

Welcome to the NSF/S&T I-Corps Workshop for Brewer Science

AUGUST 8, 2017



Schedule

- *9:00 - 9:15 am* Introduction to Workshop
- *9:15 - 10:00 am* BMC and VPC Overview
- *10:00 - 10:30 am* Customer Discovery
- *10:30 – 11:15 am* Example Activity: Customer Profile and Value Map
- *11:15 am – Noon* VPC Activities

- **Take care of your own needs-water, bio break, etc.**



Welcome



Bonnie Bachman



Experience (20+ yrs in Corporate)

- Member of Tech Staff Bell Labs (10 years)
- Director of Emerging Technology, Motorola (6 years)
- Sr. Dir Mech Technology & Strategic Planning, Flextronics (2 yrs)
- Missouri S&T (Economics) (10 yrs)

Techie (Patents)

Mentor for NSF I-Corps National Teams (6 times); Director for NSF/S&T I-Corps Program

Startup (STTR Phase 1 2016-2017)

Teaching: Eship, Creativity, Innovation Mgt, Sustainability (S&T, MU-Columbia-Ex MBA and Beijing Institute of Technology-Int'l MBA)

Degrees in Physics, Mechanics and Materials, Materials Science & Engineering, but teaching Economics???

Favorite I-Corp Instructor Quote: “We’re all sold on our own entrepreneurial idea, however, during customer discovery, be prepared to hear you have an ugly baby!”



Teams

- Started 2011, to translate research to marketplace
- Must have NSF funding lineage
- Learn to identify product opportunities and gain eship skills
- 7 week training program
- >100 interviews (Customer Discovery)

Nodes

- Support regional teams and I-Corps teams
- Research on eship
- Build curriculum
- Provide infrastructure

Sites

- Provide minigrants (\$3K) and training for non NSF lineage local teams
- Provide infrastructure, advice, resources, networking opps, training

NIN

- Network to help grow and sustain national innovation ecosystem

TEAM INTROS

- 1-minute per person
 - Name
 - Group in Brewer Science
 - Expectations for workshop?



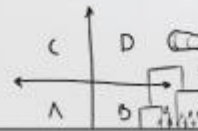
BMC & VPC OVERVIEW



You're holding a handbook for visionaries, game changers, and challengers striving to defy outmoded business models and design tomorrow's enterprises. It's a book for the...

Business Model Generation

WRITTEN BY
Alexander Osterwalder & Yves Pigneur
CO-CREATED BY
An amazing crowd of 470 practitioners from
DESIGNED BY
Alan Smith, The Movement



Use this handbook and online companion to make products and services customers want. Get started with...

Value Proposition Design

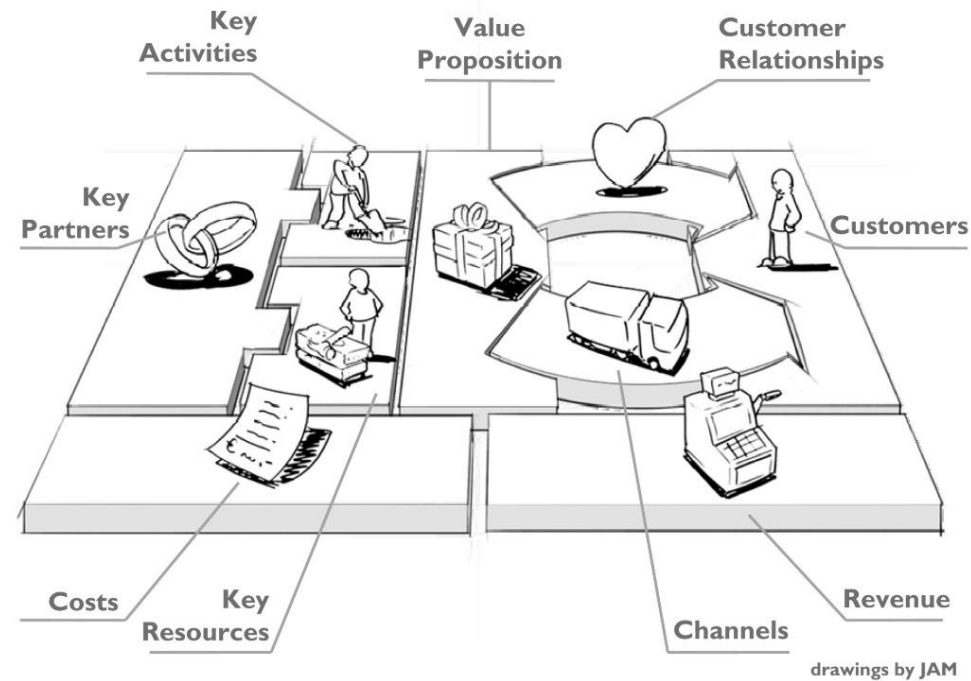
By Alex Osterwalder, Yves Pigneur,
Greg Bernardini, & Alan Smith
Designed by Trish Papadimitriou



Strategyzer

Business Model Canvas (BMC)

<https://www.youtube.com/watch?v=QoAOzMTLP5s>



<http://www.slideshare.net/hugowiz/the-business-model-explained-to-my-grandmother>



What we *used to believe*

Start with *Business Plan*



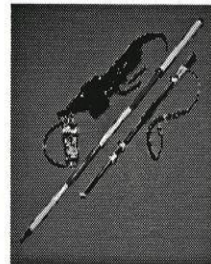
Business Plan
September 1995

**Spatial Positioning
Systems, Inc.**



**Business Plan
September 1995**

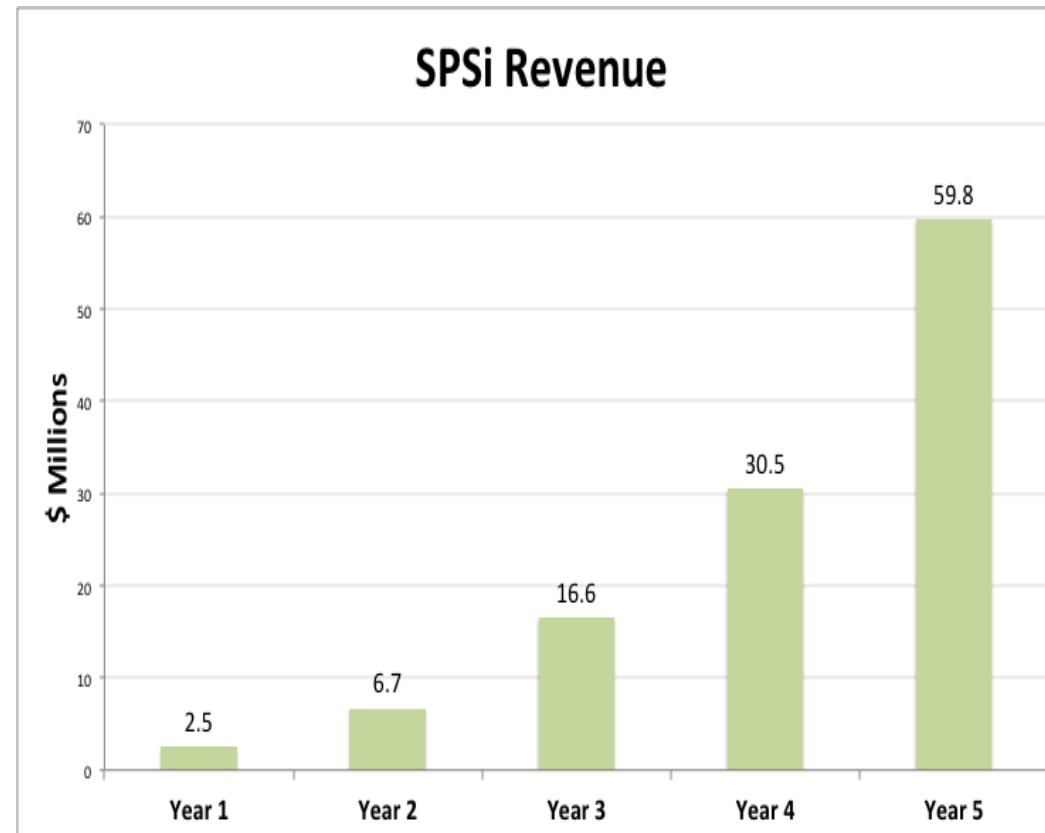
Execute the Plan



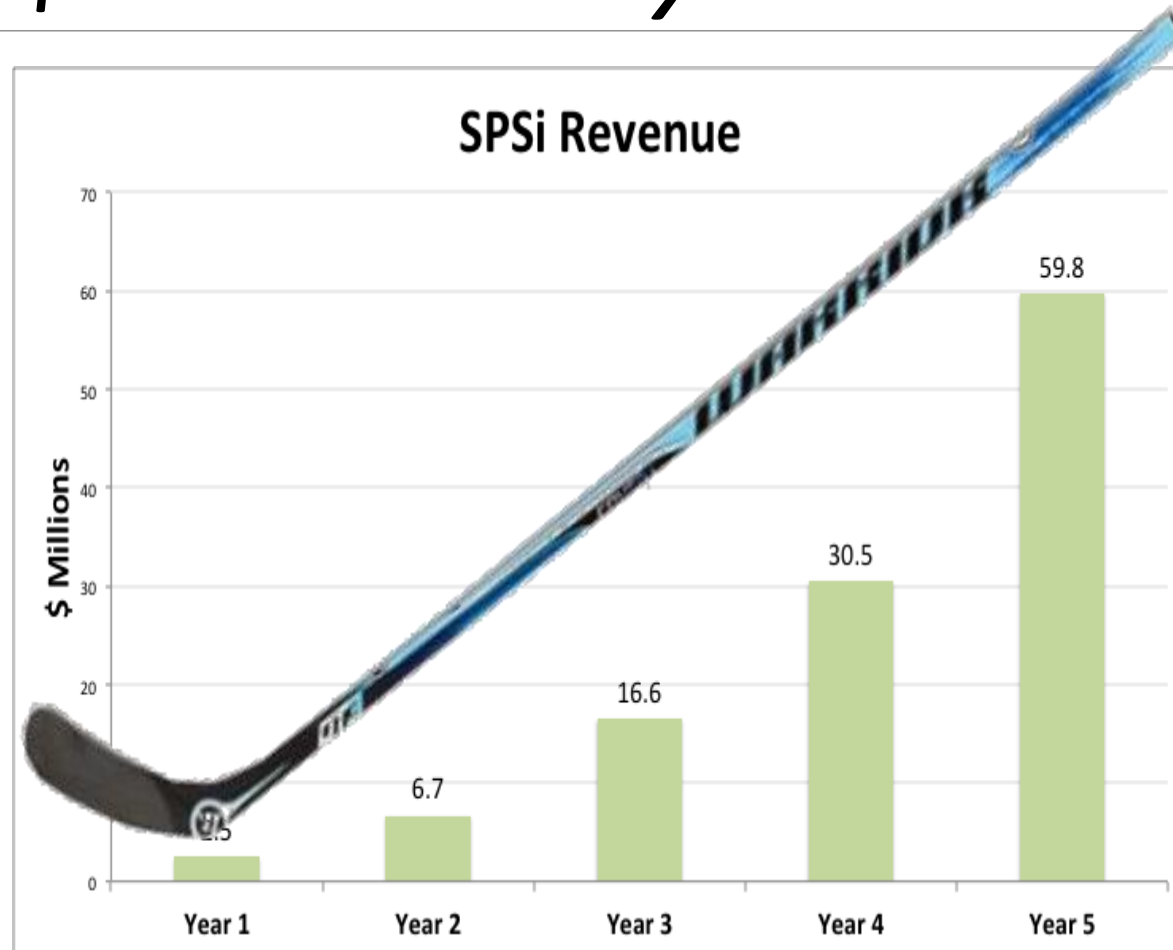
PROPRIETARY

Spatial Positioning Systems, Inc.
12007 Sunrise Valley Drive, Suite 200
Reston, Virginia 22091-3406
Phone: 703/648-9400
Fax: 703/648-9422

5-Year Forecast



\$50M *Hockey Stick!*



Tyson's *Law*



No business plan survives...

first contact with customers

How to Avoid a Kodak Moment





DAVE GRANLUND © www.davegranlund.com

Classic R&D is not enough

Companies also need “business
R&D”



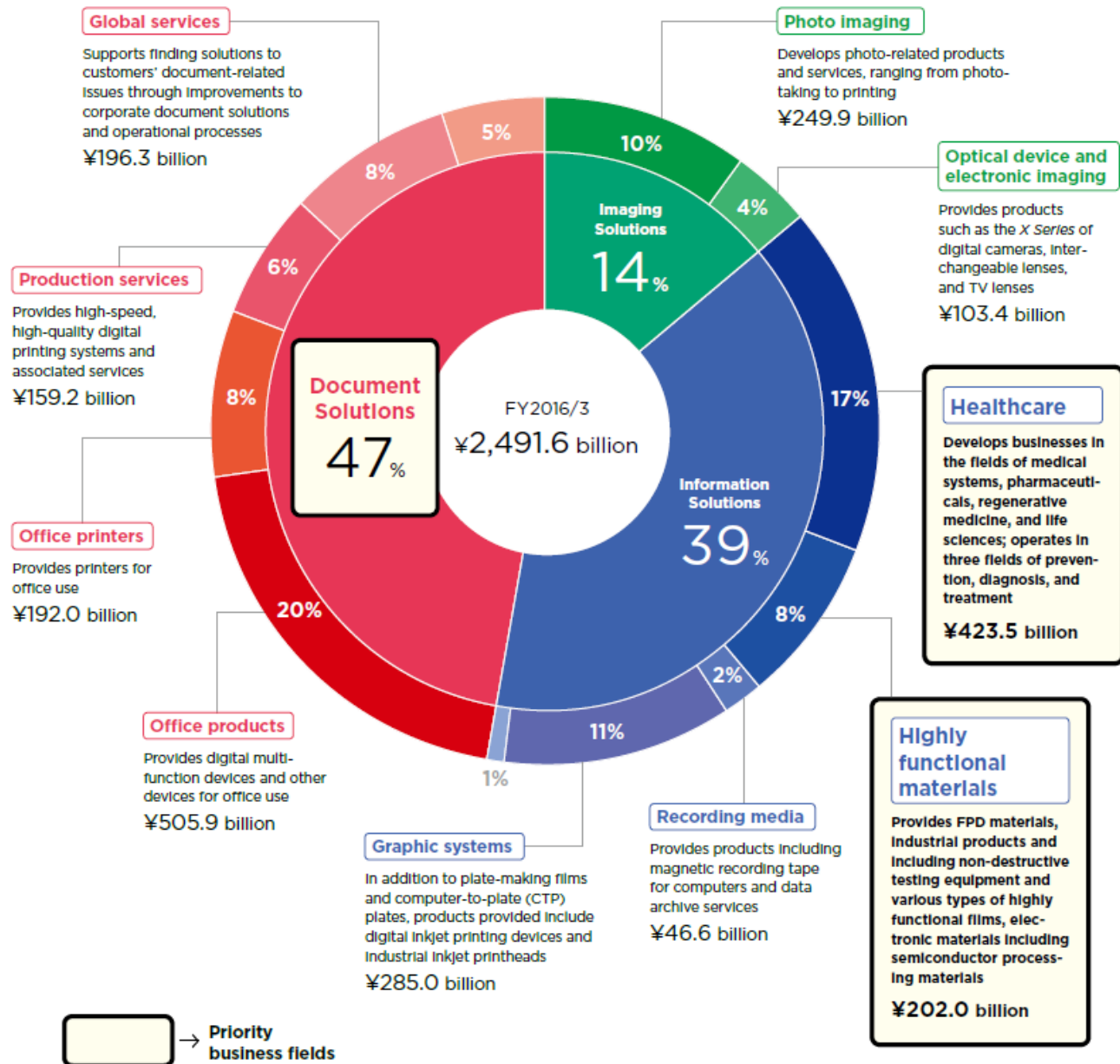
Shigetaka Komori
FujiFilm, Chairman

FUJIFILM

New Business Model

FUJIFILM
ASTALIFT
Photogenic Beauty





FUJIFILM

Big challenges for companies

Growth and Innovation

Although most executives agree that innovation is critical for their business...

84% - Innovation is important to growth **strategy**

80% - have business models at risk*

SE
Bus
Sept

Microsoft Excel - BalanceSheetImage1

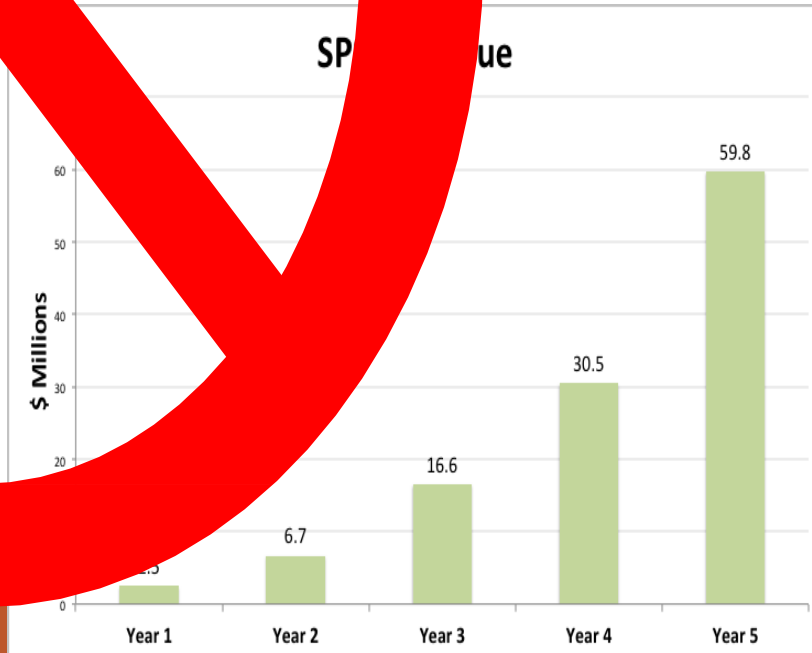
File Edit View Insert Format Tools Data Window Help

100%

SHEET SCHEDULES

Green Cells > Calculated Monthly Balances

	01/01/06	02/28/06	03/31/06	04/30/06	05/31/06	06/30/06
ASSETS						
Cash plus Short term Securities	487,876	284,111	274,141	406,383	267,711	
Accounts receivable	917,076	991,475	1,090,187	1,061,221	1,159,933	1
Inventories	94,966	746,064	824,006	809,766	885,244	
Notes receivable	0	0	0	0	0	
Prepaid expenses and other current assets	0	0	0	0	0	
TOTAL CURRENT ASSETS	1,499,918	2,021,650	2,188,335	2,277,369	2,312,887	2
Long term securities	0	0	0	0	100,000	
Investments at cost	0	0	0	0	0	
Property, Plant & Equipment						
At Cost		717,709	717,709	717,709	777,709	
Accumulated depreciation & amortization		108,153	114,237	120,320	127,403	
Net Property, plant & equipment		609,556	603,472	597,389	650,306	
Investments/Advances to subsidiaries						
Other non-current assets		53,500	52,500	49,500	57,500	
Deferred charges						
Deposits & other assets						
TOTAL ASSETS	2,716,494	2,684,705	2,844,307	2,924,258	3,120,693	3
LIABILITIES						
Accounts payables	461,500		585,130	643,386	626,291	684,540



What we know now



“Plans are useless, but planning is indispensable”

– Dwight D. Eisenhower

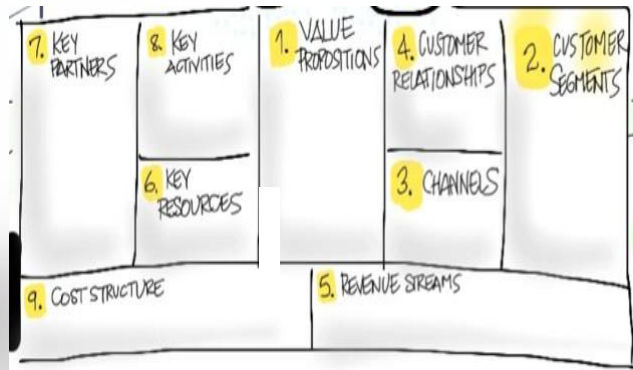
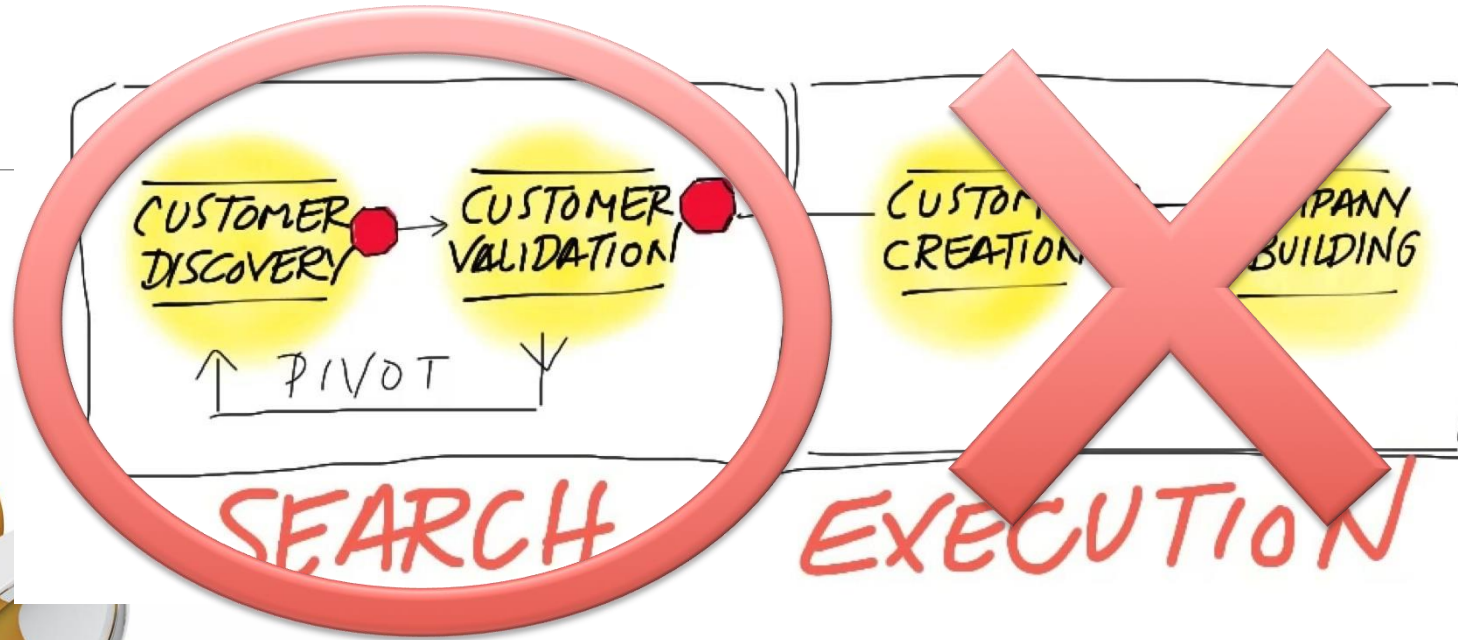
Planning comes

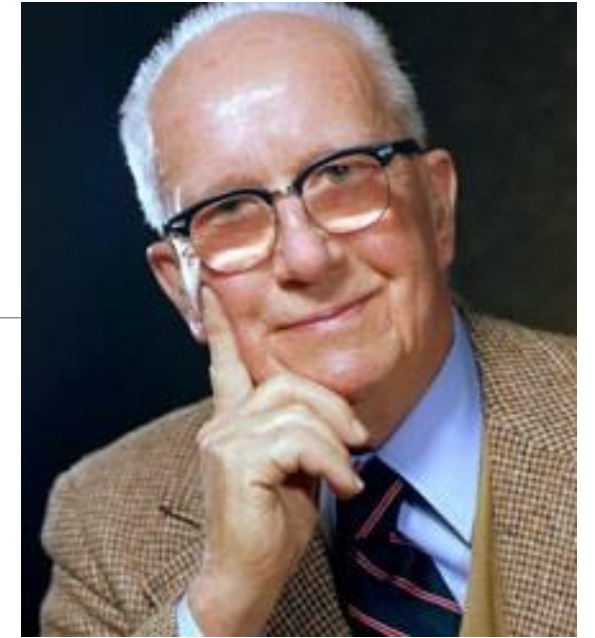
before the plan

What we know now

- Talk to customers **FIRST**
- Use hypotheses to search for a sustainable **MODEL**
- **PLANNING** comes before the Plan

Searching for a business model





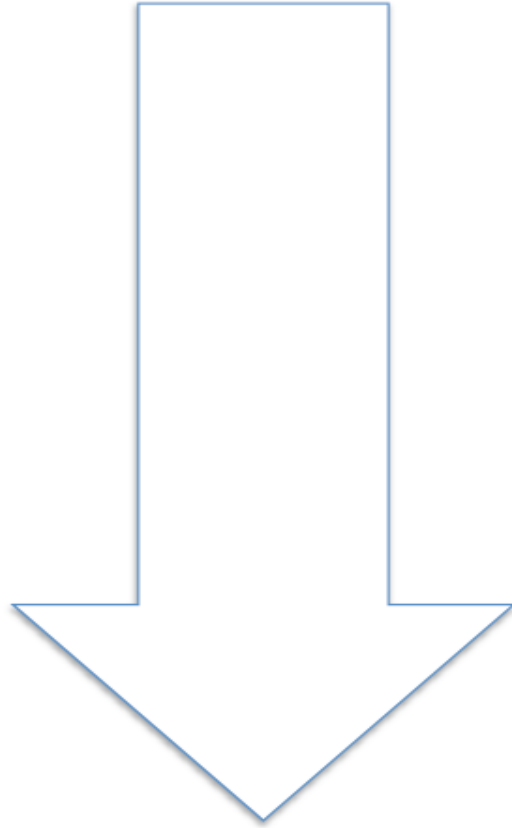
-R. Buckminster Fuller

“If you want to teach people a new way of thinking, don't bother trying to teach them. Instead, give them a tool, the use of which will lead to new ways of thinking.”

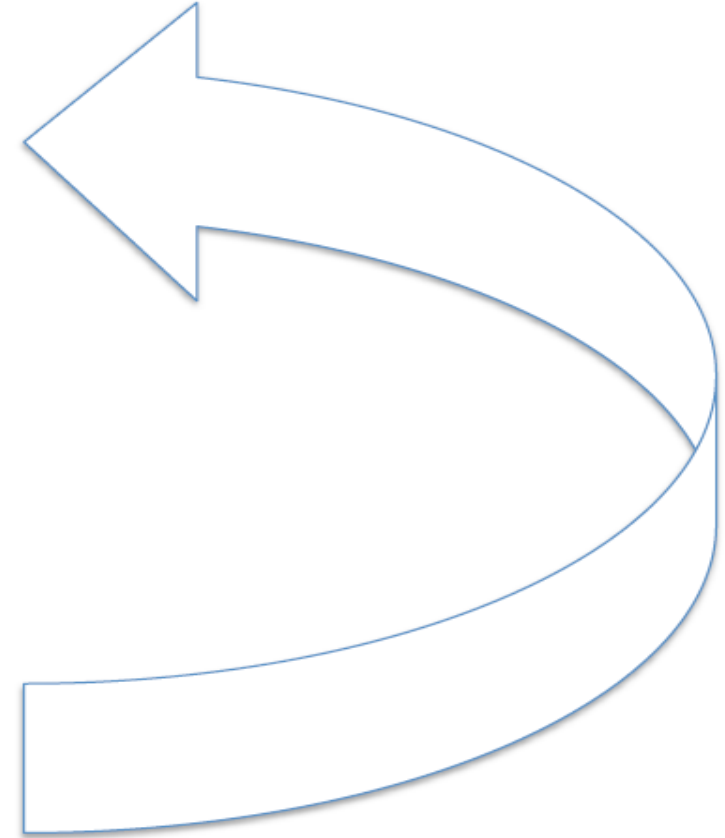
CUSTOMER DISCOVERY

We use Customer Discovery
and follow Scientific Method

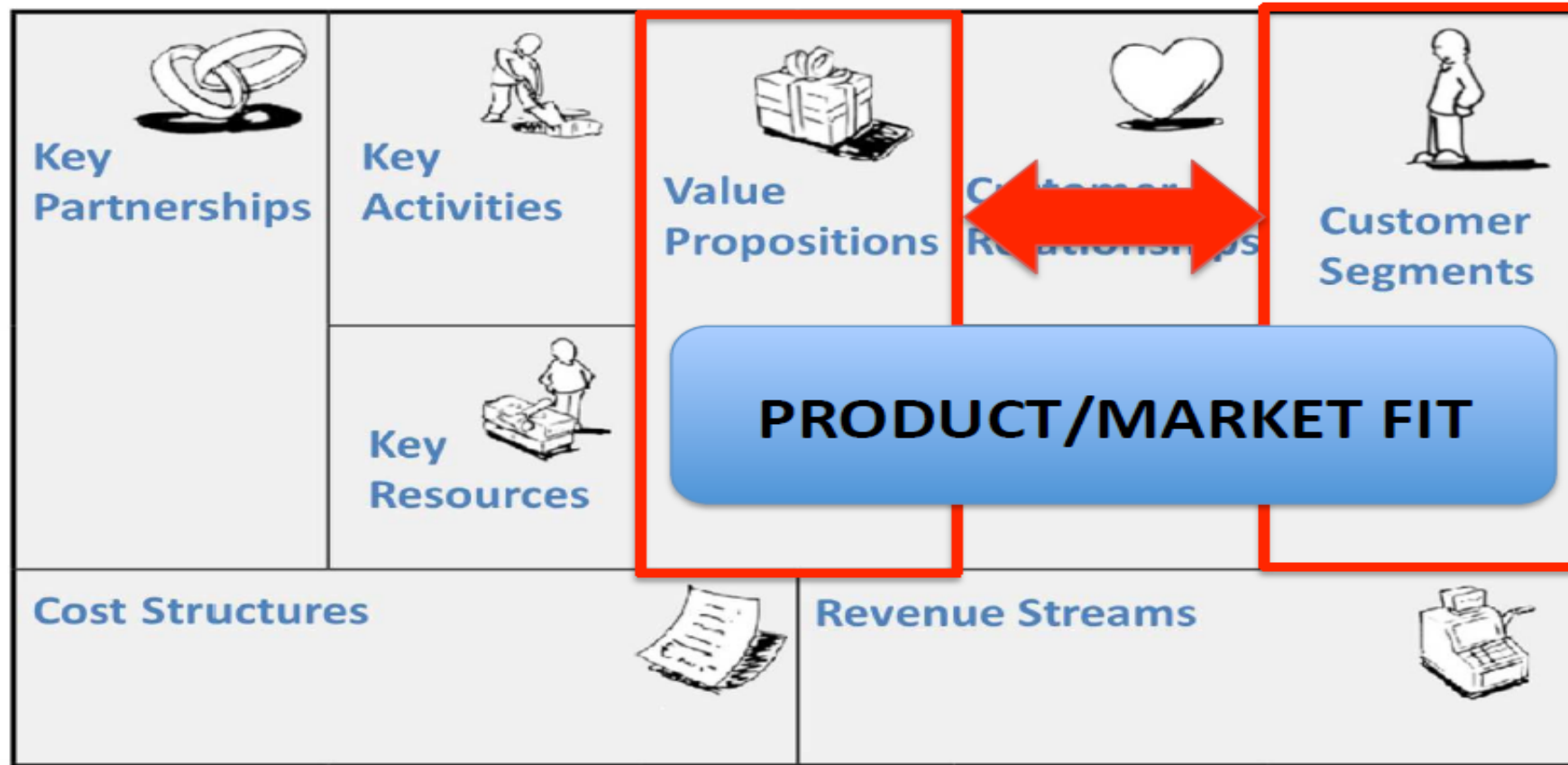
The Process



- Hypothesize
Guess
- Test – Interviews
Ask
- Assess & Analyze
Listen
- Adjust – Pivot
Guess Again



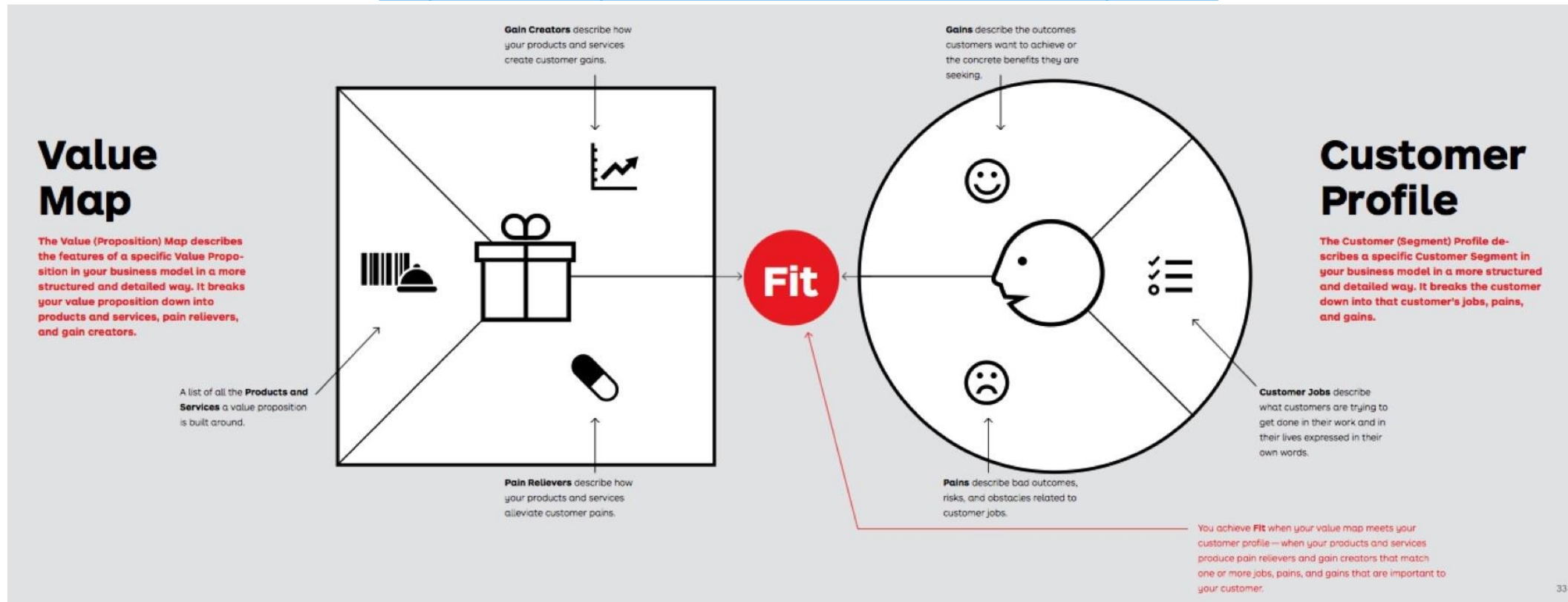
Customer Discovery: Starts Here



What Value For Whom?

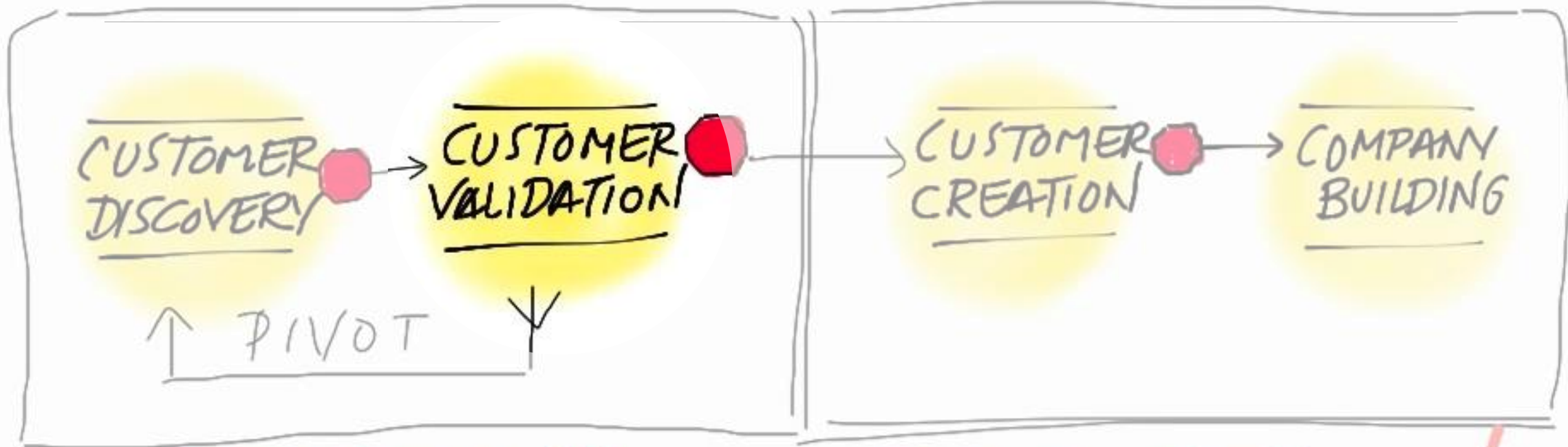
Value Proposition Canvas (VPC)

<https://www.youtube.com/watch?v=ReM1uqmVfP0>



*Do the product / service features **deliver value** (alleviate pain, create gain) to the customer?"*

Search for *Business Model*

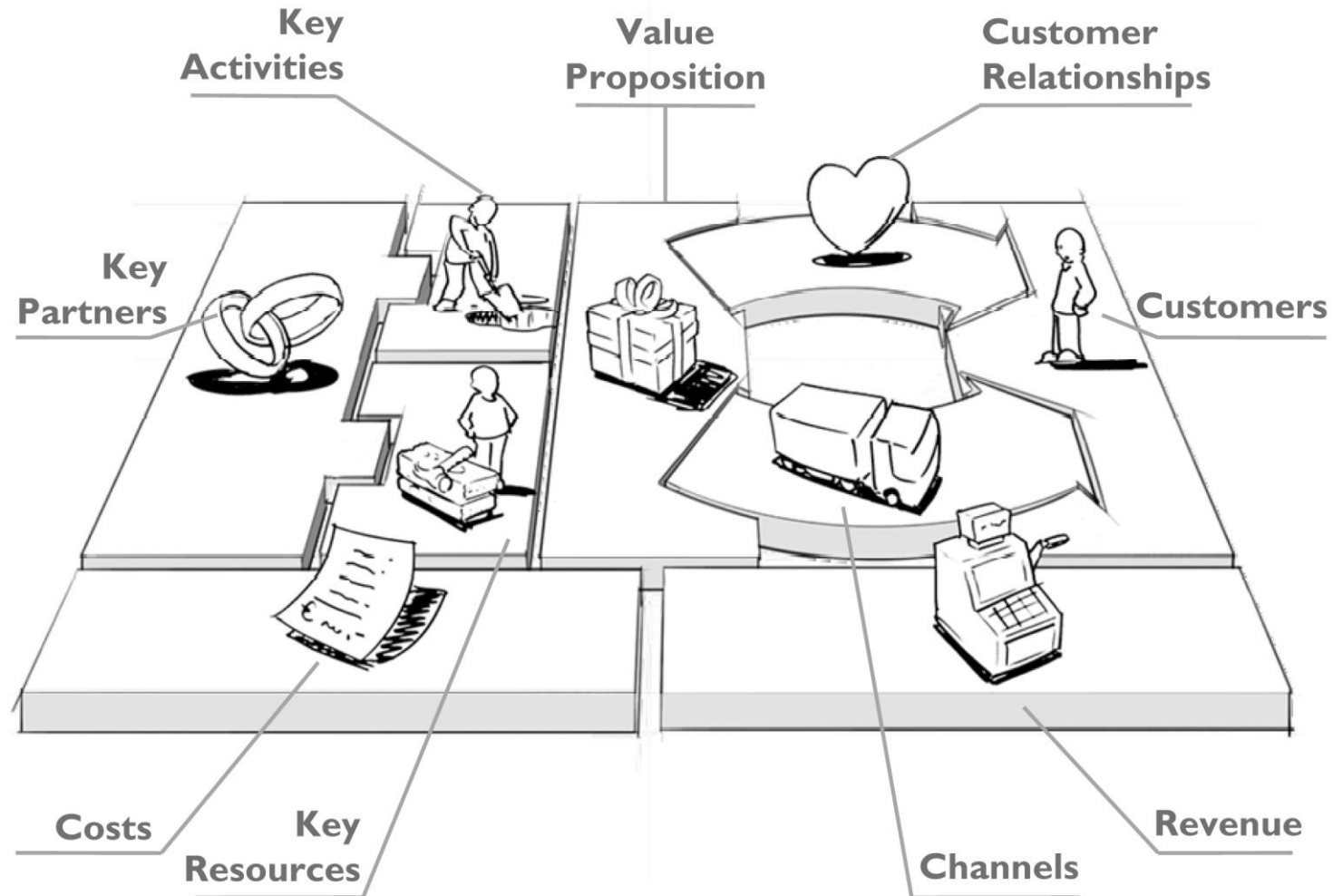


SEARCH

EXECUTION

Validate customers with early sales...

Business *Model Fit*

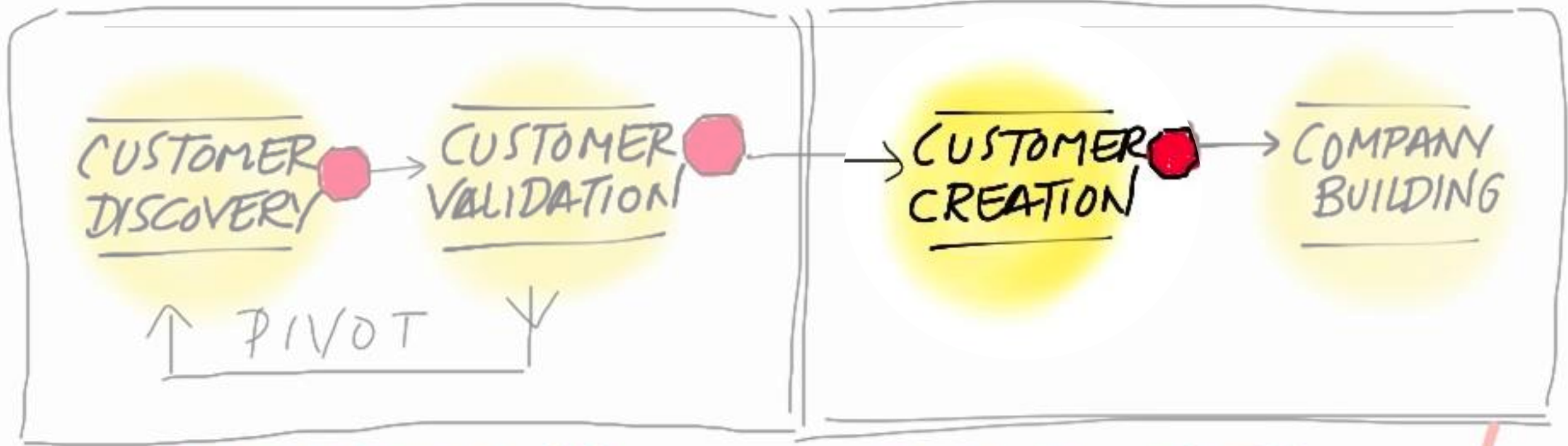


drawings by JAM

*“Can you build and validate a **repeatable** and **scalable** (profitable) business model?”*

*“That is your ultimate goal and sets you on a course to provide **growth for the company.**”*

Sales, sales, *sales*

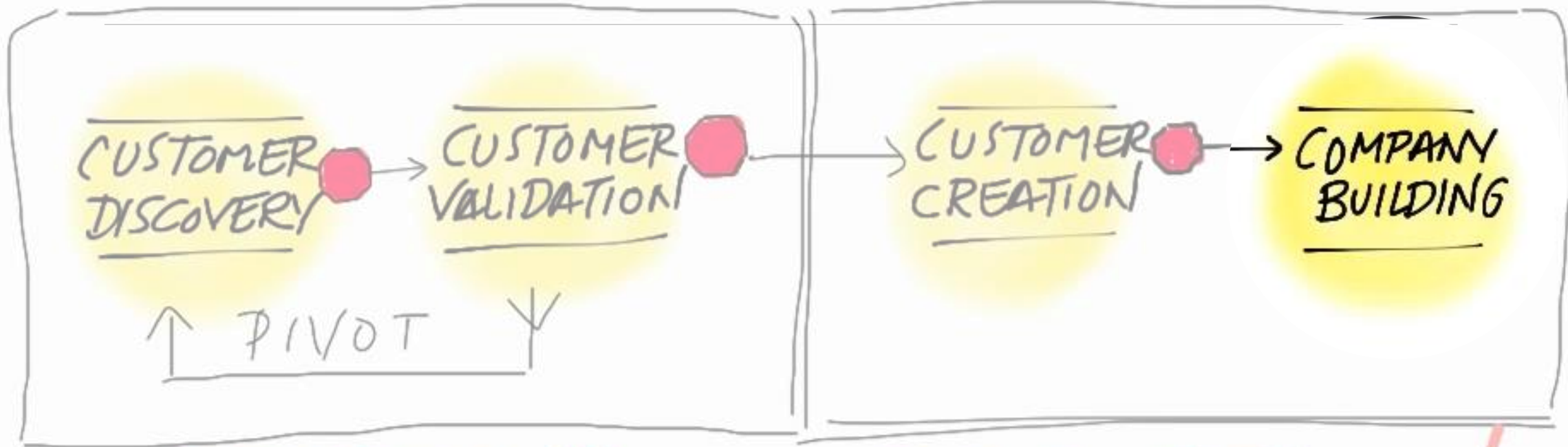


SEARCH

EXECUTION

Scale sales by creating demand..

Startup Idea to Growth for the Company

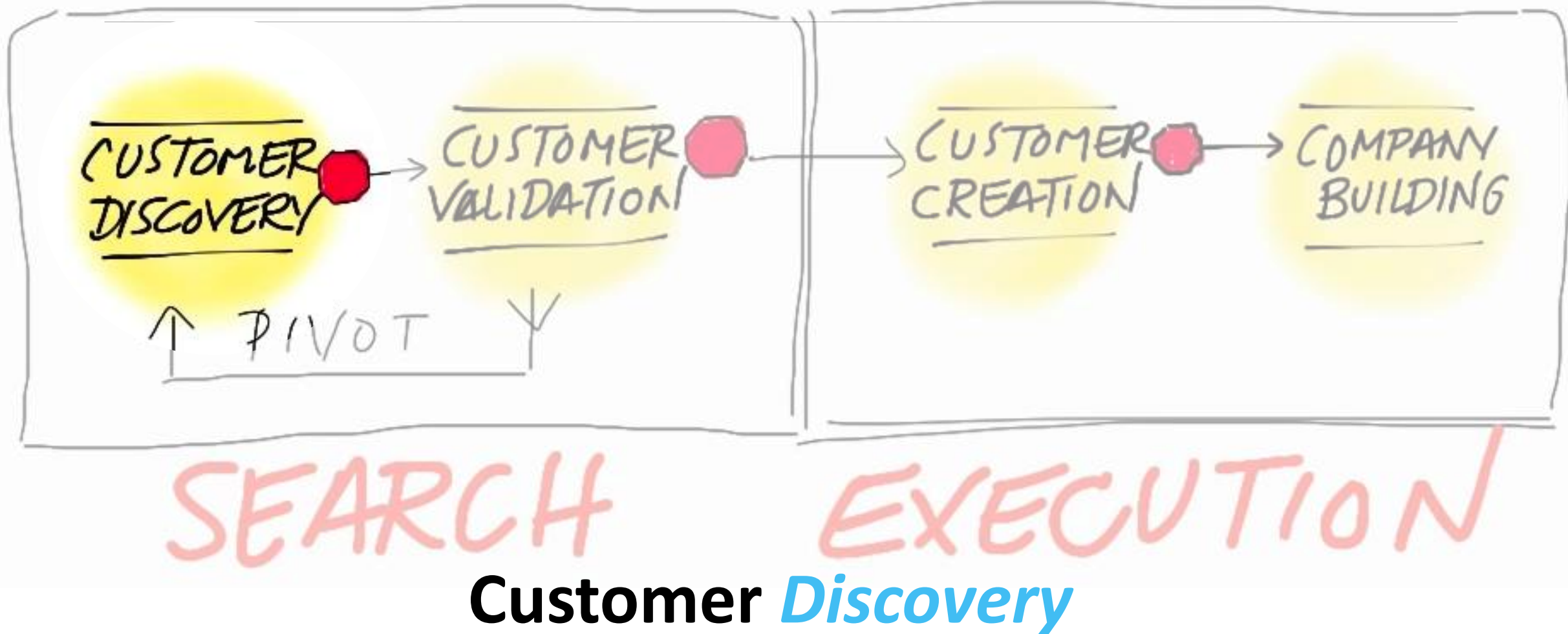


SEARCH

EXECUTION

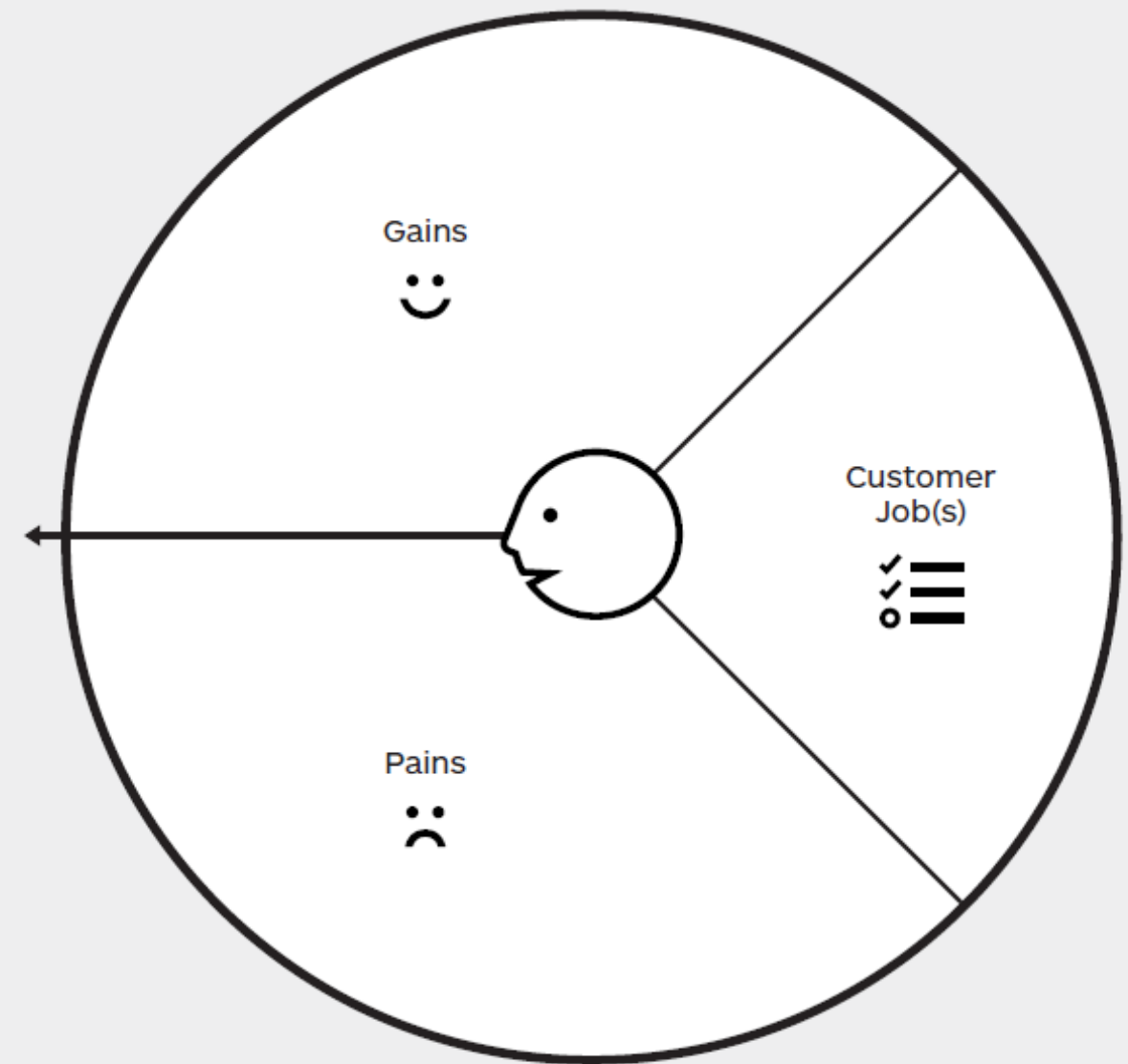
Build out organization and processes...

Today's *Focus*



Customer *Discovery*

The Value Proposition Canvas: Customer Segment Profile



Customer Gains

Trigger Questions

Gains describe the outcomes and benefits your customers want. Some gains are required, expected, or desired by customers, and some would surprise them.

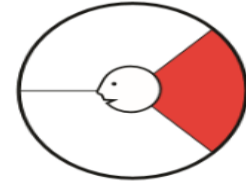
Gains include functional utility, social gains, positive emotions, and cost savings.



Customer Jobs

Trigger Questions

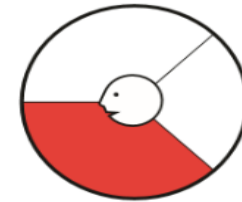
Jobs describe the things your customers are trying to get done in their work or in their life. A customer job could be the tasks they are trying to perform and complete, the problems they are trying to solve, or the needs they are trying to satisfy.

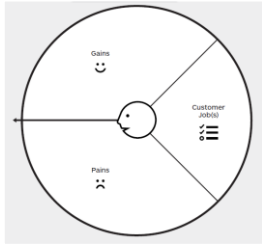


Customer Pains

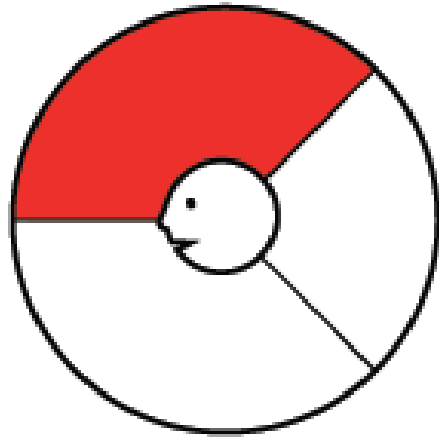
Trigger Questions

Pains describe anything that annoys your customers before, during, and after trying to get a job done or simply prevents them from getting a job done. Pains also describe risks, that is, potential bad outcomes, related to getting a job done badly or not at all.

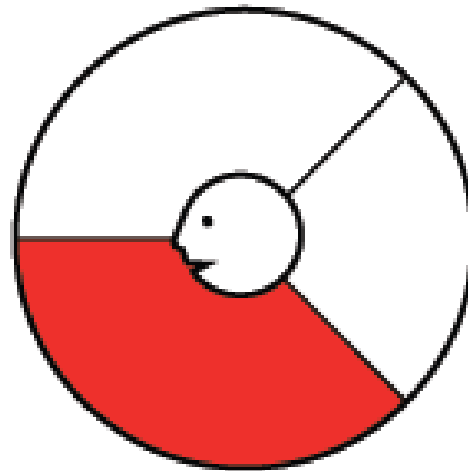




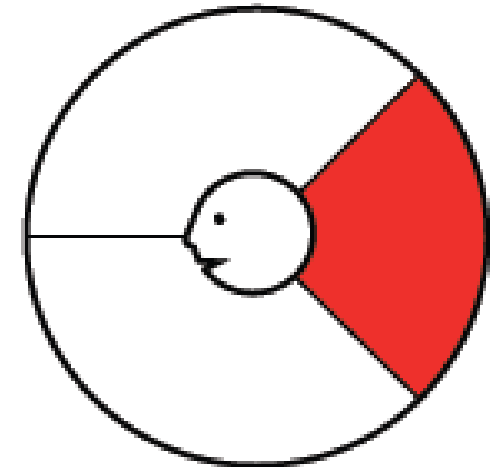
Customer (Segment) Profile



Customer Gains 😊



Customer Pains ☹️



Customer Jobs

Jobs to Be Done

What a customer is trying to get done (in work life).

Includes tasks they are trying to perform or complete; problems they are trying to solve; needs they are trying to satisfy.

EXAMPLE ACTIVITY

BUSINESS TRAVELERS: CUSTOMER PROFILE AND VALUE MAP

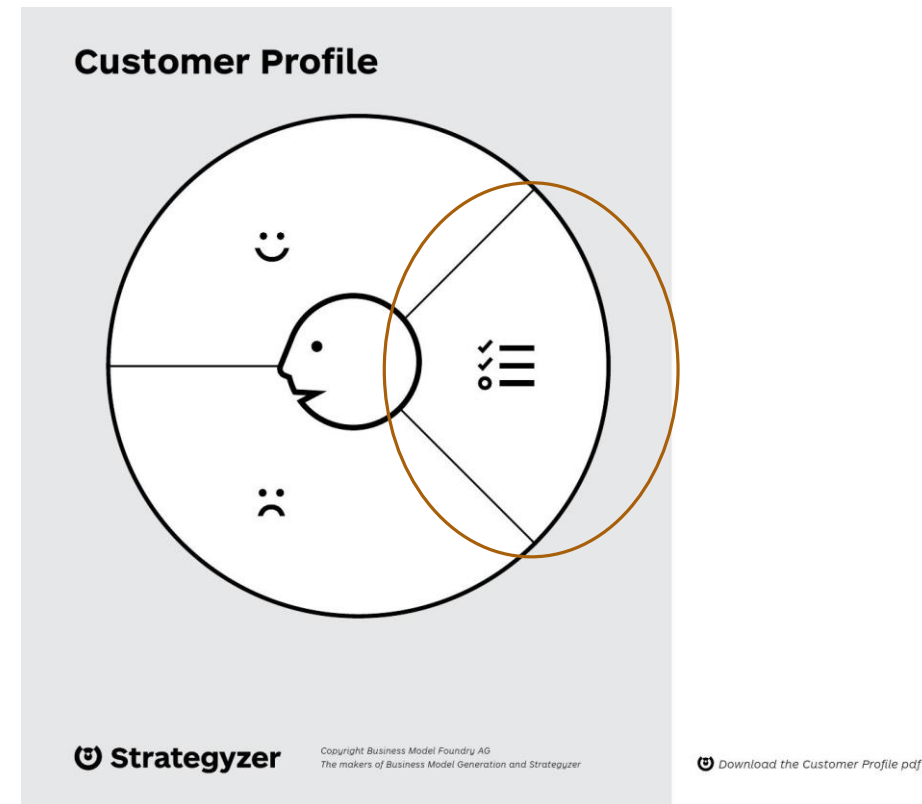


What do you take on a business trip?



Jobs to be done by business travelers?

- Business to attend to
- Reserve accommodations
- Sleep and get rest
- Eat
- Look good with clients
- Feel safe
- Feel connected with home
- Stay somewhere over night



Job Types: **Functional** (entails getting task done)

- Business to attend to
- Sleep and rest
- Eat
- Stay somewhere overnight

Job Types: **Social** (describes how a customer wants to be perceived by others)

- Look good with clients

Job Type: **Emotional** (describes how a customer wants to feel)

- Feel connected with home
- Feel safe

Job Type: **Supporting** (in the of purchasing and consuming value)

- Reserve accommodation

Brainstorm

List jobs you have to get done when you travel by airplane?



Jobs to be done: What travelers have to get done at different stages of their travel

- Compare prices
- Buy tickets
- Prepare bags
- Check in
- Pass security gate
- Boarding
- Eat
- Work
- Watch movie
- Shopping
- Find lost items as soon as possible in the airport
- Handle the refund request for unused tickets
- Convey an image of success to client

Prioritize

Rank from Important (+) to
Insignificant (-)

Do this for the business travelers
example.



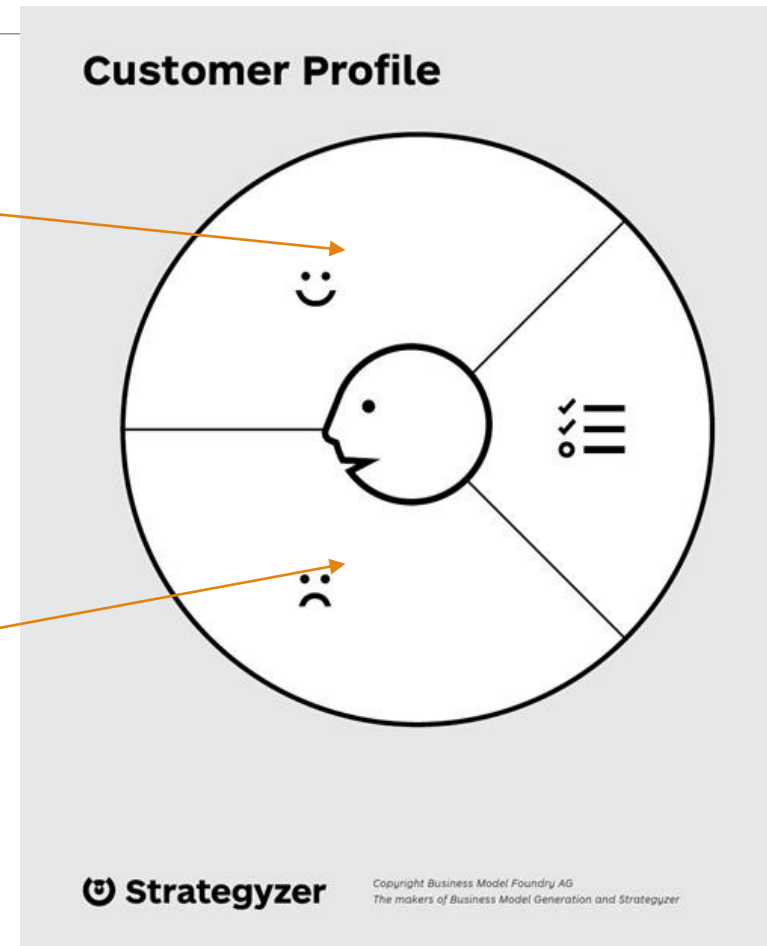
Jobs to be done by business travelers?

- Business to attend to
 - Reserve accommodations
 - Sleep and get rest
 - Eat
 - Look good with clients
 - Feel safe
 - Feel connected with home
 - Stay somewhere over night
1. Look good with clients
 2. Business to attend to
 3. Stay somewhere over night
 4. Reserve accommodation
 5. Feel connected with home
 6. Sleep and get rest
 7. Eat
 8. Feel safe

Gains and Pains

-Failing the job leads to missing out on essential gains (unrealized gains)

-Failing the job leads to extreme pains (unresolved pains)

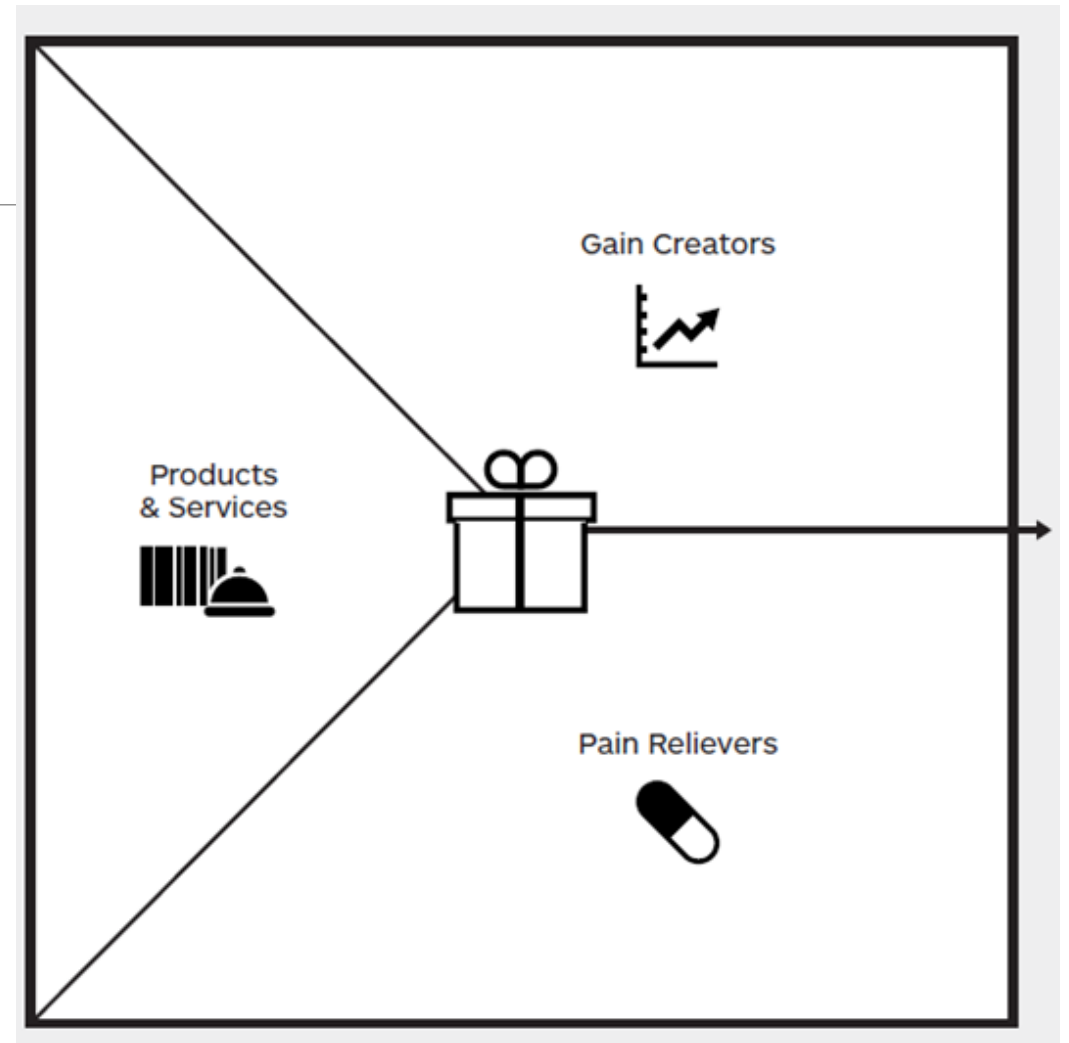


What if your solution is not part of the customer profile?

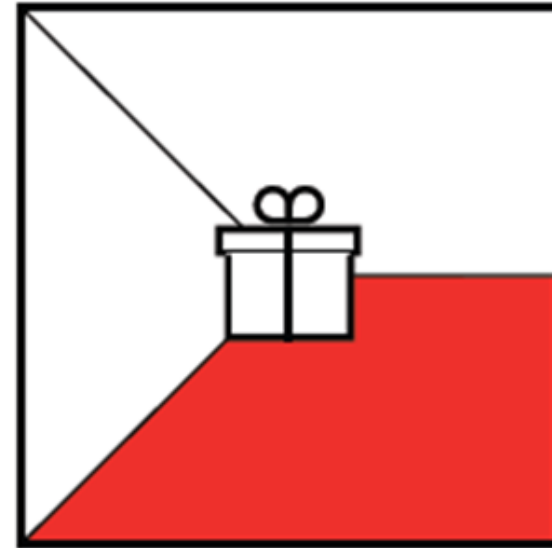
Evaluate High Value Jobs (May Have to Pivot)

- Customer job that is interesting to address as an organization
- Test: Is it **important, tangible, unsatisfied and lucrative?**

The Value Proposition Canvas: Value Proposition Map

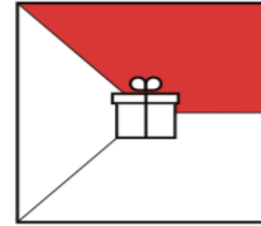


Gain Creators and Pain Relievers



Gain Creators Trigger Questions

Gain Creators describe how your products and services create customer gains. They explicitly outline how you intend to produce outcomes and benefits that your customer expects, desires, or would be surprised by, including functional utility, social gains, positive emotions, and cost savings.



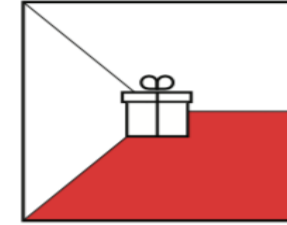
Use the following trigger questions to ask yourself:

Could your products and services...

1. ... create savings that please your customers? In terms of time, money, and effort.
2. ... produce outcomes your customers expect or that exceed their expectations? By offering quality levels, more of something, or less of something.
3. ... outperform current value propositions and delight your customers? Regarding specific features, performance, or quality.
4. ... make your customers' work or life easier? Via better usability, accessibility, more services, or lower cost of ownership.
5. ... create positive social consequences? By making them look good or producing an increase in power or status.
6. ... do something specific that customers are looking for? In terms of good design, guarantees, or specific or more features.
7. ... fulfill a desire customers dream about? By helping them achieve their aspirations or getting relief from a hardship?
8. ... produce positive outcomes matching your customers' success and failure criteria? In terms of better performance or lower cost.
9. ... help make adoption easier? Through lower cost, fewer investments, lower risk, better quality, improved performance, or better design.

Pain Relievers Trigger Questions

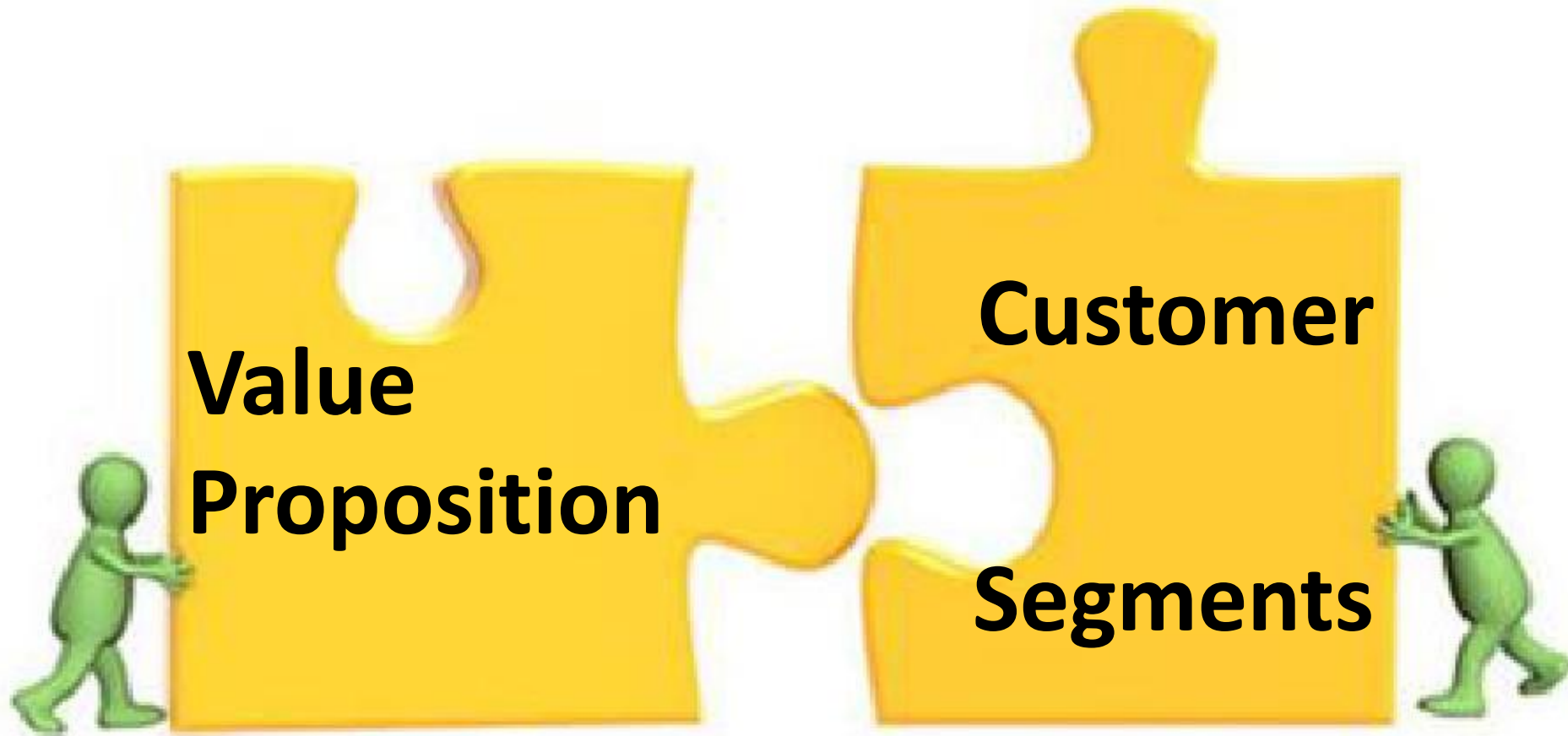
Pain relievers describe how exactly your products and services alleviate specific customer pains. They explicitly outline how you intend to eliminate or reduce some of the things that annoy your customers before, during, or after they are trying to complete a job or that prevent them from doing so.



Use the following trigger questions to ask yourself:

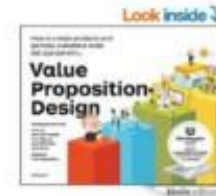
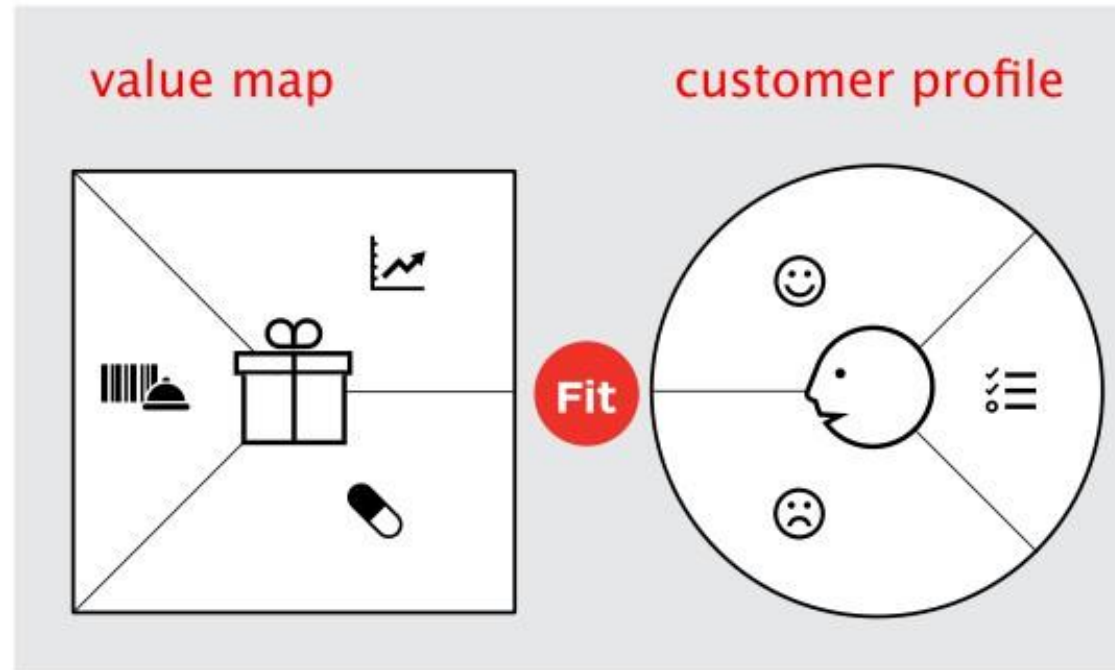
Could your products and services...

1. ... produce savings? In terms of time, money, or efforts.
2. ... make your customers feel better? By killing frustrations, annoyances, and other things that give customers a headache.
3. ... fix under-performing solutions? By introducing new features, better performance, or enhanced quality.
4. ... put an end to difficulties and challenges your customers encounter? By making things easier or eliminating obstacles.
5. ... create positive social consequences? By making them look good or producing an increase in power or status.
6. ... do something specific that customers are looking for? In terms of good design, guarantees, or specific or more features.
7. ... fulfill a desire customers dream about? By helping them achieve their aspirations or getting relief from a hardship?
8. ... produce positive outcomes matching your customers' success and failure criteria? In terms of better performance or lower cost.
9. ... help make adoption easier? Through lower cost, fewer investments, lower risk, better quality, improved performance, or better design.



Is there a FIT?

Value Propositions & Customer Segments



Alexander
Osterwald

WHO is the Customer and WHY do they buy?

Value Propositions & Customer Segments

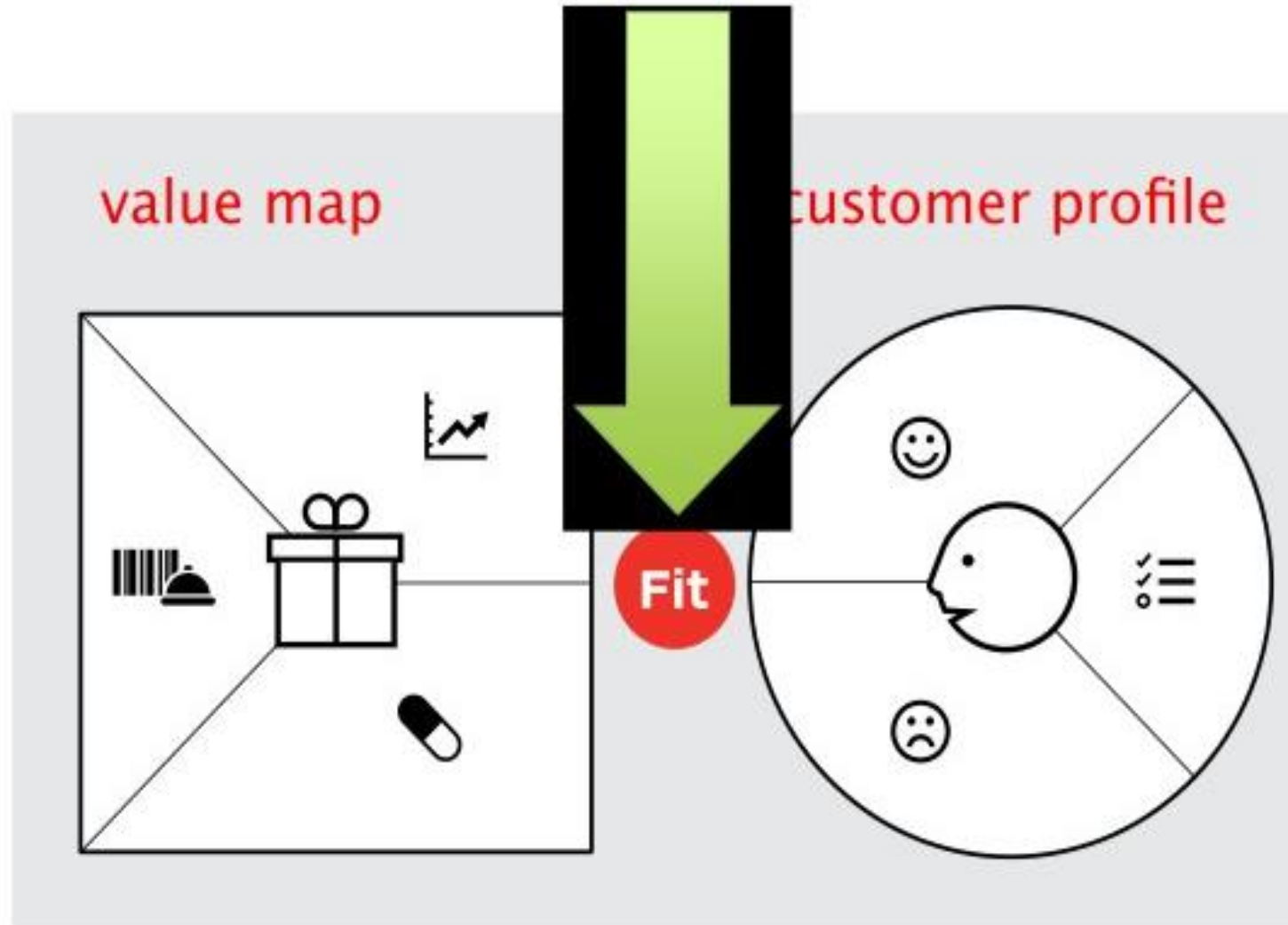
The single biggest indicator of start-up success?

The single biggest indicator of start-up success is:

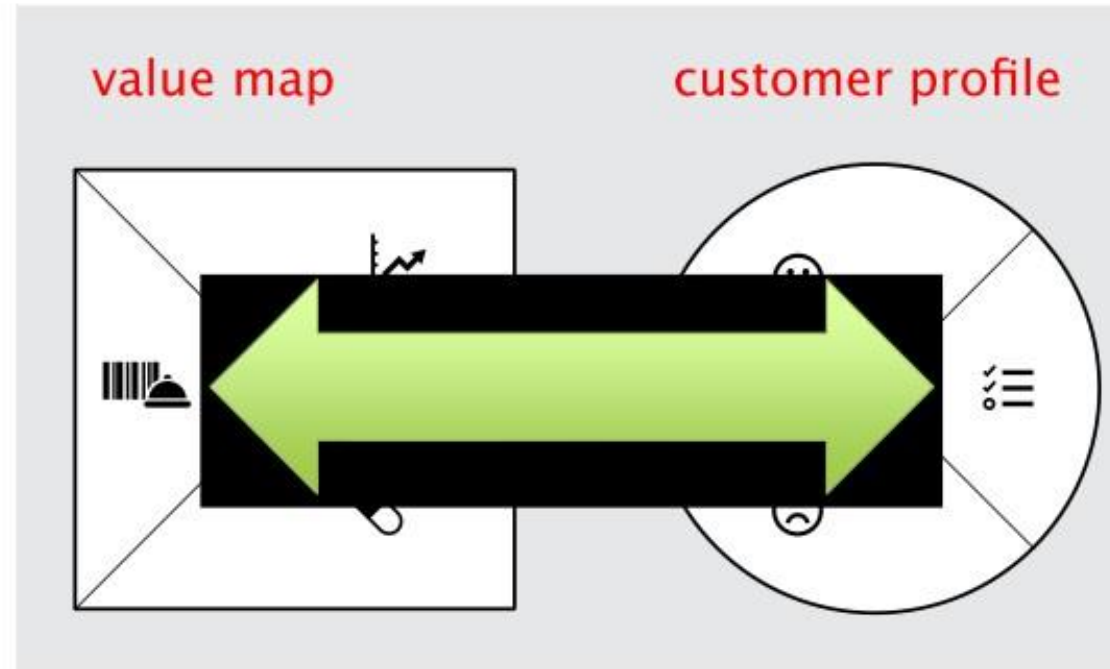
A strong value proposition for a well defined customer segment



Product-Market Fit



Product-Market Fit



Do you understand the customer's **jobs**?

- Are you promising a customer **gain**?
- Are you addressing customer **pains**?

Can you do this for your product/service?

Our _____(1)_____ help(s) _____(2)_____ who want to _____(3)_____ by _(4)_____ and_(5)_____ (unlike _____(6)_____).

(1) Products and Services

(2) Customer Segment

(3) Jobs to be done

(4) verb (e.g., reducing, avoiding) and a customer pain

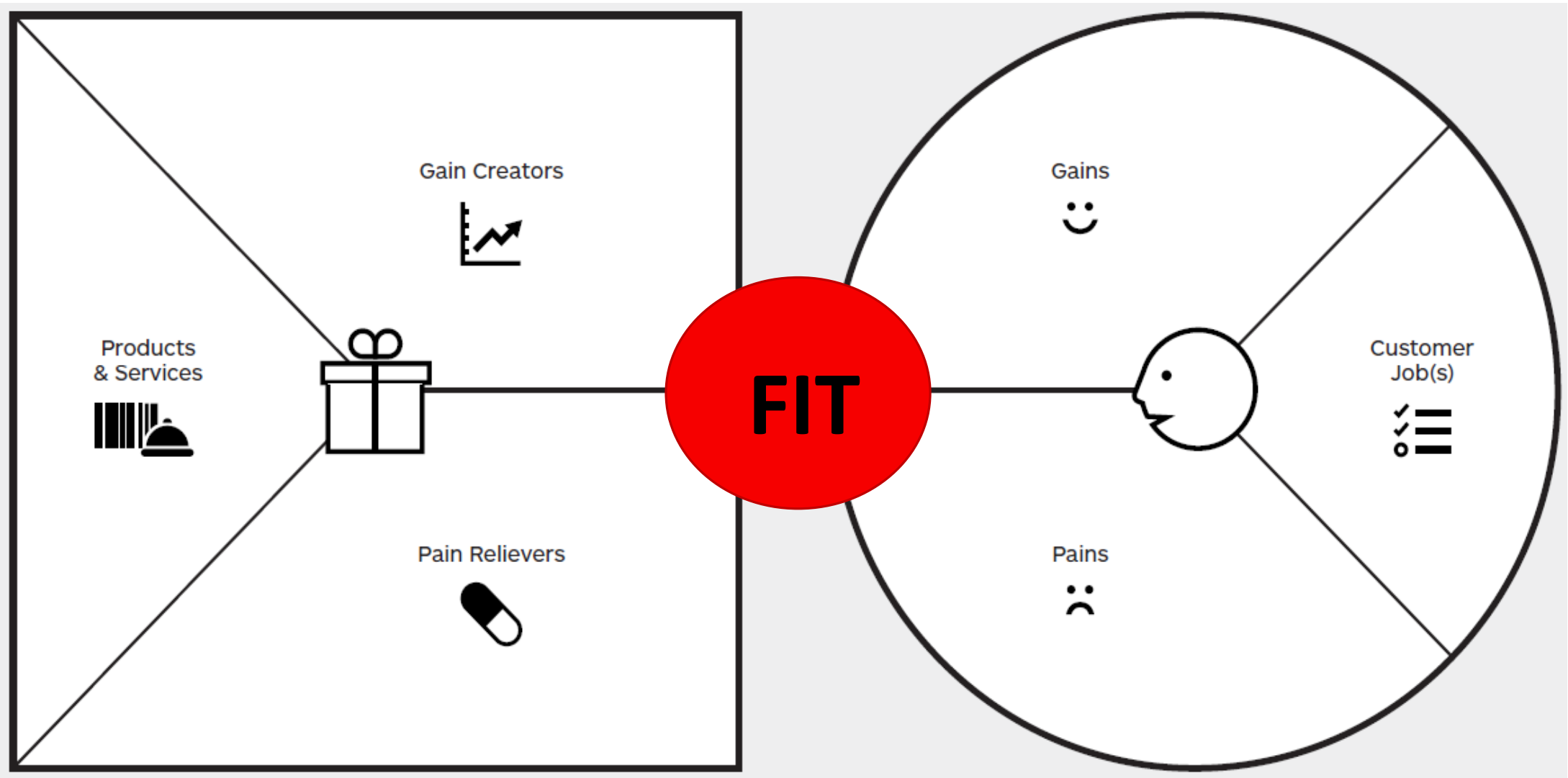
(5) verb (e.g., increasing, enabling) and a customer gain

(6) competing value proposition

Business Thesis Common Mistakes

- Lacks specificity (any word ending in “-er”)
- Confusing **features** with **value (Pain or Gain)**
- Not linked to a specific customer segment
- It’s a “nice to have” instead of a “have to have”
- Not enough customers care (not a viable market)

— **Value Proposition** describes the **benefit** your customer will derive by adopting your product or service. —





TESLA ACTIVITY

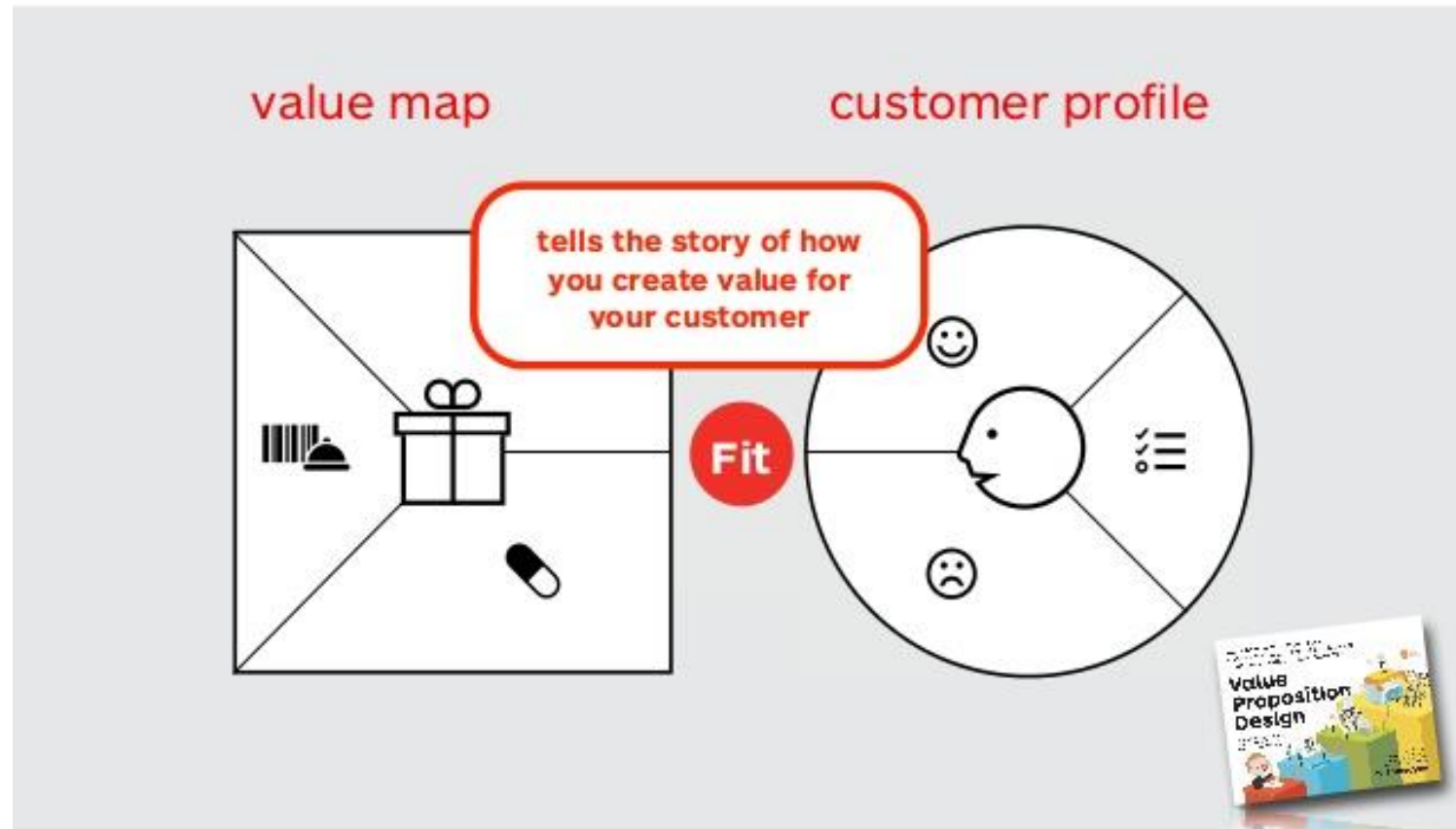


“All our patents
belong to you.”
-Elon Musk, CEO



- Fast-charging stations
- In the malls
- Manufacturing
- Powertrains

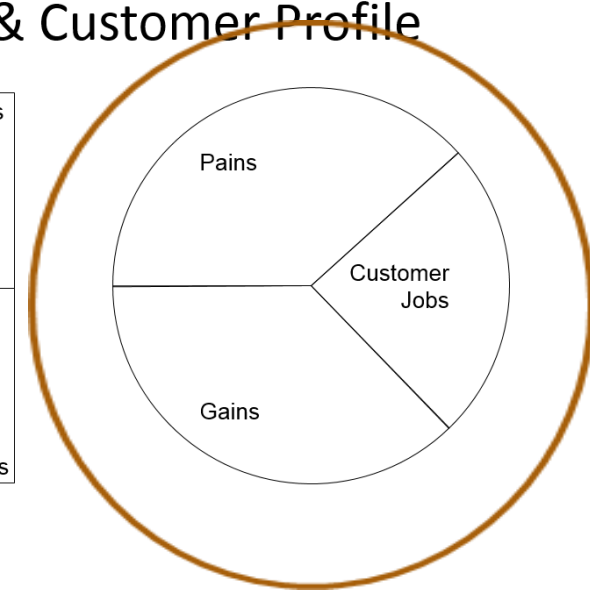
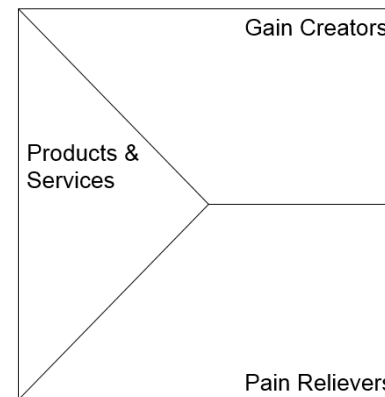
What is Tesla's Value Proposition Canvas?



Customer Profile

- Who are Tesla's customers?
 - Upper Middle Class Male Higher Income
- **What is the profile of potential Tesla buyers and drivers? (handouts and labels)**

Value Map & Customer Profile



Jobs to be done?

- Commute to work
- Convey an image of success
- Differentiate from others
- Occasionally travel long distances
- Be in sync with personal values

Pains (problems, risks, obstacles, frustrations...)

- Long charging time
- Geeky perception
- Lack of space
- Fear of dead battery
- Frequent charging

Gains (required or desired outcomes and benefits)

- Performance like a sports car
- Long range (>300 km)
- Always last up-to-date features
- High safety ratings
- Attractive design

Prioritize (what jobs, pains and gains really matter to customers)

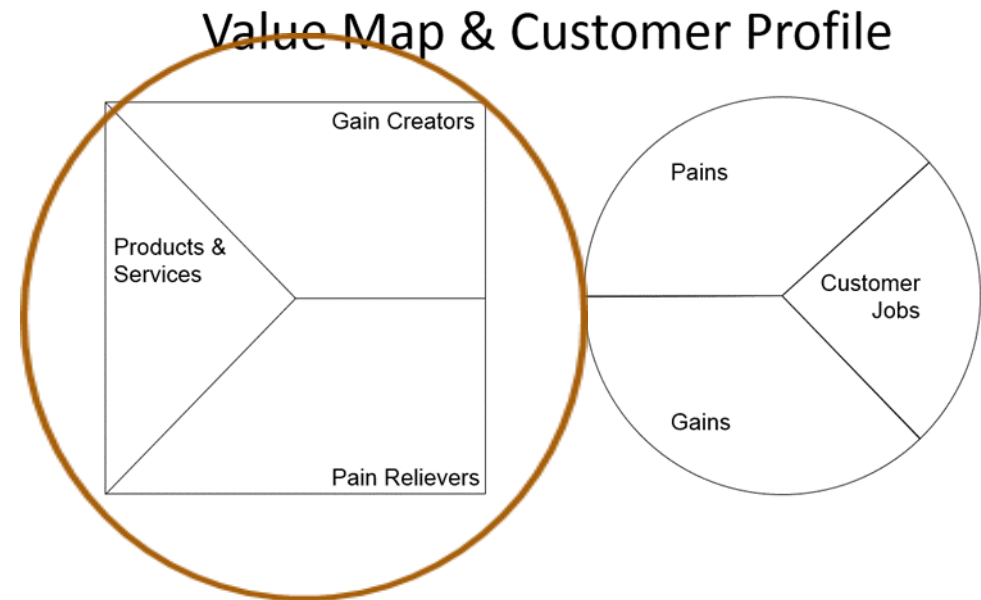
- Jobs: Convey an image of success, commute to work, differentiate from others, be in sync with personal values, occasionally travel long distance trips
- Pains: Fear of dead battery/frequent charging, long recharging time, geeky perception, lack of space
- Gains: Performance like a sports car, long range >300km, attractive design, always last up-to-date features, high safety ratings

What value proposition is able to attract drivers to buy a Tesla car?



Value Proposition Map

- Look at jobs to be done
 - Commute to work
 - Convey an image of success
 - Differentiate from others
 - Occasionally travel long distances
 - Be in sync with personal values
- What is the product?
 - High Performance Luxury Electrical Car
 - Handouts and labels

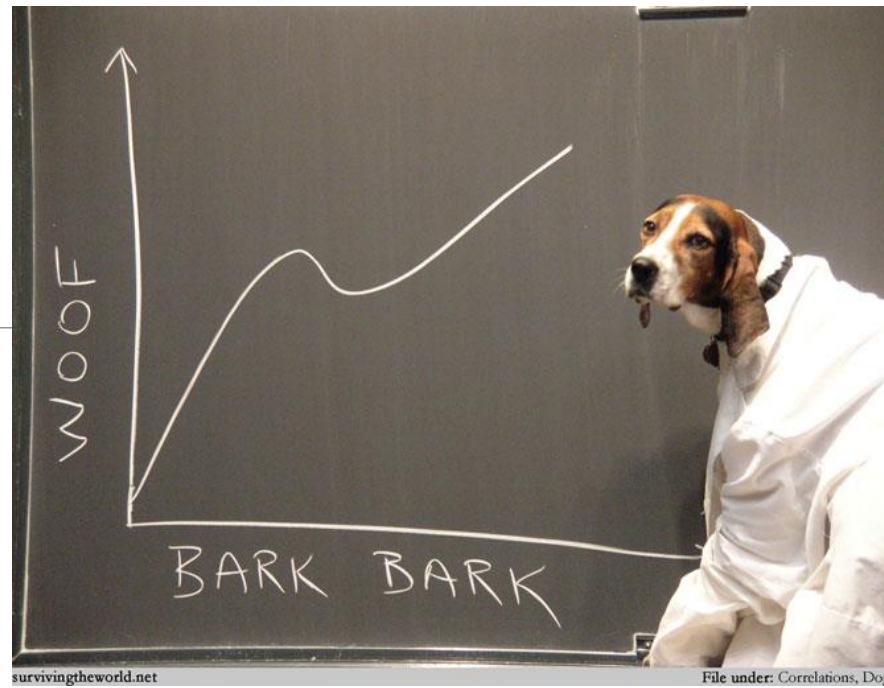


Pain relievers (how do your products & services kill your customers pains)

- Look at pains and then decide which gain creators to put on the Value Map (labels)
 - High speed charging - 45-90 km/h
 - A luxury image
 - Free charging at supercharger stations
 - 5+2 seats - 1,800 liter storage
 - High capacity battery – 8 year warranty

Gain creators (how do your products & services create gains your customers expect, want or desire)

- Look at gains and then decide which gain creators to put on the Value Map (labels)
 - Long range - 350 km to 450 km
 - Award winning design
 - Top performance - 0-100 km/in 4.4-6.2 sec
 - Upgrade via remote access
 - Highest safety ever by NHTSA



BREWER SCIENCE ACTIVITY

GENERAL INSTRUCTIONS FOR CUSTOMER SEGMENT PROFILE ACTIVITY

STEP 1: Make sure you have the Value Proposition Canvas (1 for each team) and colored sticky notes (1 color for each of 3 areas of CSP).

STEP 2: Among your group members/partners, discuss the **JOBS TO BE DONE** that your product/service is creating to the customers.

STEP 3: Among your group members/partners, discuss the **PAINS** a Tesla buyer has (problems, risks, obstacles, frustrations).

STEP 4: Among your group members/partners, discuss what are the **GAINS** a Tesla buyers wants (required or desired outcomes and benefits).

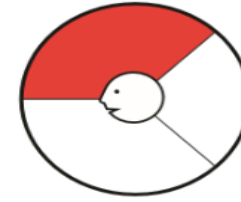
STEP 5: For the time being, only work on 1 Customer Segment. If you have more than 1 Customer Segment, you need another profile sheet.

Customer Gains

Trigger Questions

Gains describe the outcomes and benefits your customers want. Some gains are required, expected, or desired by customers, and some would surprise them.

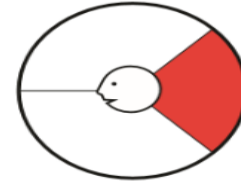
Gains include functional utility, social gains, positive emotions, and cost savings.



Customer Jobs

Trigger Questions

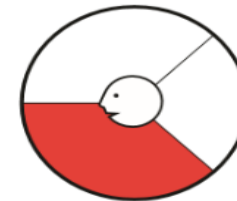
Jobs describe the things your customers are trying to get done in their work or in their life. A customer job could be the tasks they are trying to perform and complete, the problems they are trying to solve, or the needs they are trying to satisfy.



Customer Pains

Trigger Questions

Pains describe anything that annoys your customers before, during, and after trying to get a job done or simply prevents them from getting a job done. Pains also describe risks, that is, potential bad outcomes, related to getting a job done badly or not at all.



GENERAL INSTRUCTIONS FOR VALUE PROPOSITION MAP ACTIVITY

STEP 1: Make sure you have the Value Proposition Map (1 for each team) and colored sticky notes (1 color for each of 3 areas of CSP).

STEP 2: Among your group members/partners, discuss the **GAINS** that your product is creating to the customers.

STEP 3: Pick up one of the colored Sticky notes (same color as GAINS) and write as many **GAIN CREATORS** as you can come up with (at least 3). Place on GAIN CREATORS section.

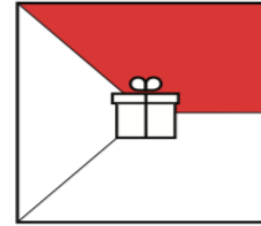
STEP 4: Among your group members/partners, discuss the **PAINS** that your product is relieving for the customers.

STEP 5: Now, write on the colored sticky notes (same color as PAINS), as write as many **PAIN RELIEVERS** as you can come up with (at least 3). Place on the PAIN RELIEVERS section.

STEP 6: If you have more than 1 product, Please repeat the same procedure on a different map.

Gain Creators Trigger Questions

Gain Creators describe how your products and services create customer gains. They explicitly outline how you intend to produce outcomes and benefits that your customer expects, desires, or would be surprised by, including functional utility, social gains, positive emotions, and cost savings.



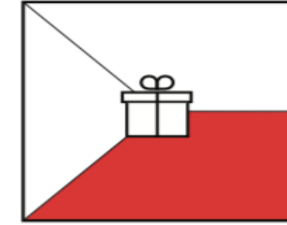
Use the following trigger questions to ask yourself:

Could your products and services...

1. ... create savings that please your customers? In terms of time, money, and effort.
2. ... produce outcomes your customers expect or that exceed their expectations? By offering quality levels, more of something, or less of something.
3. ... outperform current value propositions and delight your customers? Regarding specific features, performance, or quality.
4. ... make your customers' work or life easier? Via better usability, accessibility, more services, or lower cost of ownership.
5. ... create positive social consequences? By making them look good or producing an increase in power or status.
6. ... do something specific that customers are looking for? In terms of good design, guarantees, or specific or more features.
7. ... fulfill a desire customers dream about? By helping them achieve their aspirations or getting relief from a hardship?
8. ... produce positive outcomes matching your customers' success and failure criteria? In terms of better performance or lower cost.
9. ... help make adoption easier? Through lower cost, fewer investments, lower risk, better quality, improved performance, or better design.

Pain Relievers Trigger Questions

Pain relievers describe how exactly your products and services alleviate specific customer pains. They explicitly outline how you intend to eliminate or reduce some of the things that annoy your customers before, during, or after they are trying to complete a job or that prevent them from doing so.

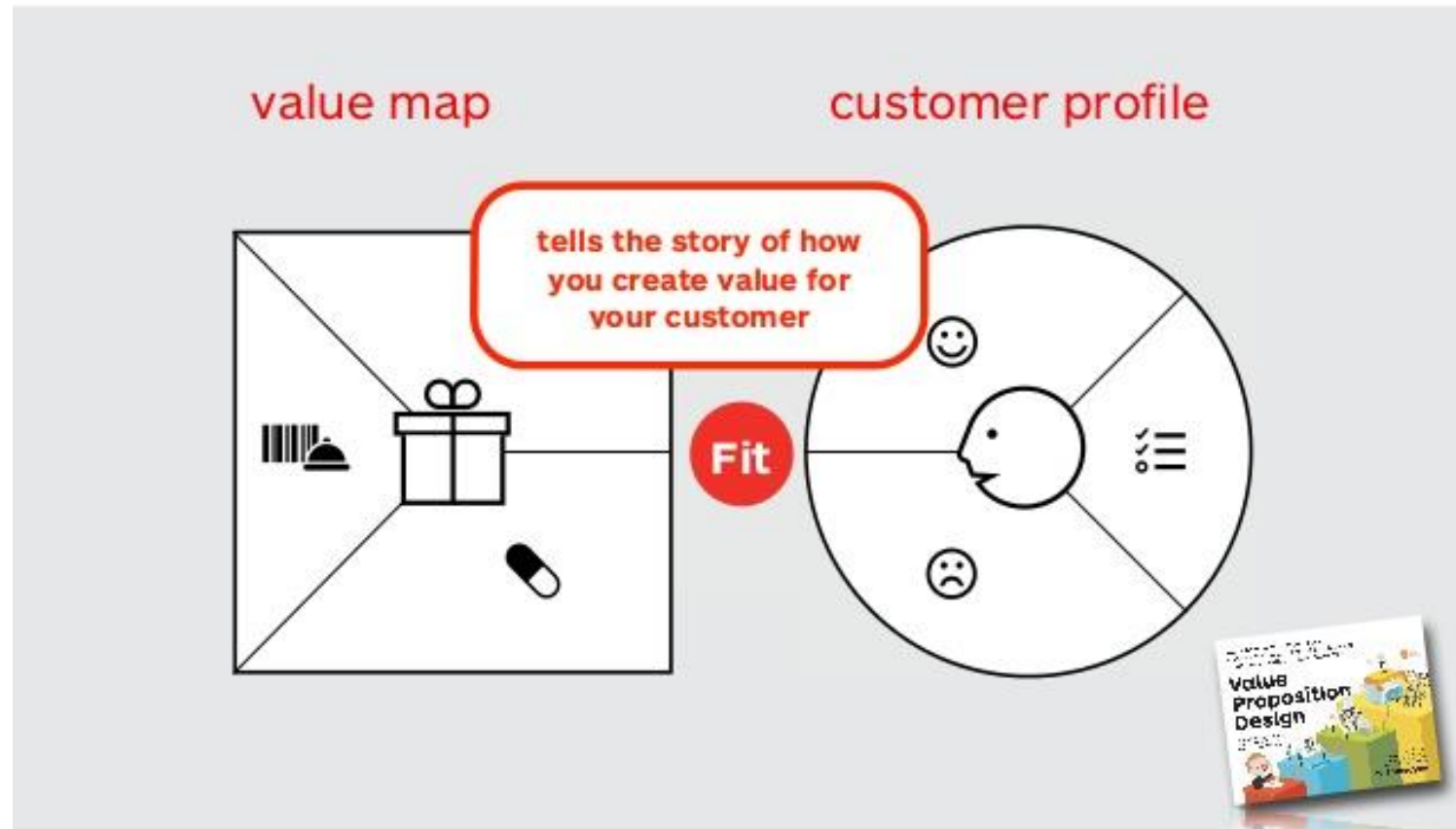


Use the following trigger questions to ask yourself:

Could your products and services...

1. ... produce savings? In terms of time, money, or efforts.
2. ... make your customers feel better? By killing frustrations, annoyances, and other things that give customers a headache.
3. ... fix under-performing solutions? By introducing new features, better performance, or enhanced quality.
4. ... put an end to difficulties and challenges your customers encounter? By making things easier or eliminating obstacles.
5. ... create positive social consequences? By making them look good or producing an increase in power or status.
6. ... do something specific that customers are looking for? In terms of good design, guarantees, or specific or more features.
7. ... fulfill a desire customers dream about? By helping them achieve their aspirations or getting relief from a hardship?
8. ... produce positive outcomes matching your customers' success and failure criteria? In terms of better performance or lower cost.
9. ... help make adoption easier? Through lower cost, fewer investments, lower risk, better quality, improved performance, or better design.

What is your Value Proposition Canvas?



Do this for your product/service

Our _____(1)_____ help(s) _____(2)_____ who want to _____(3)_____ by _(4)_____ and_(5)_____ (unlike _____(6)_____).

(1) Products and Services

(2) Customer Segment

(3) Jobs to be done

(4) verb (e.g., reducing, avoiding) and a customer pain

(5) verb (e.g., increasing, enabling) and a customer gain

(6) competing value proposition

GREAT WORK



THANKS