

PRODUCT MANAGEMENT

PDM 5.0

Experimenting

LEARNING OBJECTIVES

1

Define an assumption.

2

Identify opportunities and techniques for experimenting.

3

Communicate the results of experiments.



ASSUMPTIONS

Experimenting

Welcome +
Warm-Up

Assumptions

Designing
Experiments

Best Practices
Communicating
Test Results

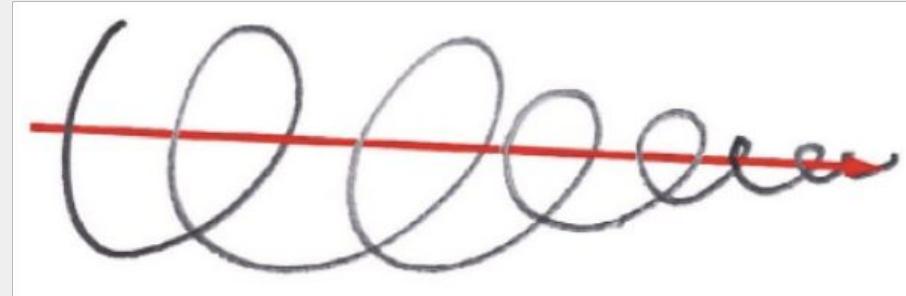
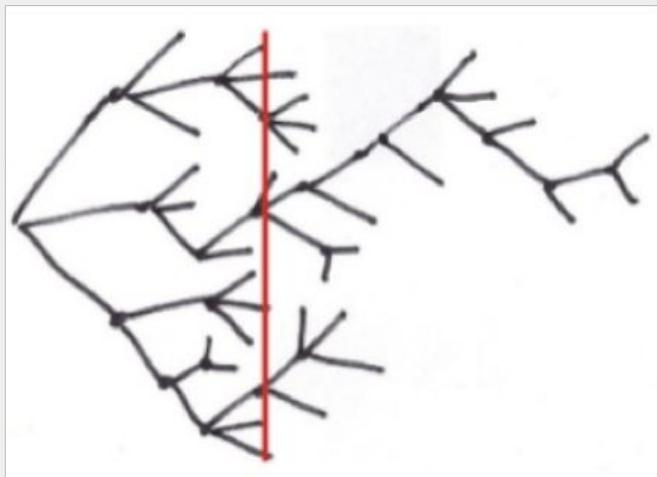
Bring It Home



Building the right product

vs.

Building the product right



WHAT IS AN ASSUMPTION?

Something that is believed
to be true before being
tested.



WHY TEST?

Reduce risk and
maximize
success.

Reduce
overhead.

Reduce
discrimination
in your product.

Gather
feedback on our
assumptions
faster.

Make more
measurable
progress.

Increase
accessibility.

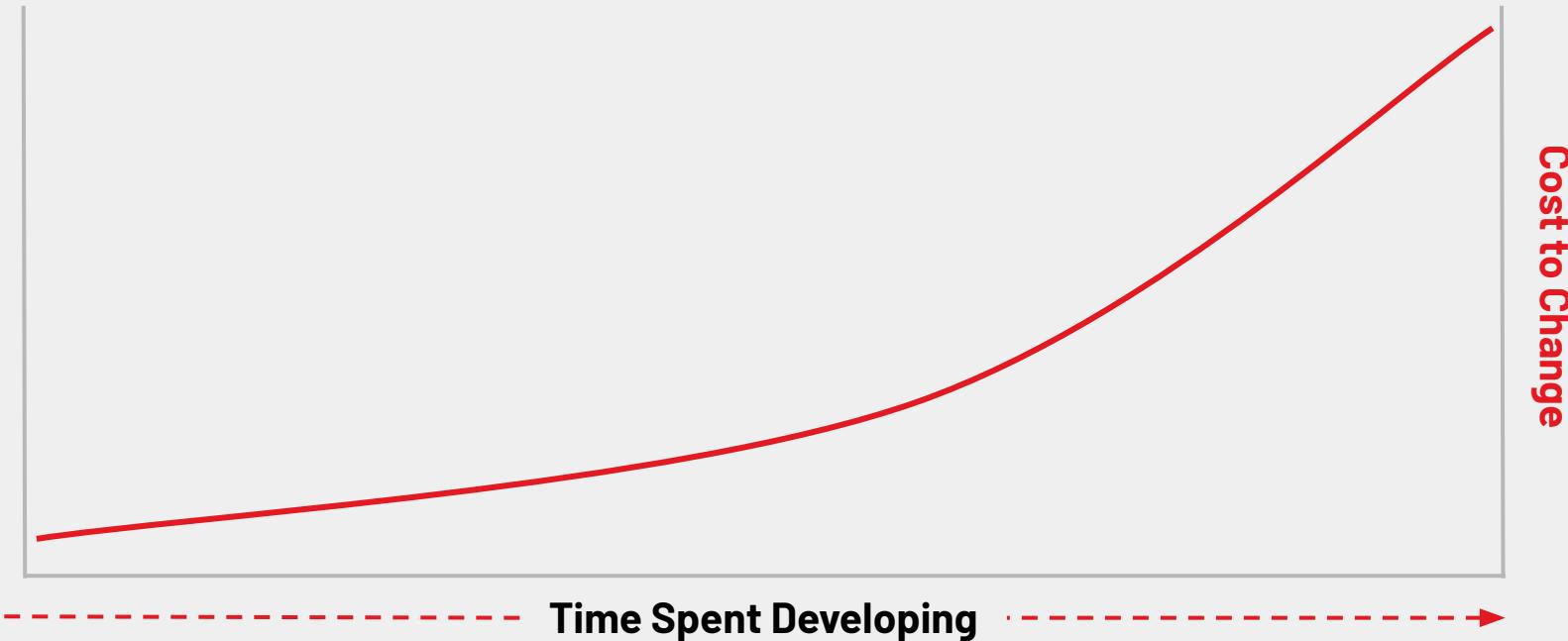
Every project starts with assumptions, but usually we don't explicitly acknowledge this fact. Instead, we try to ignore assumptions, or worse, treat them as facts.

Jeff Gothelf in *LeanUX*

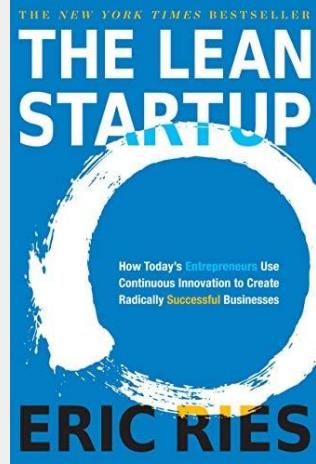
Everything is an assumption **until** you **validate it.**



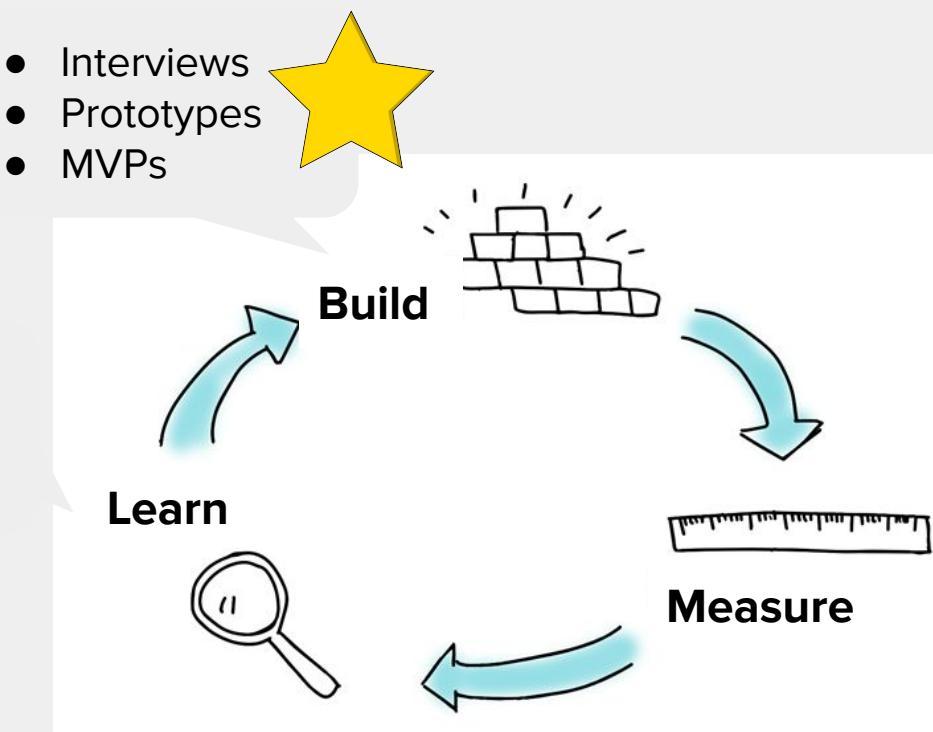
THE FURTHER DOWN THE PATH, THE MORE COSTLY THE CHANGE



The Build-Measure-Learn Cycle

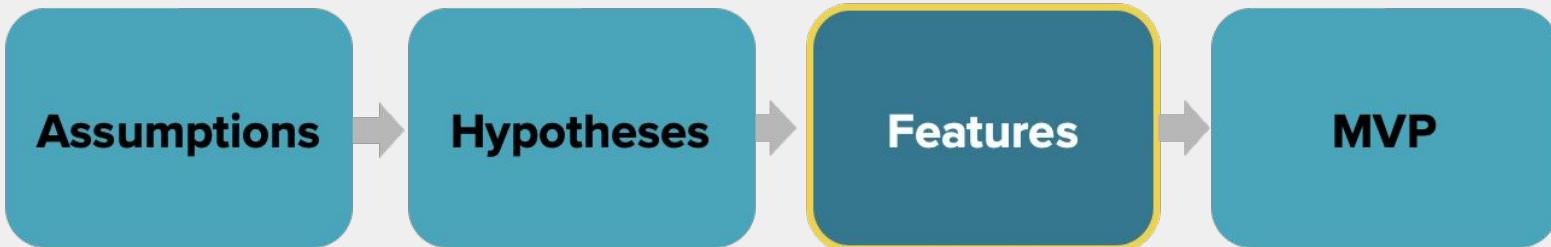


- Problems
- Hypotheses
- Assumptions



- Results
- Metrics
- Research

FROM ASSUMPTIONS TO HYPOTHESES TO FEATURES



WHERE DO ASSUMPTIONS SHOW UP?

Problem

Is it real?

"This is the real challenge our users are facing."

Solution

Will this solve the problem?

"This is the simplest and most effective way to solve our users' problem."

Customer

Do these people have this problem?

"People will pay money for this and use it regularly."

Implementation

Is this something we can or should solve?

"We have the team, tools, and technology in place to make this happen."



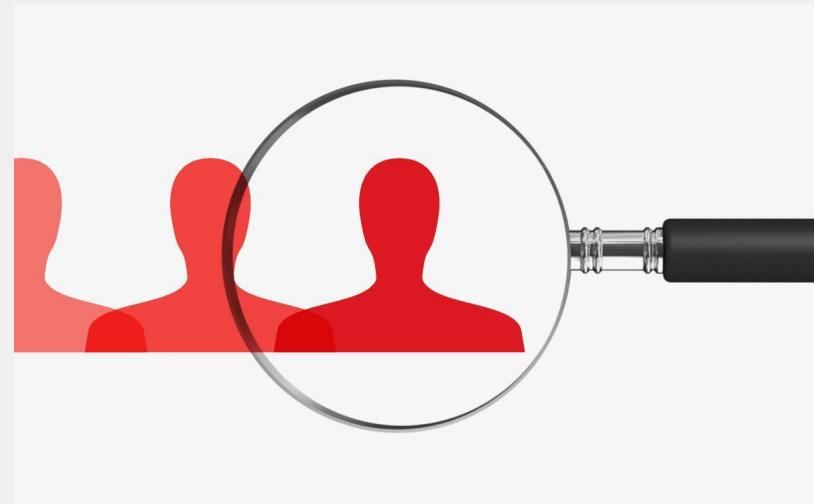
Discussion: Customer and Resource Assumptions

5 minutes

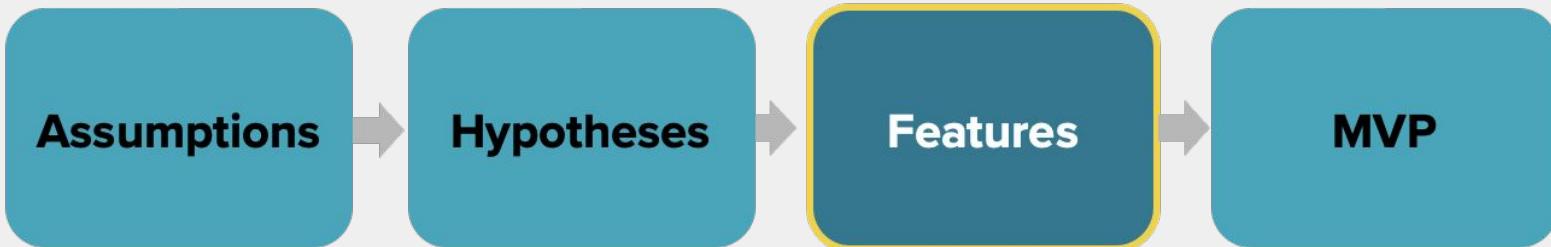


You're a PM at Uber tasked with building a solution to make it simple for customers to pay for rides.

What are some **customer** and **resource** assumptions that you might make about this solution (and want to validate)?



FROM ASSUMPTIONS TO HYPOTHESES TO FEATURES



Problem Statements and Hypotheses

Focus your customer research on validating **problem statements** and **hypotheses**.

Problem statements



Written from a customer perspective.

Hypotheses



Your expectation of customer behavior given a certain condition.

Problem Statement and Hypothesis Template

Problem Statement

Define the problem your users are facing from their perspective.

I need a way to _____

_____ user's need _____,

because _____

_____ insight _____.

Hypothesis

What can you do to address their problem?

We believe that by _____

_____ doing or creating something _____,

then _____

_____ outcome _____.





Discussion: From Hypothesis to Features

5 minutes



Let's brainstorm:

What features could support this hypothesis and solve customer problems?

“We believe that by making it simple to pay, more riders will use our app to go where they want when they want.”



Discussion: From Hypothesis to Features (Cont.)

5 minutes



Hypothesis

We believe that by making it simple to pay, more riders will use our app to go where they want when they want.



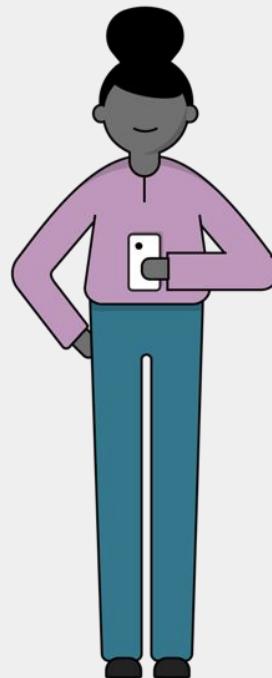
“Simple to pay”

- Add multiple credit cards to your account.
- Choose a default payment method.
- Separate between work and personal rides.
- Split a payment with friends.
- Pay with Venmo.

Remember These Assumptions?

Problem Statement

I need a way to find and pay for a taxi when I need one because I usually don't carry cash and many taxis don't accept cards.



Hypothesis

We believe that, by making it simple to pay, more riders will use our app to go where they want, when they want.

FROM HYPOTHESES TO FEATURES

Hypothesis

We believe that by making it simple to pay, more riders will use our app to go where they want when they want.



“Simple to pay”

- Add multiple credit cards to your account.
- Choose a default payment method.
- Separate between work and personal rides.
- Split a payment with friends.
- Pay with Venmo.

START WITH A HYPOTHESIS

Option 1

We believe [TYPE OF PERSON] has a problem [DOING THING].
We can help them with [OUR SOLUTION].
We'll test it by [TEST APPROACH].
We'll know we're right if [CHANGE IN METRIC] in [GIVEN PERIOD OF TIME].

Option 2

We believe that [DOING THIS/BUILDING THIS FEATURE/CREATING THIS EXPERIENCE] for [THESE PEOPLE] will achieve [THIS OUTCOME].
We will know this is true when we see [THIS MARKET FEEDBACK, QUANTITATIVE MEASURE, OR QUALITATIVE INSIGHT].

There are many more versions of this/that work too!

Define your success metrics before you run your test.



HOW TO DESIGN A TEST?

**Start by asking yourself how you
can validate your assumptions.**



10:00

BREAK TIME



EXAMPLE TESTS YOU COULD RUN

SCENARIO:

Let's say you worked at Apple on Apple Music and you noticed users in the UK were typing emotions into the search bar. You might even get some indicators that users want playlists or radio stations based on moods. Rather than going straight to building an algorithm to create and update the list, you might manually curate a playlist and simply measure listens, which songs are skipped, and repeat listens.

HYPOTHESIS:

We believe **Apple Music users in the UK aged 13 - 25** have a problem **finding collections of music that fit their mood.**

We can help them with **Moods Playlists**.

We'll test it by **creating curated playlists and showing them to 10% of our UK user base.**

We'll know we're right if there is **one listen from 45% of users in 2 weeks, two listens from 20% of users in 2 weeks, and less than 25% of songs skipped per listen.**

EXAMPLE TESTS YOU COULD RUN

SCENARIO:

Imagine you work at Twitter and are trying to figure out a solution for threading which is known to be a common problem. You might create a paper prototype using some existing paradigms (maybe some new) and run 5 - 10 users through a guided test to determine how people would imagine the product working. After that you might create a clickable wireframe that you test with 250 users. Test three could be that you create a custom thread view/experience for a few very popular threads and show them to a portion of users. Your measurement for the first two might simply be qualitative insight. While the measurement for the third test might be where people click/tap in the interface, how many times they move back and forth, how far down in the thread users get, and qualitative insights.

HYPOTHESIS:

We believe **Twitter users** have a problem **following threads that other twitter users create when they are not following them as they happen.**

We can help them with **a threading interface.**

We'll test it by **creating a custom thread experience for a few very popular threads and show them to a portion of users.**

We'll know we're right **if less than 10% of users abandon the custom thread experience within 15 seconds; less than 25% of users enter the thread, exit the thread, and re-enter in a 2 minute time span; and qualitative feedback is 75% positive within 2 days.**



**WHAT DO YOU DO
IF A TEST FAILS?**

**Form a new hypothesis or a new
idea for a solution **and test again.****



Product Management

Working With MVPs





Discussion:

In Your Own Words...

5 minutes



What Is
an
MVP?



Minimum Viable Product

The **least** amount of work you can do to **learn the most** about something.



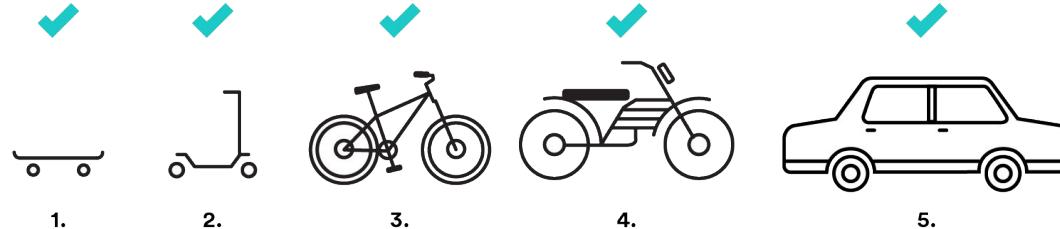
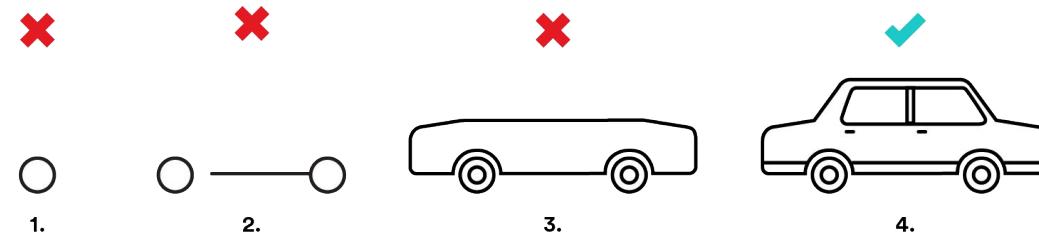
“
The smallest possible product that has three critical characteristics: people choose to use it or buy it; people can figure out how to use it; and we can deliver it when we need it with the resources available.

— Marty Cagan



How We MVP

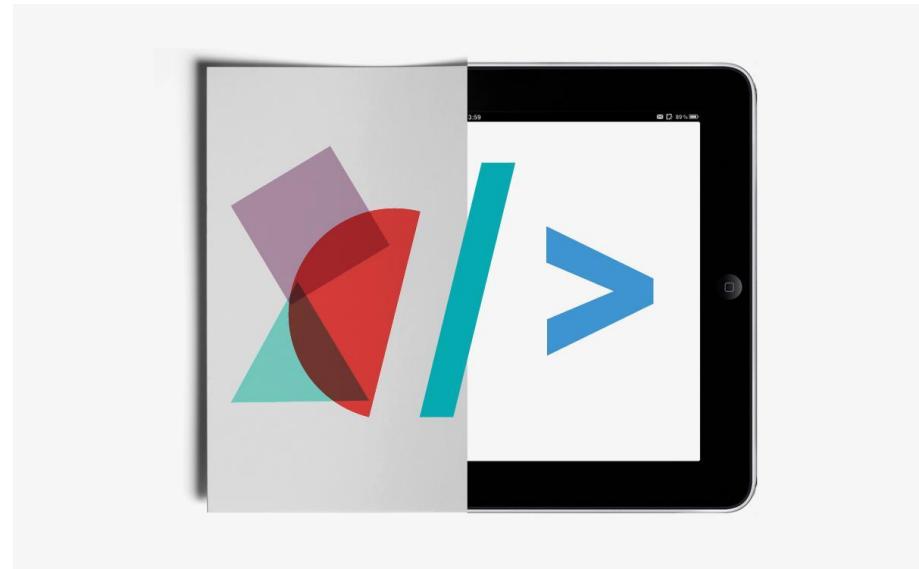
**Not like
this...**



**...like
this.**

Why MVP?

- Reduce risk and maximize success.
- Gather feedback on our assumptions faster.
- Reduce overhead.
- Make more measurable progress.



You don't have to build software to run a test.



A FEW WAYS TO TEST

Concierge

A manual process that takes users through a process that might otherwise be automated.

Wizard of Oz

Users believe that a process is automated or “larger”. Behind the scenes the work is manual.

Competitor Software

Allows you to see where users are getting stuck with software that already exists. Helps you not make the same mistakes and determine functionality that is most important.

Paper Prototype

A user has walked through a solution that is sketched on paper. During the test, the facilitator may draw new options based on user action.

Clickable wireframes

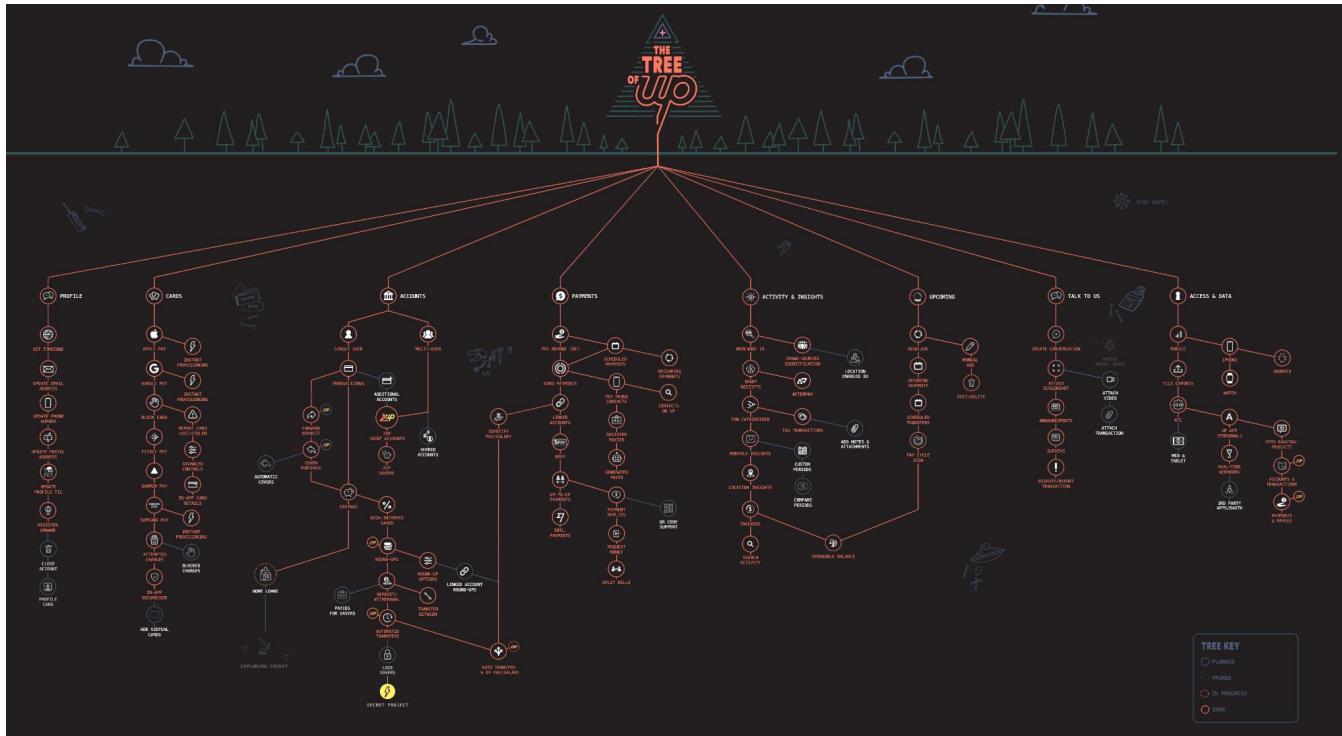
Allows you to validate a flow fairly cheaply. Flexible to be administered without a facilitator.

Feature Fake

Add a button to your product that when clicked, doesn't execute the intended task. Provides you with data about users' interest in a feature.



Initial Launch vs Vision/Roadmap





- Used to demonstrate a hard concept.
- Can be pieced together without the technology being completely in place.

RENTTHERUNWAY love. wear. return.

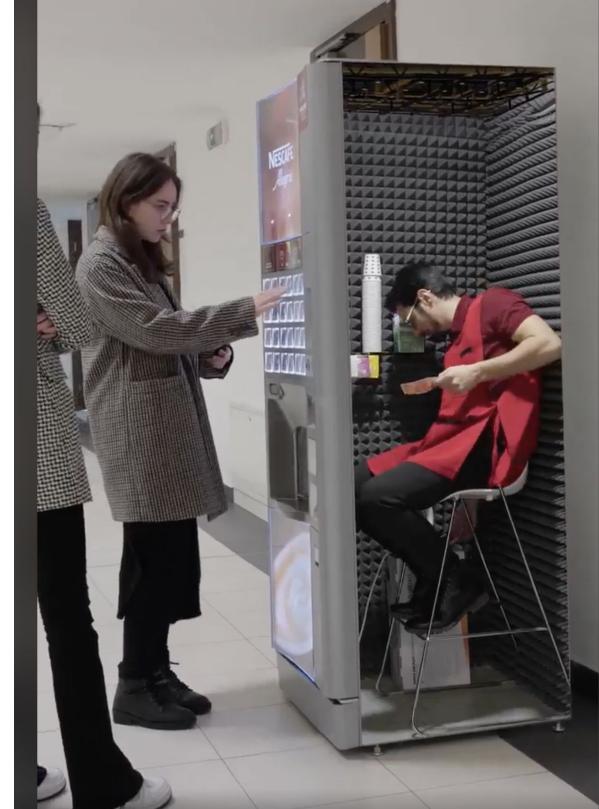
Nicole Miller Keyhole Goddess Gown rental \$100 retail \$630 ❤	Camilla And Marc Simeon The Proud Dress rental \$75 retail \$500 ❤	Proenza Schouler Kaleidoscope Cut Out Dress rental \$150 retail \$1,390 ❤	Nicole Miller All Laced Up Dress rental \$50 retail \$400 ❤
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Wizard of Oz MVP

- Everything appears to be real to the customer, but on the back end, it is manual.
- Tests riskiest assumptions before spend money on technology, inventory, warehouse, etc.





Wizard of Oz MVP

- Everything appears to be real to the customer, but on the back end, it is manual.
- Tests riskiest assumptions before spend money on technology, inventory, warehouse, etc.



60	"Lior 04-Oct Mon Billed	12:00 PM	X	Roast Turkey - SSB Catering	15	38 K 16-Sep T
60	"Lior 01-Oct Fri	12:00 PM	X	Burger Bar - Brickhouse	15	
	"Lior 30-Sep Thu	12:00 PM	X	Sandwich Lunch To-Go	18	38 K 03-Sep F
60	"Lior 29-Sep Wed	12:00 PM	X	Bah Mai - Dinosaur	15	
60	"Lior 28-Sep Tue	12:00 PM	X	Burmese - Mandalay	15	38 K 29-Jul Th
	"Lior 27-Sep Mon	12:00 PM	X	Pasta - Pasta Paradiso	15	Billed
60						38 K 22-Jul Th
	"Lior 24-Sep Fri	12:00 PM	X	Indian - Mehfil	15	
60	"Lior 23-Sep Thu	12:00 PM	X	Chicken Piccata - Pasta Paradiso	15	38 K 15-Jul Th
	"Lior 22-Sep Wed	7:00 PM	X	Miso Glazed Salmon - Pasta Paradiso	12	
60	"Lior 22-Sep Wed	12:00 PM	X	Assorted Sandwiches - Deliboard	15	38 K 08-Jul Th
	"Lior 21-Sep Tue	12:00 PM	X	Sausages - Rosamunde	15	
60	"Lior 20-Sep Mon	12:00 PM	X	Roast Turkey - SSB Catering	15	38 K 01-Jul Th
						Billed
56	"Lior 17-Sep Fri	12:00 PM	X	Vietnamese - Jasmine Garden	15	38 K 24-Jun T
60	"Lior 16-Sep Thu	12:00 PM	X	Burger Bar - Brickhouse	17	
	"Lior 15-Sep Wed	12:00 PM	X	Korean - Stone Korean Kitchen	15	38 K 17-Jun T
60	"Lior 14-Sep Tue	12:00 PM	X	Chinese - Jasmine Tea House	15	
	"Lior 13-Sep Mon	12:00 PM	X	Smoked Beef Brisket Briskets - Shredded	15	38 K 10-Jun T





Single-Feature MVP

- Focus on the key feature(s) that are most valuable to users or the riskiest assumptions to test.



Knowledge Check

Let's practice using our new SQL skills.

We have a "foods" table in our database that contains nutritional information on some common dishes. We'd like to choose a meal, but first we need to learn more about our table.

Write the query that will select all of the records in the "foods" table.

Enter your response using SQL.

```
1 SELECT name  
2 FROM foods|
```

Run Code

Tables

Query Result



The screenshot shows the Zappos.com homepage from November 2000. The site has a blue and white color scheme with a Wizard of Oz theme. At the top, it says "the world's largest shoe store!" and features a banner with a man and woman smiling. Below the banner are categories for women's (dress, casual, athletic) and men's (dress, casual, athletic, kids). A sidebar on the left allows users to pick a category to shop from, register, or measure their foot. The main content area highlights "The world's largest shoe store!", "WHAT WE'RE HEARING!", and "Live Customer Service". It also features a "Free Shoes!" promotion for Adriana Rodriguez of Oakland, CA, and a "Zappos Special" offer for free shipping and no sales tax. A sidebar on the right lists featured brands like Bostonian, Sudini, Rieker, and L.B. Evans.

Zappos.com
the world's largest shoe store!

women's men's

dress casual athletic dress casual athletic kids

Pick a category to shop from:

Category

Register now & Save Money

registered customers

username
password

Measure Your Foot

Explore captures for this URL

free shipping & no sales tax.

customer service
shopping bag
account & register

The world's largest shoe store!

WHAT WE'RE HEARING!

Welcome to Zappos.com - the shoe store! We have a selection of over 100 brands to shop from! We offer FREE SHIPPING (U.S. orders only) and NO SALES TAX.

Live Customer Service!
Mon. - Fri. 10am-6pm PST
Sat. 10am-5pm PST
[Click here!](#)

Free Shoes!

Congratulations to the November 24 winner, Adriana Rodriguez of Oakland, CA

We will be giving away a FREE PAIR OF SHOES (up to \$150 in store credit) every Wednesday until the year 2000!

To enter become a registered user or send an email to freshoes@zappos.com with your name and email address. A winner will be notified by email every Wednesday!

Zappos Special:
Free Shipping & No Sales Tax

featured brands.

BOSTONIAN

Sudini

rieker ANTI STRESS

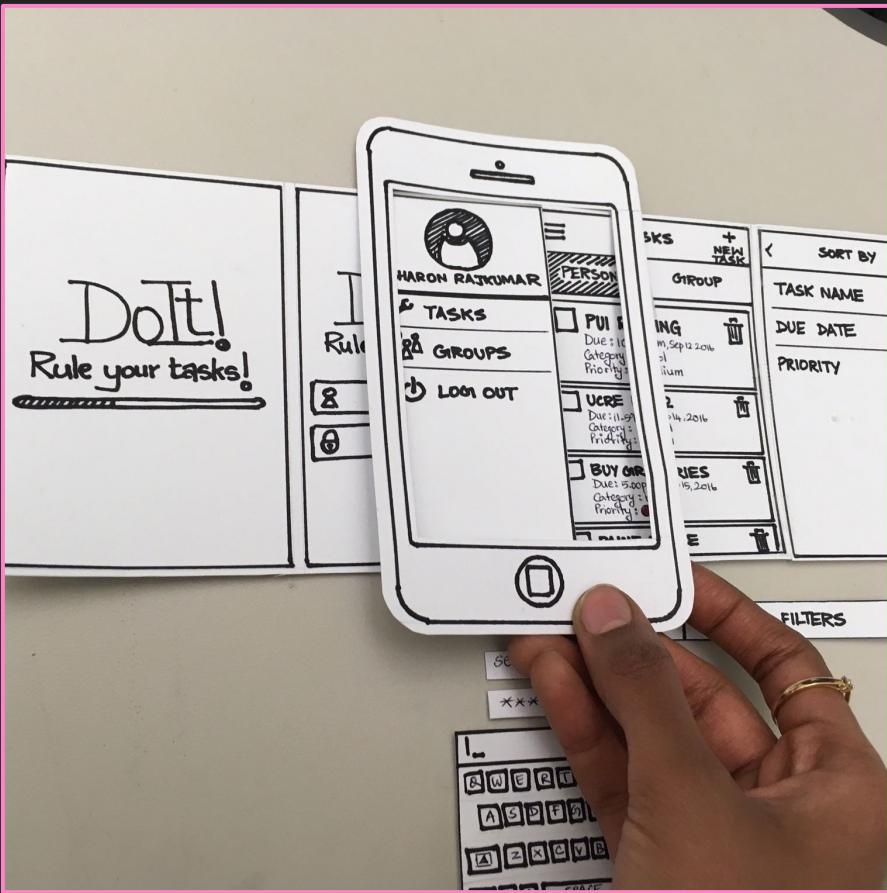
L.B. Evans® Men's Comfort

Zappos Special:
Free Shipping & No Sales Tax

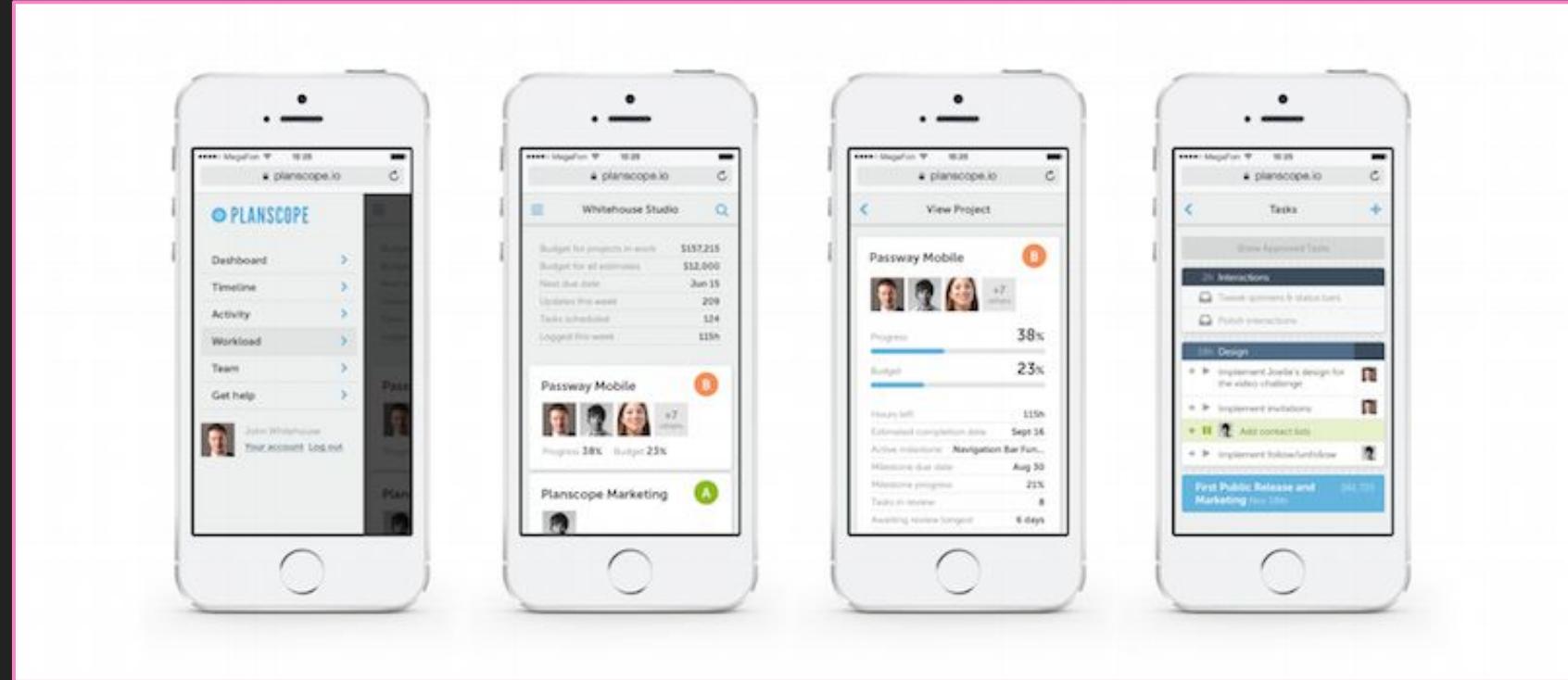
[home](#) [women's dress](#) [women's casual](#) [women's athletic](#) [men's dress](#) [men's casual](#) [men's athletic](#) [kids](#)

REAL CASES: PAPER WIREFRAMES

5 Minutes



REAL CASES: CLICKABLE WIREFRAMES



5 Minutes

Rufen Sie uns an 044-508-7273 Wir sind für Sie da - 7 Tage in der Woche bis 20 Uhr VERSAND & ZAHLUNG Deutsch ▾

NOTINO Nach Parfüms, Kosmetik und Marken suchen  ux1  Warenkorb

 GESCHENKE AKTION Parfum Nische Parfum Haare Dermkosmetik Gesicht Körper Make-up Männer Raumdüfte Mehr Marken

 - 10 % AUF GESCHENKSETS
MIT DEM CODE SET10CH

 GESCHENKVERPACKUNG
FÜR NUR CHF 5.69!

 / Marken / Lancôme 

Lancôme **La Nuit Trésor**
eau de parfum für Damen
 6x

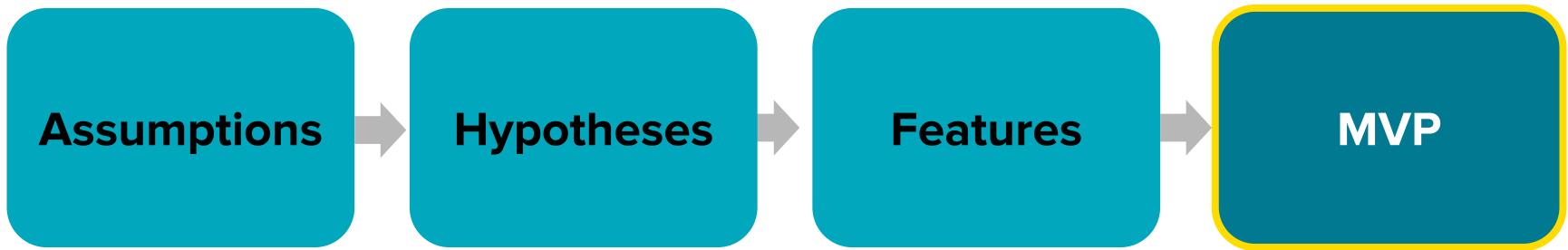
GRATIS VERSAND

75 ml **CHF 108,00**
CHF144,00 / 100 ml, inkl. MwSt

100 ml 75 ml 50 ml 30 ml
CHF 108,00 CHF 85,50 CHF 52,90 CHF 32,90



From Assumptions to MVP



What to Include in an MVP

Now

- What functionality do customers **need** to solve their problems?
- What assumptions do we need to validate immediately because they represent the largest risks?

Later

- What functionality is nice to have — but not critical — in solving the problem?
- What assumptions are less risky or better understood already?





What to Include in an MVP

You're building an MVP for Spotify and have identified two assumptions you want to validate:

- I want to stream unlimited music without breaking my budget.
- I want to stream music on my phone but I don't want to use all of my mobile data.

Review the list of features and classify them as “Now” (included in the MVP) or “Later” (included in a future rollout).

Features:

- Search for music
- Create playlists
- Share playlists
- Post your playlist to Facebook
- Radio
- Mobile offline mode
- Video ads
- Activity feed
- Private sessions
- Stations
- Recommended songs
- Ad-free premium service

BEST PRACTICES COMMUNICATING TEST RESULTS

Experimenting



Welcome +
Warm-Up



Assumptions



Designing
Experiments



**Best Practices
Communicating
Test Results**



Bring It Home



COMMUNICATION METHODS

Long Form

For experimentation tests, findings reports tend to be 1 - 2 pages. They communicate Background, Hypothesis, Test Methodology, and Test Results including metrics. Sometimes they also include suggested next steps or recommendations.

vs.

Short Form

These can be presentation slides, bulleted lists of details in Slack/Teams/etc., or short video explanations. Whichever the method, the findings should still include a hypothesis and the results with metrics.

vs.

Conversation

Some tests are small enough that they can be easily talked about in team meetings. Teams will likely want to know who participated, your hypothesis, and the findings.

EXAMPLES:

Sample Test Findings Report

Background

Tell what you have done previously and what happened that warranted this test.

Users have stated for several years that threading is a problem. We know that users who write threads or as they used to be called, tweet storms, are some of the highly engaged users and increase engagement by less engaged. We previously created a paper prototype using some existing paradigms and ran 5 - 10 users through a guided test to determine how people would imagine the product working ([Findings Report](#)). Following that, we created a clickable wireframe and tested it with 250 users ([Findings Report](#)) in 10 countries.

Hypothesis

State your hypothesis. You can use any of the hypothesis formats that you have learned.

We believe Twitter users have a problem following threads that other twitter users create when they are not following them as they happen. We can help them with a threading interface.
We'll test it by creating a custom thread experience for a few very

THEME 1

Our customers had trouble reaching the checkout

- 7 users of the 10 spoken to found it difficult to checkout
- 2 users took over 30 seconds to find the checkout button, 1 user didn't succeed at all
- 3 users performed the task without issue but commented on how hard the button was to find
- Example four
- Example five



Amy 6:42 PM

Hey all! 🌟 Just wanted to share some insights from our recent user testing session.

Background: Only 34% of our users can find their bookmarks from the home screen. We designed a [prototype](#) with an alternative layout to see if we could improve this number, and tested it with eight of our existing customers.

Key findings:

- 🌟 80% of people we tested were able to find the bookmarks on the new design.
- 💡 Some test participants suggested adding a search function, as it's something they expected to see there.
- ⌚ The most popular reason for bookmarking things was to save things for later when they have more time.

We're planning to implement the new layout over the coming weeks. We're also going to do more research into a search function, since it's something that's been asked for a while now. You can read the [full report here](#) if you'd like to see more details. Thanks! 🎉

BEST PRACTICE: WRITE LONGFORM, EVEN IF NO ONE READS IT.

The rigor of writing test plans and findings reports help you remember to be rigorous in your testings.

Having documentation of what was tested helps you and those that come after you.

Avoid bias.

Ensure that you are testing with the right people.

Acknowledge your assumptions.

Ensure you are defining your measure of success before you conduct the test.

BEST PRACTICE: STATE FACTS AS THEY HAPPENED

Tell people exactly what you learned, not what your interpretation of what you learned.

- 4 of 5 people completed the task
- 12% of participants signed up

Focus on what you proved or disproved.

BEST PRACTICE: AVOID SWEEPING LANGUAGE

5 participants
≠
“customers”

Participants
abandoning something
≠
“customers don’t like X”

Testing with 10 people
≠
“everyone”

BEST PRACTICE: PROVIDE RECOMMENDATIONS OR NEXT STEPS



Let your teams and stakeholders know what you intend to do with the information you learned.



This does not always fit into a longform experimentation findings report (though sometimes it does , but can be provided separately.)



BEST PRACTICE: USE MULTIPLE COMMUNICATION METHODS

Different people
need information
presented
differently.

Some people need
information
presented multiple
times.

Focus on what your
goal is: Align your
stakeholders and
team around the
same information.

Practice Communicating Your Results!

Look at the scenario presented in the Communicating Findings Activity Document

It contains an explanation of your position as a PM at Google and a test you decided to run.

Additionally, it includes the results of your 5 participant test.

Look at the results and post a message (Discussion board, Slack, etc.) with a recap of your findings for your team.

BRING IT HOME

Experimenting

Welcome+
Warm-Up

Assumptions

Designing
Experiments

Best Practices
Communicating
Test Results

Bring It Home



KEY TAKEAWAYS



Assumptions

Assumptions show up everywhere.
Make sure you acknowledge them.



Experiments Can Be Done with no Code.

Find a way to test your hypothesis
without just “building the solution”.



Communication Findings

Present facts not opinions, use
rigor in your communication, and
use multiple ways of
communicating to ensure your
findings are learned.

Additional Resources

Practice Again	Digging Deeper
<p>Validating Assumptions and MVPs</p> <ul style="list-style-type: none">• <u>Assumption / Validation Flowchart, Product Ponderings</u>• <u>What Is MVP and Why Is It Necessary?</u>• <u>An Intro to the Minimum Viable Product (MVP)</u>• <u>What Is MVP and Why Is It Necessary?</u>• <u>Concierge vs. Wizard of Oz Prototyping – What's the Difference?</u>	<p>Test Your Hypothesis</p> <ul style="list-style-type: none">• <u>Hypothesis Testing</u> <p>MVP in Depth</p> <ul style="list-style-type: none">• <u>What Is a Minimum Viable Product (MVP)?</u> <p>MVP vs. MLP</p> <ul style="list-style-type: none">• <u>Building a Minimum Viable Product Is Like Serving Burnt Pizza</u>



Exit Ticket Questions

- What week did you just complete?
- My instructional team was effective in helping me achieve the learning objectives for this lesson. (out of 10)
- The lesson agendas were well-organized and sufficient time was given for each activity. (out of 10)
- I feel prepared to continue practicing the skills we learned outside of class. (out of 10)
- What were your two biggest take-aways from these lessons?
- What questions do you still have about the content?
- Do you have any feedback you would like to pass on to your instructional team?



GENERAL ASSEMBLY