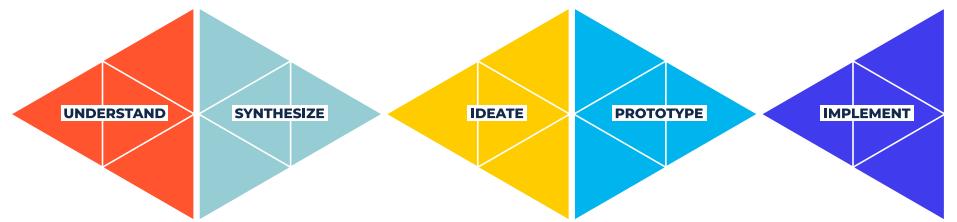
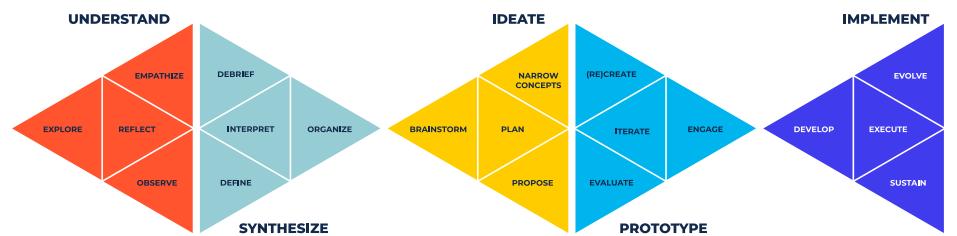


The Human-Centred Design Taxonomy:



HCD Taxonomy, including spaces and processes



Lawrence, L., Shehab, S. and Tissenbaum, M. (2024) 'Understanding non-designers' practices and processes in a human-centered design course', *Int. J. Innovation in Education*, Vol. 9, No. 5, pp.1-27.

## FRAMING THE PROBLEM & ROOT CAUSE ANALYSIS

UNDERSTAND



Start by identifying an area of focus you want to address. Then, try to understand the issue on a deeper level by tapping into the root cause of the problem. Once you've identified the initial problem, repeatedly ask "why" to get down to the root cause(s).

**What is the problem you're trying to solve?**

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**What is causing the problem to happen?**

1

2

3

4

5

Why?

Why?

3

4

5

Why?

Why?

**Root Cause Problem Statement:**

.....

.....

.....

## DOCUMENT YOUR ASSUMPTIONS AND BIASES

UNDERSTAND



Before you begin your research, it's important to think through any assumptions or biases you may have regarding your (design) challenge. Take a moment to think through the following questions:



What are your initial reactions to the (design) challenge?

What are your initial assumptions and thoughts in relation to the (design) challenge?



What are your initial biases to the (design) challenge?

What aspect(s) of the (design) challenge are you interested in?



What aspect do you want to explore to an extreme?

Do you know of any existing interventions that you think can solve the challenge? If yes, how?

## 5 W+H QUESTIONS

UNDERSTAND



The 5W+H questions help to gain a deeper understanding, new insights and information, and to holistically make sense of the situation and the issues. They offer a chance to dig deeper into the desires and opinions of the people involved. Try to answer as many of the questions suggested below.

### WHO?

Who is involved? | Who is affected by the situation | Who is the decision maker?

### WHERE?

Where does the problem occur? | Where was it resolved before? | Where did similar situations exist?

### WHAT?

What do we already know about the problem? | What would we like to know?  
What are the assumptions that should be scrutinized?

### WHY?

Why is the problem important? | Why does it occur? | Why was it not yet solved?

### WHEN?

When did the problem start? | When do we want to see results?

### HOW?

How could this problem be an opportunity? | How could it be solved?  
What has already been tried to resolve the problem?

## OBSERVE

Observe users and the surrounding environment of the spaces relevant to your design challenge and document your observations in the AEIOU (Activities, Environment, Interaction, Objects, Users) template below. This will help you learn more about the users and the environment they're in.

### A - Activities

What happens?  
What are the people doing?

### O - Objects

What objects and devices are used?  
Who uses the objects and in which environment?

### E - Environment

What does the environment look like?  
What is the nature and function of the space?

### I - Interactions

How do the users interact with each other?  
How does the operation work?

## UNDERSTAND



In addition to the AEIOU activity, note what you see and what you don't see as you navigate the space.

What's there?

**What do you see that is evidence of your initial assumptions?**

What's NOT there?

**What do you notice is missing? What proves your biases?**

## INTERVIEWING

To gain a better understanding of the people you're designing for, their behaviors, needs and desires. First, identify who you need to talk to.



## Who do we need to talk to?

## What do we want to find out?

## What questions should we ask?

## REMEMBER

- Make sure your questions relate to the topic you are discussing.
- Questions that may influence the person to give you the answer that you want.
- Try not to ask yes or no questions

## CONDUCT INTERVIEWS

Talk to people you've identified earlier. Document what you learn from them in the space below.



## biographical information

## Interview notes

## direct quotes

needs

## CONDUCT INTERVIEWS

Talk to people you've identified earlier. Document what you learn from them in the space below.



## biographical information

## Interview notes

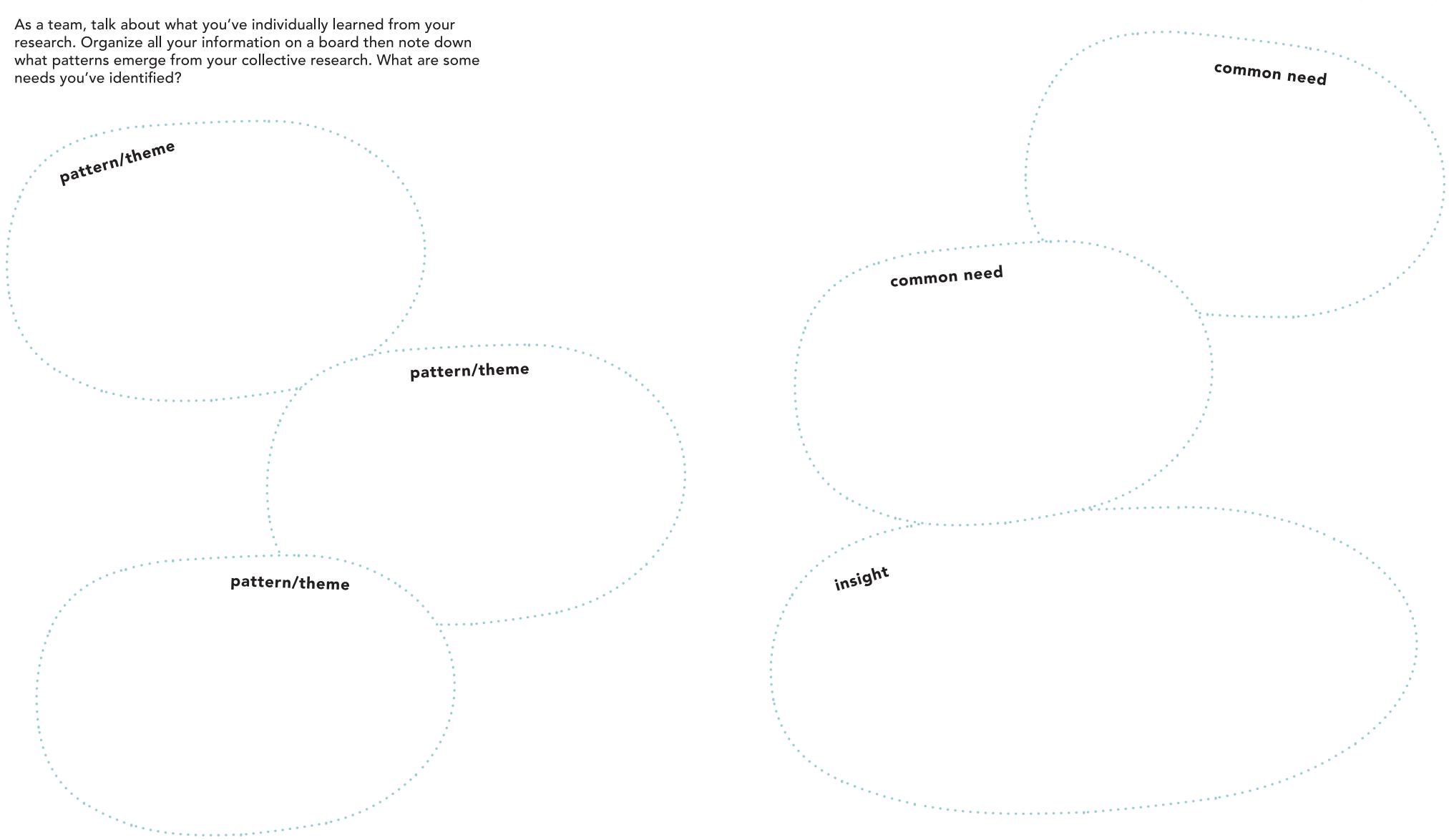
## direct quotes

needs

## THEMES & PATTERNS

As a team, talk about what you've individually learned from your research. Organize all your information on a board then note down what patterns emerge from your collective research. What are some needs you've identified?

## SYNTHESIZE



## INSIGHT STATEMENTS

Craft a few insight statements to succinctly describe your users, their needs and the insight that made you determine this was a need. Insights are revelations; things you didn't know about your users before going into this research.

### SYNTHESIZE



(person/targeted group of people)

need \_\_\_\_\_ (unmet need)

because \_\_\_\_\_ (insight)

(person/targeted group of people)

need \_\_\_\_\_ (unmet need)

because \_\_\_\_\_ (insight)

(person/targeted group of people)

need \_\_\_\_\_ (unmet need)

because \_\_\_\_\_ (insight)

(person/targeted group of people)

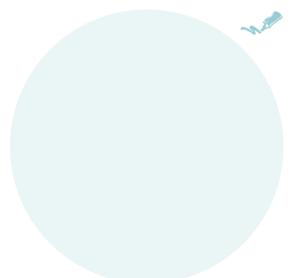
need \_\_\_\_\_ (unmet need)

because \_\_\_\_\_ (insight)

## CREATE PERSONAS

As a team, create personas that are based on the people you talked to. To begin, each team member will draft one persona in their own workbook then share it with the team. Finally come together to modify and craft the top three.

## SYNTHESIZE



### Biography

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### Motivations

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### Goals

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### Frustrations

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### Needs

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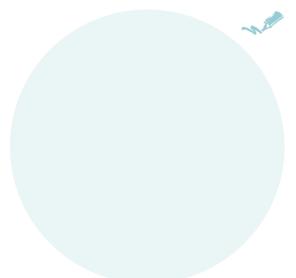
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### Ideal Experience

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### Biography

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### Motivations

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### Goals

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### Frustrations

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### Needs

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---

### Ideal Experience

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## HOW MIGHT WE

From each of the insights, generate a question that begins with 'How Might We' (HMW). Give each HMW question a number and write in the blue box.

### SYNTHESIZE



Example of a 'How Might We' question from an insight:  
*'How might we ensure that patients understand the importance of arriving 2 hours prior to their procedure, so that operations begin on time.'*

How might we...

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---

How might we...

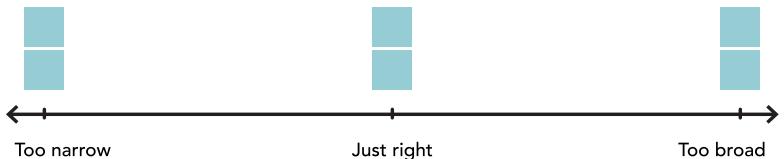
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How might we...

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Evaluate whether each question is too narrow, too broad or just right. Write down the question number in the boxes on this scale.

Now write down your favorite 'How Might We' question.  
Make any tweaks if necessary.

## BRAINSTORM

Generate as many ideas as you can. Quantity is better than quality at this point. Use at least the ten spaces provided here but feel free to use post-its or paper if you're feeling creative. Make sure you don't criticise or judge your ideas. Once you're done, give each idea a score from 1-5 and write it down in the yellow circle. This will help you decide which one to prototype.

### Brainstorming Rules

1. Defer judgment	5. One conversation at a time
2. Encourage wild ideas	6. Be visual
3. Build on the ideas of others	7. Go for quantity
4. Diverge don't digress	

IDEATE



Idea 1

Idea 2

Idea 3

Idea 4

Idea 5

Idea 6

Idea 7

Idea 8

Idea 9

Idea 10

## REVERSE BRAINSTORMING

Take a stab at brainstorming all the ways you could cause the problem to be worse. Then reverse that by finding solutions to these bad ideas.

How can we make the problem worse?	How can we solve that?

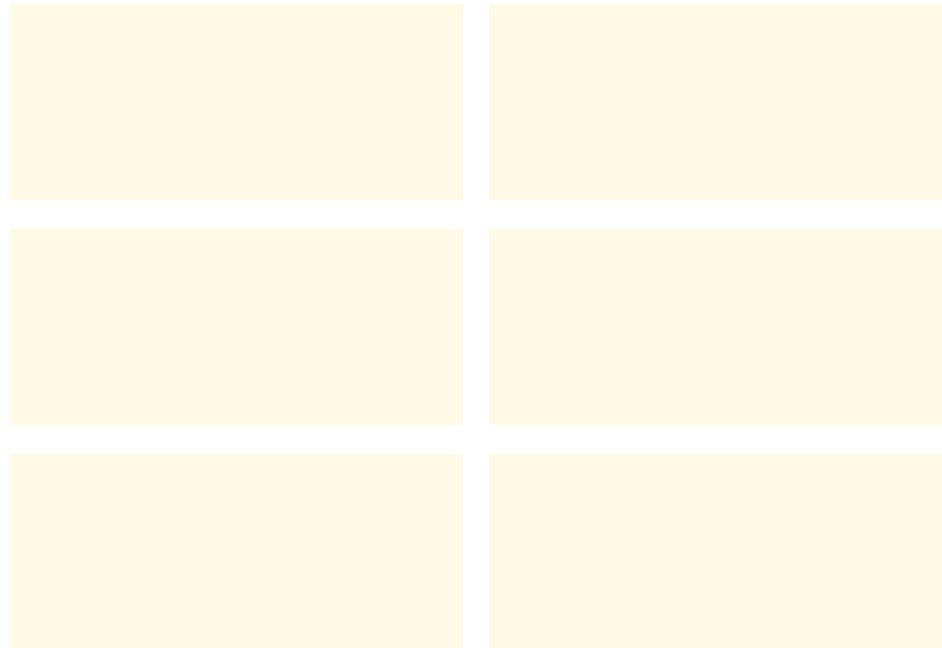
What's your top idea?

IDEATE



Can you create different variations of this one idea?

(perhaps you combine ideas. What if you had a 100\$ to implement it? What about 100,000\$?)



What's the idea you want to prototype?



## PROTOTYPE

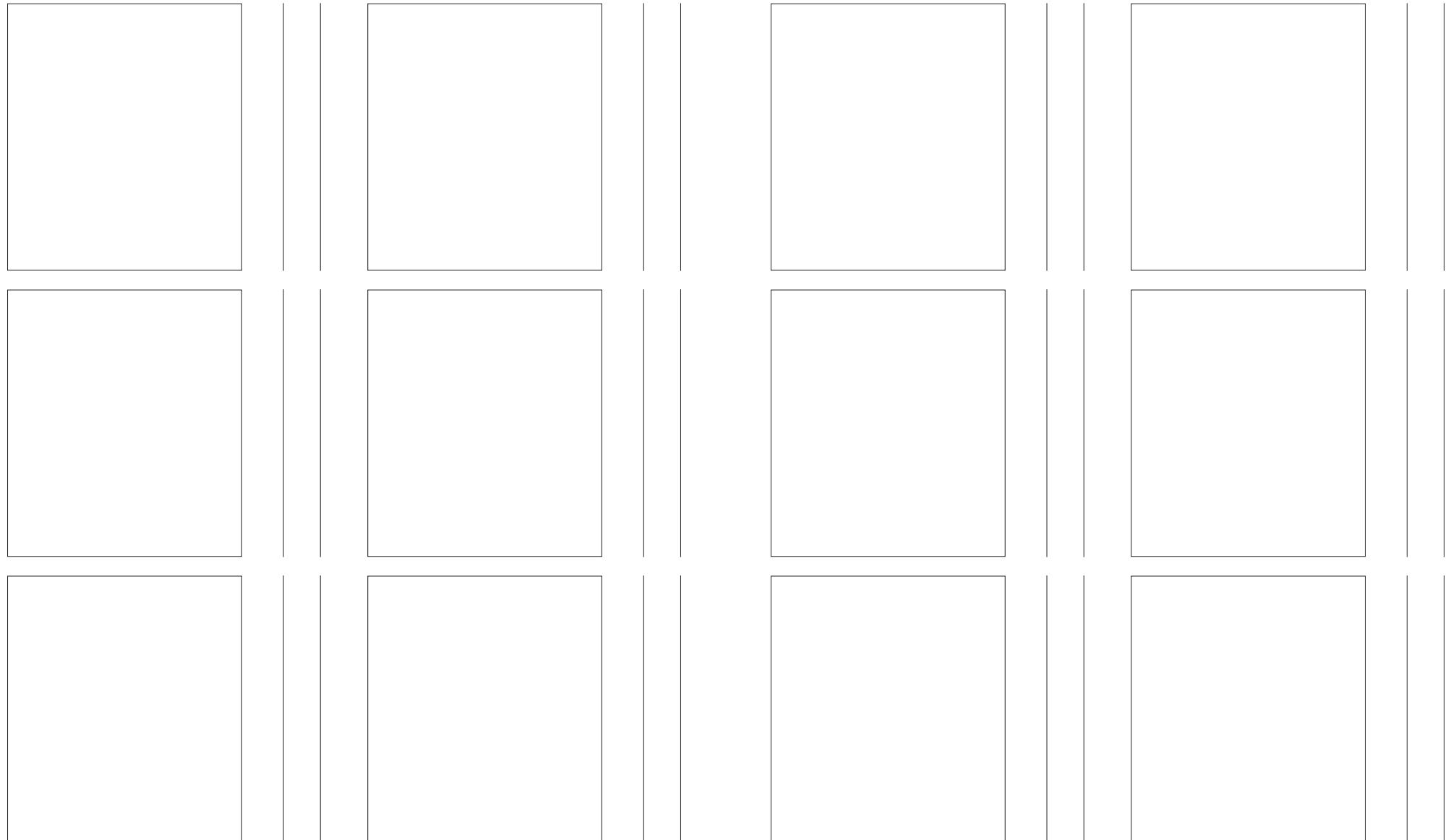
### PROTOTYPE



Use the materials provided to create a prototype that would communicate your idea to other stakeholders. Here are some ways you may prototype it quickly to communicate your idea to others: **Sketch it / Storyboard it / Create a 3D mockup / Create a wireframe / Create a paper prototype / Act it out.** The following pages have storyboarding and paper prototyping templates that might be useful.

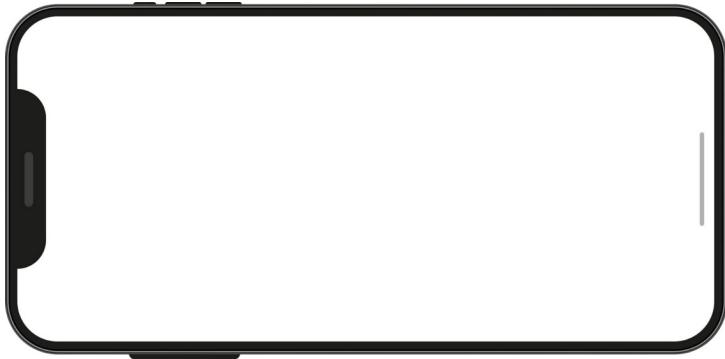
## STORYBOARD

## PROTOTYPE



PAPER PROTOTYPE

PROTOTYPE



## GET FEEDBACK AND ITERATE

Have other users **engage** with your prototype and let them give their feedback in the 2x2 matrix below. Then go for another round of prototyping!

PROTOTYPE



What are your next steps based on this feedback?  
What **iterations** can you make to incorporate the **feedback** you received?

<b>LIKES</b> What do people like?	<b>WISHES</b> What could be improved?
--------------------------------------	--

<b>WONDERS</b> What questions do people have?	<b>IDEAS!</b> What ideas do people have?
--	---

## IMPLEMENT

Before 'pitching' your solutions to the group, answer the questions below.

### IMPLEMENT

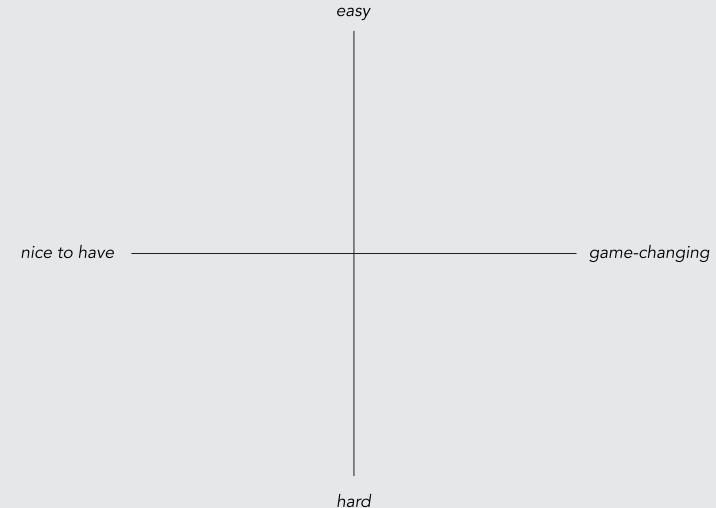


**NAME YOUR IDEA:** Make it memorable!

**JUSTIFY YOUR IDEA:** Why is it important?

**DESCRIBE YOUR IDEA:** What's it about?

**ASSESS YOUR IDEA:** Use the matrix to assess how desirable this idea is to the people involved and how easy it will be to implement.



## PITCH

Use the following template to craft a 3 minute pitch to share the solution your team has prototyped.



**Our team designed the** \_\_\_\_\_.

**We noticed that,** \_\_\_\_\_ **face** \_\_\_\_\_  
*population description* *problem*

**to feel** \_\_\_\_\_.

**Our solution, the \_\_\_\_\_, would overcome \_\_\_\_\_**

**this problem by** \_\_\_\_\_  
*description*

**It consists of** \_\_\_\_\_  
description of key features

**This is how it helps** \_\_\_\_\_ **solve** \_\_\_\_\_  
population description problem

Or write it in your own words here:

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