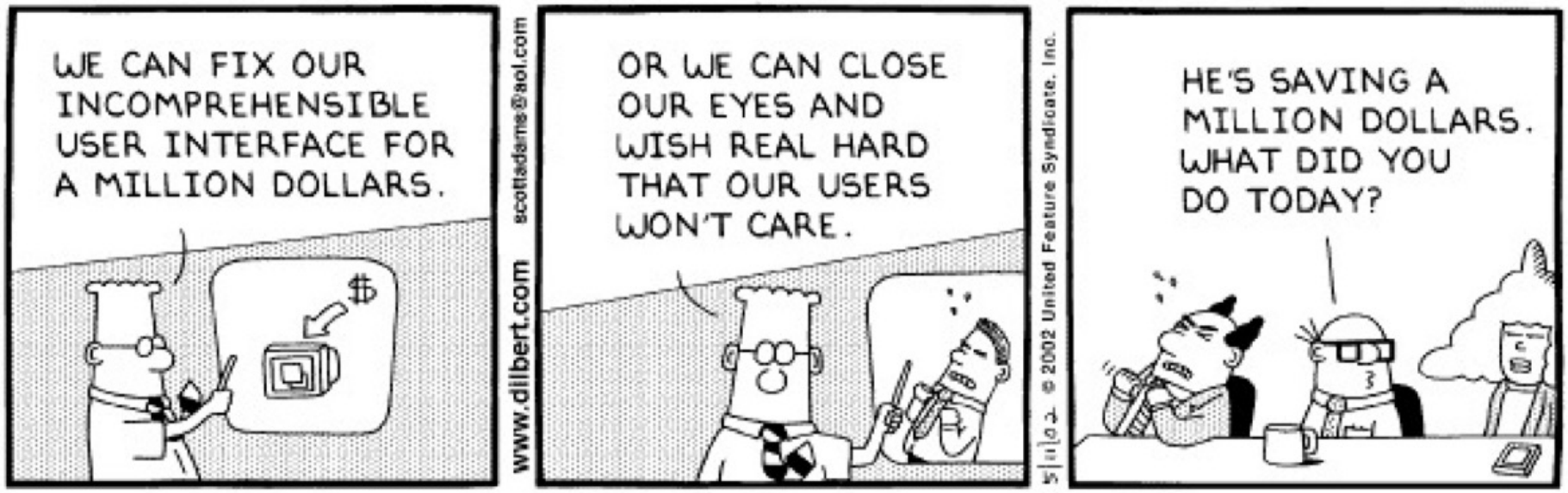
Design Thinking Tools

These tools are intended to help with identifying problems and brainstorming solutions.



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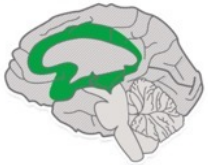
Universal Design Example

How Humans Learn

AFFECTIVE NETWORKS:
THE **WHY** OF LEARNING



Engagement

For purposeful, motivated learners, stimulate interest and motivation for learning.

Explore Engagement

RECOGNITION NETWORKS:
THE **WHAT** OF LEARNING

Representation

For resourceful, knowledgeable learners, present information and content in different ways.

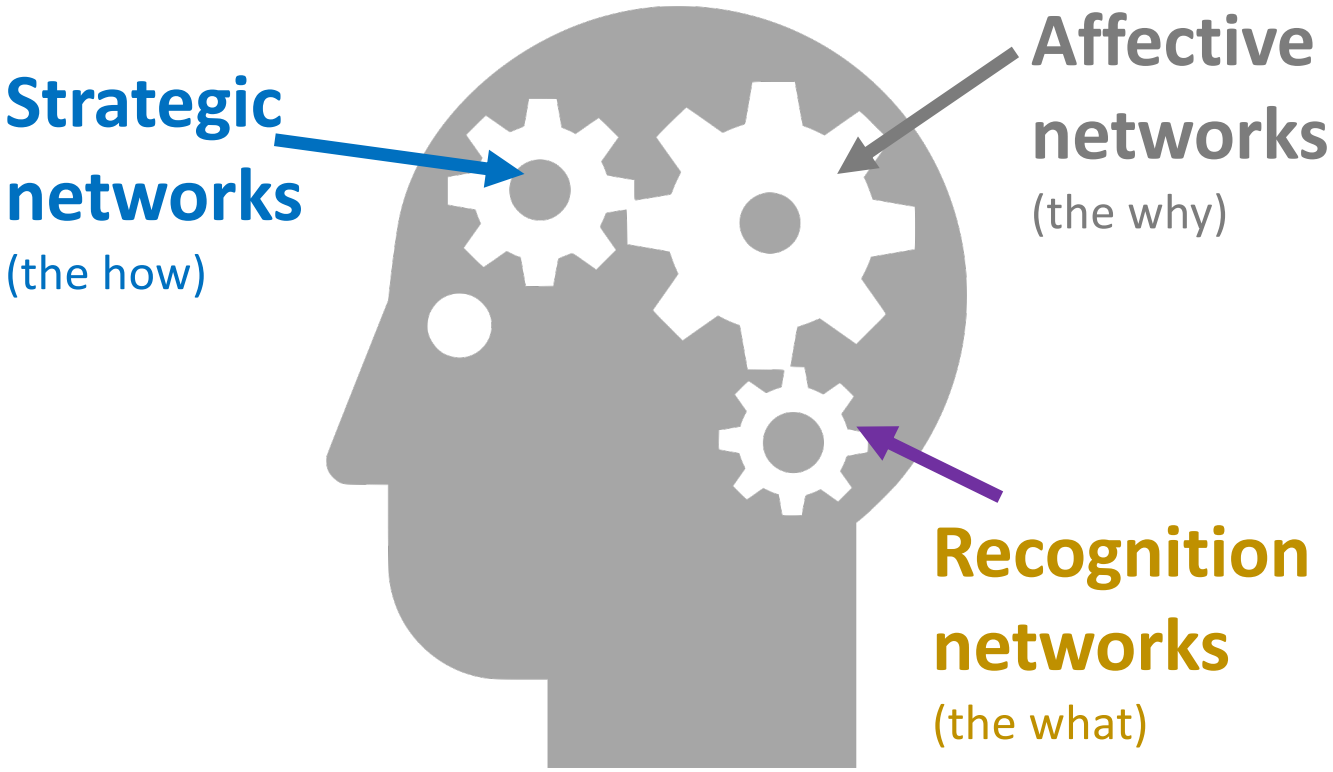
Explore Representation

STRATEGIC NETWORKS:
THE **HOW** OF LEARNING

Action & Expression

For strategic, goal-directed learners, differentiate the ways that students can express what they know.

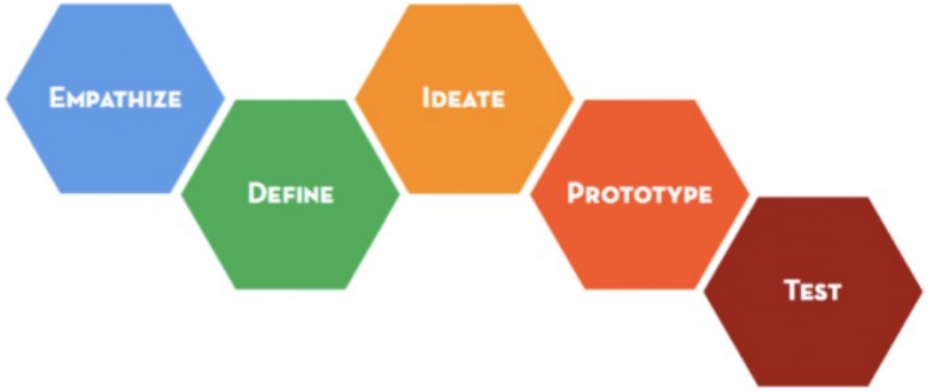
Explore Action & Expression


Strategic networks
(the how)
Affective networks
(the why)
Recognition networks
(the what)

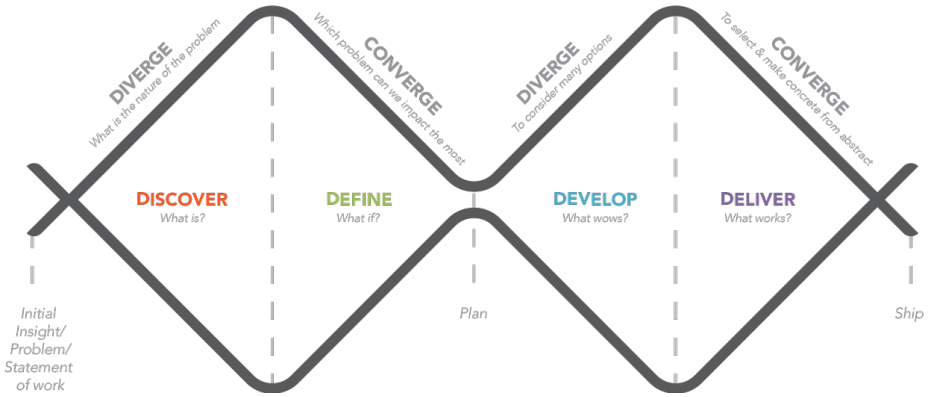
Design Thinking

BACKGROUND

- Popularized by Tim Brown and David Kelley of IDEO and Stanford's d School
- Structured creative problem solving process, but enables innovation and positive impact
- Human-centered design process – truly understand and empathize with user



Design Thinking '**Double Diamond**' Process Model



Empathize

Example Persona - Francine

39 years old
San Diego Area
Married/two kids/Suburban
Comfortable with tech
Interested in trying different modes

- Travels to client venues/sites regularly
- Typically has to drive or take an Uber/Lyft
- Unable to continue working during travel (sometimes 60+ mins) due to lack of workspace
- Shared Autonomous Vehicles proposes an opportunity to continue working
- Public transportation and Uber/Lyft does not allow the privacy required
- Very likely to use SAV regularly

User Journey Mapping

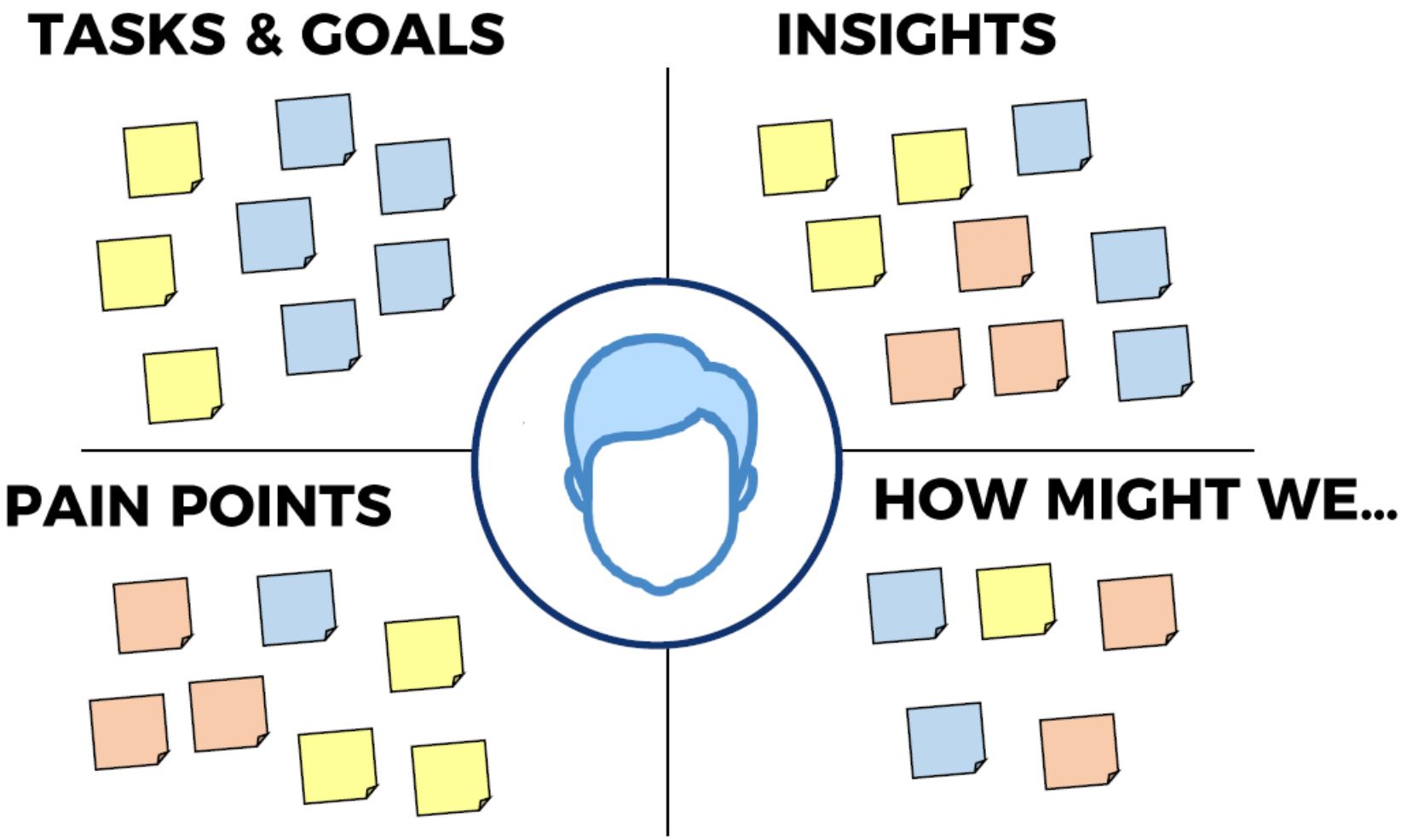
Empathize

BOBBY THE CYCLIST'S JOURNEY

STEP	LEAVING HOME	BIKING TO WORK	PARKING BIKE AT WORK	RETURNING HOME
DOES				
THINK				
FEEL				

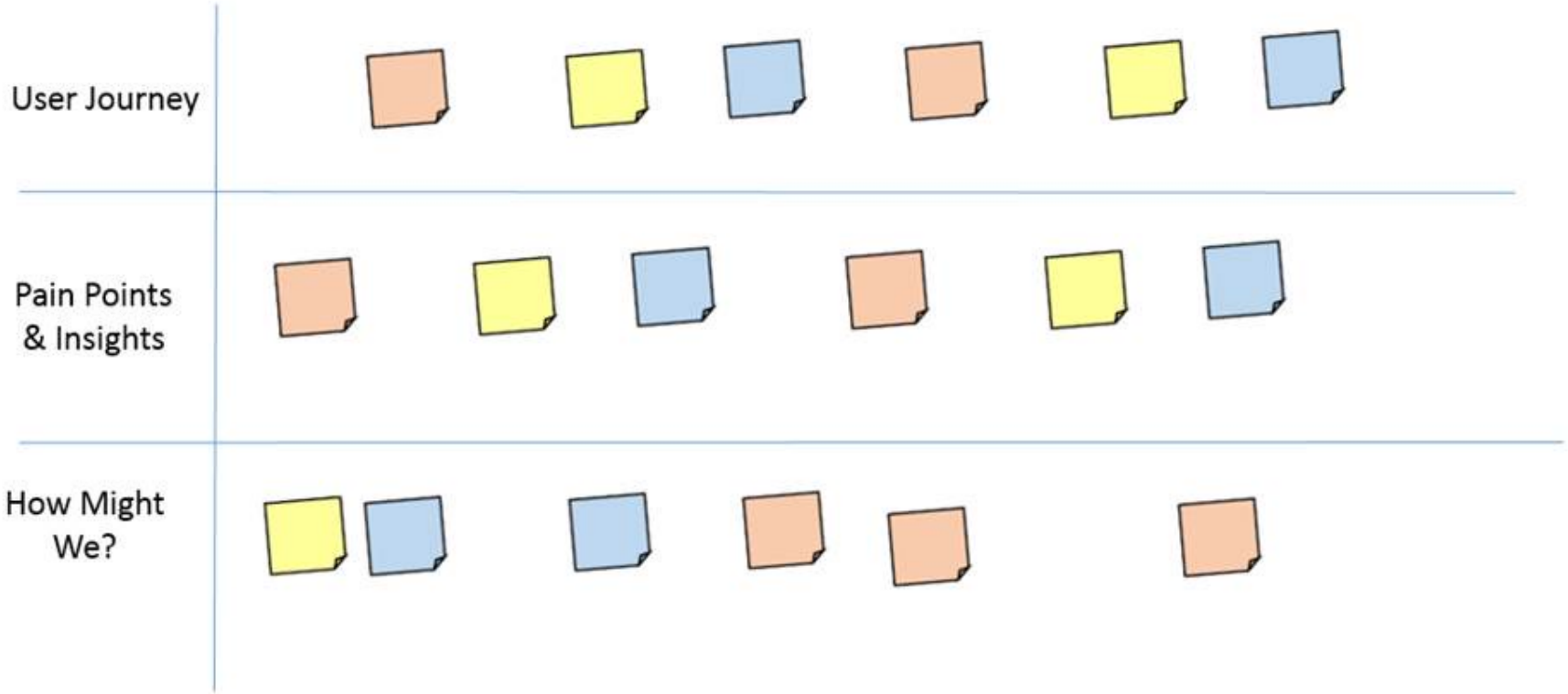
Problem Space

Empathize



Problem Space

Empathize

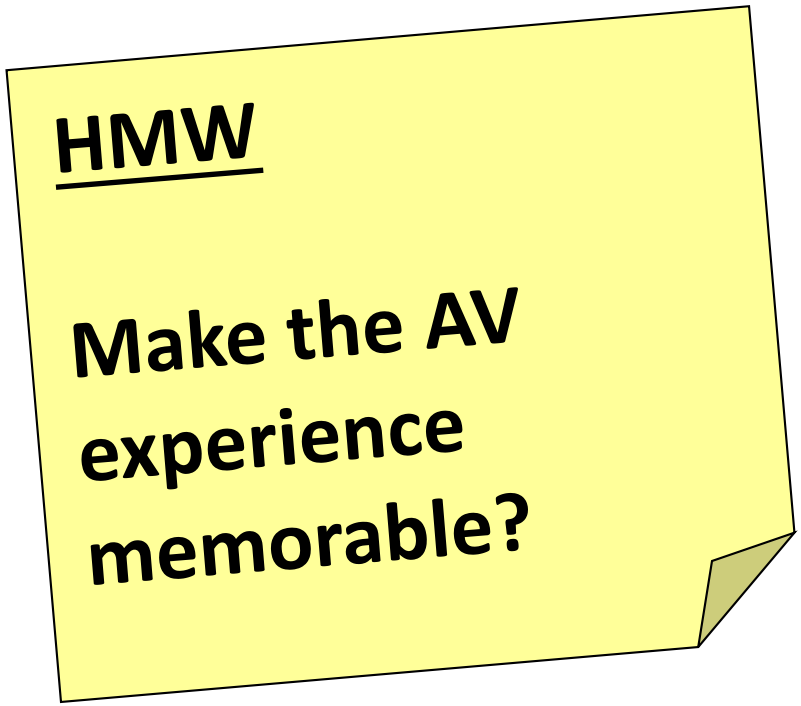


How Might We

Define

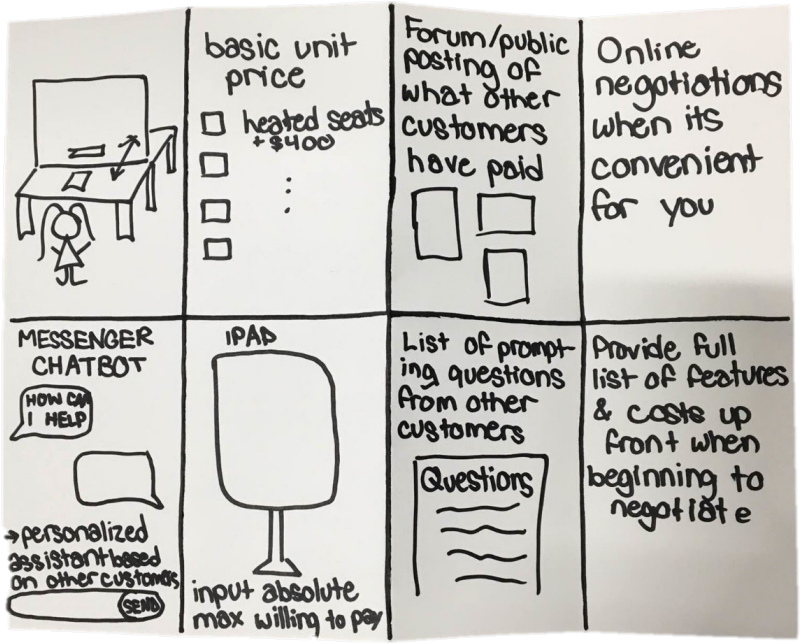
- Come up with ‘How Might We…” statements to address the pain points and areas of opportunity that you’ve identified.

- Cluster the HMWs into themes



Individual Ideation: Rapid Fire

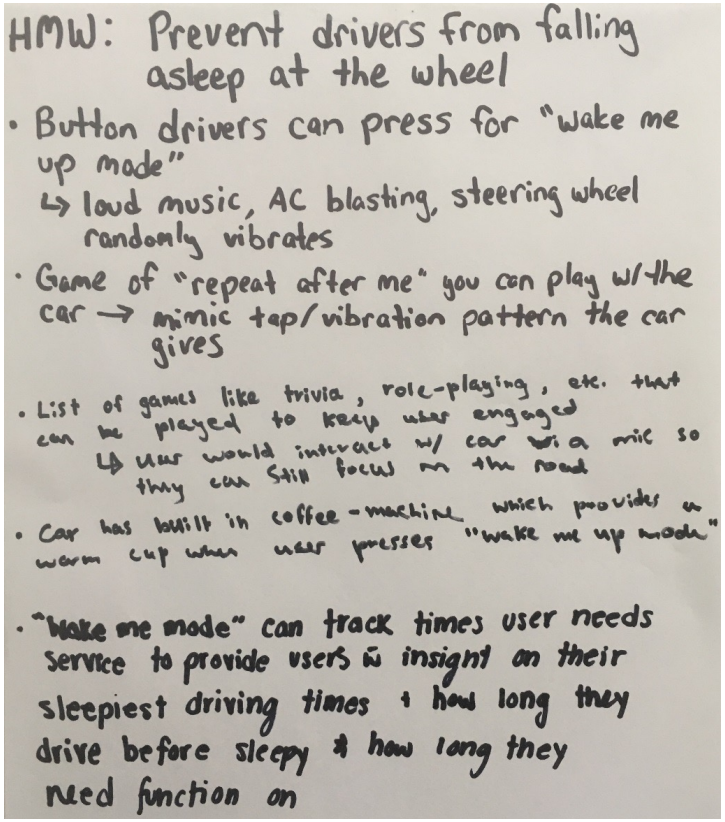
Ideation



- On a piece of cardstock, sketch 8 different ideas to address your HMW statement. (1 min per idea)
- If you get stuck, try applying some constraints.

Individual Ideation: Brain Writing

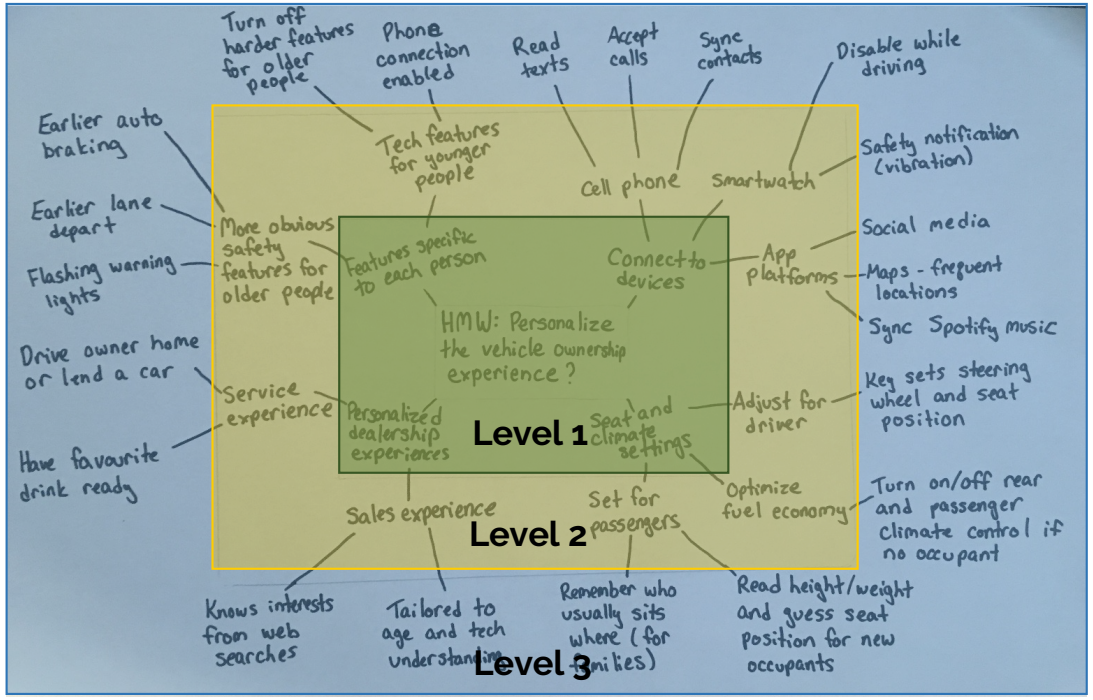
Ideation



- Each person has 3 minutes to jot down ideas about **sources for auto heading information that currently exist**
- After the 3 minutes is up, pass your paper to the person to your right
- That person has 3 minutes to add their own ideas and flesh out ones already on the page
- Repeat this process until everyone gets their original paper back

Group Ideation: Speed Mind Mapping

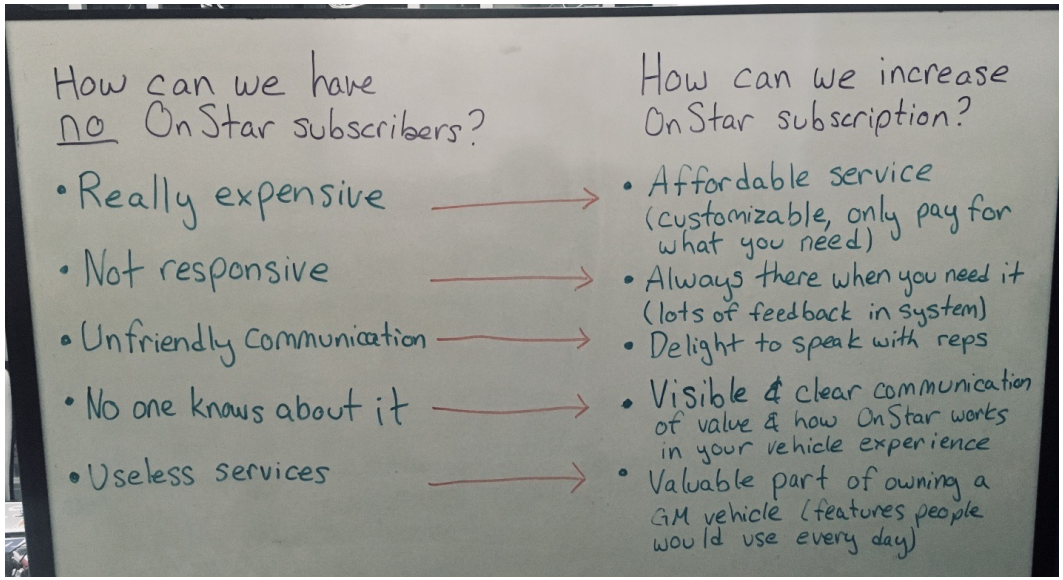
Ideation



- Write your opportunity in the middle of the page
- Use 3 levels of brainstorming to come up with new ideas
  - Level 1 – preliminary ideas – 1 minute
  - Level 2 – expand on ideas – 3 minutes
  - Level 3 – add some details – 3 minutes
- To refine ideas, ask yourself “how” or “what would this look like”
- It’s ok if you don’t do all 3 levels for each branch!

Group Ideation: Reverse Thinking

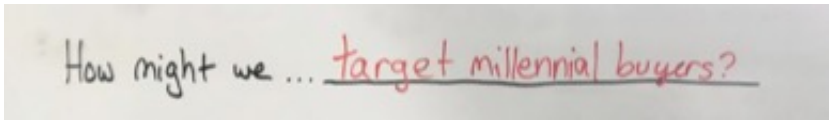
Ideation

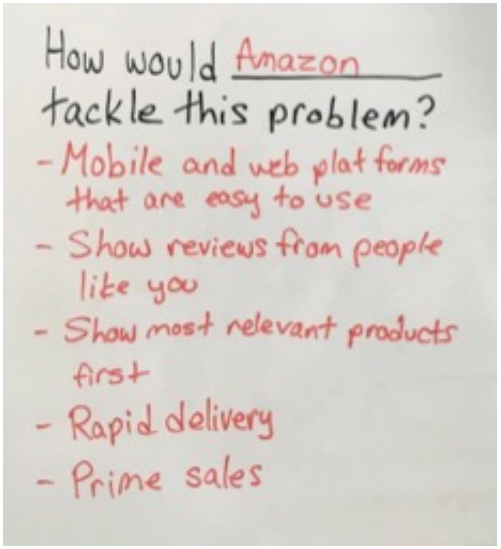


- List the **WORST** possible ways that you ensure **automotive heading integrity**
- Examine how you could reverse these bad ideas to create the best possible solutions

Group Ideation: Industry Swap

Ideation





What it's good for:

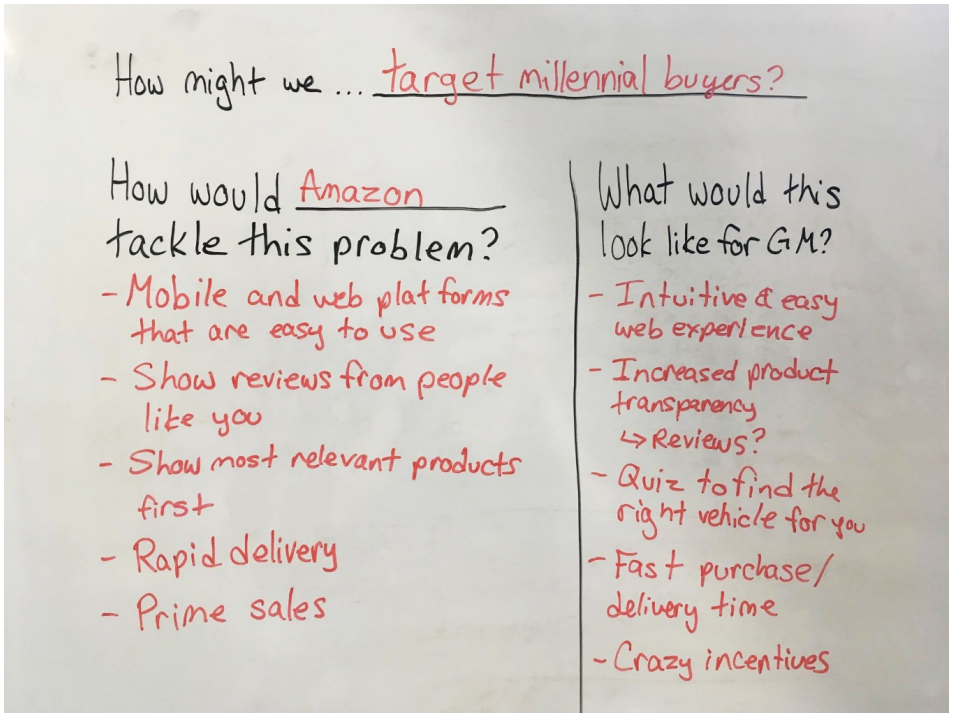
- Brainstorming new ideas as a group

How it works:

- Create the template (shown on the left) on a whiteboard or large chart paper
- Choose a company that is known for having high customer satisfaction
    - Apple, Starbucks, IKEA, and Amazon are good ones!
- Brainstorm ways that another company would tackle your problem

Group Ideation: Industry Swap

Ideation



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Ideation: Group Brainstorming

Ideation

How can the AV experience be customized?

- Gather around a whiteboard with stickies and sharpies
- Present some ideas that have been proposed
- As a team build on the ideas in the form of “Yes and . . .”
- Do not use “No and But”

Lean Canvas

Project Name

03-21-2019

Iteration #x

Problem	Solution	Unique Value Proposition	Unfair Advantage	Customer Segments
Top 3 problems	Top 3 features	Single, clear, compelling message that states why you are different and worth paying attention	Can't be easily copied or bought	Target customers
	Key Metrics Key activities you measure		Channels Path to customers	
Cost Structure Customer Acquisition costs Distribution costs Hosting People, etc.			Revenue Streams Revenue Model Life Time Value Revenue Gross Margin	

PRODUCT

MARKET