

Design Thinking

Problem

How to address an ill-defined problem?

Difficulty

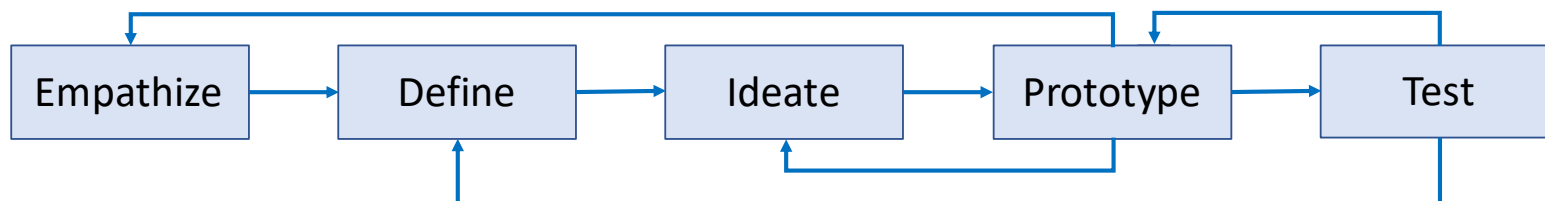
Work with an SME

- **Design Thinking** (DT) is an innovation approach which: empathizes with users, creates artifacts that address user needs, tests those artifacts, analyzes feedback, and continuously reworks the solution.
- DT usually has 5 steps: *Empathize, Define, Ideate, Prototype, and Test*.
- While DT steps are shown sequentially, rarely do they occur in a linear fashion. Usually, “backward” steps occur as the team learns more about user needs.
- DT does not address the entire life cycle of a product or solution, it only focuses on specific problems within the life cycle.



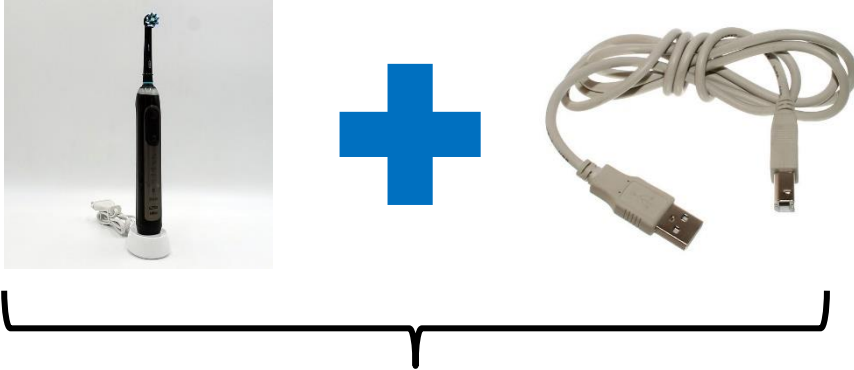
The following steps do not often occur linearly!

1. Empathize with your users
 - Determine how users interact with their environment in the context of the problem space.
2. Define the problem
 - Create a high-level human-centric statement that encapsulates the problem to be solved.
3. Start generating ideas
 - Generate as many ideas as possible to translate the problem statement into practical solutions.
4. Build a prototype
 - Take the most promising product ideas and create minimum viable product (MVP) versions.
5. Test your solution
 - Use test feedback to fine-tune the MVPs.



Design Thinking – Example – electric toothbrush

1. The web has many examples of Design Thinking.
2. An example is the design of the Braun / Oral-B electric toothbrush. Apparently:
 - A. An initial Braun goal was to create a high-tech toothbrush that gave feedback to users on how well they brushed.
 - B. After user discussions, it was determined that users wanted a less stressful brushing experience; some stress related to the charging of an electric toothbrush.
 - C. Braun changed their goal and created an electric toothbrush that uses USB charging.



New product: “Techinal Portable Compatible for Braun Oral b Replacement Oral Charger Durable Convenient Electric Toothbrush Holder USB”

https://commons.wikimedia.org/wiki/File:A-B_Usb_Cable.jpg

https://commons.wikimedia.org/wiki/File:Oral-B_Genius_X_Electric_Toothbrush_-_48263286922.jpg

The web has examples of Design Thinking applied to problems in:

- Education
- Financial Services
- Healthcare
- Journalism
- Non-Profit/NGOs
- Retail
- Technology
- Transportation

Design Thinking – Notes

Slide 1

1. Design thinking simultaneously addresses customer desirability, business viability, and technology feasibility.
2. Design thinking incorporates multiple disciplines:
 - humanities for empathy;
 - engineering for idea generation; and
 - the sciences for testing.
3. Design Thinking benefits include:
 - Applies to products and processes.
 - Ensures that there is a “why” behind every improvement.
 - Improved customer retention.
 - Is useful for addressing poorly specified problems, since there is constant user engagement.
 - Reduction of cost to get a product to market.
 - Reduction of time-to-market.

Slide 2

1. It is challenging to give a detailed example in a small space.
2. Web examples can be found with titles
 - “40 Design Thinking Success Stories”
 - “Design thinking in action ... 35 great examples”