Engineering 145
Session #2
Silicon Valley and Entrepreneurship

Tom Kosnik
Fenwick and West Consulting Professor

STANFORD TECHNOLOGY VENTURES PROGRAM

Agenda

1. Secret History of Silicon Valley - Steve
2. Discussion of Stanford and Silicon Valley - Tomk
3. Key Frameworks and Models for Technology Entrepreneurship - Tomk
4. Admit and Waiting List – Boris
5. Opportunity Analysis Project – Tom and Boris
6. Team Formation – Boris
What is Silicon Valley?
An entrepreneurial state of mind.

What is Silicon Valley?
Miles of roads and too much traffic.
What is Silicon Valley?

The highest concentration of entrepreneurial high-tech companies in the world.

Silicon Valley has evolved a small territory and population into one of the most productive economies in the world

- 1840s-1920s: Agriculture, Gold Rush, Railroads
- 1930s-1950s: Radio tubes and defense/aerospace
- 1960-1974: Semiconductors and computer systems
- 1975-1989: Microcomputer hardware & software plus biotechnology
- 1990s: All of the above plus Web 1.0
- 2000-present: All of the above plus Clean-tech (clean energy, air and water), next-generation bioengineering, wireless, and web 2.0.
Stanford University is at Ground Zero

Early Years: 1930s - 1970s
Started with Fred Terman and HP

- Professor Terman brought Hewlett and Packard together at Stanford
- In 1939, the two decided to “make a run for it ourselves” and founded HP at a now-famous garage in downtown Palo Alto

Source: John Hennessy

TECHNOLOGY VENTURES
Another Golden Age: Early 1980s

- Many new technologies as radical innovations
- Emergence of John Hennessy as another Terman
- Very productive era ...

1990s: The Internet

- Two EE students in a trailer
- Use of Yahoo on and off-campus explodes
- Form independent company

Source: John Hennessy
2000s

- Two students dissatisfied with Net search
- They work furiously in their spare time to develop a better way
- They form a company to exploit the opportunity others had left behind
Stanford’s Role in Silicon Valley

- Interaction with industry as just discussed
- Research funding and overall creativity
- Silicon Valley as a nearby planting ground for ideas
- Students as inventors, disseminators, and workforce
- Encouraging entrepreneurship on campus …

Other Factors in Silicon Valley’s Success

- Its talent pool and social networks
  - Loyalty to the technology with a unique openness
  - Highly skilled and motivated
  - Diverse (highly multicultural)
- Its many early adopters of new technology
- Its services infrastructure with many suppliers for outsourcing
Even More Factors in Silicon Valley’s Success

- Its venture capital industry that provides more than financing (e.g., assembling teams)
- Its entrepreneurial spirit or DNA
  - Role models that demonstrate both confidence and paranoia
  - OK to fail, learn from it, and then try again
  - Flat organizational structures and meritocracy
  - OK to talk and partner across company boundaries about common issues and challenges

Questions for Discussion

1. What could go right (and wrong) in Silicon Valley in the coming 10 years?

2. What are some other entrepreneurial hot spots around the world

3. Where do you plan to live to start your career next year and why?

References for Stanford and Silicon Valley Content:
President John Hennessy of Stanford University;
James Gibbons of Stanford University; John Doerr of Kleiner Perkins;
John Chambers of Cisco; Annelee Saxenian and Homa Bahrami of UC Berkeley
Framework #1: Rice’s E-Ship Model

- Product OR Service
- Market
- Opportunity Recognition
- Pursuit of Opportunity
- People AND Organization
- Resources AND Capital

Framework #2: Dorf and Byers

- Vision
- Strategy
- Execution
Key Framework #1

**Vision:**

- Opportunity
  - Vision

**Strategy:**

- Access to resources → Distinctive Competencies → Capabilities of team
- Innovation or novelty → Business Strategy → Industry context

**Execution:**

- Talent → Structure → Processes

- Profitability

Reference: Dorf and Byers (Figure 7.1)

---

**Fundamental Questions: Vision**

- What is our shared vision?
- What business are we in?
- Where do we want to go?
- What are our big, hairy audacious goals?

Example: what business are they really in?

- Yahoo ... Internet Directory?
- Palm ... Organizers?
- Google ... Search?

Reference: Collins and Porras, *Built to Last*
**Fundamental Questions: Strategy**

- Where will we compete??
- Who is going to buy?
- What are we selling?
- What is the compelling reason to buy?
- What is our business model?

**Fundamental Questions: Execution**

- Can we do it?
- What resources are needed?
- What are the risks and how can we manage them?
- How can we adapt to customer feedback and a turbulent environment?

Reference: Steven Brandt

---

**Framework #3: Sahlman’s Concept of Fit**

- **Context** (economy, regulatory, industry)
  - **People**
    - Team
    - Capabilities
    - Attitude
    - Reputation
  - **Deal**
    - Rewards and risks
    - Incentives
    - Ownership
    - Harvest
  - **Business Plan**
  - **Resources**
    - Financial
    - Intellectual
  - **Opportunity**
    - Customers
    - Strategy
    - Business model

Reference: Sahlman

---
Framework #4: KPCB’s “4 Areas of Risk for new ventures”

1. Technology Risk
2. Market Risk
3. Team Risk
4. Financial Risk

Reference: Randy Komisar

Framework #5: Dynamics of the Start-Up Game

(1) Founding:
An entrepreneur begins with a vision and shares of stock in the new venture.

Entrepreneur trades stock for ideas, money, and people

Value has been successfully created.

(2) Seed Stage:
• Venture capitalists provide money in return for stock
• Employees join via friends & associates in return for cash salary and stock options
• Ideas become intellectual property which represents the initial value in the company

Further growth is delayed until milestones are reached and risk of failure is reduced

A race against time to create value and reduce risk

(3) Growth Stage:
More money, ideas, and people are obtained, but for much less stock than in the earlier stage due to lower risk

Company balances earning cash, taking investment, and spending cash to create value

(4) Exit Stage:
• IPO or M&A
• Entrepreneur, investors, and employees can cash in stock for money
• A viable company has been created or expanded
• Each entrepreneur continues to build the company, retires, or starts the game again

Value has been successfully created.

Reference: Start-Up by Jerry Kaplan
Opportunity Analysis Project
Overview

Team Formation