

Thinking like an Entrepreneur: Designing your Educational Projects for Impact





Rocío Chavela



Russell Korte



Karl Smith



Agenda

Introduction of session and facilitators	1 min
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Brief introduction to Smart Start: Designing Impact-driven Projects	10 min
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The Lean Start-Up process	30 min
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Customer Segments (CS) and Value Propositions (VP) Exercise	30 min
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Session Wrap-up	4 min
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Survey - <https://www.surveymonkey.com/r/IMPACTeec>

Why are we here?

The late Jeff Timmons, from Babson College, (quoted in Neck et al. 2014, p. 1), said that entrepreneurship is

“not just about new company, capital and job formation, nor innovation, nor creativity, nor breakthroughs. It is also about fostering an **ingenious human spirit and improving human kind.**”

Current Initiatives

Awareness Sessions	Smart Start	National Cohort
1-3 hours	2 weeks	7 weeks
Face-to-Face Online	Online Hybrid	Hybrid
<ul style="list-style-type: none"> • Introduction to core features of the Lean Startup Process • Focus on the importance of sustainable scalability at the early stages of concept development 	<ul style="list-style-type: none"> • Opportunity to develop 'proof-of-concept' evidence towards sustaining and scaling • Focus on Value Proposition + Customer Segment 'fit' 	<ul style="list-style-type: none"> • Opportunity to determine innovation readiness for sustainable scalability • Immersion in the Lean Startup Process
League for Innovation Learning Summit – June 2017 Frontiers in Education (FIE) October 2017, Indianapolis, IN	<ul style="list-style-type: none"> • Course I: Online February 17 – March 5, 2018 • Course II: Blended March 17 – April 2, 2018 	?? (traditionally Jul-Aug)

Smart Start: Designing Impact-driven Projects



I-Corps™ L Opening Workshop - Classroom Picture. Cohort: 2016 Washington, DC Metro Area

About the Course

ASEE's Smart Start is a two-week course for researchers and innovators who are passionate about taking their STEM education vision to the next level –but don't quite know how to get there. This course will give you a convenient, low-barrier introduction to making your research available to the public. When you accept the challenge, you will:

- Connect with leading experts in the fields of education and innovation, as well as like-minded peers.
- Learn how to develop an effective proof-of-concept, saving time and resources.
- Awaken your inner entrepreneur.
- Learn more about innovation programs like NSF I-Corps™ and I-Corps™ for Learning (I-Corps™ L) and how to get involved.

Dates

COURSE I: Online (February 17 – March 5, 2018)

- Application Period: October 25 – November 23, 2017
- Acceptance Notification: December 8, 2017
- Kick-off Workshop (Online): February 17, 2018, 9 AM – 5 PM ET
- Office Hours (Online): Two one-hour sessions (arranged with instructors)
- Closing Workshop (Online): March 5, 2018, 1 PM – 4 PM ET

COURSE II: Banded (March 17 – April 2, 2018)

- Application Period: November 22 – December 27, 2017
- Acceptance Notification: January 10, 2018
- Kick-off Workshop (National Harbor, MD): March 17, 2018, 9 AM – 5 PM ET
- Office Hours (Online): Two one-hour sessions (arranged with instructors)
- Closing Workshop (Online): April 2, 2018, 1 PM – 4 PM ET

I-Corps™ for Learning History


June
2013


June
2014


June
2015

June
2016

 Pilot: Jan-Feb 2014

 Cohort 1: Jan-Feb 2015

 Cohort 2: Jul-Aug 2015

 Cohort 3: Jul-Aug 2016

3 Cohorts + Pilot

73 Teams

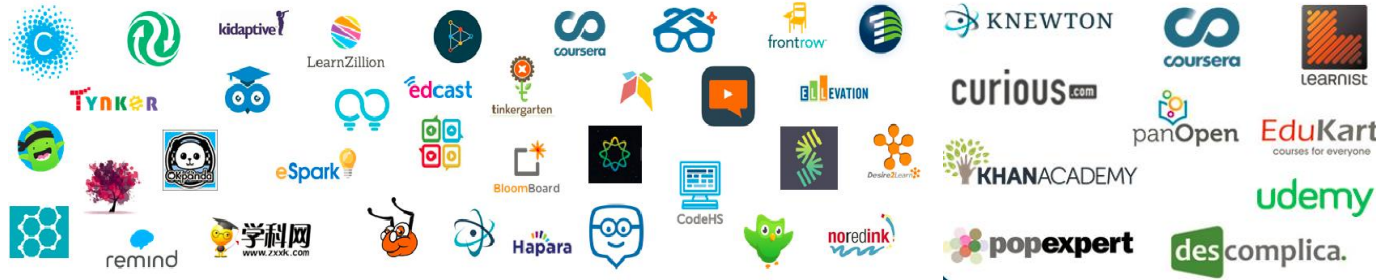
234 Participants

18 Instructors

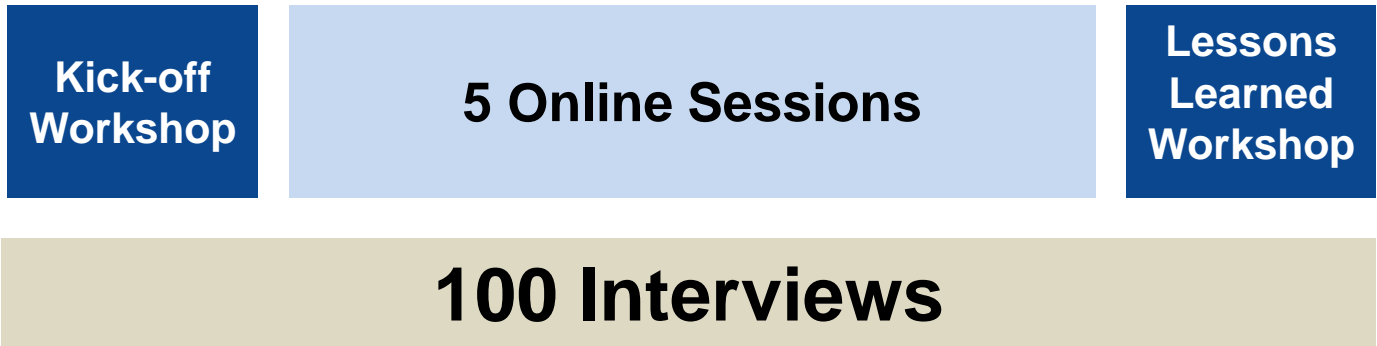
3 Evaluation Partners

7-week Program

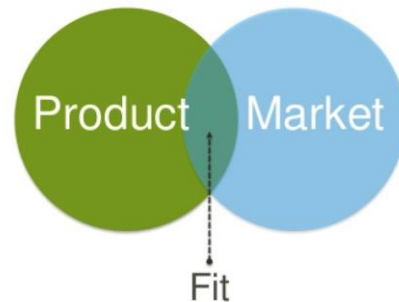
**Educational
Innovation**



**Customer
Discovery**



**Readiness for
Sustaining
& Scaling?**



Lean Startup Method

Who's familiar with the Lean Startup Method?

Two Parts to Innovation*

(including Educational)

1. Advancing the science/technology
[research]
 2. Finding a repeatable business model
- **Current efforts focus on #1**
 - **Successful efforts require both**

*Innovation - **the adoption of a new practice in a community.**
Denning and Dunham (2010) *The Innovators Way*. MIT Press

Lean Start-up Method

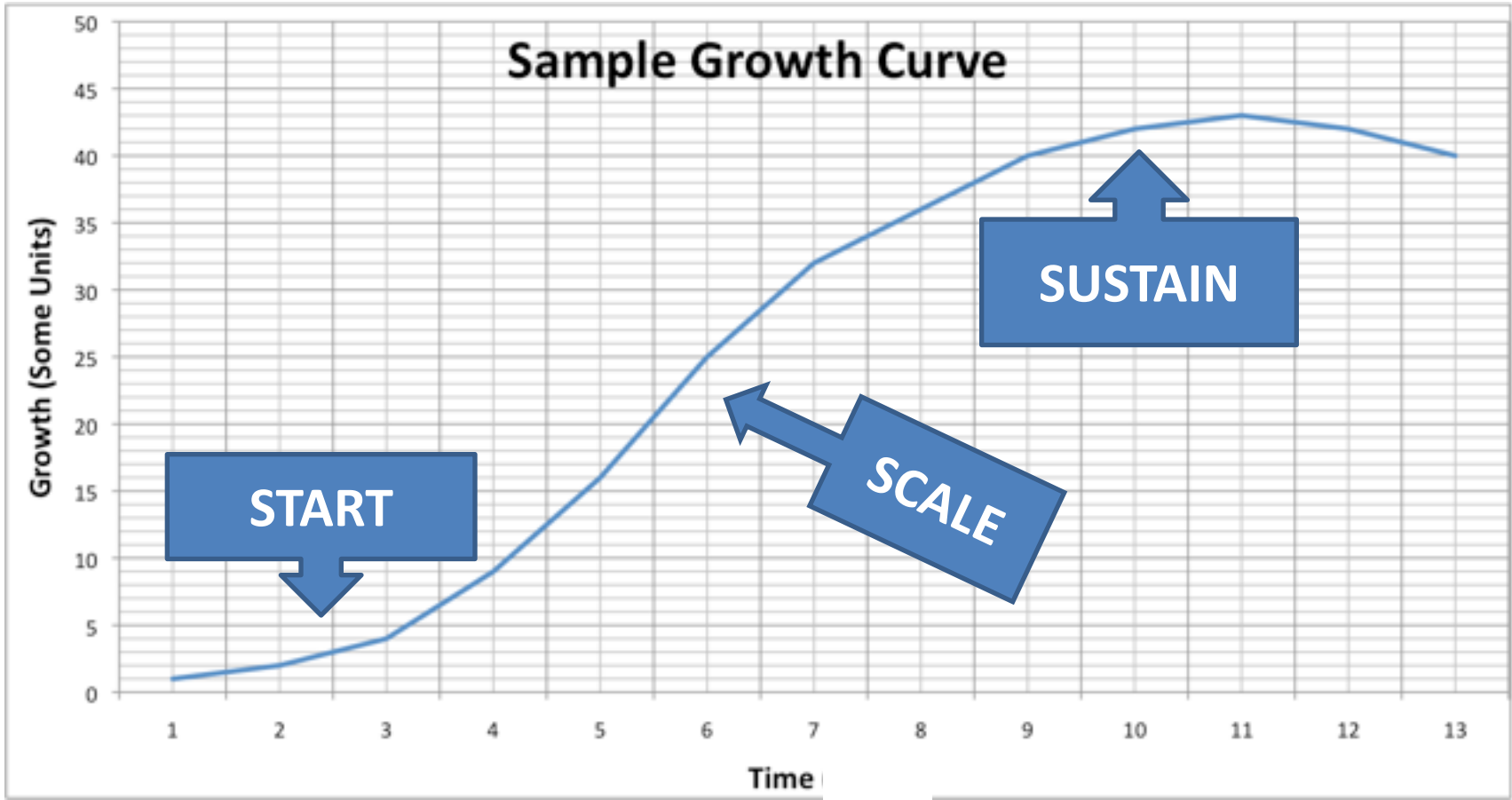
Lean Start-up isn't just about starting a company ...

It's really about how to maximize the number of people you help and impact

Business Modeling & Mission Modeling

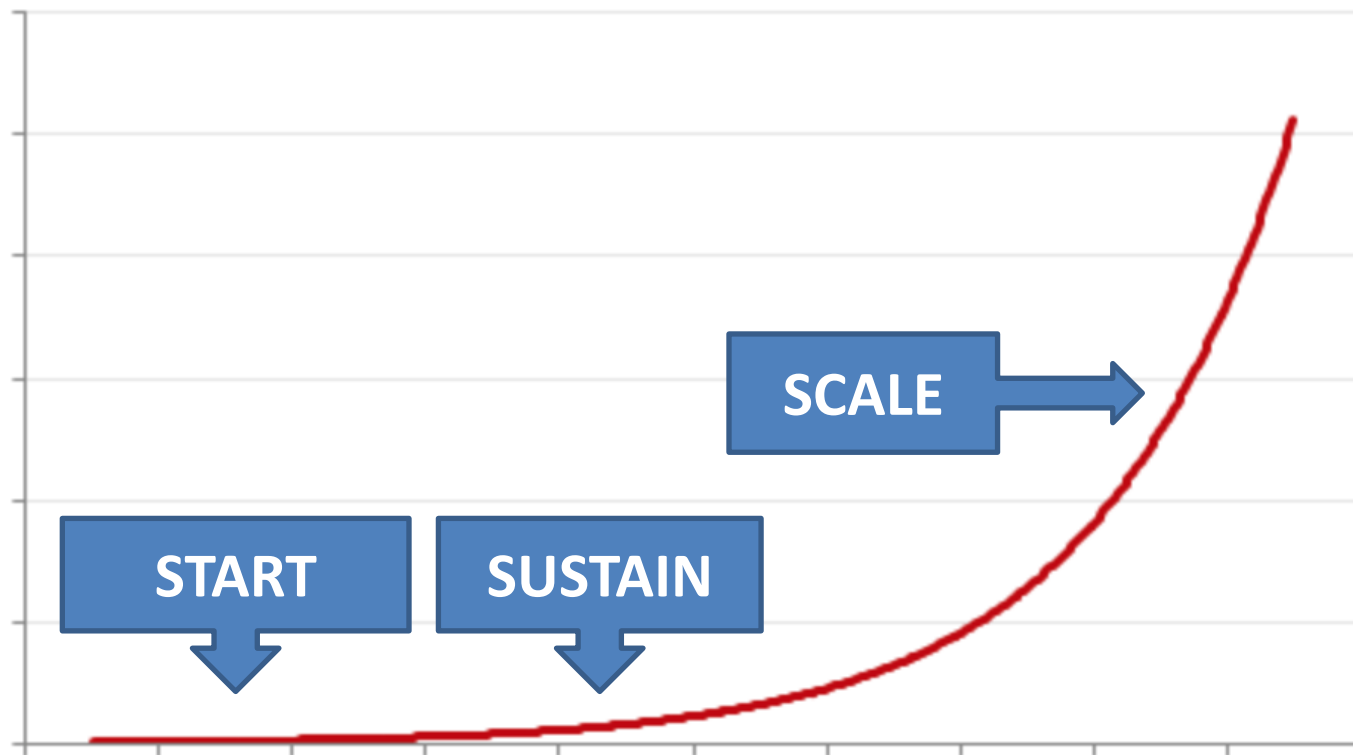
Lean Start-up Method

Lean Start-up isn't just about starting a company ...



Lean Start-up Method

Lean Start-up isn't just about starting a company ...



Examples

KHAN ACADEMY: our mission is to provide a free world-class education for anyone, anywhere.

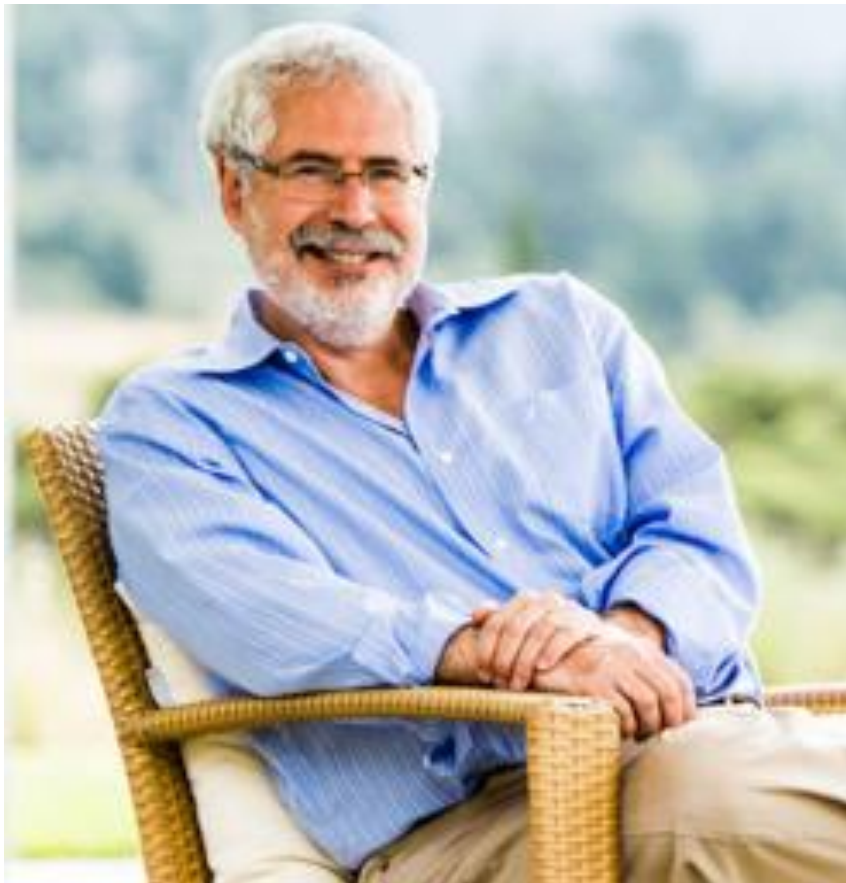
CAN'T WAIT TO LEARN: Children in areas of conflict, without access to schools or teachers, learn by playing serious educational games on tablet computers.

ELeVATE: a three-phased program designed to re-integrate veterans to college.

U-FUTuRES 2.0: professional development of middle school science teachers to be effective Science Teacher Leaders.

Lean Startup

Three Steps to Taking an Idea to a Business



Steve Blank, Lean LaunchPad® Developer

A screenshot of the Steve Blank website. The top navigation bar includes links for Home, About Steve, Startup Books, Guide, Slides/Videos, Secret History, and Startup Tools. Below the navigation is a banner image of a landscape with the name "STEVE BLANK" overlaid. The main content area features an article titled "Getting to 'Yes' for Corporate Innovation" posted on March 17, 2015. The article text discusses working with Roberto, Chief Innovation Officer of Sprocket Industries, and the challenges of corporate innovation. The sidebar on the left includes an "Email Subscription" form, a video player for "Entrepreneurship is a Calling", and a "Categories" section with links to "2 Minute Lessons", "Air Force", "Adept", "Big Companies versus Startups", and "Durant versus Sloan". The sidebar on the right includes contact information, social media links for Twitter and LinkedIn, and two book covers: "The Startup Owner's Manual" and "Harvard Business Review Why the Lean Start-Up Changes Everything".

www.steveblank.com

1. Frame Hypotheses

- Frame Hypotheses → **Business Model Canvas**

BUSINESS MODEL CANVAS

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
	Key Resources		Channels	
Cost Structure			Revenue Streams	

1. Frame Hypotheses

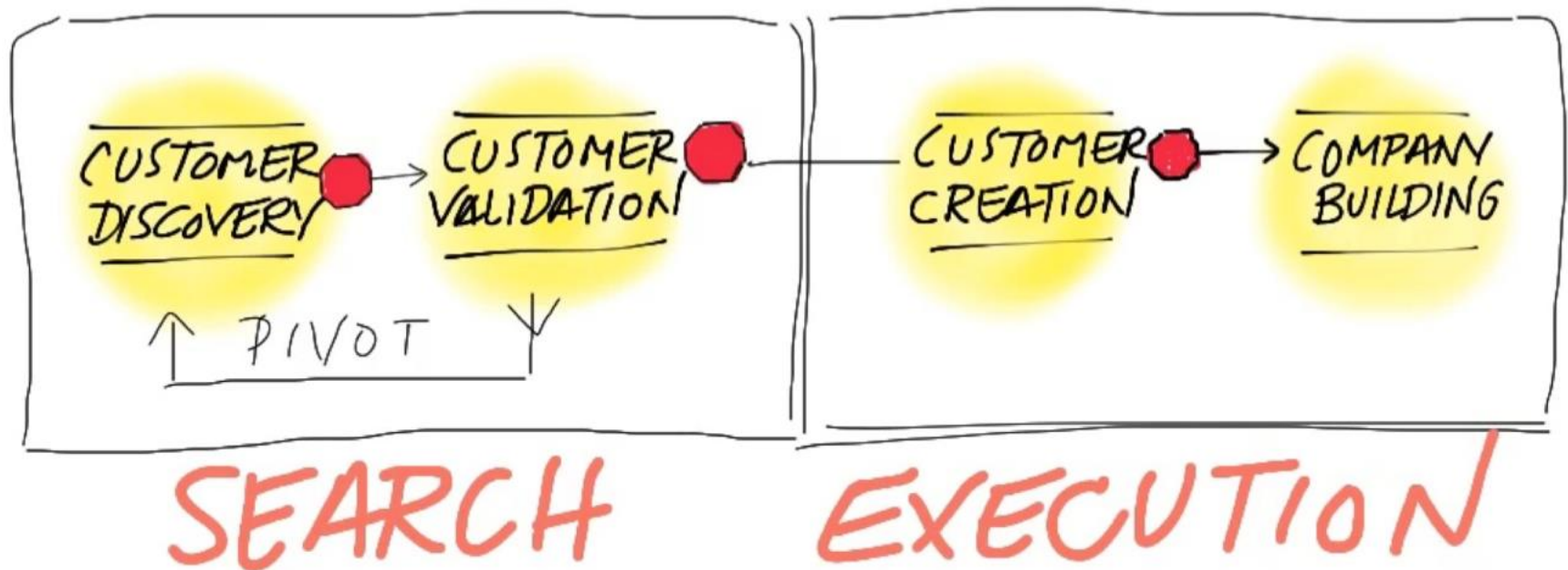
Mission Model Canvas

Mission (or "problem") Description goes here

<p>Key Partners</p> <p>Which of these activities can your company outsource to others?</p>	<p>Key Activities</p> <p>What are the <i>unique</i> activities your company needs to deliver the value proposition?</p>	<p>Value Proposition</p> <p>For each <i>beneficiary</i> what is <i>their</i> value proposition?</p> <p>What problem pain/gain does this solve for them?</p>	<p>Buy-in & Support</p> <p>For each <i>beneficiary</i> how does the team get "Buy-In"</p>	<p>Beneficiaries/ Stakeholders</p> <ul style="list-style-type: none"> • By title/function who are the individuals we are creating value for? • What is their archetype
<p>Key Resources</p> <p>Which of these activities does your company need to own?</p>		<p>Deployment</p> <ul style="list-style-type: none"> • What will it take to deploy the MVP to widespread use? • " • What constitutes a successful deployment? 		
<p>Mission Budget (or cost)</p> <p>What are the costs to deliver the value proposition?</p>			<p>Mission Achievement/Success (or "fulfillment" or "impact") Factors</p> <p>For each <i>beneficiary</i> how does the team know they succeeded?</p>	

2. Test Hypotheses

- Frame Hypotheses → Business Model
- Test Hypotheses → Customer Development
Beneficiaries/Stakeholders



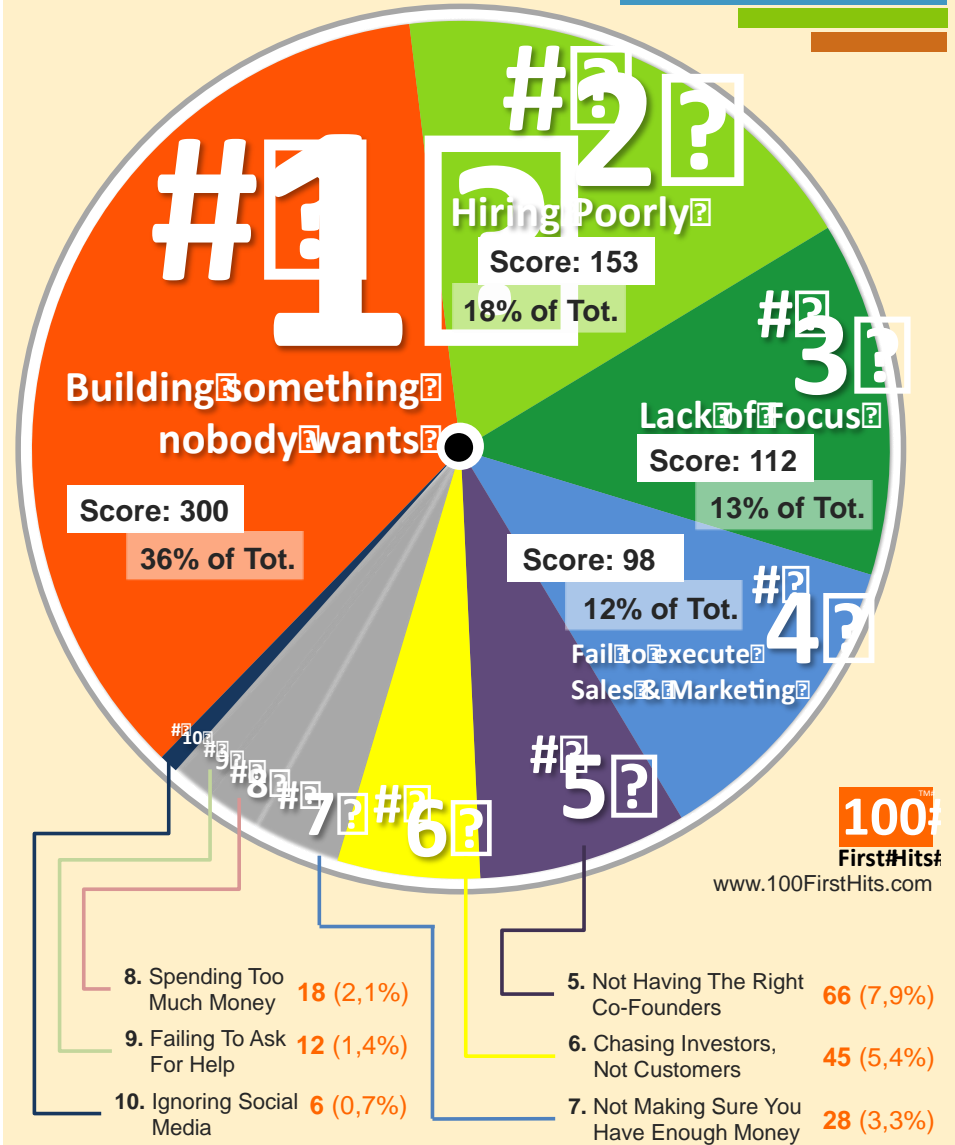
3. Build Incrementally & Iteratively

- Frame Hypotheses → Business Model
- Test Hypotheses → Customer Development
- Build the product/service Iteratively & Incrementally → **Agile Engineering**
- Achieve the mission

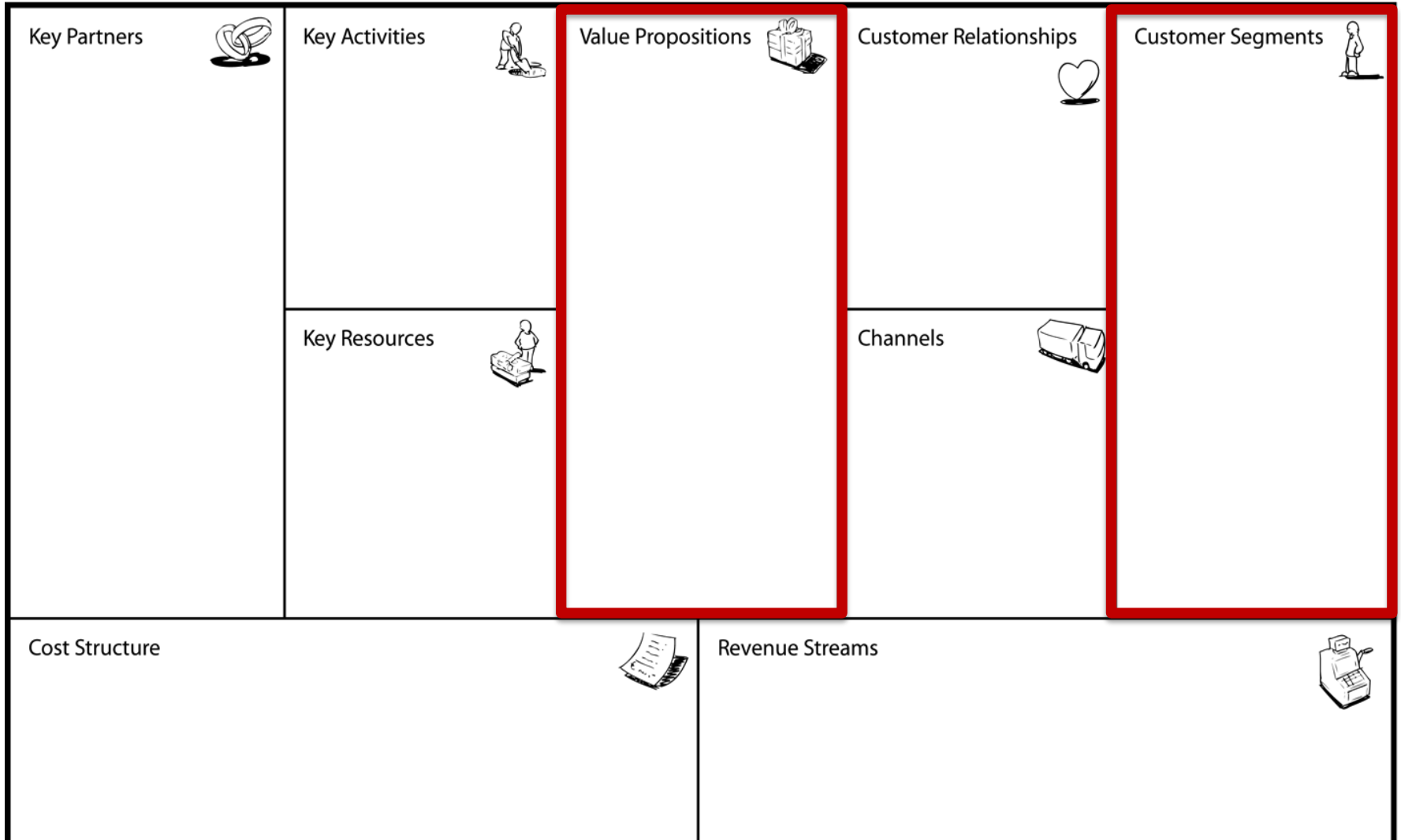
Mistake #1

Building
Something
Nobody
Wants!

TOP 10 ? STARTUP MISTAKES

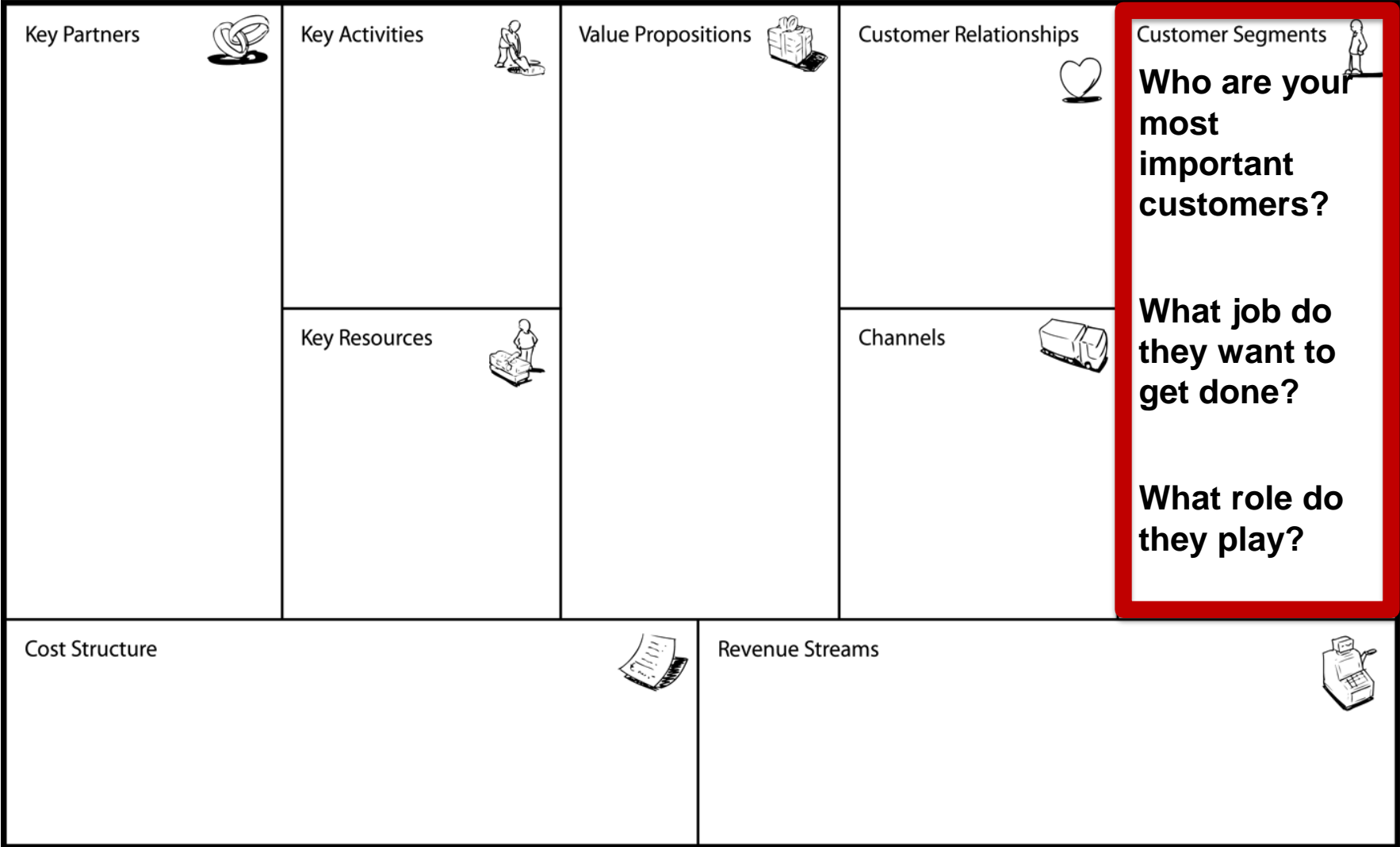


That's why we start with *these*



Customer Segments, Beneficiaries, Stakeholders

(Does Anyone Care?)



CS Roles

Beneficiary	An individual or group benefitting from an innovation
End User	The day-to-day users of a product or service Possibly have the least influence
Decision Maker	Those having the ultimate/final purchasing authority
Payer	Those that control the purchase of products or services
Influencer – Recommender – Skeptic –	Informants, opinion leaders with persuasive power An individual or group with powerful influence to buy Their influence can slow or stop the purchase

Big Idea: Multiple CS Roles

- *The **Payer/Decision Maker** may be different from the **End User/Beneficiary***
- *Each **Role in a CS** has its own specific **VP***

General Electric

DOUG DIETZ



PRINCIPAL DESIGNER, GE HEALTHCARE



Procedural Theater UPMC 'Jungle Adventure' Pilot Install



Before



After



Interactive Jungle theme

Log ride (table)

Waterfall- Koi fish pond floor

3D Jungle walls

LED light effects, Aroma diffuser, sounds



CS Roles & Unique VPs:

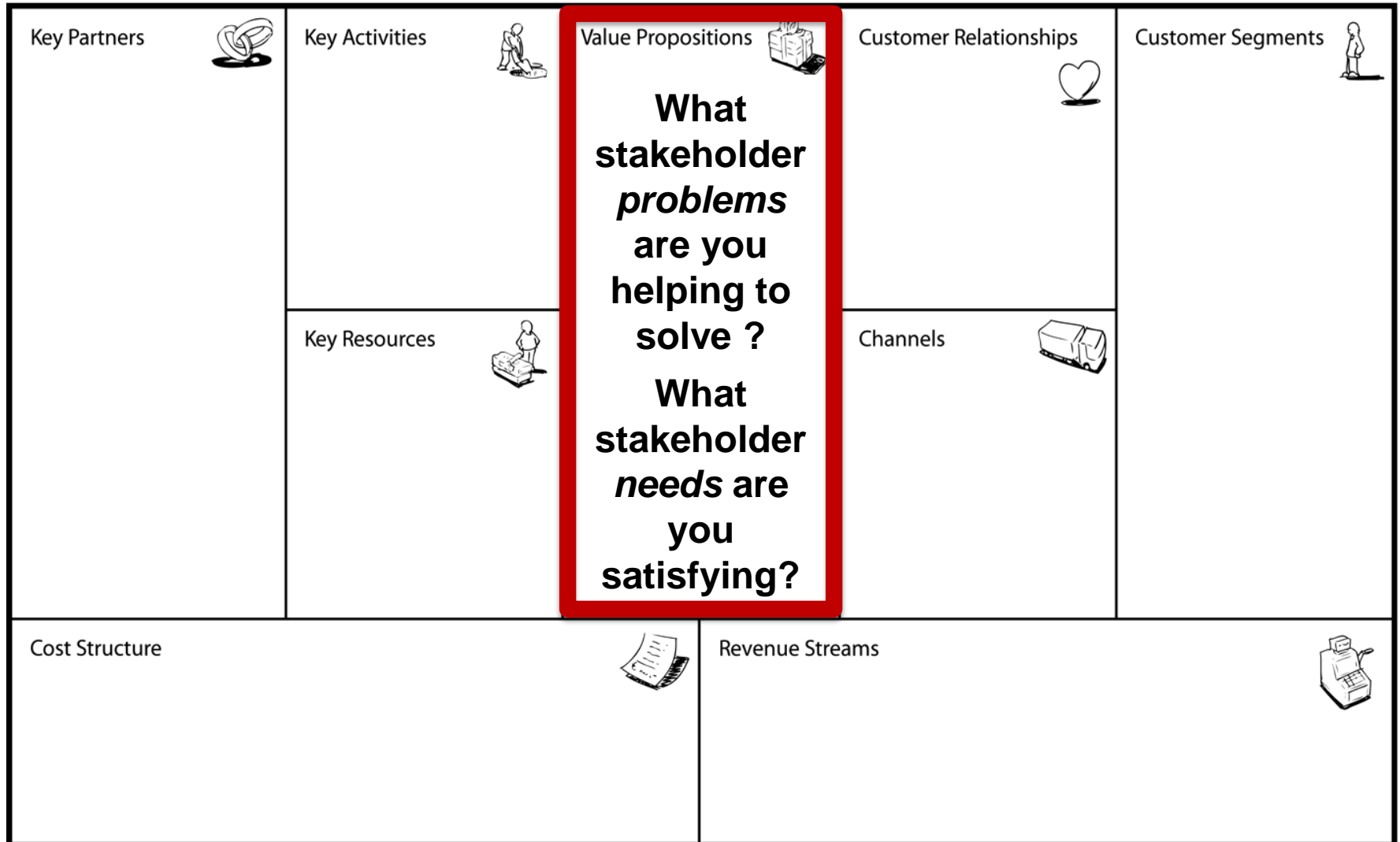
MRI Adventure

- *Beneficiary – Kids/Parents, 😊 😊 😊*
- *End User – Nurse, happy patients*
- *Decision Maker – Hospital CEO, decrease 2-week Wait Time*
- *Payer – Hospital CFO, decrease MRI payback time & increase profits*
- *Any Influencers (Recommenders, Skeptics) – Technician, likes idle time between patients*

Customer Segment	Value Proposition	100% Solution
Kids/Parents (Beneficiary)	Better Imaging	No
Kids/Parents (Beneficiary)	Imaging w/ No Tears	Yes
Hospital CEO (Decision Maker/Payer)	Imaging w/ No Tears	No
Hospital CEO (Decision Maker/Payer)	Decrease MRI payback time & increase profits	Yes

Value Propositions

(Why Does Anyone Care?)



The Value Proposition

A **value proposition** is a promise of value to be delivered. It is a clear statement that:

- explains how your innovation solves customers' problems or improves their situation (**relevant**),
- delivers specific benefits (**descriptive, measurable**),
- tells the user or buyer why they should use it or buy from you and not from the competition (**unique**).

<http://conversionxl.com/value-proposition-examples-how-to-create/#>.

Features vs. Value Propositions

Features

Weak Value Propositions

Strong Value Propositions

Fun &
Engaging

Faster,
Cheaper,
Better

Relevant, Significant &
Testable Product
Benefits

Field-specific skill
building

Getting students
involved in a Service
Learning project

Increase number of
females and minorities
in Manufacturing Tech
program

Customer Segments

Not Customer Segments

Buildings,
Organizations

Colleges

Vague Customer Segments

Broad Groups of
People

Faculty

Clear Customer Segments

Very Specific Job Titles,
Very Specific
Archetypes/Personas

Newly Hired, STEM
Faculty

Customer Segments (CS) and Value Propositions (VP) Alignment

What makes for a compelling value proposition?

- What problem are you solving/need are you serving?
- How?
- For whom?

Group Exercise

Analyzing Google's Value Propositions & Customer Segments

Group Exercise

When Google started,
what were their

Value Propositions

& who were the

Customer Segments in

Google's search business
model?

CS Roles & Unique VPs: The Google Project Matrix

Customer Segment Roles	Specific Customer Segments	Value Proposition
Beneficiary		
End User		
Decision Maker		
Payer		
Influencer Recommender Skeptic		

CS Roles

Beneficiary	An individual or group benefitting from an innovation
End User	The day-to-day users of a product or service Possibly have the least influence
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Value Proposition-Customer Segment Ad Lib

CS



Customer Segment: Which people? Be specific!

would “pay” to

Value Proposition: Solve this problem

VP



in a way that

Verb (reduces, increases, etc.)

a specific Customer Pain or Gain

(unlike _____)

Extra Credit: How is it different from the competition?

Group Exercise

CS Roles & Unique VPs: *Google*

- **CS**: *PC user looking for info that was harder to find elsewhere*
 - *health symptoms/treatments, sports scores, stock prices, retail/shopping*
- **VP**: *Find exactly what you want in first few listings on page 1!*

Group Exercise

CS Roles & Unique VPs:

Google

- **CS**: *Smart online advertisers without big budgets*
- **VP**: *Way more people clicking on links to their websites*

Big Idea

Roles within Customer Segments

- ***The Payer/Decision Maker may be different than the End User/Beneficiary***
- ***Each Role in a CS has its own specific VP***

The Ultimate Test

You should feel 100% confident that your stated **CS** would drop everything and immediately buy/approve/switch to your stated **VP** without having to ask you any questions

Did Google Offer A 100% Solution?

End User, Decision Maker, Payer

CS Roles & Unique VPs:

CS & Role

?

Your Project Matrix

VP

?

UNDERSTANDING TANF through data visualization!

	CUSTOMER SEGMENT	VALUE PROP.
Beneficiary	Low income Families	Not receiving services/benefits
End Users	Legislators (S+T) Researchers	Easy access to information... to inform BOSS to improve programs
Decision Makers	Legislative Staff state/fed admin	to inform/influence policy-makers for research
Payers	Advocacy/member orgs OFA director Assistant Secretary ACF	to inform policy Improve TANF for families Better customer service
	OFA Director Assist. Secretary ACF	Save staff time + money Ditto

BUSINESS MODEL CANVAS

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
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MISSION MODEL CANVAS

Cost Structure	Key Partners	Key Activities	Value Propositions	Buy-in & Support	Beneficiaries Stakeholders
	Key Resources	Deployment			
Mission Budget Cost Structure			Mission Achievement Success Factors (Impact, Fulfillment)		

Next Steps

- **Reflect on engineering education innovations**
- **Continue the conversation during the EEC grantees meeting and beyond**
 - EER&I Networks – CLEERhub, REEN, SEFI, National Innovation Network (NIN), NSEC
 - Meet again at the ASEE Conference, June, 2018
- **Please complete a survey -**

<https://www.surveymonkey.com/r/IMPACTeec>

Acknowledgments



We acknowledge the **National Science Foundation (NSF)** for funding through awards DUE-1355431, DUE-1451245, DUE-1355391, and DUE-1450644).

Thank you!

An e-copy of this presentation will be posted to:

www.asee.org/i-corps-I And

<http://personal.cege.umn.edu/~smith/links.html>

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