# CSE 403

Software engineering in the small (Startups)

CSE 403: Software Engineering

- Basic introduction to software engineering

- Typical for small engineering teams (5-10 people), in small companies (and big companies)

- Is there an alternative? Say, when starting a company?

Where we are at...

- You have a good foundation of fundamentals

- You have current up to date skills

- You are working well as a team
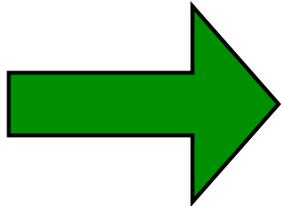
→ Can you start a company?

Mostly thinking about consumer products...

The Lean Startup

The Lean Startup: a scientific approach to creating and managing startups and get a desired product to customers' hands faster.

Details

THE LEAN STARTUP

How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses

ERIC RIES

The Four Steps to the Epiphany

Successful Strategies for Products that Win

Steven Gary Blank
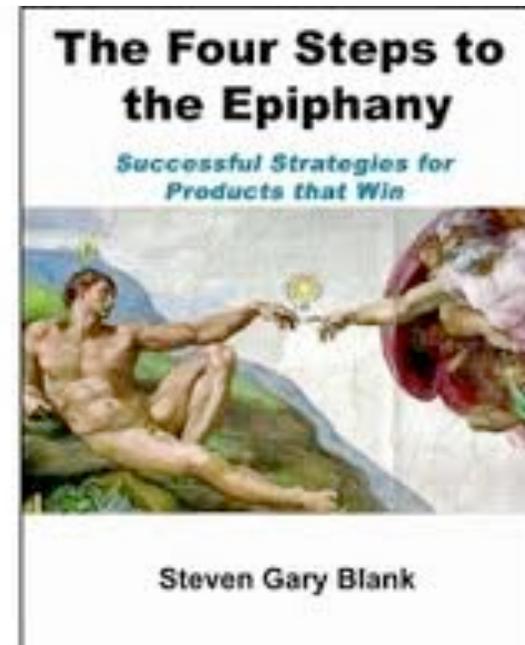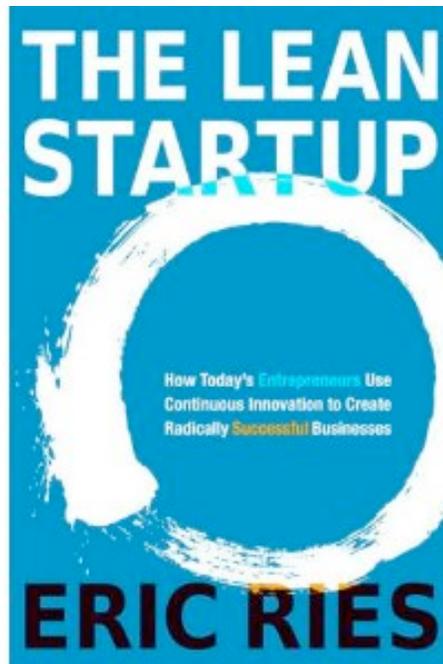
Minimal Team

- Hacker (Person writing most of the code)

- Hustler (Business side of things, product management)

- Hipster (Designer)

- Could add 2-3 more hackers

From idea to prototype

- What's the high level vision?

- Customer analysis

- Market sizing

- Assess your skills

- Figure out your tools and platform

Hack out a prototype

- 10 weeks?

- 2 weeks?

- Weekend?

Hackathon

A **hackathon** (also known as a **hack day**, **hackfest** or **codefest**) is an event in which computer programmers and others in the field of software development, like graphic designers, interface designers, project managers and computational philologists[1], collaborate intensively on software projects.[2]

Hackathons

Iterate on the prototype

- Starting point for testing and fast iterations

- Apply pirate principles to get customers

- See what traction you get

- Ignore much of the software process that we've talked about -- back fill later

- Form a company, get some money, hire some people

- Search for product/market fit

# Goal: Product-Market fit (Discover customers)

Iteration

Customer Discovery — STOP

Customer Validation — STOP

The **Search** for a Business

Goal: Product-Market fit (Discover customers)
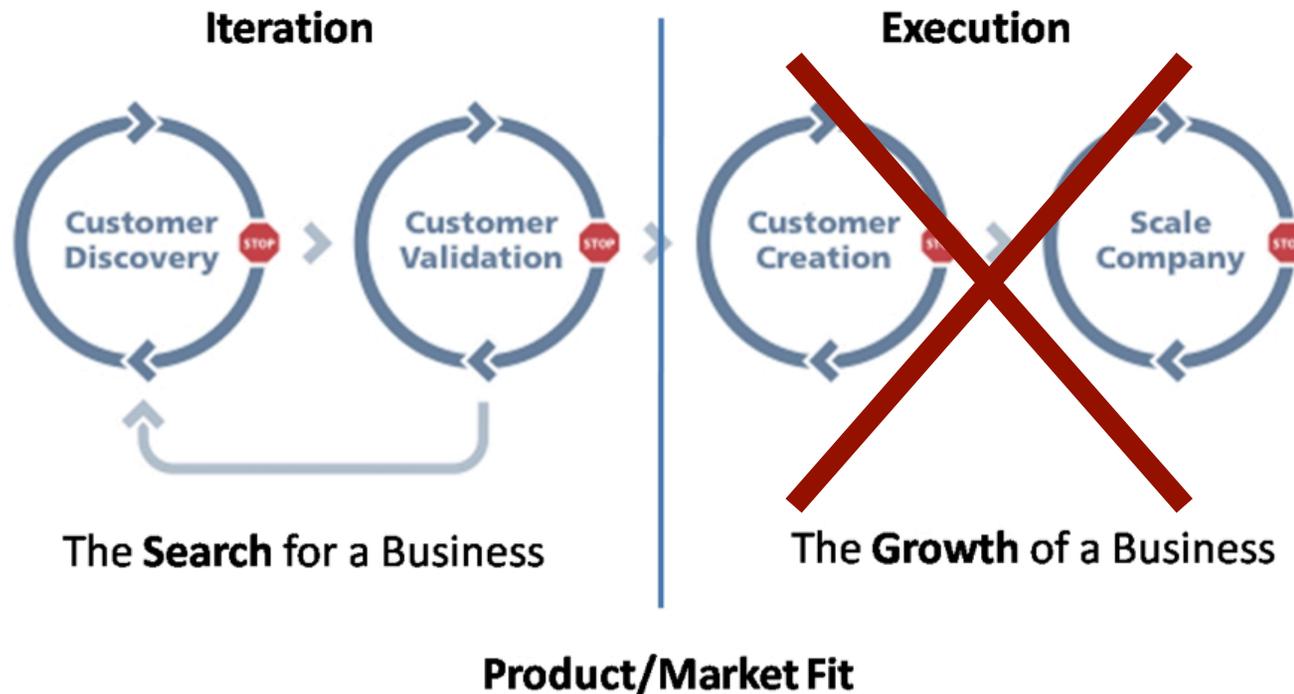
Lean startup process
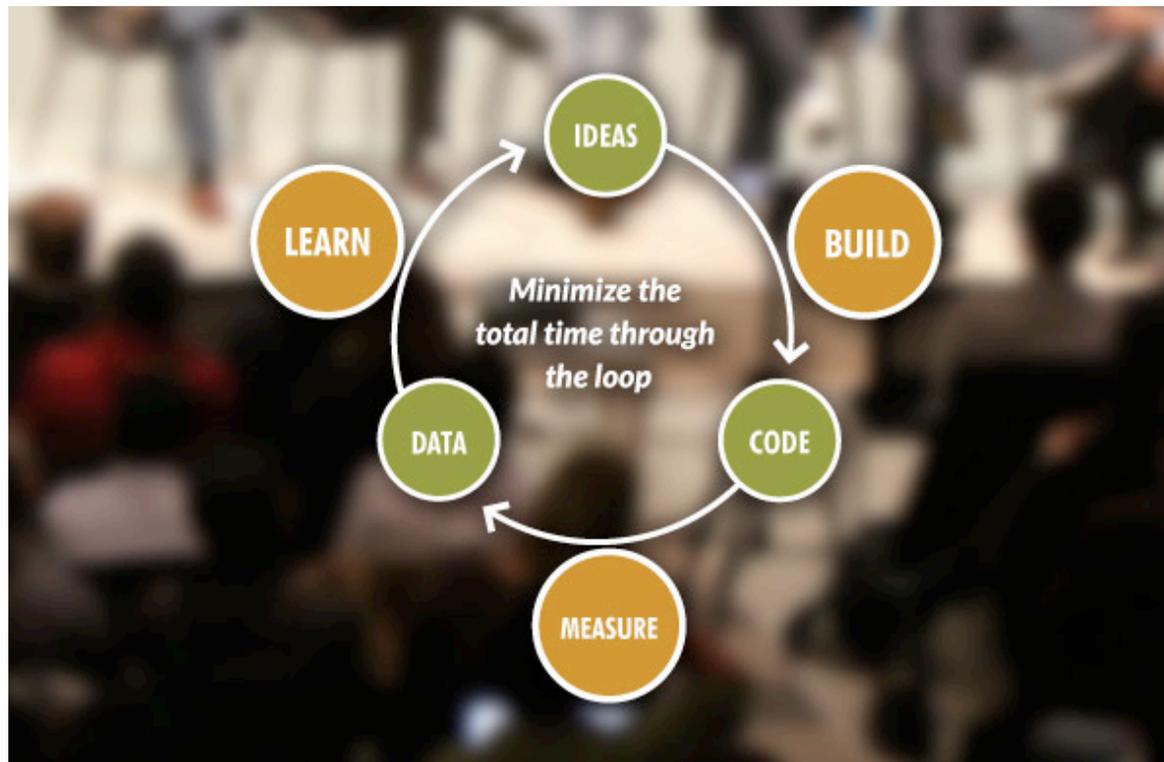
In search of the minimum viable product
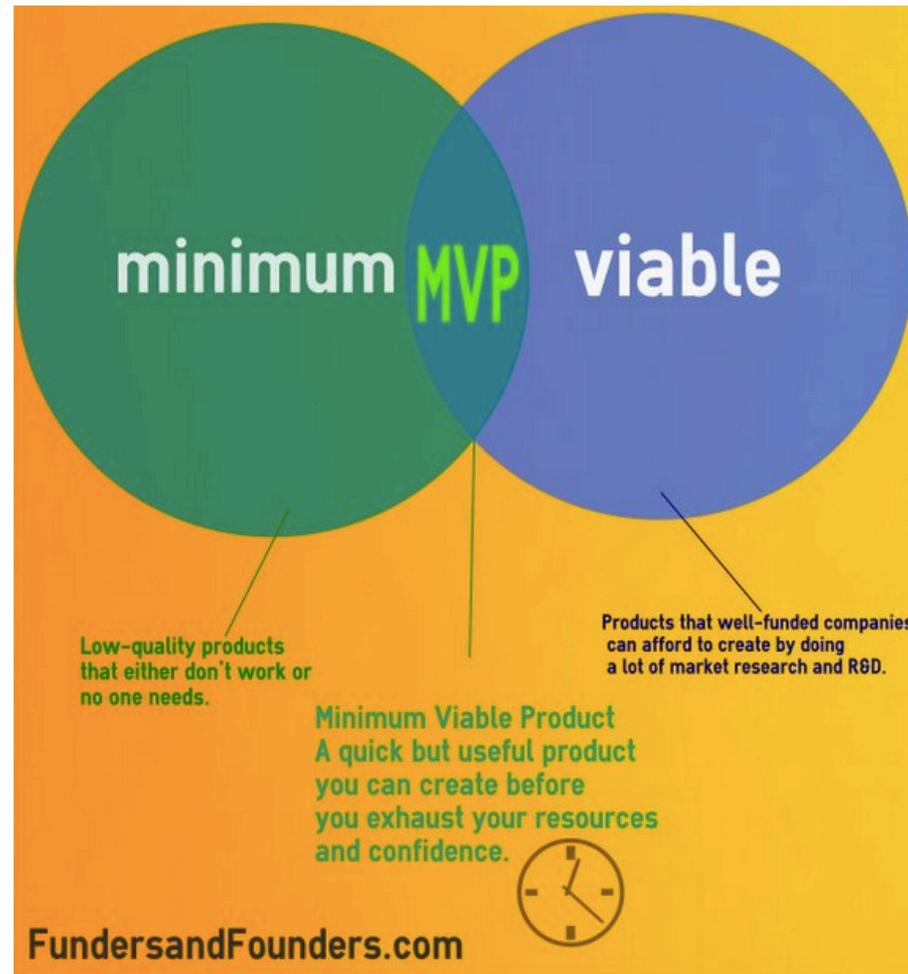
Transition to growth

Execute

Iteration — The **Search** for a Business

Execution — The **Growth** of a Business

Customer Discovery → Customer Validation → Customer Creation → Scale Company
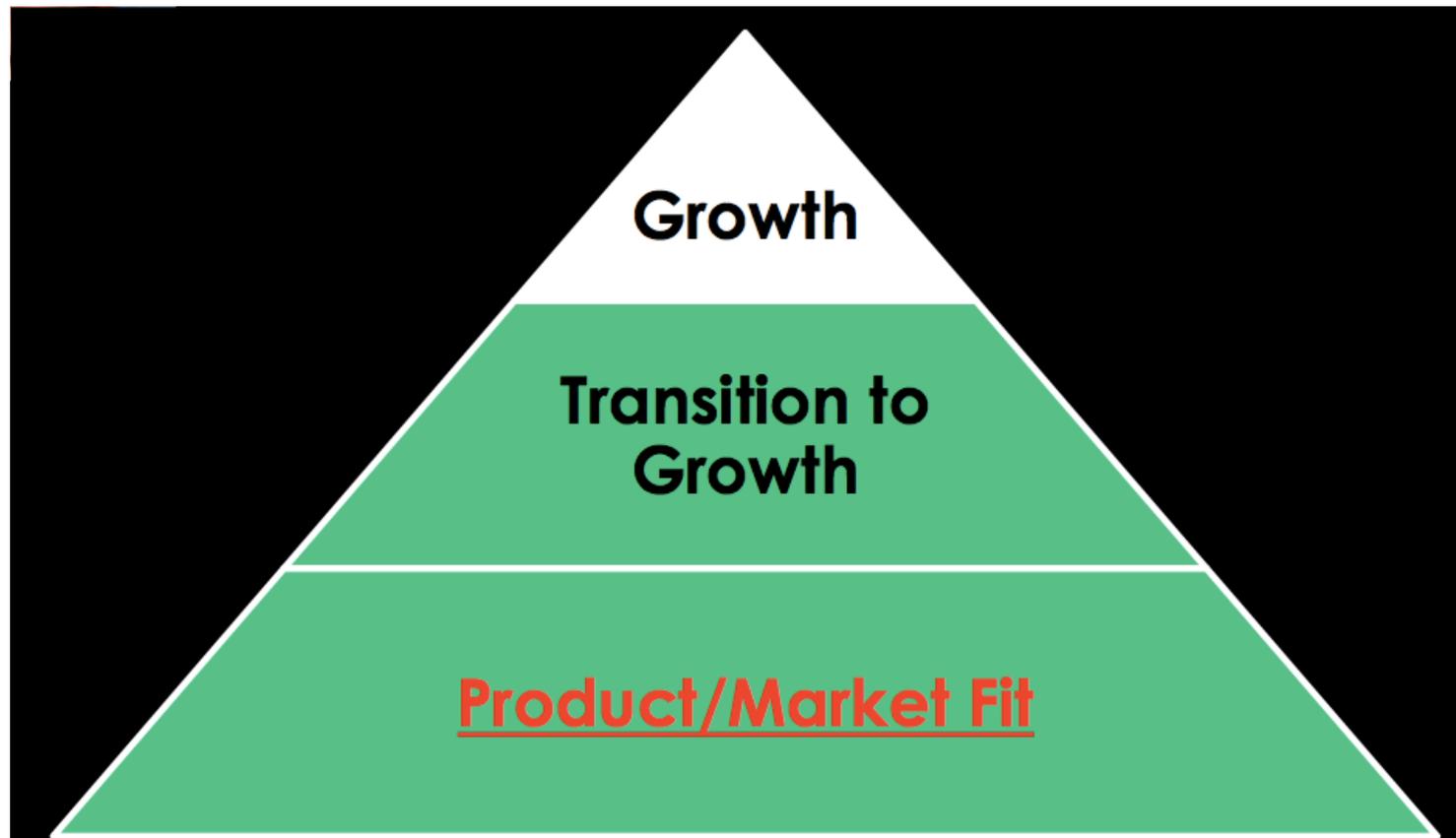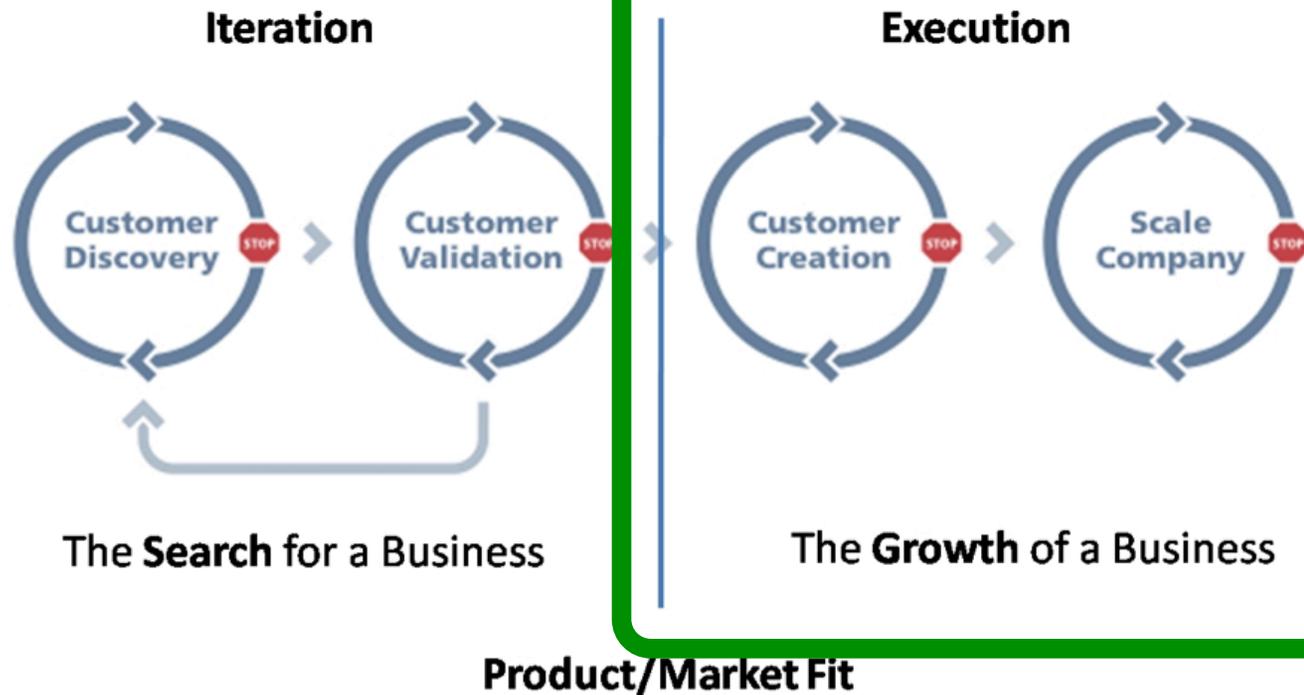
Product/Market Fit

Where does software engineering fit in?

- Building the prototype

- Iterating to find product/market fit

- Execution to grow the business

Raising capital

- Do you need it to build your prototype?

- Can you bleed through product market fit?

- Growth typically requires money

- Can you get to product/market fit on the cheap?

Angel investors and venture capital

- Infusing capital into your company

- Exchanging ownership for money

- Angels: very early money

- Venture capital: typically later (at product-market fit?)

Some rough ideas

- Can you build a company worth a billion dollars?

- Ten million users is the new one million

- What's your revenue stream going to be?

- Do you have the team?

- Do you have the right idea?

- Do you have competitive advantage?

- Can you execute?

Which brings me back to....

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Interested?

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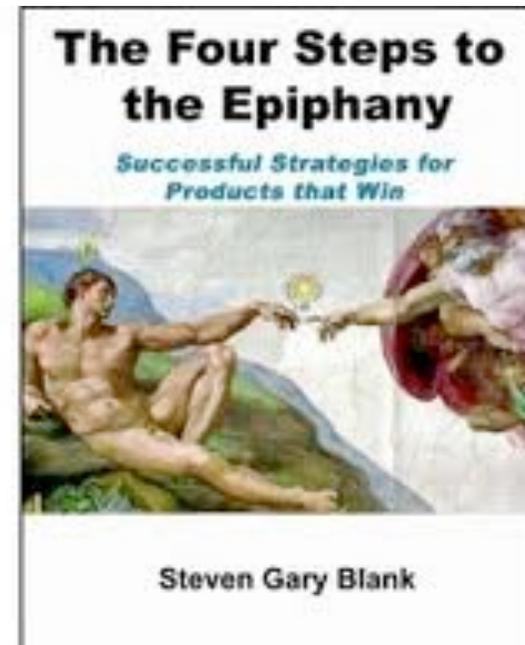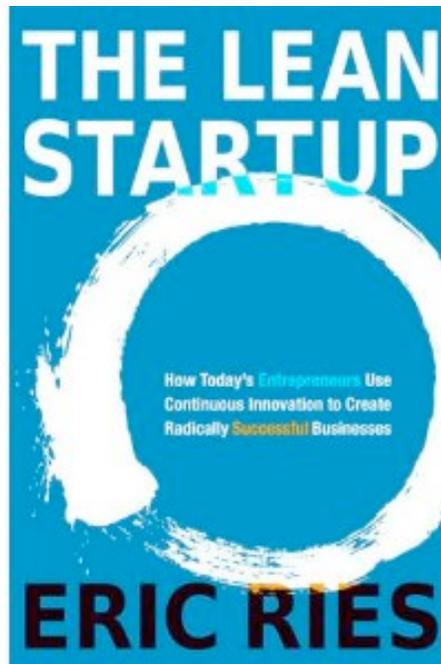
Incubators and Accelerators

Take aways

- You have a lot of good skills under your belt...both from this class and otherwise

- You have options

  - There's nothing wrong with working for a big company

  - ...but there are other possibilities, including starting a company yourself

- Missing: Business knowledge/experience (The "hustler")?

Huge opportunity and lots of excitement...

Software is eating the world.