analysis

- Learn what customers like
  - *whether able to express it or not*
  - *whether matches what you want them to want*

Right methods help you here

Beware of your assumptions!

- Gain INSIGHT
  - *Worst case scenario: learn nothing new*
- Basis for designing a GOOD product/ system/ space/ solution
  - *too many examples of bad design, cases if they only knew how people worked, thought, what and how they use it, etc.*

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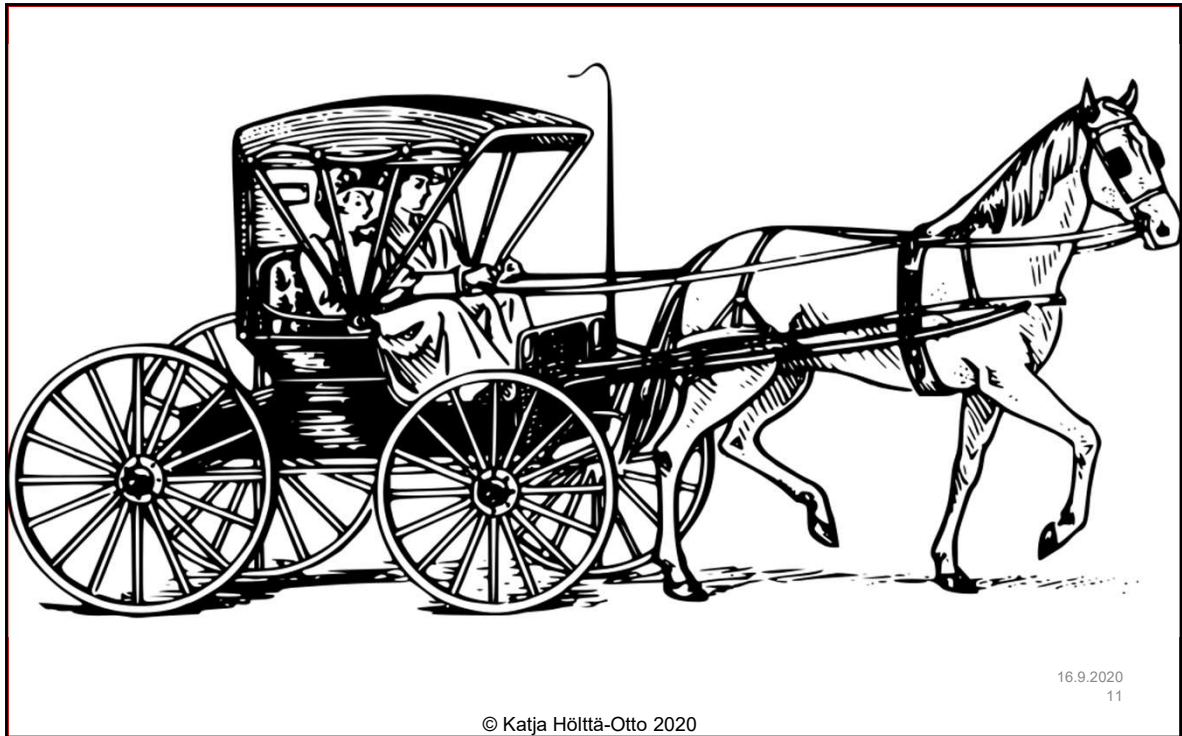
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Faster horse?
Why?
What was the user journey?
What were the painpoints?

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User journey

| Want to watch a movie | Drive to the rental store | Select & rent a movie | Pay | Drive home | Watch the movie | Return the movie | Pay late fees |

| Want to watch movie(s) | Pay | Mail order a movie | | Receive the movie | Watch the movie | Return the movie |

| Want to watch movie(s) | Pay | Select a movie | Watch the movie |

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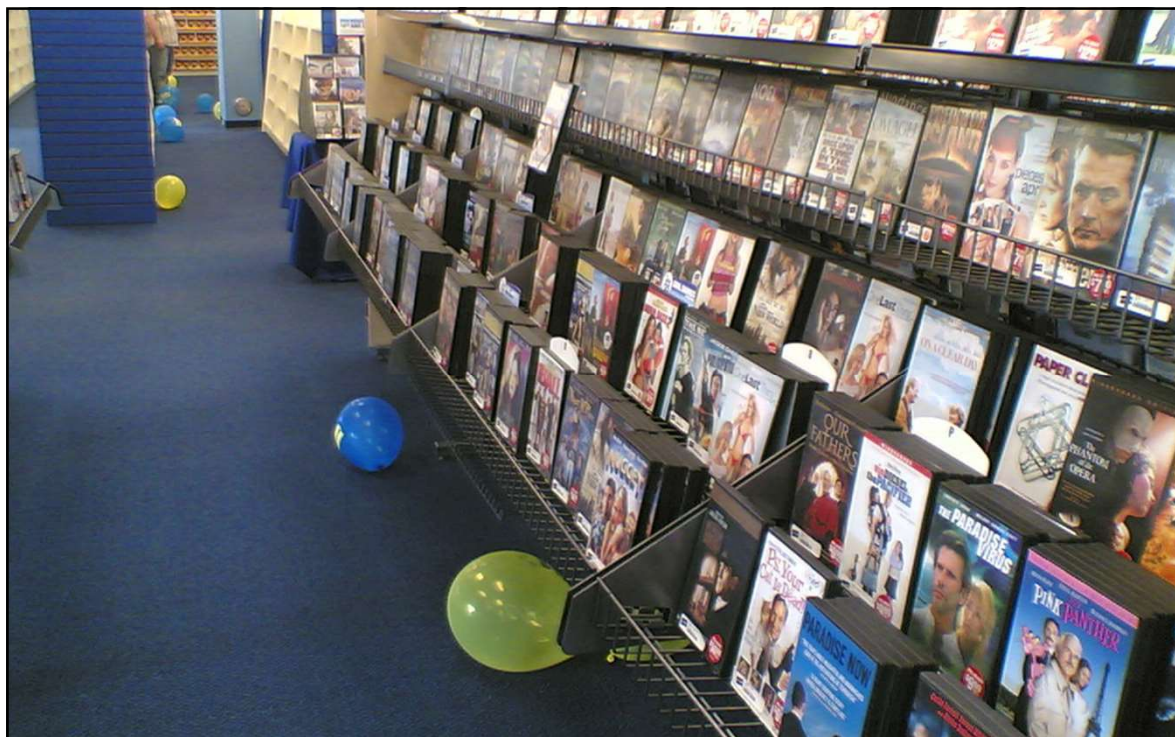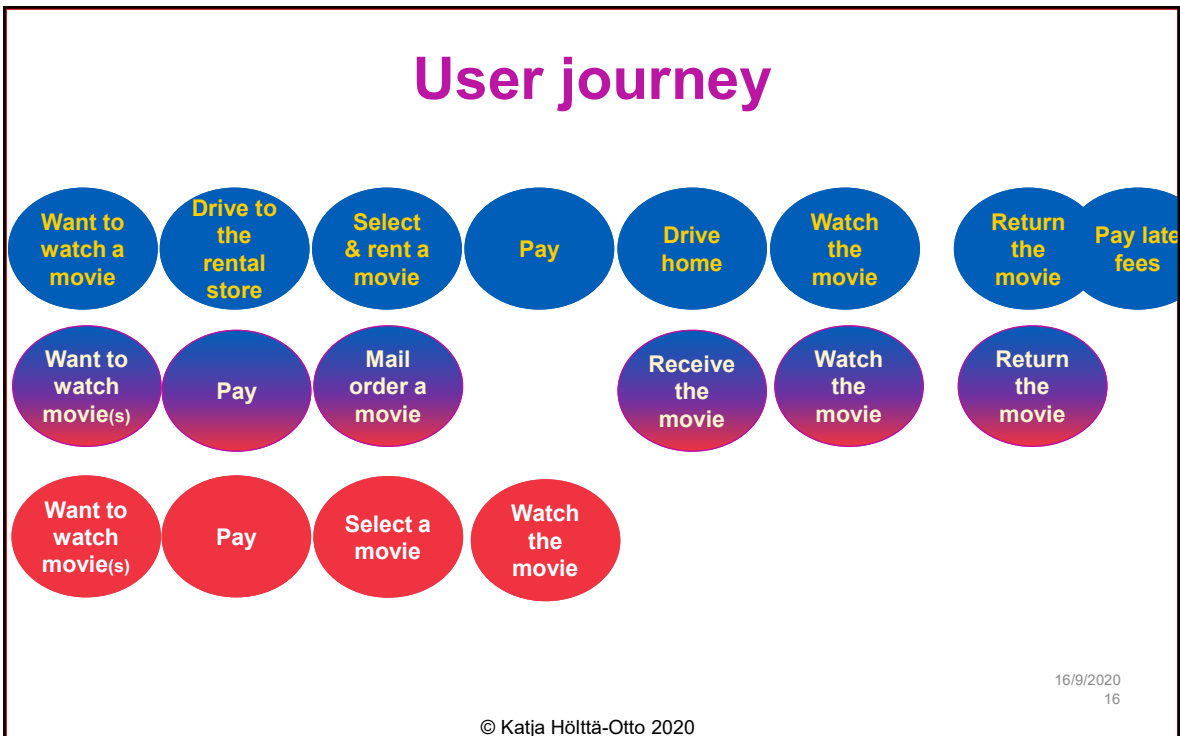
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A disruption might be incremental from the user point of view
A good innovation eliminates painpoints

Notice that a pain point can be with any stakeholder.

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What is a stakeholder?

Has an effect
Is affected by

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Multiple stakeholders - Examples

User
Purchaser
Decider
Maintainer
Maker
Seller
Regulatory body
…

AIRBUS A380-800

Superjumbo
AIRBUS A380-800

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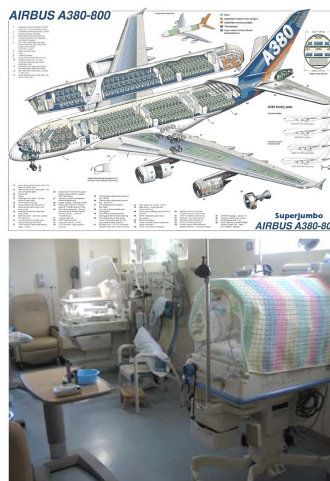
A good designer considers all stakeholders!

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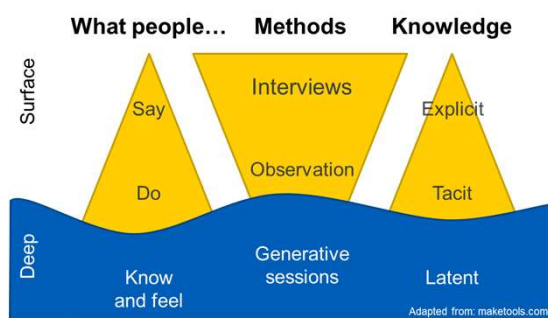© Katja Hölttä-Otto 2020

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Methods

Surveys

Interviews

Contextual Inquiry

• More in-depth interview method

AEIOU framework for observation

• Recall from opportunity identification!

Surface

Deep

Know and feel

Surveys

Interviews

Contextual Inq.

Observation

Gen. Methods

Latent

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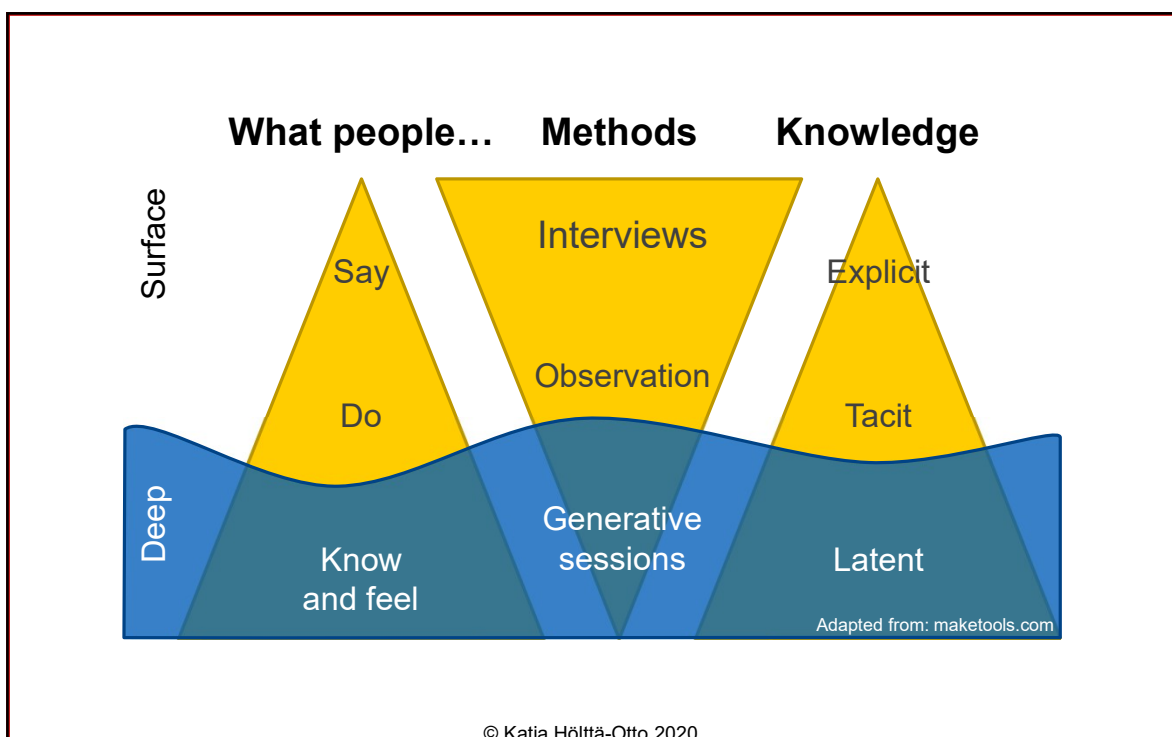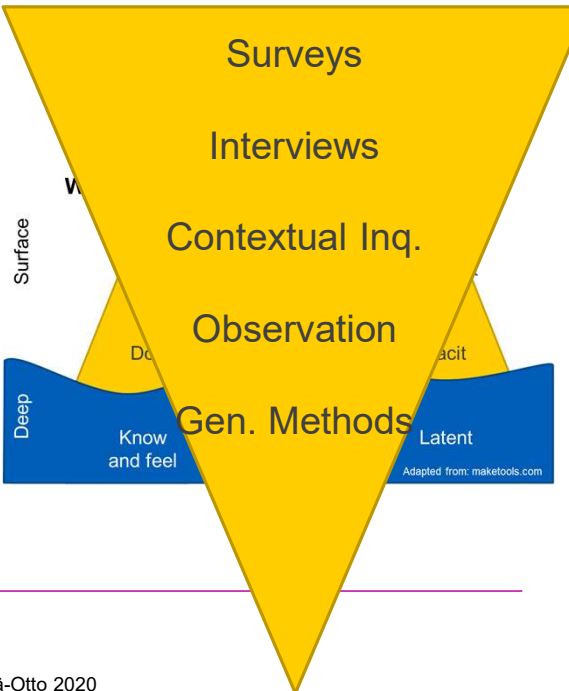
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I am skipping surveys, because in a survey you can only find out about what you already know

a survey question is the best you can do BEFORE need finding

…but surveys are useful in in later phases for validation

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Methods

Surveys

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Contextual Inquiry

- More in-depth interview method

AEIOU framework for observation

- Recall from opportunity identification!

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Beside the course book, here's another extra resource on Interviews:
https://www.designkit.org/methods/interview

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What would you ask if you were designing a better printing system?

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| Range of effective and less effective questions – Interviews

Can you identify which ones are better and which ones worse, and why? | Tell me about your printing habits.

When do you use the printer and when do you decide not to print something?

How much paper do you use in a week?

Do you ever adjust the printer settings? If so when do you do that and why?

What are some common problems you run into when printing or scanning?

What would you wish for in an ideal printing situation? |

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| What if you interviewed a student, a professor, an administrative assistant, a maintenance person, the facilities manager, etc? | When do you choose to print and not?
Which printer do you usually use and why?
Do you change the default settings?
What is the most common problem you need to fix?
How do you charge for printing?

 |

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Methods

Surveys
Interviews
Contextual Inquiry
AEIOU framework for observation

Surveys

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Know and feel

Latent

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Contextual Inquiry

Happens in the context -> Go to the user, spend time there!

Contextual interview

> **Ask users to <u>use</u> the product, observe and interview**

> **Adapt based on observations, answers, …**

Contextual diary (diary studies)

Send a probe (e.g. semi-structured diary & camera) to the users

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Contextual interview - Example

Here's further info: https://www.thedesignexchange.org/design_methods/315

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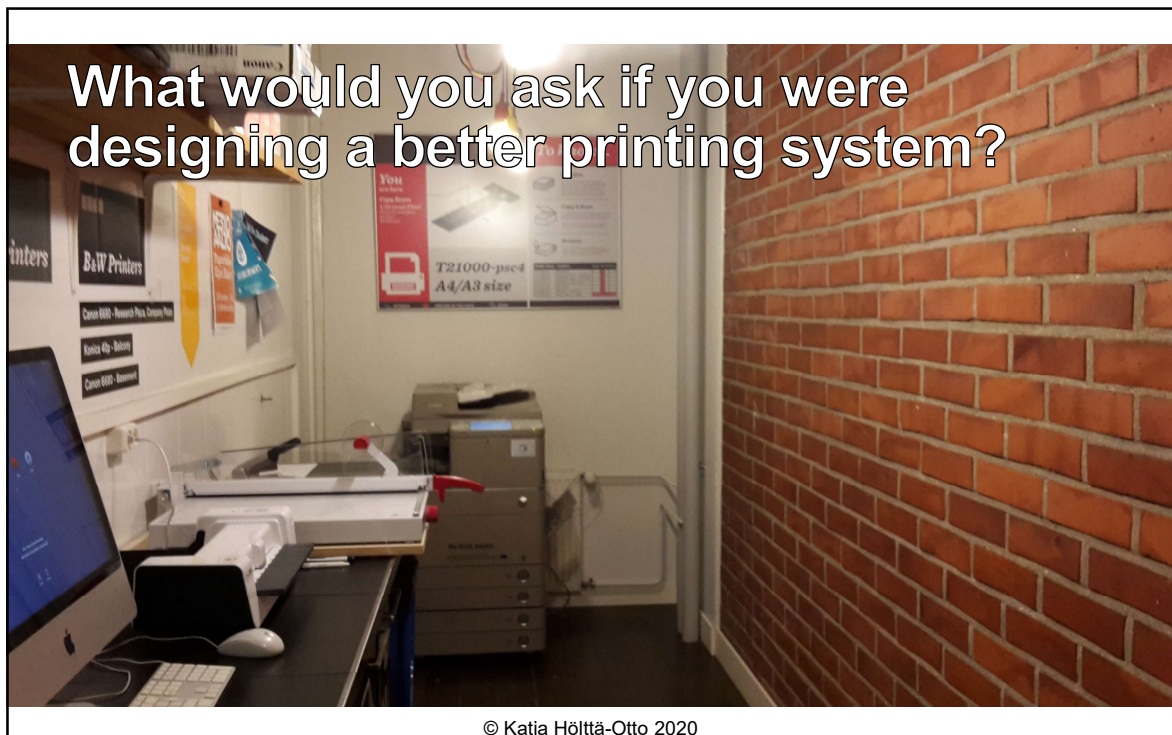
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Probes: Contextual diary - Example

Two meetings:

- *Instructions for photo diary:*

  "Take a picture of everything you use for communication, or use for receiving or transmitting information."

- Each object discussed in detail: how many times it was used during the day, why, and for which purposes.

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What would you ask if you were designing a better printing system?

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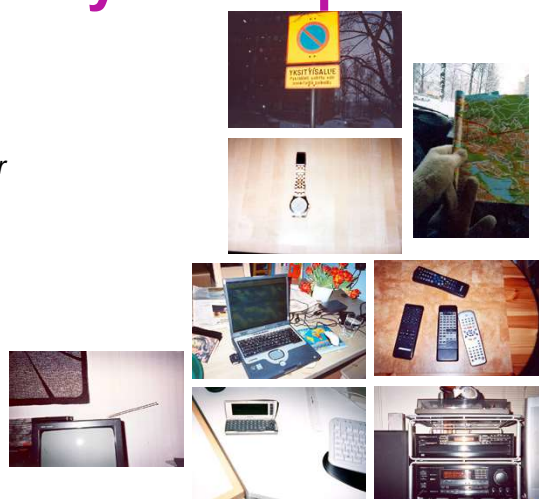
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Range of effective and less effective questions - contextual interview

Can you identify which ones are better and which ones worse, and why?

	Almost never	Weekly	On most days	Every day
How often do you use the printer for scanning?				

See this panel here. Do you know what it is and have you ever used it?
Could you please use it to change the paper size to A3?

Can you please pretend you need to print 5 handouts for a class. Let's start from the door here and please tell me everything you do as you go.

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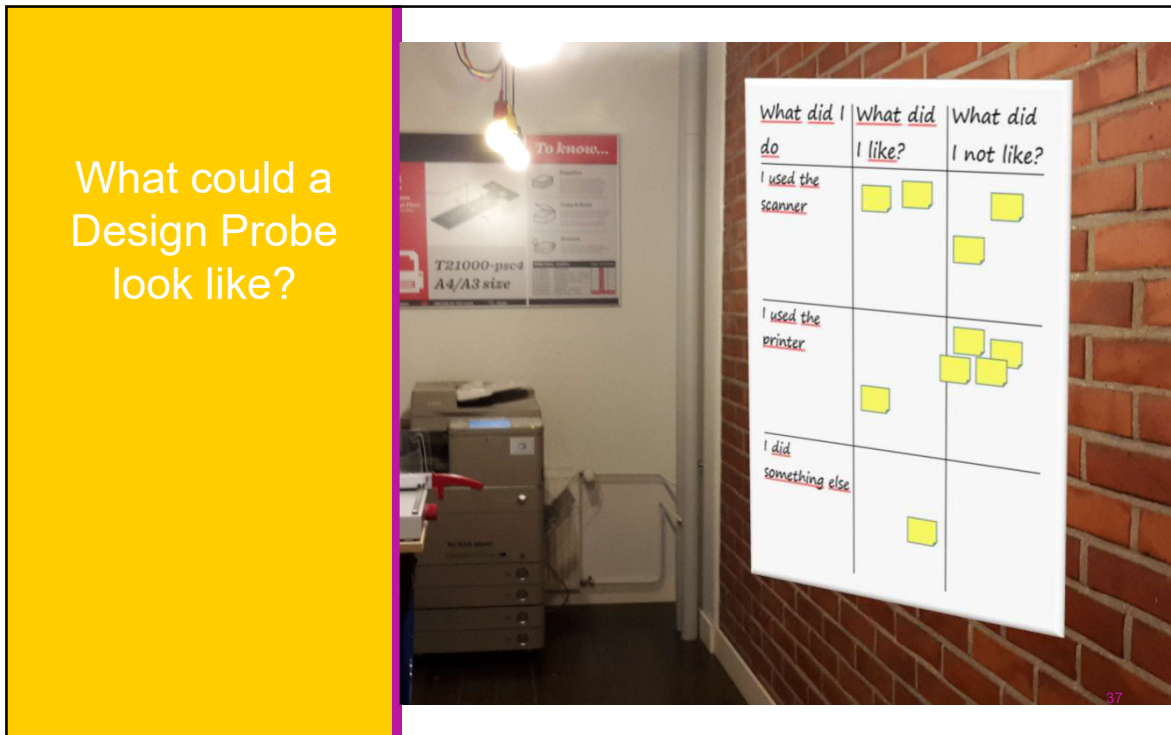## What would a contextual inquiry for the printer case look like?

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What would a contextual inquiry for the printer case look like?

Can you show me how you copy/scan/etc with this printer?
Can you walk me through the process of creating student hand-outs?
Can you show me how you clear a paper jam?

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What could a Design Probe look like?
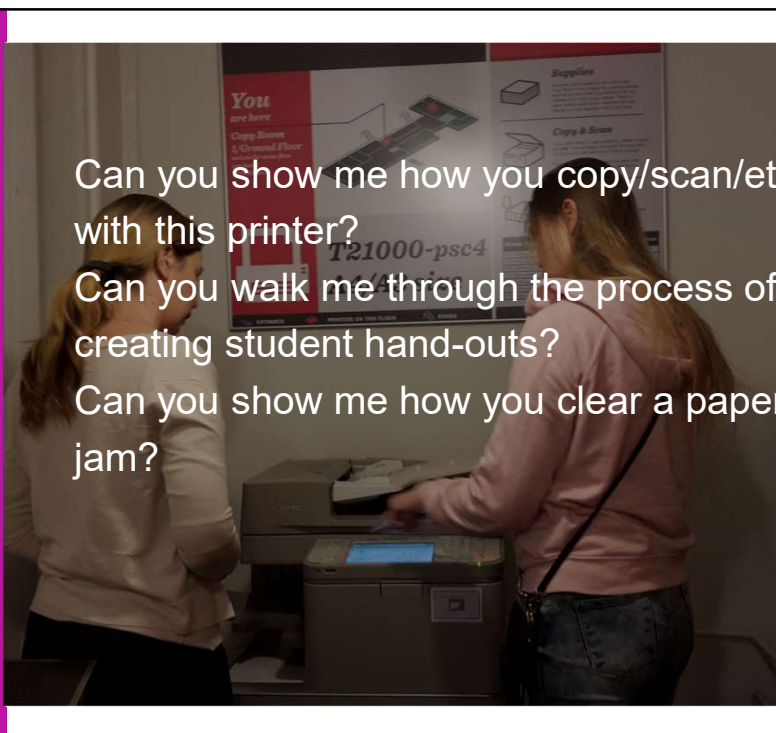
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Methods

Surveys
Interviews
Contextual Inquiry
AEIOU framework for observation

  • Recall from the Opportunity identification activity packet

Surveys

Interviews

Contextual Inq.

Observation

Gen. Methods

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Methods

Surveys
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AEIOU framework for observation

Surface

Deep

Surveys

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Contextual Inq.

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Gen. Methods

Know and feel

Latent

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Your most important question

Why?

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Key takeaways

Talk to many types of stakeholders

The methods vary in depth and breadth – also in effort

Have a goal in mind when asking questions

BUT remain open for unexpected directions and opportunities

Move from open to more detailed questions to help not biasing the answers

A good question in one method is likely a poor question in another

No question is perfect

"Why" can save most poor questions

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Learning Objectives:

Understand the importance of involving many stakeholders
Learn customer needs gathering methods

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Additional Learning Objective:

Learn methods to help go beyond expressed customer needs

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Types of Needs

Needs can be seen as
- basic needs,
- expected needs and
- delights

as shown on the Kano diagram on the right, or as
- explicit needs and
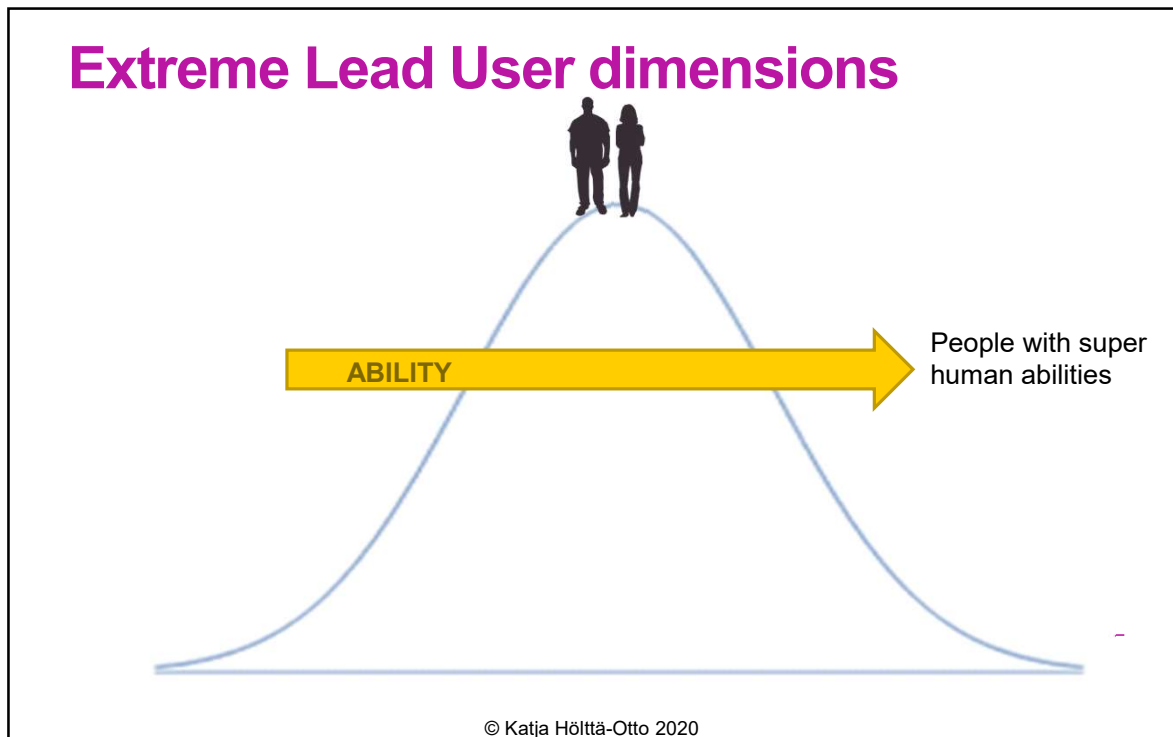- *latent* needs.
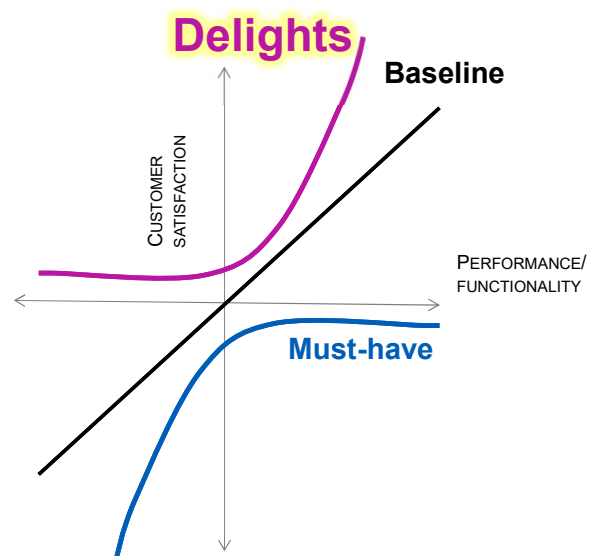
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Extreme Lead User Interviews

- **In customer needs analysis you have 3 things you can change to get more out of your interview:**
    1. The method used
    2. The environment (context)
    3. **The user**
- **Lead user / Extreme user interviews "change" the user**
    - Find **Lead users** – a user that has had the need already and may even have created a solutions for them selves
    - Find **Extreme users** – a user that pushes the limits of use or uses the product/system/space significantly more than an average user
        - *E.g. taxi driver vs. regular driver, extreme sport enthusiast vs. casual person doing the same sport*
- **These users have shown to be able to articulate *latent needs* better than typical users!**

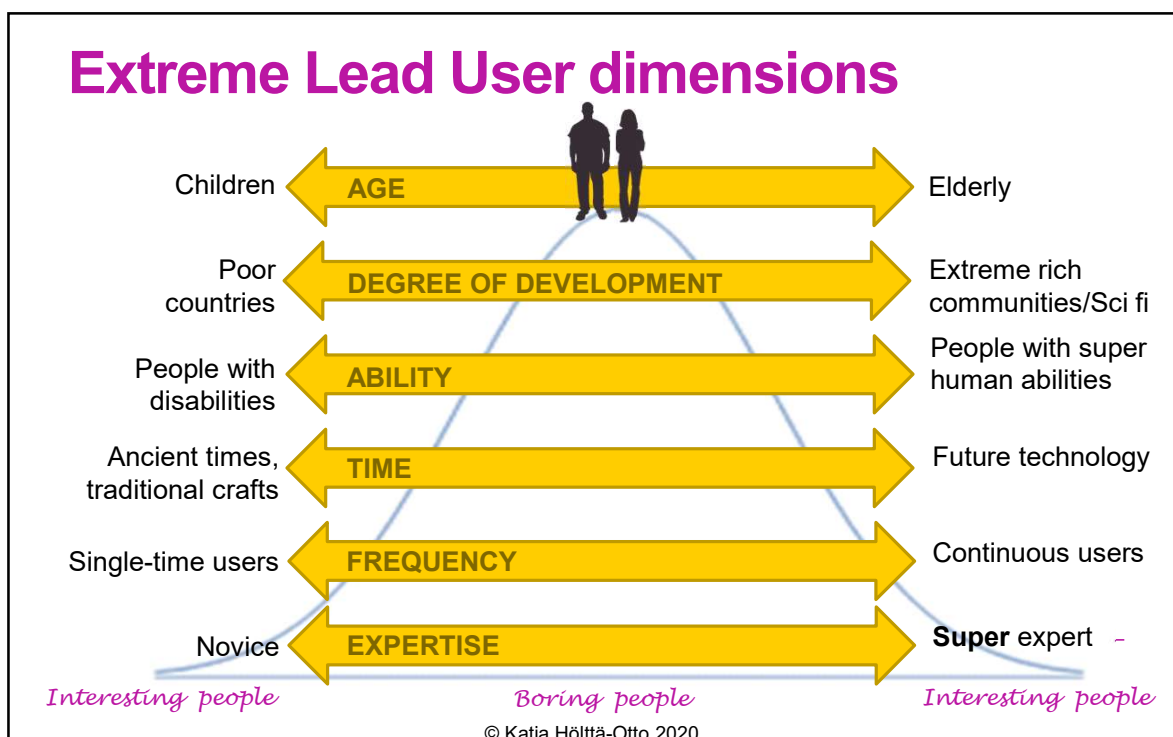**Aalto University**
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Lead User innovation examples

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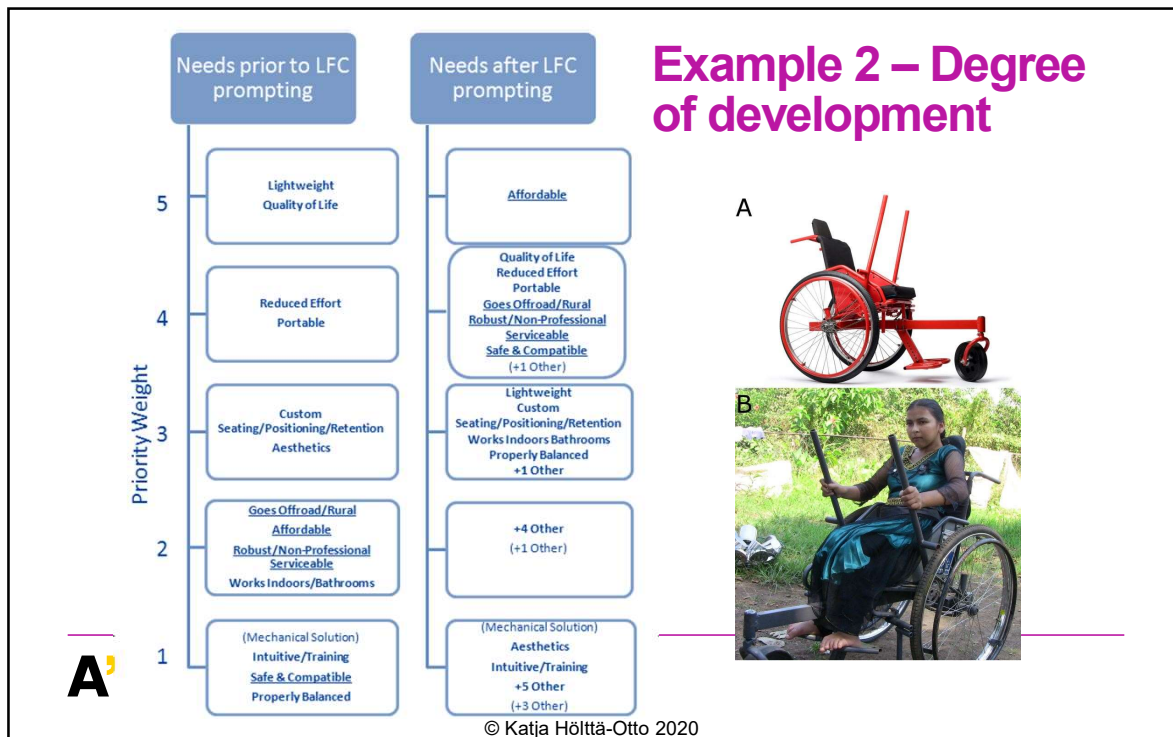# Contextual diary - Example

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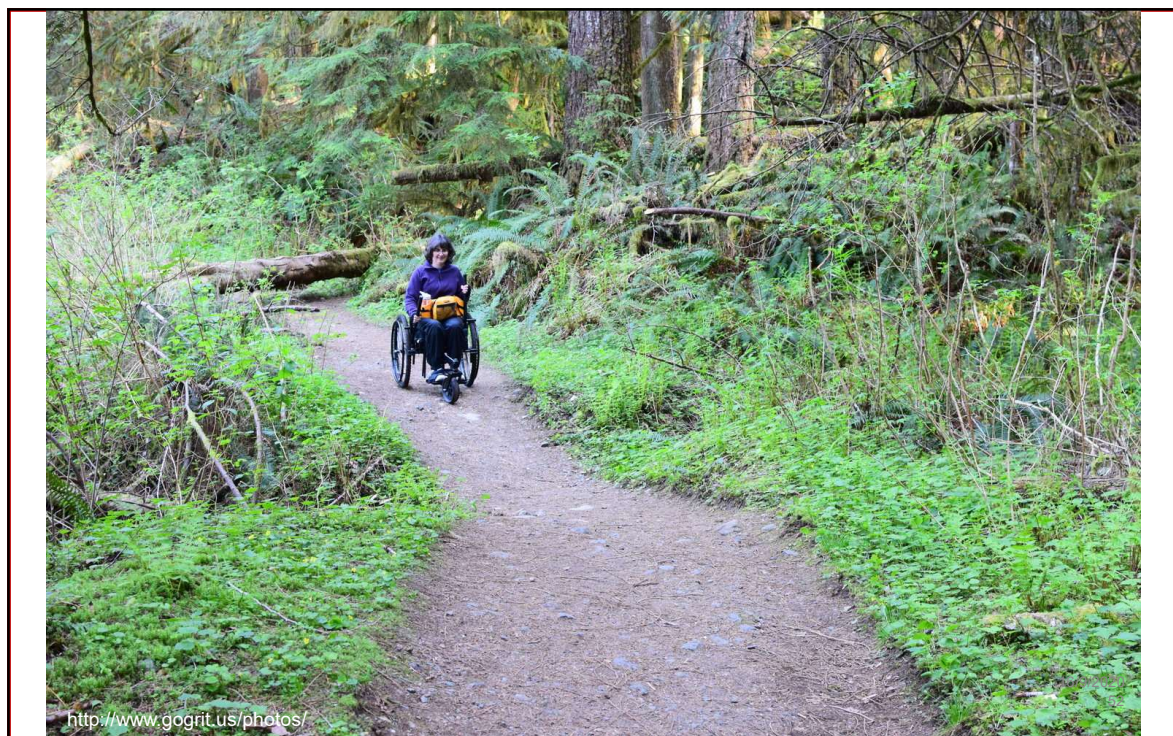

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Example 1 - Ability

- Persons with disabilities experience needs that ordinary users experience later.
  - All users found a good keypad important. Two blind users had found a solution to their tactility need: added a small "lump" on the 5-key or all keys in order to make the keypad more tactile.
- Solutions by users with disabilities have later become general among ordinary users.
  - The deaf adopted text messaging much earlier than the ordinary public.
  - The blind had a notetaker called Memona in 1992, the first Palm Pilot 1996.
- Examples of solutions that may become common in the future were found.
  - The deaf are already using two-way video calling = "a call in sign language".
  - Image recognition + speech output

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Example 2 – Degree of development

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http://www.gogrit.us/photos/

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http://www.gogrit.us/photos/

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Example 2 - Age

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More examples

Innovation	Picture	Background
Telephone		Alexander Graham Bell (Teacher of the deaf) - determined to find a way to communicate with people with people with disabilities
Internet		One of the main founders was frustrated by challenges in communicating with deaf wife determined to find a better way
Electric Blankets		Tuberculosis patents were routinely prescribed lots of fresh air, which included sleeping outdoors. The blankets were used to keep the patients warm
Electric Toothbrush		Electric toothbrushes were originally designed to help people with limited mobility to clean their own teeth, so they should be easier to use with less effort
Segway		Made originally as a wheel chair for amputees

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What could be dimensions to look for in your product opportunity?

Children	AGE	Elderly
Poor countries	DEGREE OF DEVELOPMENT	Extreme rich communities/Sci fi
People with disabilities	ABILITY	People with super human abilities
Ancient times, traditional crafts	TIME	Future technology
Single-time users	FREQUENCY	Continuous users
Novice	EXPERTISE	**Super** expert

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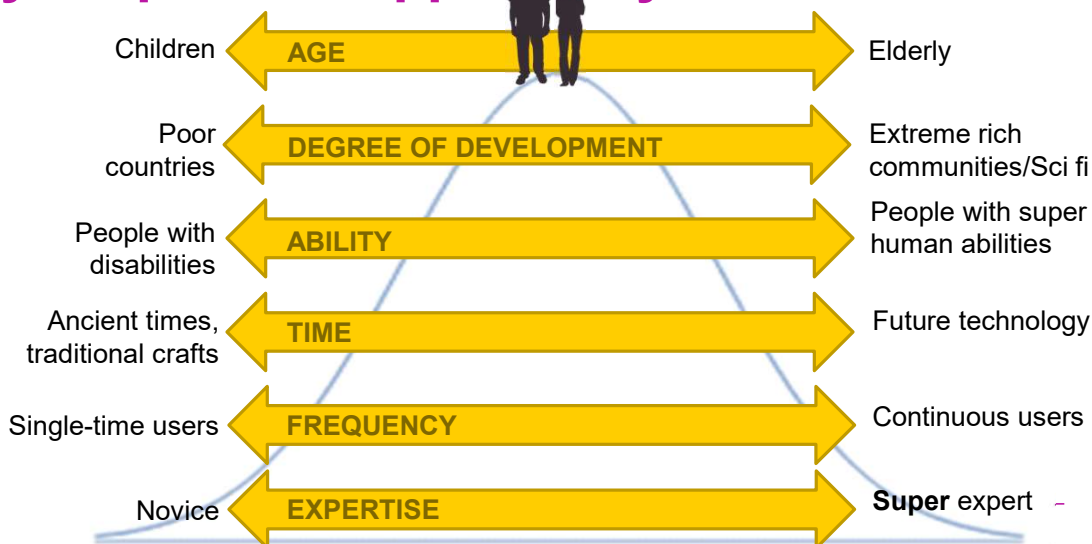
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How to use Extreme Lead Users or Lead Users?

Use any normal need finding method, but with your different users.

Think what is most appropriate for your product, use case and type of user.

Always treat all extreme lead users as experts, people who re able to talk about the product use much better than an average person.

Notice, a common frequent or daily user, such as a person who bikes daily is NOT an expert, but a person who races, bikes 100s of km etc. Is starting to be. If you can get hold of Lance Armstrong, that would be great! ☺

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Additional Learning Objective:

Learn methods to help go beyond expressed customer needs

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This is my favorite method
I got to contribute to the Design Thinking Toolbox

Extreme users/Lead users

I would like... to find new, innovative ideas and user needs (as yet) unknown to the average user.

Dimension	Average users range
Age	Child — Elderly
Development	Developing country — Sci-fi/Future
Ability	Disability — Superhuman ability
Time	Traditional — Future technologies
Frequency	One-time — Often
Experience	Novice — Expert

What you can do with the tool:
- Explore those user needs that average users are not able to articulate.
- Find new, innovative ideas.
- Identify early trends in user behavior or needs.
- Ideate for a more inclusive design.

More information on the tool
- Extreme/lead users (also known as power users and expert users) are based on the same basic idea. Through the interaction with them, we want to gather better information on users and their needs.
- A lead user often appears as an innovator himself. Lead users have needs that are way ahead of the mass market. A lead user is a user that has had a strong need already, no matter whether a product exists, and may even have created a solution – since they have a lot to gain from a solution. In the case of complex products, the traditional lead user methods hit their limits.
- An extreme user, however, is a user who goes beyond the usual usage limits or utilizes the product, system, or the space significantly more than an average user (e.g. taxi driver vs. normal car driver, extreme athletes vs. casual athletes).
- Extreme users experience the world differently than an average user. This means that their needs can be more prominent. The needs uncovered with groups of extreme users are frequently also latent needs in the wider population.

What tools can be used as an alternative?
- Interview for empathy (see page 57)
- Explorative interview (see page 63)
- AEIOU (see page 107)
- Empathy map (see page 93)
- Peers observing peers (see page 115)

Which tools support working with this tool?
- Ask 5x why (see page 67)
- 5W+H questions (see page 71)
- Jobs to be done (see page 75)

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How much time and what materials do we need:

Group size
- Teams of 2 are ideal, so one person can concentrate on the conversation, the other on recording the statements.

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Typical duration
- The interaction with the user in her environment may vary in length.
- It usually takes a lot of time and persistence to seek out the lead user. Extreme users are easier to find.
- Ask known users about recommendations for other potential lead users.

30–120 min.

Materials needed
- Notepad and pen
- Smartphone or camera, if the interview partner gives his/her permission, to document the findings

Procedure: "Extreme users/lead users"

VALIDATION
INSIGHTS
EXTREME USERS

	Characteristics	Complexity	Outcome	Procedure
Lead user	Ahead of the trend Willing to invest time and resources, very experienced and well connected	Hard to find	Usually very good insights	1. Identify trend 2. Identification of lead users 3. Co-creation with lead user 4. Reflection and projection of the results onto the problem statement
Extreme users	Extremes: young /old, poor/rich Differences: regular/infrequent user, expert/amateur	Easy to find	Useful additional information	1. Identify extreme users 2. Determine observation and interaction (questioning, shadowing, or group interview) 3. Use findings for persona, sharpen problem statement, or collect initial ideas

How the tool is applied...

Lead User
- Identify the potential lead user for a market trend or a relevant problem statement area.
- Interview or co-create with the lead user. It is always advisable to ask the lead users about recommendations for other potential lead users.
- Previously unconsidered solutions or paths to a solution may arise from the interaction with lead users.

Extreme User
- Identify potential extreme users based on dimensions in which such a user could be of interest (e.g. a much older person, a beginner or a super expert).
- Decide how best to learn more about them.
- Use the findings to accumulate information about the problem or a broader target group. Power users are heavy users who are characterized by a high intensity of use.

Procedure
- When interviewing and observing lead users, power users, or extreme users, we should especially look for workarounds or previously unknown solution alternatives such a user might have developed. Such findings should then be validated later by testing prototypes to ensure that the idea meets the needs of the target users as well.

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This is the favorite tool of Katja Holtta-Otto

Position:
Professor of Product Development, Design Factory, Aalto University

"Design thinking is really people thinking. It is thinking about the people we develop for, also the non-obvious people."

Why is it her favorite tool?

For me, interaction with these users is as if someone handed me a magnifying glass that allows me to see their needs, which of course had been there all the time but which I had not been able to recognize before. In different design challenges, the work with extreme users helped me enormously. In one project, I gained insights about wheelchairs. In the interaction with extreme users, I became aware of the fact that these aids should not only work on the road but also on uneven surfaces such as the lawn or gravel road.

Country:
Finland

Affiliation:
Aalto University

Checked by: Andreas Uthmann

Company/Position: CKW, Head of New Business & Innovation

Expert tips:

Search for wild ideas
- The inspiring exchange with extreme users often leads us to wild and new ideas. We should take every opportunity to spend time with this type of user.
- Generally, we should treat every user as an expert. We respect their concerns, particularly if we are dealing with sensitive population groups.

Collaborate across boundaries
- We have had very good experience with interacting with groups (i.e. 8 to 12) of extreme users. The different opinions and the interaction within the group often yield additional insights.
- This suggests that we should always observe and interview several extreme users. As a result, the probability of recognizing needs patterns increases.
- But watch out! Not everyone who applies something in an extreme way is innovative. An extreme user is not a lead user.

Use all channels to stay in contact with lead users
- There are different possibilities for interacting and staying in touch with lead users. They include WhatsApp groups or temporary blogs. They can be geared to normal users or lead users and offer a broad range of possibilities for discussion.
- In addition, chats can be set up temporarily for which all participants can create contributions. A "letter box" for spontaneous first ideas, thoughts, and limited surveys also fuel interaction.

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