INFO5992 Understanding IT Innovations

Week 8: Innovation by Startup Companies

A/Prof Jinman Kim

Semester 1, 2018





Copyright warning

COMMONWEALTH OF AUSTRALIA

Copyright Regulations 1969

WARNING

This material has been reproduced and communicated to you by or on behalf of the University of Sydney pursuant to Part VB of the Copyright Act 1968 (**the Act**).

The material in this communication may be subject to copyright under the Act. Any further copying or communication of this material by you may be the subject of copyright protection under the Act.

Do not remove this notice.

UoS Outline

Week	Lecture Topics	Activity	Assessments
1. 5 Mar	UoS Introduction; Definition of IT Innovation; IT Innovation System; IT Innovation in Australia	Tute 1 – Welcome to your tutorial; Importance of innovation to a Country	Form Groups
2. 12 Mar	Introduction to Technological / IT innovation; Examples of IT innovation in industry sectors; Type and Source of Innovation	Tute 2 – Massive Open Online Courses – Enabling technologies and Peer-review	
3. 19 Mar	Dynamics of Technological / IT Innovation; Adoption of Technology; Dominant Design	Tute 3 – Dominant design in the Smartphone market	Individual Report Introduction
4. 26 Mar	Disruptive Innovation; Industry Value Chain; Value Network analysis	Tute 4 – Cognitive IT services and its value chain	Quiz Review
	Easter Break		
5. 9 Apr	Distributed innovation I: Open / Closed innovation; Platform innovation; Web APIs;	Tute 5 – Web API considerations	MCQ
6. 16 Apr	Distributed innovation II: Crowd innovations; Free and Open source software;	Tute 6 – Open source Geolocation and Maps	
7. 23 Apr	Distributed innovation III: User innovation; Platform	Tute 7 – Sharing Economy from a Distributed Innovation Context	Group presentation Introduction
8. 30 Apr	Innovation by Start-up companies and Opportunities	Tute 8 – Business Model Canvas	MCQ Review
9. 7 May	Managing IT Innovations	Tute 9 – Group Presentation preparations and feedback	MCQ Group Presentation submissions
10. 14 May	Organisational Culture; Structure supporting innovation	Group Presentation	Report Submission
11. 21 May	Innovation ecosystem; Sydney's innovation ecosystem	Peer-Review Marking	
12. 28 May	Judging IT Innovations	Tute 10 – Developing a Judging criteria for IT Innovation project	
4. 30 Jun	UoS Review; UoS comments / questions	Tute 11 – Technology innovations in IT Management	Peer-review

Agenda / Announcement

Innovation by Startup companies and Opportunities

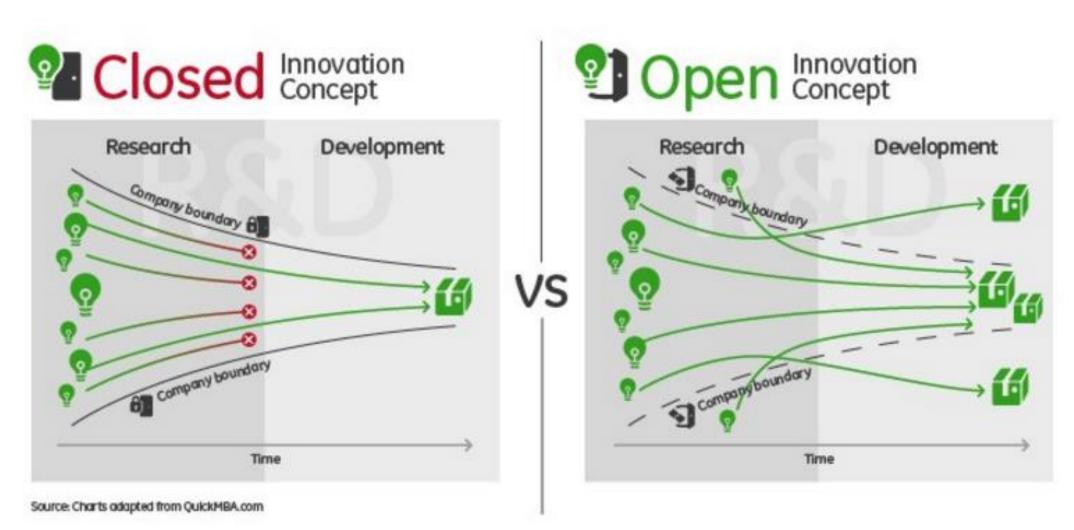
Tutorial – Business Modal Canvas

Quiz Review

Distributed Innovation – Open Innovation



Recap: Closed and Open Innovation



http://www.geglobalresearch.com/blog/growing-middle

Recap week5 to 8: Some approaches to Distributed Innovation

These are some approaches companies use to get external companies/individuals involved in their innovation:

- A. Product platforms
- B. Web APIs
- C. Crowdsourcing innovation / Crowdfunding Innovation
- D. Releasing data sets "Open data"
- E. Free and Open Source Software
- F. User innovation
- G. Platform ecosystems (Sharing economy as an example)
- H. Accelerators, investment and others (Innovation by Startups more in later weeks)

Innovation by Startup Companies



Recap week1: Innovation as "Creative Destruction"



Schumpeter

- Economy is in a state of constant tumultuous change
- Innovation propels 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
 - Innovating firms emerge after technological breakthrough

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 efficiency of product development
 - Some structures may enable both simultaneously
- Traditionally large companies have done most technological innovation inhouse in R&D labs
- Trend towards more "open innovation"
 - involving other organisations and individuals in their innovation

Size and structural dimensions of companies



Schumpeter

- Size: Is Bigger Better?
 - In 1940s, Schumpeter argued that large firms would be more effective innovators
 - This is because they are:
 - Better able to obtain financing
 - Better able to spread costs of R&D
 - can spread over more products
 - Large size may also enable:
 - Greater economies of scale and learning effects
 - Taking on large scale or risky projects

Source: Schilling (2013)

Size and structural dimensions of companies

- However, large companies might also be disadvantaged for innovation because...
 - R&D efficiency may decrease due to loss from managerial control
 - Large companies can have more bureaucratic inertia
 - 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 favors agility - It's easier for a small company to be agile than a large company

The University of Sydney Source: Schilling (2013) Page 12

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



VS



- What the Google founders recognized about search on the Web was that information about LINKS could be added to the algorithms.
- Links are, in effect, 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 the accuracy of retrieval.

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

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



VS

News Corporation





- But, 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.

What's an entrepreneur?

- Dictionary definition:
 - "the owner or manager of a business enterprise who, by risk and initiative, attempts to make profits"
- (Collins English Dictionary, 2016)
- From French: someone who undertakes an activity

http://www.collinsdictionary.com/dictionary/english/entrepreneur

What's an entrepreneur?



- According to Schumpeter:
- May be in small or large companies
- Is not necessarily an entrepreneur all the time
 - May be a manager in a large company carrying out dayto-day management activities
- May or may not be person who provides funding
 - Not necessarily the "risk-taker" (in economic sense)
- Schumpeter:
 "it is leadership rather than ownership that matters"

What's a startup company?

Traditional approach: Treat startup as small version of large company

- Traditional approach (still often used today)
- Startups treated as small version of large company
 - Founders used techniques learned in business schools as used by big companies
- Most businesses needed a business plan to start
- Business plan needed for investment (bank, venture capital, etc)

Traditional approach: Treat startup as small version of large company

- Business plan focused on:
 - 1. Identifying business opportunity (addressable market)
 - 2. Problem to be solved
 - 3. Planned solution to the problem
 - 4. Forecast 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

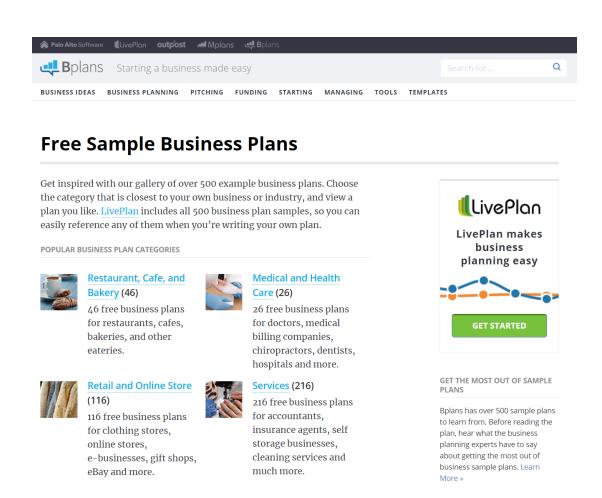


Frequently unsuccessful for tech startups as:

- 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 hard to change direction quickly

Business Plan Templates and Examples

- Many samples from various industries
- Templates to help



https://www.bplans.com/software_publisher_business_plan/executive_summary_fc.php

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

The Unicorn Club - Billion dollar Startups

- Coined the often-used Silicon Valley term unicorn in a TechCrunch article "Welcome To The Unicorn Club: Learning from Billion-Dollar Startups" as profiled in a New York Times article. A unicorn is generally defined as a privately held startup that has a \$1 billion valuation – something rare (like a unicorn).[11]
- 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. With this in mind, we decided to visualize the increasingly crowded unicorn club.

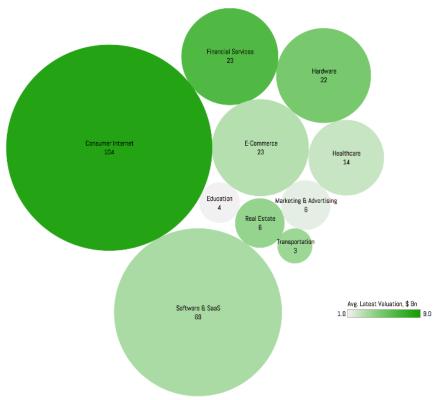


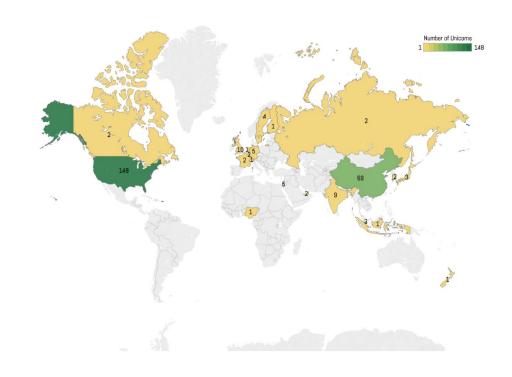
Unicorn Lee

https://bits.blogs.nytimes.com/2015/07/05/unicorns-a-fitting-word-for-its-time-and-place

Unicorns

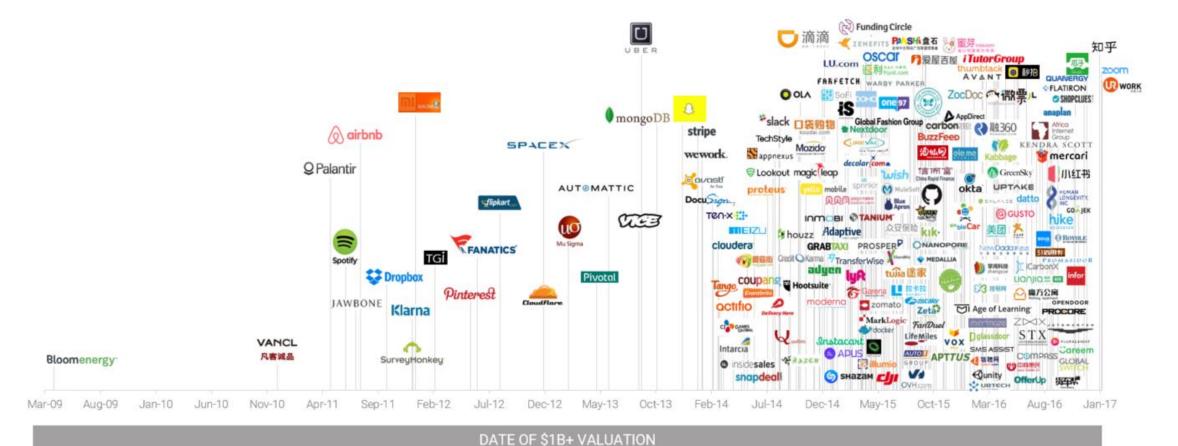






- Unicorn Club
- https://medium.com/startup-grind/unicorn-club-revisited-e641f9c80e8d
- Fortune's Unicorn List
- http://fortune.com/unicorns/

THE INCREASINGLY CROWDED UNICORN CLUB: PRIVATE COMPANIES VALUED AT \$1B+ as of 1/31/2017





https://www.cbinsights.com/research/increasinglycrowded-unicorn-club/

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
- Optimistic private markets sheltering a thicket of "paper unicorns."

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

Five primary business models among Unicorns

- 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
- Audience companies the product is free to use for consumers, the company makes money thru ads or leads; e.g., SnapChat
- 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
- SaaS companies cloud-based software offered often via a 'freemium' or monthly model; e.g., Slack and MangoDB
- 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/

Five primary business models among Unicorns

- An important note 32% of 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.
- The overall value of the unicorns
 - E-Comm 36%
 - Audience 27%
 - SaaS 20%
 - Enterprise 12%
 - Consumer 6%
 - * round up errors

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

Established companies vs startups

Established companies...

Execute a business model

Search for a business model

Startups...

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 not to try to think of startup ideas. It's to look for problems, preferably problems you have yourself.

The very best startup ideas tend to have three things in common:

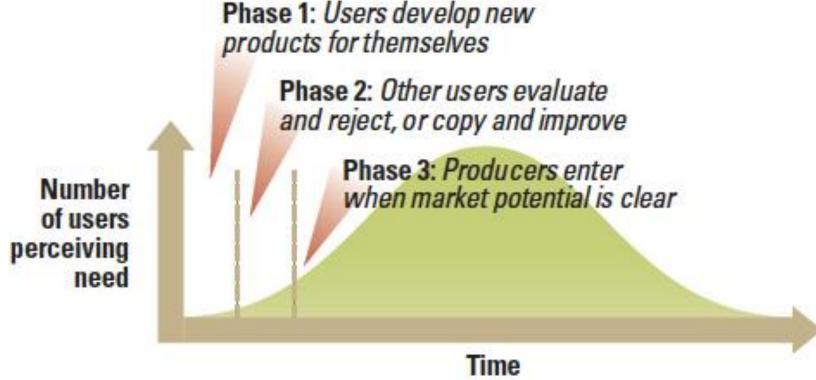
- they're something the founders themselves want,
- that they themselves can build,
- and that few others realize are worth doing.
- Microsoft, Apple, Yahoo, Google, and Facebook all began this way.

http://paulgraham.com/startupideas.html

Recap: Many innovations start at "user innovation"



Eric Von Hippel MIT Sloan School of Management



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
- 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

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

eg http://www.slideshare.net/sblank/why-product-managers-need-sneakers?from=ss_embed

Towards more systematic methods for startups

- Emerging "management science" for startups
- Techniques to help startups build successful innovative companies despite 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 Tutorial
 "Sketch Out Your Hypotheses."
- Agile software development Week 9
 "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

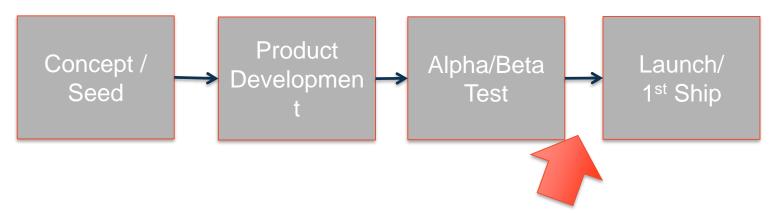


What's wrong with the New Product Introduction Model (for startups)

- "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 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 to a plan
 - 8. Presumption of success leads to premature scaling
 - 9. Management by crisis leads to a death spiral

Introducing new products to a market: Traditional model

New Product Introduction model:



First contact between product and customer. Too late!

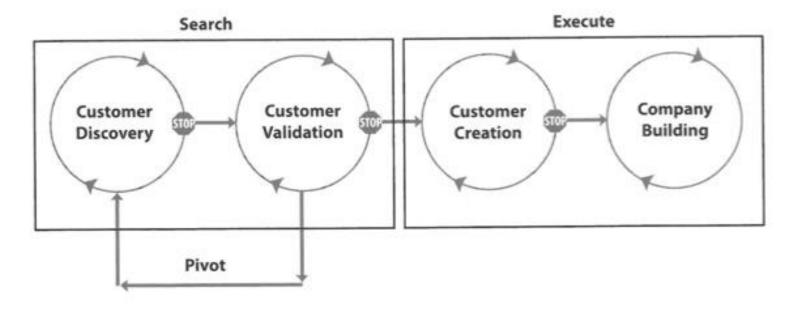
"No business plan survives first contact with customers" – Steve Blank

Alternative approach for startups: Customer Development Process

Customer Development Process:

Works where customers are unknown, product features unknown, market unknown, basis of competition unknown – i.e.

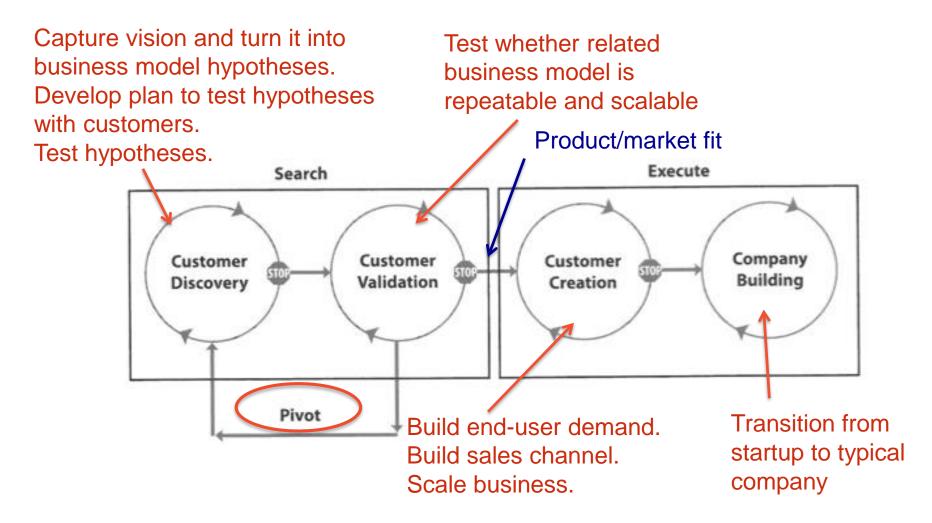
Designed to solve "the 9 deadly sins"



Customer Development Process (Figure 2.1)

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

Alternative approach for startups: Customer Development Process



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

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

• • •

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)

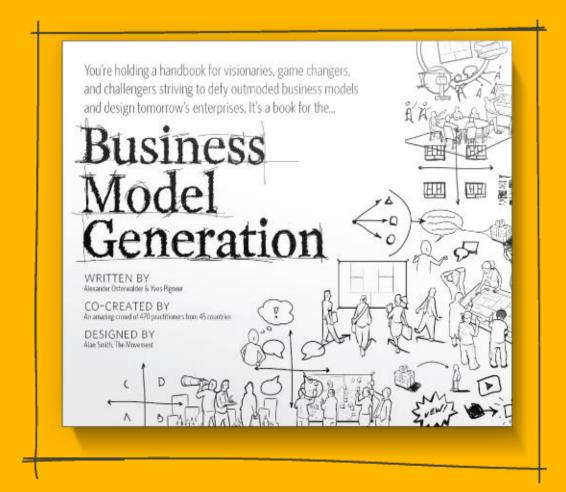
https://www.youtube.com/watch?v=6y3WIrgp NY

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

Business Model Canvas



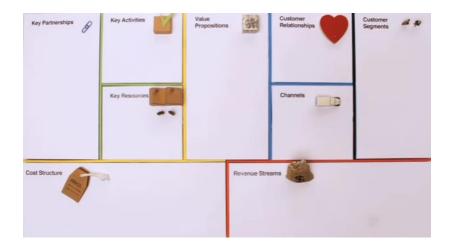


The Business Model Canvas

- Created by Alexander Osterwalder et al, 2010
- Involved 470 practitioners in 45 countries
- Studied hundreds of business models and extracted key aspects into a model to make a common framework and tested it

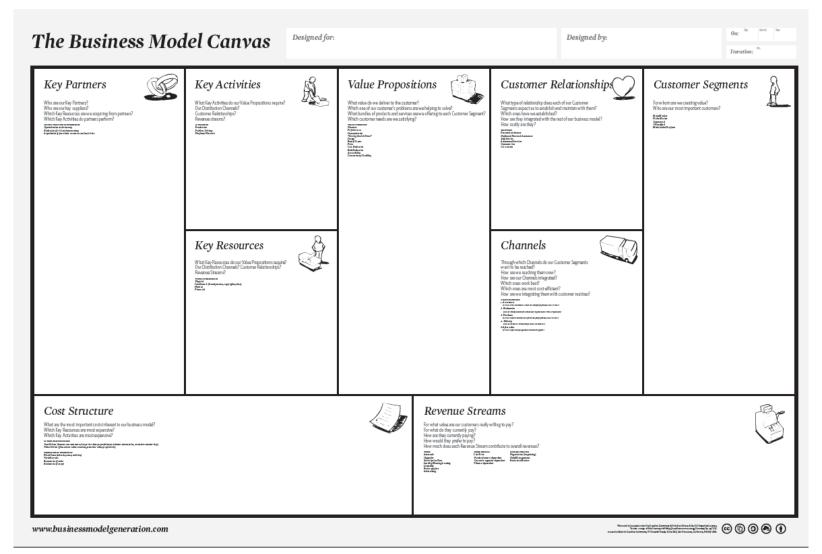


Alexander
Osterwalder
http://alexosterwalder.com/



https://youtu.be/QoAOzMTLP5s http://www.slideshare.net/Alex.Osterwalder/presentations

Business Model Canvas

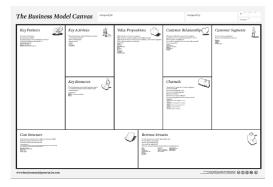


https://canvanizer.com/downloads/business_model_canvas_poster.pdf

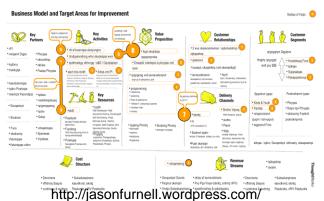
Filling in the Business Model Canvas

- Startup = the search for a business model
- Business model canvas = a representation of a business model
- A startup can track its search for a business model by iteratively filling in a business model canvas
- The Business Model Canvas:
 - Good for representing:
 - what's known (results of hypothesis testing); and
 - what hypotheses still need to be tested

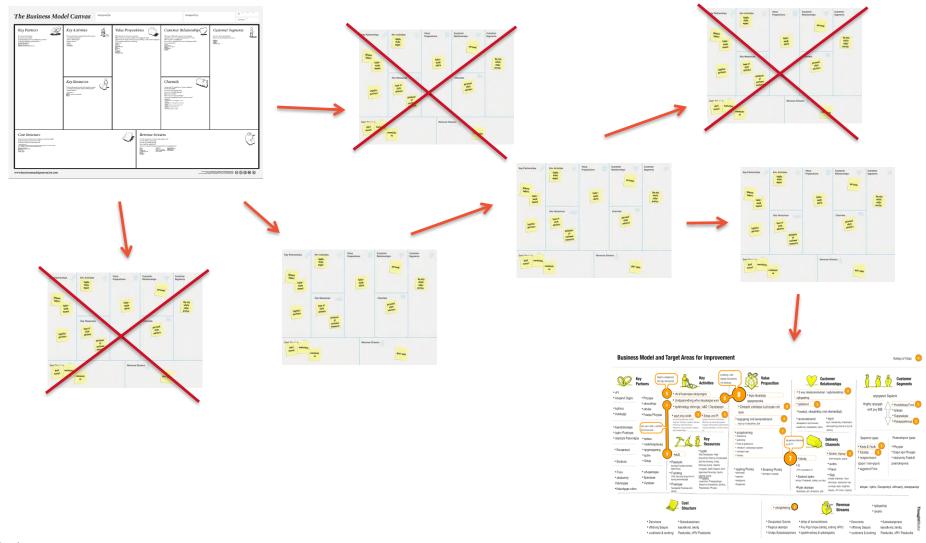
Filling in the Business Model Canvas



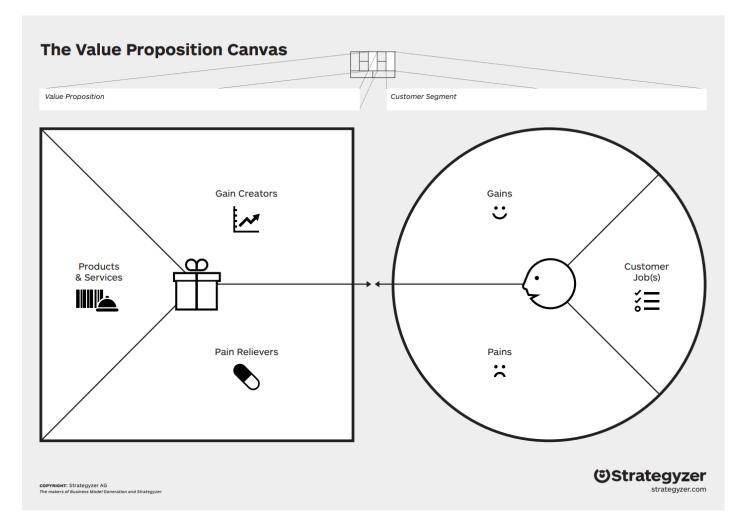




Filling in the Business Model Canvas



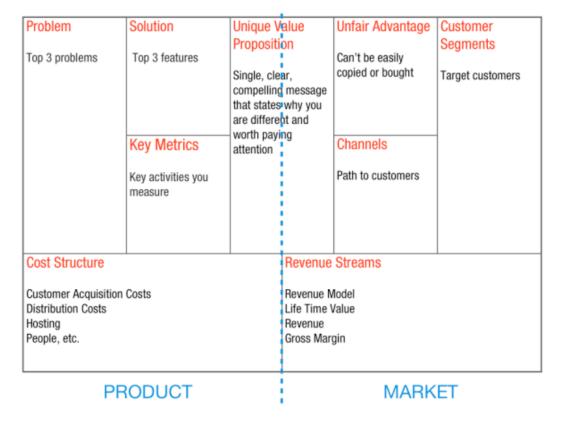
Value Proposition Canvas (2015)



https://strategyzer.com/canvas/value-proposition-canvas

The Lean Canvas (Ash Maruya)

Modified version of the Business Model Canvas that is designed specifically for startups

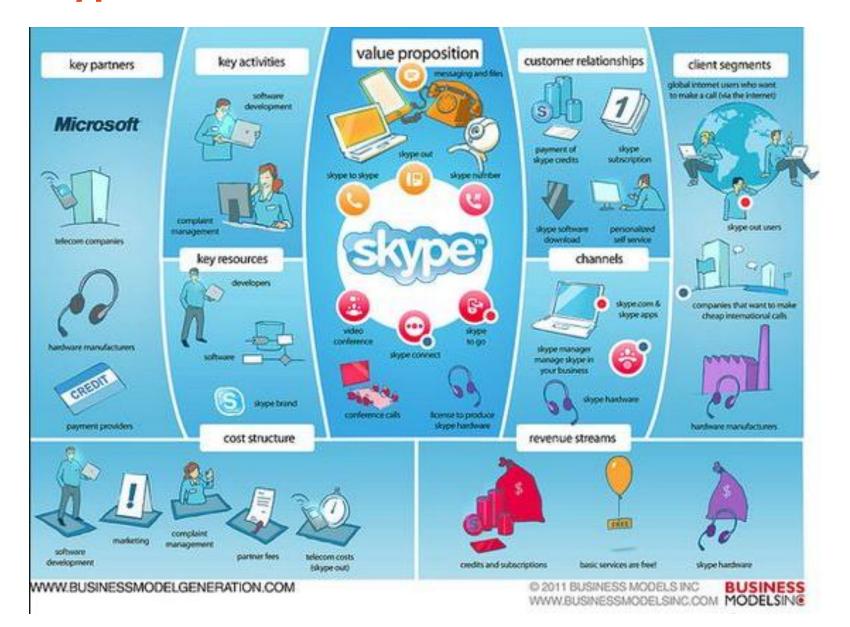


Lean Canvas is adapted from The Business Model Canvas (http://www.businessmodelgeneration.com) and is licensed under the Creative Commons Attribution-Share Alike 3.0 Un-ported License.

Tutorial 8 BMC

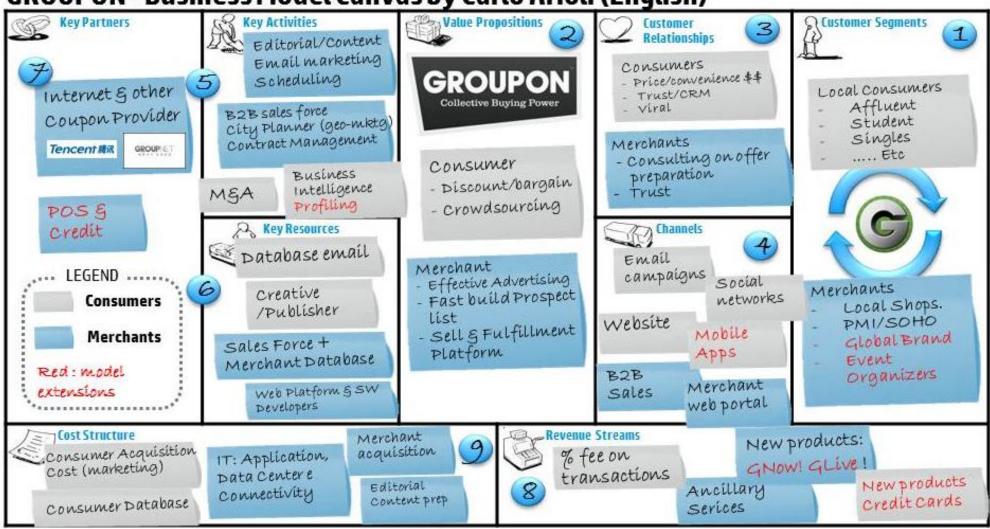
- We will study the development of a BMC.
- Within your group, you are asked to select a company and build your own BMC. The company can be one you have learned during your Innovation report.
- Alternatively, if you have an idea for a company (start up of your own!), you
 may use your company idea.
- Towards the end of the class, your group is to present the BMC to the class.
 When presenting to the class, you can either use the whiteboard, or print copies of your completed BMC and distribute it in the class.

Example: Skype



Example: Groupon

GROUPON - Business Model Canvas by Carlo Arioli (English)



Instacart



Key **Partners**

Key **Activities**

- Customer service

Key Resources

Value **Propositions**

- Best Way to shop for groceries
- Delivery in inclement weather

- Shopper Meeting other people and exploring the city
 Flexible working schedule

- More number for customers

Customer Relationships

- Customer Service
- Social Media

Channels

Customer Segments

- People who want groceries at
- their doorstep People who don't like shopping

- Those who want to reach out

Cost Structure

- Technological set-up running costs Salaries to permanent employees

Revenue Streams

- Membership fee for Instacart Express

Business Model Canvas - (self) Parking finder device

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
Online map providers, e.g. Google Vehicle companies Hardware manufacturers Payment providers Parking place providers Government	Hardware install Software development Member service Communication Key Resources System (hardware and software) System's band	Find the parking lot autonomously	Install devices in vehicle Become premium member Channels Using our devices and service	Userr that want to save time and avoid parking problems
Cost Structure Software development; S Marketing; Advertising;	ystem maintenance; Partner		ue Streams o; Service fee;	

You can use the BMC in several ways

- Download the template at https://strategyzer.com/canvas/business-model-canvas This will simply require your email address and you can download a pdf file. If the link does not work, you can find a PDF version on the Blackboard
- Use the PPT template available from the Blackboard
- You can use the free website which provides simple interactive tools to develop your BMC https://canvanizer.com/new/business-model-canvas This also requires your email address.

An example Tool

fo5306				Share Car Canvas His Canvas Set
Cey Partners ? <u>Insert</u>	Key Activities ? Insert	Value Proposition 2 Insert	Customer Relationships ? Insert	Customer Segments ? Insert
	Key Resources ? <u>Insert</u>		Channels ? <u>Insert</u>	
ost Structure		Revenue Strea	ams ? Insert	

https://canvanizer.com/canvas/wWYI2J5eMRz5u

These methods are not just for startups!! Any company can and should use them

Quiz Review



Mid-Sem Quiz

- Next Monday at your Tutorial!
- 30 minutes
- In your Lab using Canvas
- Make sure you attend your Lab you may use your laptop etc.
- Your tutor will be present to assist
- Consultation hour Thursday 3rd 4pm (tentative email TA)

Week 5 to 8: Distributed innovation

Innovation systems and distributed innovation

- Joy's Law "Most of the bright people don't work for you -- no matter who you are. [So] you need a strategy that allows for innovation occurring elsewhere"
- Distributed innovation "a system in which innovation emanates not only from the manufacturer of a product but from many sources including users and rivals"
- Modularity A standard interface enables components to be combined easily (e.g. by user, within company, between companies)
- Modularity can enable many different configurations to be achieved from a given set of components.

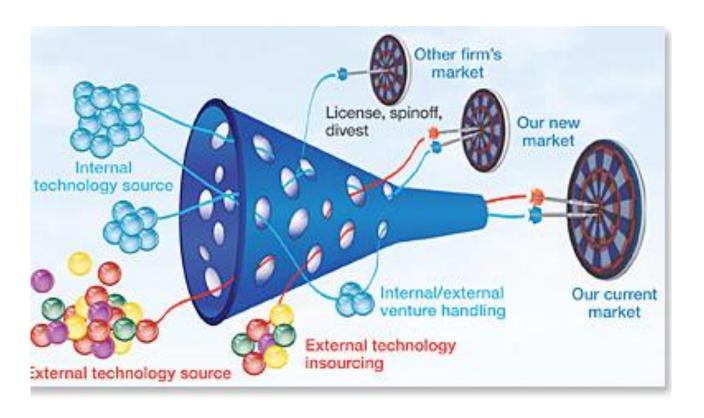
Definition of "Open Innovation"

- "the use of purposive inflows and outflows of knowledge to accelerate internal innovation and expand the markets for external use of innovation" (Chesbrough, 2006)
- Revised definition: "a distributed innovation process based on purposively managed knowledge flows across organizational boundaries, using pecuniary and non-pecuniary mechanisms in line with the organization's business model" (Chesbrough and Bogers, 2014)



Open Innovation

- Open innovation:
 - What is open innovation?
 - Types of open innovation
 - Benefits of open innovation
 - Risks of open innovation
 - New approaches to open innovation
 - Balancing internal and external innovation



Some approaches to distributed innovation

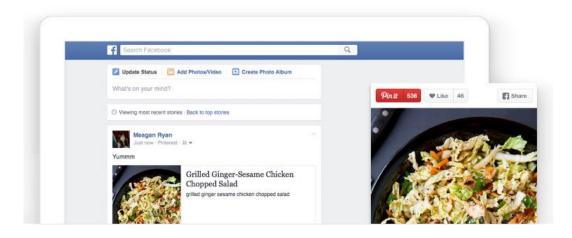
- These are some approaches companies use to get external companies/individuals involved in their innovation:
- A. Product platforms
- B. Web APIs
- C. Crowdsourcing innovation / Crowdfunding Innovation
- D. Releasing data sets "Open data"
- E. Free and Open Source Software
- F. User innovation
- G. Platform ecosystems
- H. Accelerators, investment and others

A. Product Platforms

- Concept became popular in the 90s used for reusable components/design frameworks
- Foundation of components around which a company builds related products
- Also known as "product family engineering"
- Platforms make it possible for companies to:
 - Have a rich line-up of different products with the same core functions
 - At different price-points
 - For different customer types
 - To do so efficiently through re-use of a common platform

B. Web APIs

- Interfaces for web-based services to interact (usually RESTful APIs)
- Enable modularity on the web
- Used for eg:
 - Maps
 - Payment
 - Messaging
- Becoming the underlying infrastructure for a lot of automation



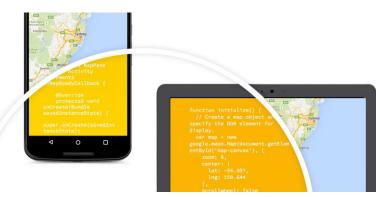


Image: developer.google.com

C. Crowd Sourcing

 "Crowdsourcing is a type of participative online activity in which an individual, an institution, a non-profit organization, or company proposes to a group of individuals of varying knowledge, heterogeneity, and number, via a flexible open call, the voluntary undertaking of a task.

- What is it and why people engage
- 4 major types of crowd sourcing
- Crowd sourcing topology

Tutorial 5: Distributed Innovations

- Which of the three distribution concepts are being used? Identify and briefly describe how it is used.
- What is the strategy for the company with its open innovation? What is its mission / vision / purpose?
- What are the benefits for the company? Similarly, what are the benefits for the user?
- [Optional / Homework] There are companies such as eBay, and Facebook, which has the capacity to have their own open innovation platform (e.g., within their own company) but chose to use other platforms e.g., Topcoder https://www.topcoder.com/ and Kaggle https://www.kaggle.com/ What are the advantages and disadvantages when compared to companies with their own open innovation platform?

D. Releasing data sets

- Many governments have opened up government data ("open data")
 - In some cases, static data (eg tables of static data)
 - In some cases, live data feeds (eg an RSS feed or data service)
 - The Australian federal government http://data.gov.au includes:
 - Electoral boundaries
 - Crime data, census data
 - NSW Government http://data.nsw.gov.au/ includes:
 - Bus stop data, Electricity consumption data

D. Releasing data sets

- Value in Open Data
- Many communities are also building open data sets
 - Eg openstreetmap.org
 - Eg openaddresses.io
- Some companies are encouraging users to develop applications using their data
 - Examples of companies releasing data sets:
 - GoGet car share data, Coca Cola Amatil data

E. Free/open source software

- Importance of free and open source software in innovation:
 - In enterprise IT
 - In startups
- Free and open source licences
 - Permissive vs restrictive
- Open source business models
 - Types of business models
 - Example of successful business models using open source software
- Managing the use of free and open source software
 - Challenges, tools, etc.
- How companies address the challenges of Open source

When creating open source software: How do you know what licence to use?

Permissive licences: Changes need not be made available

Public MIT BSD Apache domain Software License

Restrictive (copyleft) licences: Changes must be made available

GPLv2 GPLv3 AGPL SleepyCat



- You want a lot of companies to adopt your software in their products/services, and
- You don't care if they make their changes available (eg as you just want the code to be used or you have deep enough knowledge & expertise that they will come back to you):
 => use a permissive licence (eg BSD, Apache)

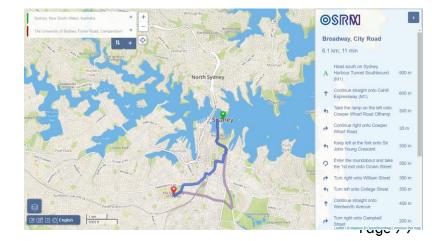
lf:

- You want to ensure that companies (using your software in their products) make their changes available (so you and others can get them):
- =>use a restrictive licence (eg GPLv3)

Case Study

- What is the **Distributed Innovation concept(s)** employed by mapping API companies?
- Comparing the OpenStreetMap to others, they embrace 'user innovation' and 'crowdsourcing innovation' as their core differentiator.
- The Map API has created an extensive and powerful Value Network. In our case study today, we learned about several companies based upon the freely available OpenStreetMap. Can you add more examples to the Value

Network (services, categories of services etc)

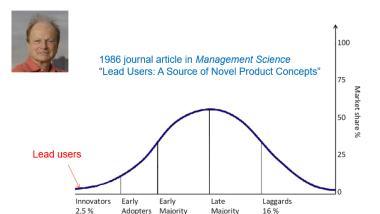


Tutorial 6: Open Innovation with Maps

- Q1. What are the Distributed Innovation concepts employed by mapping API companies? Does the model of OpenStreetMap differ from the paid APIs? We have studied the following concepts in the past two weeks:
 - Product platforms
 - Web APIs
 - Crowdsourcing innovation / Crowdfunding Innovation
 - Releasing data sets "Open data."
 - Free and Open Source Software
 - User innovation
- Q2. The Map API has created an extensive and powerful Value Network. In our case study today, we learned about several companies based upon the freely available OpenStreetMap. Can you add more examples to the Value Network (services, categories of services etc)
- Q3. Comparing the OpenStreetMap to others, they embrace 'user innovation' and 'crowdsourcing innovation' as their core differentiator. What is your view of this and its long-term potential? Could they become at the level of Wikipedia i.e., the dominating service?
- Q4. [Optional / Homework] Map Web APIs has had a huge impact in many industries e.g., shopping, Airbnb, ride sharing, navigation, etc. Would you consider Map APIs to be a destructive innovation? Has it created its own Value Chain and also created a New Market? Would you consider Maps to be in an Era of ferment, where we are seeing incremental innovations, and therefore it is prime for a new disruption? What would that look like and is there companies/research targeting this change?

F. User innovation

- Different modes of innovation: Who is doing the innovation?
 - Producer innovation vs user innovation vs open collaborative innovation
- User innovation
 - Why users innovate
 - The importance of user innovation in IT innovation
 - Examples of user innovation
- Lead users
 - Characteristics of lead users
 - Difference between lead users and typic
 - Why companies engage with lead users



Lead users

Maker Movement

- User innovation: becoming an even bigger force in innovation eg "Maker movement"
- The Maker Movement is the embodiment of the do-it-yourself, tech community a celebration of the ever-growing culture bred from the cross section of collaboration and creativity that is continuously recruiting people and ideas and technologies and inviting them to be tested and broken and shared. Makers are everywhere welding in a garage, tucked away in a lab or DIY-ing on the living room floor but the community's unofficial headquarters are all around the nation, and creating a place for makers of all kinds in the form of Makerspaces.
- IT is a key enabler to rapid increase in IT innovations
- But not only in IT.... there are many other ways for innovation to occur

- Maker movement has made tremendous interest in the past years

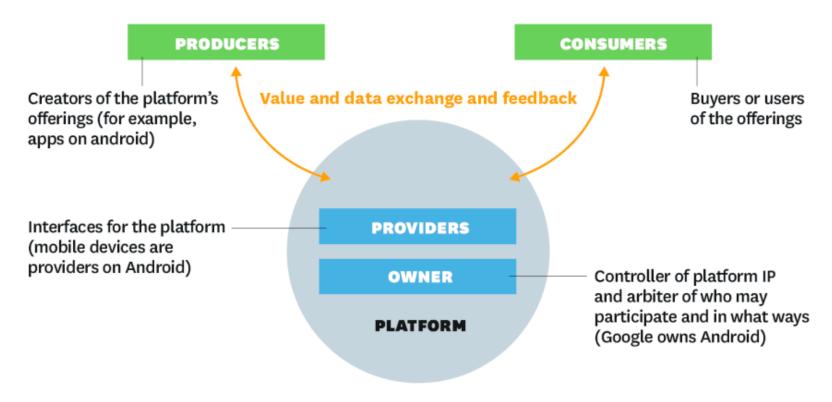
G. Platform Economy Fundamentals

- Platform businesses bring together producers and consumers in high-value exchanges. Their chief assets are information and interactions, which together are also the source of the value they create and their competitive advantage.
- Importance of Network Effects, and their types
- Importance of 'self-reinforcing' cycle
- Modularity
- Product Platform
- Governance Protocols or Standards
- Platform business
- Platform types e.g., Aggregation, Social, Mobilization, Learning

Main players in a platform ecosystem

The Players in a Platform Ecosystem

A platform provides the infrastructure and rules for a marketplace that brings together producers and consumers. The players in the ecosystem fill four main roles but may shift rapidly from one role to another. Understanding the relationships both within and outside the ecosystem is central to platform strategy.



SOURCE MARSHALL W. VAN ALSTYNE, GEOFFREY G. PARKER, AND SANGEET PAUL CHOUDARY FROM "PIPELINES, PLATFORMS, AND THE NEW RULES OF STRATEGY," APRIL 2016

Case Studies - Can you Map the examples to Platform economy type?

- Google
- Apple e.g., iTunes
- Microsoft e.g., OS, App store
- Amazon
- IBM e.g., Watson
- eBay
- Samsung
- Oracle
- SAP
- **—** ...

- Producer, Consumer, Provider, Owner
- Aggregate, Social, Mobilise
- How about To Distributed innovation?
 - Product platforms, Web APIs,
 Crowdsourcing innovation /
 Crowdfunding Innovation, Releasing
 data sets "Open data", Free and Open
 Source Software, User innovation

Tutorial 7: Sharing Economy (A part of Platform)









Services (**DogVacay**, https://www.dogvacay.com/) DogVacay is a Santa Monica based company known for home dog boarding and other pet services. It is cheaper than a kennel, and provides a more comfortable stay for the dog.

Automobile Services (**Lyft**, https://www.lyft.com) Lyft is a ride sharing company for people to find rides from "regular" people who have a car.

Financial Services (Lending Club, https://www.lendingclub.com) Lending Club is a US peer-to-peer lending company, headquartered in San Francisco, California. Lending club is cheaper thank banks for borrowers and provides better interest rates thans saving accounts for investors.

Wi-Fi Services (**Fon**, https://fon.com) Fon enables people to share their home Wi-Fi network in exchange for getting free Wi-Fi from anyone out of the 7 million people in Fon's network.

Tutorial Questions

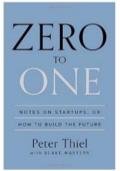
- Q1. What are the IT technologies that are enabling sharing economy platforms? Have a look at some of the popular sharing economy companies. Study the example companies and see what technologies they all rely on. Do you see a pattern among majority of the companies that are listed above?
 - Key enabling technologies for sharing economy, among many others, are peer-to-peer transactions and social networking technologies. What are they and why are they so important?
 - What technologies the sharing economy companies might adopt in the future?
- Q2. Would you consider companies adopting 'sharing economy' platform to be following the concepts of disruptive innovation? Can you give an example of a sharing economy company you think is causing disruption? Remember, disruptive technology is not the same as disruptive innovation!
- Q3. There are several weaknesses identified for sharing economy companies. What are they? In particular, why is it suggested that many 'web startups are easy to launch but many will not survive once their funding runs out' [1]?
 - A. Do you think it is too easy to replicate a sharing economy platform? In fact, several sharing economy platform company has popped up quickly and also disappeared quickly. What are the main reasons for this?
 - B. A Web API is readily available for you to start a sharing economy platform. See for example below which lists three different platforms: http://www.shareable.net/blog/3-platforms-to-start-your-own-sharing-service Using such platform, can you come up with your own innovation? There are many new innovations emerging and a good example of this is the competition from IC tomorrow, which is a part of Innovate UK Network. See the recent finalist in the link below from a sharing economy competition they are quite innovative!
 - https://ictomorrow.innovateuk.org/article-view/-/blogs/digital-innovation-in-the-sharing-economy-contest-finalists-announced
- Q4. [Optional] Does sharing economy concept adopt open innovation? Can you identify open innovation approaches to engaging
 external users in the innovation?

H. Accelerators, investment and others Innovation by start-up companies

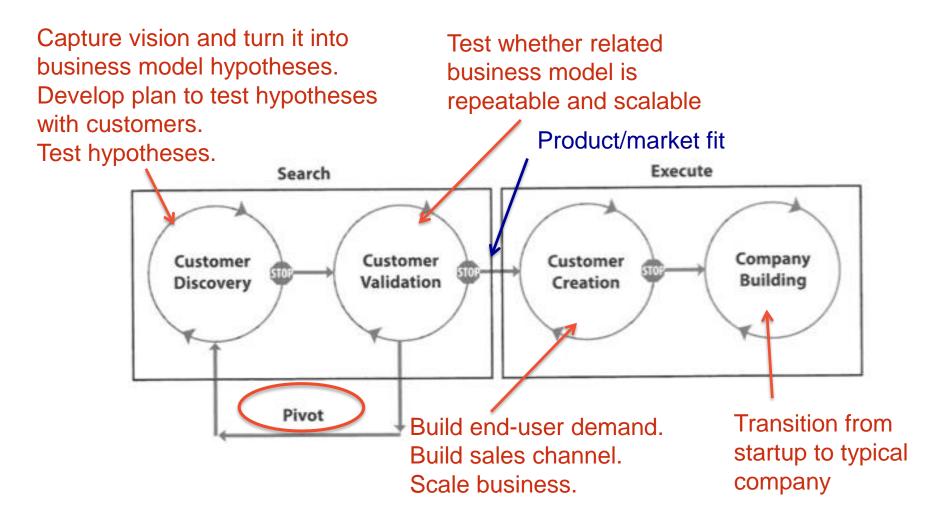
- The importance of the entrepreneur
- Definitions of startups (e.g. from Steve Blank, Eric Reis)
- How to get startup ideas (Paul Graham)
- Why traditional product processes are not suitable for startups
- New approaches for startups:
 - The Customer Development process
 - The Lean Startup approach
 - The Business Model Canvas
 - The Value Proposition Canvas
 - The Lean Canvas
- Lean startup doesn't suit everything:
 - Big visions for short-term monopoly
 - (Peter Thiel)







Alternative approach for startups: Customer Development Process



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

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

eg http://www.slideshare.net/sblank/why-product-managers-need-sneakers?from=ss_embed

The startup – 3 key principles

- Business Model Canvas"Sketch Out Your Hypotheses."
- Customer Development "get out of the building"
 - including hypothesis-driven experiments with customers, pivoting etc
- 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

Tutorial 8 BMC

- We will study the development of a BMC.
- Within your group, you are asked to select a company and build your own BMC. The company can be one you have learned during your Innovation report.
- Alternatively, if you have an idea for a company (start up of your own!), you
 may use your company idea.
- Towards the end of the class, your group is to present the BMC to the class.
 When presenting to the class, you can either use the whiteboard, or print copies of your completed BMC and distribute it in the class.

Assessments

- 2 MCQs 5% each for a total of 10% (Week 5 and Week 9)
 - Multiple choice questions
- Innovation Report (Group + Individual) 15% (Week 9)
 - Critical report on a topic with IT innovation, with multiple case studies
- Presentation (Group): IT Innovation Case Studies 10% (Week 10+)
 - Presentation of Innovation case studies and pitching a new idea!
- Peer-Review Assessment of Presentations 5% (Week 13)
 - Attendance and participation in group presentations
- Final Exam 60% (Exam Period)
 - Final exam covering all material covered in lectures, guest lectures, assigned reading and class discussion

Multiple Choice Qs

- The MCQ is to give you practice in understanding this unit of study
- All lecture and tutorial contents from weeks 1 to 4, and possibly 5.
- Feedback will be provided indicating what students are generally doing well and what they are not doing so well. This feedback will be posted in Canvas to help all students in preparation for the exam.