



Essentials of Innovation & Entrepreneurship (EIE) - II

Module (M3):

Customer Development (CD) Model:
Testable/Measurable Hypothesis

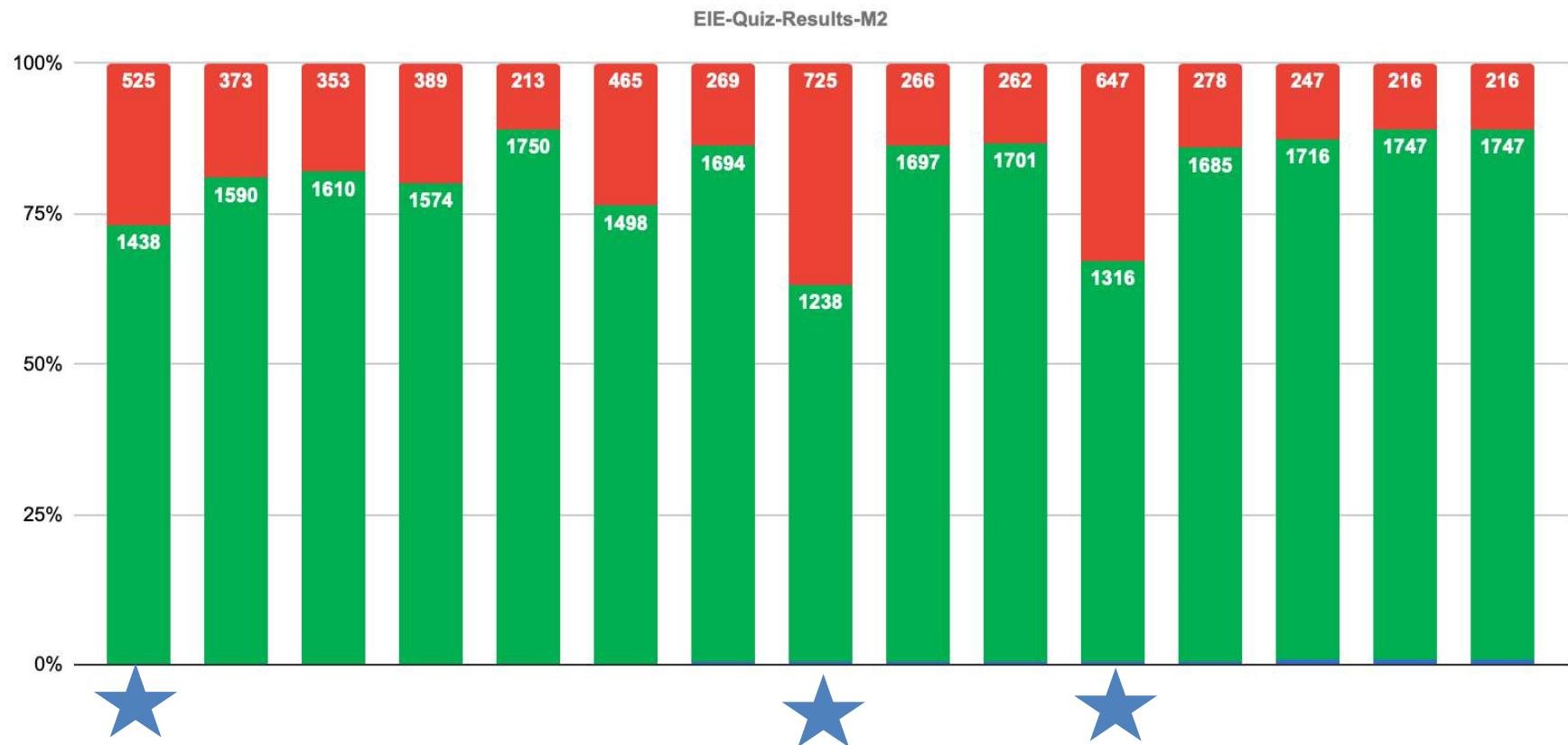


Today's Topics

- ❖ **Opening**
 - ❖ Three-for-Three (TFT) – Key Happenings from Startup/Innovation World
 - ❖ Previous Session Quiz Results
- ❖ **Announcements** (Related to Course and CIE-Ignite)
- ❖ **BriefCase** (Reading followed by Discussion): "*Building a Startup Idea*" (Sam Altman)
- ❖ **Lecture**
 - ❖ Customer Development Model: Testable and Measurable Hypothesis
- ❖ **Expert Talk: Mr. Suresh Narasimha** (VC, Startup Founder, Startup Ecosystem Enabler)
- ❖ **Video** (Viewing + Discussion):
 1. "*Reasons Not to be an Entrepreneur*"; 2. "*Being Entrepreneurial in a Big Company*"
- ❖ **Session Quiz** (graded and for attendance)

EIE - II

EIE M2 Session Quiz - Discussion / Recap



Announcements

CIE Ignite

1. **S0:** Pitch deck template shared; Form your team + capture your startup idea in pitch deck
2. Submit **S0** by Jan 24 in prep for S1 Pitch (contact your Dept Coordinator for date/logistics)

Awesome response for 4th sem CIE Projects! (all positions full; interviews in progress)

1. PAML – Train the Trainer Workshop (CIE-TA positions in Summer '25)
2. AI / ML Projects (3 problem statements)
3. ML-Edge (HW/SW/System) Project
4. Project on Algorithmic Trading System & IPO Screening Tool

BriefCase

“Building a Startup Idea” Sam Altman

Hope you have read the brief case ('briefcase' 😊)

Based on this case, answer the questions (Mentimeter)

Discussion through the 'Q/A' feature of MS Teams

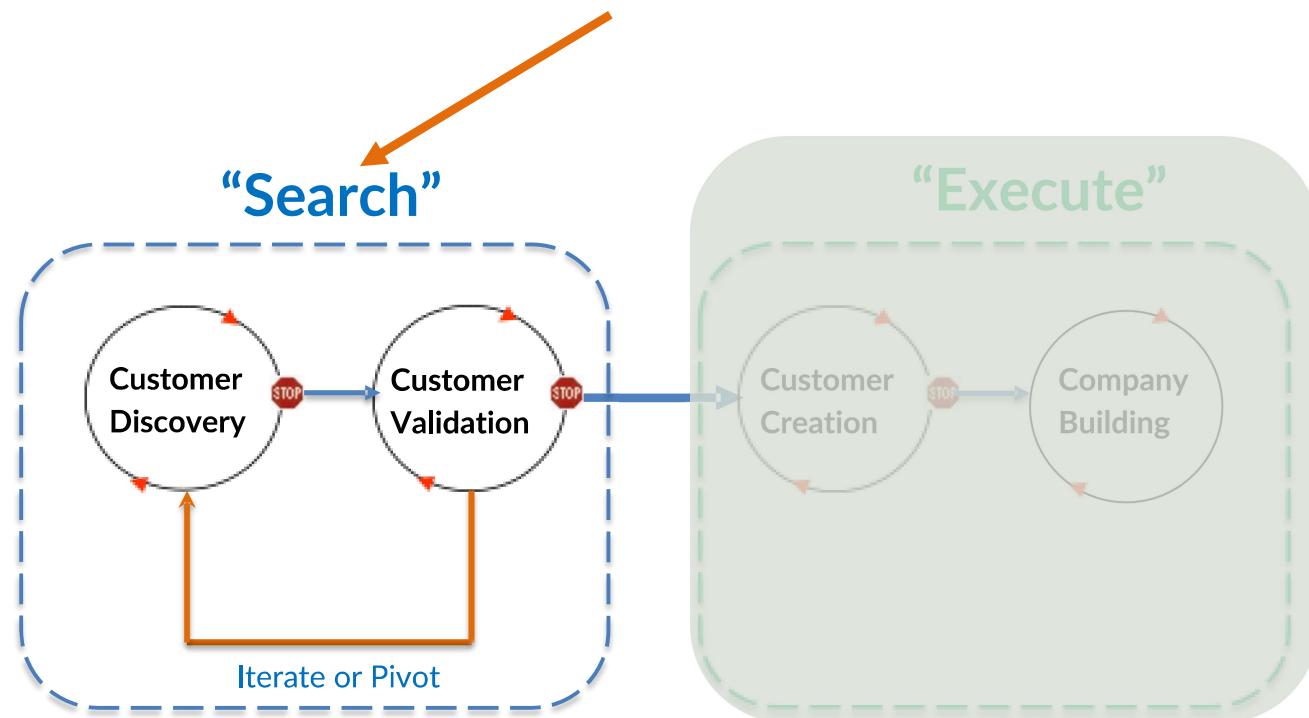


Essentials of Innovation & Entrepreneurship (EIE) II:

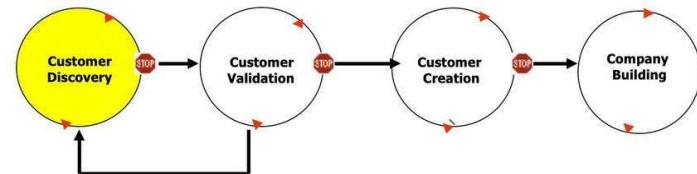
**Customer Development (CD) Model:
Testable & Measurable Hypotheses**



Focus Area for EIE2 & CIE-Ignite



Customer Discovery Overview



State
Hypotheses

Test the
Problem

Test the
Solution

Iterate, Pivot
or Proceed

Phase 1

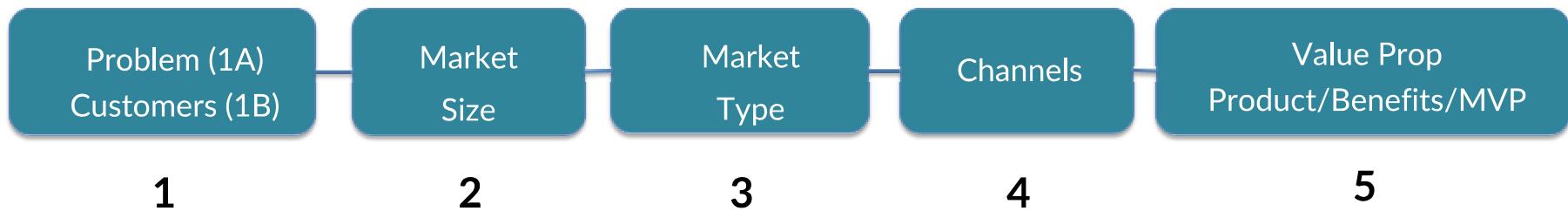
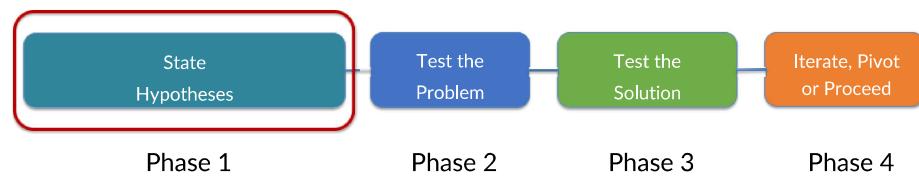
Phase 2

Phase 3

Phase 4

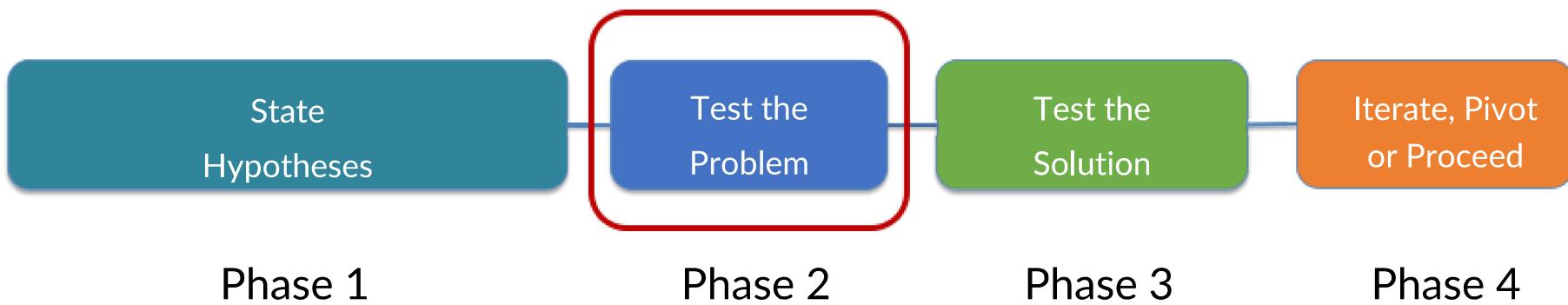
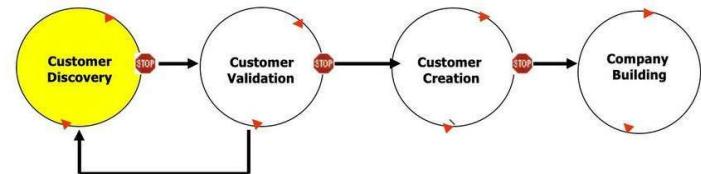
Customer Discovery Overview

Phase 1 : Hypothesis



**Capture your Hypothesis (Assumptions) on
a Business Model Canvas (BMC)**

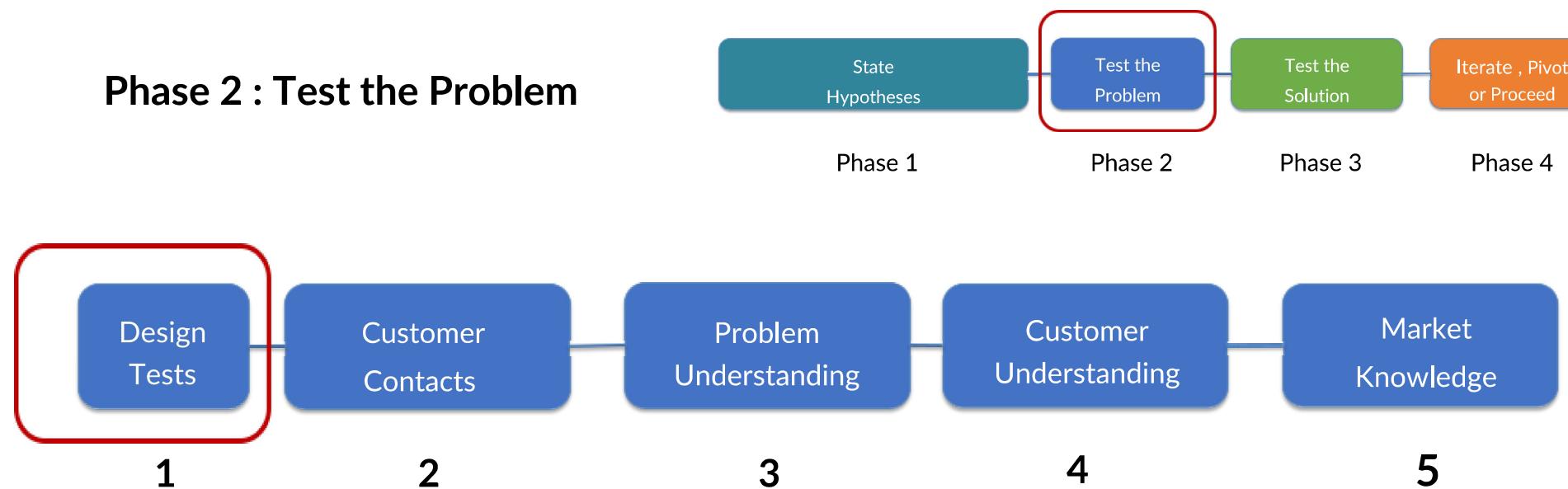
Customer Discovery Overview



Notice that **testing the Problem** comes before testing the **Solution**

Customer Discovery Overview

Phase 2 : Test the Problem



Revise your BMC based on Testing your 'Problem' Statement

How to Write a Good/Effective Hypothesis

Characteristics of a Good Hypothesis: “QRST”

Quantifiable

Minimal **Resources** (& time required to validate the hypothesis)

Specific

Testable (Pass or Fail)

Method: “XYZ Hypothesis” – A least X% of Y (target market) will do Z

- Example: 20% of luxury car market will buy at least 1 EV (electric) car
- Example: 20% of luxury car market will buy at least 1 EV (electric) car priced at Rs 50 Lakh or more
- Example: 20% of luxury car market will buy at least 1 EV (electric) car priced at Rs 50 Lakh or more in next 3 yrs

Note: More specific is better but sometimes you can start with a simple test and add details as you go along

Framing: What's our Hypothesis?

Template – What's our Hypothesis (*before* the test)

1	Hypothesis (H₀)	We believe that
2	Test(s)	To verify that
		<i>Critical:</i> Low Med High
3	Metric(s)	We will measure
		<i>Test Cost:</i> Low Med High <i>Data Reliability:</i> Low Med High
4	Criteria	We are right if
		<i>Time Required:</i> Low Med High

For sample template filled out, see:

[CIE-L2-Template -Hypotheses Capture and Testing](#)

Sample Template (Filled Out) for Capturing Hypotheses

**Template - Capturing Your Hypotheses (Assumptions)
for Running your Experiments / Tests**

(Hypotheses can anything: Problem, Solution, Value Proposition, Customers, Price, etc)

Example: UBER

One of Uber's PROBLEM hypothesis (say, P1) is that existing solutions (i.e. before Uber came to market, e.g. taxi, chauffeur-driven cars, rental cars, etc) for car-based transportation in metros/cities) had several 'pain' points (costly, time-inefficient, cumbersome, etc)
 (Note there may be more problems and can be captured as P2, P3, etc).
 Other hypotheses related to Solution (S1, S2, etc), Value Prop (VP1, VP2, etc), Customer segments (CS1, CS2, etc), Price (Pr1, Pr2, etc) should be done along similar lines.

1	Hypothesis (H_P1)	We (Uber Team) believe that <i>Existing road transportation solutions based on cars in metropolitan cities is costly and time-consuming</i> . <i>(marked High as this is the fundamental assumption on which Uber business is built)</i>	<i>Critical: Low Med High</i>
2	Test(s)	To verify that <i>T1. Cost is a barrier that prevents would-be customers from using existing solutions</i> <i>T2. Cost is a barrier that prevents customers from using existing solutions sparingly (i.e. they may take fewer rides)</i> <i>T3. Customers spend way more time getting taxi/rental-car/etc than they wish for intra-city transportation</i> <i>Test Cost: Low Med High Data Reliability: Low Med High</i> <i>(Note: I have arbitrarily selected High and Med above; actual value may vary)</i>	
3	Metric(s)	We will measure <i>M1. Average cost per KM spent by an existing customer and what % lower would be delightful to the customer</i> <i>M2. Cost per km that would allow new customers to take Uber</i> <i>M3. Time taken to find a taxi during morning / evening peak hrs</i> <i>Time Required: Low Med High</i>	
4	Criteria	We are right if <i>1. our solution (Uber) can be at least 50%** less than existing solutions, on cost per km basis</i> <i>2. we can sign up 10% more people than who use taxis today if we offer cost per KM which is 50% less than current solution</i> <i>3. Uber takes 80% less time than now to get a ride for customer</i>	

* Note: For sake of this example, we have combined 2 hypotheses (cost & Time). Do not combine, separate out hypotheses.

** These are just random numbers for this example (don't attach any particular significance to this)

Created by: CIE @ PES University (Jan 2021)

Testing: Hypothesis Validation & Insights

Template – Learnings/Insights after testing the hypothesis

1	Hypothesis	We believed that <i>Critical:</i> Low Med High
2	Observation	We observed that <i>Data Reliability</i> Low Med High
3	Learnings and Insights	From that we learned <i>Action Required:</i> Low Med High
4	Decisions and Actions	Therefore we will

Sample Template for Learnings from Testing Hypotheses

Template – Learnings from Testing Hypotheses

(what decisions you can make)

Template – Learnings After Testing Your Hypotheses (Assumptions)

Example: Uber

See Page 1 for the hypotheses we wanted to test:

Existing road transportation solutions based on cars in metropolitan cities is costly and time-consuming.

To test the above hypotheses, we (Uber team) went out and sought current users of taxi and potential/aspiring customers (not using taxi because it is costly &/or time-inefficient). After we ran the experiments (also called test), we can summarize the findings as below and reach some decisions/conclusions.

Note: It is not necessary that we have to prove the hypotheses to be correct! The experiment should be run in an unbiased manner. You can take appropriate decision based on results of the test/experiment.

1	Hypothesis (H_P1)	We believed that <i>Existing solutions inside metropolitan cities (for passenger vehicles) transportation is costly and time-consuming.</i> Critical: Low Med High
2	Observation	We observed that 1. Average cost per KM is Rs 25 for existing solutions (compared to our Rs 10/KM) 2. New users would use Uber if average cost per KM is Rs 12 3. Time taken to call/get a taxi during morning & evening peak hours was 25 minutes and 40 minutes respectively Data Reliability Low Med High
3	Learnings and Insights	From that we learned 1. Uber is cost competitive for existing users (Rs 10/KM vs. Rs 25/KM) 2. New users would very likely use Uber (willing to pay Rs 12/KM while our cost is Rs 10/KM) 3. That we can cut the time to find taxi by >60% Action Required: Low Med High
4	Decisions and Actions	Therefore 1. We will continue with the app-based taxi calling service Uber and target existing users of taxi 2. We will continue with app-based taxi calling service Uber and target new users of taxi 3. We have a compelling differentiation on time-saving for customer and use this as a key value-proposition

How do you Test your Hypotheses (Steps)

1. Capture your hypotheses (assumptions/opinions)
2. Design the Experiments to test assumptions/opinions
3. Test your hypotheses by conducting your key hypotheses
 - Run the Experiments (“Get out of the Building”, Customer interviews, not surveys)
 - Gather Data/Results from the Experiments (hypothesis is validated or invalidated)
 - What insights did you gather? How does this affect your problem/ solution/ BMC/ etc?

Tip: For your experiments, recommend having some artifact (Prototype/Prototype/MVP)

Artifact can be: Paper, Digital, Native (in order of ascending fidelity: low -> high)

Tips/Tricks – Some useful Practical Tips in Validating Your Hypothesis

- Find 'real' customer(s)
 - 'Real': who you (potentially) plan to sell your solution
- While your hypothesis may target global/country/city, test it 'near' you
 - "think global, test local" first (you can always expand this out later)
- How to test your hypothesis?
 - Verbal is good but "**pretotype**" is better! (people pay attention if you show something)
 - Pretotype is none of the following: *expensive, takes time to build, complex!*
- Develop customer interviewing skills (see CD Toolkit)
 - See "Tips and Tricks", videos and other resources listed in subsequent slides

Tips/Tricks: Before 'Getting Out of the Building'

- Insights are not 'inside the building', therefore, 'Get Out of the Building'
- What are Insights?
 - Honest, data driven, careful analysis of validation of your hypotheses
- Prepare for 'Get-out-of-the-Building' (GOOB)
 - See: Tips/Tricks: Before Leaving the Building slide
- Test your hypotheses with actual Customers
 - As a team, plan on 'Who / What / When' for 'Get Out of the Building'
 - Meet at least 35 customers (per team per week, ~5 per team member)

Video

Reasons Not to Be an Entrepreneur ([link](#))

(Stanford eCorner, 2:35m)



Resources



Subsequent slides list **resources** (videos/articles/etc) related to

Customer Discovery / Development

Tips/Tricks: Before 'Getting Out of the Building'

Before Leaving the Building: Helpful videos (by Steve Blank):

(<https://venturewell.org/i-corps/lipvideos/customer-discovery/before-leaving-the-building/>)

- Discovery is for Founders (1:30) CD
- Pre-Planning Contacts (4:34) CD
- Customer Interview Dry Runs (0:49) CD
- Pass/Fail Experiments (1:32) CD
- [Customer Dev: Insight not just Data!](#) (2:12, Kauffman Foundation)

Tips/Tricks: Before 'Getting Out of the Building'

- **12 Tips for Early Customer Development Interviews** (Giff Constable): [Link](#)
- **Interviews vs. Experiments** (Giff Constable): [Link](#)

"Interviews give you the greatest insights. Experiments give you the greatest proof"

- Results of hypothesis validation fall into 4 buckets:
see Progress Board template: [Invalidated](#), [Validated](#), [WIP*](#), [Unclear results](#)

*WIP - Work in progress

Tips/Tricks: 12 Tips for Early Customer Development Interviews

1. Know your goals & questions ahead of time
2. One person at a time (not a group)
3. Be open to hearing things you DON'T want to hear
4. Disarm "Politeness Training" (tell the person to be brutally honest)
5. Ask open ended questions
6. Listen, don't talk
7. Drill down on details – "5 Whys" method?
8. Separate behavior and feedback in a discussion
9. Focus on actual behavior
10. Recap what you heard and/or misrepresent to confirm!
11. Ask for introductions – Get leads to talk to another 1-3 people!
12. Write up your notes as quickly as possible

Resources - More Videos on Customer Development

1. *Engaging the Customer (CD05-06) **Right & Wrong way!**
2. Assuming you know (CD09-10) **Right and Wrong way!**
3. Customers Lie (CD11) **Example!**
4. * Extracting Insight from Data (CD12)
5. Attention to Outliers (CD13) **Right and Wrong way!**
6. The User, Buyer & Saboteur (CD14-15)
7. Pre-Planning Pt1 Pt2 Pt3 (CD30, 31, 32)
8. Interviews Pt1, Pt2 (CD33-34) **Right and Wrong way!**
9. * Conducting a Customer Interview (CD46)
10. Letting the Customer interview flow (CD47)
11. Looking for Insights (CD50)
12. * The Distracted Customer (CD2021) **Right/Wrong way!**
13. * Customer Empathy (CD23-24) **Right/Wrong way!**
14. * Asking the Right Question (CD25-26) **Right/Wrong way!**
15. Finding Patterns (CD49)
16. * Communicating your discoveries (CD52)

Resources

Subsequent slides list **step-by-step** overview and
tip-and-tricks
for each Phase of **Customer Discovery**

Customer Discovery Overview - Hypothesis

State your Hypothesis (for your startup opportunity)

- **Problem (why?)**
- Faced by target **Customers, Customer Segments (whom?)**
- Your **Solution? Value proposition** you will offer (**what?**)
- Your assumptions on Market (size, type), Team, etc
- Based on above, create BMC (BMC#1) or LC (Lean Canvas #1)

State Hypotheses
Create Business Model
Canvas

Phase 1

Customer Discovery Overview - Tips & Tricks

What If this gets Overwhelming?

- Prioritize, Prioritize, Prioritize!
 - Customer Jobs
 - Customer Pains, Customer Gains
 - Customer segments
 - Solution (Features/ Benefits you offer)
 - Market (type, size, channel)
- Prioritize Speed over Accuracy
- Divide & Conquer (team/ delegation)

State Hypotheses
Create Business Model
Canvas

Phase 1

Customer Discovery Overview - Test the Problem

Test the Problem

- **Design** the **tests** (to validate the problem hypothesis)
- Run the tests' –use data / insights to (in)validate hypothesis
 - **Interview** potential **customers**
- Update the BMC (BMC#2)

Test the Problem

Phase 2

Customer Discovery Overview - Tips & Tricks

What If this gets Overwhelming?

- Customer Contact / Interview
 - Go through the tips/tricks, videos to prepare
 - Have a goal for the discussion
 - Be relaxed, let the 'customer' do most of the talking
- Preparing hypotheses

- **Is it testable?**

(pass/fail –this tells if you are on the right path or not)

- **Is it measurable?**

(if the right path, what would be meaningful?)

Test the Problem

Phase 2

Customer Discovery Overview - Test the Solution

Problem - Solution fit ?

Test the Solution

Test the Solution

Phase 3

- Create **solution** representative (proto/prototype, etc)
- Test this with target **customers**
- Update your solution hypothesis (& prototypes, etc)
- Update the BMC (BMC#3)

Customer Discovery Overview - Tips & Tricks

What If this gets Overwhelming?

- Test the **most fundamental** assumption/hypothesis
- Build a **prototype** (not even a prototype)
- Even a simple prototype is better than no prototype!
- Don't be afraid to show your prototype to Customer
most people will see that you are really committed!

Test the Solution

Phase 3

Customer Discovery Overview – Pivot or Proceed?

Pivot or Proceed?

Pivot or proceed

Phase 4

- Having a better understanding of the opportunity,
would you continue with this idea?
- If so, why? What will be your next steps?
What help do you need?
- If not, why? What will be your next steps?

Customer Discovery Overview - Tips & Tricks

What if it gets Overwhelming ?

Pivot or proceed

Phase 4

- Do you have enough insights? (Phase I, 2, 3)
- Everyone in the team engaged during Ph 1, 2, 3?
- All the team members aligned on startup goals?
- Can you make the tough decision on changes to keep going?
- (if needed, identify any help needed)

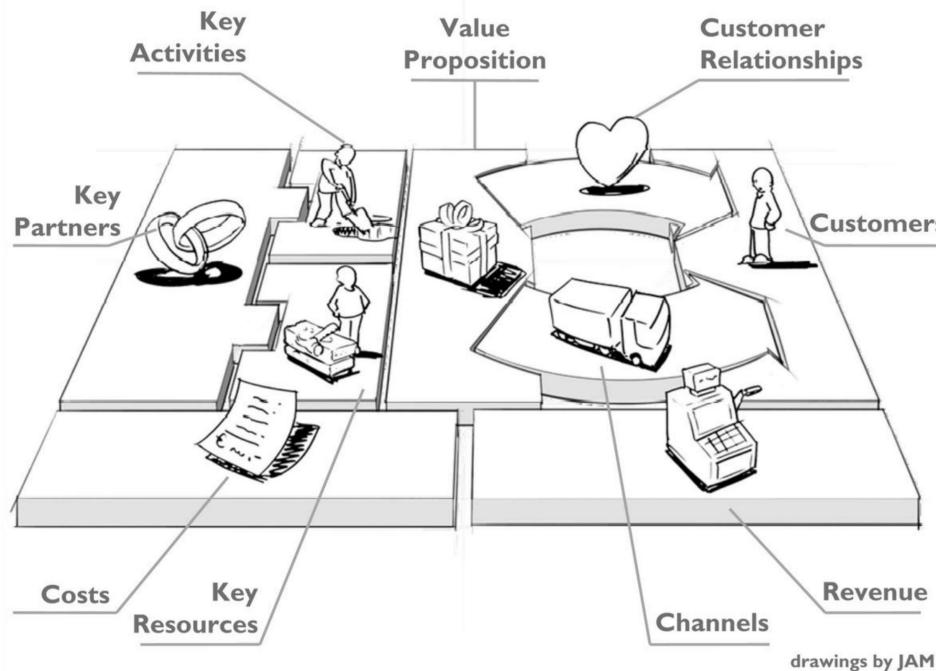
Capturing your Hypotheses in a BMC

Create an initial BMC (don't worry about all the details or accuracy)

- For your team opportunity, capture your hypotheses (see template)
 - Customer (customer segments, channel, relationship, etc)
 - Value Proposition (proposed benefits to customer from your solution)
 - Market Size
 - Price and Cost

Business Model Canvas (BMC)

Create / Update the BMC for this opportunity



Summary

- **“QRST” Hypothesis:** Quantifiable, Resource-efficient, Specific, Testable.
- **Structured Method:** Define hypothesis clearly.
- **Experiments Design:** Test assumptions smartly.
- **Real Customer Interaction:** Seek 'real' feedback.
- **Data-Driven Insights:** Gather results, analyze.
- **Decisive Steps:** Pivot or proceed with clarity.

Summary

- **Outside Perspective:** Facts lie beyond your walls.
- **Problem-Solution Testing:** Hypotheses validation.
- **Product-Market Alignment:** Early adopter validation.
- **Sales as Proof:** Create after validating sales.
- **Transition Wisely:** Evolve from startup to company.
- **Adaptive Growth:** Embrace chaos for innovation.

'9 Deadly Startup Sins' by Steve Blank - [Link](#)

- Assuming "I know what the customer wants"
- The "I know what features to build" flaw
- Focus on launch date
- Emphasis on execution instead of hypotheses, testing, learning and iteration
- Traditional business plans presume no trial and no errors
- Confusing traditional job titles with what a startup needs to accomplish
- Sales and Marketing execute to a plan
- Presumption of success leads to premature scaling
- Management by Crisis leads to "Death Spiral"

Each Team to pick
1 topic &
Summary in 3 mins

(Team 10: In your
opinion, which is the most
deadliest sin? Why?)