“So, you want to start a technology company?”

Nick Barendt
November 4, 2014
Overview

- Some background
- Some practical, tactical advice
- A survey of tools and frameworks
Two Stories
Electronic Instrumentation

2003-2006
We have a product for measuring strain in materials
But "Sales" sells this product instead.

We don’t actually have this product...
This is surprisingly common... engineers hate it.
But we build it.
It is very complicated.
Customer is Happy!
Lesson:

Signed Purchase Order equals Solid Validation
Sidebar: IEEE 1588
Precision Time Protocol (PTP)

High-accuracy clock synchronization and syntonization on a LAN (single ns level)
Kendall Correll - CWRU Senior Project
Presented in Zurich, Switzerland

Unfortunately, developed at a “breakneck” pace
Need a change...
I know —
Cofounded a Software Startup!
Online, remote data backup
with Gary Bernhardt & Dr. Michael Branicky
Amazon S3
Storage

Amazon EC2
BitBacker Backup/Restore Server

Customer Computer

Amazon S3 Storage

Cloud!

Elegant Mac Client!

Security!

Scalability!

Deduplication!

Roadmap!
But we took too long...
MVP could have been simpler & faster to build & we could have validated earlier
Sigh
Lesson:

“Scratching your own itch” can lead to myopic vision and shadow customer personas
Lesson:

Modern product design is a skill (more on this later)
Lesson:

Splitting equity is thorny
Noam Wasserman
The Founder’s Dilemmas

“Rich vs. King”

Harvard Business School
Lesson:

Cutting-edge technical experience is rarely a waste
Meta Lesson:

You often learn more from the failures than from the successes.
Where to next?
On-site coaching
We transform companies and their cultures by helping them embrace and adopt Agile development practices. We also offer Agile training and can even augment your development teams.

Helping companies improve their culture and their products

Design & Delivery
We design and deliver custom software, whether green-field or legacy systems, for startups to enterprises.
Some Recent Portfolio Samples
Wellness Informatics
will i will opening when was the wheels almost all my
major machines and pictures of losing your tools makes it
easy to reorganize areas when needed, safer, creating a large
open space to build a complex or a good-sized cabinet. You
cannot large machinery on commercial mobile bases might
be twenty inch bandsaw sits on the movies with wheels, and
if was small wedges underneath when he needs to be
stationary by pulling out the wedges and unlocking the rear
wheels, even a small person can of the five hundred pound
beehemoth with ease. A mobile base allows you to move
heavy machine-gun and easily picture power runs through
extra long wires.

Large casters undershot tables and cabinets. Create mobile
work centers, handmade dollies help keep work safe because
they provide an easy way to finish pieces out of harms way.
Even shop tables and cabinets can benefit from ability which
you can provide by attaching heavy-duty locking casters to the
bottoms of lakes and cases to locking swiveling casters
“I have an idea for a great product!”
Nothing! (Execution matters.)
What should I do with my idea?

- Build a prototype?
- File for Intellectual Property (IP) protection
- License it?
- Found a company?
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What does founding a company mean?

Business Entities
DISCLAIMER: I AM NOT A LAWYER

Do not take my advice on legal matters.
Founding a company is a legal and financial action

- Default - you’re a sole proprietor (aka Schedule C)
- Generally, though, you create a new legal entity
  - Partnership
  - Limited Liability Company (LLC or Ltd)
  - Corporation (C or S)
Which entity type to choose?

- Schedule C not sufficient beyond consulting
- Partnerships only if you are in a professional services biz
- LLC is simplest and lightest weight - good default
- Corporation
  - legal and accounting quickly become complicated
  - some investors only comfortable with corporations
- Not irreversible decision - there are ways to convert between them, with some time and money
Why bother?

- Your status changes - you now own some/all of entity
- The business is separate from you
- Your business can accept investment in exchange for equity
- Reduce liability risk
- Allow easier collaboration (partners, employees, etc.)
- Lifetime of business is not limited to your lifetime
Where to get help?

- Find a good lawyer
- Educate yourself first, though
- I like noolo.com books
  - Most libraries have them
  - Cheap, fast education
- Laws are slightly different by state
How will I pay for everything?

Funding
Types of Businesses

- “Startup” means a particular thing - a company designed to scale quickly
- “Lifestyle” business - create income for the owners and employees, but limited scale (e.g., consulting)
  - sometimes a pejorative in funding circles
  - generally not fundable
- Business to Business (B2B)
- Business to Consumer (B2C)
- Hardware vs. Software
Funding & Investment Options

- Bootstrapping (savings and consulting)
- Customers
- Friends and family round (tricky to do legally)
- Crowdfunding
  - pre-order sales (Kickstarter)
  - equity - still complicated, despite JOBS Act
- Accelerators (Y Combinator, TechStars, etc.) ~$20-$50k
- Angel Investors ~$50-$100k
- Venture Capital >$250k
Brad Feld
Venture Deals
TechStars
How much do you need?  
I have no idea.  
(Maybe less than you think, though.)
Raising investment is hard
You essentially have to prove that you don’t need the cash.
What can you do to stack the deck in your favor?
Business Models and Value Propositions
Business Model

- How you create, deliver, and capture value
- (Sadly, your product idea is only one tiny part of this)
- You could create a traditional 50 page business plan, but that’s likely to contain a bunch of b***s***; you likely have better things to do
- You do need to understand your proposed business, though
- Where to start...
The Business Model Canvas

Key Partners
What key individuals or firms do we need to reach our aim?
Do they help us or hinder us? How?
How can we create a relationship?

Key Activities
What key tasks do we need to perform?
How do we perform them now?
What would make them more effective?

Value Propositions
What key value propositions or goods do we offer?
What are the key benefits to customers?
Who are our target customers?

Customer Relationships
What type of relationship do we want to establish?
What type do customers want?
What do we need to do?

Cost Structure
What costs are involved?
What are the key cost drivers?
What do we need to change?

Customer Segments
Who are our target customers?
What are their needs?
How do we reach them?

Channels
Through which channels do we reach our customers?
What are the key channels?
What do we need to change?

Revenue Streams
What revenue streams do we have?
What are the key revenue drivers?
What do we need to change?

Key Resources
What key resources do we need?
How do we use them?
What do we need to change?

Channels
Through which channels do we reach our customers?
What channels do we use most?
What channels do customers use most?

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The Value Proposition Canvas

Value Proposition
Create one for each Customer Segment in your Business Model

Products & Services
Products and services may either be tangible (e.g. manufactured goods, face-to-face product, transfer it to others, or resell, …) or intangible (e.g. solutions, otherwise contribute value to the solution, …)

Pain Relievers
Identify all the pain points your customer could experience before, during, and after getting the job done, because that may impose risks your customer experiences or could experience before, during, and after getting the job done.

Gain Creators
Describe how your products and services create customer gains.

Use in Conjunction with the Business Model Canvas

www.businessmodelgeneration.com

http://www.businessmodelgeneration.com/canvas/vpc
Alexander Osterwalder
Operations

Keeping the lights on
First things

- File with IRS for an Employer Identification Number (EIN)
- Open a checking account in the business’s name
Accounting

- If you’re the CEO, you need to learn accounting basics
  - Essentials of Double Entry Accounting
  - Accrual versus Cash Accounting (and why it matters)
  - How to read and interpret
    - Profit and Loss (P&L)
    - Balance Sheet (BS)
  - What EBITDA means
  - Taxes (Payroll, Federal, State, Sales)
  - Payroll
Revenue Cycle

- Sales Funnel
- Deliver Product/Service (the one thing you want to do)
- Invoicing or Payment Processing
- NET Terms (15, 30, 60, 90 Days)
- Accounts Receivable, Aging, and Collections :-(

- (Note Credit Cards: use payment processor and avoid PCI)
- (“Eyeballs” are harder to get and maintain than you think)
Legal

- Find an attorney that has technology startup experience
- Learn how to read contracts - it takes practice
- Non-Disclosure Agreement (NDA) - use them, but don’t be paranoid
- IP protection
  - Patents
  - Copyright
- W-2 Employees versus 1099 Contractors
Lean Startup

Hypothesis driven business
Lean

- Reduce Waste
- Continuous Improvement

- Lean Manufacturing - Toyota Production System (TPS), Demming
- Waterfall Software Development Model (*Royce, 1970*)
- Lean / Agile Software - Agile Manifesto (2001)
- Lean Startup (2011)
- Lean User Experience (2013)
Steve Blank
&
Eric Ries
Early stages of new business should focus on reducing risk and learning.
Build -> Measure -> Learn

- Articulate Hypotheses, then test
- Increase frequency of contact with target customers
- Iterate as rapidly as possible

- Prototype
- Learn
- Understand your customer
A minimum viable product has the exact (not least) amount of features to make it desirable and sellable, thus giving value.

-Martin Christensen
Identifying your MVP
User Story Cards

TITLE

As a [type of user]
I want to [perform some task]
so that I can [reach some goal]

Search by Book Title

As an Amazon Customer
I want to search for books by title
so that I can find a book to purchase
Product Backlog
Prioritized Backlog Drives Team Activities
Stories as Experiments

- Lean Startup - Build, Measure, Learn
- Don’t build software too early
- Prototype quickly
- How can we prove/disprove this hypothesis quickly?
- Can we do something even simpler/faster to prove X?
Tool - Experiment Mapping

- Think of experiments for hypotheses
- How to prioritize stories/experiments?
- Optimize for rapid learning
- David Bland - Experiment Mapping
- Process alone is often illuminating

<table>
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<th>Time</th>
<th>Days</th>
<th>Weeks</th>
<th>Months</th>
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<tbody>
<tr>
<td>Learning Value</td>
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Tools to Track Progress

- Try to stay objective
- Lean Canvas
- Javelin Experiment Board
Tool - User Story Mapping

- Jeff Patton
- http://www.agileproductdesign.com/
- Organize and Prioritize Features
User Story Mapping

Login

Synch

Search
User Story Mapping - Generating
User Story Mapping - Prioritizing
Customer Development
“Get out of the Building!” - Steve Blank

- Identify Potential Users and Customers
- Talk to them; early and often, before you have the final product
- Personas and Segments
- How do you find them? (if you can’t find them now, how will you ever find them when you want to sell them something?)
- Don’t build for everyone - solve a problem for a niche
- Observe them
- Ask them questions (but stay “out of the ‘Woulds’”)
- Build empathy
- Understand their buying process and price / value calculus
- Clarify Users versus Economic Customer
This is often uncomfortable for stereotypical, introverted engineers and developers. Just get started. It gets easier.
Team
Founding versus Co-Founding

- Rich vs. King dilemma
- Odds are, you don’t have the time and skills to do it all
- Find people that are compatible and complementary
- Founding team defines the culture - hard to change later
- Starting business can be exhausting and lonely - share the journey
Roles to consider

- Visionary (Nerd?)
- Big Picture, Systems Thinker
- Hustler (sales and marketing)
- Operator (detail oriented; get i’s dotted, t’s crossed)

- Find mentors (business, not just technical)
Where to find?

- On Campus
- Startup Networking Events
- Accelerators
- Meetups
Motivation
Why do you think you want to do this?

- Motivation?
- Goals?
- If only for money, probably easier options
Good Answer:
to try to change the world
Questions?

Thank you for your attention.

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Some potentially useful resources:

http://www.leandog.com/dogtreats/

http://www.leandog.com/what-we-do/studio/