

Ideation

CP1403

Design Thinking

Topics

- What is ideation ?
- Methods for ideation
 - Brainstorming
 - Imposing constraint
 - Six thinking hats
 - Bodystorming
 - Brainswarming
- Using Sketches in design thinking
- Design and presenting information architecture

Before Lecture

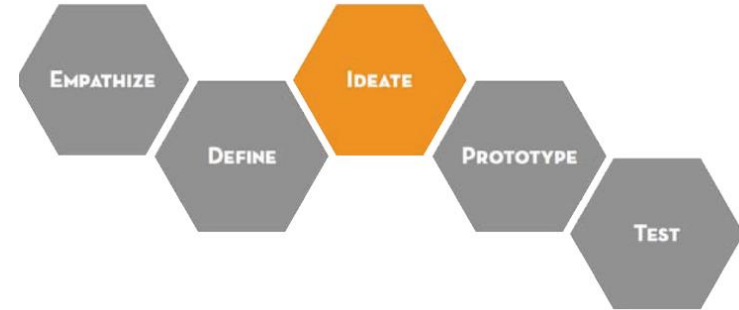
- Watch this video:
 - Why should you stop brainstorming
 - <http://bcove.me/k2z43ri5> or
<https://hbr.org/2014/03/why-you-should-stop-brainstorming>

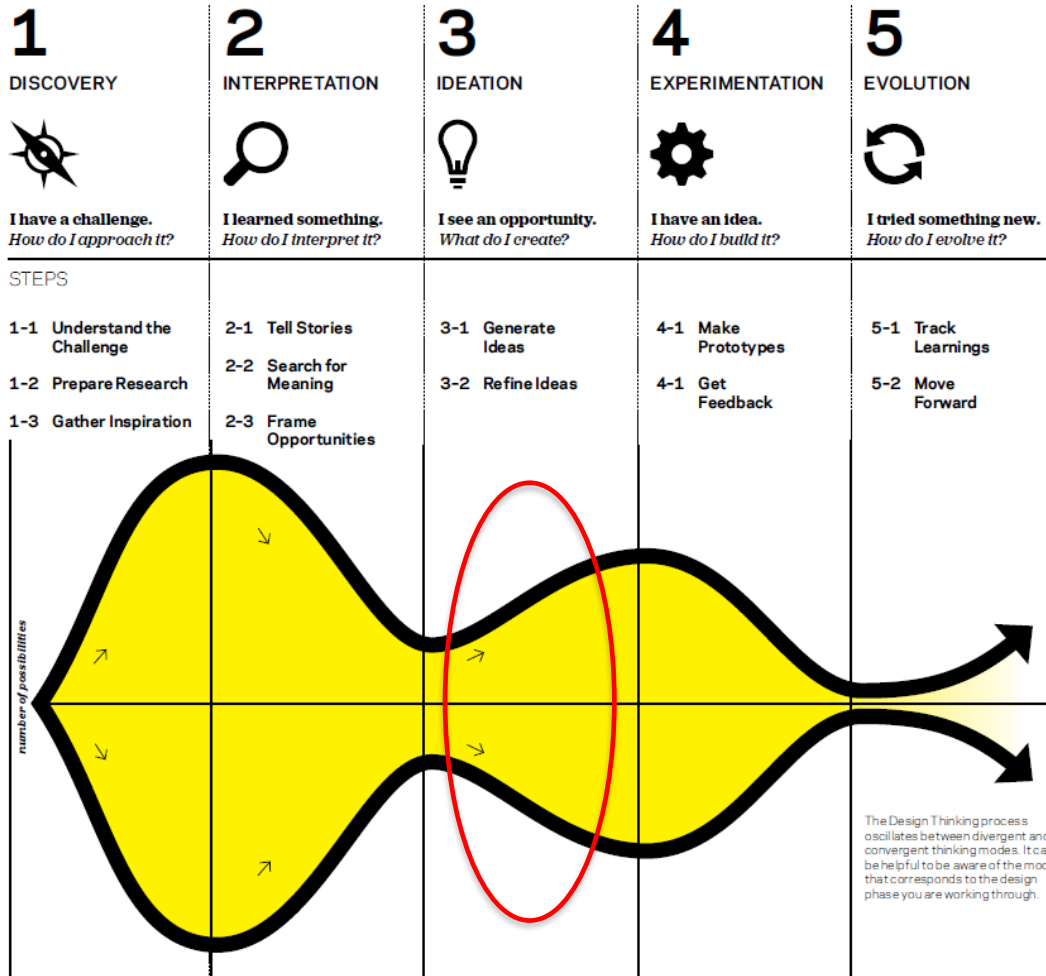
Readings

- D. School Bootcamp Bootleg : p 7-8, p 35-48
 - <https://dschool.stanford.edu/resources/design-thinking-bootleg>
- Design for Software: A playbook for developers , Chapter 3 -4
- The 8 Steps to creating a great storyboard
 - <http://www.fastcodesign.com/1672917/the-8-steps-to-creating-a-great-storyboard>

Ideate

- Ideate is the mode of your design process to generate radical design alternatives
 - Go wide,
 - Generate large quantities of ideas
 - Generate large diversity of ideas





Ideation Methods

- Brainstorming
 - How Might We?
 - SCAMPER
 - 6-3-5 Method (adapt '6' to match your team size)
 - Imposing constraint
 - Six thinking hats
 - Analogous thinking
- Bodystorming
- Brainswarming

Brainstorming

- Brainstorming is a great way to come up with a lot of ideas, to leverage the collective thinking of the group, by engaging with each other, listening, and building on other ideas
- Brainstorming can be used throughout a design process
- Team needs to set aside a period of time when your team will be in “brainstorm mode” , get in front of a whiteboard or around a table , and get high engage to generate as many ideas as possible in a short period of time (usually 15- 30 mins)

Brainstorming

- Brainstorming is only one method, you will be introduced to others next week
- Depending on your problem, or the group members personalities, brainstorming may not always be the best approach



One Conversation at a Time

Go for Quantity

Headline!

Build on the Ideas of Others

Encourage wild ideas

Be Visual

Stay on Topic

Defer Judgement -
NO Blocking

- The 7 rules:
 - Defer judgment
 - Fifty phrases that kill creativity (<https://web.stanford.edu/class/engr110/2011/Curtis-02a.pdf>, page 7)
 - Go for quantity
 - Osborn's checklist, Osborn, Alex F. (1957) Applied imagination : principles and procedures of creative problem-solving, New York, Scribner: <https://www.ifm.eng.cam.ac.uk/research/dmg/tools-and-techniques/osborns-checklist/>
 - Or “SCAMPER” - Substitute, Combine, Adapt, Modify/Magnify/Minify, Put to other uses, Eliminate, Reverse/Rearrange
 - Encourage wild ideas
 - Build on the ideas of others
 - One conversation at a time
 - Be visual
 - Headline

How to Brainstorm ?

- Session ‘conductor’ needs to prepare and think of methods and how to guide the team
- Two ways to capture the ideas of a brainstorming:
 - Scribe: one member (the scribe) legibly and visually captures on the board ideas that team members call out.
 - All-in: Each person writes down each of his or her ideas on a post-it and **verbally shares it** with the group.

Facilitate a Brainstorm

- A good facilitator keep the ideas flowing
- When team run out of ideas, facilitator can try to create a variation for example with a HMW statement to get the group thinking in another direction
- Adding constrains to the HMW can also spark new ideas
 - “What if we couldn’t change _____?”

Brainstorm Selection

- Selecting which brainstorm results to go forward is important
 - Don't settle only for safe options
 - You want to carry forward a range of ideas
 - Don't narrow it down too fast
 - Hang on to the ideas which excite, amuse, or intrigue the group
 - An idea that is not plausible may still have an aspect within it that is very useful and meaningful.

Brainstorm Selection

- Different selection techniques can be used, including these:
 - Post-it voting
 - each team member gets three votes and marks three ideas that he or she is attracted to.
 - The four categories method
 - Elect one or two ideas for each of these four categories: the rational choice, the most likely to delight, the darling, and the long shot.

Brainstorming – imposing constraints

- To run effective brainstorming session, a bit counterintuitive, but sometimes you need to **impose constraints to increase your creativity**
- Time constraint – creating artificial **deadline**, run intensive brainstorm sessions seems to be the most productive

Brainstorming – imposing constraints

- Ideation
 - you can impose constraints like “what if”,
 - e.g. what if it is used by 10 years old ..,
 - what if the device is to be used underwater...

Interpretation / Define (Methods)

How Might We?

- “How might we” (HMW) questions are short questions that launch brainstorming.
- Brainstorm the HMW questions before brainstorming the solutions
- HMW should not be too narrow or too broad

Interpretation / Define (Methods)

How Might We?

- Too narrow
 - “HMW create a cone to eat ice cream without dripping?”
- Too broad
 - “HMW redesign dessert?”
- Just right
 - “HMW” make eating dessert less messy?”

Interpretation / Define (Methods)

How Might We?

- Example:
 - Challenge:
 - Redesign the ground experience at the local international airport
 - POV:
 - Harried mother of three, rushing through the airport only to wait hours at the gate, needs to entertain her playful children because “annoying little brats” only irritate already frustrated fellow passengers.

Interpretation / Define (Methods)

How Might We?

- **Amp up the good:** HMW use the kids' energy to entertain fellow passenger?
- **Remove the bad:** HMW separate the kids from fellow passengers?
- **Explore the opposite:** HMW make the wait the most exciting part of the trip
- **Question an assumption:** HMW entirely remove the wait time at the airport?
- **Go after adjectives:** HMW we make the rush refreshing instead of harrying?
- **ID unexpected resources:** HMW leverage free time of fellow passengers to share the load?
- **Create an analogy from need or context:** HMW make the airport like a spa? Like a playground?
- **Play against the challenge:** HMW make the airport a place that kids want to go?
- **Change a status quo:** HMW make playful, loud kids less annoying?
- **Break POV into pieces:** HMW entertain kids? HMW slow a mom down? HMW mollify delayed passengers?

C-sketch / 6-3-5

- 6 people, each start with 3 ideas, then followed by 5 iterations
- Good for getting everyone involved
- Fast, pressure, need to give participants time to prepare or think first, so depends on their familiarity with the subject
- <https://www.youtube.com/watch?v=EfTZuH5ocJc>
- [6-3-5 Method | Design Thinking Methods Catalogue \(designthinking-methods.com\)](https://designthinking-methods.com/)
- <https://www.sutd.edu.sg/cmsresource/idc/papers/2012-from-brainstorming-to-c-sketch-to-principles-of-historical-innovators-ideation-techniques-to-enhance-creativity.pdf>

Other uses?	New ways to use as is? Other uses if modified?
Adapt?	What else is like this? What other idea does this suggest? Does past offer parallel? What could I copy? Whom could I emulate?
Modify?	New twist? Change meaning, colour, motion, odour, taste, form, shape? Other changes?
Magnify?	What to add? More time? Greater frequency? Stronger? Higher? Larger? Longer? Thicker? Heavier? Extra value? Plus ingredient? Duplicate? Multiply? Exaggerate?
Minify?	What to subtract? Smaller? Condensed? Miniature? Lower? Shorter? Narrower? Lighter? Omit? Streamline? Split up? Understate? Less frequent?
Substitute?	Who else instead? What else instead? Other ingredient? Other material? Other process? Other power? Other place? Other approach? Other tone of voice? Other time?
Rearrange?	Interchange components? Other pattern? Other layout? Other sequence? Transpose cause and effect? Change place? Change schedule? Earlier? Later?
Reverse?	Transpose positive and negative? How about opposites? Turn it backward, upside down, inside out? Reverse roles? Change shoes? Turn tables? Turn other cheek?
Combine?	How about a blend, an alloy, an assortment, an ensemble? Combine units?

SCAMPER

- This list is sometimes referred to as SCAMPER - Substitute, Combine, Adapt, Modify/Magnify/Minify, Put to other uses, Eliminate, Reverse/Rearrange.

Reverse Brainstorming

- Inverts the initial question of how to address a need > how to make it worse
- Not a good first technique nor the last
- Short activity to boost ideas – moderator needs to see if the moment is right
 - Too long makes participants think they are wasting time
 - Freshens the mind if the team feels stuck
- Example:
- Goal is to save cost > ask how to increase the costs
- Goal is to stop virus spreading > ask how to make it spread faster

Interpretation / Define (Methods)

Powers of Ten

- Powers of Ten is a reframing technique that can be used as a synthesis or ideation method.
- For example, imagine you are designing a checkout experience.
 - You are trying to understand how a user makes buying decisions.
 - You made the observation that she read a number of customer reviews before making a purchase and are developing an insight that she values her peers' opinions when making purchases.
 - Consider what her behavior might be for buying various items over a wide range of costs, from a pack of gum, to a pair of shoes, to a couch, to a car, to a house.
 - What if it was ten times more expensive? 100 times?

Bodystorming

- Bodystorming is to physically experience a situation to derive new ideas
 - Walking through the experience of your target users
 - Pay attention to your decision making and the environment in the experience related to your solution



Bodystorming

- For examples:
 - if you are designing a device for a café, you may setup a counter and try to order a coffee, to experience the ordering experience
 - If you are designing for elderly, rub some Vaseline on your glasses to view the world through older eyes

Brainswarming

- For some team, or sometime brainstorming may not work
 - Usually dominate by extrovert
- Brainswarming use visual chart and let people thinking instead of start talking at the beginning

Six Thinking Hats

- Six Thinking Hats is a tool for group discussion and individual thinking involving six colored hats.
 - **Managing Blue**
 - **Information White**
 - **Emotions Red**
 - **Discernment Black**
 - **Optimistic response Yellow**
 - **Creativity Green**

Ideation Methods

Six Thinking Hats

Reference:

http://www.debonoforschools.com/asp/six_hats.asp



Blue Hat Thinking- Process

- Thinking about thinking
- What thinking is needed?
- Organizing the thinking
- Planning for action



White Hat Thinking- Facts

- Information and data
- Neutral and objective
- What do I know?
- What do I need to find out?
- How will I get the information I need?



Green Hat Thinking - Creativity

- Ideas, alternative, possibilities
- Provocation - "PO"
- Solutions to black hat problems



Yellow Hat Thinking- Benefits

- Positives, plus points
- Logical reasons are given.
- Why an idea is useful



Black Hat Thinking - Cautions

- Difficulties, weaknesses, dangers
- Logical reasons are given.
- Spotting the risks



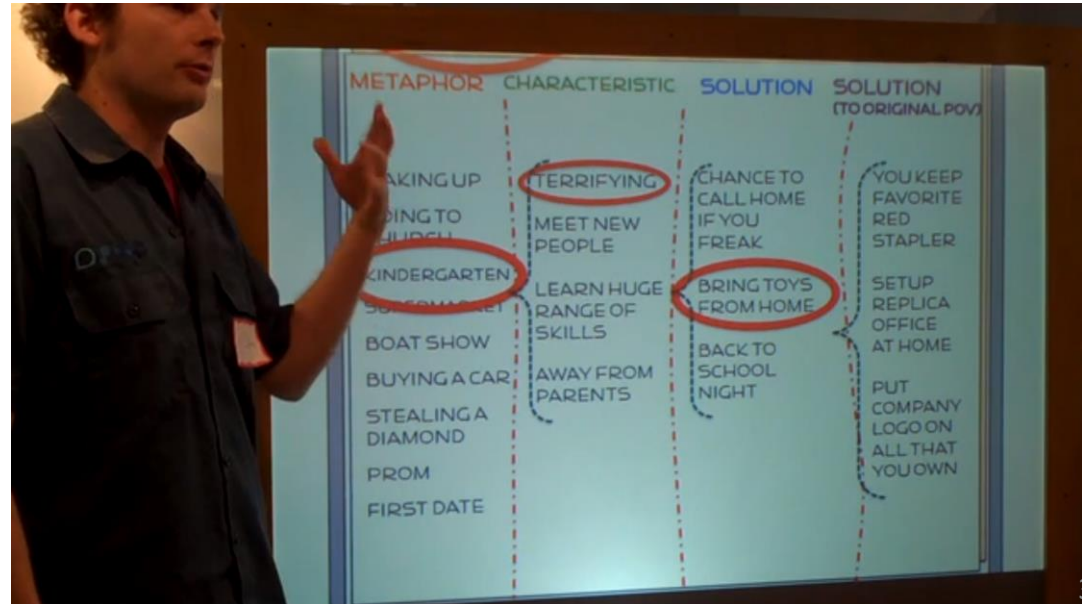
Red Hat Thinking - Feelings

- Intuition, hunches, gut instinct
- My feelings right now.
- Feelings can change.
- No reasons are given.

Ideation Methods

Analogous Brainstorming

- Analogous brainstorming example (<https://vimeo.com/11283508>)
 - POV: Retiring workaholic needs a new reason to wake up each morning because supervising his staff inspired him
 - Attributes:
 - Start of journey
 - Office
 - Employees
 - Goals
 - Bench marks
 - Your thoughts?

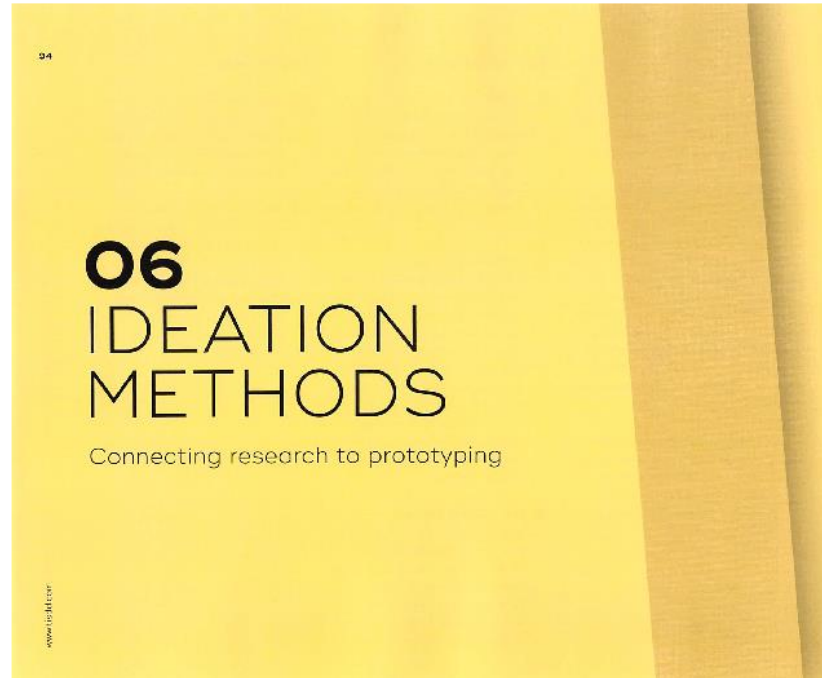


Comments on analoguous brainstorming / brainstorming by analogy

- Focused POV
- Need a good mix of people with a range of knowledge and skills for diversity of input
- Choosing the right questions and the right analogy
 - Attributes to help in selecting analogy
 - This method works or doesn't with the quality of the analogy
 - The moderators will need to invest time in thinking of possible analogies
- Biggest takeaway: move the mind off the normal beaten paths and inspire the participants to explore new ways of thinking about the problem
- Not to be used as the first brainstorming method

Examples from “This is Service Thinking Methods”

- <https://www.thisisservicedesigndoing.com/methods>



SURROUNDINGS AND CONNECTIONS?

MAPPING THE ECOSYSTEM – ECOSYSTEM MAP

Mapping the ecosystem

- Purpose
 - This method stimulates participants to shift towards identifying the diverse actors involved in an innovation ecosystem, such as people, things and technologies, organizations, the roles they play and how they connect
 - Explore possible futures
- Outcome
 - Creating a collective visual map results in a shared understanding of the complex world of people, things and organizations involved in co-creating value.
 - Using this method allows teams to explore what could happen in the future, by adding in new actors to a value constellation, or by combining actors and capacities in new ways.

Mapping the ecosystem

Preparation

- List all actors (all components you have identified and new actors that you can imagine at this point – including people, physical things, digital things, etc.)
- 20-50 actors typically

How

- Version 1:
 - How does the current ecosystem look like? Depict it with all actors and connections between them
- Identify central actors
 - Arrange them in the middle of your map
- Identify flows of:
 - Money, data, and any other connections they might have
 - Identify roles
- Share and tell:
 - Present your map: how does the ecosystem work? What makes it strong, what would make it stronger? Are there any hidden or emerging actors?
 - Discussion: What could break the ecosystem? What is X happens? What are the problems?
- Version 2:
 - Take a photo of version 1...
 - Introduce the issue or opportunity you want to analyze
 - For example:
 - "How can we encourage customers to self-serve using the web?"
 - "How can we support young people with limited social capital to improve their employability?"
 - Change the model to reflect the desired future ecosystem, based on the continuing brainstorming
- Reflect:
 - How is the new ecosystem different from current one?
 - What needs to happen to move there?

Helper sheet

- Actor cards:

- Actor name
- Actor description
- Actor capabilities
- Actor Needs

- Descriptions

- People

- Adult
- Child
- Family member
- Friend
- Neighbor
- Employee
- Volunteer
- Manager
- Expert
- By-stander
- Person with special needs
- {others you can think of}

- Things and technologies

- Smartphone
- Tablet computer
- PC
- Database
- Software application
- Sensor
- Website
- Mobile app
- Application form
- Poster
- Retail outlet
- Call centre
- Web chat
- Email
- Package
- (others you can think of)

- Organizations

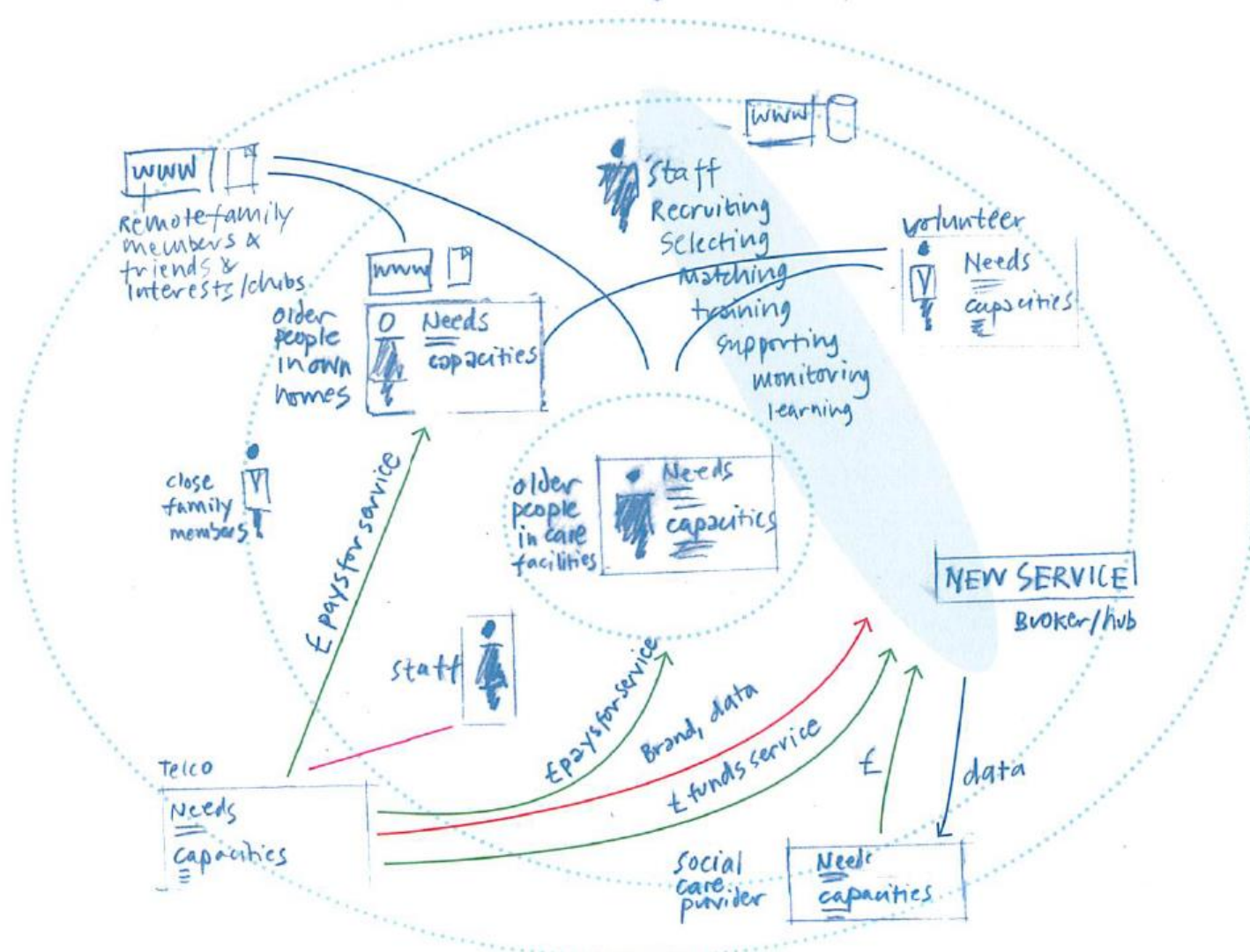
- Large consumer organization
- B2B organization
- Non-profit organization
- Community group
- Small business
- Entrepreneur
- Venture
- Municipality/local authority
- Technology provider
- Utility
- Central government
- Regulator
- University
- intermediary
- Public institution
- Financial institution
- Investor
- (others you can think of)

- Roles actors play

- User
- Customer
- Beneficiary
- Connector
- Solution creator
- Resource provider
- Infrastructure provider
- Hub
- Influencer
- (others you can think of)

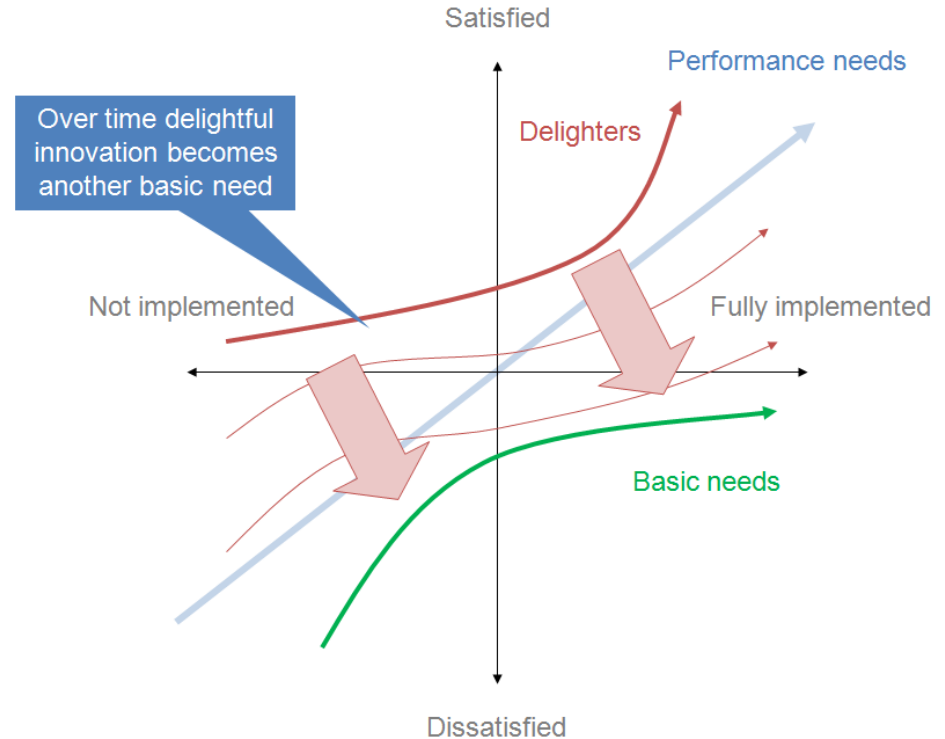
- Needs and capacities

- Knowing
- Doing
- Having
- Relating
- Earning
- Connecting
- Nurturing
- Sharing
- Learning
- Sustaining
- Assembling
- Creating
- Resourcing
- Providing



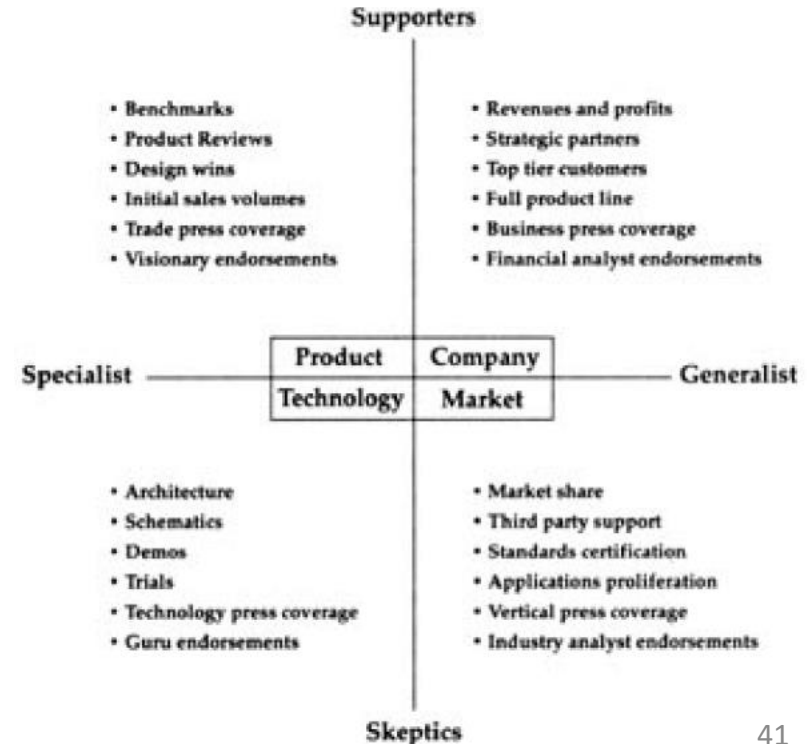
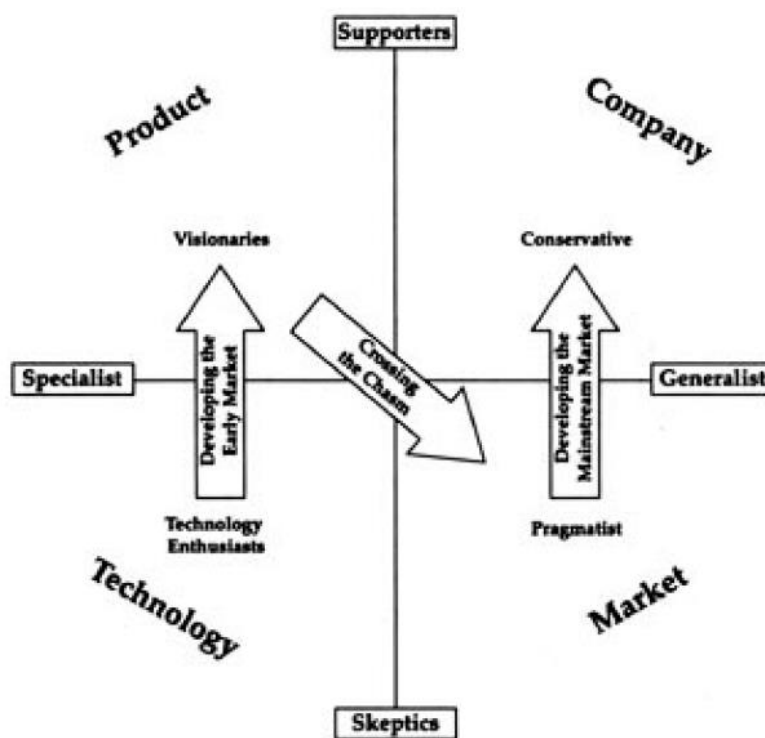
KANO quality attributes / features

- Product development and Customer satisfaction 'model' with five quality categories
 - Must-be, One-dimensional quality, Attractive quality, Indifferent Quality, Reverse Quality

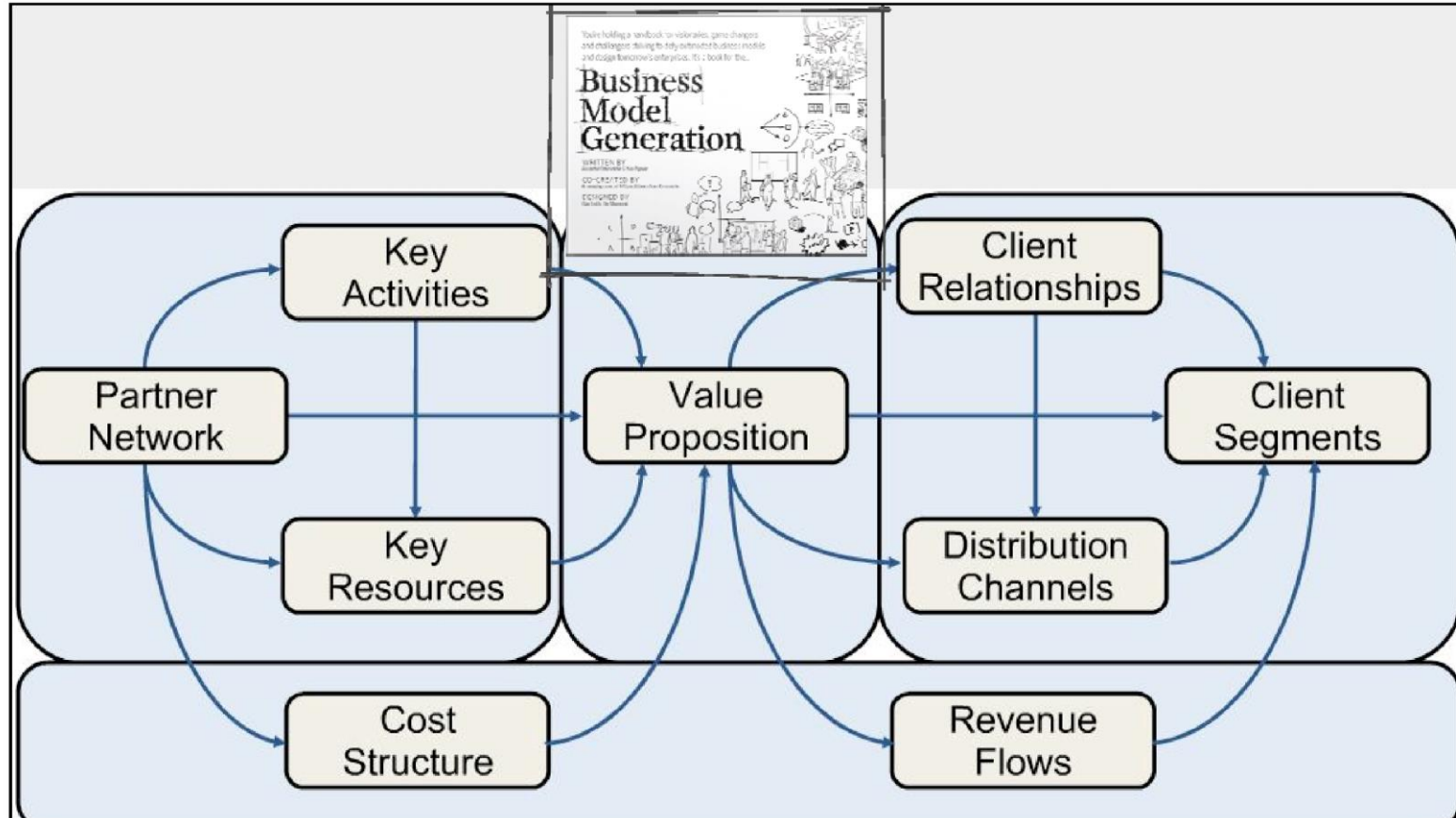


Market position / Competitive positioning compass

- Thinking about strategy for the product / service



Business Models



Practical Session Team Tasks

- Use 6-3-5 method to start
- Continue with a traditional Brainstorming meeting
- Once team runs out of ideas try adding a constraint or reversing the question
- As a final step analogous brainstorming

Individual Reflections

- Are due at the end of next week for:
 - Empathy and
 - Define
 - 200 words minimum each
- Reflection:
 - Examples: <https://www.student.unsw.edu.au/examples-reflective-writing>

What is reflective writing?

<https://www.student.unsw.edu.au/reflective-writing>

- Reflective writing is:
 - documenting your response to experiences, opinions, events or new information
 - communicating your response to thoughts and feelings
 - a way of exploring your learning
 - an opportunity to gain self-knowledge
 - a way to achieve clarity and better understanding of what you are learning
 - a chance to develop and reinforce writing skills
 - a way of making meaning out of what you study
- Reflective writing is not:
 - just conveying information, instruction or argument
 - pure description, though there may be descriptive elements
 - straightforward decision or judgement, e.g. about whether something is right or wrong, good or bad
 - simple problem-solving
 - a summary of course notes
 - a standard university essay.