INFO5992 Understanding IT Innovations

Week 7: Commercialisation I
Startups Vs Traditional Companies, Lean Startup Methodology & Agile Development

Semester 1, 2025

THE UNIVERSITY OF SYDNEY

Acknowledgement of Country

I would like to acknowledge the Traditional Owners of Australia and recognise their continuing connection to land, water and culture. I pay my respects to the first nations people and their Elders, past, present and emerging.

Copyright warning

UoS Semester Outline

Week	Learning Outcomes	Lectures
Module 2: Innovation Framework		
Week 01	L01, LO2, LO3	Unit of Study Introduction, Administrivia, Definition of IT Innovation, Importance of Innovation to a Country, General Purpose Technologies, Overview of Emerging Technologies
Week 02	LO4, LO5	Innovation Frameworks I: Dynamics of IT Innovation, Dominant Design
Week 03	LO6	Innovation Frameworks II: Disruptive Innovation, Innovator's Dilemma, Value Chain & Value Network
Module 2: Development of Key Intellectual Property in the Modern Age		
Week 04		Introduction to Open Innovation and Closed Innovation Distributed Innovation I: Product Platforms, Web APIs
Week 05	LO7	Distributed Innovation II: Crowdsourcing, Free and Open- Source Software, Open Data
Week 06		Distributed Innovation III: Platform Ecosystems, User Innovation
Module 3: Commercialisation Process and Business Strategies for Emerging Technologies		
Week 07	LO8	Commercialisation I: Startup vs Traditional Companies, Lean Startup Methodology and Agile Development
Week 08		Commercialisation II: Customer Development Process, Value Proposition Canvas
Mid semester break		
Week 09	LO8, LO9	Commercialisation III: Innovation Management, Business Model Canvas
		Commercialisation IV: Capital & Fundraising for IT Innovation
Week 10	LO11, LO12	Organisational Cultures and Structures Supporting Innovation, Judging IT Innovation
Module 4: Innovation At-Scale		
Week 11	LO10	Innovation Ecosystem: Silicon Valley and Australia
Week 12	N/A	Course Review | Innovation Pitch Presentation
Week 13	N/A	Innovation Pitch Presentation
Final Exam		

Innovation by Startup Companies
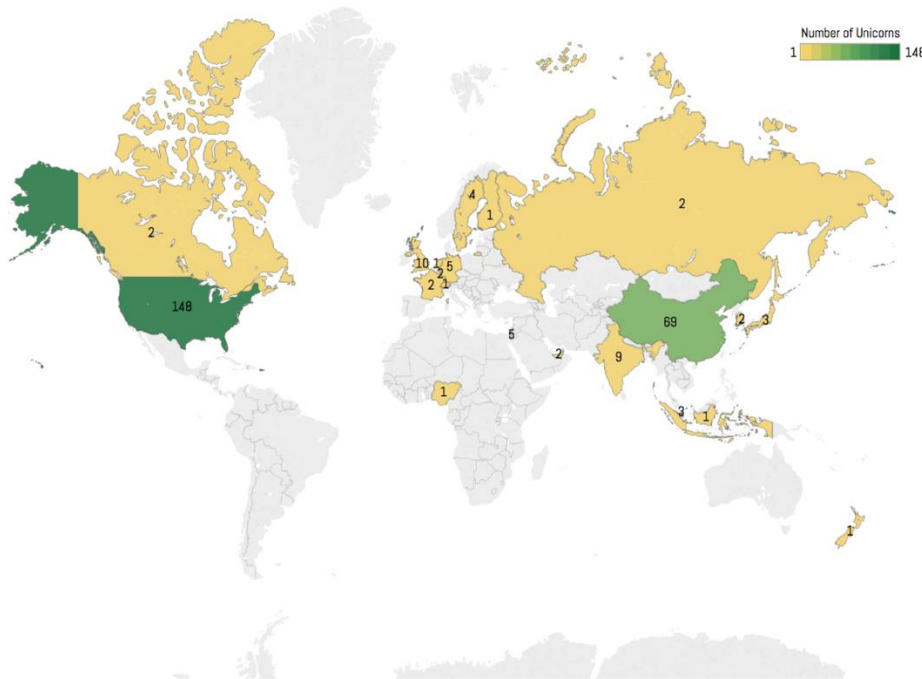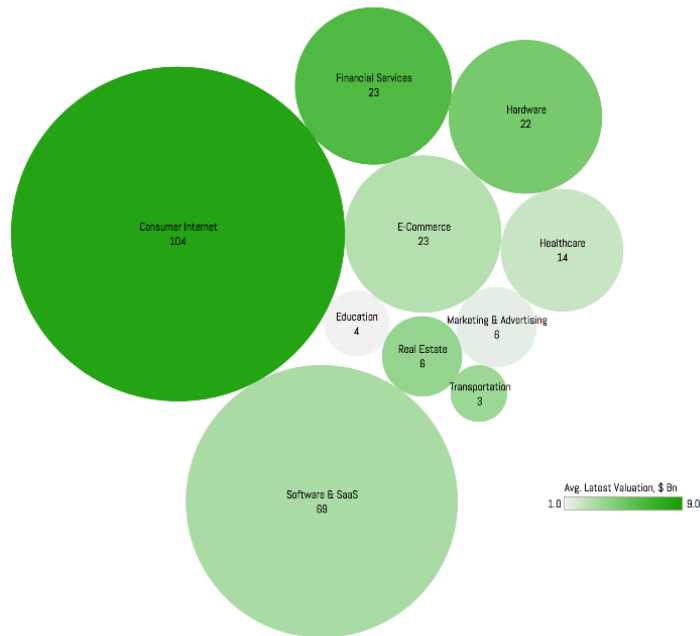
The Unicorn Club – Billion dollar Startups

- Coined in a TechCrunch article, "Welcome To The **Unicorn Club**: Learning from Billion-Dollar Startups".

- A unicorn is generally defined as a **privately held startup with a $1 billion valuation** – something rare (like a unicorn).

  - **Private** companies are run the same way as public companies, except that ownership in the **company** is limited to a relatively small number of investors. Some of the most famous companies in the world are **private** companies, including Ikea, agriculture giant Cargill, and candy maker Mars.

  - **Valuation** – how much the company is valued **based on** its assets, future cash flow, profit, etc.

https://bits.blogs.nytimes.com/2015/07/05/unicorns-a-fitting-word-for-its-time-and-place (Apr'25)
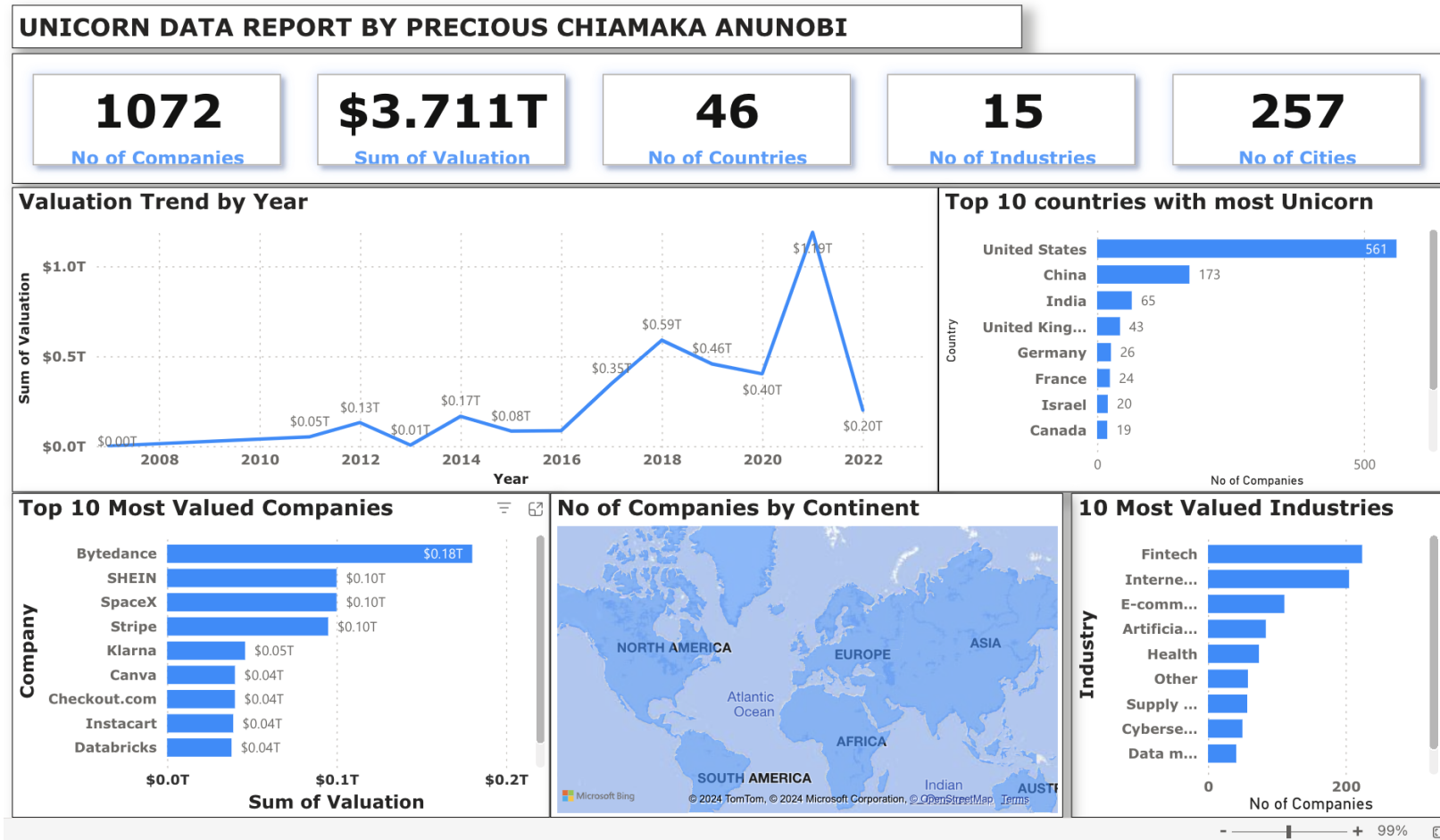
The Unicorn Club – Growing pace

- Venture capital investors have noted in recent years that billion-dollar companies are being created at a rapid pace, with 2014 through 2015 seeing a notable uptick in unicorn births.

NUMBER OF UNICORNS BY SECTOR

https://medium.com/startup-grind/unicorn-club-revisited-e641f9c80e8d (Apr'25)

Unicorn Landscape (Examples)

UNICORN DATA REPORT BY PRECIOUS CHIAMAKA ANUNOBI

1072	$3.711T	46	15	257
No of Companies	Sum of Valuation	No of Countries	No of Industries	No of Cities

Valuation Trend by Year

Top 10 countries with most Unicorn

United States 561
China 173
India 65
United King... 43
Germany 26
France 24
Israel 20
Canada 19

Top 10 Most Valued Companies

Bytedance $0.18T
SHEIN $0.10T
SpaceX $0.10T
Stripe $0.10T
Klarna $0.05T
Canva $0.04T
Checkout.com $0.04T
Instacart $0.04T
Databricks $0.04T

No of Companies by Continent

10 Most Valued Industries

Fintech
Interne...
E-comm...
Artificia...
Health
Other
Supply ...
Cyberse...
Data m...

xf(Apr'25)

Global Unicorn Club — 1,206 private companies valued at $1B+

List of unicorn companies – 2024

How many unicorns do you think there are?

Global Unicorn Club
1,205 private companies valued at $1B+
CBINSIGHTS

[List of Unicorn Startups & Markets | CB Insights](#) (Apr'25)

The number of new unicorn births has since tumbled for 4 straight quarters, with just 19 startups reaching the $1B+ mark in Q4'22 — the lowest quarterly figure in over 5 years.

The number of new unicorns falls off a cliff in 2022

Number of new companies reaching a $1B+ valuation
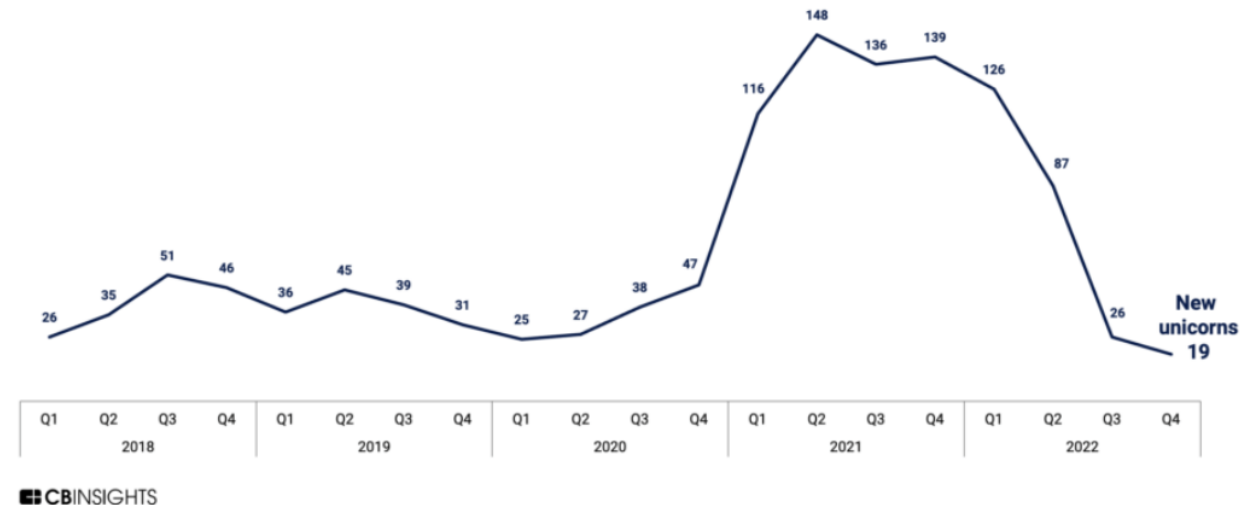
CBINSIGHTS

Collectively, the world's unicorns are worth $3.86T.

Using the CB Insights database, we mapped all 1,205 global unicorn companies according to the primary markets in which they operate.

Why so many more 'unicorn' companies now?

– **Compelling products that are easier than ever to adopt**
– A perception of **winner-take-all** markets (Dominant design)

– Competitive later stage capital
– Vibrant public markets

– New Technologies
– New disruptions

Competitive neutrality: regulating interconnection disputes in the transition to competition (Apr'25)

Five primary business models among Unicorns

- 36% **E-Commerce companies** – companies where a consumer pays for a good or service through the internet or mobile, e.g., companies like Uber and Airbnb

- 27% **Audience companies** – the product is free to use for consumers, the company makes money through ads or leads, e.g., SnapChat

- 20% **Enterprise software companies** – where a business customer pays for larger scale software, often 'on-premises' vs cloud-based, or hardware with software, e.g., Cloudera, MagicLeap

- 12% **SaaS companies** – cloud-based software offered often via a 'freemium' or monthly model, e.g., Slack and MangoDB

- 6% **Consumer Electronics/Internet of Things** – where the consumer pays for a physical product, e.g., Xiaomi

https://techcrunch.com/2015/07/18/welcome-to-the-unicorn-club-2015-learning-from-billion-dollar-companies/ (Apr'25)

Five primary business models among Unicorns

– An important note – **32% has characteristics of broad or local network effects,** where the value of the product/service gets better the more people are part of the system.

– Many are platform companies, e.g., bytedance, uber, stripe

Unicorn Startups are getting bigger...

The Decacorns

Unicorns, Decacorns and Undercorns

- Unicorns – private companies valued at more than $1 billion….
  - **Private** companies are run the same way as public companies, except that ownership in the **company** is limited to a relatively small number of investors. Some of the most famous companies in the world are **private** companies, including Facebook (until 2012), Ikea, agriculture giant Cargill, and candy maker Mars.
- Decacorns – private companies **valued at over $10 billion** are now the gold standard for startup success.

- Undercorns - Unicorns that sell or go public below their last private valuation

Monopolies: "Winner takes all" markets

Peter Thiel, co-founder of PayPal, entrepreneur and investor

http://www.forbes.com/profile/peter-thiel/
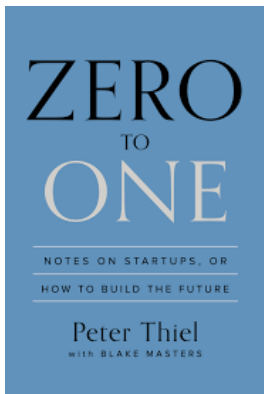
- Focus on big vision rather than purely incremental niche-making by pivoting
- Focus on monopoly for a time in a market (e.g. Google, Twitter, Facebook) rather than continual competition

- "Networking effects" are driving the winner-take-all economic shift

- This concept also influences unicorns

Do you want to build the next Unicorn??

What's a startup company?

Recap week1: Innovation as "Creative Destruction"

Schumpeter

- The economy is in a state of constant tumultuous change
- Innovation drives the economy
- Entrepreneurs within new firms drive innovation:
  - All companies react adaptively to change
  - Creative responses to change come via innovative acts by entrepreneurs
- Different forms of innovations:
  - New products; New organisations (e.g. mergers); New markets
  - <u>Innovating firms emerge after technological breakthrough</u>

Recap: Organising for Innovation: Overview

- A company's **size and structure impact** its ability to innovate
  - Some structures may foster creativity and experimentation
  - Others may enhance the efficiency of product development
  - Some structures may enable both simultaneously

- **Traditionally,** large companies have done most technological innovation in-house in R&D labs

- A trend towards more "open innovation"
  - involving other organisations and individuals in their innovation

Size and structural dimensions of companies

- However, large companies might also **be disadvantaged in innovation** because…
  - R&D efficiency may decrease due to loss from managerial control
  - Large companies can have more bureaucratic inertia
    Mac OS 1997 case (Apr'25)
  - More commitments tie companies to current technologies
    - Learning effects (see Week 3); dominant design

- Small firms are often more flexible and entrepreneurial
  - Can change direction quickly based on changing circumstances or new observations (pivot)

- **Innovation favours agility - It's easier for a small company to be agile than a large company**

Source: Schilling (2013)

Classic stories: How can a couple of people beat and displace major global corporations?

VS

- What the Google founders recognised about search on the Web was that information about **LINKS** could be added to the algorithms.

- Links are another kind of indexing altogether. Web page authors link to related material and often to very carefully and consciously selected related material. This link information could be wrapped into the search algorithms to improve retrieval accuracy.

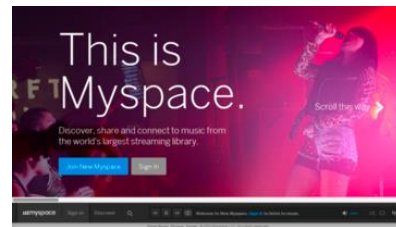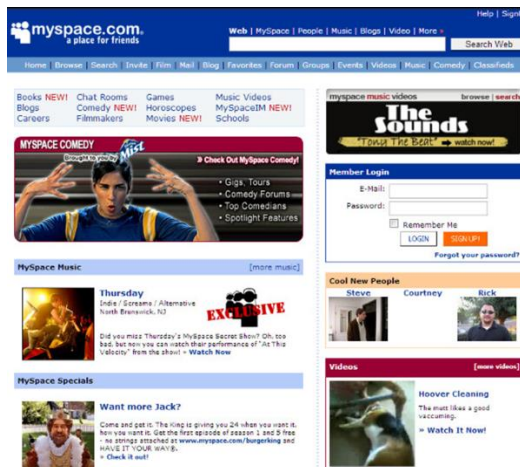- Altavista – known for its efficient search and crawling…. But lost focus on portal/features

In-depth guide to how Google Search works

Classic stories: How can a couple of people beat and displace major global corporations?

VS

- The brilliance of Mark Zuckerberg was his **willingness to allow Facebook to go wherever the market wanted it.** Farmville and other social games - why not? Different ways to find potential friends - go for it.

- The **founders kept pushing the technology to do anything users wanted.**

- And looking within the comments for what would be the next application - the next promotion - the next revision that would lead to more uses, more users and more growth.

Traditional approach: Treat startup as small version of large company

– Traditional approach (still often used today)

– Startups are treated as small versions of a large company
  – Founders used techniques learned in business schools as used by big companies

– Most businesses need a <u>business plan</u> to start
– Business plan needed for investment (bank, venture capital, etc.)

Traditional approach: Treat startup as small version of large company

– The business plan focused on:

1. Identifying business opportunities (<u>addressable market</u>)
2. <u>Problem to be solved</u>
3. <u>Planned solution</u> to the problem
4. <u>Forecast</u> for income, profit, costs, etc. (e.g. for 5 years)

Traditional business plan

– The business plan usually has:

  – Exec summary

  – Description of product/service

  – Industry analysis

  – Customer analysis

  – Competitor analysis

  – Marketing and sales plan

  – Operations and HR plans

  – Financial plan

Frequently unsuccessful for **tech startups** as:
- For tech startups, there are many uncertainties
- The plan may have many untested assumptions
- Much of the plan may rely on these untested assumptions
- The business plan is often rigid, and it is hard to change direction quickly

Business Plan Templates and Examples

- — Many samples from various industries
- — Templates to help

Established companies and startups are very different types of things

What's a startup company?

- Term first used in the 1970s

- Most used for starting technology companies

- Steve Blank:
  "a temporary organization in search of a scalable, repeatable, profitable business model"

- The Startup Owner's Manual (2012)
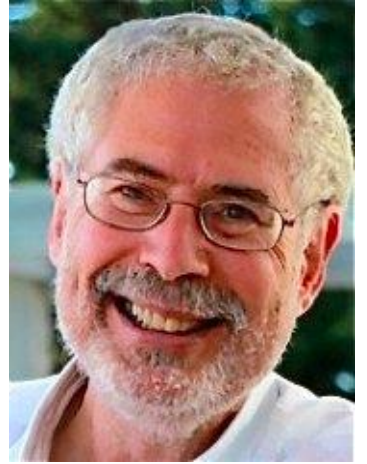
www.steveblank.com/about
Steve Blank
Engineer / entrepreneur /
Lecturer at Stanford and others

What's a startup company?

- Eric Ries:
  "a **human institution** designed to deliver a new product or service under conditions of extreme **uncertainty**"

- The Lean Startup (2011)

www.theleanstartup.com
Eric Reis
Software developer/
entrepreneur

Established companies vs startups

— Established companies…

— **Execute a business model**

— Startups…

— **Search for a business model**

How do I get an idea for a startup?

Paul Graham: How to get startup ideas

Paul Graham, Founder of Y Combinator

Some of their startups: Reddit, Scribd, Dropbox, Airbnb, Stripe, Heroku, Weebly, …

- The way to get startup ideas is <u>not to try to think of startup ideas</u>. It's to **look** for problems, preferably problems you have yourself.

  The very best startup ideas tend to have three things in common:
  - they're something the <u>founders themselves want</u>,
  - that they <u>themselves can build</u>,
  - and that <u>few others realise are worth doing</u>.

  Microsoft, Apple, Yahoo, Google, and Facebook all began this way.

Recap: Many innovations start at "user innovation"

Eric Von Hippel
MIT Sloan School of Management

Phase 1: *Users develop new products for themselves*

Phase 2: *Other users evaluate and reject, or copy and improve*

Phase 3: *Producers enter when market potential is clear*

Number of users perceiving need

Time

http://sloanreview.mit.edu/article/the-user-innovation-revolution/
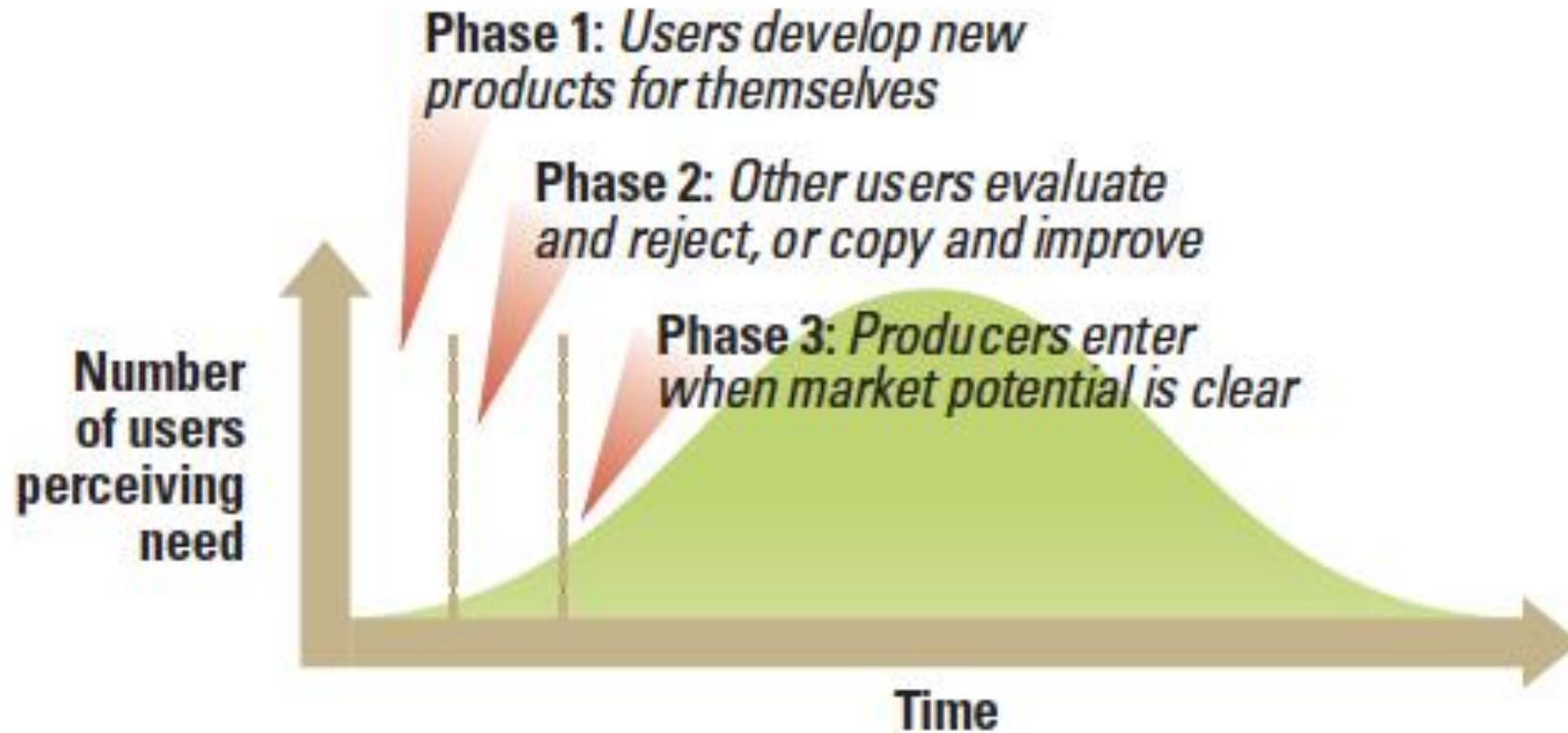
Paul Graham: How to get startup ideas

- Real problems:
  - Address real problems, not made-up problems
- The "**Well**":
  - Build something a small number of people want a lot **rather than** something a large number of people want a little
    - It helps you focus and build quickly
- Getting yourself ready
  - Be at the leading edge of a field (even if just a user)
  - **"Live in the future, then build what's missing"**
  - External stimulus hitting a prepared mind
- Noticing:
  - Not "think up ideas" but "notice"
  - It's OK to work on projects that produce "toys" as it prepares you to notice
  - **"Live in the future and build what seems interesting"**

http://paulgraham.com/startupideas.html (Apr'25)

CSIRO: 7 Megatrends

– Looking to the future can be difficult, but there are many information out there…

Adapting to a changing climate

The protection of livelihoods, infrastructure and people's quality of life as the climate changes

Unlocking the human dimension

The elevating importance of diversity, equity and transparency in business, policy and community decision making

Leaner, cleaner and greener

The global push to reach net zero and beyond, protect biodiversity and use resources efficiently

Increasingly autonomous

The rise of artificial intelligence and advanced autonomous systems to enhance productivity and outputs across all industries

The escalating health imperative

The promotion of health in the face of rising demand, demographic ageing, emerging diseases and unhealthy lifestyles

Diving into digital

The rapidly growing digital and data economy

Geopolitical shifts

The increase in efforts to ensure global stability, trade and economic growth

– United Nation's Sustainable Development Goals

– THE 17 GOALS

Differences between established companies and startups

Some differences between established companies and startups

	Established companies	Startup companies
Markets for products	Known	Mostly unknown (hypothesis only)
Customers	Known	Mostly unknown (hypothesis only)
Products	Known	Mostly unknown (hypothesis only)
Future product features	Learn from customers	Learn from potential customers and test hypotheses
Business model	Company executes the current business model	Company searches for the best business model
Product	Full specifications as needed by market	Minimum feature set (for speed to market and flexibility for change)
Product development	Smooth execution using proven methods	Pivots (until find market, customers, products, business model)
Structure	Relatively stable	Fluid

Based on work of Steve Blank
E.g. http://www.slideshare.net/sblank/why-product-managers-need-sneakers?from=ss_embed (Apr'25)

Towards more systematic methods for startups

- **Emerging "management science" for startups**
- Techniques to help startups build successful innovative companies despite the level of uncertainty
- Some influential books:
  - "Four Steps to the Epiphany", Steve Blank, 2005
  - "Business Model Generation", Alexander Osterwalder, Yves Pigneur, Alan Smith, and 470 others across 45 countries, 2010
  - "The Lean Startup", Eric Ries, 2011
  - "The Startup Owner's Manual", Steve Blank and Bob Dorf, 2012
  - "The Value Proposition Design", Alexander Osterwalder, Yves Pigneur, Greg Bernarda, Alan Smith, 2015
  - "The Leader's Guide", Eric Reis, 2015 (Kickstarter campaign)

The startup – 3 key principles

– Customer Development
"get out of the building"

  – including hypothesis-driven experiments with customers, pivoting etc.

– Business Model Canvas
"Sketch Out Your Hypotheses."

– Agile software development
"Quick, Responsive Development."

Steve Blank, Why the Lean Start-Up Changes Everything, Harvard Business Review, 2013, https://hbr.org/2013/05/why-the-lean-start-up-changes-everything

Customer development
Steve Blank

What's wrong with the New Product Introduction Model (for startups)

- "The **9 Deadly Sins** of the New Product Introduction Model":
  1. Assuming "I know what the customer wants"
  2. The "I know what features to build" flaw
  3. Focus on a Launch date
  4. Emphasis on execution instead of hypotheses, testing, learning and iteration
  5. Traditional business plans assume no trial and no errors
  6. Confusing traditional job titles with what a startup needs to accomplish
  7. Sales and marketing execute a plan
  8. Presumption of success leads to premature scaling
  9. Management by crisis leads to a death spiral

Source: Steve Blank and Bob Dorf, "The Startup Owner's Manual" (2012)

Introducing new products to a market: Traditional model

New Product Introduction model:

```
Concept /     →  Product      →  Alpha/Beta  →  Launch/
Seed             Development      Test           1st Ship
```

Created by Bill Simpson-Young based on Steve Blank and Bob Dorf "The Startup Owner's Manual" (2012)

Introducing new products to a market: Traditional model

New Product Introduction model:

Concept / Seed	→	Product Development	→	Alpha/Beta Test	→	Launch/ 1st Ship
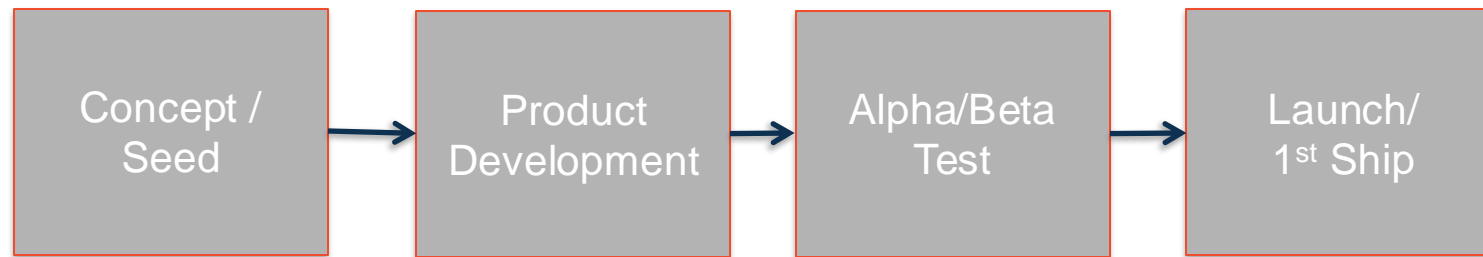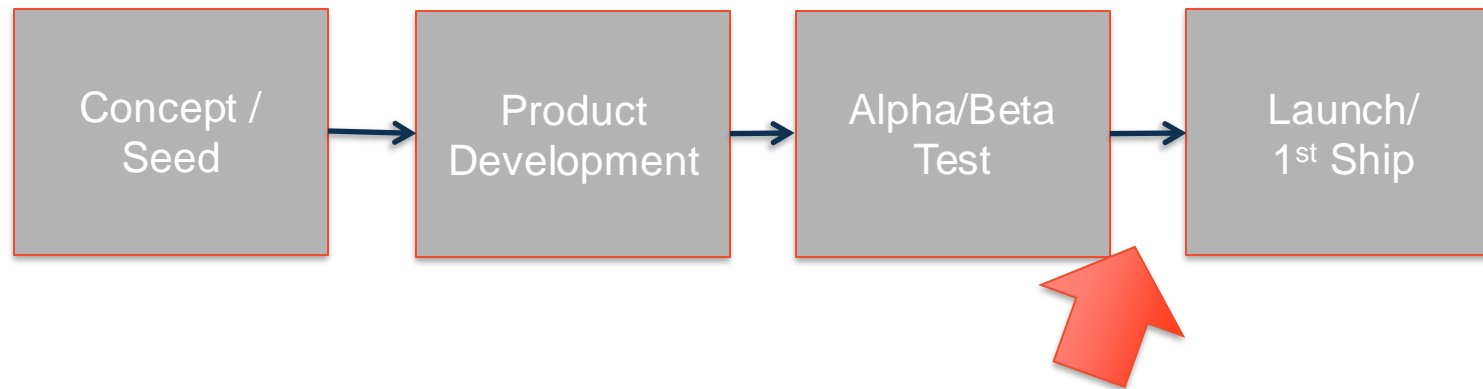
First contact between product and customer. Too late!

"No business plan survives first contact with customers" – Steve Blank

Created by Bill Simpson-Young based on Steve Blank and Bob Dorf "The Startup Owner's Manual" (2012)

Alternative approach for startups: Customer Development Process

Customer Development Process:

Works where customers are unknown, product features unknown, the market is unknown, basis of competition is unknown – i.e. Designed to solve "**the 9 deadly sins**"
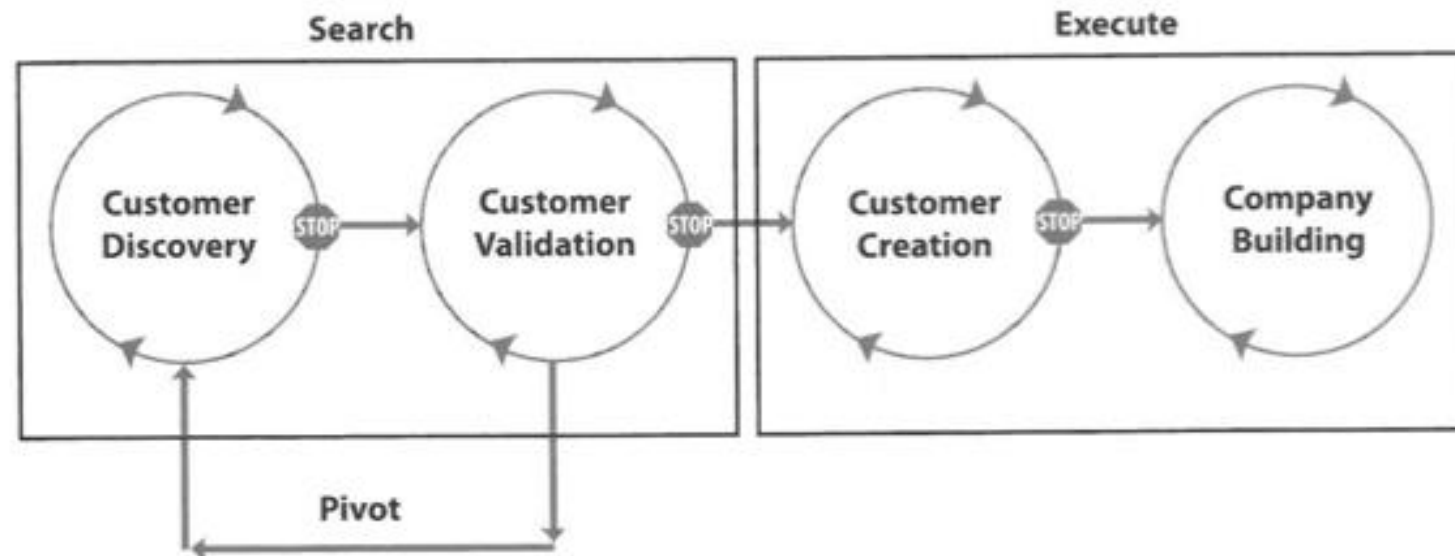
Customer Development Process (Figure 2.1)

Customer creation: turn prospects into purchasers (Apr'25)

Alternative approach for startups: Customer Development Process

Capture vision and turn it into business model hypotheses. Develop plan to test hypotheses with customers. Test hypotheses.

Test whether related business model is repeatable and scalable

Product-Market Fit

Build end-user demand. Build sales channel. Scale business.

Transition from startup to typical company
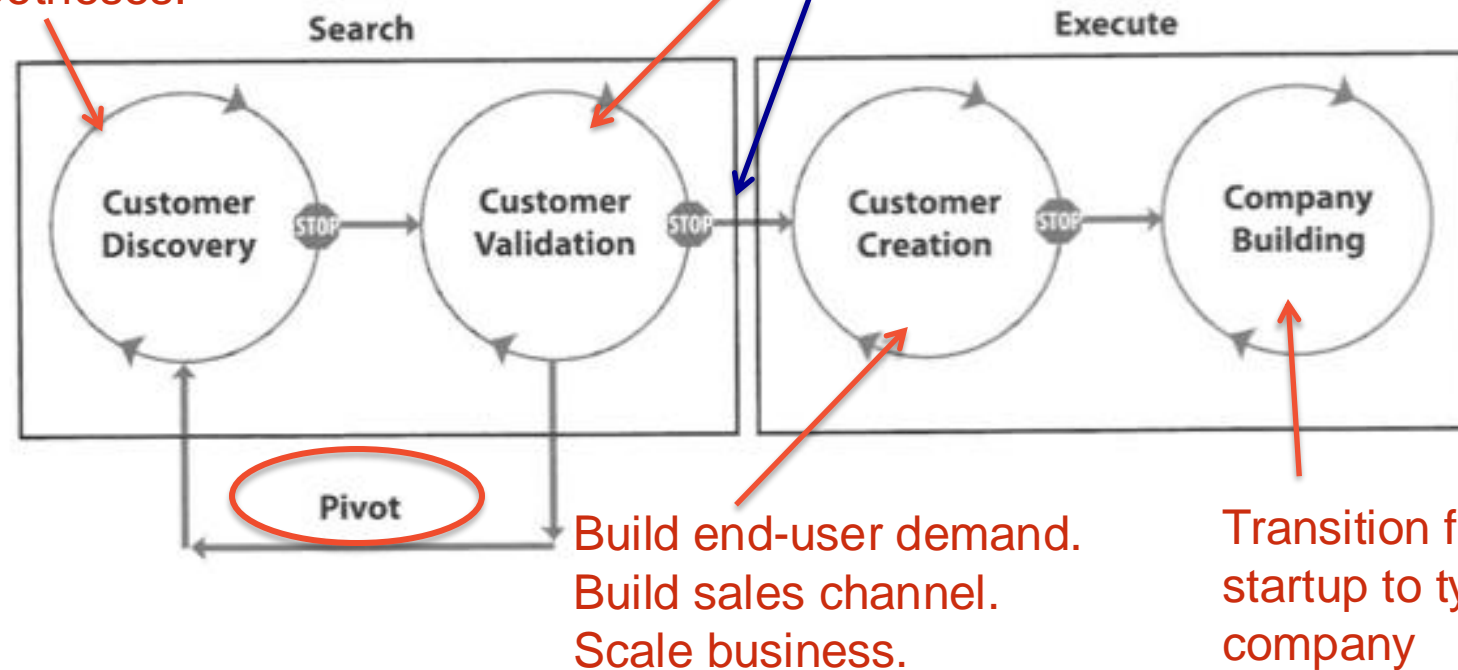
Customer creation: turn prospects into purchasers (Apr'25)

Source: Steve Blank and Bob Dorf, "The Startup Owner's Manual" (2012)

Product-Market Fit

– A degree to which a product satisfies a strong market demand.

– A step in between customer validation and customer creation

– Steve Blank

https://fourweekmba.com/product-market-fit/
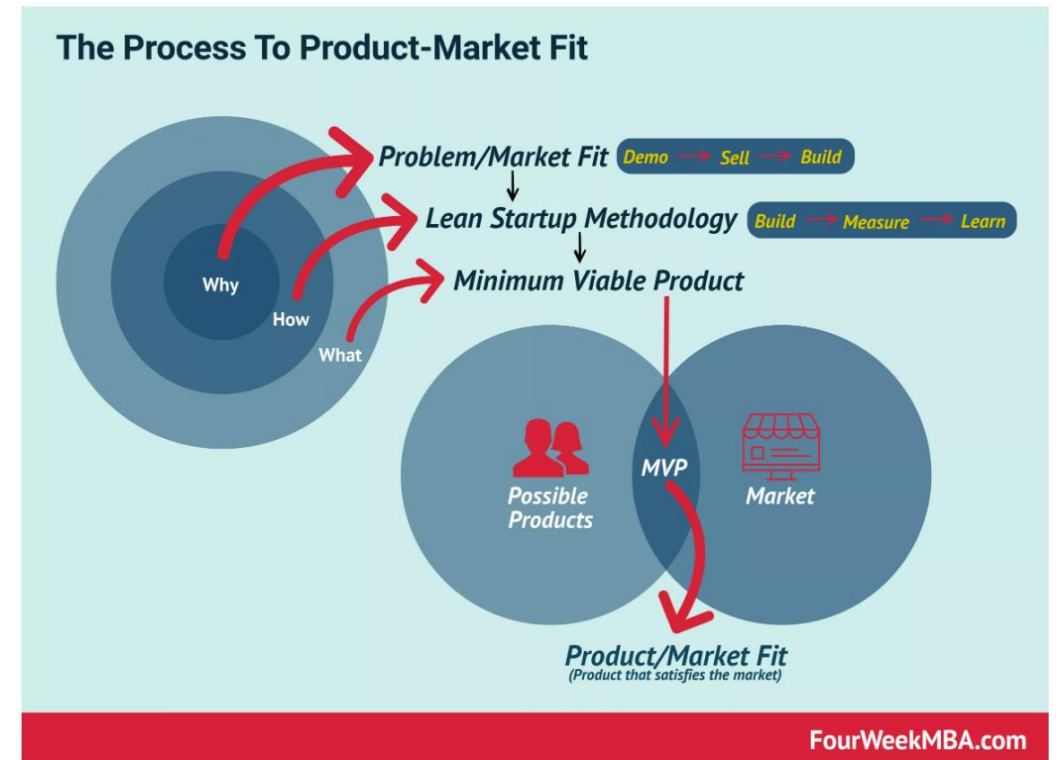
The Customer Development Manifesto (The 14 Rules)

Rule 1. There are no facts inside your building, so get outside

Rule 2. Pair Customer Development with Agile Development

Rule 3. Failure is an integral part of the search

Rule 4. Make continuous iterations and pivots

Rule 5. No business plan survives first contact with customers so use a business model canvas (more soon)

Rule 6. Design experiments and test to validate your hypotheses

…

Source: Steve Blank and Bob Dorf, "The Startup Owner's Manual" (2012)

The Customer Development Manifesto (The 14 Rules)

Rule 7. Agree on market type. It changes everything

- Bringing a new product into an existing market

- Bringing a new product into a new market

- Bringing a new product into an existing market and trying to:

  - Re-segment that market as a low-cost entrant

  - Re-segment that market as a niche entrant

  - Cloning a business model that's successful in another country

…

There Are Four Types Of Startups

Steve Blank

www.steveblank.com
@sgblank

Source: Steve Blank and Bob Dorf, "The Startup Owner's Manual" (2012)

https://www.youtube.com/watch?v=6y3WIrgp_NY

The Customer Development Manifesto (The 14 Rules)

— …

Rule 8. Startup metrics differ from those in existing companies

Rule 9. Fast decision-making, cycle time, speed and tempo

Rule 10. It's all about passion

Rule 11. Startup job titles are very different from a large company

Rule 12. Preserve all cash until needed. Then spend

Rule 13. Communicate and share learning

Rule 14. Customer development success begins with buy-in

Source: Steve Blank and Bob Dorf, "The Startup Owner's Manual" (2012)

Agile Development

How can project management be done for innovation?

Background

– In innovation projects, there are many unknowns:

  – The feasibility of the idea may be unknown

  – The product or process concepts may be vague

  – The target customers may be unknown

  – The way to make revenue may be unknown

– Some companies attempt to use traditional project management approaches for innovation projects

  – This often fails

Introducing new products to a market: Traditional model

New Product Introduction model (Traditional):

Works where customers are known, product features can be specified in advance, the market is well-defined, and the basis of competition is understood

Created by Bill Simpson-Young based on Steve Blank and Bob Dorf "The Startup Owner's Manual" (2012)

Introducing new products to a market: Traditional model

New Product Introduction model:

Concept / Seed

Come up with concept
Define product and product features
Determine customers
Do market research (statistical and some interviews)
Develop business plan

Created by Bill Simpson-Young based on Steve Blank and Bob Dorf "The Startup Owner's Manual" (2012)

Introducing new products to a market: Traditional model

New Product Introduction model:
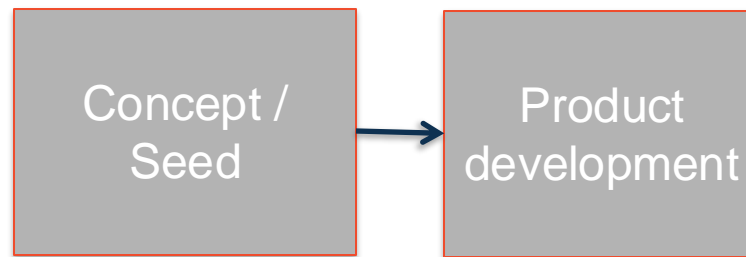
Specify market requirements
Develop product/service - typically using the **waterfall model**:
    Requirements, design, implementation, testing, maintenance
Promote future product/service

Created by Bill Simpson-Young based on Steve Blank and Bob Dorf "The Startup Owner's Manual" (2012)

Introducing new products to a market: Traditional model

New Product Introduction model:

Concept / Seed	→	Product development	→	Alpha / Beta test
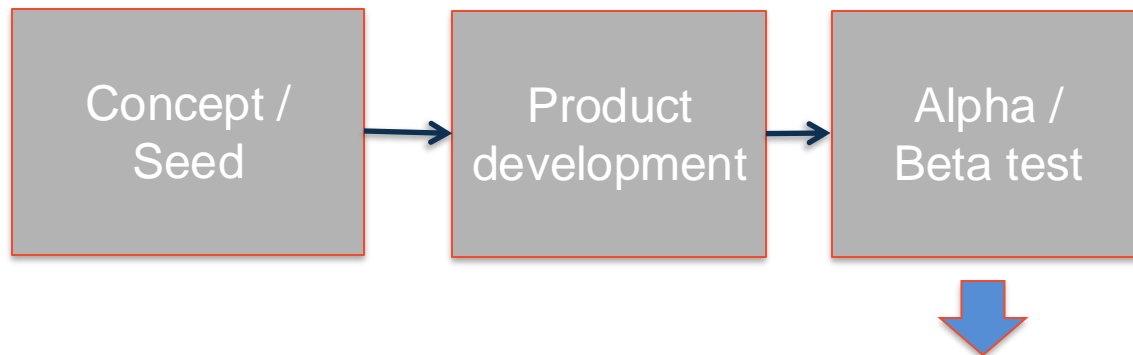
Sign up alpha/beta customers
Run alpha/beta trials
Develop sales and marketing materials
Get channel partners and build sales organisation

Created by Bill Simpson-Young based on Steve Blank and Bob Dorf "The Startup Owner's Manual" (2012)

Introducing new products to a market: Traditional model

New Product Introduction model:

Concept / Seed	→	Product development	→	Alpha / Beta test	→	Launch / 1st Ship

Launch product
Publish press releases
Build sales and marketing

Created by Bill Simpson-Young based on Steve Blank and Bob Dorf "The Startup Owner's Manual" (2012)
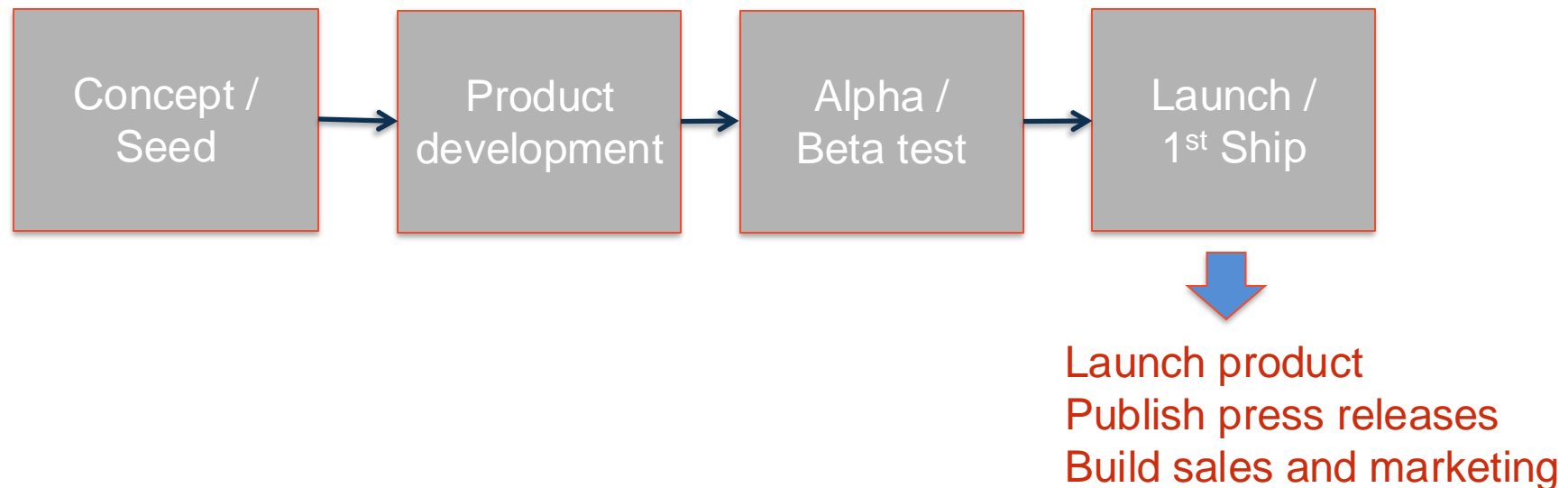
*What's wrong with this model when there is high degree of uncertainty?*
(e.g. where customers are unknown, needed features unknown, basis for competition not known)

Problems with the traditional model

- It is impossible to know all requirements in advance
  - The project takes time, so the requirements at the time of capture may be different from those at the time of delivery
  - Some requirements are only apparent when users are using the product
  - It takes too long to get customer validation of the product

Capture requirements

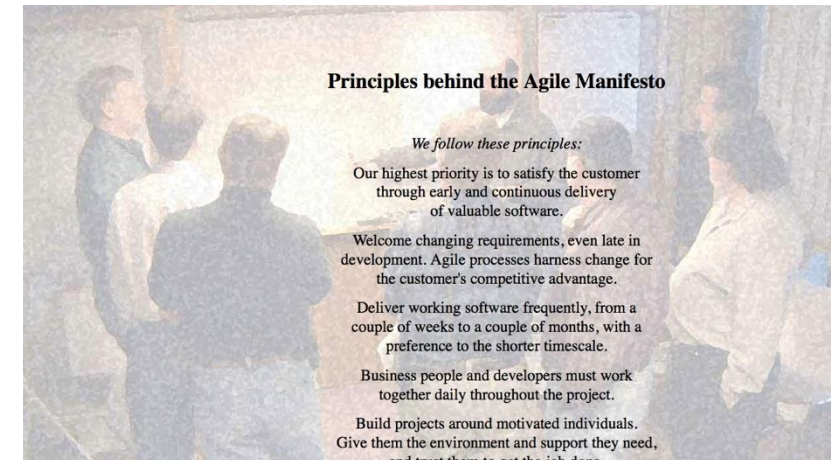Specify functionality

Specify design

Implement

Test / Maintenance
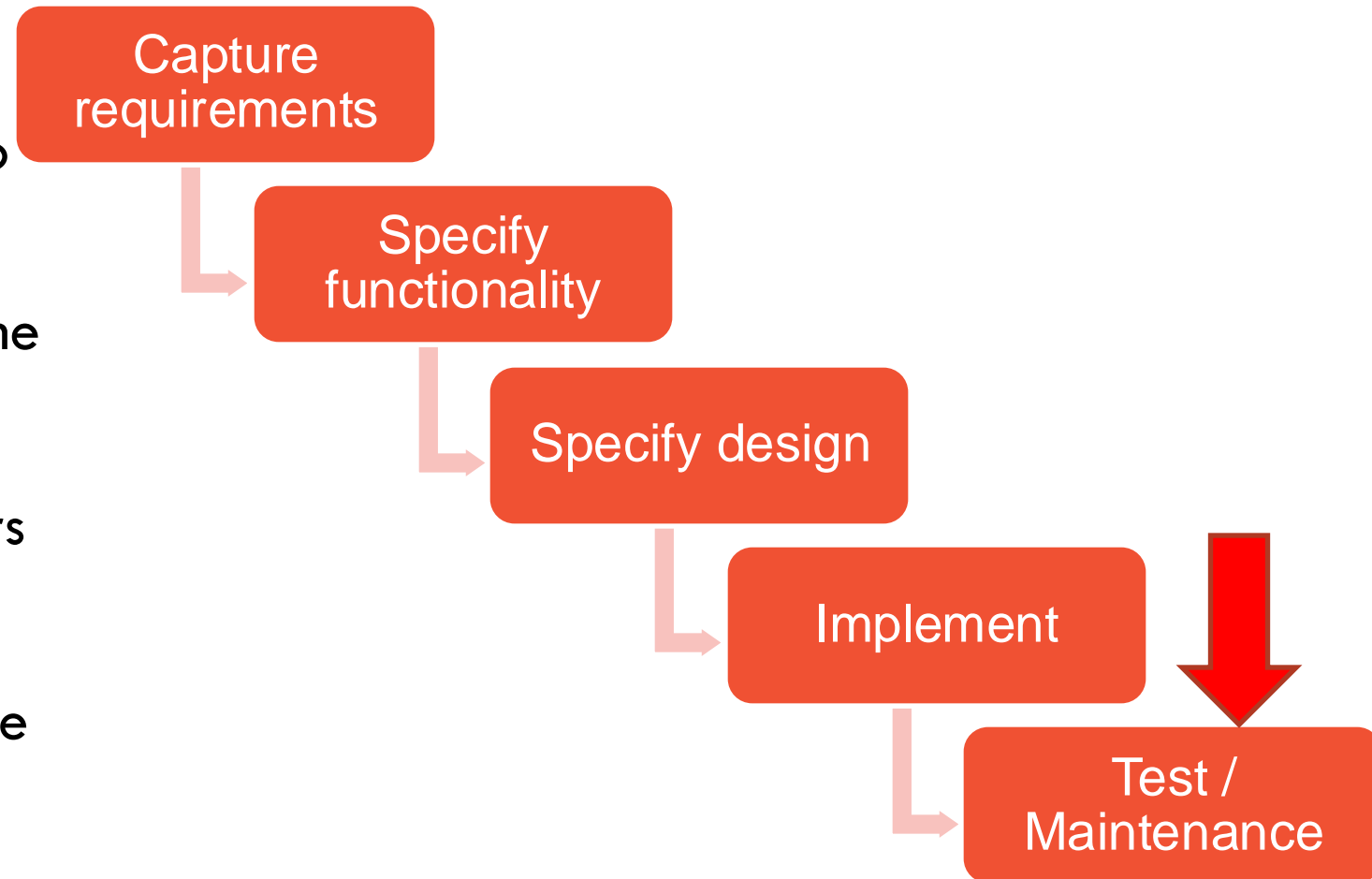
"The Agile Manifesto" (2001)

- We are uncovering better ways of developing Software by doing it and helping others do it.

- Through this work, we have come to value:

  - Individuals and interactions over processes and tools

  - Working software over comprehensive documentation

  - Customer collaboration over contract negotiation

 - Responding to change by following a plan

http://agilemanifesto.org
http://agilemanifesto.org/principles.html (Apr'25)

Principles behind the Agile Manifesto

We follow these principles:

Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.

Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

Business people and developers must work together daily throughout the project.

Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.

Agile development

- Iterative, incremental and evolutionary
- Efficient and face-to-face communication
- Very short feedback loop and adaption cycle
- Quality focus
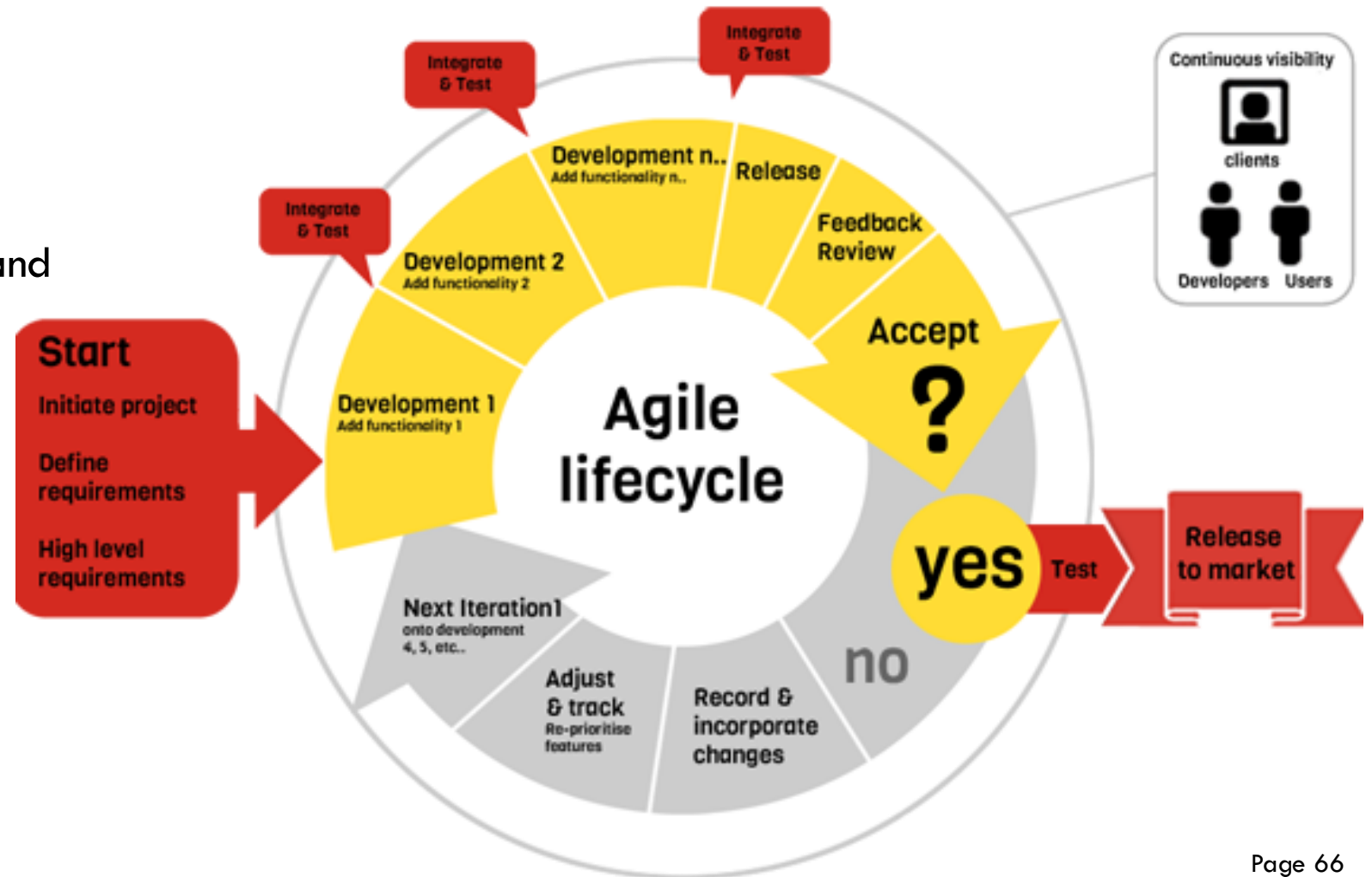
Agile Alliance – Key Agile Concepts (Management)

- **User Stories**: In consultation with the customer or product owner, the team divides the work into functional increments called "user stories." Each user story is expected to contribute to the overall product's value. E.g., "*As a shopper, I want to be able to search for products on the website so that I can easily find what I am looking for*"

- **Daily Meeting**: Each day at the same time, the team meets to bring everyone up to date on the vital information for coordination: each team member briefly describes any "completed" contributions and any obstacles that stand in their way.

- **Incremental Development**: Nearly all Agile teams favour an incremental development strategy; in an Agile context, each successive version of the product is usable, and each builds upon the previous version by adding user-visible functionality.

Agile Alliance – Key Agile Concepts (Management)

– **Iterative Development:** Agile projects are iterative as they intentionally allow for "repeating" software development activities and potentially "revisiting" the same work products.

– **Team:** A "team" in the Agile sense is a small group of people assigned to the same project or effort, nearly all of them on a full-time basis. A small minority of team members may be part-time contributors or have competing responsibilities.

– **Milestone Retrospective:** Once a project has been underway for some time, or at the end, all of the team's permanent members (not just the developers) invest from one to three days in a detailed analysis of the project's significant events.

– **Personas:** When the project calls for it - for instance when user experience is a major factor in project outcomes - the team crafts detailed, synthetic biographies of fictitious future product users; these are called "personas."

Principles behind the Agile Manifesto

1	Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.	7	Working software is the primary measure of progress.
2	Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.	8	Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
3	Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.	9	Continuous attention to technical excellence and good design enhances agility.
4	Business people and developers must work together daily throughout the project.	10	Simplicity--the art of maximizing the amount of work not done--is essential.
5	Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.	11	The best architectures, requirements, and designs emerge from self-organizing teams.
6	The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.	12	At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

The University of Sydney

Three common forms of Agile development

– There are at least a dozen agile innovation methodologies, which share values and principles but differ in their emphases. Experts often combine various approaches. Here are three of the most popular forms and the contexts in which each works best.

	SCRUM	KANBAN	LEAN DEVELOPMENT
Guiding Principles	Empower creative, cross-functional teams	Visualize workflows and limit work in process	Eliminate waste from the system as a whole
Favorable Conditions for Adoption	Creative cultures with high levels of trust and collaboration, or Radical innovation teams that want to change their working environment	Process-oriented cultures that prefer evolutionary improvements with few prescribed practices	Process-oriented cultures that prefer evolutionary improvements with overarching values but no prescribed practices

https://hbr.org/2016/05/embracing-agile (Apr'25)

Common Agile methodologies

- **Lean Methodology** eliminates waste by selecting only the valuable features for a system, prioritising those selected, and delivering them in small batches. It emphasises the speed and efficiency of development workflow and relies on rapid and reliable feedback between programmers and customers.
  - Lean uses the idea of work product being "pulled" via customer request.
  - It focuses decision-making authority and ability on individuals and small teams since research shows this to be faster and more efficient than a hierarchical control flow.
  - Lean also concentrates on the efficiency of the use of team resources, trying to ensure that everyone is productive as much of the time as possible.
  - It concentrates on concurrent work and the fewest possible intra-team workflow dependencies.
  - Lean also strongly recommends that automated unit tests be written at the same time the code is written.

Common Agile methodologies

- **Scrum** is a process framework for managing product development and other knowledge work. Scrum is empirical in providing a means for teams to establish a hypothesis of how they think something works, try it out, reflect on the experience, and make appropriate adjustments.

- Organisations use **Kanban** to manage the creation of products with an emphasis on continual delivery while not overburdening the development team. Like Scrum, Kanban is designed to help teams work together more effectively.
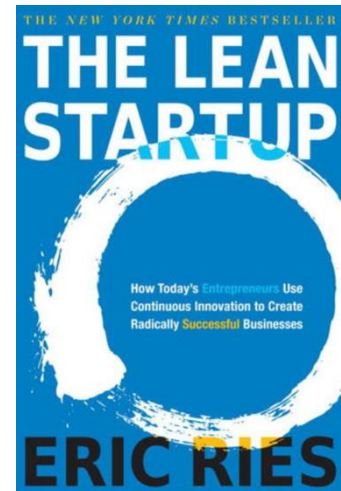
The Lean Startup
MVP, Product Market Fit etc

THE UNIVERSITY OF
SYDNEY

The Lean Startup

www.theleanstartup.com
Eric Reis
Software
developer/entrepreneur

- Eric Ries developed the concept of "The Lean Startup"
- Combines Steve Blank's Customer Development process with Agile Software Development

- Video of Eric Ries speaking, Oct 2011:
- https://www.youtube.com/watch?v=tNw4Ht75DvA
- (10 minutes)

The Lead Startup by Eric Ries

- Learn Faster
- Code Faster
- Measure Faster

http://theleanstartup.com/principles (Apr'25)

The Minimum Viable Product (MVP)

– Definition (from Eric Reis):
"the minimum viable product is that version of a new product which allows a team to collect the maximum amount of validated learning about customers with the least effort."

– The MVP is a crucial solution for new product releases, balancing the need for essential features with the risk of overwhelming complexity.

"Customer discovery in the quickest time frame with minimum effort"

The Minimum Viable Product (MVP)
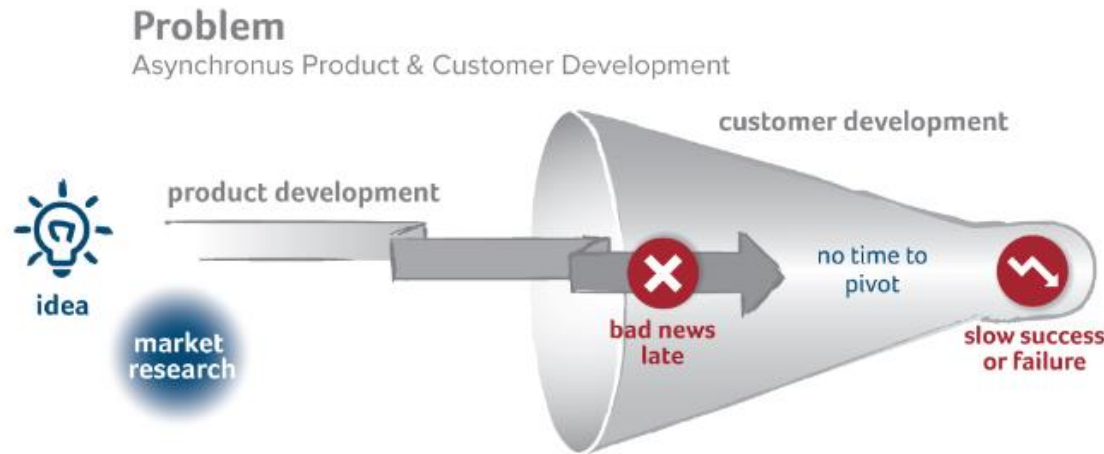
Frank Robinson,
CEO, SyncDev, Inc.

"When I first said 'minimum viable product' I never had to repeat myself. The words went viral right before my eyes."

http://www.syncdev.com/minimum-viable-product/ (Apr'25)

The Minimum Viable Product (MVP)

THE ART OF THE MVP

- NOT a minimal product

"My customers don't know what they want!"

→ New Market

- Get out of the building
- How do they spend their time?
- What solutions are they using?

https://www.youtube.com/watch?v=Fj0qsAyKPN8

The Minimum Viable Product (MVP)

1. **Entrepreneurs are everywhere -** You don't have to work in a garage to be in a startup.

2. **Entrepreneurship is management -** A startup is an institution, not just a product, so it requires a new kind of management specifically geared to its context.

3. **Validated learning** - Startups exist not to make stuff, make money, or serve customers. They exist to learn how to build a sustainable business. This learning can be validated scientifically by running experiments that allow us to test each element of our vision.

4. **Innovation accounting** - To improve entrepreneurial outcomes and hold entrepreneurs accountable, we need to focus on the boring stuff: measuring progress, setting milestones, and prioritising work. This requires a new kind of accounting specific to startups.

5. **Build-measure-learn** - The fundamental activity of a startup is to turn ideas into products, measure how customers respond, and then learn whether to pivot or persevere. All successful startup processes should be geared to accelerate that feedback loop.

Product Market Fit

Marc Andreessen

- Definition (Marc Andreessen): "Product-market fit means being in a good market with a product that can satisfy that market."
- You can always feel when product-market fit is not happening.
  - The customers are not quite getting value out of the product, word of mouth is not spreading, usage is not growing that fast, press reviews are kind of "blah", the sales cycle takes too long, and lots of deals never close.
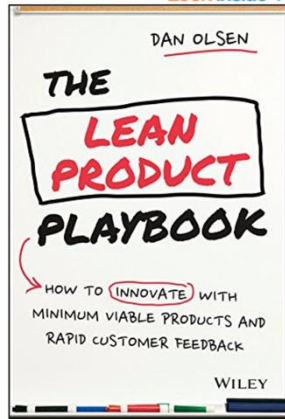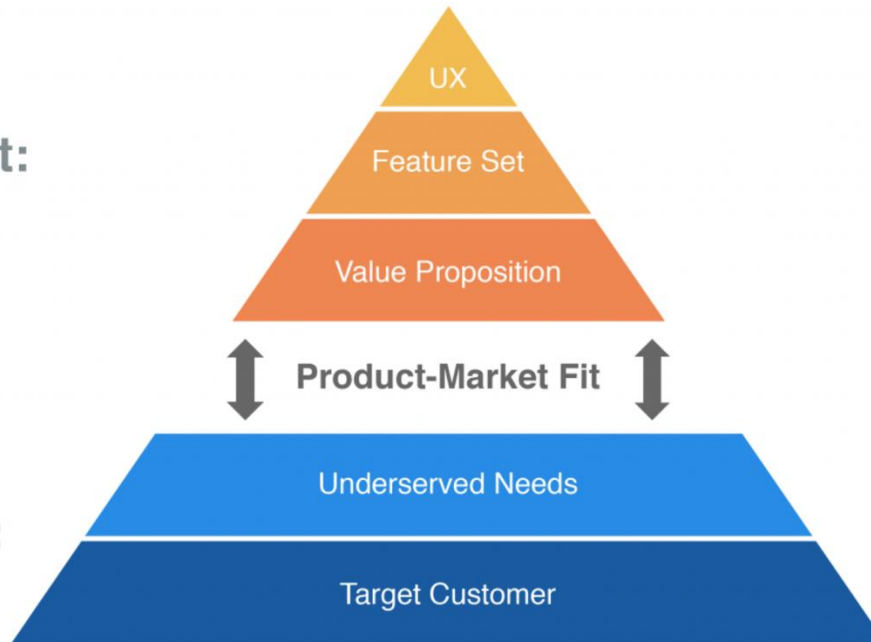
(Apr'25)

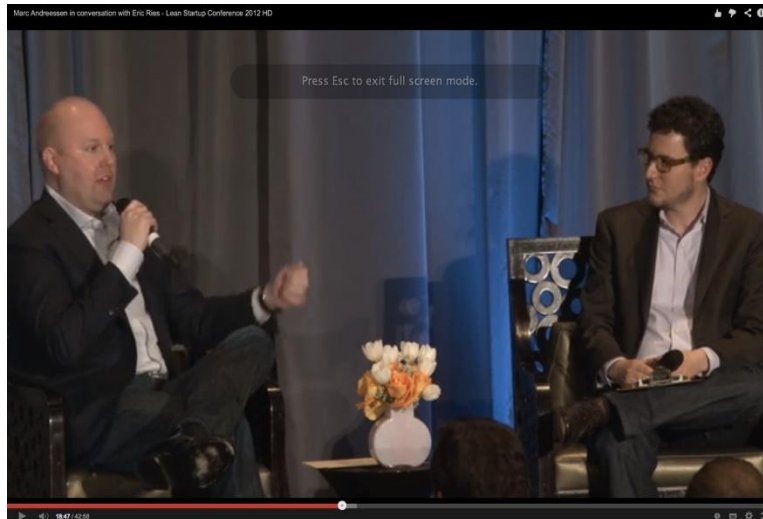# Product-Market Fit Pyramid for Lean Product Process

The Product-Market Fit Pyramid

- Test your MVP with customers
- Create your MVP prototype
- Specify your Minimum Viable Product (MVP) feature set
- Define your value proposition

- Identify underserved customer needs
- Determine your target customer

https://leanstartup.co/a-playbook-for-achieving-product-market-fit/ (Apr'25)

Good sources of tips for startups

- Steve Blanks' blog – http://steveblank.com
- Paul Graham's articles – http://paulgraham.com/articles.html
- Andreessen Horowitz 'software is eating the world' – https://a16z.com/
- "Lean Startup" isn't all you need to know - Marc Andreessen on role of lean startup - https://youtu.be/GGui1AB66k8?t=2416 (from 40:16 to end)

https://forms.office.com/r/JWTGfgHf3h

Fully anonymous feedback form
for INFO5992 students (2)