Cleveland Justis
Institute for Innovation & Entrepreneurship
UC Davis Graduate School of Management

Business Boot Camp
Today

– Introductions & Overview
– Innovation: What is it and Why do we Care?
– What is the Leap?
– Some examples
– The Pitch
– Some Advice from last year’s winner
– Funding overview
– Customers & Business Model Validation
what is innovation?
"[In Wallace's shop] I saw for the first time everything in practical operation. It was all before me. I saw the thing had not gone so far but that I had a chance. I saw that what had been done had never been made practically useful. The intense light had not been subdivided so that it could be brought into private houses."

— Thomas Edison
Innovation

Creativity: creating a novel, valuable idea...

Commitment: determining whether and how to make it real

Entrepreneurship: turning it into something real...

This is the leap
three lessons for innovation
Innovation is about connecting, not inventing.
“I invented nothing new. I simply assembled into a car the discoveries of other men behind whom were centuries of work. . . . Had I worked fifty or ten or even five years before, I would have failed. So it is with every new thing. Progress happens when all the factors that make for it are ready, and then it is inevitable. To teach that a comparatively few men are responsible for the greatest forward steps of mankind is the worst sort of nonsense.”  — Henry Ford
The network is the innovation.
"build a better mousetrap, and the world will beat a path to your door."

— Ralph Waldo Emerson
3

ideas are nothing without action.
Innovation is risky
3,000 raw ideas
100 exploratory projects
10 well-developed projects
2 product launches
1 successful product

How do you know an idea is worth pursuing?
Is the idea any good?

**type I errors:**
Investing time and energy in a bad idea that looked good at first glance

**type II errors:**
Rejecting a good idea because it looked bad at first glance

- idea looks good
  - everyone's a genius
  - the inventor's curse

- idea looks bad
  - duh
  - the MBA's curse

- idea is bad
- idea is good
Innovation is risky, but...
Not all risk is created equal.
Moving forward means reducing your uncertainty
An idea’s worth = f(uncertainty, outcome)

A new venture’s value cannot be calculated based on its past performance. Instead, it’s value is (almost all) based on a prediction of its future value. At its simplest, this future value is a function of the upside (what it could be worth if everything goes as planned) and the probability that everything will go as planned.

\[ \text{value} = f(\text{risk-1, upside}) \]
1. Increasing the value of an idea requires reducing its uncertainty.

2. Between major reductions in uncertainty, there is little to no change.
The Challenge

think do
Thinking about thinking and doing...

- thinking
- doing
- thinking
- doing
- thinking

uncertainty

current worth

value

development of the idea (or time)
A new venture is a series of experiments
Managing the Generative Cycle

Identify and resolve the critical uncertainties quickly and cheaply.

$5, $50, $500, $5,000...
The prime objective (@ the start)

The objective is to maximize, per resources committed (time, energy, and money), the amount of uncertainty reduced.
What are the uncertainties?

- TECHNOLOGY
- MARKET
- YOUR BUSINESS MODEL

BUSINESS
The slide deck is your first $5 experiment
The major uncertainties that, if resolved, will make the idea worth pursuing.

What you need to deliver the deliverables, and what you will do next.
ideas into action
The pedagogical flow

- Thinking
- Doing
- Networking
Case Study: Greenlight Apparel
Case Study: Revolution Foods
“[Entrepreneurship] does not essentially consist in either inventing anything or otherwise creating the conditions which the enterprise exploits. It consists in getting things done.”

— Joseph Schumpeter
The Elevator Pitch

Cleveland Justis
UC Davis Child Family Institute
for Innovation and Entrepreneurship
Elevator Pitches

The Elevator Pitch is a brief, simple statement that describes an idea (a business venture, a movie, a book, etc.) in 30 seconds or less.

It is necessarily short because you only have someone’s attention for a brief moment (like the elevator ride).

It helps to:

- Be evocative: grab their attention!
- Generate a “really” a “how do you do that?” (no questions or reaction = ineffective pitch)
But, more importantly it is for you

It’s the first and easiest way to prototype your business model

Express, test, cycle: develop your prototype business model, share it, and listen to the feedback.
You don’t (yet) know what you’re doing!
A few tricks

Summarize & simplify

Drive to the essence of your project or business

Meet the “grandmother” test

– Revise your elevator pitch until your grandmother could understand what you do in less than 30 seconds
We [your] [why] [that] [for] [who] [offering] (user) (value proposition) here here here provide regulate develop serve offer lease make how
INEFFECTIVE:

Our medical technology is the first automatic anesthetic gas scavenging system that will scan patients using an anesthetic vaporizer thus providing analytical, diagnostic and therapeutic techniques similar to those used by National Laboratories in 2007, but that were updated in 2011 to include the new immunology reports.

MORE EFFECTIVE:

We provide the most accurate medical diagnostic equipment available on the market.
INEFFECTIVE:

We provide non-penetrable debridement medical equipment technologies for lymph node excision by integrating our with our 4851-bit encryption algorithm that is integrated with the newest 245-bit Dorland operators.

MORE EFFECTIVE:

We allow medical professionals to operate on cancer patients using the least invasive equipment on the market.
We [make how] [provide] [regulate] [develop] [serve] [offer] [lease] [your what (offering) here] [for [your who (user) here] that [your why (value proposition) here].
What are you doing?

The pitch should start by explaining what you do

Be specific about whether you are going to make something, develop something, license something, provide a service etc....

— “We make and sell software...”

— “We develop therapeutics that...”

— "We license a technique for manufacturing biofuels..."
For whom?

Next, who is your consumer/customer?

Be specific about who is your intended customer or consumer (better to focus on the consumer).

- "for doctors in rural communities in India..."
- "for waste water treatment plants across Canada...."
- "nursing mothers with HIV..."
Why is this important?

Finally, explain why it is important.

Give evidence: use market size, intense needs, and unstoppable trends to show that what you are doing is the foundation for a great project or business

- "3 billion people annually have this problem..."
- "1 million children per year die of..."
- "Energy consumption in data centers will double in the next 10 years..."
Now you try it.
We [make] [how] [provide] [regulate] [develop] [serve] [offer] [lease] for [your] [what (offering) here] that [your] [why (value proposition) here].
What is the leap?
Lifecycle of a university spinout

This is the leap

Funding

Research Grants
Development Grants (eg SBIR)
Friends, Family, & Founders ($5-$50k)
Angel Investors ($50-$500k)
Early Stage Venture Capital ($500k-$2M+)
Venture Capital ($2M-$50M)
Private Equity, Project Financing ($2M-$50M)
IPO, Merger, or Acquisition ($2M-$50M)

Stage of Venture Development

Basic Research
Applied Research
Proof of Concept
Target Market
Business Plan
Working Prototypes
Founding Team
Engineering Prototypes
Supplier Contracts
Production Prototypes
Distribution Contracts
Product Introduction
Revenue Growth

# of New Ventures

Net Cash Flow

“Valley of Death”

# of New Ventures

Net Cash Flow

“Valley of Death”

UC DAVIS CHILD FAMILY INSTITUTE for INNOVATION and ENTREPRENEURSHIP
Lifecycle of a university spinout

**Funding**
- Research Grants
- Development Grants (eg SBIR)
- Friends, Family, & Founders ($5-$50k)
- Angel Investors ($50-$500k)
- Early Stage Venture Capital ($500k-$2M+)
- Venture Capital ($2M-$50M)
- Private Equity, Project Financing ($2M-$50M)
- IPO, Merger, or Acquisition ($2M-$50M)

**Stage of Venture Development**
- Basic Research
- Applied Research
- Proof of Concept
- Working Prototypes
- Engineering Prototypes
- Supplier Contracts
- Production
- Product Introduction
- Revenue

**# of New Ventures**
- Gen1 first 3-9 mos.
- Gen2 (startup)
- Gen3 (transition)
- Gen4 (business)

**Net Cash Flow**
- Gen1 (first 3-9 mos.)
- Gen2 (startup)
- Gen3 (transition)
- Gen4 (business)
Lifecycle of a new venture

- **Gen1**: first 3+9 mos. (startup)
- **Gen2**: (startup)
- **Gen3**: (transition)
- **Gen4**: (business)

**Manage for uncertainty and commitment**

- **Gen1**: first 3+9 mos.
- **Gen2**: (startup)
- **Gen3**: (transition)
- **Gen4**: (business)

**Manage for market, product, & process development**

- **Gen1**: first 3+9 mos.
- **Gen2**: (startup)
- **Gen3**: (transition)
- **Gen4**: (business)

**Manage for growth**

- **Gen1**: first 3+9 mos.
- **Gen2**: (startup)
- **Gen3**: (transition)
- **Gen4**: (business)
Defining The Problem

Cleveland Justis
UC Davis Child Family Institute
for Innovation and Entrepreneurship
To a child with a hammer, everything looks like a nail.
Make sure your solution isn’t defining your problem

When you start with the solution, you can easily miss the real problem...
A problem well-defined is half-solved.
Before developing your solution further, make sure you’re working on the right problem

What’s the problem?

Whose problem is it (and whose problem is it not)?

Why is it an [important] problem?

Why hasn’t it been solved before?
  – If it’s so important?
  – Don’t guess, you need to know
Formal methods for need finding

Discovering unmet needs that exist but everyone overlooks

Broad need finding

- **Buglists & Customer Feedback** - The curious case of Microsoft and Exchange
- **User observation** - Think Tom Hanks in *Big*. Just ask people, regularly, what bothers them about their job, their home life, or anything else — all in an effort to understand their lives and their work in the hopes of finding a problem worth working on
- **Mind mapping** – Technique for visualizing connections between several ideas and central themes

Deep need finding

- **Structured interviews and observations** - Teneros 4 rounds of structured interviews, 400 by the end
- **Process mapping** - Lakeland Hospital – 84% you have to be kidding me
- **5-why’s**- Take each reason and ask, why is that important? Then ask, why is that answer important? Why? Why?
## Fundamental Behaviors of Need Finding

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Be There</td>
<td>No substitute for being “in the place”.</td>
</tr>
<tr>
<td>Be Present</td>
<td>Immerse yourself, roll up your sleeves, dive in.</td>
</tr>
<tr>
<td>Be Surprised</td>
<td>Release expectations.</td>
</tr>
<tr>
<td>Be Thoughtful</td>
<td>Your idea is just a theory. Question everything.</td>
</tr>
<tr>
<td>Be Humble, Be Gentle</td>
<td>Balance arrogance with reality.</td>
</tr>
</tbody>
</table>
The real problem is rarely the obvious one...
“Customers don’t want ¼ inch drills, they want ¼ inch holes.”
— Ted Levitt

“We don’t sell makeup, we sell hope.”
— Max Revlon
Create a first draft of the real world problem you are solving

Identify and State The Problem

– Based on what objective sources of data?
– Any confirmatory evidence?

Identify the Customer(s) – who has this problem?

– How critical is this problem? Must have, want to have, nice to have?
– How is this problem being addressed today?

Describe the Value Proposition – how would they value the solution

– What are the costs of the problem? Hard costs, soft costs, other costs (e.g., reputational costs, perceived risk to employment etc.)
– Again based on what evidence
Market Validation
What are the uncertainties?

**TECHNOLOGY**
- Will the technology work?
- Are the materials and components available at commercial scale?
- Will the manufacturing processes scale up?
- Can you test the technology cheaply?

**MARKET**
- Who is the customer? How many are there?
- What’s the “value” to the customer?
- What distribution partners/networks are available?
- What competing solutions are out there already?

**BUSINESS**
- Can the management team grow this business?
- Will the business make any money? How much?
- What are the start-up costs?
- What are the long-term goals and opportunities?

**YOUR BUSINESS MODEL**
Market Validation

Overarching hypothesis:

“The customer, as currently defined, will value, adopt, and buy our offering.”

(and)

... that there are enough of these customers to support a business,

... that distributors, retailers, and other critical partners will also value your offerings.
What is Due Diligence?

• **Contract review and intellectual property**
  – What obligations exist around the business?
  – Do they own their IP?

• **Technical assessment**
  – Does it work?

• **Personal references**
  – Are these good people?

• **Market sizing and validation**
  – Does anyone care?
Does Due Diligence Matter?

• No amount of due diligence will make a company perform better or return a greater multiple on investment

• Due diligence helps investors avoid mistakes and limit the number of lemons in the portfolio

• Due diligence helps you figure out if it makes sense to invest in an idea

  deep due diligence can prevent deep doo-doo
Who is the customer?
Market Validation

• **What does the market think?**
  - Who cares what the investors thinks, ask the buyers!

• **What can you learn?**
  - Is there really a relationship?
  - How does the company behave?
  - Will they buy? Why or why not? What are the drivers?
  - Will they be repeat buyers?
  - Is there a stronger competitor?

• **Always be sensitive**
  - These calls present an opportunity to build a relationship
Some Bad News…

We're doing it backwards: It’s easier to start with a customer problem and then find a solution.

– In this program, we are starting with an idea and looking for a problem
– That's okay, just don't forget the problem! Without it, you will never get paid
Houston?

*Is there a real problem?*

- what’s the magnitude of the problem
- How many potential customers have it?
- How much do they care about it?
  - (does it cost them lots of pain, money, or distress?)
Segmentation

• **What is segmentation?**
  – dividing customers into homogenous groups who will exhibit uniform purchasing behavior when exposed to the same marketing mix

• **How to do it: STP**
  – segment, target, position

• **Segmentation methods:**
  – customer characteristics: demographics
  – customer characteristics: psychographics
  – benefits sought
  – purchase behavior
How Do I Put This Into My Plan?

• **Identify your customer**
  – Who is the buyer?
  – Focus on the number of customers who might purchase your product or service, not the size of the market according to an industry analyst

• **Find out what the customer thinks is important**

• **Prioritize segments rationally**
  – Be able to explain why a particular segment will be attacked first: use rationale like size, affinity for new solutions, or intensity of market need
  – What are you going to do next?
Technology products follow a predictable adoption cycle by customer type—these types often determine segments.
Pricing models

- From a marketing perspective, pricing:
  - reflects the stage of the product life cycle
  - approximates customers’ reservation prices
  - presents an appropriate image of product quality
  - positions the firm competitively
  - reflects a coordinated product line strategy

- Simple pricing models:
  - Cost Plus
  - Competitive
  - EVC (Economic Value to the Customer)
How Do I Put This Into My Plan?

• **Pick a price**
  – If you can multiply price by the # of potential customers, you can validate your assumptions about market size.
  – It doesn't matter if you are wrong but if you don't pick a number, we are going to make our own assumptions.

• **Get paid now**
  – paid pilots projects validate your market well; if you have to give it away, that says something about its value
# Product, Price, Promotion, Place

<table>
<thead>
<tr>
<th>Product</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td></td>
</tr>
<tr>
<td>Promotion</td>
<td></td>
</tr>
<tr>
<td>Place</td>
<td></td>
</tr>
</tbody>
</table>
## Competitive Landscape

<table>
<thead>
<tr>
<th>Feature 1</th>
<th>Feature 2</th>
<th>Feature n</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Your Company</strong></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Company 1</strong></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td><strong>Company 2</strong></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td><strong>Company n</strong></td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Validating the market, one at a time

• What does the market think?
  – Who cares what the scientists think, ask the buyers!

• What can you learn?
  – Will they buy? Why or why not? What are the drivers?
  – Will they be repeat buyers?
  – Is there a stronger competitor?

• Always be sensitive
  – These calls present an opportunity to build a relationship
Next Steps: Validating Your Market

- Identify the critical uncertainties around your market.
- Rank order the uncertainties.
- Identify which should be resolved first (in the next 9-12 months). These are your business milestones.
- List the resources (people, equipment, $) you need to reach those milestones.
Business Validation
What makes a good business?

- How much revenue can you generate?
- What are the costs?
- What are the long term goals?
- Can the management team grow the business?
- Can the team grow with the business?
- Will it work?
- Are materials available?
- Is it scalable?
- Can it be tested cost effectively?
- Who is the customer?
- How many customers?
- Value proposition to the customer?
- Competition?
- How much revenue can you generate?
- What are the costs?
- What are the long term goals?
The Four Steps to the Epiphany

Product Development Model

Customer Discovery → Customer Validation → Customer Creation → Company Building

Customer Development Model

Concept / Seed → Product Develop → Alpha / Beta test → Launch / FCS → Co. build
Customer Discovery Process

Phase 1 – State Hypotheses
Phase 2 – Test Problem Hypotheses
Phase 3 – Test Product Concept
Phase 4 - Verify
Goal of Customer Discovery – Answers to these questions

• Have we identified a problem the customer wants solved?
• Does our product solve these customer needs?
• If so, do we have a viable and profitable business model?
• Have we learned enough to go out and sell?
  – Draw a day in the life of a customer
  – Know the org chart of users, buyers, influencers, and channels
Business Model

• How will you make money?
  – Revenues
  – Who are the customers for your product/service?
  – Why do they want it - “Value Proposition”?
• How much will it cost to generate your revenues?
  – Expenses: COGS, CAPEX, and OPEX
• How much revenue can you make and how quickly?
  – Cost of Capital
Definitions: Margins

- Revenue
  - Money coming into the business
- Cost of Goods Sold (COGS)
  - What it costs to make your products
- Gross Margin
  - \([Revenue - COGS]\)
Definitions: Expenses

• Fixed costs
  – Don’t change with time
  – Capital Expenses (CAPEX)
  – Salaries

• Variable costs
  – Change with volume/time
  – Operating Expense (OPEX)
  – COGS
  – Salaries
Definitions: Profitability

- Net Income
  - Revenues minus all expenses

- EBITDA
  - Earnings Before Interest, Tax, Depreciation and Amortization
  - Useful for valuation comparisons

- Cash Burn rate
  - How much cash you lose each month
Definitions: Pro-Forma Statements

- Pro-Forma Statements
  - “Best Guess” predictions
  - Designed to show the impact of a certain choices
Capital Requirements

- Proof of concept
- Beta Customer
- Commercial Launch
- Cash Flow Break Even

Business Value vs. Time
Revenue Models

**Unit Sales**  
Sell a product or service to customers (wholesale, retail, or direct).

![Unilever](image1), [Dell](image2), [The New York Times](image3), [Google](image4)

**Advertising Fees**  
Sell opportunities to distribute messages (viewers, readers, listeners, or others)

![McDonald's](image5), [Amazon](image6), [AT&T](image7), [PG&E](image8)

**Franchise Fees**  
Sell and support a replicable business for others to invest in, grow, and manage

![24/7 Fitness](image9), [Rhapsody](image10), [eBay](image11), [Visa](image12)

**Utility Fees**  
Sell goods and services on a per-use basis

![24/7 Fitness](image13), [Rhapsody](image14), [eBay](image15), [Visa](image16)

**Subscription Fees**  
Charge a fixed price for providing access to your goods or services

![24/7 Fitness](image17), [Rhapsody](image18), [eBay](image19), [Visa](image20)

**Transaction Fees**  
Charge a fee for referring, enabling or executing a transaction

![24/7 Fitness](image21), [Rhapsody](image22), [eBay](image23), [Visa](image24)

**License Fees**  
Sell the rights (exclusive or non-exclusive) to use patent- or copyright-protected IP

![24/7 Fitness](image25), [Rhapsody](image26), [eBay](image27), [Visa](image28)
Revenue models for Software

- “Standard” – Unit sales (up-front license fee) plus maintenance & support subscriptions (Oracle)
- SAAS – license fees, maintenance, & support all one on-going subscription fee (Salesforce.com)
- Support – give away product, sell maintenance & support (Red Hat)
- Premium Version – give away base product, sell premium product (Dropbox)
- Add-ons – give away base product, sell add-on products (Zynga)
Additional Revenue models for Web

- Subscription – monthly fee to gain access to content (New York Times)
- Advertising – give product away, incorporate ads (Yelp)
  - Can be cost per impression, cost per click, or revenue share per click
- Hybrid – base product free but supported by ads, premium product has no ads (Pandora)
- Affiliate Sales – revenue share for delivering customers (Amazon)
Distribution Model impacts costs

- OEMs, System Integrators absorb most of the cost of customer acquisition
- A Direct Sales force is expensive, only works for high value sales
- Manufacturer’s Representatives need marketing support
- Resellers/Retailers need substantial marketing support – they are order-takers not sales people
- Online requires substantial web marketing expense
# Revenue model impacts Expenses

<table>
<thead>
<tr>
<th>COGS</th>
<th>Unit Sales</th>
<th>Software</th>
<th>Subscript.</th>
<th>Consult</th>
<th>Licensing</th>
</tr>
</thead>
<tbody>
<tr>
<td>COGS</td>
<td>Materials &amp; Labor</td>
<td>Labor &amp; Servers</td>
<td>Servers</td>
<td>Labor</td>
<td>In-licensing</td>
</tr>
<tr>
<td>Sales</td>
<td>Distribution</td>
<td>Distribution</td>
<td>Online / Telesales</td>
<td>Direct</td>
<td>Direct</td>
</tr>
<tr>
<td>Marketing</td>
<td>Advertising</td>
<td>Advertising</td>
<td>Customer Acquisition</td>
<td>Public Relations</td>
<td>Minimal</td>
</tr>
<tr>
<td>Product Develop.</td>
<td>New Products</td>
<td>Maint &amp; New Prod</td>
<td>Content Develop</td>
<td>Limited</td>
<td>Enhanced Products</td>
</tr>
<tr>
<td>G&amp;A</td>
<td>HR</td>
<td>HR</td>
<td>Billing</td>
<td>Low</td>
<td>Legal</td>
</tr>
</tbody>
</table>
Now it’s your turn.......  

| Cost/unit |  
|---|---|
| Price/unit |  
| # units sold/year |  
| Revenue/yr |  
| Annual Profit/yr |  


Stage 2: How much will it cost you?

- How much funding do you need?
- Look closely at your expenses
  
  • Create an Excel file
  
  • Cut and paste the following expenses...
  
  • Delete the rows you don’t need (that aren’t significant)
  
  • Add time periods across the top
  
  • Start making assumptions...

Business Development: Financial Projections

Stage 2: Projected Financial Expenses

Now is the chance to start thinking about the costs of doing business. A spreadsheet is a great way to discover the critical assumptions you’re making like how much your products/services really cost or how many products each scenario could sell (and how much you’ll have to pay them for each) and how much administration, rent, and other expenses can add up.

The following is a sample P&L projection (no numbers, just example categories of income and expenses). The many different lines for expenses are meant to say you thinking they’re not an exhaustive list, nor are all items relevant to every business. But consider which of the items mentioned (or others not mentioned) apply to your venture.

INCOME
  Gross Sales
  Less Returns
  Net Sales (gross - returns)
  GROSS PROFIT (net sales-COGS)

EXPENSES
  Cost of Goods Sold (COGS)
  Salaries and Wages
  Sales Commission
  Professional Services
  Rent
  Maintenance
  Equipment Rental
  Furniture and equipment purchases
  Insurance
  Utilities
  Telephone
  Office Supplies
  Postage and Handling
  Marketing and Advertising
  Travel
  Entertainment
  Other
  Total
  TOTAL EXPENSES

NET PROFIT (gross profit+fixed expenses)
Sources of Capital

Match source to opportunity
Where we’ve been

– Innovation: What is it and Why do we Care?
– What is the Leap?
– Some examples
– The Pitch
– Some Advice from last year’s winner
– Funding overview
– Customers & Business Model Validation
Next Steps

– Enter Big Bang if you haven’t done so already

– Thursday, February 5: Winter Mixer & Live Business Pitch

– Thursday, February 12: Write to Win: The Art of Polished Business Writing

– Thursday, February 19: Developing Your Start-up Slide Deck

– Village Capital Event, February 19-20

– Ignite Conference, March 5-7
Thank You!