Design Thinking

Case

- What is the problem?

Case

- Need for a tea brewing machine?
    - Need for fresh tea - Tea that is freshly brewed and not re-heated.
    - Need for good taste - Tea that is made using the 'right' proportions of milk, water and tea leaves.
    - Need for customized tea - Tea that could be customized according to taste for instance, strong tea, flavored tea, etc.
    - Need for convenient options - Office goers had no other choices for tea except the ones served in office premises or close by.
    - Need for time-saving - In lieu of finding a good tea-brewing option which would be time consuming, options many office workers would prefer getting a cup of instant tea from a machine.
    - Need for a reasonably priced tea - Tea drinkers had to go to an expensive café to sample a cup of good tea.

What were the major iterations which the prototypes went through and identify the major issues that they fixed?

- The first prototype was just a cardboard representation of a machine and did not do anything.
- In the second major iteration, the prototype was fitted with a pump and a flow meter which allowed for milk and water to flow into a dish.
- In the third iteration, a heater that was used to boil milk was added.
- The fourth major iteration involved building storage containers for tea leaves and sugar outside the main body of the prototype while milk and water were brought in separately to be boiled together so as to stop the milk from going bad.
- To solve the issue of milk going bad, the next iteration used a small container (like a glass) to boil water with tea leaves and then adding milk later.
- A designer was brought on-board for the next few subsequent prototypes. The goal was to develop a robotic arm to dip a tea bag into a cup of boiled milk and water.

What were the major iterations which the prototypes went through and identify the major issues that they fixed?

- The next major iteration heated the contents of tea from above. The co-founders found a heater could be inserted into a cup that contained milk, water and tea leaves and boiled for a minute to achieve the taste of home-brewed tea.
- The next iteration, designed on Computer-Aided Design (CAD).
- The next prototype had parts imported from China. It operated on CAD and had two sets of nozzles.

Why so many iterations?

- Wouldn't it have been easier if all the issues were addressed by just one prototype?
- Why did Kasliwal have to work on so many iterations before the end of the case?
- Will the process of iteration ever stop? Should it stop?

Wallet Design Exercise

- Design a wallet

Design Thinking

The Door

Struggle at door

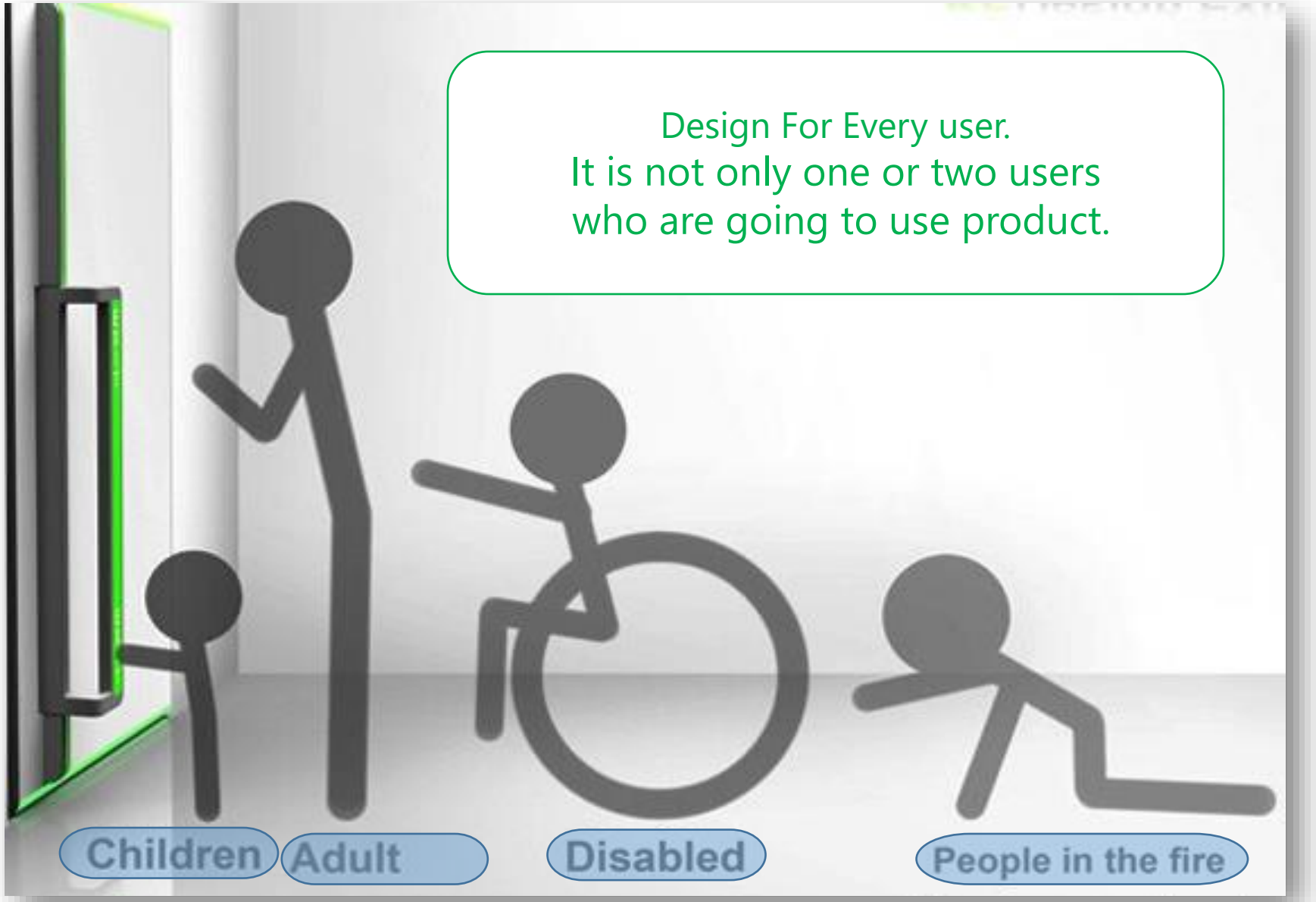
The Door

Label it

The Door

Make it intuitive

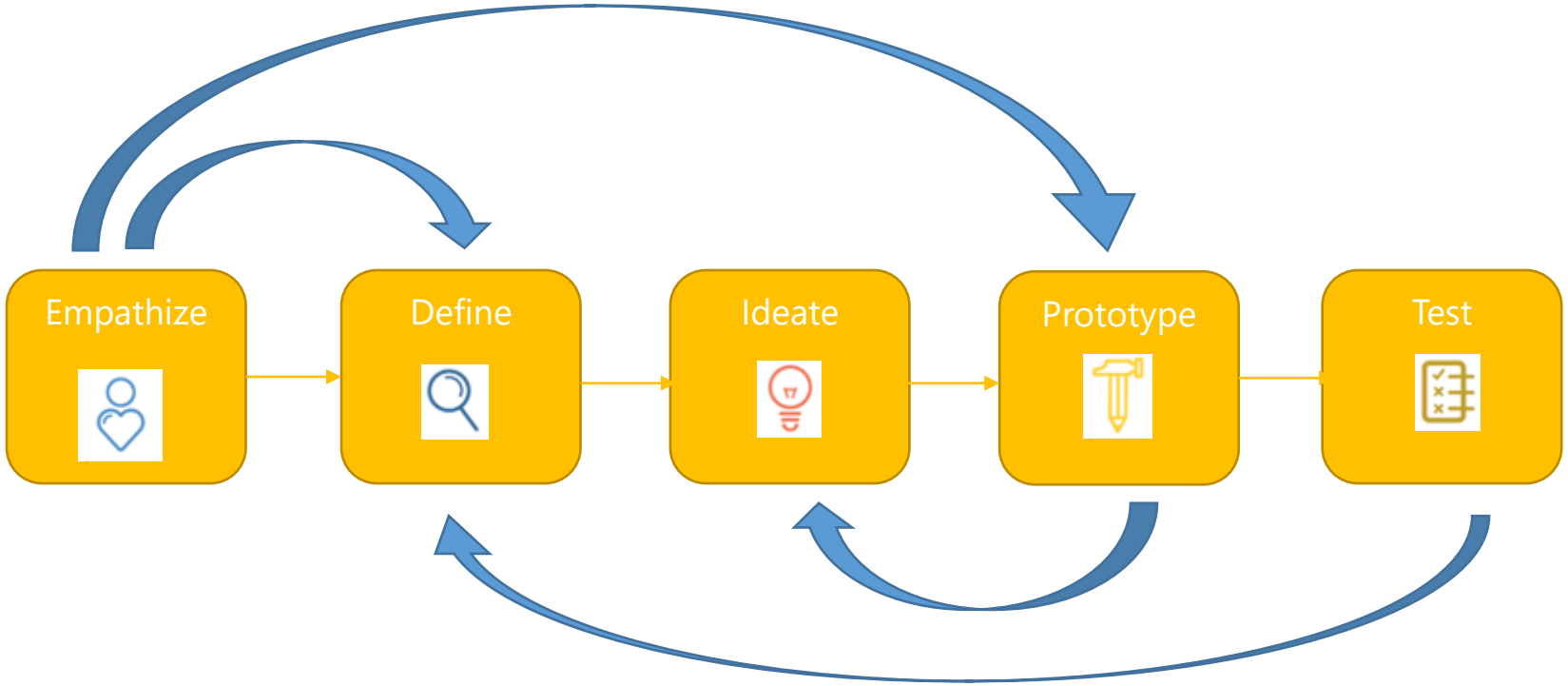
The Door


Design For Every user.
It is not only one or two users
who are going to use product.
Children
Adult
Disabled
People in the fire

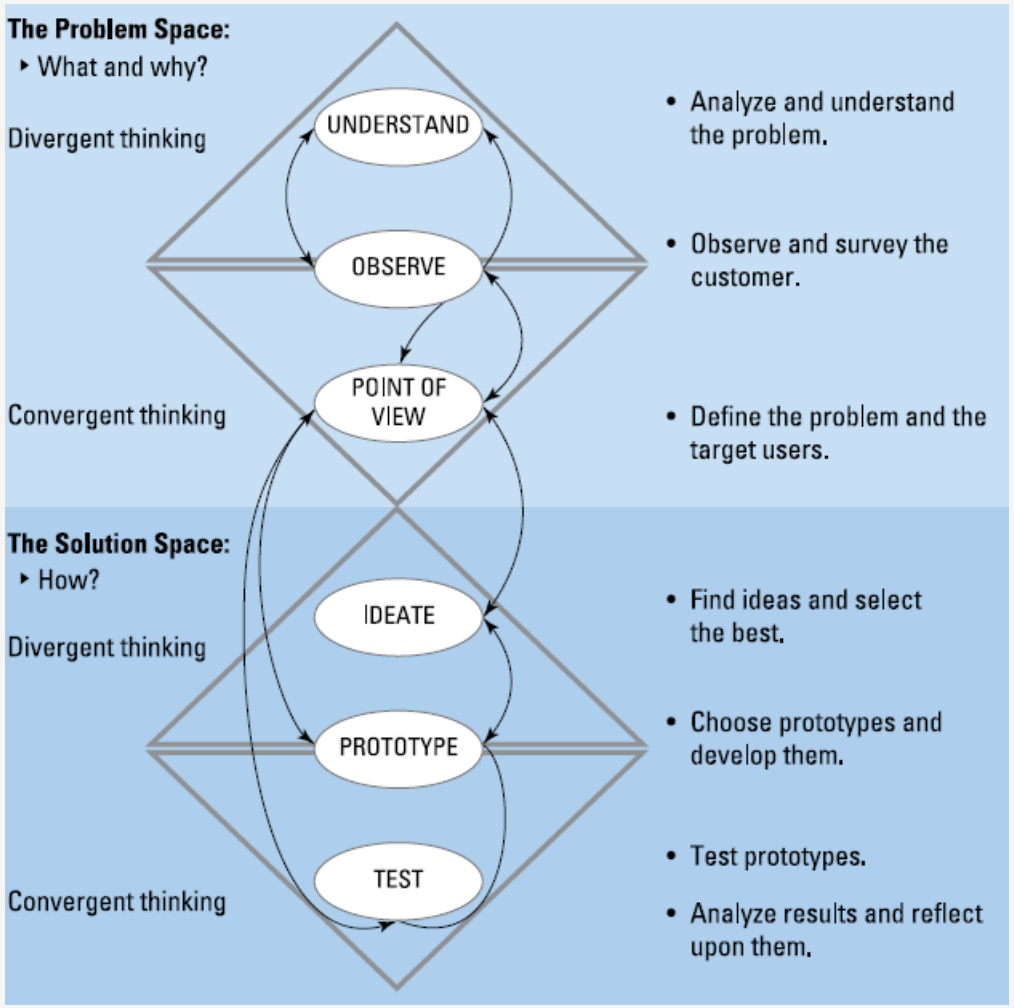
How we do it → Design Thinking

Design Thinking Process

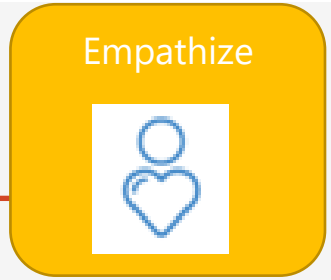
- 5 Step non-linear process



Design Thinking Process



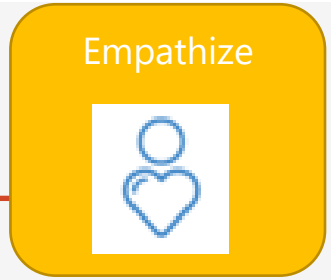
Empathize – Understand and Observe



- Objective
  - The first stage of the Design Thinking process is to gain an empathic understanding of the problem you are trying to solve.
  - Learn about audience for whom you are designing.

- How
  - Conversational Starters
  - Collage
  - Group Interviews
  - Observations
  - Non-judgmental

Empathize – Understand and Observe

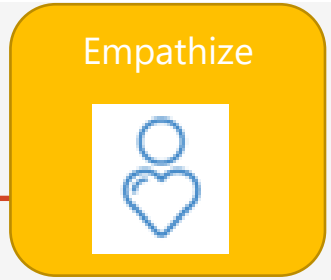


- Understand
  - Define the **search field** and **understand the task** that you want to solve.
  - **Analyze the task** and **examine the determining factors and causes** and then reformulate the task to identify new facets.
  - Gain this **basic understanding of the task** because this is the only way to carry out the next steps in your search for ideas in a meaningful way.

- Searching in the market segment
- Searching in the area of technology
- Searching in your own area of competence

Well-Defined Task Is a Task Half-Solved

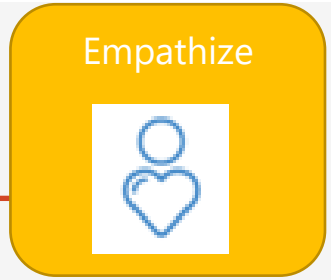
Empathize – Understand and Observe



- Who is most annoyed by the problem?
- Who might benefit most from a solution?
- Who can save money or time with a solution?
- Who needs a solution as soon as possible?
- Who is most dissatisfied with the alternatives available on the market?
- Who would pay the most for the solution?

- Clarifying where and when the problem occurs
- Clarifying why the problem occurs
- Identifying knowledge gaps and systematically close them

Empathize – Understand and Observe



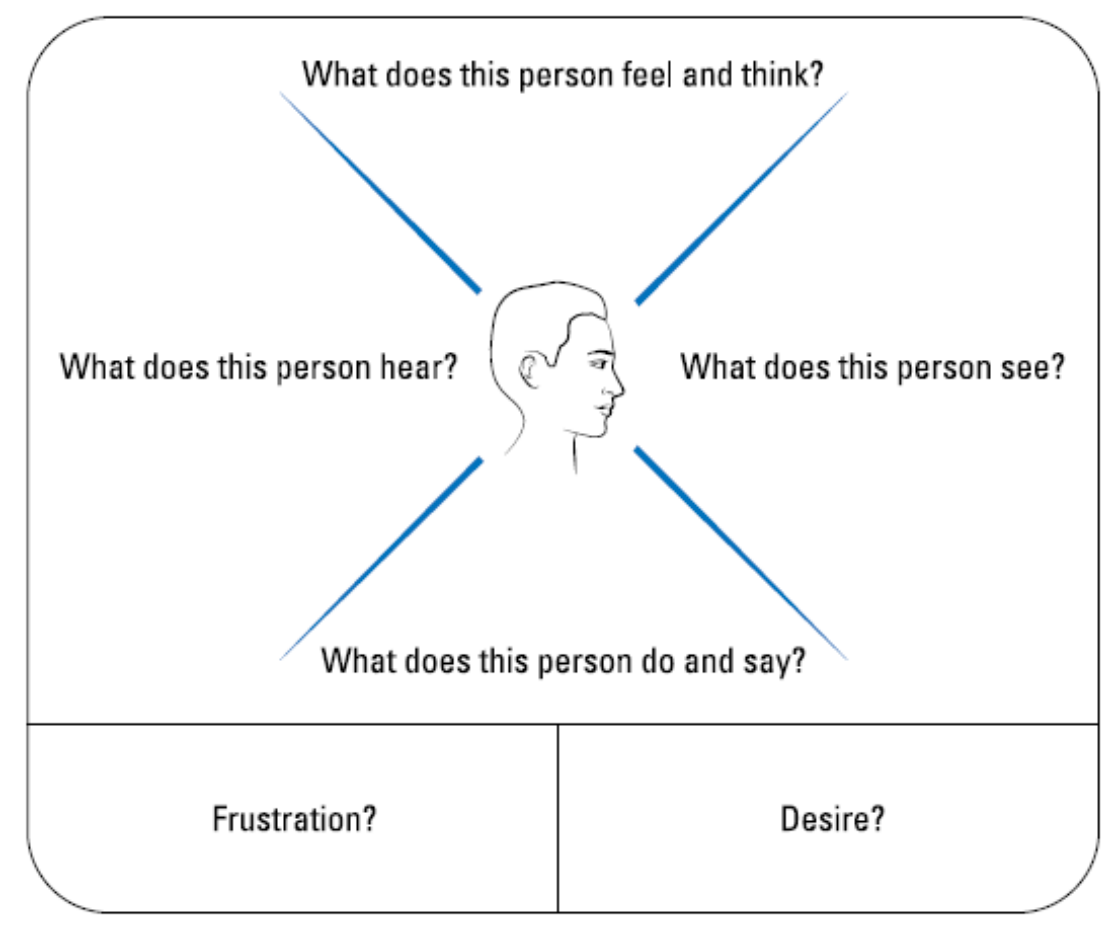
- In your opinion, where do you imagine that your customer is, and what action do you think that customer is contemplating?
- How do you think the customer will act in this situation?
- When will your customer do this, in your opinion?
- How often do you think the customer acts like this?
- Why do you believe this?

- Collect Information – secondary data, survey, interviews, experiments, observations and field visits, personal experience

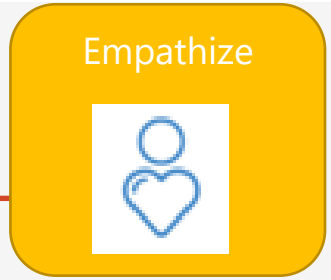
- Discount your own ideas/Tamp down your own biases

Empathize – Understand and Observe

Empathize



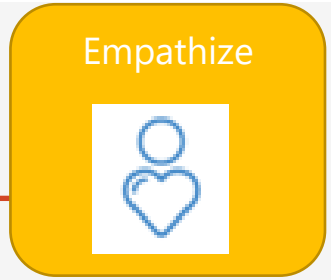
Empathize – Understand and Observe



- Who to observe?
  - Who are they? (Customers, employees?)
  - What kind of behavior can you observe? In other words, which wishes and needs do they show?
  - Which roles and relationships do they have with one other?
  - Who influences them?

- Determine what you should observe, whom you should observe, and when you should observe
- Determine who should do the observing
- Observe the right thing and correctly – Accuracy and precision

Empathize – Understand and Observe



- Hawthorne effect (or Interviewer effect)
- Rosenthal effect
- Halo effect
- Cognitive dissonance
- Primary effect or recency effect
- Role effect
- Contact effect
- Similarity effect or contrast effect
- Attribution error
- Logical fallacies
- Show effect
- Sticky effect
- Periphery effect
- Selective perception
- The Golden Mean effect
- Mildness effect or Strictness effect

Define – Redefine

- Objective
  - Construct a point of view that is based on user needs & insights.
  - Create the PROBLEM STATEMENT

- Find
  - Personas
  - Role Objective
  - Decisions
  - Challenges
  - Pain points

Define – Redefine

- Avoiding the temptation to prescribe solutions
- Formulating a meaningful and challenging question
- Writing clearly from a user's perspective

- How might we help or support or convince **[name of target person]** so that **[their problem]** is solved or **[their wish]** is fulfilled with **[the following result]** _____ in **[the following situation]** _____ and with **[the following limitations]** _____?

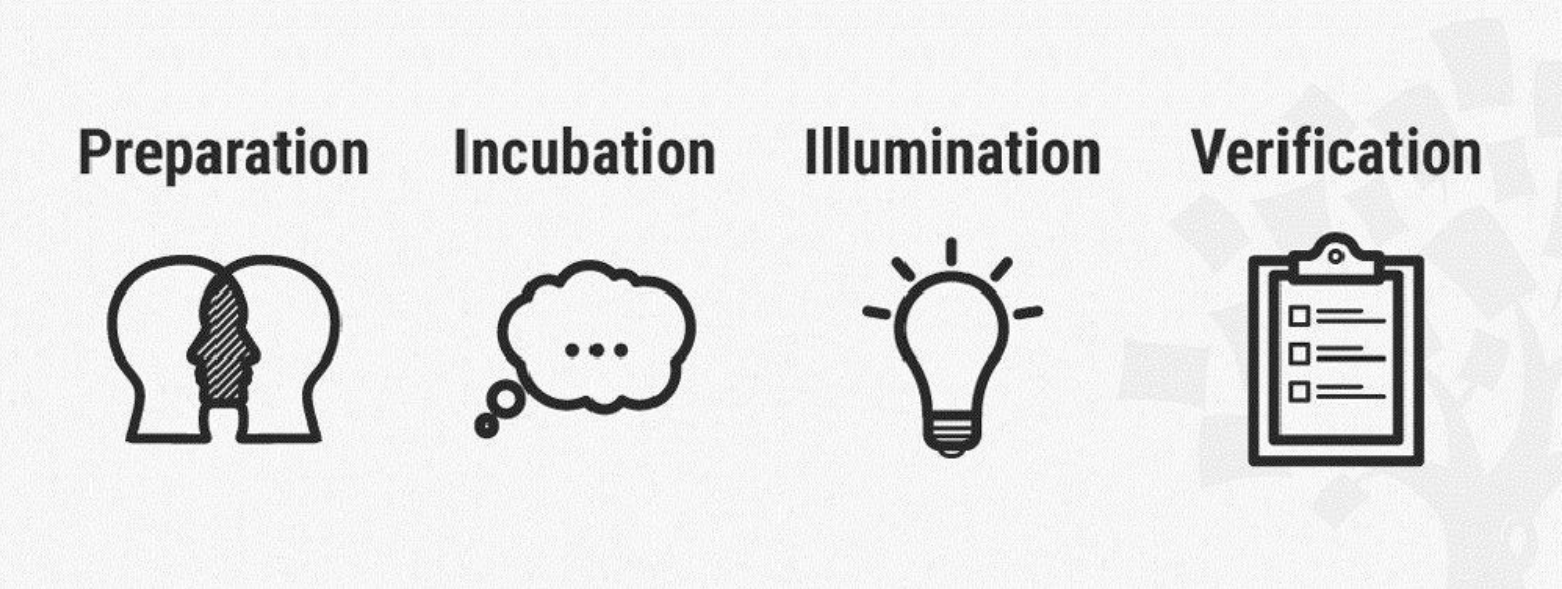
Ideate

- Objective
  - Start to 'think outside the box' to identify new solutions to the problem statement you've created, and you can start to look for alternative ways of viewing the problem.

- Find
  - Worst possible idea
  - All ideas worthy
  - 'Yes' & 'thinking'
  - Prioritize

Ideate

Ideate



- Recognize the problem, create opportunities, analyze and understand the problem
- Ascertain the current state of knowledge
- Develop partial solutions

- Consciously distance yourself from the problem
- Relax
- Defamiliarize the problem

- Engage once again with the problem and the situation
- Develop ideas, either spontaneously (flash of genius/illumination) or systematically (ideation)

- Think through the ideas and develop them further
- Evaluate the ideas
- Describe, visualize, and communicate the ideas
- Overcome resistance

Ideate

- Taking advantage of employee skills and knowledge at your own company and in your network
- Surveying and observing customers and involving them in developing solutions
- Surveying and working with suppliers
- Keeping up with what the competitors are doing
- Evaluating publications and patent information
- Participating in trade fairs and conferences
- Collaborating with experts

Ideate

- Questioning the conventional wisdom
  - Why is it like this?
  - Why isn’t it like this?
  - Why should it be like this or not be like this?
  - How could it also be different?
- Simplifying products and processes

Ideate


Ideate


6 Persons
each one 3 Ideas
5 Minutes
Method 635
or
Brainwriting


White Hat
Data, facts, information known or needed
Red Hat
Feelings, hunches, instinct and intuition
Black Hat
Difficulties, potential problems, why something may not work
Yellow Hat
Values and benefits, why something may work
Blue Hat
Manage process, next steps, action plans
Green Hat
Creativity, solutions, alternatives, new ideas


Dreamer
Vision - What
Action Plan
Critic
What If... But...
Realist
Action/Logic - How


How does one develop a culture of innovation?
Strategy
Vision
Values
Rituals and symbols
The Hero's Journey
Structure
Organizational structure
Operational structure
Workspaces
Leadership
Breathing room
Incentives
Not stigmatizing failure
Cooperation
Processes
Agile project management
Decision-making process
Optimizing processes
Competencies
Lifelong learning
Personnel development
Knowledge management

Ideate

Ideate

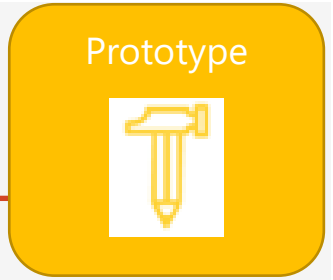
- Evaluating Ideas

Pluses What do you like about the idea?	**Potentials** What future possibilities do you see with this idea?
Concerns What concerns do you associate with this idea?	**Overcoming Concerns** How could you overcome these concerns?

Ideate

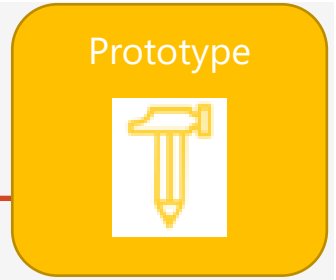
- Evaluating Ideas
  - Feasibility
  - Strategic and cultural fit
  - Desirability
  - Business viability and scalability:
  - Sustainability
  - Adaptability

Prototype



- Objective
  - Build a representation of ONE or MORE of your ideas to others.
  - Produce a number of inexpensive, scaled down versions of the product or specific features found within the product, so they can investigate the problem solutions generated in the previous stage.
- How
  - Mockups
  - Story Boards
  - Sketching
  - Fail fast
  - Iterate Quickly

Prototype

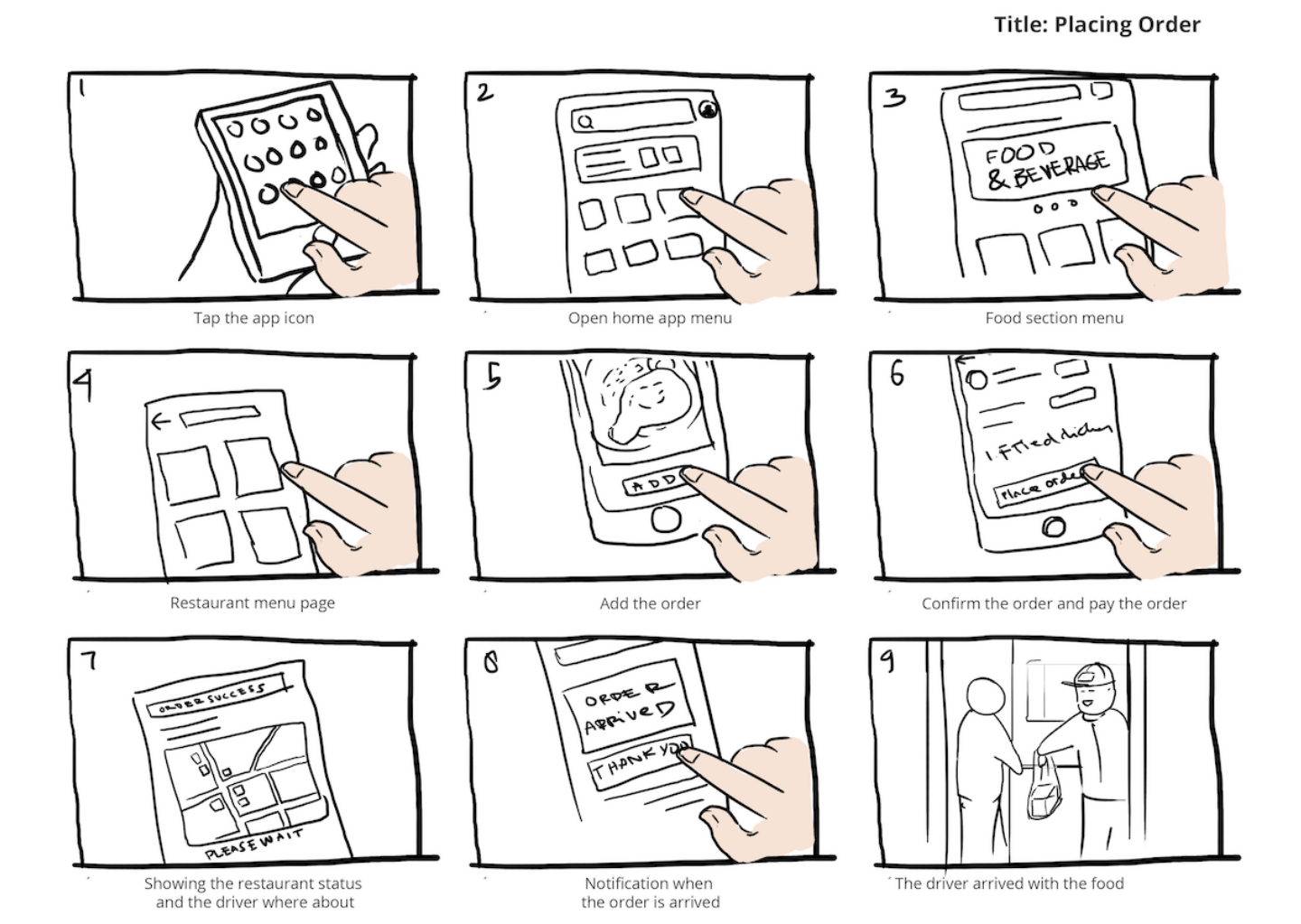


- Tasks of a Prototype
  - Do you want to gather feedback about the usefulness of your idea?
  - Do you want feedback about the user-friendliness of your idea?
  - Do you want feedback on how your customer perceives your idea?
  - Do you want to get feedback on individual functions or characteristics of your idea?
  - Do you want the customer to evaluate the design?

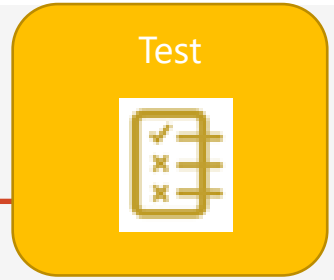
Prototype

Prototype

- Storyboard
- The user Journey and actual screens mapping helped us having a better idea of the storyboard we can build for the prototype. This means the story the prototype will follow.



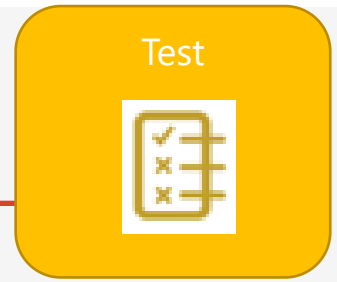
Test



- Objective
  - Return to your original user group and testing of idea for feedback.
  - The results generated during the testing phase are often used to redefine one or more problems

- Find
  - What works
  - Understand Impediments
  - Iterate Quickly
  - Challenges
  - Pain points

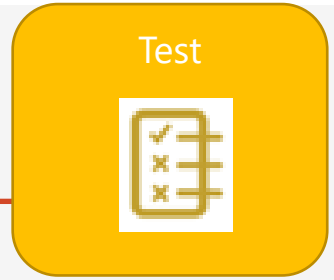
Test



- Testing Assumptions about the Target Users
- Testing Assumptions about the Customer's Problem or Wish
- Testing assumptions about the benefits of the idea

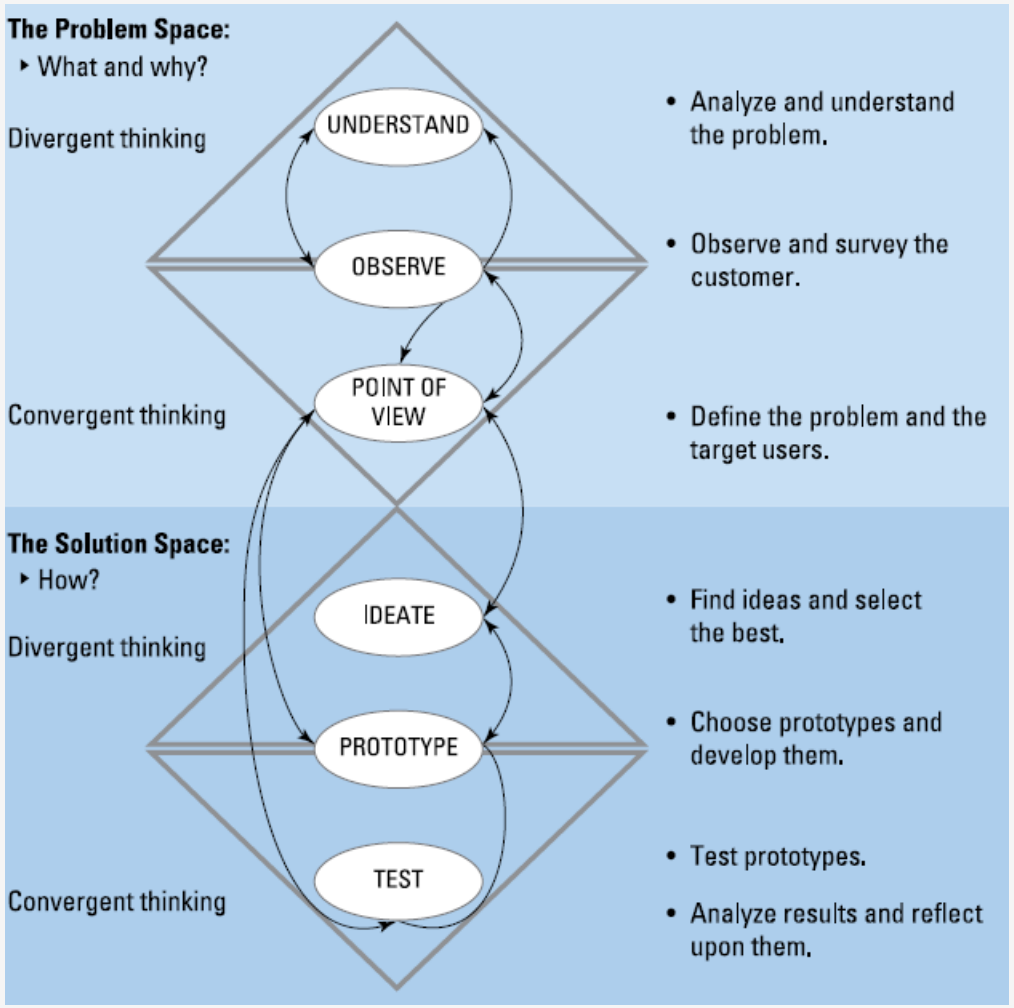
Assumption	Measurement Criterion
Your target users can be described by the following characteristics, properties, preferences, or values: _____	Frequency of mentioning characteristics, properties, preferences, or values
During the product use, your target users are influenced by _____.	Frequency of mentioning persons or media
The customer uses or applies the product or service _____ hours per day (your assumption).	Usage period
The customer is online _____ per day.	Online time
The customer is in X environment _____ hours per day.	Length of stay
The customer uses X device _____ per week.	Usage period
The customer visits Y city _____ per week.	Frequency of visits

Test



- Interviews
- Online Studies

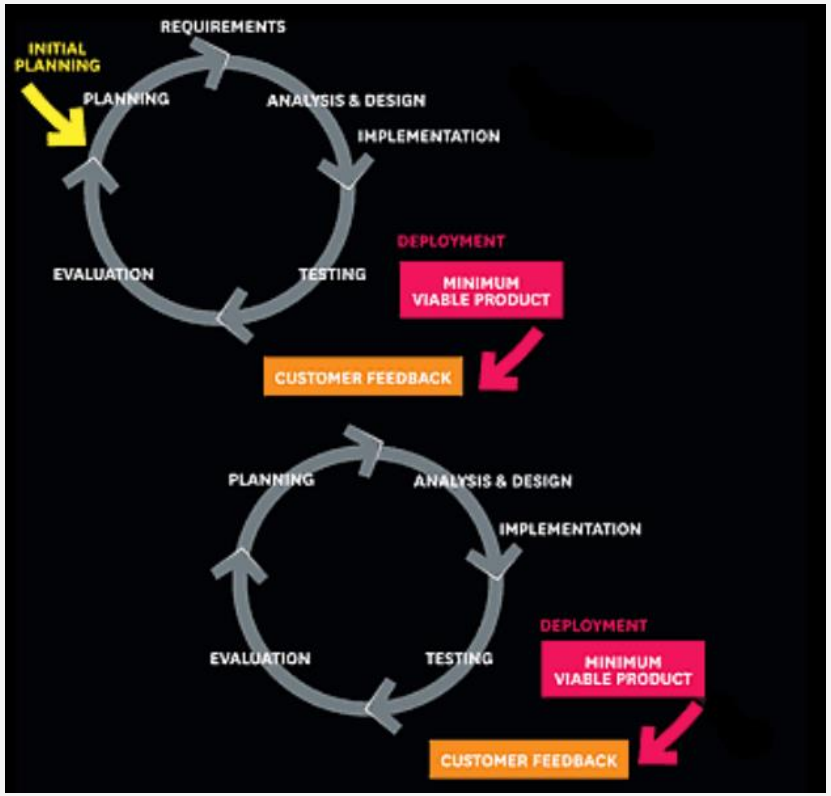
Design Thinking Process



Why design thinking is more relevant now?

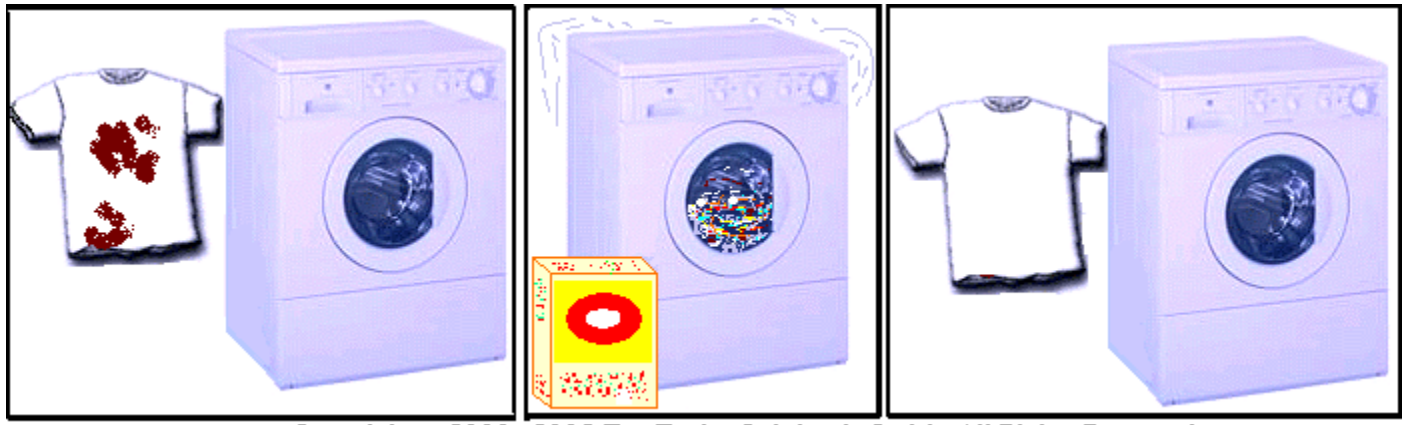
- Business plans rarely survive first contact with customers.
- No one besides venture requires five-year plans to forecast complete unknowns.
- Start-ups are not smaller versions of large companies. They do not unfold in accordance with master plans.

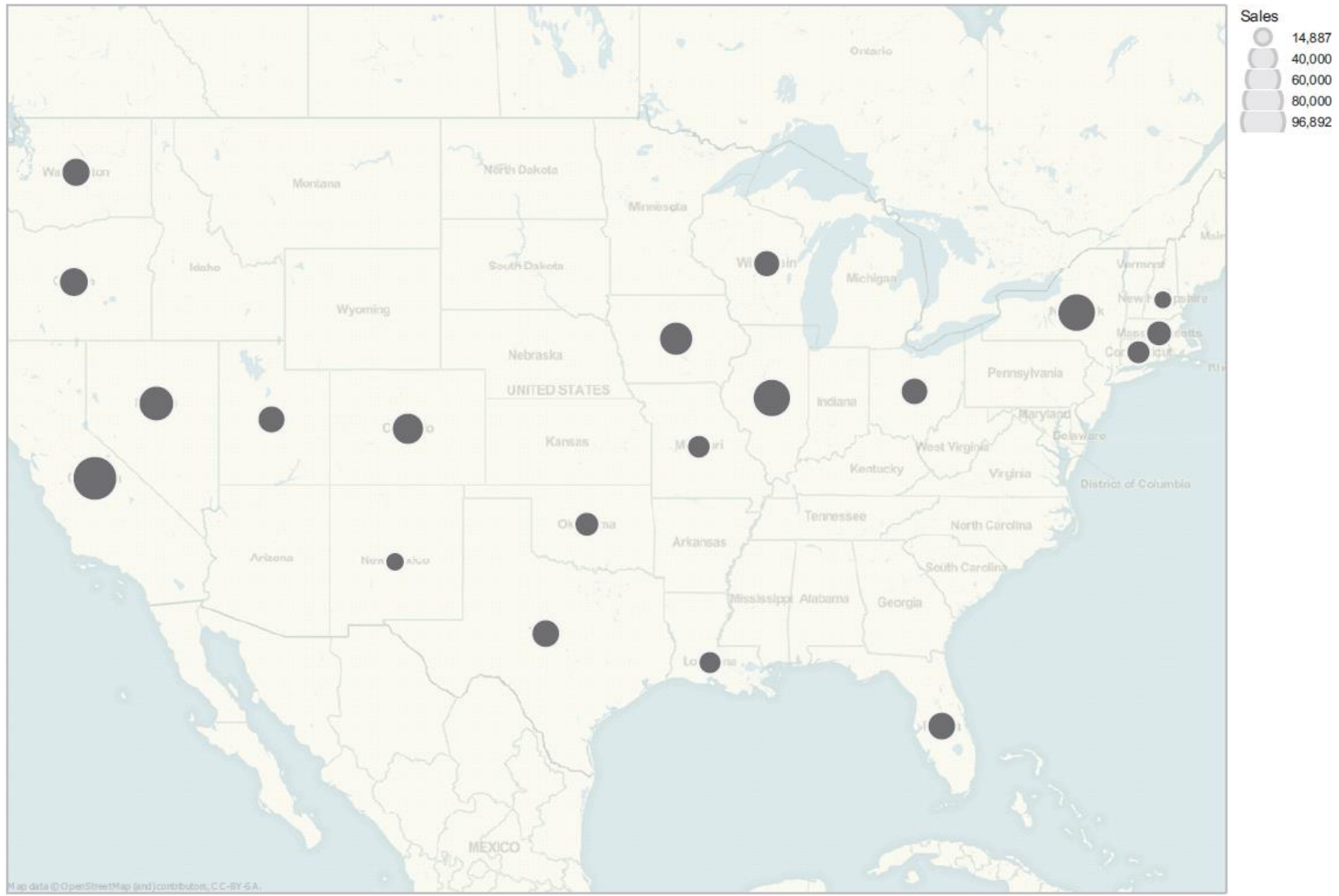
- Prototype testing
- Customer Involvement
- Agile development



What could be the best design for stairs

Mystery of the detergent debacle

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Indiana
Pennsylvania
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Delaware
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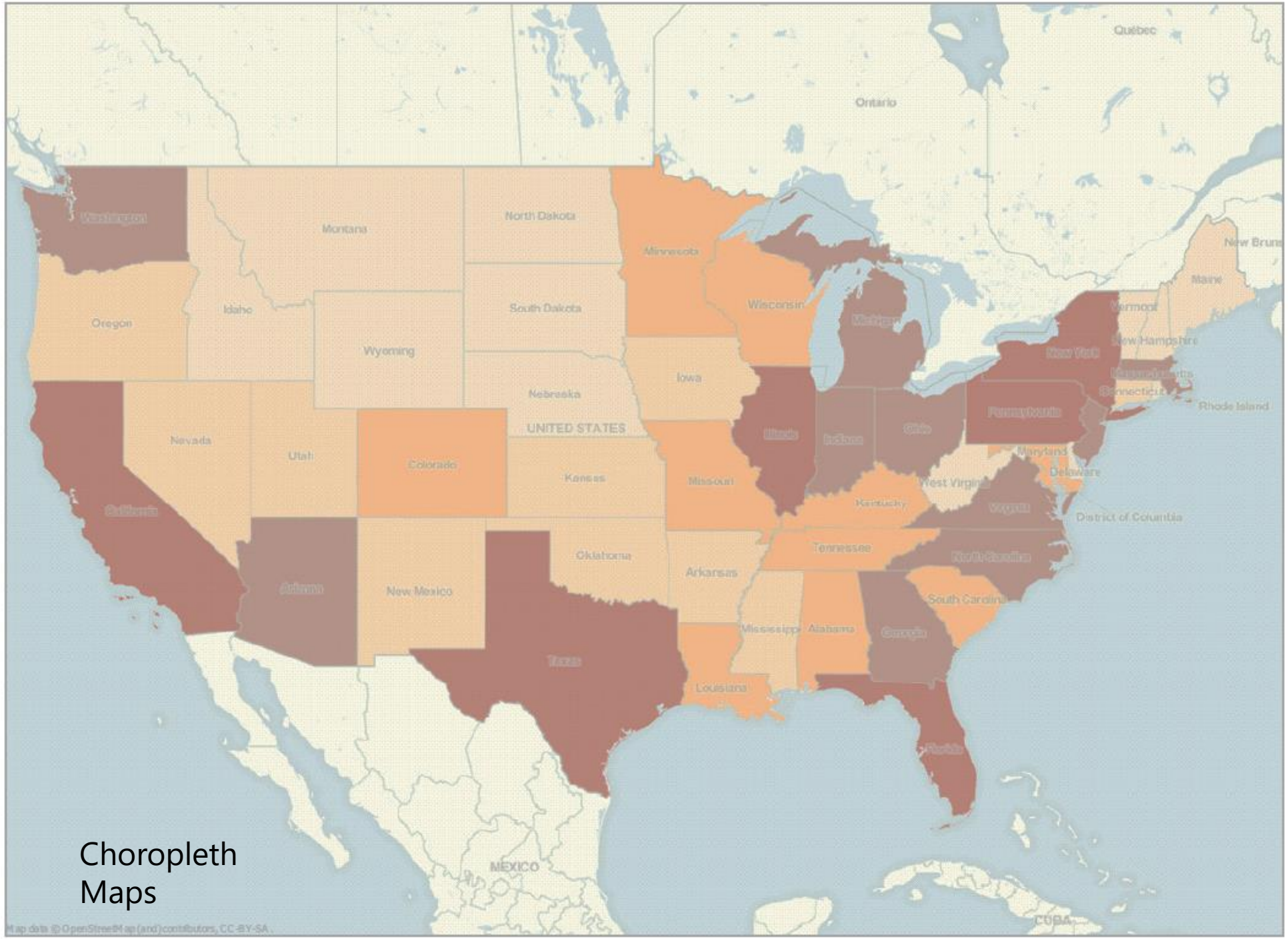
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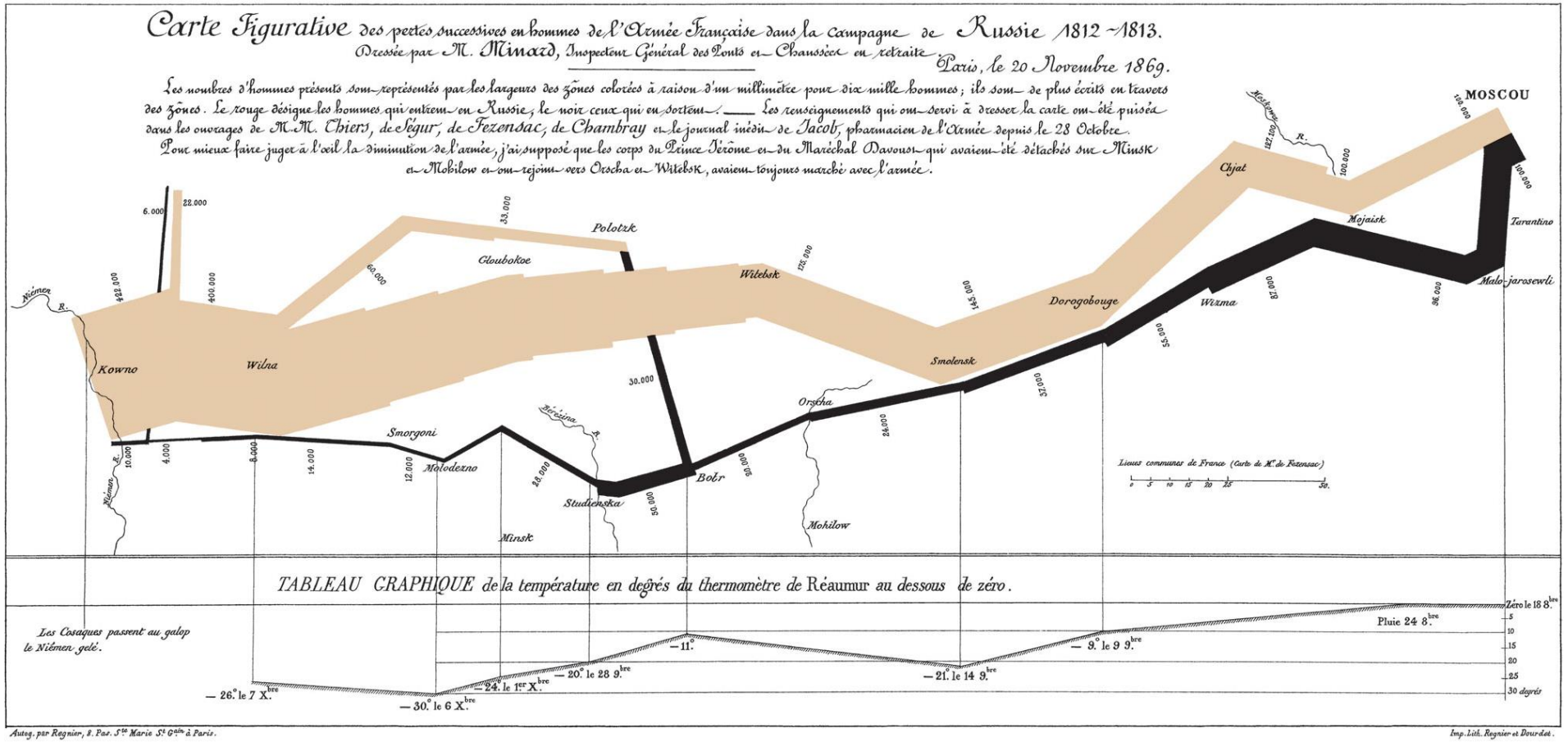
Reveal Patterns



C.J. Minard, 1869: Napoleon's losses during his 1812 march to and from Moscow

Case - Should Kasliwal enter the market?

- DT - an iterative process of designing a prototype or a product (MVP)
- MVP is a product with a set of features that could potentially satisfy early adopters
- 21 prototypes – Is MVP ready?
- Lean Startup - Hypothesis of Value and Hypothesis of Growth
- Hypothesis of Value – whether a product or service really delivers value to customers once they begin using it.
- Hypothesis of Growth – how new customers will discover a product or service

Product – Market Fit

- MyT Brewer
  - it tried to solve for the problem – an absence of tea machines.
  - Did it create other problems?

- Do offices and cafes need same product?

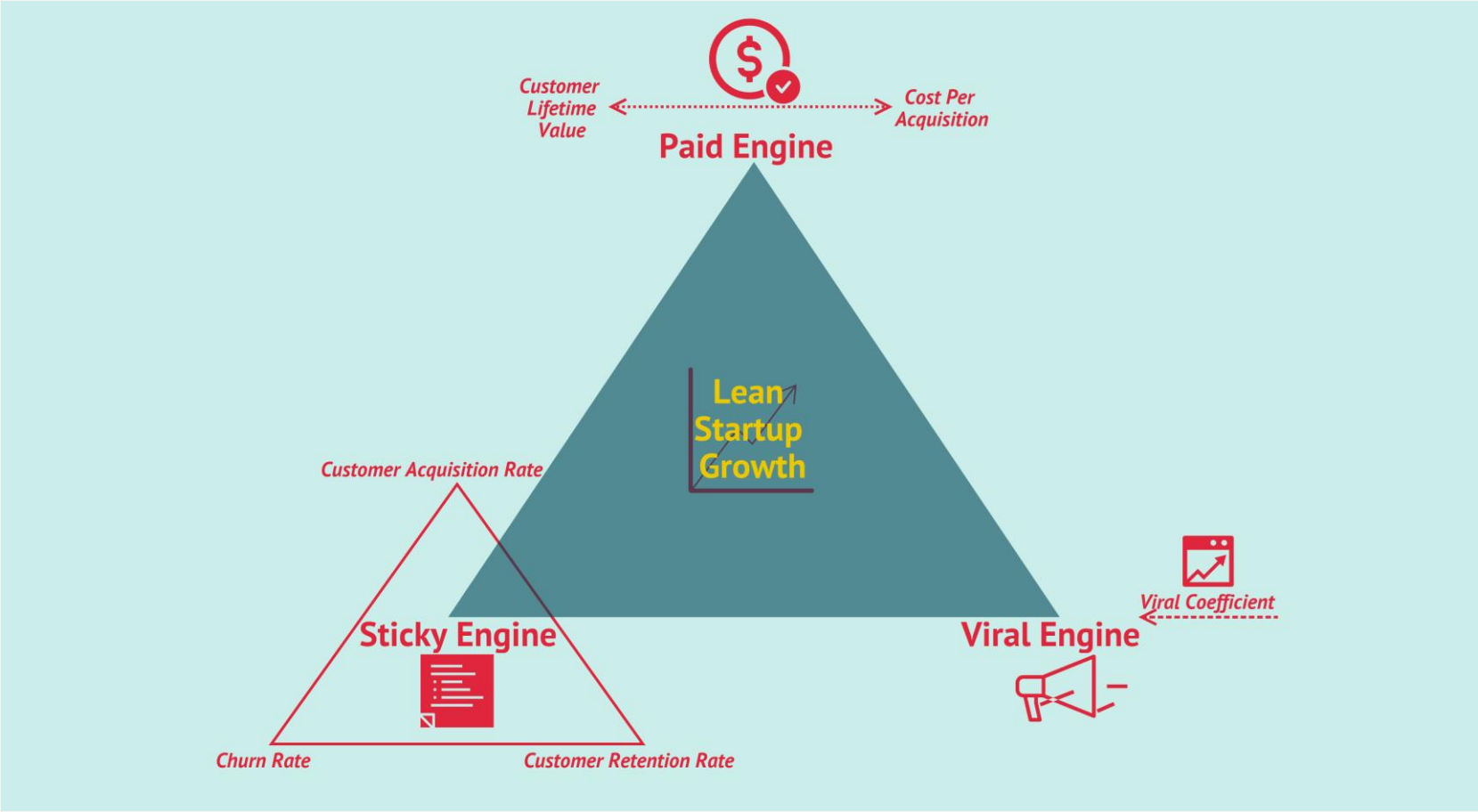
Questions

- How can we check whether the MVP has features which will meet the need of the customer?
- How can we check whether the customer is aware of the different features of the prototype?
- What does the customer really want from the prototype?
- How important is customer feedback for this stage of the MVP?

Growth

- How to generate revenue from prototype?

Three engines of growth



The Paid Engine of Growth

- Paid refers to the growth achieved through the combination of low customer acquisition costs (CAC) and high customer lifetime values (LTV).
- Each customer pays a certain amount of money for the product over his or her "lifetime" as a customer. Once variable costs are deducted, this usually is called customer lifetime value (LTV).
- There are other ways of promoting prototype growth.

- Pros
  - Can ensure some revenue
- Cons
  - Needs the customer to be addicted to the product
  - Demand for better service

The Sticky engine of Growth

- Companies using the sticky engine of growth track their attrition or churn rate very carefully.
- If the rate of new customer acquisition exceeds the churn rate, the product will grow. The speed of growth is determined by the rate of compounding, which is simply the natural growth rate minus the chum rate.
- Pros
  - Customer on-boarding can be ensured with product engagement
  - Rate of customer acquisition can be controlled with proper planning
- Cons
  - Have to control for delightful experience for customer. Breakdowns will prompt customer disengagement
  - Experiment/test for product experience / MVP becomes risky

The Viral Engine of Growth

- The Viral Engine of Growth Brands that go viral via online social networks are examples of products for which customers do the lion's share of the marketing.
- This is distinct from the simple word-of-mouth growth discussed above.
- Customers are not intentionally acting as evangelists – they are not necessarily trying to spread the word about the product.
- Like the other engines of growth, the viral engine is powered by a feedback loop that can be quantified – viral loop.
  - Viral coefficient – The viral coefficient measures how many new customers will use a product as a consequence of each new customer who signs up.
  - Higher this coefficient is, the faster the product will spread.
- Pros
  - Rapid product awareness
  - Can highlight product details better
  - Easy to reach out to more potential customers
- Cons
  - Competitors become active
  - Need quicker manufacturing process
  - Danger of bad feedback going viral

Case - Engine of Growth

- What kind of strategy should MyT Brewer adopt and why? What kind of strategy has MyT Brewer adopted already?

Reference

- Muller-Roterberg, C. (2020). *Design thinking for dummies*. John Wiley & Sons.