

MOBA1

**DESIGN AND DEVELOPMENT OF
MOBILE APPS (1)**

OVERVIEW

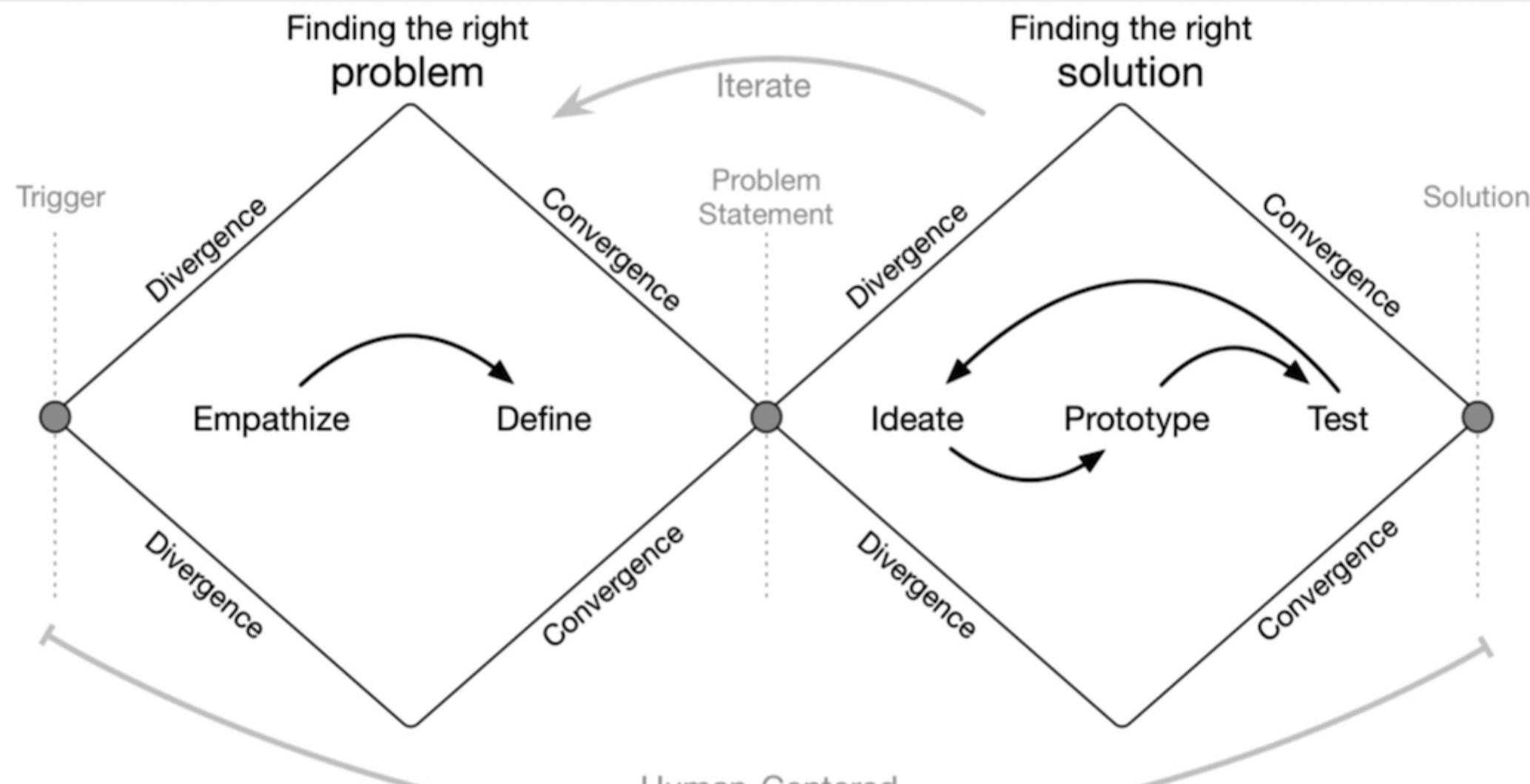
- From idea to concept
- Understand the problem
- Put the user into focus
- Think about a solution
- Storytelling design

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DOUBLE DIAMOND PROCESS

Human Centered Design Starts with Find the Right Problem



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FIND THE RIGHT PROBLEM

- Good designers solve problems
- Great designers solve the right problems

FROM IDEA TO CONCEPT

- Millions of apps in app stores
- Many similar apps, offering nothing special
- Some apps are outstanding

What makes some apps successful?

THREE ASPECTS

- Human desirability
- Financial viability
- Technical feasibility

HUMAN DESIRABILITY

- What do people desire, and what creates joy for them?
- It should create value for people in their daily lives
- It should simplify tasks or make people's lives more comfortable

A product idea generates interests and attracts people to use the product

Also needed: attractive user experience

HUMAN DESIRABILITY

Consider ways to develop apps that take advantage of what mobile devices offer and enable them to do

FINANCIAL VIABILITY

- Crucial for development of most products, including mobile apps
- Challenge: define a **business model** that
 - enables you to create revenue from an idea
 - and maintain acceptable costs for your customers
- Many mobile app developers below the poverty line
Source: developereconomics.com

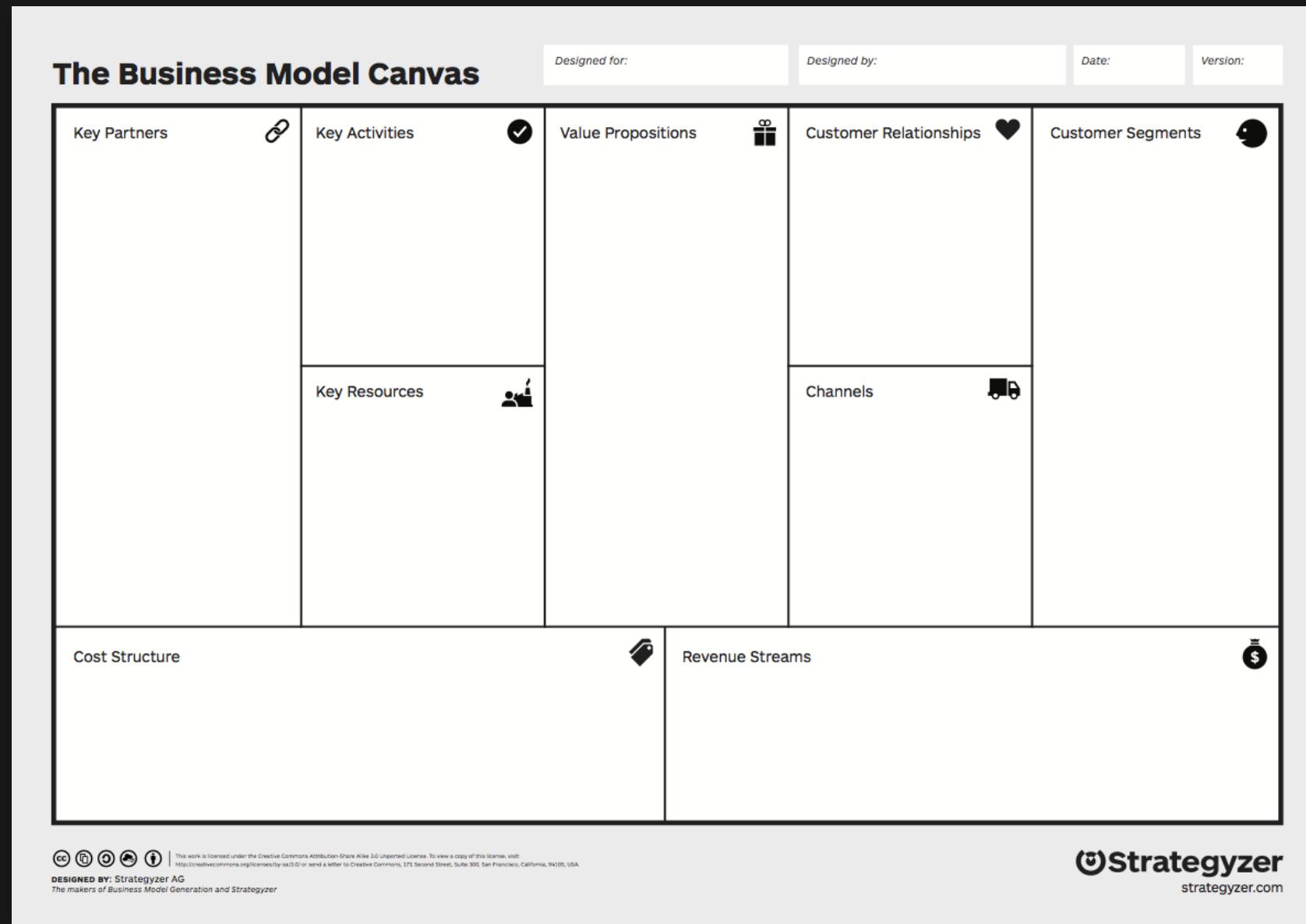
ALTERNATIVE BUSINESS MODELS

Freemium:

“A business model that provides a game to players free of charge, but charges a premium fee for special features, powers, or content.”

Source: developereconomics.com

BUSINESS MODEL CANVAS



Business Model Canvas

TECHNICAL FEASIBILITY

- Innovative products do not always need cutting-edge technology to be successful
- A smart combination of existing technologies can yield innovative products

OVERVIEW

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DESCRIBE THE USER'S NEEDS (1)

- Know who your users are
- Define target group(s) for your app
- What goals the users want to achieve
- What tasks they need to fulfil
- Why your app is relevant to their needs
- Understand how users perform relevant tasks right now including any current workarounds

DESCRIBE THE USER'S NEEDS (2)

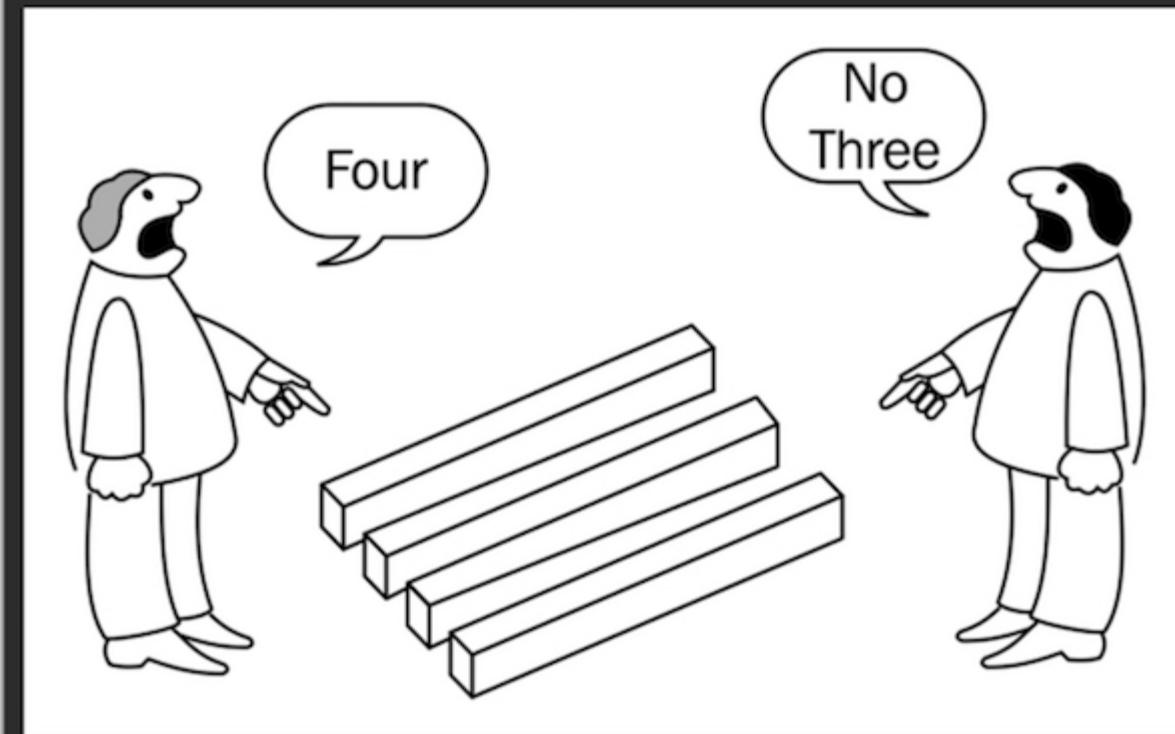
- Speak directly to representatives of the user groups
- Observe them in their daily lives or work
- Market research, such as reports or demographic information, may augment your direct research
- Consider the differences between wishes and needs

UNDERSTAND THROUGH OBSERVATION

Humans
understand the
world through
observation

UX uses observation to understand
humans.

To solve and provide solutions for
users.

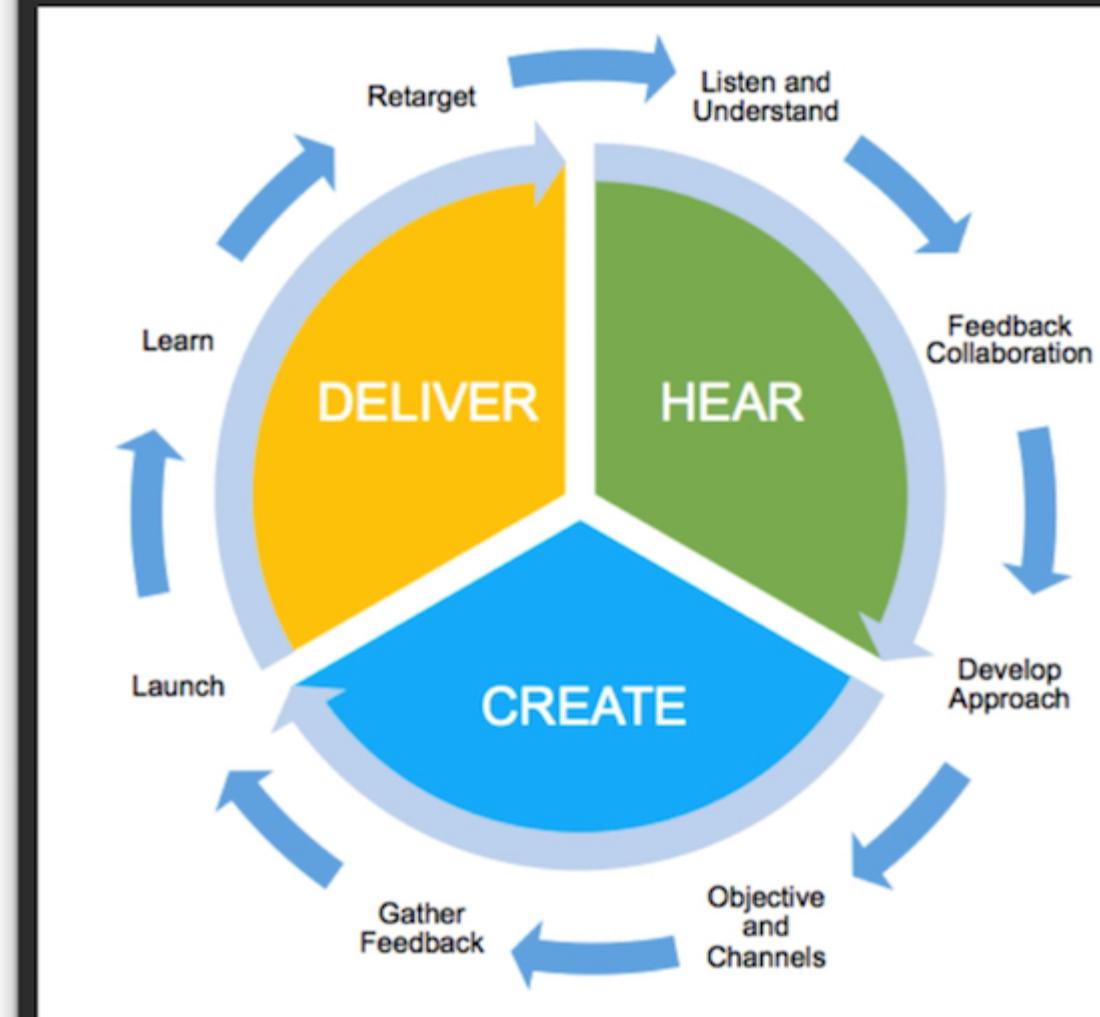


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UNDERSTAND THROUGH OBSERVATION

Observation starts
with hearing from
your users

- Observation leads to
 - Pain Points
 - Additional areas of inquiry
 - Questions
 - Intervention
 - Experience
 - Empathy
 - Insights

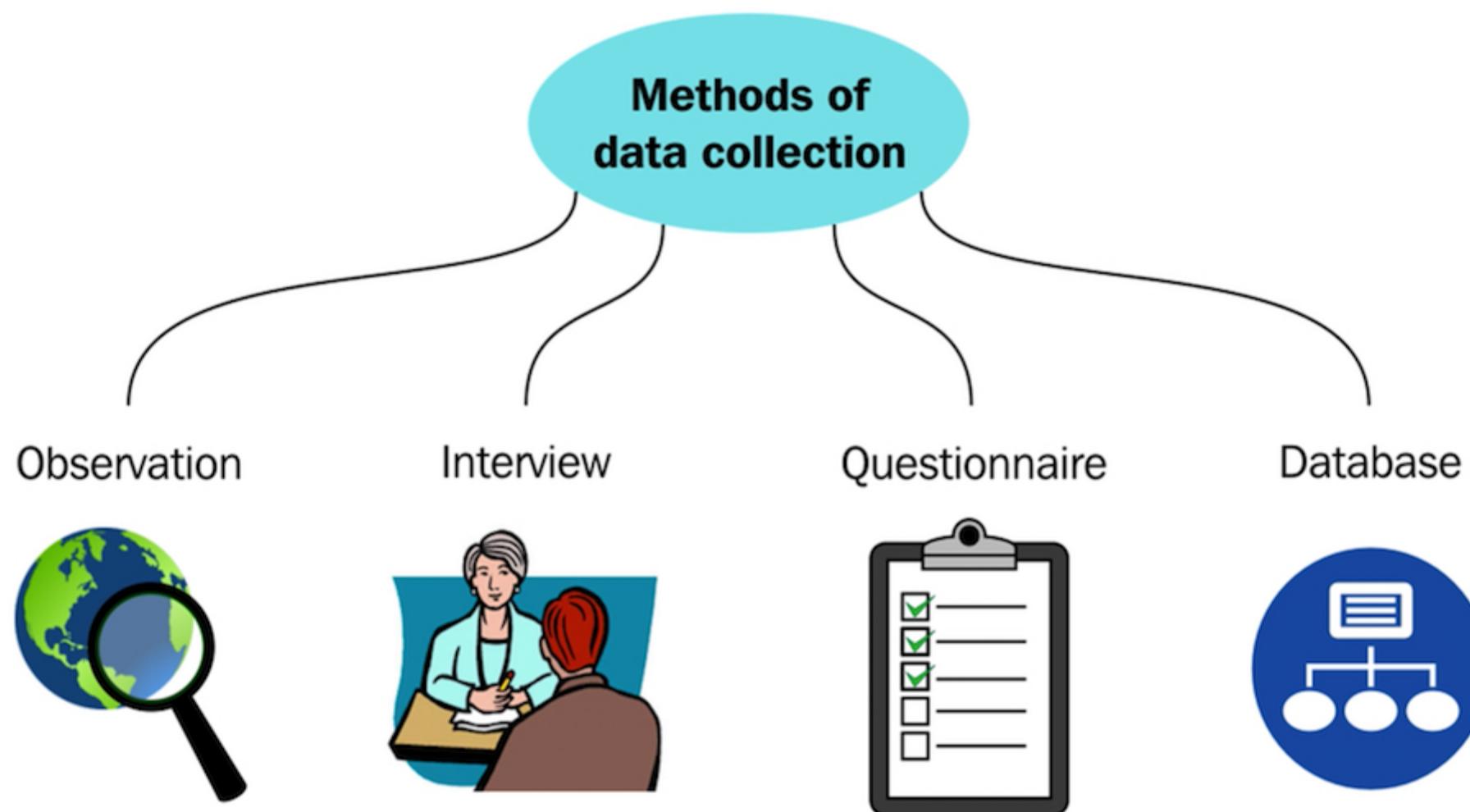


<https://www.sprinklr.com/the-way/human-centered-design/>

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UNDERSTAND THROUGH OBSERVATION

Observation Is about Collection Data on Your Users



<https://www.siyavula.com/mathematics-grade-10-mathematical-literacy/12-data-handling/12-data-handling-04.cnxmlplus> **Packt**

UX OBSERVATION

- UX observation looks for aspects of usability
- Through watching users we can start to understand usability

The 7 Factors that Influence User Experience

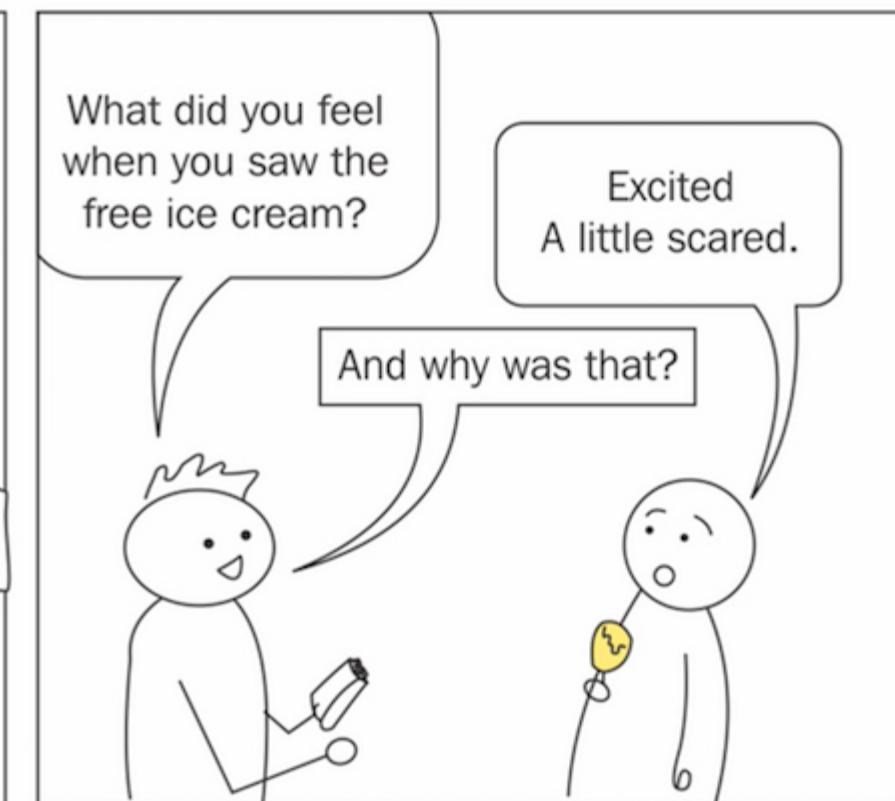
QUANTITATIVE AND QUALITATIVE DATA

UX Is Looking to Understand How Users Feels

Quantitative Methods



Qualitative Methods



<https://uxdesign.cc/a-crash-course-in-ux-design-research-ea00c3307c82>

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QUANTITATIVE AND QUALITATIVE DATA

- UX relies on both qualitative and quantitative data
- Quantitative: usage tracking (Google analytics...), eye tracking, ...

EYE TRACKING

Eye Tracking for Websites



<https://www.youtube.com/watch?v=zoLC0jjRcFU>

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PROBLEM AND CUSTOMER HYPOTHESIS

1. Set Hypothesis

Problem hypothesis	
--------------------	--

EXAMPLE

1. Set Hypothesis

Problem hypothesis	Sharing pictures taken with your phone on social networks is complicated
Customer hypothesis	

EXAMPLE

1. Set Hypothesis

Problem hypothesis	Sharing pictures taken with your phone on social networks is complicated
Customer hypothesis	College students

NEXT...

2. Test: Go talk to people

EXERCISE

Team discussion (10-15 min): Find a topic where an app could improve your work or entertain you during leisure time (an app may already exist but doesn't help or no suitable app available)

- Phrase a problem and a customer hypothesis
- Write down some questions you might ask potential customers
- Discuss and refine the problem and customer hypothesis

INTERVIEWS

- User interviews can lead to a deeper understanding
- Interviews should not be power driven
- Keep the conversations/interviews informal
- No leading questions

NO LEADING QUESTIONS

No Leading Questions

A way of influencing the way a user will answer

For example, how much do you like using our application?
(assumes the user likes the application)



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CHALLENGE

Challenge

Write 15 non leading questions you might ask a user.

Questions should encourage stories

For example, Bad: Do you have any problems using the software?

Good: Tell me about how you use our software



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CHALLENGE

Challenge
go interview a
user about how
the use of a
website or app.

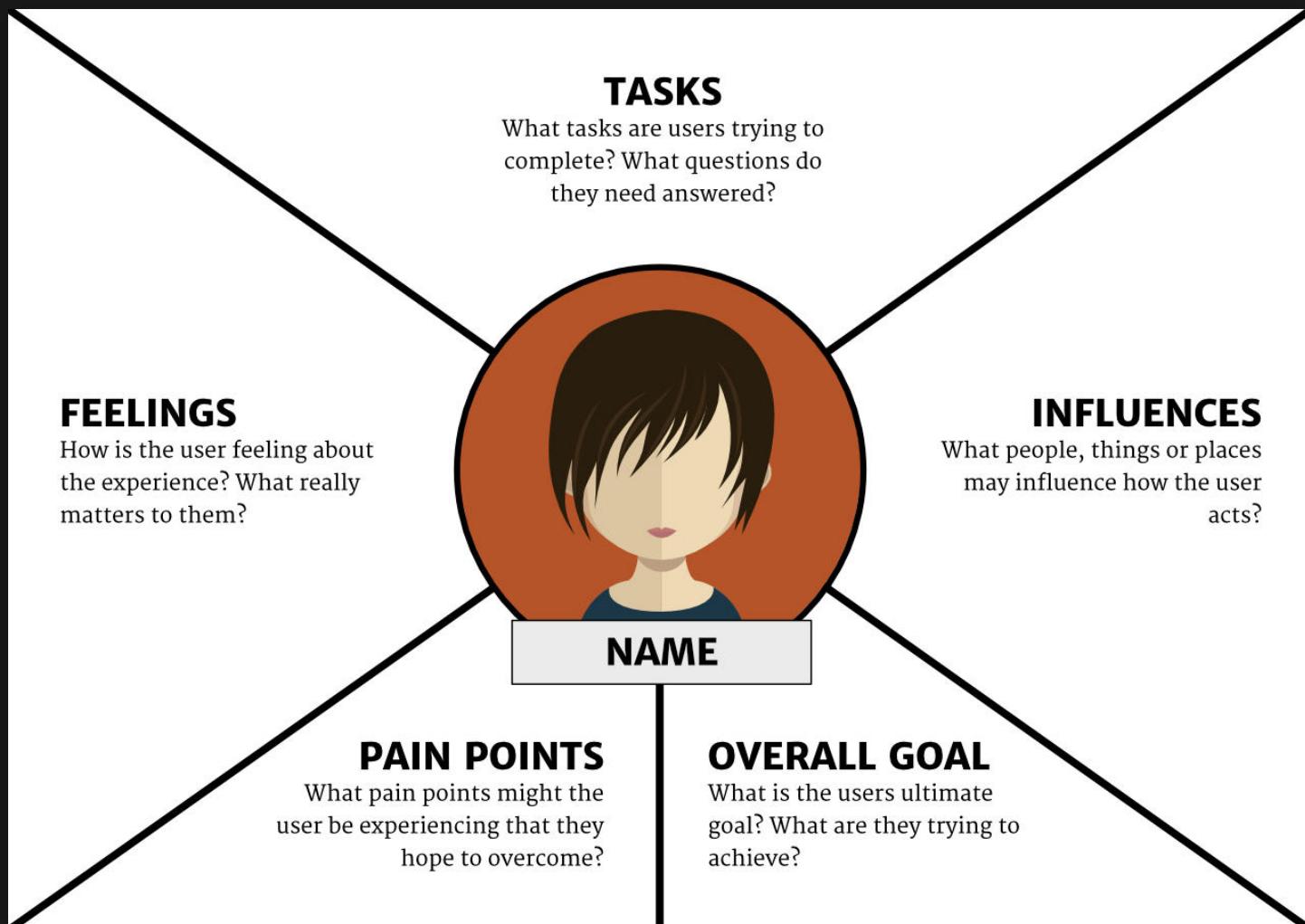
Keep the conversations/interviews
informal. Recommend coffee
shops, cafes, or public libraries.



<http://www.bloomstaxonomy.org/Blooms%20Taxonomy%20questions.pdf>

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EMPATHY MAP



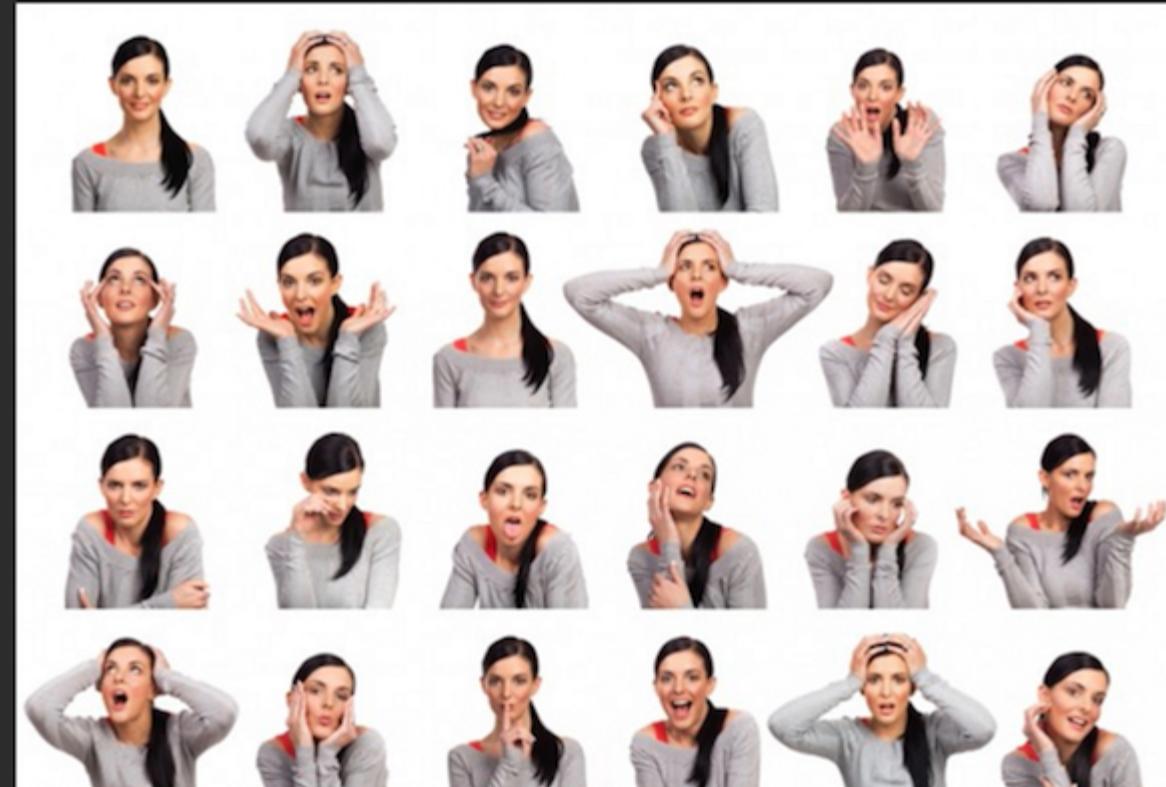
Adapting empathy maps for UX design

Online Empathy Map

KINESICS

Kinesics:

The study of visible body movements, including facial expressions, eye contact, gestures, and body postures.



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EXAMPLE

3. Refine -> 1. Set new hypothesis

Problem hypothesis	Sharing pictures taken with your phone on social networks is complicated
Customer hypothesis	Young people interested in photo and technology

EXAMPLE

3. Refine

Problem hypothesis	<ul style="list-style-type: none">• Smartphone pictures look insipid• Sharing pictures from your phone is complicated
Customer hypothesis	Young people interested in photo and technology

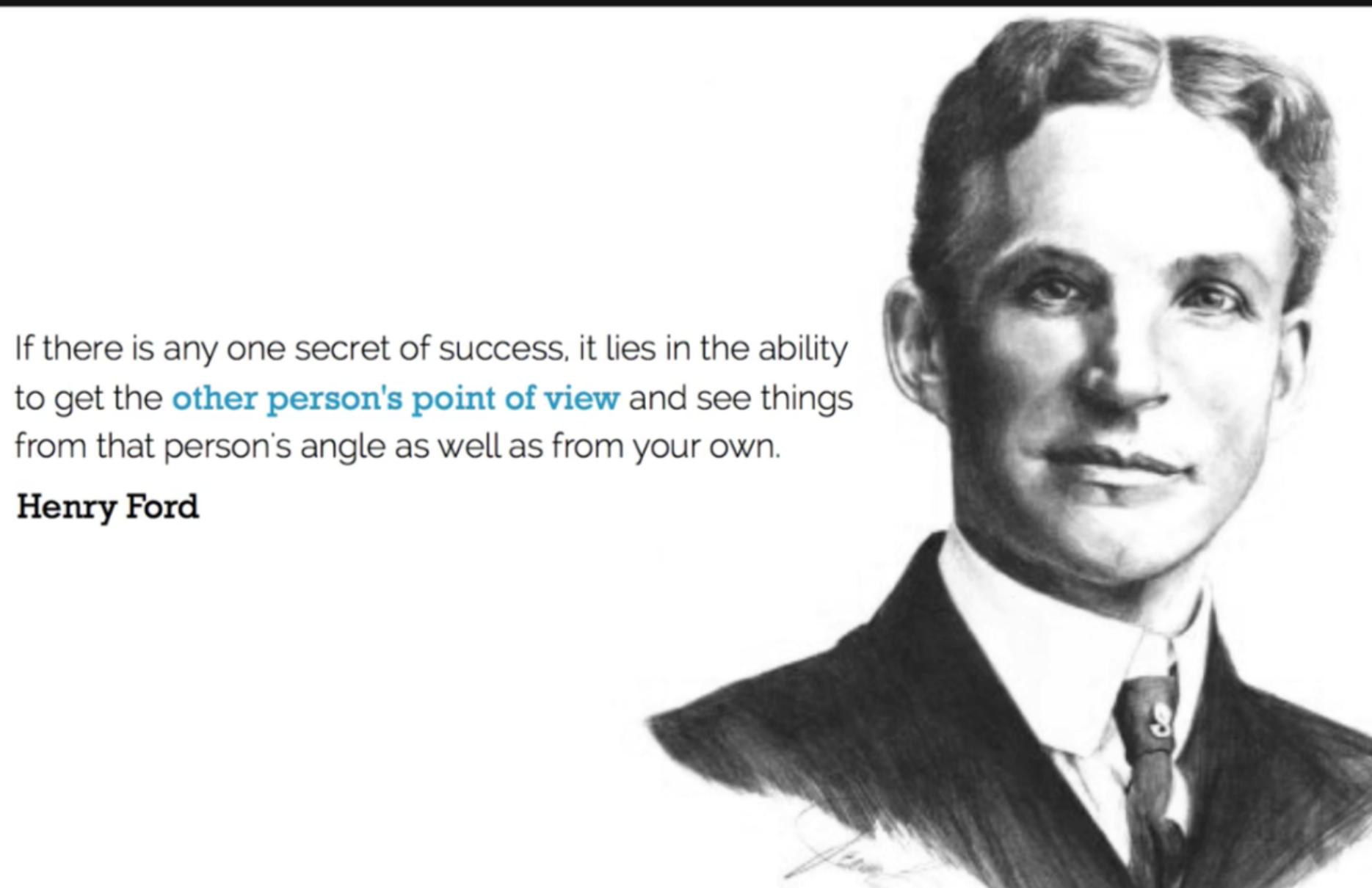
HYPOTHESIS

- Problem hypothesis (< 10 words)
- Customer hypothesis (< 10 words)

OVERVIEW

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UNDERSTAND YOUR USERS



If there is any one secret of success, it lies in the ability to get the **other person's point of view** and see things from that person's angle as well as from your own.

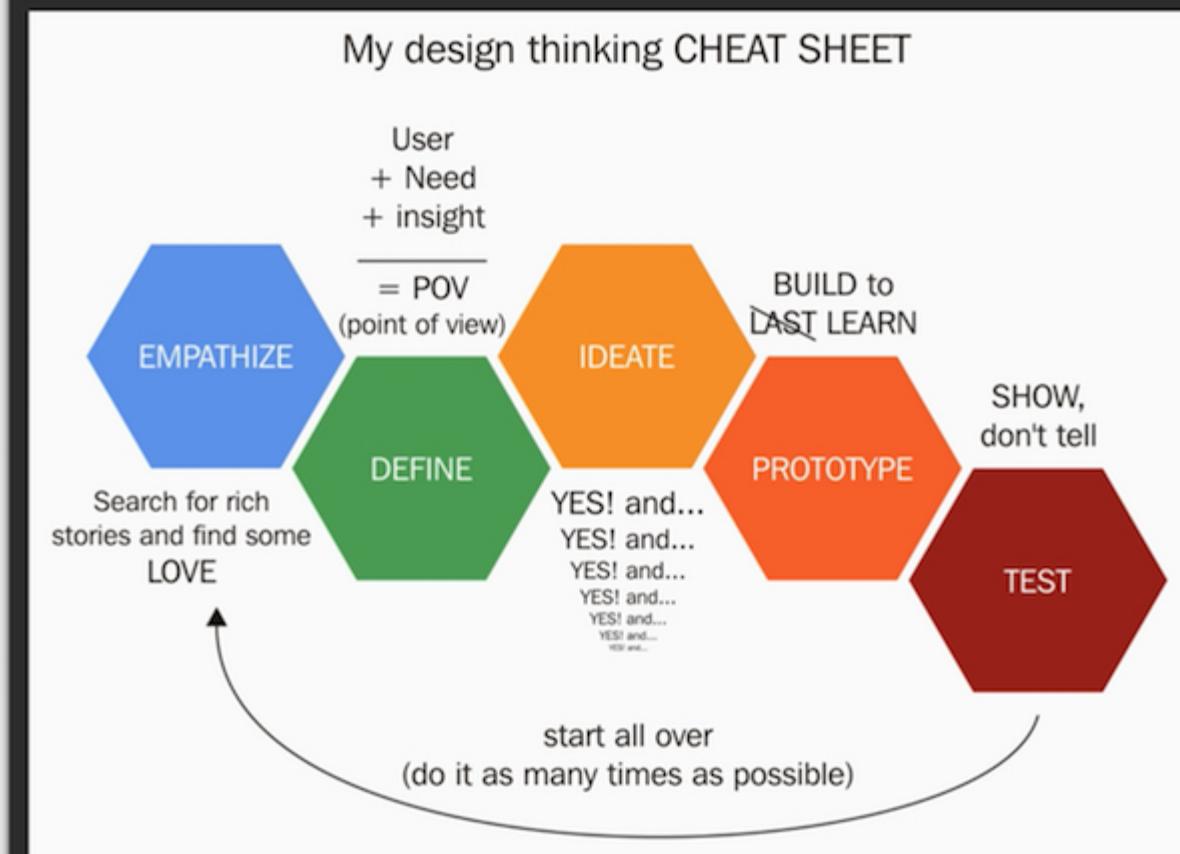
Henry Ford

EMPATHIZE PHASE

Empathize Phase

UX research and spends time with users to understand:

- Human values and qualities
 - Needs and Desires
 - Feeling and Emotions
 - Behaviors and Actions
 - Pain-points and problem areas



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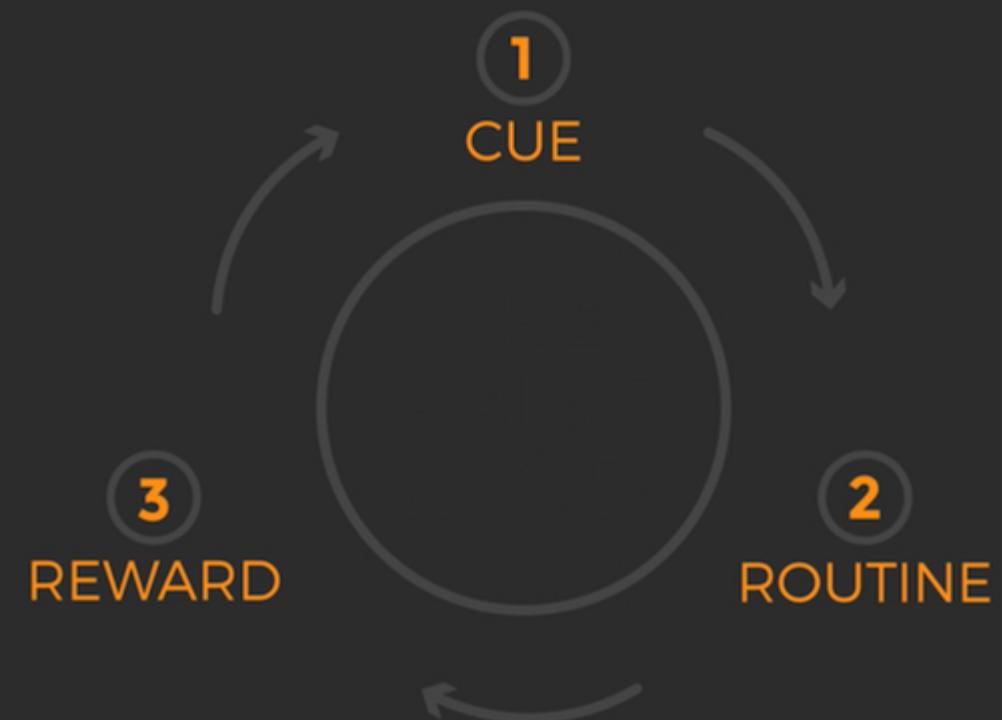
HABITS

User are habit driven.

Understanding that habits are created through 3 components

- Cue (phone app)
- Routine (Check email)
- Reward (Work done)

Habit are learned and can be hard to break but if you build habit learning into UX it can make your solutions very “sticky.”



<http://www.defektgroup.com/blog/2016/8/30/how-to-change-habits-reflection-on-charles-duhigg-book> **Packt**

GOOD AND BAD HABITS

What habits are good versus bad

Understanding technology habits is important for building great software

- What habits are good?
- What habits are bad?
- Humans won't always behave in their best self interest



<https://www.myselfdefensetraining.com/do-hands-free-cell-phones-make-driving-safer/>



<http://bonavika.com/>

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CHALLENGE

Challenge: List 10 Habits You Have with Your Technology/Smart Phone



https://www.youtube.com/watch?v=9_1Rt1R4xbM

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PERSONAS

- Fictional profile that represents a potential user group
- Typically with background info like age and a profession
- Also: a description of their specific interests
- What would motivate these users to give your app a try?
- Usually there is more than one persona for any project
- Choose your personas names and representative pictures

Avoid a situation where you start designing for yourself

BUILD A PROTOTYPE PERSONA

Proto-Persona

A Human Centered Design Thinking Method that allows us to quickly gain alignment and transfer knowledge about who we think our users are.

Proto-Personas is a process that can help us practice our User Empathy.

Upper Left Quadrant:
Who Are They?

Sketch and Name

Sketch a portrait of the persona. What might this person look like? What's their name? Where are they from?

Lower Left Quadrant:
Needs + Pain Points

Pain Points and Needs

What are the primary problems or frustrations a user might have with your product/service? Additionally, what other problem might they have in achieving their goals?

Upper Right Quadrant:
Behavioral Demographics

Behavior Demographic Information

Don't just pick random demographic information—think about what demographic factors might predict behavior Age? Sex? Do they Drive?

Lower Right Quadrant:
Potential Solutions

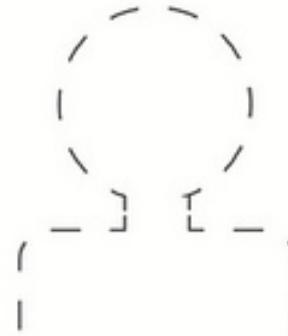
Potential Changes

What are some quick thoughts on an approach to solving this? How can we help them with our offering?

<https://www.behance.net/gallery/46298837/Design-Thinking-UX-Workshop-Product-Exercises>

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PERSONA CANVAS

Facts <p><i>Factual information about your target customer.</i></p> 	Pain <p><i>State the problem you believe your target customers have, that your solution solves for.</i></p>
Behavior <p><i>Existing behavior they exhibit now, because they don't have your solution.</i></p>	Goals <p><i>What goals are they trying to accomplish through the behavior, that your solution will do better?</i></p>

PROTOTYPE PERSONA

Proto persona

Facts <ul style="list-style-type: none">- college student- 18-23- intense activity on facebook, notably sharing pictures from desktop- owns a smartphone	Pain <ul style="list-style-type: none">- sharing pictures from your phone is complicated
Behavior <ul style="list-style-type: none">- keeps most of his pictures on his phone and share very few of them- sometimes send phone pictures by text to his friends when he want to make sure they see them	Goals <ul style="list-style-type: none">- get feedback and approbation

INTERVIEWS

- Define your goals and keep them in mind
- Get ready to hear things you don't want to hear
- Ask open ended questions
- Rephrase what people tell you
- Look for insights and write them down

→ Iterate

PROTOTYPE PERSONA

Problem

Smartphone pictures look insipid / Sharing pictures from your phone is complicated

Facts

- Kevin
- 25
- works in a startup
- intense activity on facebook, notably sharing pictures from desktop
- owns a smartphone
- owns a real camera

Pain

- phone pictures don't look good
- but he doesn't always have his camera with him
- sharing pictures from your phone is complicated
- too much going on on FB, pictures lost in the middle of a lot of informations

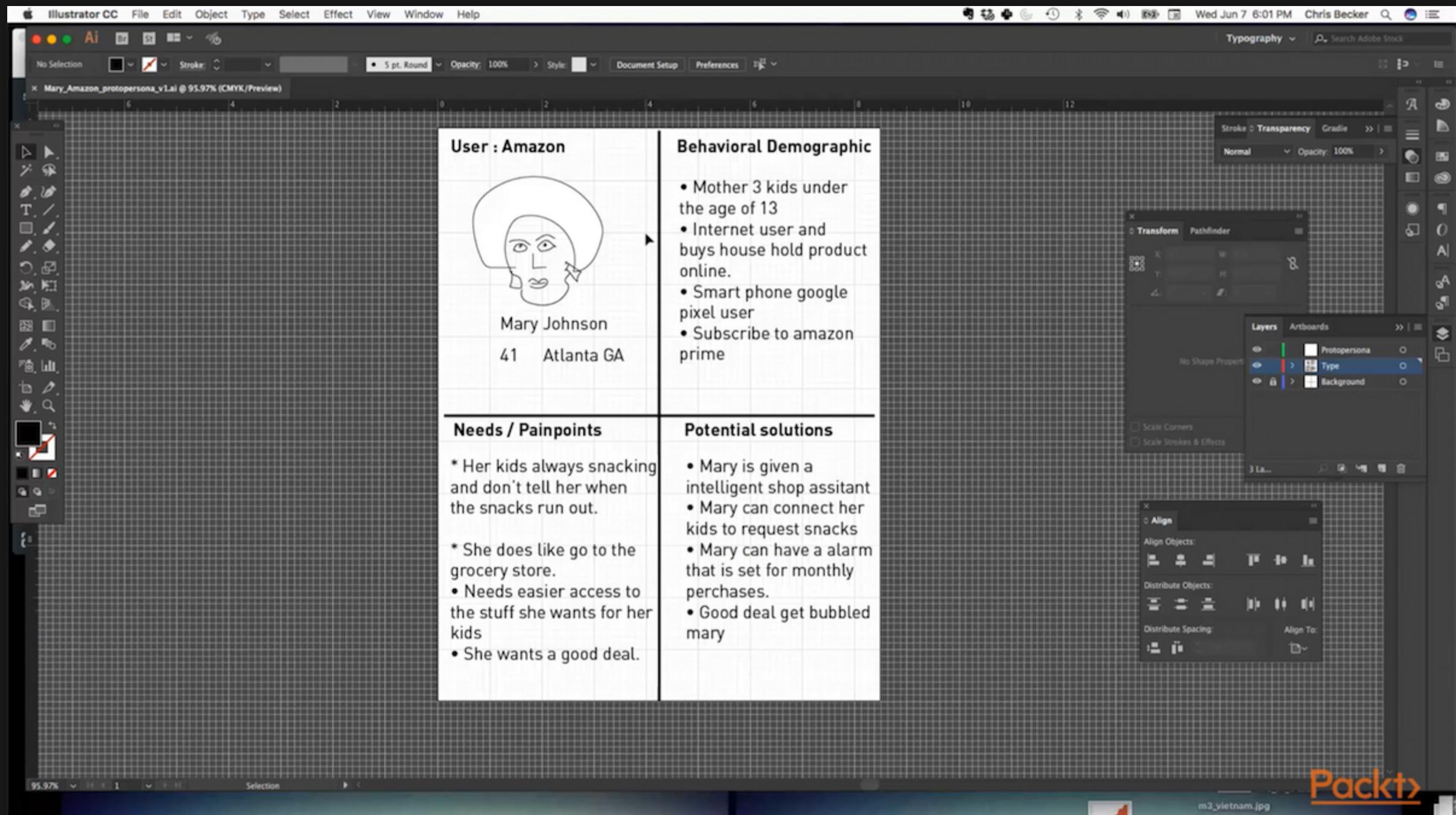
Behavior

- uses photoshop but no for phone pictures
- keeps most of his pictures on his phone and share very few of them
- sometimes send phone pictures by text to his friends when he want to make sure they see them
- puts pictures on photo networks like flickr but doesn't really get his friends attention there

Goals

- get feedback and approbation
- [share pictures that makes him look cool or show his artistic talents](#)

PROTOTYPE PERSONA



PROTOTYPE PERSONA

Proto-Persona Is a Starting Place



**Mary
Johnson**
41 Atlanta GA

Behavioral Demographic

- Mother 3 kids under the age of 13
- Internet user and buys house hold product online.
- Smart phone google pixel user
- Subscribe to amazon prime

Needs / Painpoints

- Her kids always snacking and don't tell her when the snacks run out.
- She does like go to the grocery store.
- Needs easier access to the stuff she wants for her kids.
- She wants a good deal.

Potential solutions

- Mary is given a intelligent shop assitant
- Mary can connect her kids to request snacks
- Mary can have a alarm that is set for monthly purchases.
- Good deal get bubbled mary.

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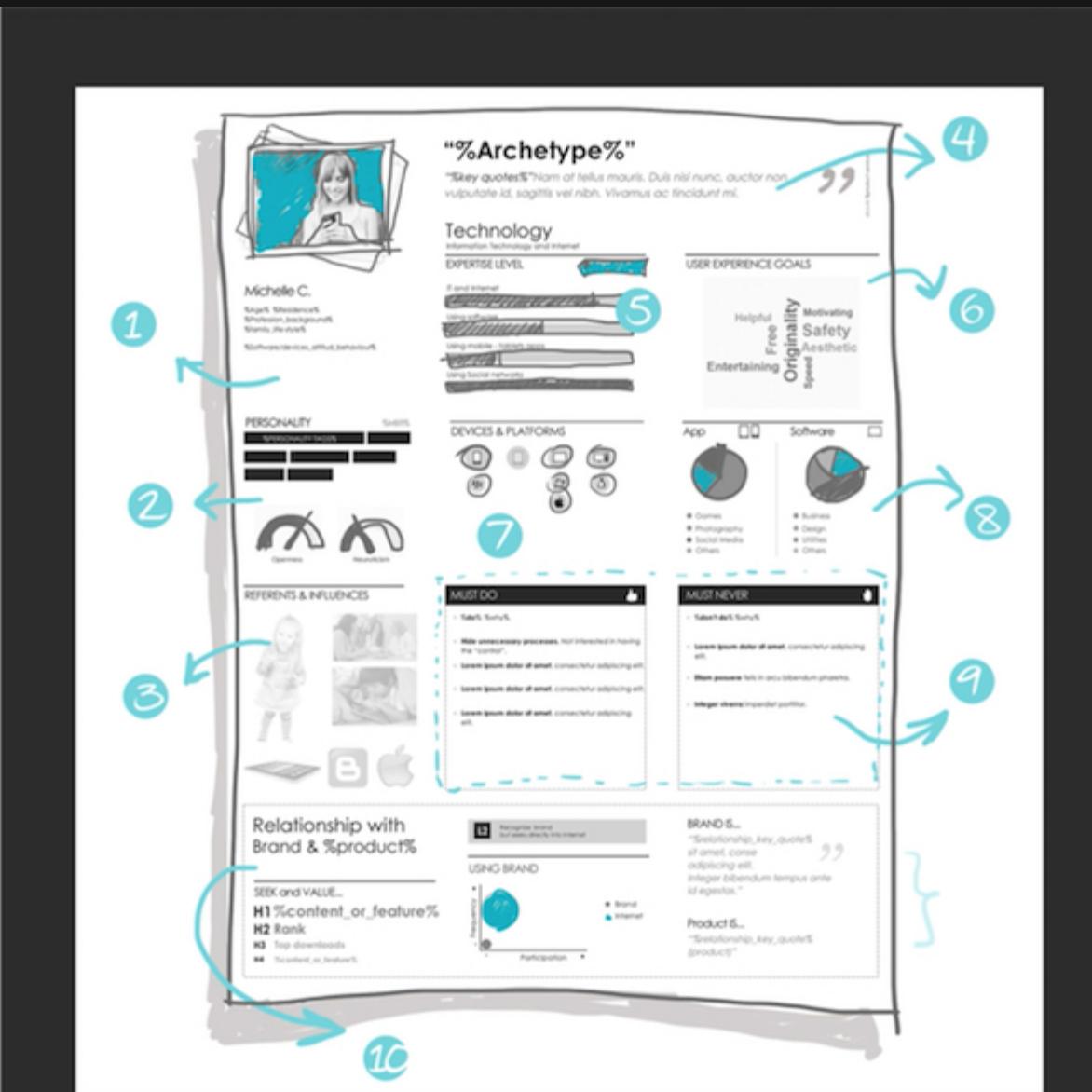
EXERCISE

Start with the problem and customer hypothesis (previous exercise)
and create a **prototype persona** (potential user of your app)

USER PERSONA

User Persona Elements

- Profile and Personality
- Social and demographic characteristics.
- Needs, desires, goals
- Habits and Behavior
- Technology Expertise
- Cultural background
- Motivations
- Must do, must never
- User experience goals
- Brand and Product Relationship



<http://www.ux-lady.com/diy-user-personas/>

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PERSONALITY TYPES

16 Personalities Myers Briggs

- 4 categories:
 - Analysts
 - Diplomats
 - Sentinels
 - Explorers

Introversion (I) or Extraversion (E)

Intuition (N) or Sensing (S)

Thinking (T) or Feeling (F)

Judging (J) or Perceiving (P)



<https://www.16personalities.com/personality-types>

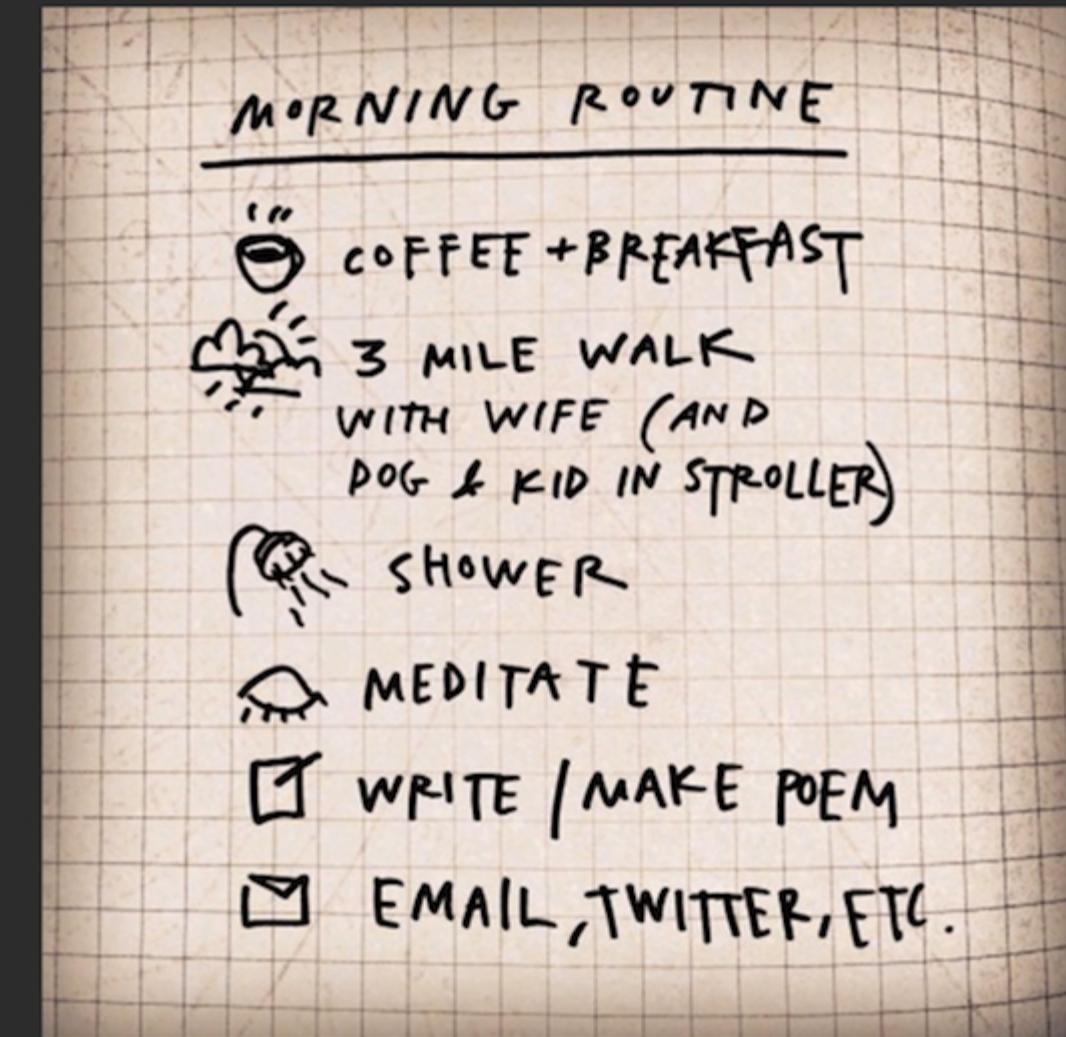
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16 Personality Types

HABITS AND ROUTINES

Users have habits
and routines

Relating to real people is about
understanding their patterns



<https://austinkleon.com/2015/01/01/my-morning-routine/>

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COMPLETED USER PERSONA

Completed User Persona

- Cleaned up
- Has all elements
- Clear and readable
- Wants to be shared

Mary Johnson
41
Atlanta, GA
USA

PERSONA #1

Personality

Intravert	Extravert
Intuition	Sensing
Feeling	Thinking
Perceiving	Judging

"The Commander" ENTJ

Behavioral Demographic

- Mother 3 kids under the age of 13.
- Internet user and buys house hold products online to save time.
- Smart phone google pixel user.
- Subscribe to amazon prime

Cultural Background

- College educated. B.A. City Planning
- Grew up in North Carolina but moved to Atlanta for a job after college.
- Parents are still married has 3 other siblings all live in the south east coast.
- Loves talking on the phone with family and is constantly sharing photos of kids through Facebook and Instagram with her siblings and close friends.

Technology Usage

Percentage

Daily Routine

Needs / Desires & Goals

Her kids always snacking and don't tell her when the snacks run out.
She does like go to the grocery store.
Needs easier access to the stuff she wants for her kids.
She wants a good deal.

User Experience Goals

User a product that saves her time and learns what she needs.
Starts to understand her busy schedule and helps her not forget things for her kids.

Brand / Products

amazon

COMPLETED USER PERSONA

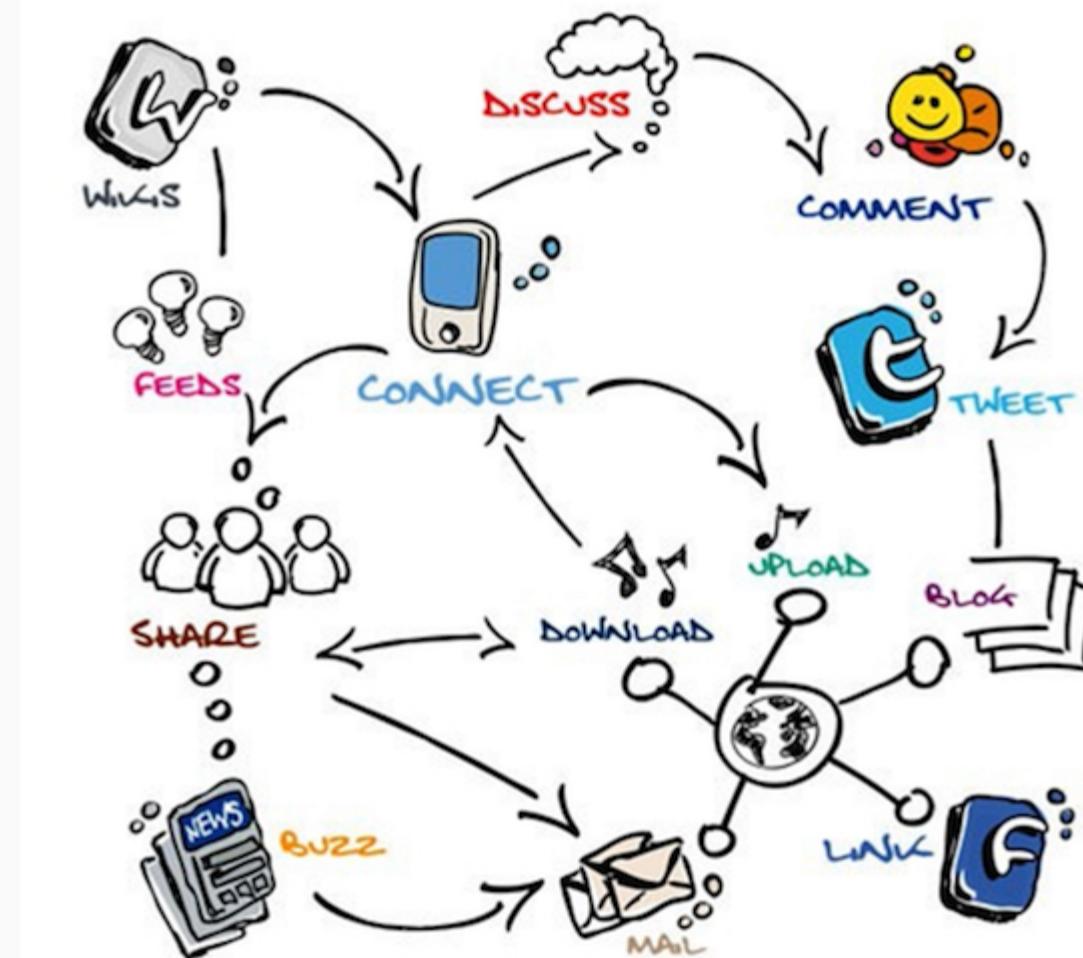
Users Have Needs and Pain-Points That Need to Be Shared

Persona should capture User Needs

- Functional needs
- Usability needs
- Interactions needs

Persona should capture Pain-Points

- What is keeping your persona from a pleasurable experience?
- How reliant or are and how reliable is the task?
- What values are being missed through personas pain-points?



<https://storify.com/chessieoj/how-our-communication-has-changed-over-time>

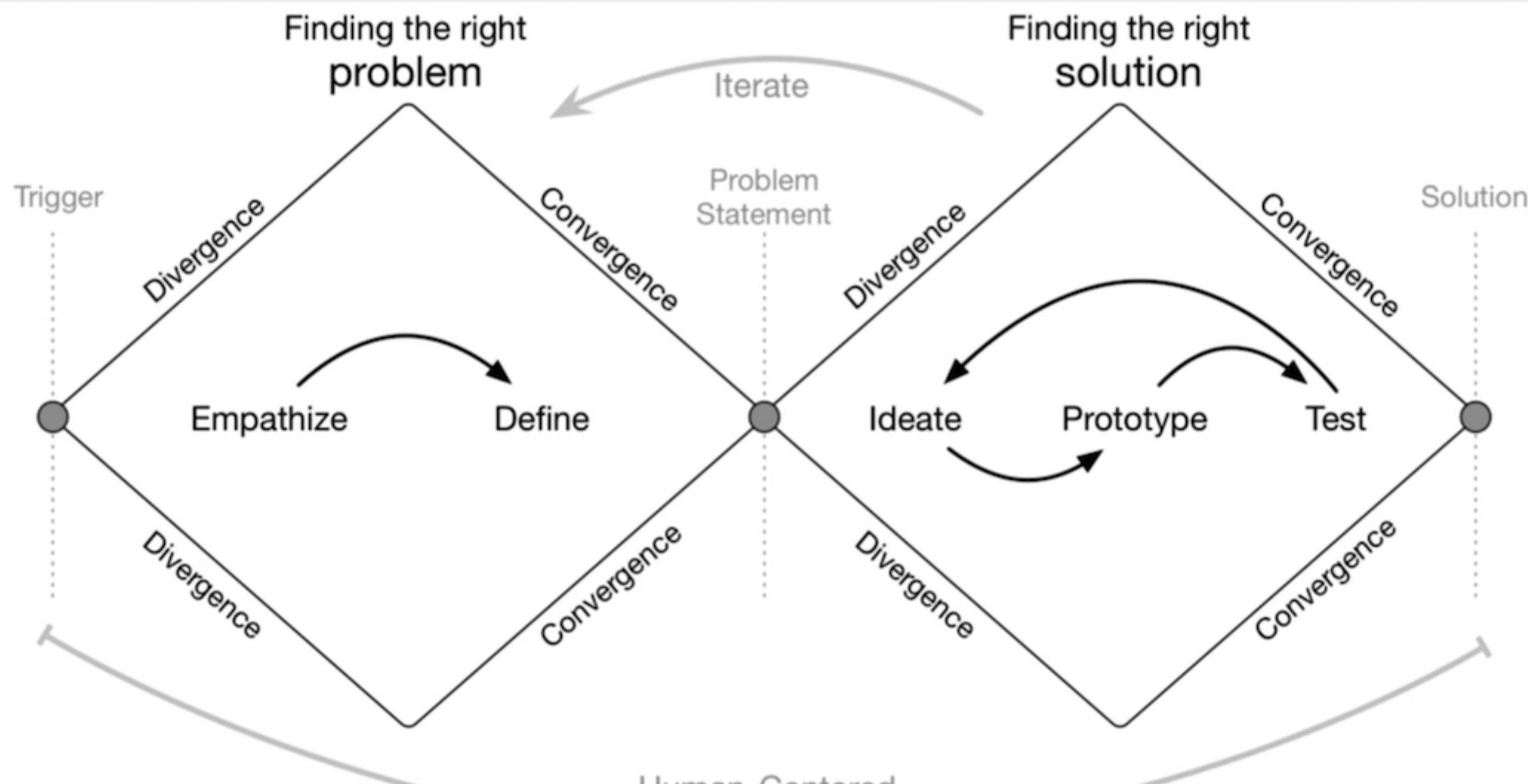
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RESULT

- A clear and well-founded problem statement
- This is the foundation to explore the solution space

DOUBLE DIAMOND PROCESS

Human Centered Design Starts with Find the Right Problem



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OVERVIEW

- From idea to concept
- Understand the problem
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- **Think about a solution**
- Storytelling design

FIND A LOT OF SOLUTIONS

- Try to come up with as many ideas as you can
- Look at other products that solve similar problems
- Look at common behaviors when solving similar problems
- Think about what your target is already using
- Discuss different approaches

Focus on quantity

FIND A LOT OF SOLUTIONS

- Hold creativity sessions in a group with 5-8 participants
- Support divergent and convergent thinking
- Encourage out-of-the-box thinking
- Many creativity techniques exist, e.g., brainstorming

6-3-5 Brainwriting

Brainwriting

Disney method

FIND THE BEST SOLUTION

- Prioritize your ideas
- Which ones are the most efficient?
- Which ones are the most feasible?
- Discuss, refine, or combine ideas in the team
- Get feedback from your target users
- Pick the main feature
- Only keep the sub-features that are needed to make the main feature work

PRIORITIZE YOUR IDEAS

Pick **three key attributes or features**, get those things very very right, and then forget about everything else... By focusing on only a **few core features** in the first version, you are forced to find the **true essence** and **value** of the product.

Paul Buchheit, creator of Gmail and Google Adsense

OVERVIEW

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- **Storytelling design**

STORYTELLING DESIGN

- Write user narratives
- Goal: figure out how our app will work

USER NARRATIVES



One of the biggest things that has helped me is learning how to become a better **storyteller** and the **power of a story**.

And by this, I mean if you want to build a product and you want to build a product that is relevant to folks, you need to **put yourself in their shoes** and you need to **write a story** from their side.

So, we spend a lot of time writing what's called **user narratives**.

Jack Dorsey
Founder of Twitter and Square

USER STORIES

- Start defining more granular scenarios
- Thinking in user stories is thinking in flows
- A list of stories is the brief for your app

Examples

- A purchase flow
- Uploading or sharing a photo
- Making a note

USER STORIES

- The persona is the voice of the story
- Start with a goal story

STEPS IN USER STORIES

- Break the user stories into smaller steps - tasks
- Each task is a micro flow within a larger journey
- Keep coming back to your personas profiles

Example: Uploading a photo

- Access to a photo gallery on the phone necessary?
- Do users need to select a picture?
- Can they add more than one at once?

USER STORIES

Goal story template

As [user personal]

I want to [accomplish something]

So that [some benefit happens]

USER STORIES

Goal story template

As **Kevin**

I want to **take a nice picture of what I'm doing**

So that **people can see that I'm doing something cool.**

USER NARRATIVES

Key feature	
As Kevin I want to take a nice picture of what I'm doing so that people can see that I'm doing something cool.	
<ul style="list-style-type: none">• I open the app• I take a picture• I apply a filter to make it look good• I can add a description• I can select on what networks I want to share my picture on	

USER NARRATIVES

Key feature	User feed	
As Kevin I want to take a nice picture of what I'm doing so that people can see that I'm doing something cool.	As Kevin I want to see my friends' pictures and give them feedback so they know i'm giving them validation	
<ul style="list-style-type: none">• I open the app• I take a picture• I apply a filter to make it look good• I can add a description• I can select on what networks I want to share my picture on• My picture is shared on my followers' feed	<ul style="list-style-type: none">• I open the app and access a feed of my friends' pictures• I can like my friends' pictures• I can comment on them• As I scrolled down my feed I'm invited to follow more people or to invite friends	

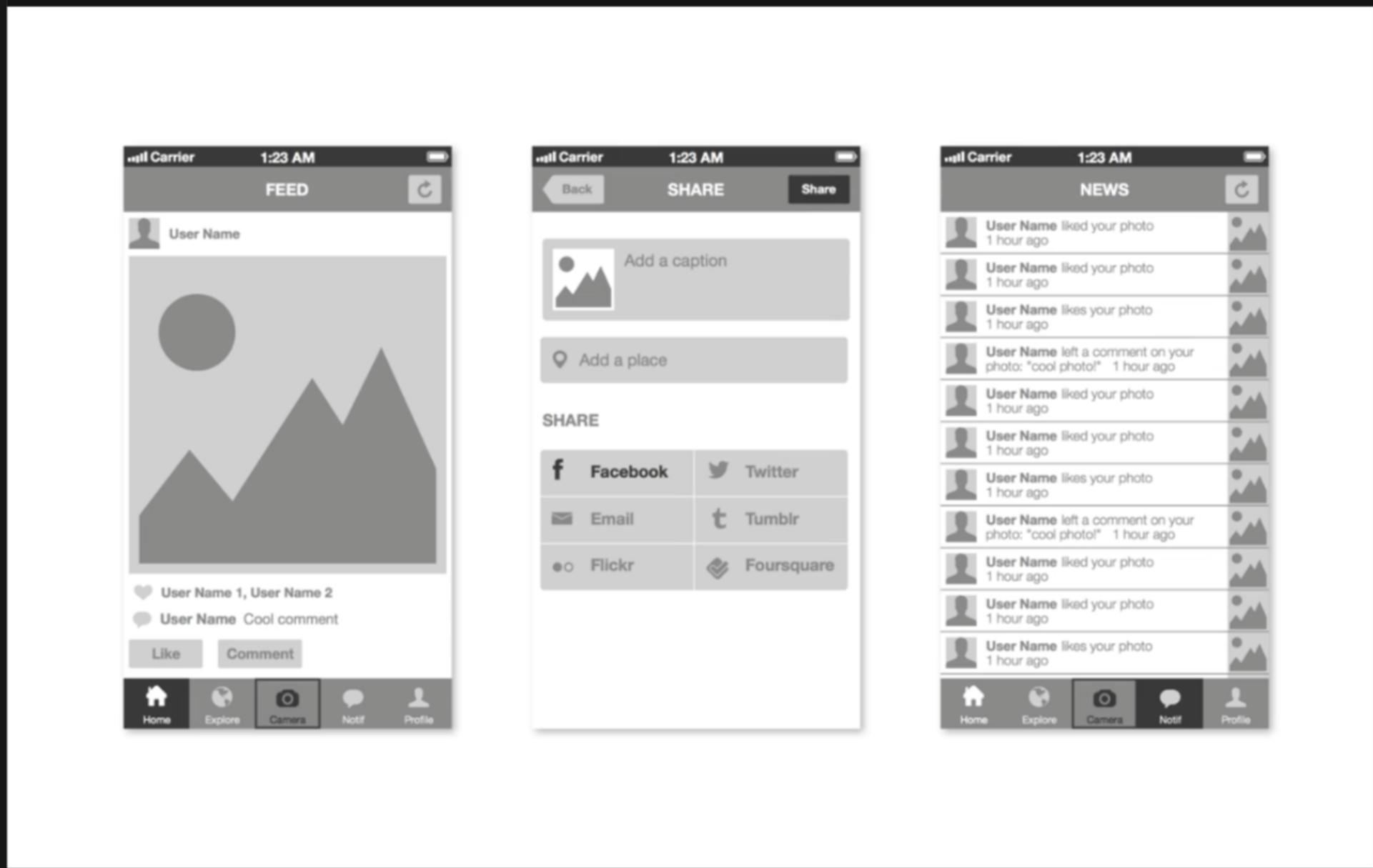
USER NARRATIVES

Key feature	User feed	Explore section	
As Kevin I want to take a nice picture of what I'm doing so that people can see that I'm doing something cool.	As Kevin I want to see my friends' pictures and give them feedback so they know i'm giving them validation	As Kevin I want to be able to see other people's pictures and give them feedback	
<ul style="list-style-type: none"> • I open the app • I take a picture • I apply a filter to make it look good • I can add a description • I can select on what networks I want to share my picture on • My picture is shared on my followers' feed • It is published to the explore section if I get enough likes 	<ul style="list-style-type: none"> • I open the app and access a feed of my friends' pictures • I can like my friends' pictures • I can comment on them • As I scrolled down my feed I'm invited to follow more people or to invite friends 	<ul style="list-style-type: none"> • I can access interesting pictures from people who are not my friends • I can like pictures • I can comment on them 	

USER NARRATIVES

Key feature	User feed	Explore section	Notifications	Profile
As Kevin I want to take a nice picture of what I'm doing so that people can see that I'm doing something cool.	As Kevin I want to see my friends' pictures and give them feedback so they know i'm giving them validation.	As Kevin I want to be able to see other people's pictures and give them feedback.	As Kevin i want to know when people interact with my pictures.	As Kevin I want to access my infos and my pictures
<ul style="list-style-type: none"> • I open the app • I take a picture • I apply a filter to make it look good • I can add a description • I can select on what networks I want to share my picture on • My picture is shared on my followers' feed • It is published to the explore section if I get enough likes 	<ul style="list-style-type: none"> • I open the app and access a feed of my friends' pictures • I can like my friends' pictures • I can comment on them • As I scrolled down my feed I'm invited to follow more people or to invite friends 	<ul style="list-style-type: none"> • I can access interesting pictures from people who are not my friends • I can like pictures • I can comment on them 	<ul style="list-style-type: none"> • I open the app • I go to the notifications section • I'm able to see who has interacted with my pictures 	<ul style="list-style-type: none"> • I open the app • I can go to my profile • I can see how many people I follow and how many people follow me • I can see my pictures • I can find more people to follow • I can invite friends • I can change my profile picture

NEXT: MOCKUPS, WIREFRAMES, ...



READING MATERIAL, SOURCES

SOURCES

- Mobile Developer's Guide To The Galaxy, Open XChange,
<https://www.open-xchange.com/resources/mobile-developers-guide-to-the-galaxy/>
- Mobile App Design from Scratch: Design Principles, and UX, Online Course (commercial),
<https://www.udemy.com/mobile-app-design-from-scratch/#/>
- The Fundamentals of User Experience - a Process for Problem Solving, Chris R. Becker, Packt Publishing, 2017
- UX Design: Understanding User Engagement Chris R. Becker, Packt Publishing, 2017

