

Business Plan & Execution for CS Students

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Outline

- Why?
- AARRR Funnel and Lean Startup
- The Missing Parts
 - 0-1 vs. 1-100
 - Customer Factory
- Goal Setting
- Your Business Plan

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Why this series of lectures?

It's about \$ and your life plan

What's Your Dream Job?



Engineer/Scientist



Lawyer



Doctor

Professor
Googler

Manager

Financialist

Accountant

Why?

Ok, Let's Talk about **\$**

- Capitalism vs. socialism?
 - Free competition
 - Private property
- Capitalists vs. labors?

Salary = labor value - surplus value

Salary is (Relatively) Fixed

- Creates sense of security
 - Study/work hard
 - Save \$
 - Buy a house
 - Get married and raise kids
 - Work harder...
- Where does the surplus value go?

Capitalists

- Lay off labors when time is bad
- But never raise salary when time is good

“In 2010-2020, a newborn in top 1/6 inherits more wealth than one in bottom 1/2 can earn in her life.”

- Capital in the 21 Century by Thomas Piketty

- Justice?

Government

- Tax!
- Income tax: up to 45% in Taiwan
 - *Wrong target!*
- Capital levy:
 - Land value tax: up to 5.5% (<1% in reality)
 - Death duties: 10%-20%
- The law is (indirectly) made by the capitalists
- Same for education

If you cannot fight them,
join them!

Ways of Joining...

- Be of professions serving the capitalists
 - Lawyers, accountants, doctors, managers, etc. (not you)
- Be government officials that accept bribes
 - You have to be born in the right family
- Marry a capitalist's daughter or son
 - You have to look good
- To earn your own **\$** without huge capital
 - Investors (your landlord, not you)
 - To earn commissions (not you)
 - ***Be an entrepreneur***
- Or just be a happy labor
 - Have nice job at Google, Facebook, IBM, Microsoft, etc.
 - But don't complain when you get laid off at 40s!

Why Entrepreneur?

- You don't need
 - A rich daddy
 - A pretty face
- The web/app/SaaS markets are ***flat*** today
 - You have “super power” as a software developer
- Challenge:
 - You have to be the winner to take all

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Disclaimer

- Not for general startups
- Focus on the ***web & app industry***
 - Lakes long-term justification
 - Subject to change
 - Worse, I am biased
- Aim: to be value-added by the practitioners

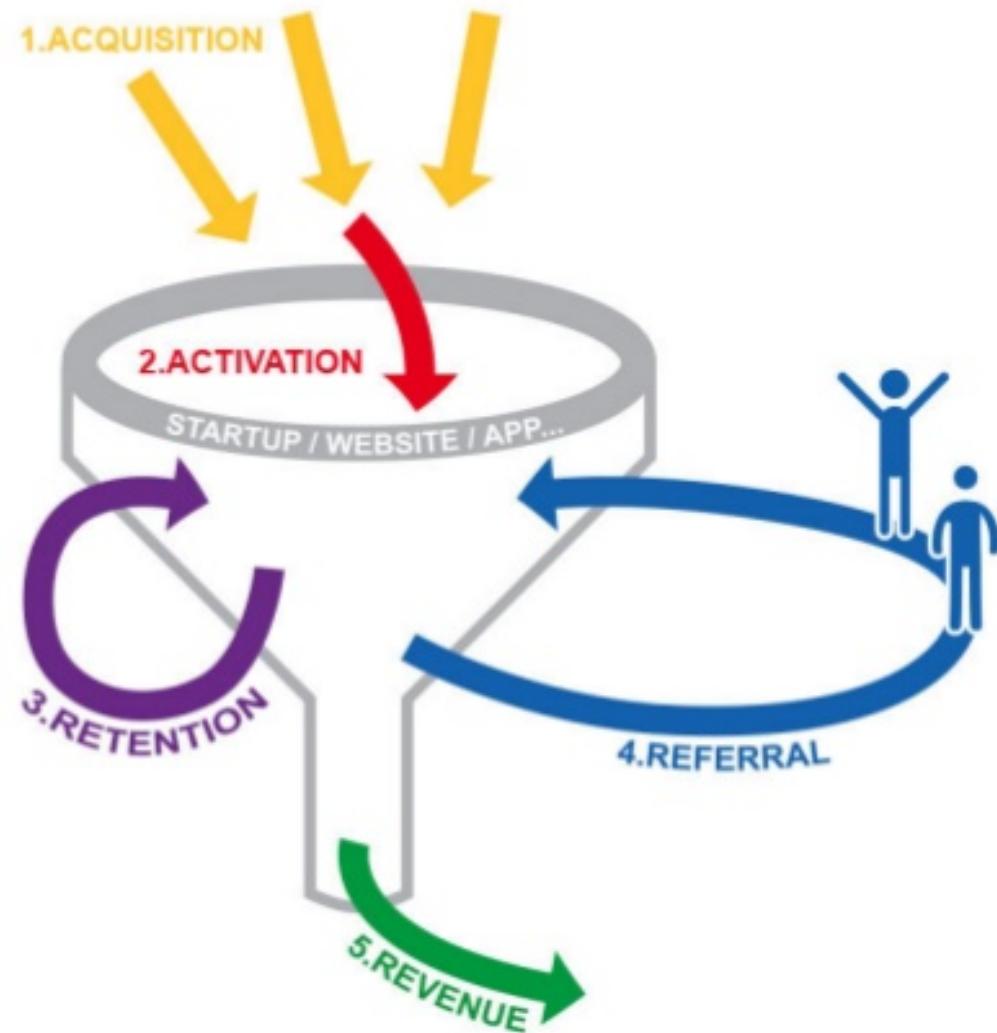
What is a startup?

“A startup is an organization formed to search for a *repeatable* and *scalable business model*.”

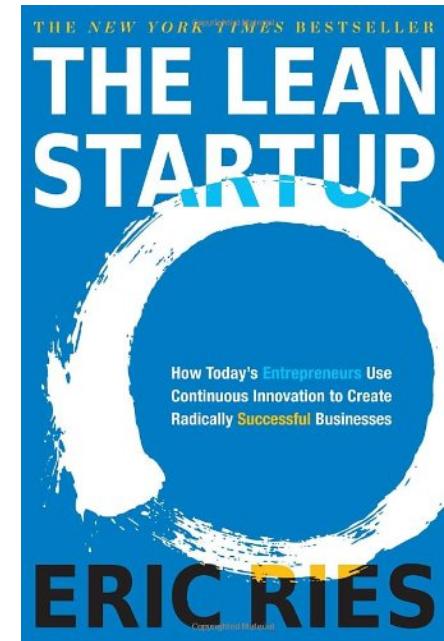
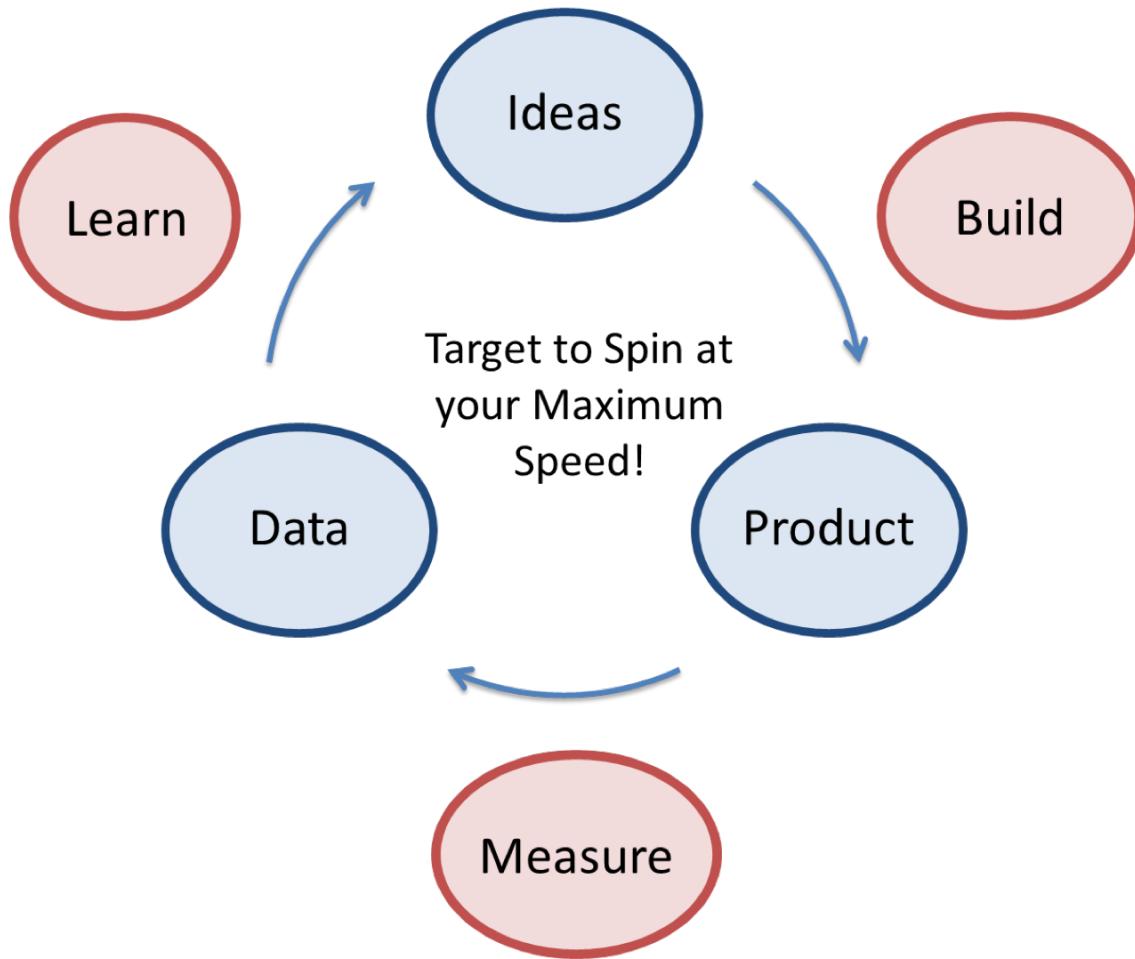
You make \$, or get out!

Product Launched! And Then?

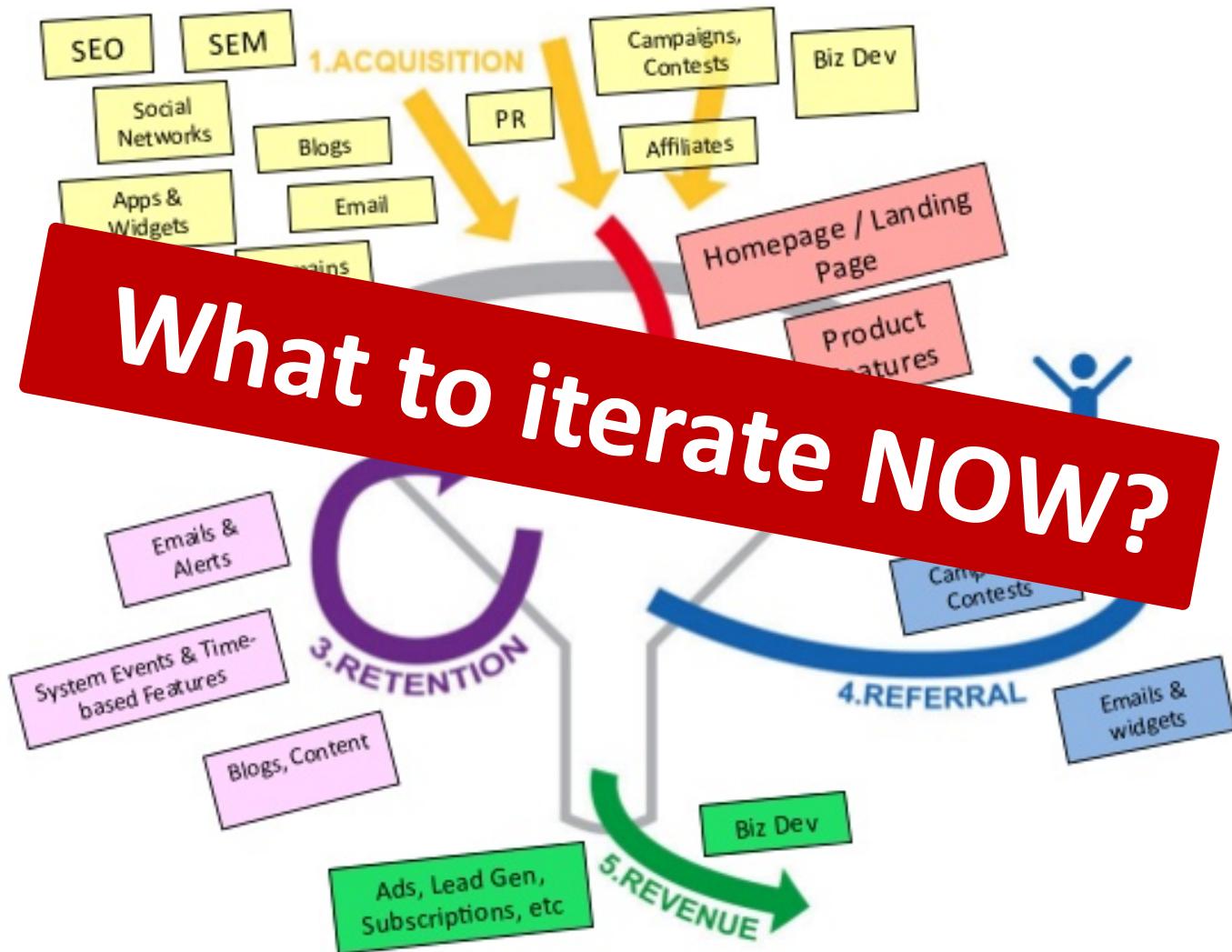
- **A**cquisition
- **A**ctivation
- **R**etention
- **R**eferral
- **R**evenue



Silicon Valley's Style: Lean Execution



Problem: Too many TODOs



Solution 1

- I should hire a guy with MBA degree
 - after my product is ready



Solution 2

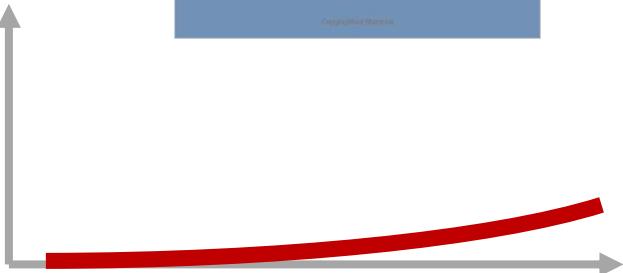
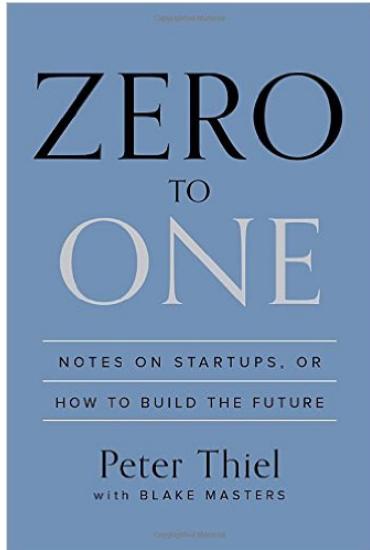
- Let's be a team!
 - You do iterations for Acquisition & Revenue
 - I take care of iterations for the rests



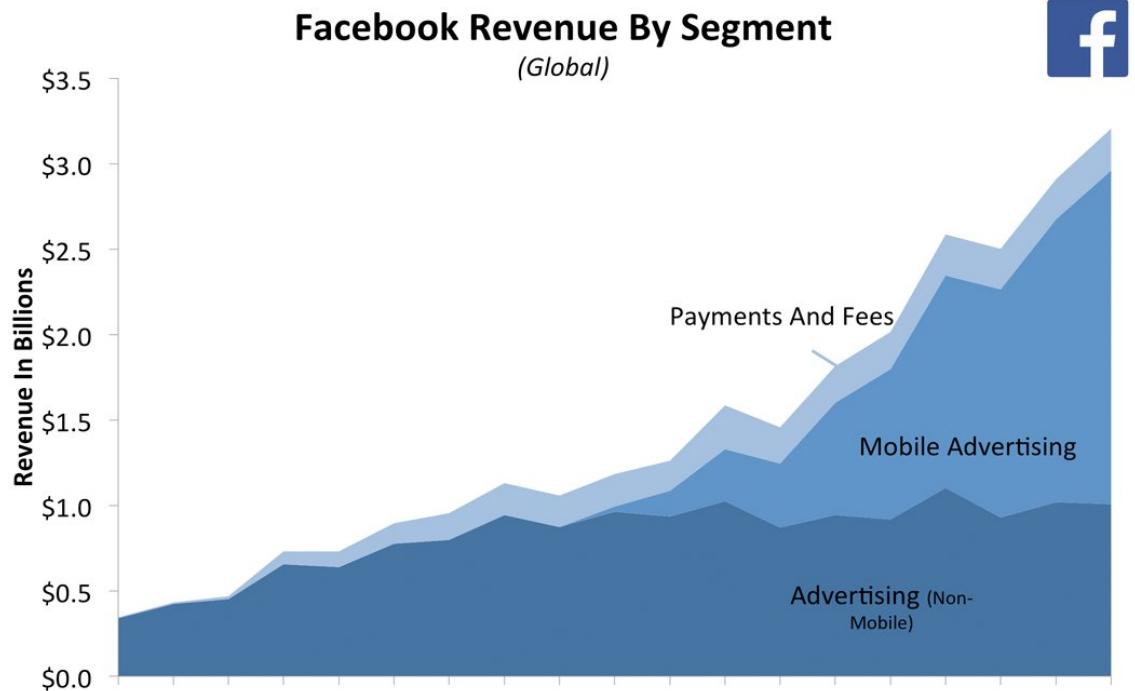
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0 to 1 ≠ 1 to 100



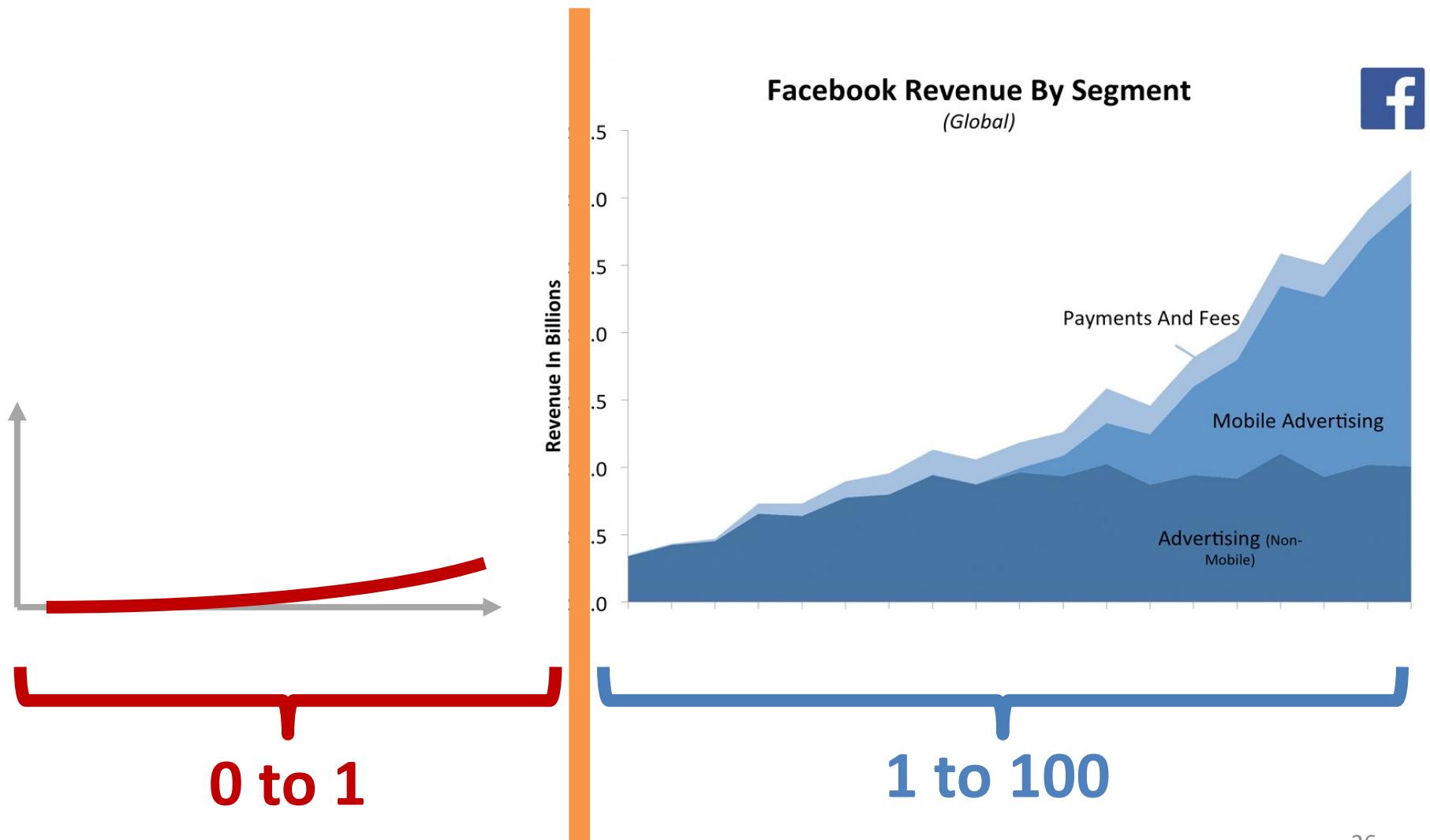
0 to 1



1 to 100



“You’ve found a repeatable and scalable business mode in **1** customer segment.”



Don't Hire MBAs (Now)

- Trained for 1-to-100 stage
 - Case studies
 - Theories

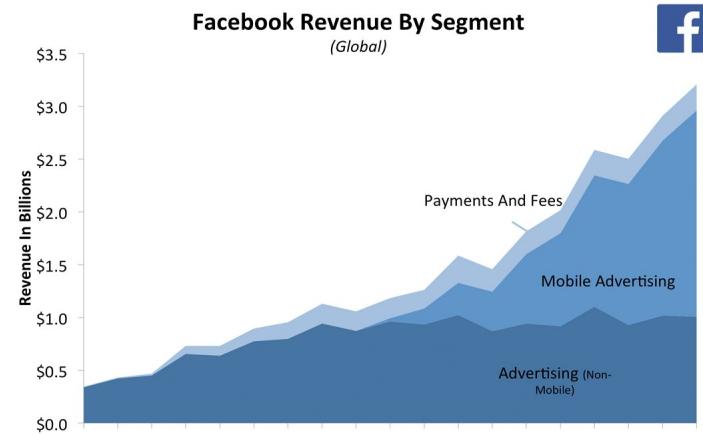


$$\text{ROI} = \frac{(R - C - OE)}{G}$$

Net Profit

 $R - C - OE$

Gross Profit



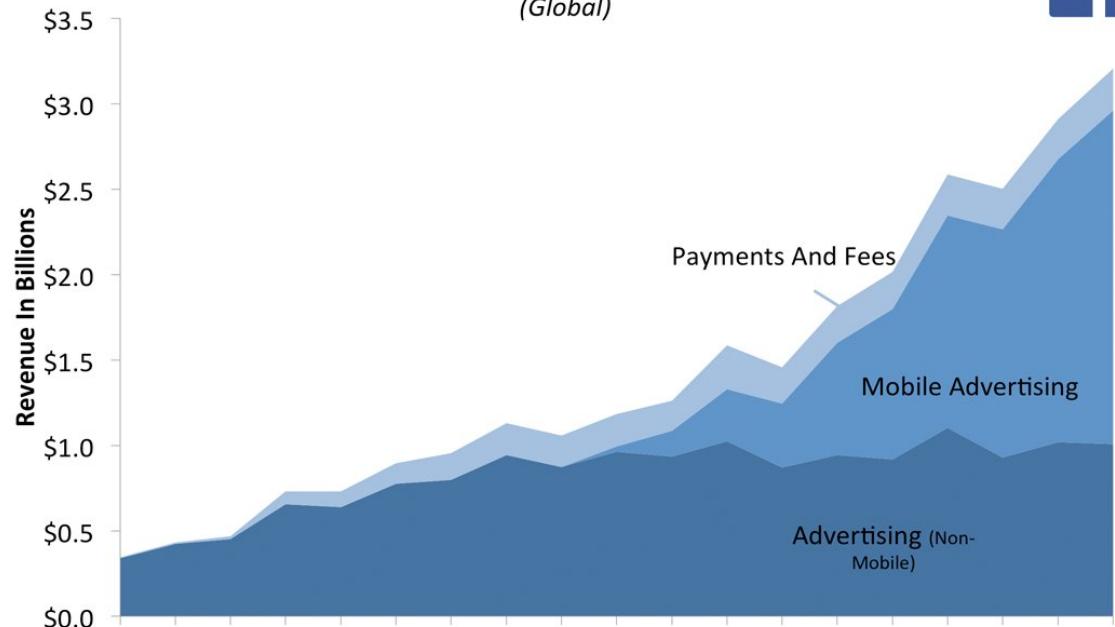
0 to 1

**Customers
(# users)**



1 to 100

**Facebook Revenue By Segment
(Global)**



Max #Customers

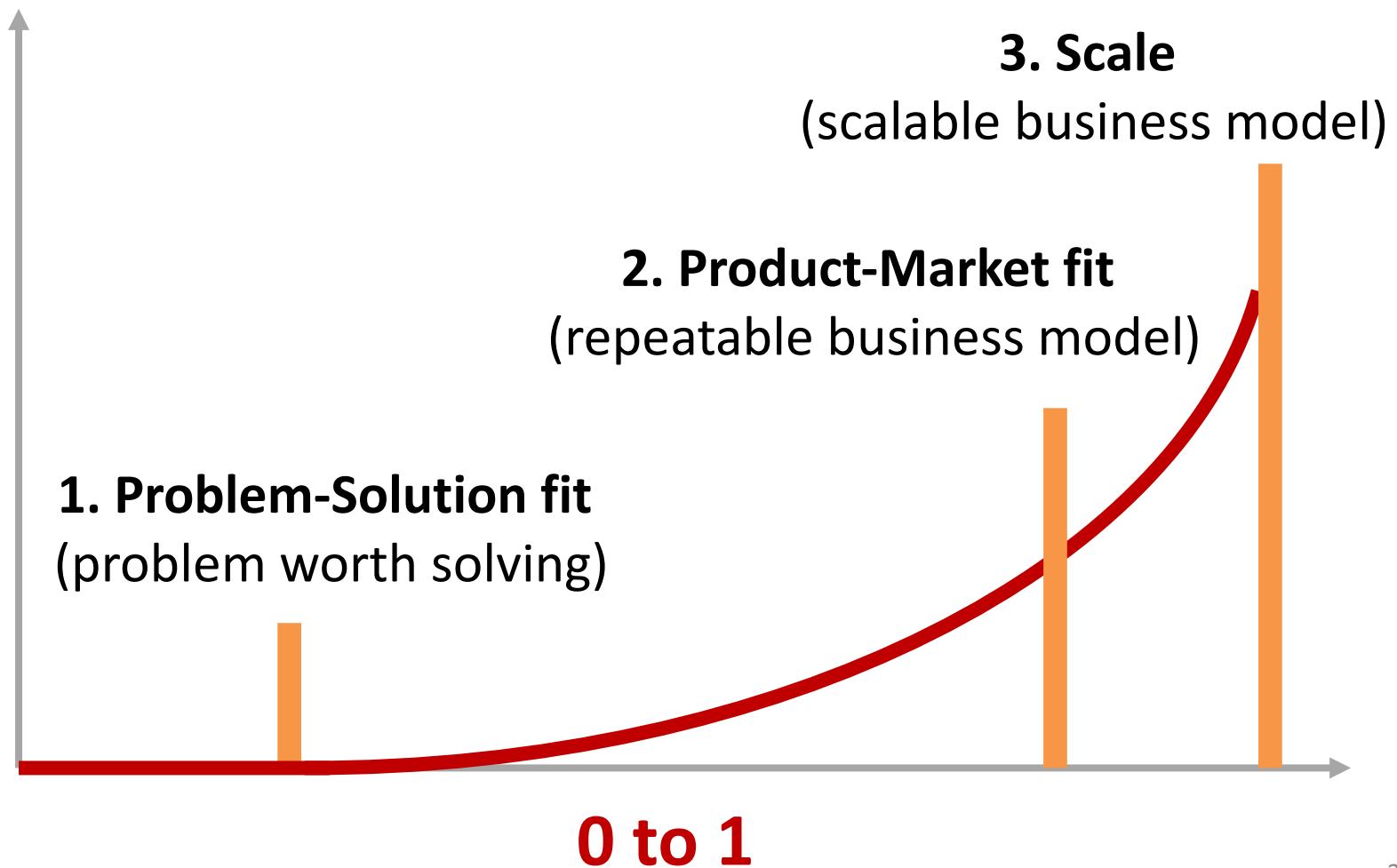


Max ROI



Non-Linearity & 3 Milestones

Customers



How to Reach PSF?

- You are solving a problem that people care
 - Hack: ***don't*** build a product just to validate it
1. Pitch potential users using a ***landing page***
 2. Observe what they ***did*** (not said)

Example

The image shows a dark, semi-transparent overlay of a website for "FriendlyAlarm". The website has a navigation bar with links for "FriendlyAlarm", "Why", "Features", "Pricing", and "About". Below the navigation, there are three main sections: "1. Problem", "2. Solution", and "3. Call to action (CTA)". Each section contains a bullet point with an example. The "Problem" section has a bullet point "– E.g., ‘Have you ever...?’". The "Solution" section has a bullet point "– E.g., unique features + UI mockups". The "Call to action (CTA)" section has two bullet points: "– E.g., ‘Get Notified’ or ‘Share’" and "– Advanced: time on each section, exit point, expandable FAQ, etc.". The background of the overlay shows a blurred image of two people smiling.

1. Problem

- E.g., “Have you ever...?”

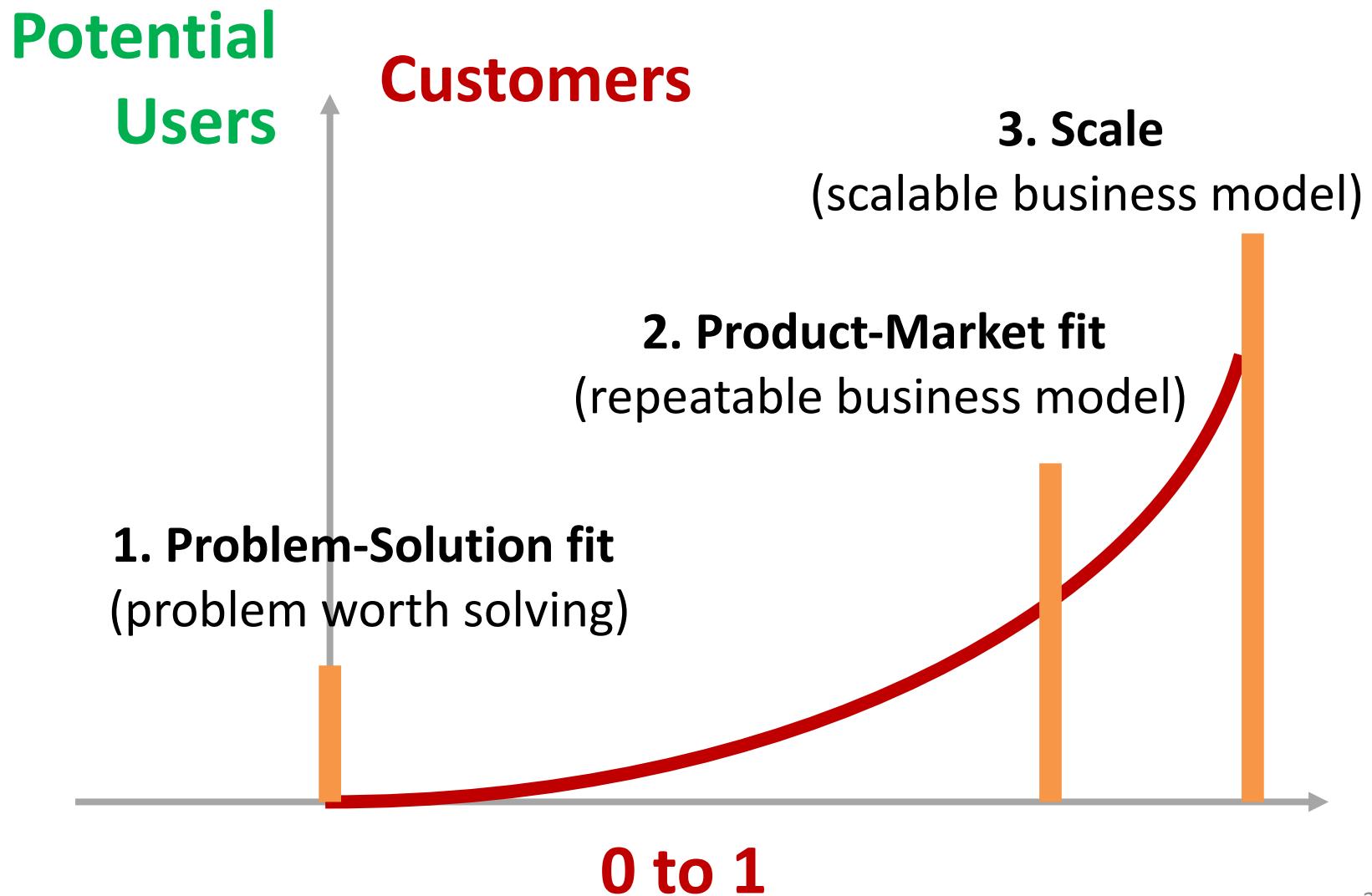
2. Solution

- E.g., unique features + UI mockups

3. Call to action (CTA)

- E.g., “Get Notified” or “Share”
- Advanced: time on each section, exit point, expandable FAQ, etc.

Goal: Get Potential Users

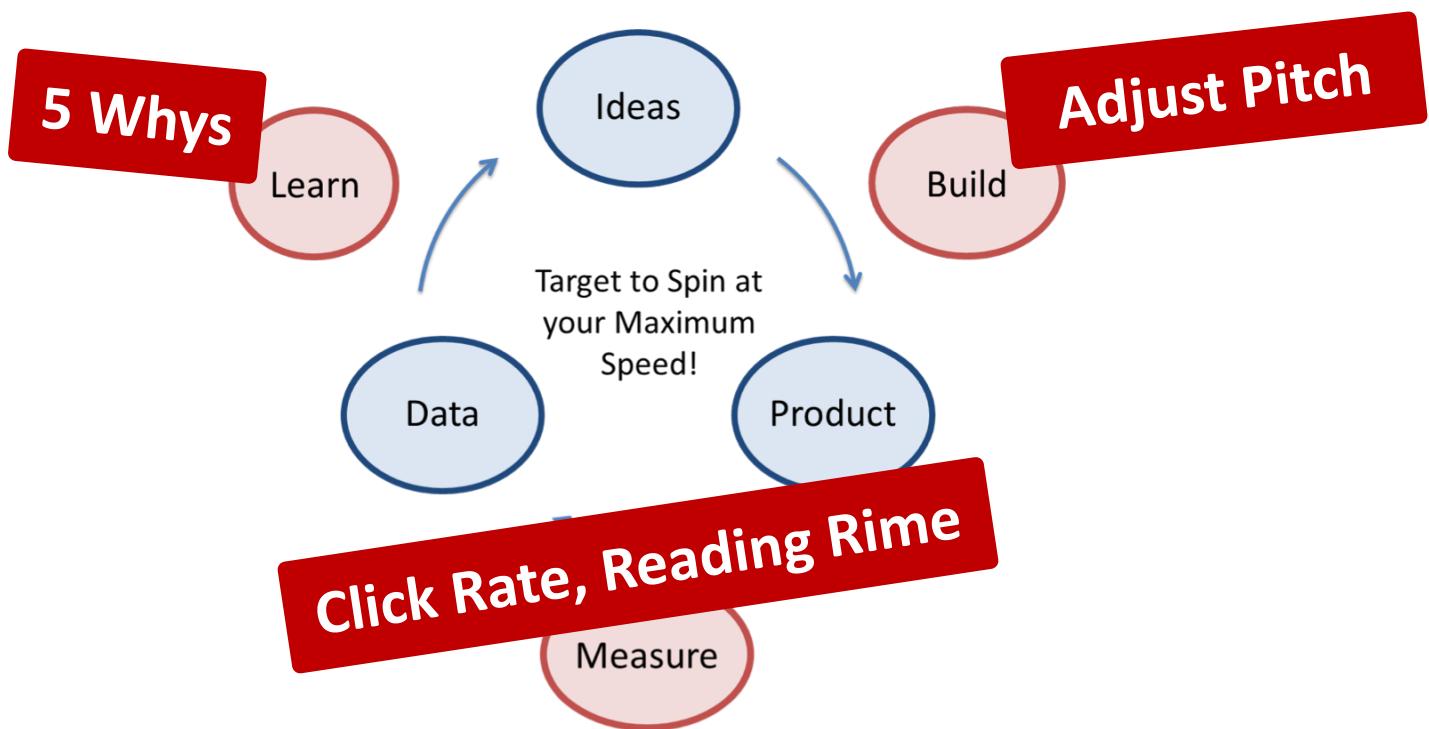


Your First Battle: Acquisition

- Let's accept it: acquisition costs!
 - Either time or **\$**
- Free channels first (take time)
 - FnF, Reddit/PTT, blogs/comments, Q&A, etc.
- Ask “strangers”
 - “My project” → “My friend’s project”

Iterate to Get SPF

- Goal: satisfactory #clicks in limited time
 - E.g., (100 in 2 weeks) or (50 in 1 week)
- Parallel iterations if you have multiple ideas



5 Whys

Why? No user clicks

- by Sakichi Toyoda

Why? Visitors leave at “How it works?”

Why? Leave at “Invite...”



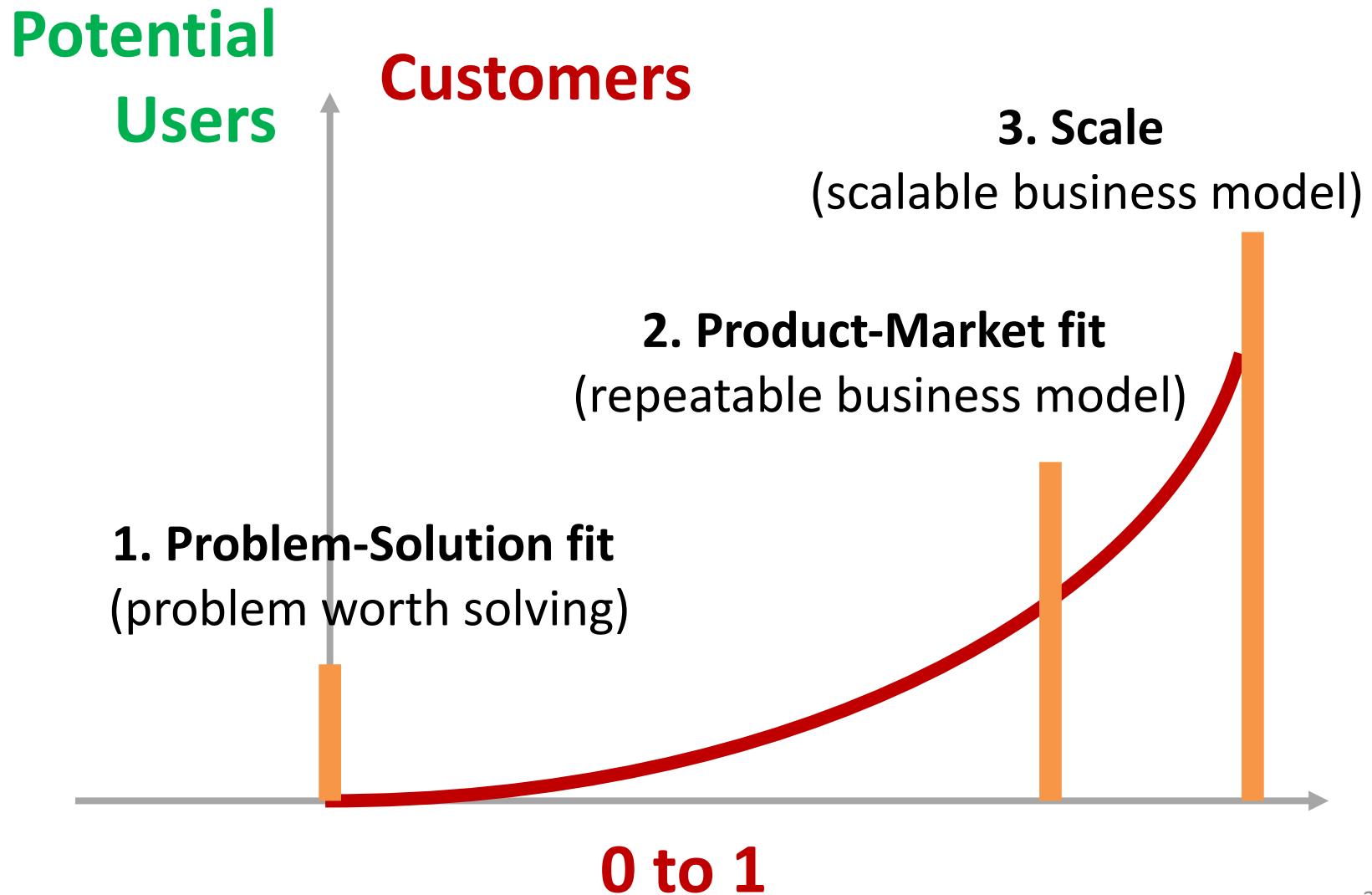
Why? Social pressure

How to improve?

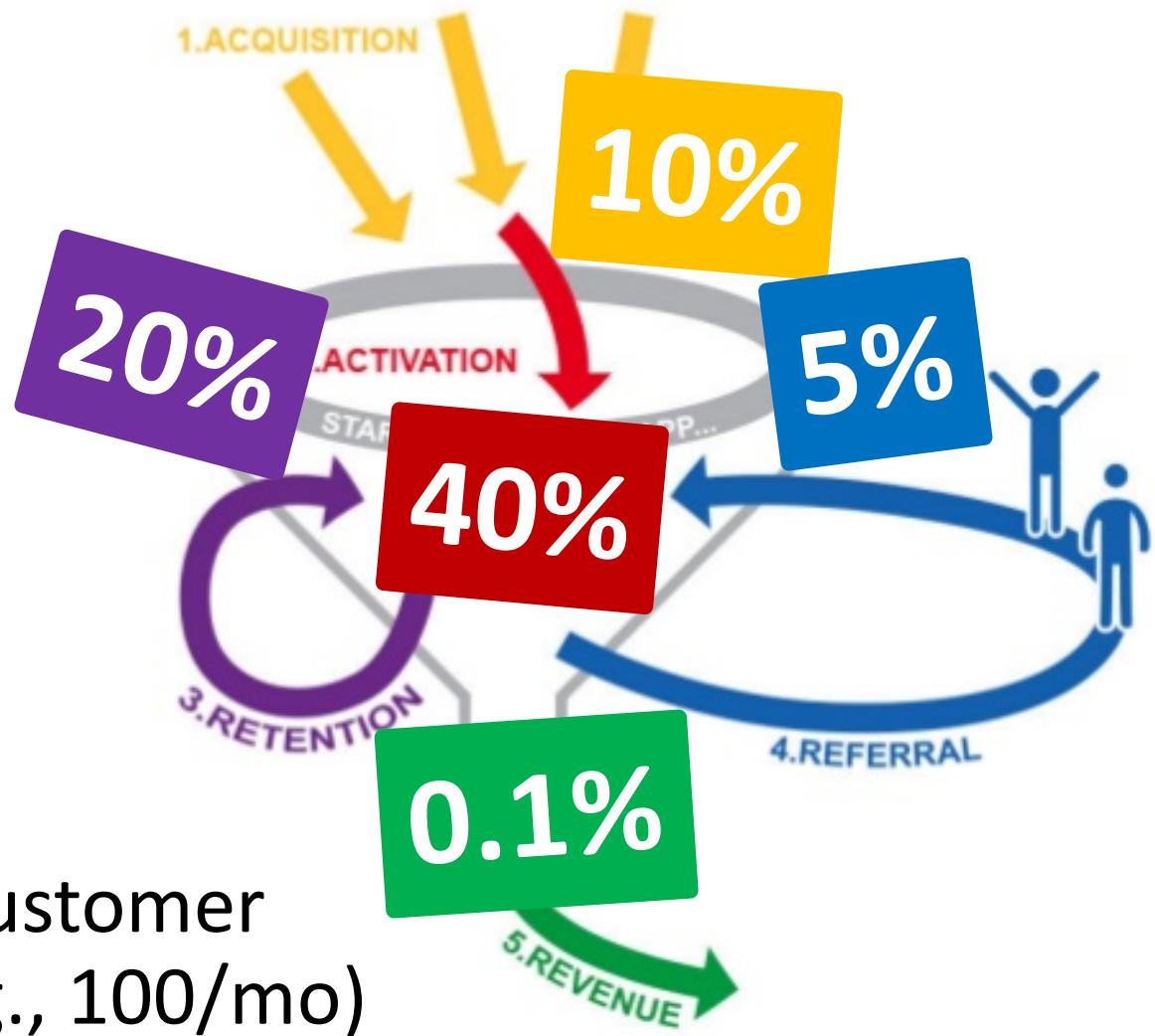
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Build Product *after* PS Fit



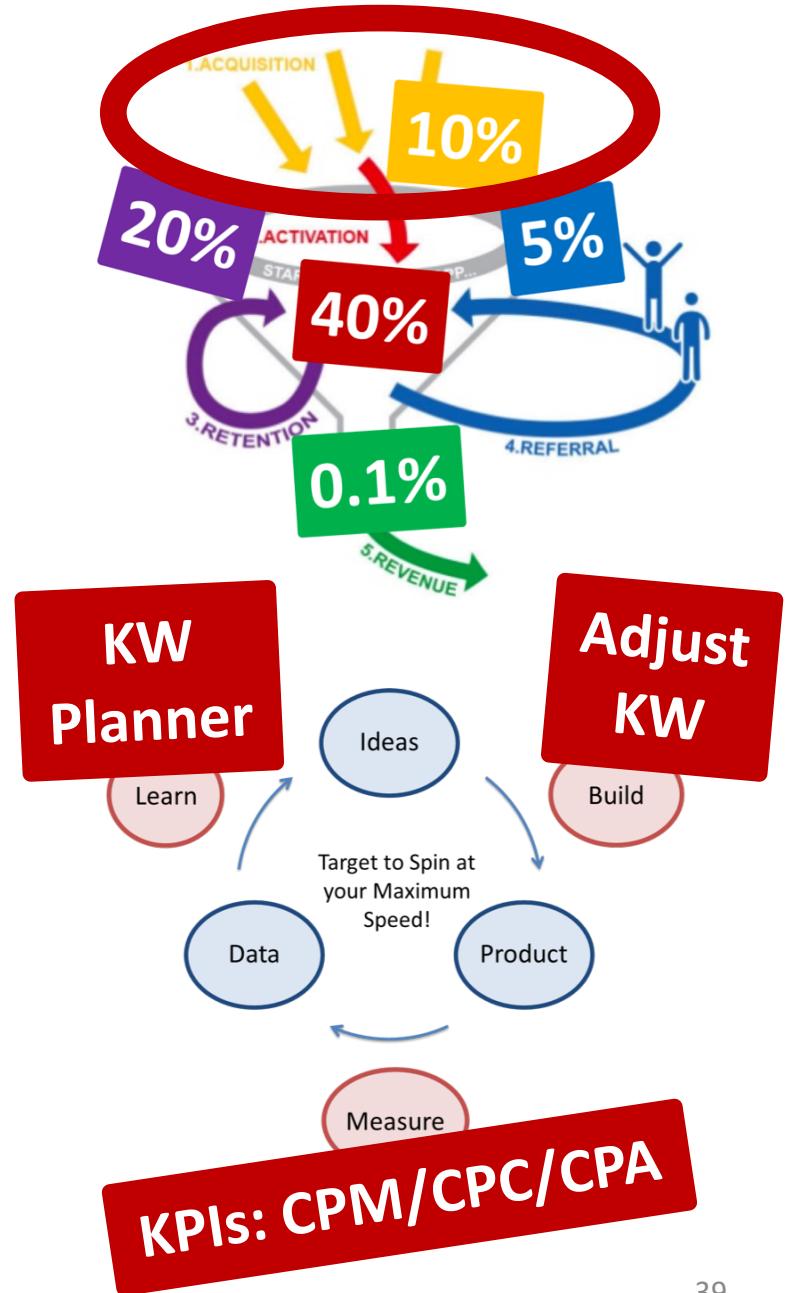
Product Launched. Where's PMF?



- PMF =
Satisfactory Customer
Gen. **Rate** (e.g., 100/mo)

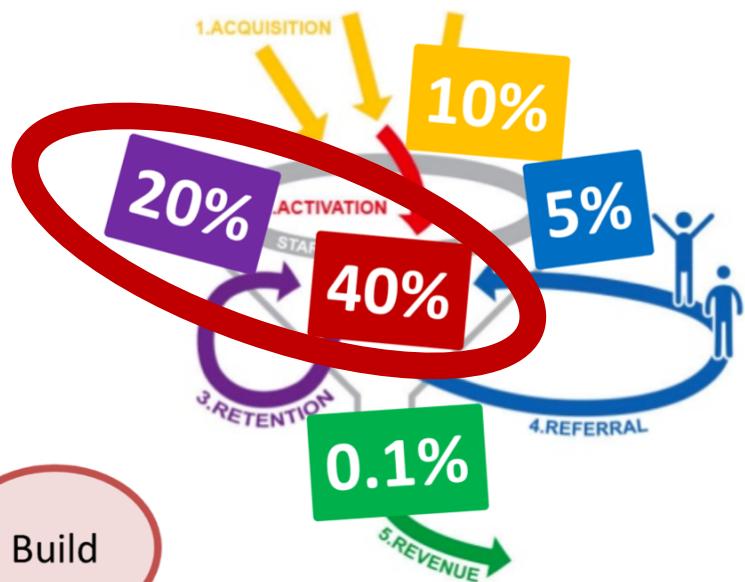
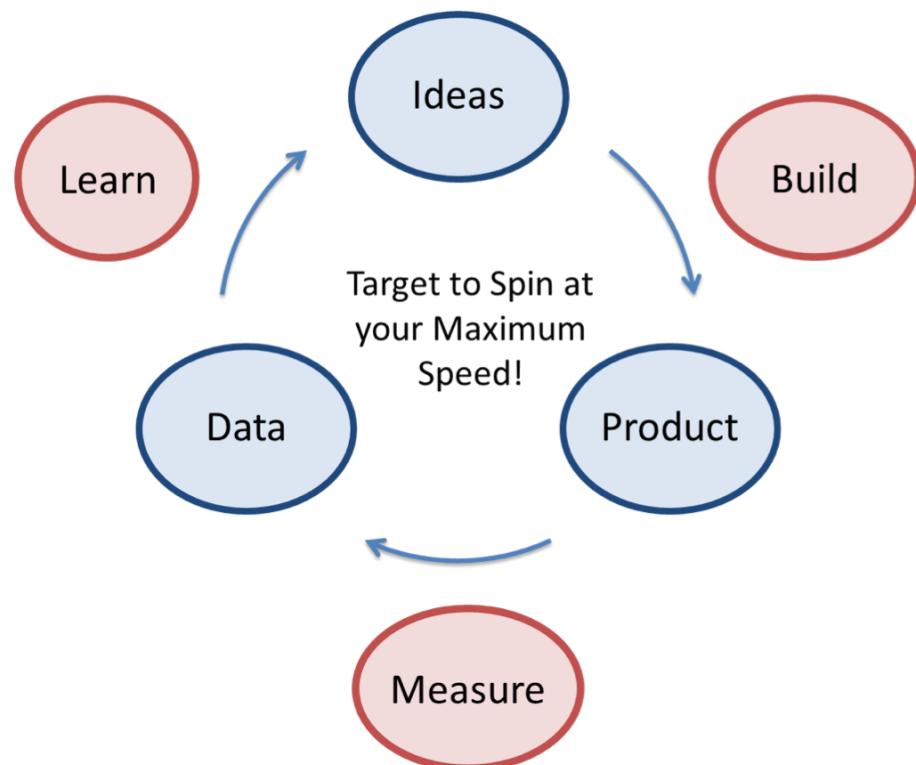
Battle 1: Acquire Enough Early Users

- Acquisition costs!
- Luckily, you don't need a large user base
 - Stealth mode
- How “strangers” discover your product?
 - E.g., SEO/ASO
- Focus on ***lasting*** channels



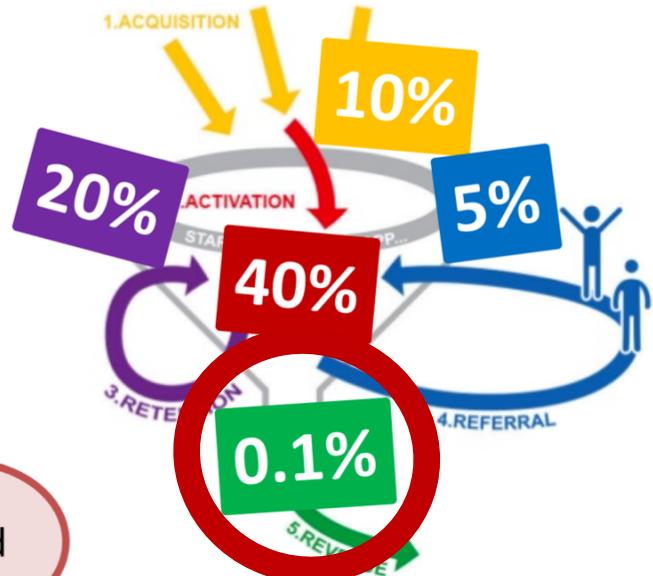
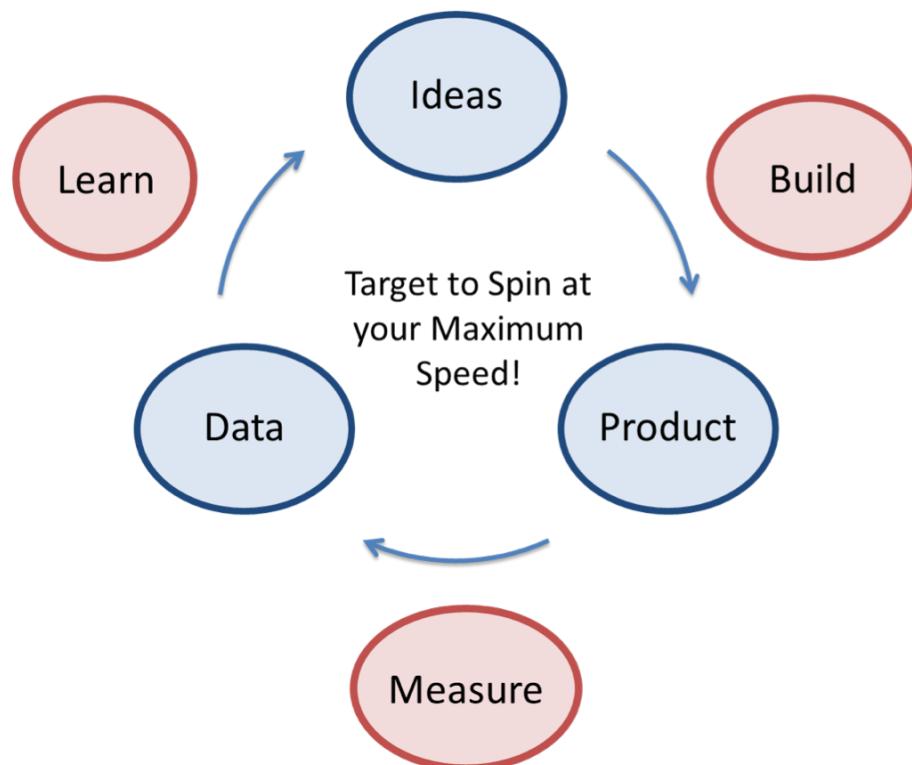
Battle 2: Make Users Happy & Returning

- Topics of 2nd lecture



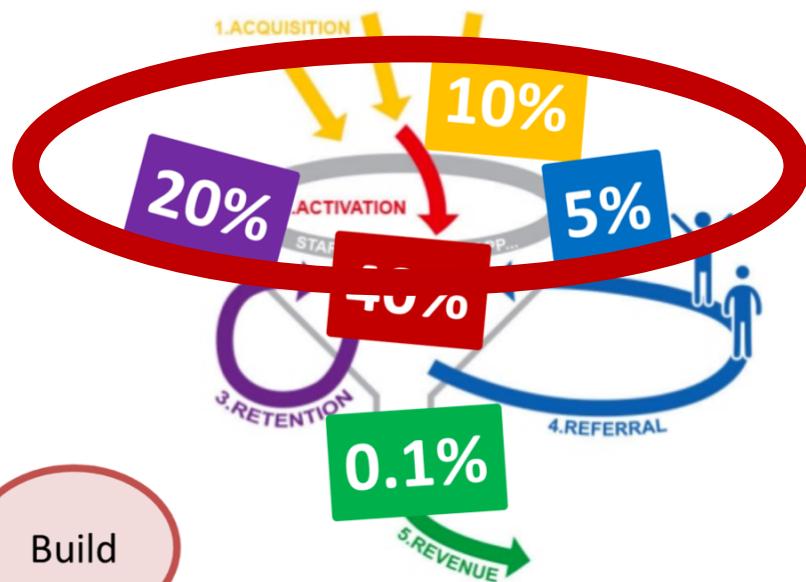
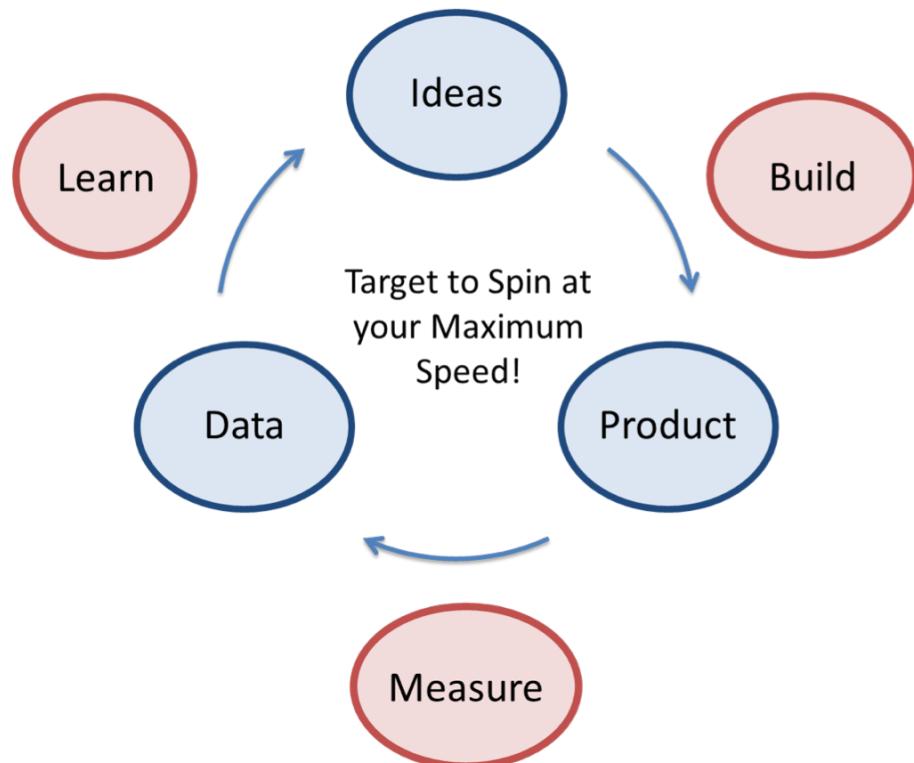
Battle 3: Repeatable Business Model

- Topics of 3rd lecture



Battle after PMF: Scale

- Topics of 3rd lecture



Team Collaboration: Lean Dashboard

Where are we? What KPI to improve?

Customers

1. Problem-
(problem worth solving)

**Everyone works on
the same KPI at a time!**



Past, current, and next experiments



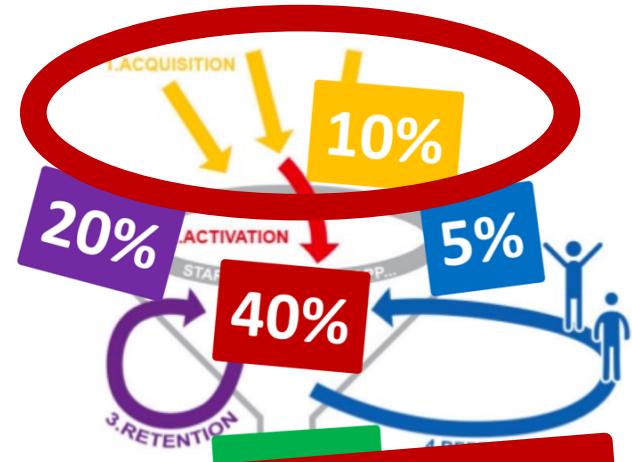
Pitfalls of Lean Execution

- Here're the results. Are we success or not?
- Did not take into account

Evaluable Experiment:
[Repeatable Action] leads to [Predictions]
before [Deadline]

All members play a “game”

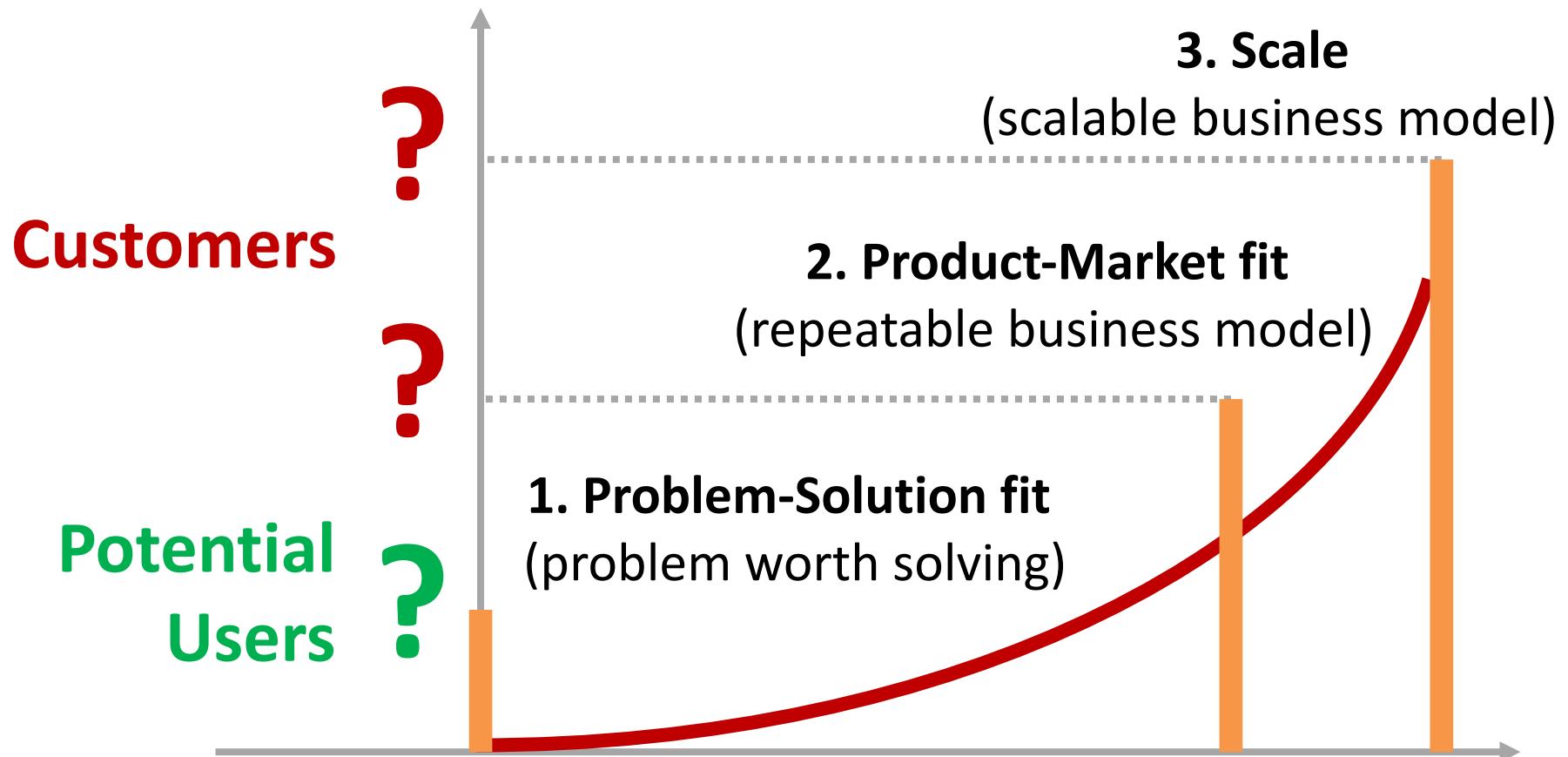
- Action not repeatable
- No deadline



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What Are the Satisfactory Numbers?



Fermi's Notebook Method

- Input: very few data
- Output: estimate *in order of magnitude*



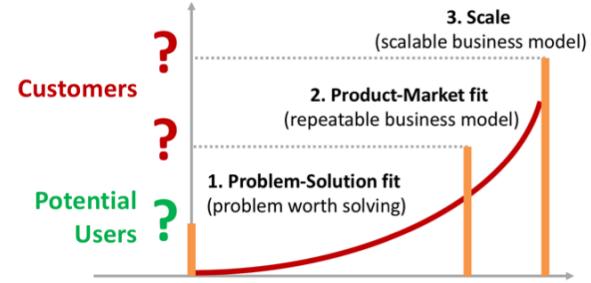
Enrico Fermi

Exercise: How Many Piano Tuners in Chicago?

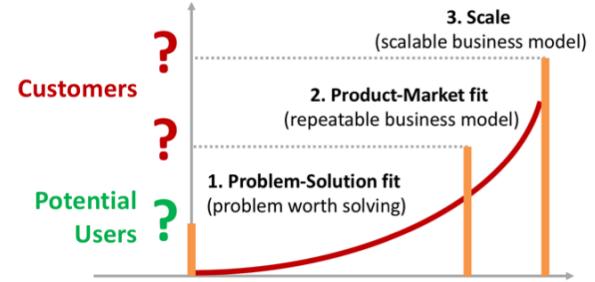
- #people? 100K, 1M, 10M
 - 1M people
- Piano rate? 1/10, 1/100, 1/1000
 - $1M * 1/100 = 10K$ pianos
- #pianos tuned by a tuner / year? 100, 1000
 - $10K / 100 = \textcolor{red}{100}$ tuners
- Correct answer: 81 in 2016

How to Set Goals?

- User lifetime? 1w, 1mo, 1yr
 - 1mo (most app users churn in 3Ms)
- Satisfactory revenue/mo? \$1K, \$10K, \$100K
 - \$10K (2 founders: \$4K, servers: \$0.5K, ads: \$5.5K)
- User lifetime value (LTV)? \$1, \$10, \$100
 - \$1
- #customers@scale: $\$10K / \$1 = \textcolor{red}{10K}$
- #customers@pmf: $10K / 10 = \textcolor{red}{1K}$



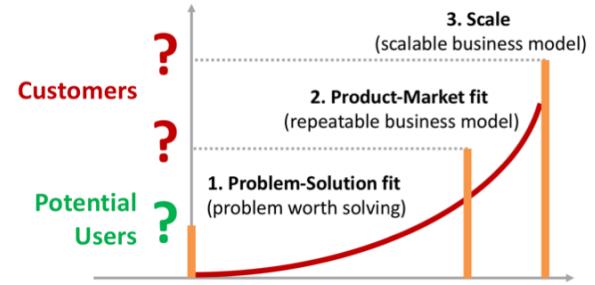
How to Set Goals?



- User/customer conversion rate? 0.1, 0.01, 0.001
 - 0.01
- #customers@spf: 1
- #potential users@spf: **100**

How to Set Price?

- Customer LTV: \$1
- PMF goal: 1K customers/mo
- User/customer conversion rate: 0.01
- PMF goal: 100K users/mo
- ***What if LTV = \$10?***
- PMF goal: 10K users/mo
- Should take into account competitors' pricing



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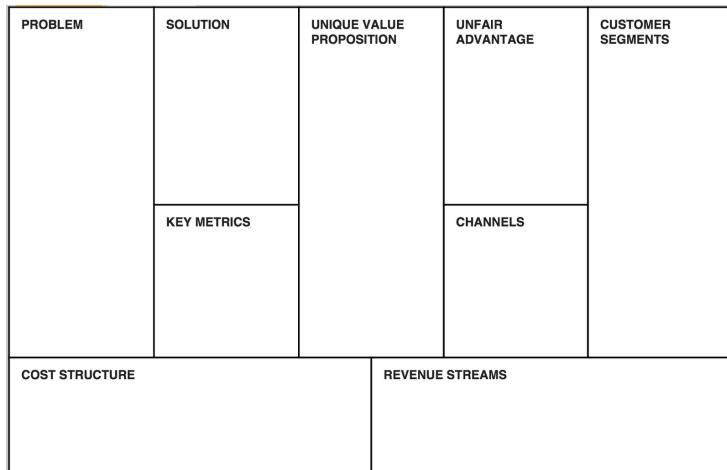
A business plan is a plan to be a startup.

Business Model

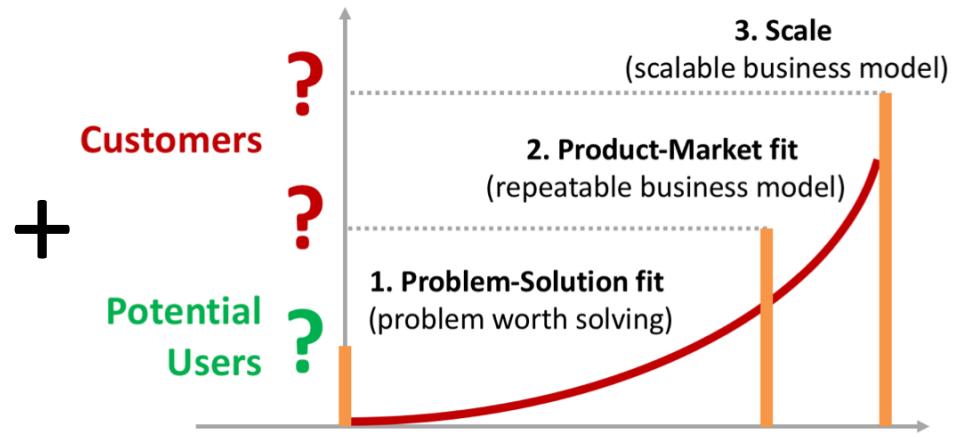
- A way to make **\$** from your customers
- Types:
 - Direct (e.g., Amazon)
 - Multi-sided (e.g., Google, Facebook)
 - Marketplace (e.g., Airbnb)
- If possible, start from a direct model
 - Other models require a ***critical mass***
 - High burn rate: $ROI = (R - C - \text{OE}) / I$

Business Plan

Lean Canvas



Key Numbers



Also:
revenue@scale
Customer LTV
User/customer conversion rate

Your BP Presentation

- 3 minutes for each team
- At most 9 pages:
 1. Problem (Real? Poorly met?)
 2. Customer segments (Early adapters?)
 3. Solution (Partial?)
 4. Unique value proposition (High enough?)
 5. Unfair advantage (Know how?)
 6. Channels (Start from small?)
 7. Pricing & revenue streams
 8. Cost structure
 9. The 6 key numbers