

# Workshop: Rapid prototyping for digital behavioural interventions

Alex Tarling



# CONFERENCE

10th Anniversary Edition

# About me: Alex Tarling

- Working in industry: User Researcher / User Experience Designer / Behavioural Strategist
- 14 years making 'digital things' in healthcare
- Background in software development and product design
- Msc in Human Computer interaction

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# About this session: Rapid Prototyping for Digital Behaviour Change Interventions

- Goals for the session:
  1. Understand how rapid prototyping can help create an optimal 'User Experience'
  2. Decide on something to make as part of a Digital Behaviour Change Intervention.  
Define it in terms of a 'User Experience' goal
  3. Make a working prototype

**This is a practical workshop! We will be working in small teams to make an interactive prototype using a 'no -code' development tool (chatbot)**

“we shape our tools and thereafter our tools shape us”

Marshall McLuhan (friend of)

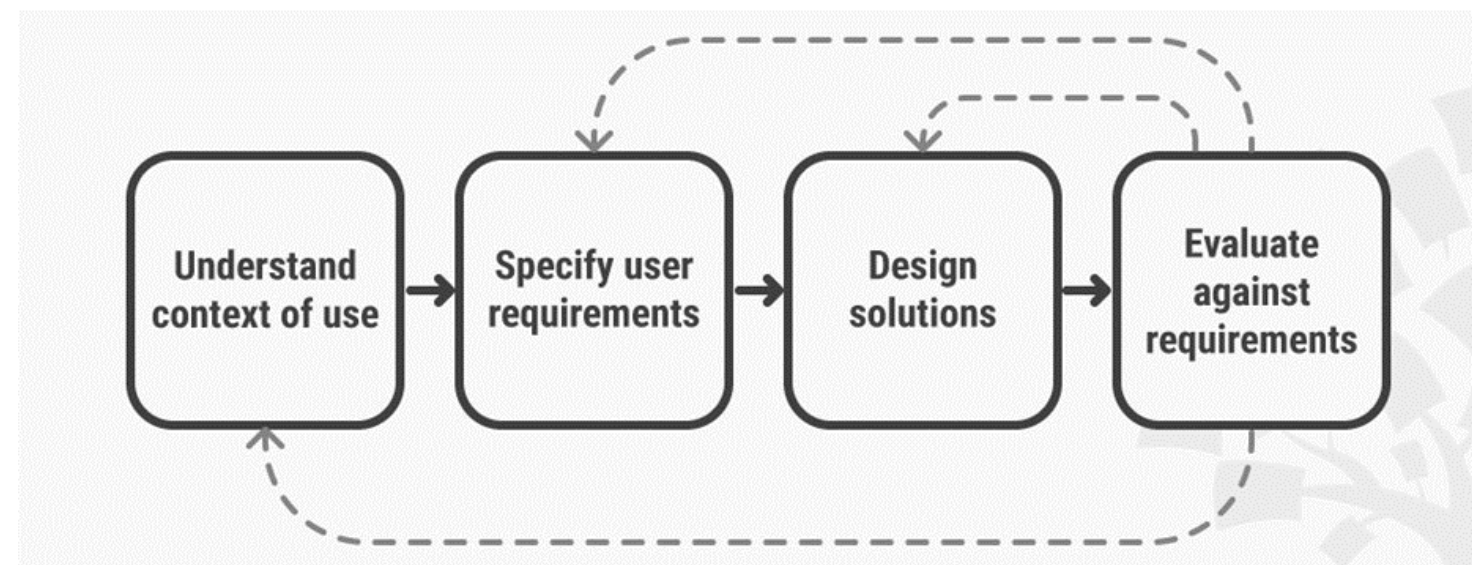
Q: Is it possible to make a theory-informed Digital Behavioral Intervention, using evidence-based Behavior Change Techniques, and still have it completely fail in the real world?

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Short Answer: Yes – **Bad** User Experience design Trumps **Good** Behavioral Intervention design

# Involving 'Users' in the Design of things

- “User-centered design (UCD) is an **iterative design process** in which designers focus on the users and their needs in each phase of the design process. In UCD, design teams **involve users throughout the design process** via a variety of research and design techniques, to create highly usable and accessible products for them.

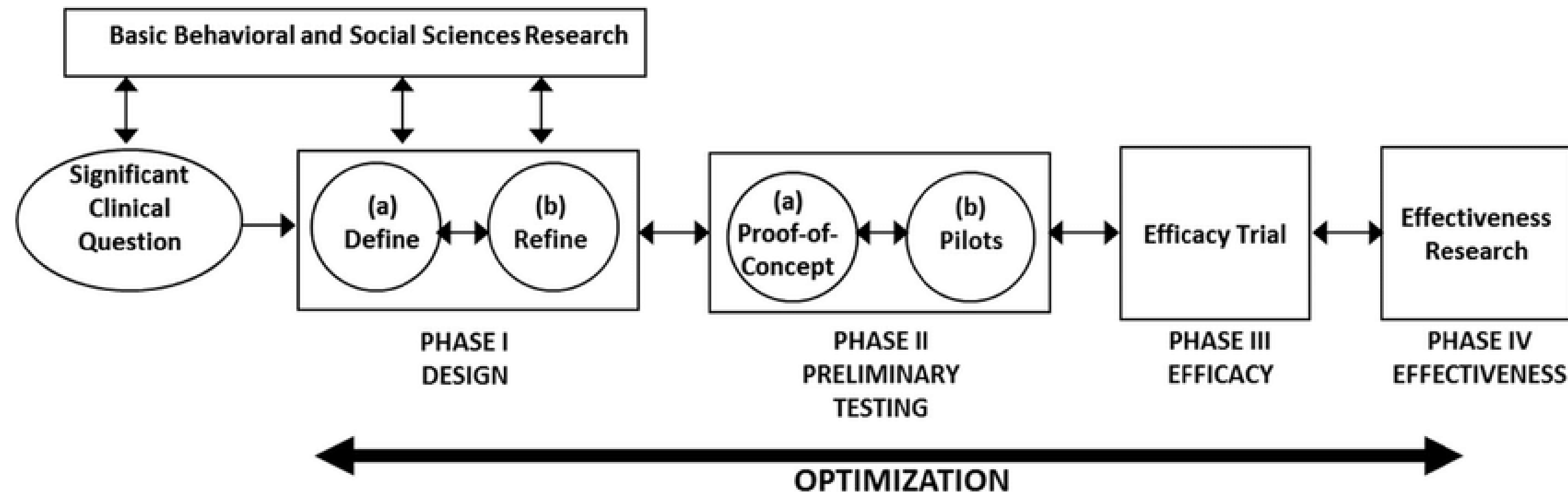


<https://www.interaction-design.org/literature/topics/user-centered-design>



# Where might rapid prototyping be useful?

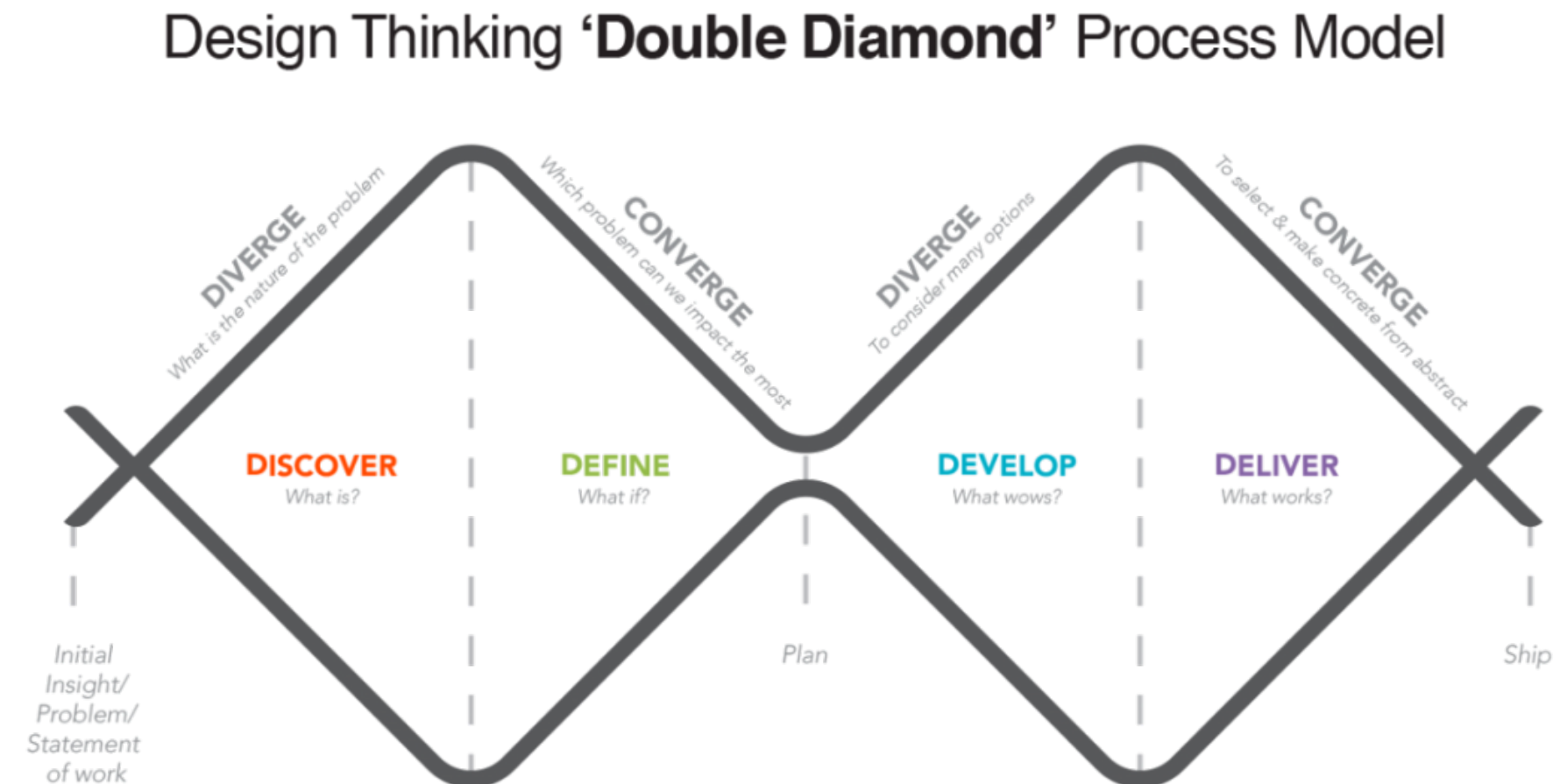
- ORBIT: Phase 1 Design





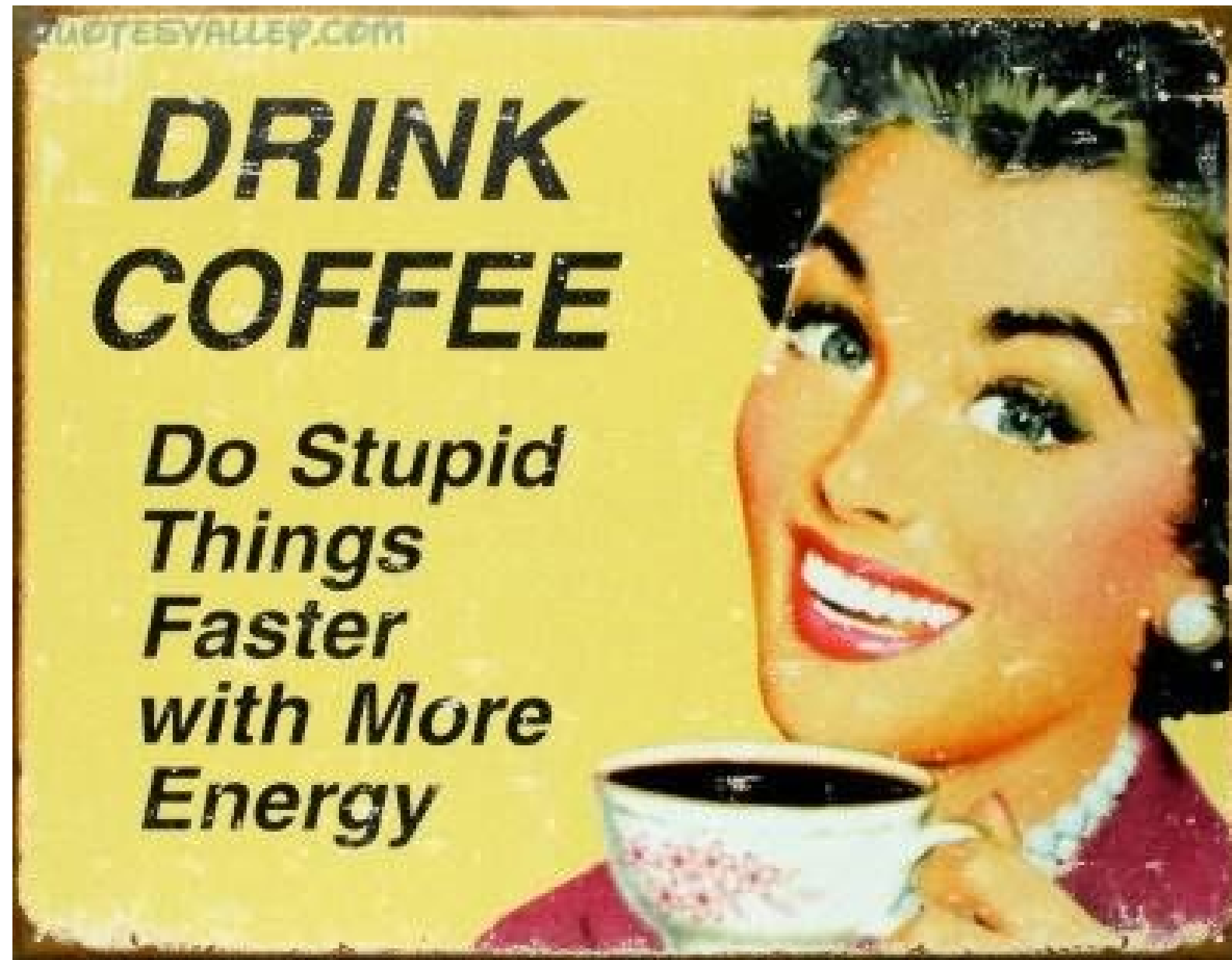
# Where might rapid prototyping be useful?

- “Design Thinking” is a model for solving problems requiring innovative approaches
- Uses a ‘Divergent/Convergent’ approach to widely explore the problem space and then the solution space

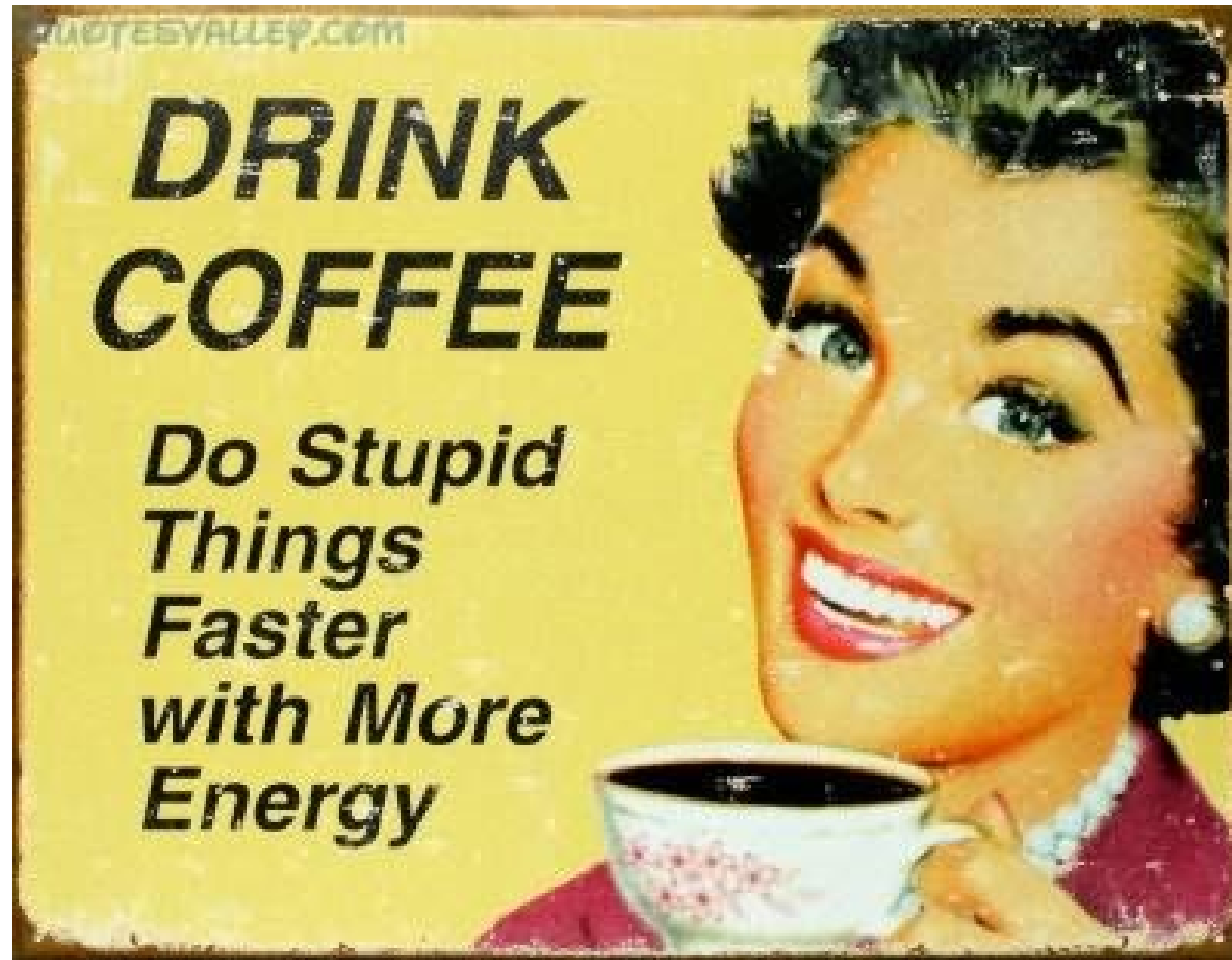


<https://uxplanet.org/quick-steps-through-the-double-diamond-cf2e00b22ba7>

# Why make prototypes 'rapidly'?



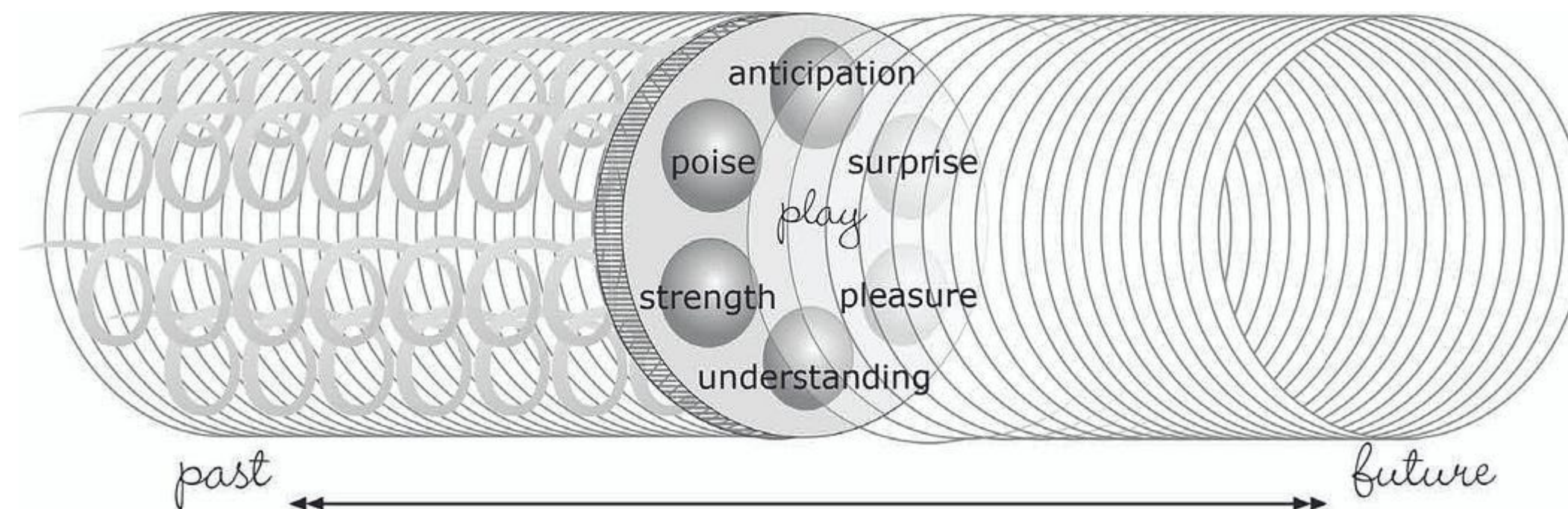
# Why make prototypes 'rapidly'?



- Sometimes you can't tell which things are stupid until you try them
- Eliminating things that don't work sooner rather than later frees more time and budget to refine the things that do work
- If you iterate quickly you can try a more diverse range of ideas in the formative stage
- "The more people who get involved in design the better"

# ‘Playfulness’ in the Design process helps teams tolerate desirable Ambiguity

- Balancing the reassuring certainty of the research mindset (reducing unknowns), to tolerance for radical uncertainty in the design process (walking towards the unknown)
- Csikszentmihalyi’s definition of flow state or “optimal experience” as balancing between “boredom and anxiety”





# About you & working in teams (10 mins)

- **Step 1: Some introductions round the room**
  - Who are you, where you are from, and what you are working on at the moment
  - Rate your **digital skills** (advanced to beginner)
  - Rate your expertise with **behavioral interventions** (advanced to beginner)
- **Step 2: find some team mates**
  - Find 2-3 persons for your team, and pick a table

# Forming your team (10 mins)

- As a team, explore ideas for a Behaviour Change Intervention that could have a digital component
  - It could be something you've already worked on / thought about or have a passion for
  - It could be in a domain where you have experience as the target audience for a BCI
  - It could be something completely different and new to you!
- Pick one idea to share back:
  - Who are the users of your intervention and what is the context of use? What is the 'problem' you are trying to solve and the target outcome?

# Unpacking 'User Experience'

- Think about a time you've had a **bad experience** with an app or a website..
  - What does that feel like? Frustrating, annoying, disappointing, etc
- Think about a time you've had a **great experience** with an app or a website..
  - What does that feel like?
- Think about a time that a project that you've been involved with has 'underperformed' in terms of user engagement
  - Users didn't sign -up, or abandoned an activity,
  - Users quit or dis -engaged early, or didn't receive a 'therapeutic dose'

**Let's share some examples**



# What is 'User Experience'

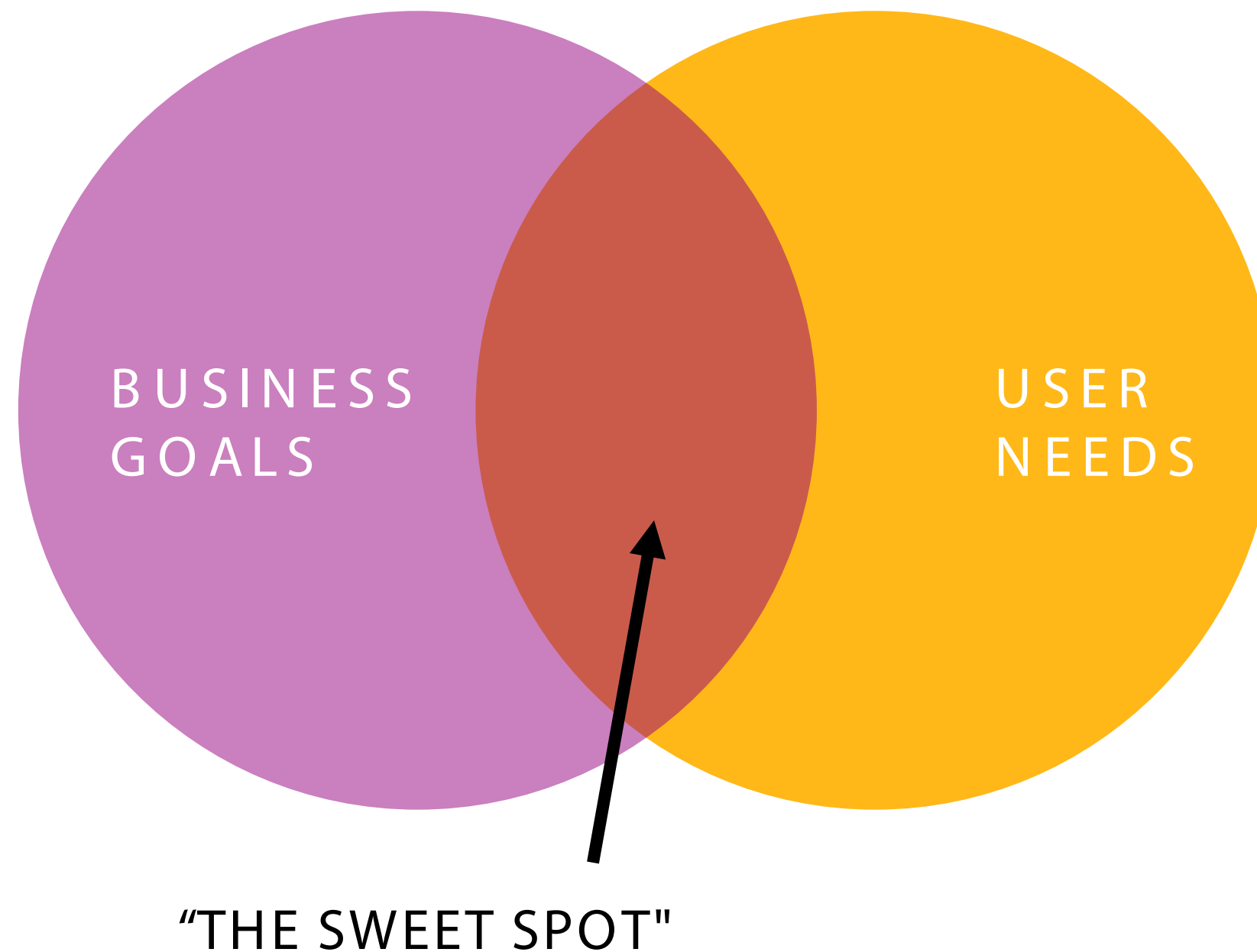
"User experience (UX) is how a user interacts with and experiences a product, system or service. It includes a person's perceptions of utility, ease of use, and efficiency...User experience is subjective. However, the attributes that make up the user experience are objective."

[https://en.wikipedia.org/wiki/User\\_experience](https://en.wikipedia.org/wiki/User_experience)

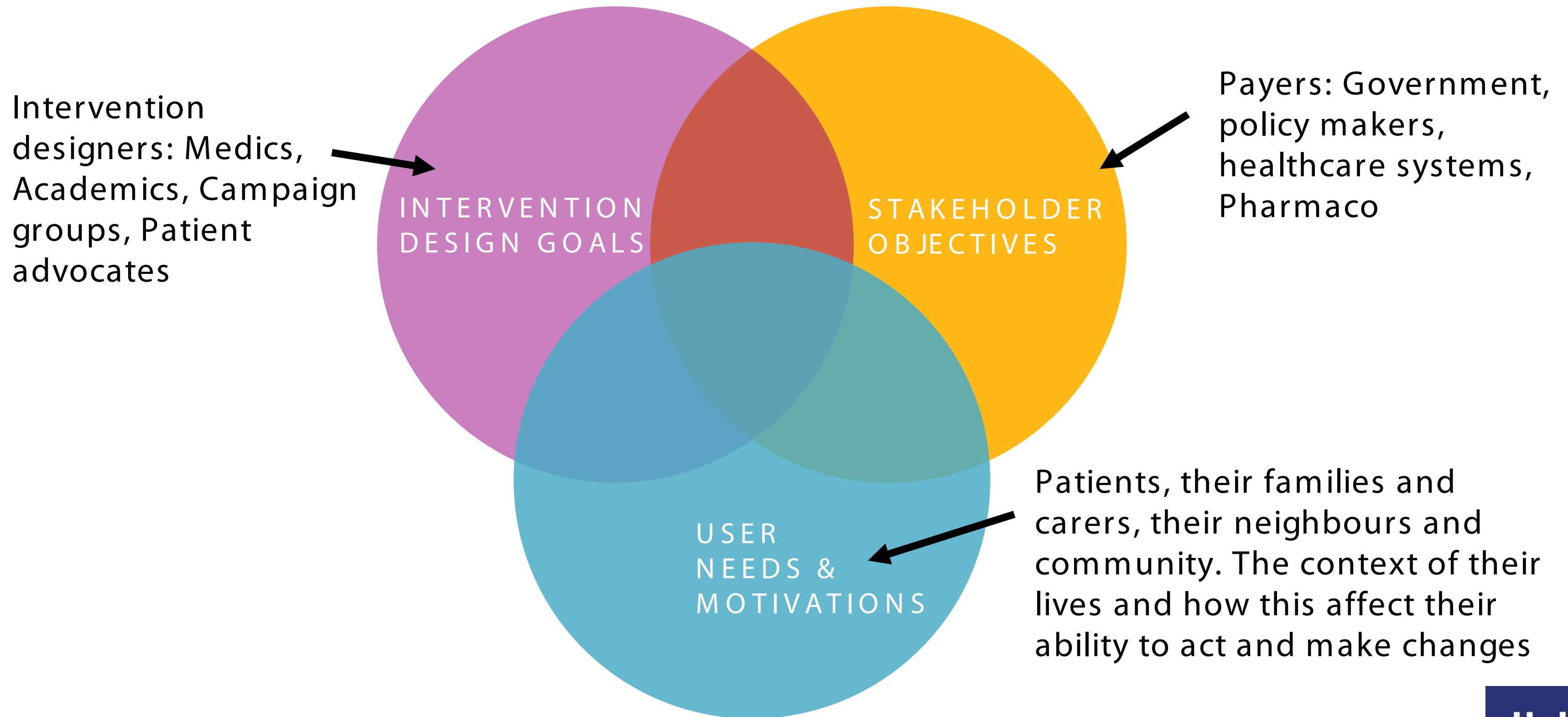
"User Experience refers to the feeling users experience when using a product, application, system, or service. It is a broad term that can cover anything from how well the user can navigate the product, how easy it is to use, how relevant the content displayed is etc.."

<https://www.productplan.com/glossary/user-experience/>

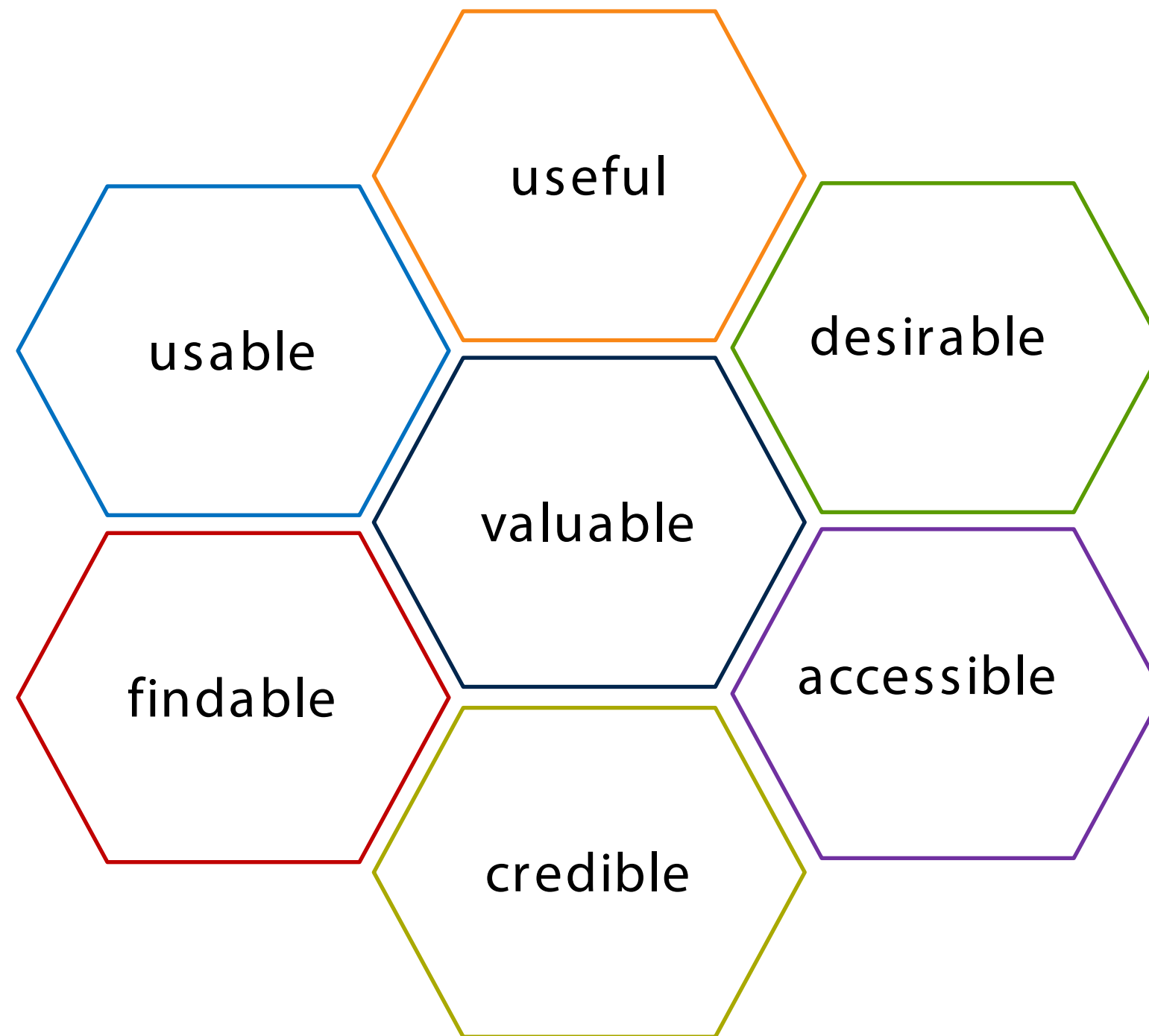
# How businesses think about the 'Value Proposition' of a product...



# ..But things are often more complicated IRL



# Elements of digital 'User Experience'



- The User Experience 'Honeycomb' defines the elements that constitute a good Experience.
- Failure in any area will impair uptake and usage of a digital asset, undermining the overall 'value' of the asset proposition.

<https://danewesolko.medium.com/peter-morvilles-user-experience-honeycomb-904c383b6886>

# 'Desirable' experience in the context of a BCI...

## self-determination theory

HUMAN BEINGS HAVE THREE BASIC NEEDS:



### COMPETENCE

People need to gain mastery and control of their own lives & their environment. Essential to wellness.

### AUTONOMY

People need to feel in control of their own life, behaviours and goals. This is about choice.

### RELATEDNESS

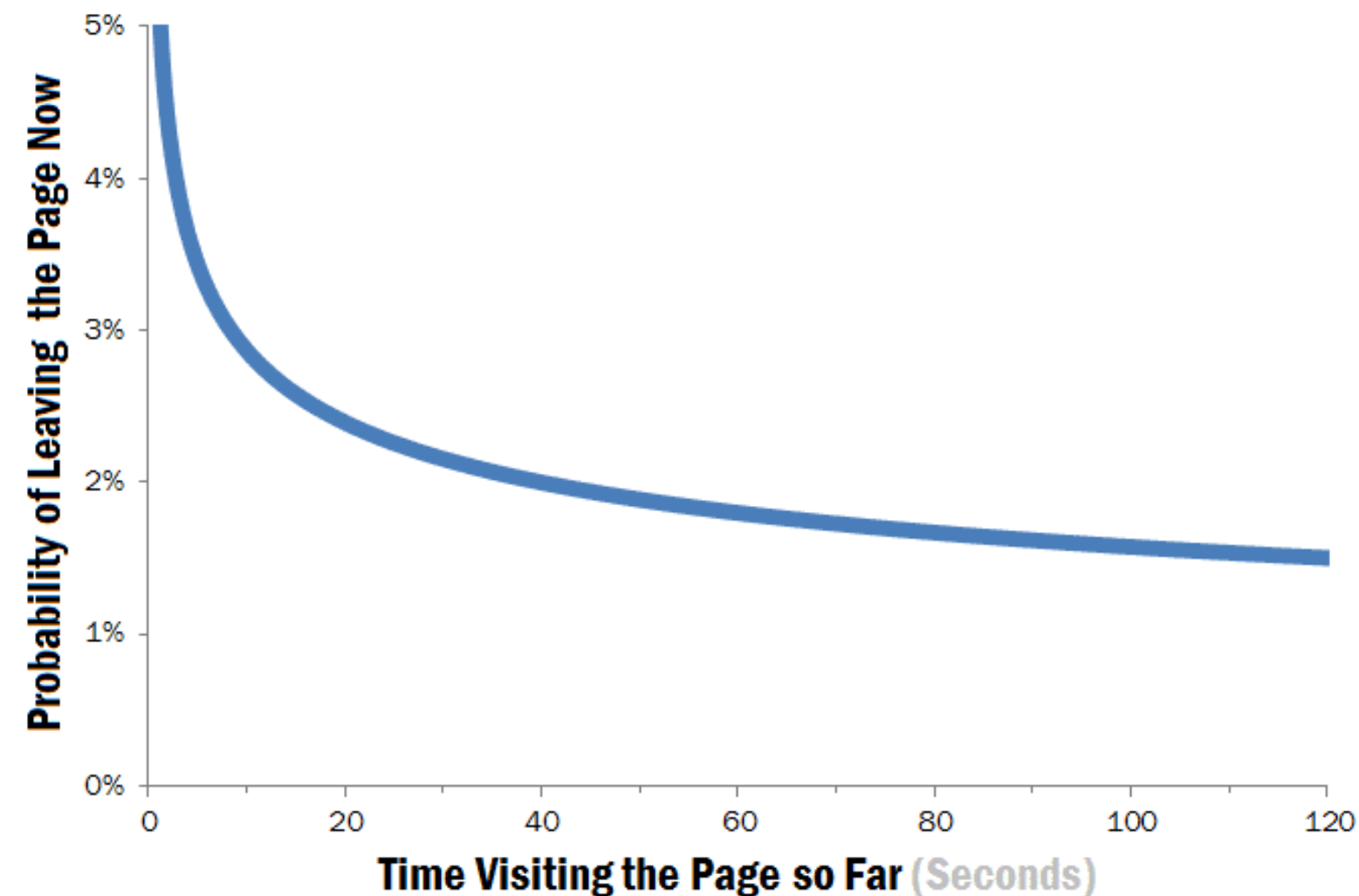
People need to experience a sense of belonging and connection with other people.

*Feeling cared for by others  
& to care for others.*

Based on the work of Richard Ryan and Edward Deci.

<https://opentextbc.ca/peersupport/chapter/self-determination-theory/>

# User Experience 'Failures' happen very fast



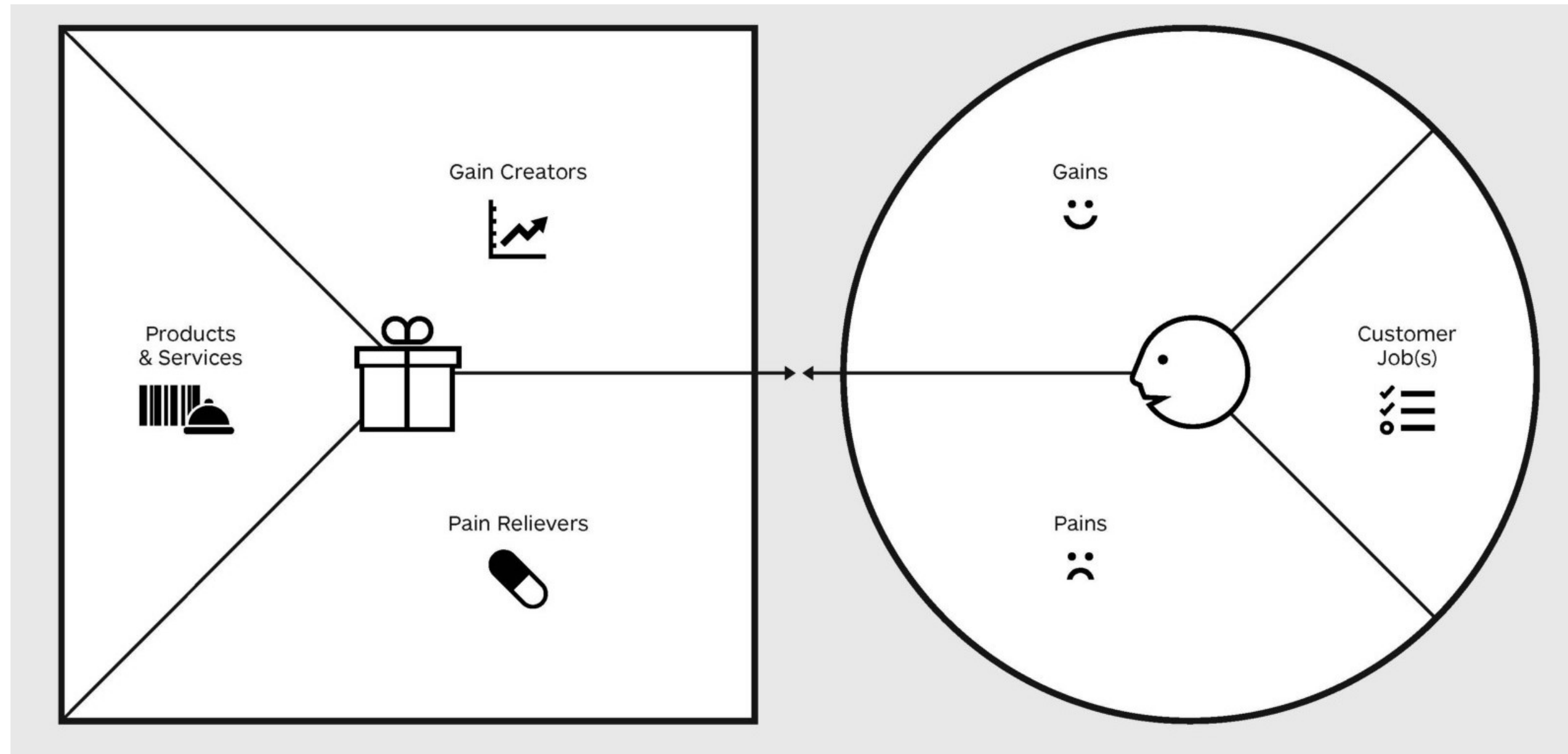
- “Users often leave Web pages in 10–20 seconds, but pages with a clear value proposition can hold people's attention for much longer. ”
- “To gain several minutes of user attention, you must clearly **communicate your value proposition** within 10 seconds”

<https://www.nngroup.com/articles/how-long-do-users-stay-on-web-pages/>

# The Value Proposition Canvas

The 'Product' or 'Asset'

The 'User' or 'Customer'



<https://www.strategyzer.com/library/the-value-proposition-canvas>



# Making a Testable Design Hypothesis...

- Framing a testable design hypothesis (prediction) using statements like this:

“We believe that doing/building/creating [this]

for [this user]

will result in [this outcome].

We'll know we're right when we see [this metric/signal]”

- Rank hypothesis in order of risk (impact to the project if the hypothesis fails),
- Then work out ways to make and test them in priority order (you can usually test a ‘value proposition’ using a low- to mid-fidelity prototype)

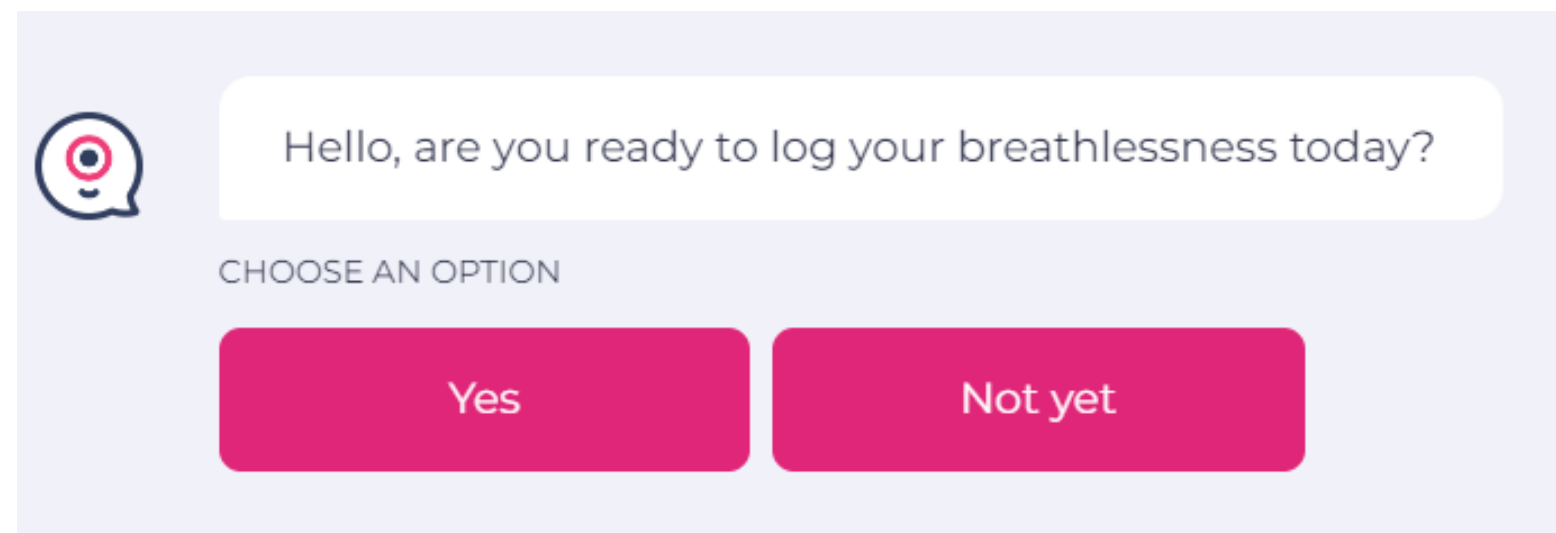
<https://methods.18f.gov/decide/design-hypothesis>

# “When all you have is a hammer, everything looks like a nail”

- The importance of choosing the right tool to build your prototype
  - (choose the tool that helps you generate the required metrics)
- Lo-fi tools are traditionally recommended, cheap and quick to make
  - sketches on post-it notes, ‘wizard of oz’ prototypes
- Currently emergent no-code tools and Generative AI are very promising

# Making a prototype for a Digital BCI

- We are going to use a 'no-code' Chatbot tool called Landbot
- Chatbots are useful to test interactive content (easy to deploy across a range of platforms, don't have to worry about designing a UI, etc)

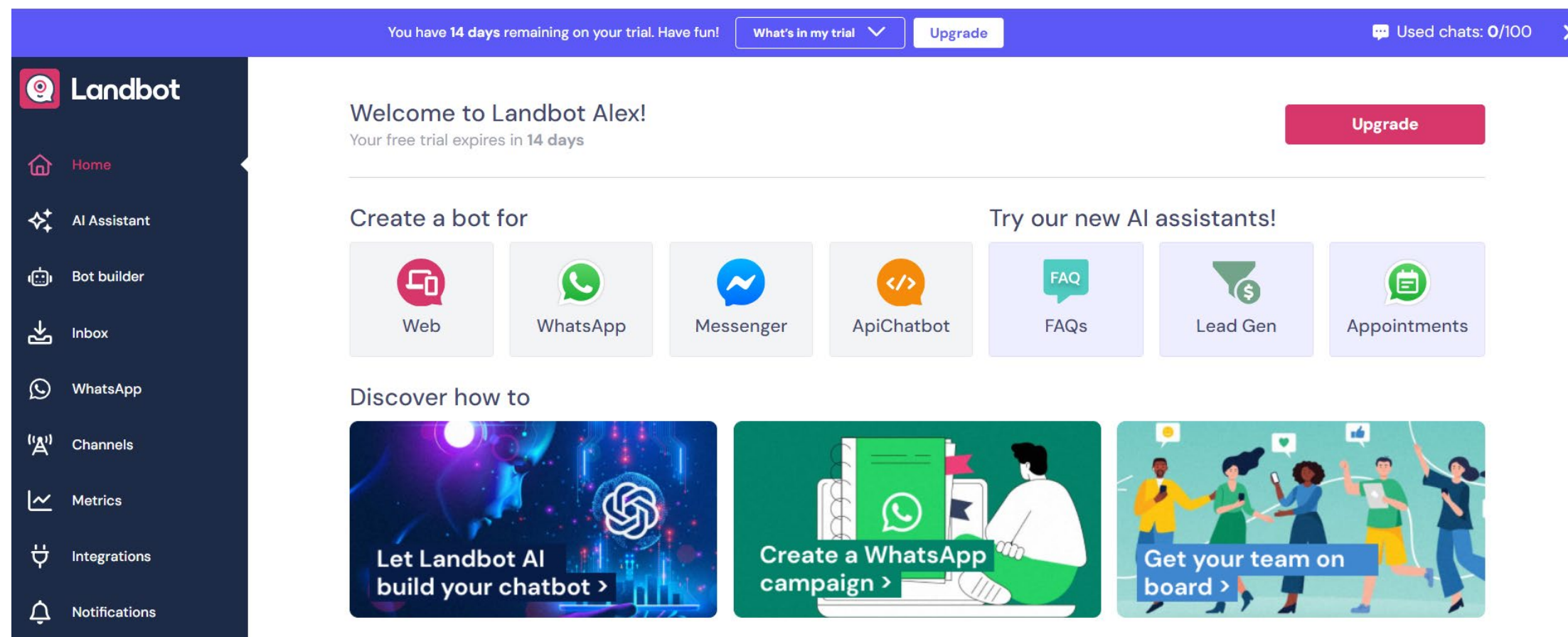


Example:

<https://landbot.online/v3/H-2213416-ZXM6KCKBVJ8K72XG/index.html>

# Getting started with Landbot...(20 mins)

1. Go to [landbot.io](https://landbot.io) and register for an account
2. Once you get through the onboarding survey, click on the home screen below:

A screenshot of the Landbot registration form. The form is set against a dark blue background with the Landbot logo and a 'Have an account?' link. The form fields include 'Work email' with a placeholder 'you@yourcompany.com', 'Password' with a strength indicator 'At least 8 characters, 1 number and 1 symbol', and a 'Create account' button. At the bottom, there is a link to the 'Privacy policy & Terms of Service'.



# Let's build a small chatbot together

1. Select 'Create a bot for ...web'
2. Select the 'start from scratch' option

Start building!



**Build it for me!**

Tell what you need and we will create it automatically



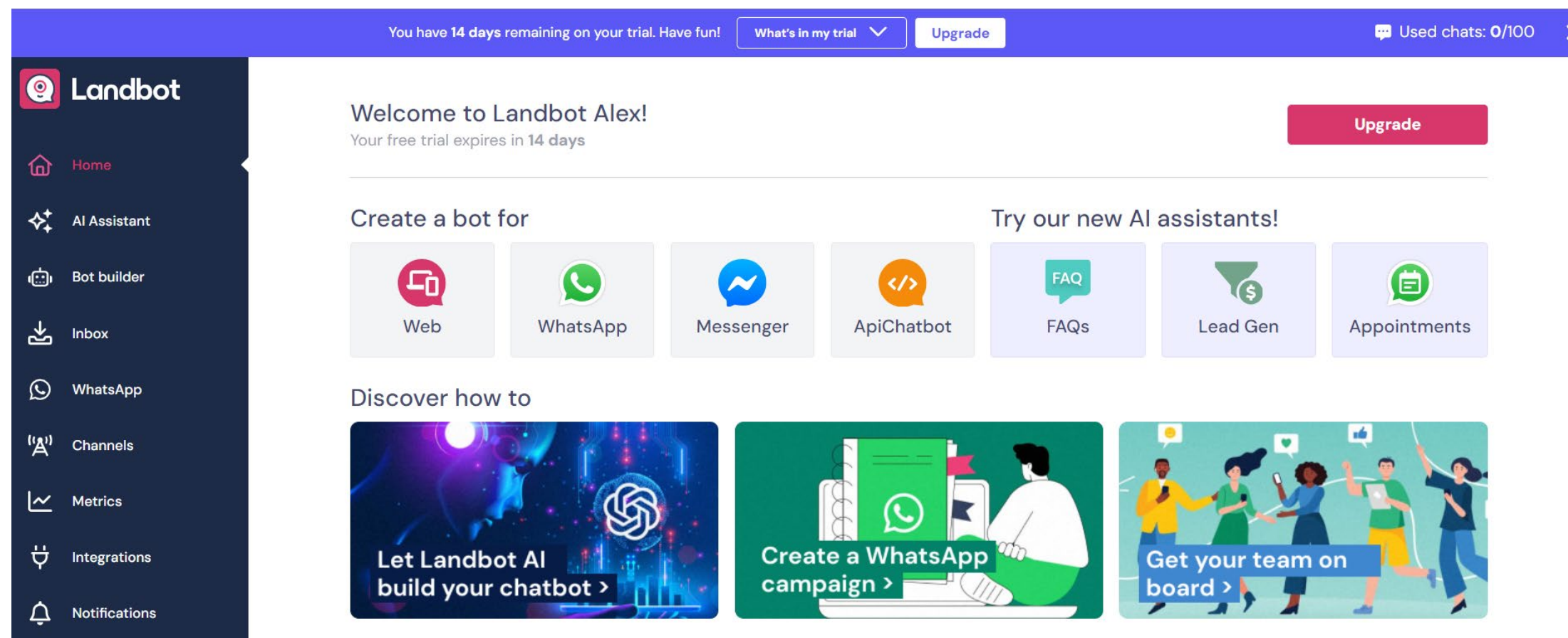
**Start from scratch**

Start with a blank builder and let your imagination flow!



**Use a template**

Choose a pre-made bot and edit them as you want



# Making a symptom tracker for breathlessness

1. Bot says: "Hello, are you ready to log your symptoms?"
  - Response options are 'yes' and 'not yet'
2. Option yes: Bot says: "How is your breathlessness today?"
  - Response options are "better than usual", "same as usual", "worse than usual"
3. Provide a suitable feedback message for each option
4. Working independently: add a next step to the 'better than usual' or 'worse than usual steps'

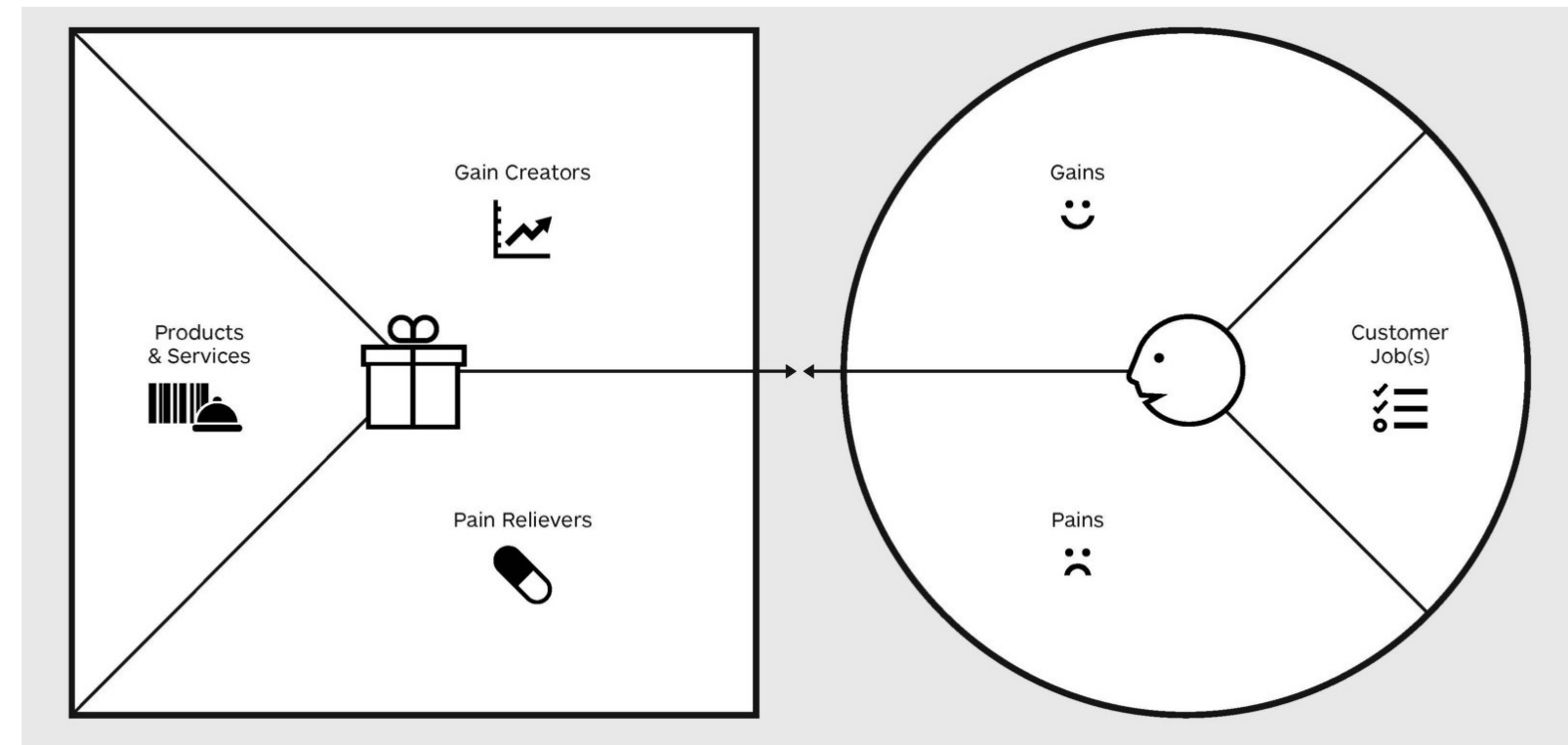
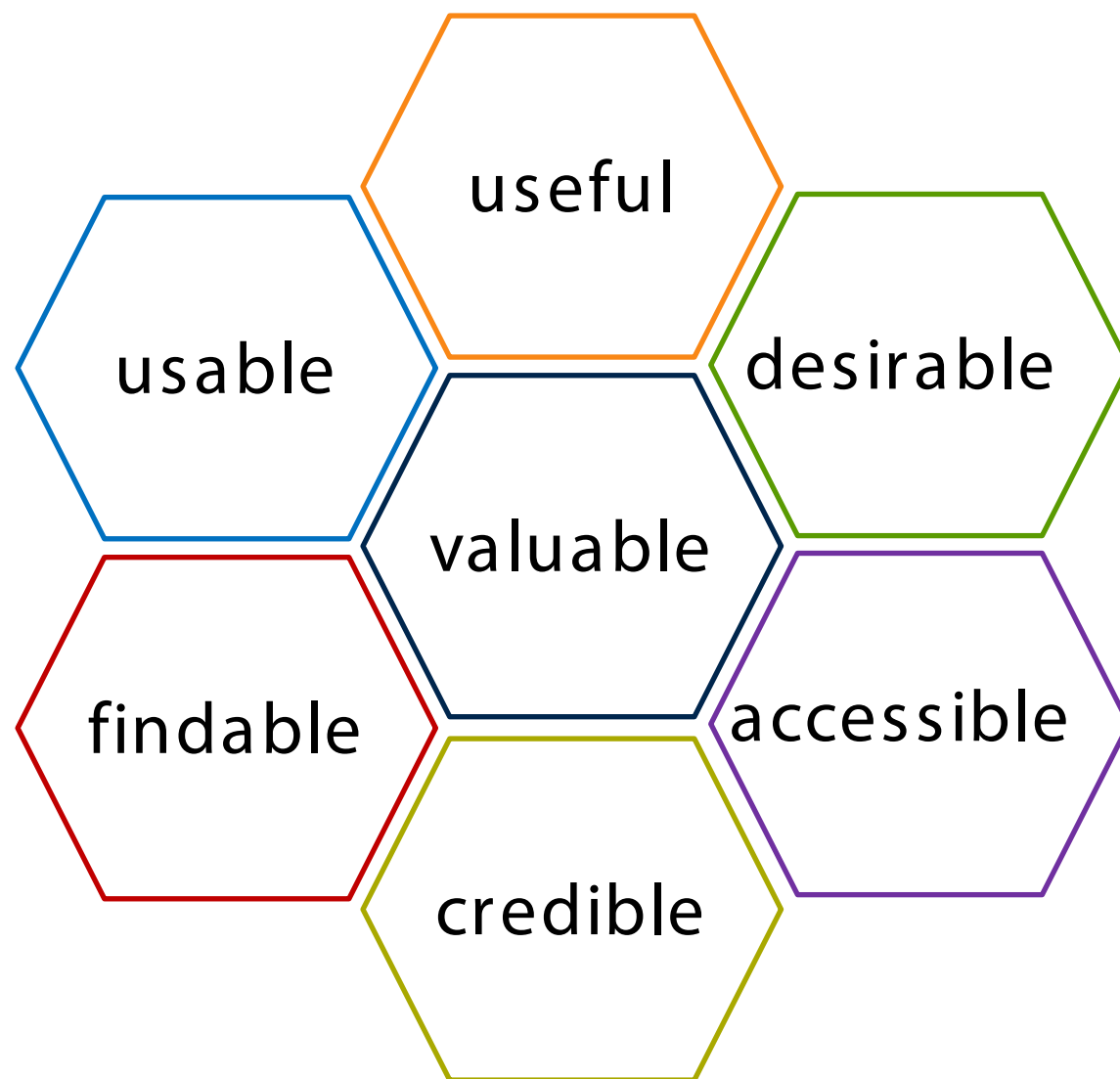
# Choosing a feature for your own Digital BCI

- Some things that are reasonable to make and test using a chatbot in this session, for example:
  - Symptom or mood logger
  - Activity tracker, Photo Diary, Ecological Momentary Assessment (EMA) tool
  - Setting a SMART goal, Activity / action planning & commitment
  - Self assessment using the transtheoretical model “stages of readiness for change”
  - Readiness ruler (<https://case.edu/socialwork/centerforebp/resources/readiness-ruler>)
  - Some other BCT...



# Choosing a feature for your own Digital BCI

- Connect your chosen feature back to a 'Testable UX hypothesis' using one of the frameworks:



“We believe that doing/building/creating [this] for [this user] will result in [this outcome]. We’ll feel confident when we see [this metric/signal]”

# Choose a feature and make a UX hypothesis (15 minutes)

Example:

“We believe that creating [a daily breathlessness tracker] for [people with moderate COPD] will [be easy and acceptable for daily use, and build confidence in their self-management skills].

We’ll feel confident when we see [participants use the tool >12 days in a 14-day test, and rate the outcome as ‘easy’ and ‘useful’ as part of a self-management program]”

# 20 Minute Break

# Share your plan / UX Hypothesis (15min)

Example:

“We believe that creating [a daily breathlessness tracker] for [people with moderate COPD] will [be easy and acceptable for daily use, and build confidence in their self-management skills].

We’ll feel confident when we see [participants use the tool >12 days in a 14-day test, and rate the outcome as ‘easy’ and ‘useful’ as part of a self-management program]”

# Build a prototype (1 hour)

- Recommend: 'start from scratch' initially, but then we can try 'Build it for me' option later
- Check-in after 30 mins

# Feedback (20 mins)

- Tell us your idea, show your prototype, how would you test it?

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