Silicon Valley
A Model?

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President & Chief Executive Officer
Joint Venture: Silicon Valley Network

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What is Silicon Valley?
Some things Silicon Valley is **NOT**:  

**NOT A PLACE YOU CAN POINT TO ON A MAP**

**REALITY:**

- Loose collection of independent cities, most of them small towns
- No formal identity, no borders
- No regional government, no regional framework for decision-making
Some things Silicon Valley is NOT:

NOT A PLANNED PHENOMENON

REALITY:
- Not targeted or supported by national policy
- Not a product of local government planning
- Follows (very) chaotic patterns of development
Some things Silicon Valley is **NOT**: NOT CHARACTERIZED BY SILICON OR CHIPS

**REALITY:**

- At least 7 major industrial clusters, plus a cluster dedicated to company formation
- Region changes its portfolio over time
Some things Silicon Valley is **NOT:**

NOT NECESSARILY SOMETHING THE REGION CAN TAKE CREDIT FOR

**REALITY:**

- A series of historical accidents
- Has as much to do with larger American patterns of capitalism (*bankruptcy law, tax law, labor stance*) …
- … and the American legal system (*property rights*)
So What is Silicon Valley?

- 1,500 square miles
- 35 Cities, 4 counties
- 2.4 million people, 41 percent foreign born
- 1.2 million workers
- 81 percent high school diploma; 40 percent college degree
- 25 percent of workforce in high-skill occupations
- Income average 60 percent higher than US
- 6 percent US GNP, 11 percent of US patents
- Productivity rate growing 50% higher than US average
But our most important characteristic ... is that we keep reinventing ourselves!
# Milestone Silicon Valley Innovations

<table>
<thead>
<tr>
<th>Decade</th>
<th>Innovations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1940s</td>
<td>Vacuum Tube</td>
</tr>
<tr>
<td>1950s</td>
<td>Transistors</td>
</tr>
<tr>
<td>1960s</td>
<td>Semiconductors, Defense Technology</td>
</tr>
<tr>
<td>1970s</td>
<td>Integrated Circuit, Graphical User Interface</td>
</tr>
<tr>
<td>1980s</td>
<td>Personal Computers, Workstations, Relational Databases, Biotechnology</td>
</tr>
<tr>
<td>1990s</td>
<td>Network Computing, Packet switching, Internet Search</td>
</tr>
<tr>
<td>2000s?</td>
<td>New technologies, new companies, new business models</td>
</tr>
</tbody>
</table>
### Top Patent-Generating Cities, 2005

<table>
<thead>
<tr>
<th>RANK</th>
<th>CITY</th>
<th>REGISTERED PATENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SAN JOSE</td>
<td>1,960</td>
</tr>
<tr>
<td>2</td>
<td>Austin</td>
<td>1,221</td>
</tr>
<tr>
<td>3</td>
<td>Boise</td>
<td>1,028</td>
</tr>
<tr>
<td>4</td>
<td>San Diego</td>
<td>900</td>
</tr>
<tr>
<td>5</td>
<td>SUNNYVALE</td>
<td>842</td>
</tr>
<tr>
<td>6</td>
<td>PALO ALTO</td>
<td>766</td>
</tr>
<tr>
<td>7</td>
<td>FREMONT</td>
<td>698</td>
</tr>
<tr>
<td>8</td>
<td>Houston</td>
<td>661</td>
</tr>
<tr>
<td>9</td>
<td>CUPERTINO</td>
<td>633</td>
</tr>
<tr>
<td>10</td>
<td>MOUNTAIN VIEW</td>
<td>522</td>
</tr>
</tbody>
</table>

Source: Joint Venture: Silicon Valley Network, 2007 *Silicon Valley Index*
However, the Valley’s edge doesn’t stem from innovation alone ...
... but also from entrepreneurship

Silicon Valley has a remarkable capacity to create and grow new companies

New Companies
(Entrepreneurship)

+ New Technologies
(Innovation)

Endogenous Growth
New Wealth Creation
The Valley spawns the leading companies in every technology generation

<table>
<thead>
<tr>
<th>Decade</th>
<th>Technology</th>
<th>Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950s</td>
<td>Defense Electronics</td>
<td>Hewlett-Packard, Varian</td>
</tr>
<tr>
<td>1960s/1970s</td>
<td>Semiconductors</td>
<td>National Semiconductor, Fairchild, Intel, AMD</td>
</tr>
<tr>
<td>1980s</td>
<td>Personal Computers, Workstations</td>
<td>Apple, Silicon Graphics, Sun</td>
</tr>
<tr>
<td>1990s</td>
<td>Network Computing, packet switching</td>
<td>Cisco Systems, Sun, Internet Netscape, Yahoo, eBay, Google,</td>
</tr>
<tr>
<td>2000s?</td>
<td>New technologies, new companies, new business models</td>
<td></td>
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</table>
The Valley also proliferates new business models

- Internet-based commerce (Netscape)
- Free search, supported by advertising (Google, Yahoo)
- Music downloads (Apple itunes)
- Social networking (Facebook, MySpace)
- Consumer as producer (You Tube)
# Largest Silicon Valley Firms

<table>
<thead>
<tr>
<th>1982</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hewlett-Packard</td>
<td>1. Hewlett-Packard</td>
</tr>
<tr>
<td>2. National Semiconductor</td>
<td>2. Intel</td>
</tr>
<tr>
<td>3. Intel</td>
<td>3. Cisco*</td>
</tr>
<tr>
<td>4. Memorex</td>
<td>4. Sun*</td>
</tr>
<tr>
<td>5. Varian</td>
<td>5. Solectron</td>
</tr>
<tr>
<td>7. Ampex</td>
<td>7. Agilent*</td>
</tr>
<tr>
<td></td>
<td>11. Also: Maxtor,* Palm,* Google,* Cadence,* Adobe,* Yahoo*</td>
</tr>
</tbody>
</table>

*no longer existed in 2002
*didn’t exist in 1982
**Largest Detroit Firms?**

<table>
<thead>
<tr>
<th>1982</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General Motors</td>
<td>1. General Motors</td>
</tr>
<tr>
<td>2. Ford</td>
<td>2. Ford</td>
</tr>
<tr>
<td>3. Chrysler</td>
<td>3. Daimler-Chrysler</td>
</tr>
</tbody>
</table>
But the real story is the small companies

Source: Joint Venture: Silicon Valley Network, 2005 Silicon Valley Index
Technology Regions Will Always Experience “Boom-Bust” Cycle

- New technologies drive dynamic waves
- Entrepreneurs take advantage of new opportunities
- Swarms of new firms cluster around new technologies creating short term bubbles
- New products eventually become commodities and investment leads to breaking of bubbles.
- New technologies emerge from the convergence of old technologies and the process of “creative destruction” begins again

Source: Gartner Group
“SILICON VALLEY LOSING ITS EDGE.” Cover Story, Business Week.

“DREAMS OF STRIKING IT RICH FADING IN SILICON VALLEY.” Front page, Los Angeles Times

“SILICON VALLEY WILL NO LONGER BE AN ICON.” Po Bronson, Wired
“SILICON VALLEY LOSING ITS EDGE.”
Cover Story, Business Week, 1985.

“DREAMS OF STRIKING IT RICH FADING IN SILICON VALLEY.”

“SILICON VALLEY WILL NO LONGER BE AN ICON.”
To illustrate: consider Silicon Valley’s latest downturn
The Dot-com Crash

- In 2000 Silicon Valley generated $35 billion in venture capital.
- The region added 350,000 jobs.
- By 2005 the region lost 200,000 jobs, in what became the most prolonged regional contraction since the Great Depression (1929).
The Bubble in a single picture:

**Total Venture Capital Financing in Silicon Valley Firms**

- **Billions of Dollars**
  - $0
  - $5
  - $10
  - $15
  - $20
  - $25
  - $30
  - $35

- Years:
  - 1994
  - 1995
  - 1996
  - 1997
  - 1998
  - 1999
  - 2000
  - 2001
  - 2002
  - 2003
  - 2004*
Yet even through the downturn, most key indicators continued to rise.
Value-Added per employee grew at twice the national rate

Value Added
Value Added Per Employee,
Santa Clara/San Mateo Counties and U.S.

Source: Economy.com
Region’s share of Venture Funding Continued to Grow
Average Pay Continued Rising

Average Pay Per Employee, Silicon Valley Cities

Inflation Adjusted Dollars ($2004)

Source: California Employment Development Department
So what’s the secret?
What’s the secret?

A HABITAT for Innovation

1. Results oriented meritocracy
2. Climate that rewards risk and tolerates failure
3. Strong markets (capital, labor)
4. Mobile, fluid workforce
5. Favorable government policies
6. Open business environment
7. Universities and national research institutions that collaborate with industry
8. Specialized infrastructure: venture funding, lawyers, accountancies, executive search
9. Quality of life
10. Cluster effect
INDUSTRY CLUSTERS: geographic concentrations of related industries

- Exporting Companies
- Specialized Suppliers
- Supporting Infrastructure
An example of the cluster effect:
THE SEMICONDUCTOR CLUSTER

AMD
INTEL
CYPRESS

chemicals, equipment, software tools, clean room design, toxics monitoring

research, workforce training, building inspectors, electricity, airports, executive search, accountancies, law firms
CLASSIC EXAMPLE OF CLUSTER EFFECT: Kleiner Perkins Network, ca. 1998

Thin Line: Partnership between two KP companies
Dotted: Exec from one KP company on board of another
Thick: KP partner sits on board of more than one company
So what’s happening in Silicon Valley right now?
Silicon Valley Jobs: +33,000
2nd Quarter 2006

Source: Joint Venture: Silicon Valley Network, 2007 Silicon Valley Index
Employment Growth, Driving Clusters
2005-2006

Source: Joint Venture: Silicon Valley Network, 2007 Silicon Valley Index
Employment Growth, Other Industries
2005-2006

Source: Joint Venture: Silicon Valley Network, 2007 Silicon Valley Index
Pay Growth, Driving Clusters
2005-2006

- Hardware Manufacturing: 15%
- Semiconductors: 14%
- Biomedical: 7%
- Corporate Offices: 4%
- Electronic Component Manufacturing: 4%
- Creative & Innovation Services: 3%
- Software: 1%

Source: Joint Venture: Silicon Valley Network, 2007 Silicon Valley Index
Valley’s Share of US Venture Capital
1995-2006

Source: Joint Venture: Silicon Valley Network, 2007 Silicon Valley Index
Sectors Showing Largest Growth in Venture Funding 2006

- Biotechnology, Medical Devices & Equipment: 27%
- Media and Entertainment: 70%
- Electronics/Instrumentation: 72%
- Industrial/Energy: 776%

Source: Joint Venture: Silicon Valley Network, 2007 Silicon Valley Index
Real Per Capita Income
Silicon Valley vs. United States, 1995-2006

Source: Joint Venture: Silicon Valley Network, 2007 Silicon Valley Index
Median Household Income, 2000-2005

Source: Joint Venture: Silicon Valley Network, 2007 *Silicon Valley Index*
Cluster effect transcends national boundaries

**EXAMPLE:**
*Applied Materials, Inc.*

Maximizing the Semiconductor Food Chain

Taiwan
- Value-added IC design
- Productization
- Advanced IC manufacturing

Silicon Valley
- Systems and Chip Architecture
- Global Marketing
- Capital Investment

China
- Regional Distribution
- Low Cost Manufacturing

Three Regional Centers growing together, increasing the overall size of the pie
Is the world flat?
We think the world is “spikey”
So what’s next for Silicon Valley?
The Next Big Wave?

1. We’re not finished with Information Technology yet!
   - Telecommunications, hand-held devices, entertainment
   - Ubiquitous internet, WIFI, WIMAX
   - Media, Web 2.0
The Next Big Wave?

2. Alternative Energy, Clean Technology, Green Design

Venture Funding in Clean Tech, 2006

$350 million


0 | 50 | 100 | 150 | 200 | 250 | 300
The Next Big Wave?

3. CONVERGENCE

Nanotechnology, Biotechnology, and Information Technology
Examples of Convergence

BIO TECH
- Pharmaceuticals
- Diagnostics
- Research/Info
- Tools
- Industrial

INFOTECH
- Hardware
- Software
- Communications

NANO TECH
- Electrical
- Structural
- Biomedical
- Energy & Environment

Bioelectronics
- Microfluidics
- Nanobiotechnology
- Drug Delivery

Genomics
- Bioinformatics
- Proteomics

Biosensors
- Biochips

Nanodevices
- Nanosensors
- Nanoelectronics

Source: Collaborative Economics
Valley has the nation’s highest concentration of research institutions
Valley has 120+ firms in the convergence area
So what’s not to like?
Silicon Valley Challenges

1. As a community we have many issues to address.

2. It’s going to get harder and harder to participate in the innovation economy.
Issues for Silicon Valley

Transportation
Housing
Tax & Fiscal Policy
Infrastructure
Quality of Life
Health care, health insurance
Education/workforce
Competitiveness
Silicon Valley’s Competitive Challenges

- Heightened competition
- Globalization
- Emerging industries require government participation (politics)
- Changing nature of capitalism, increasing difficulty to participate in the new economy
**Today: Ideas Drive Economic Growth**

<table>
<thead>
<tr>
<th>Raw Materials</th>
<th>Old Economy</th>
<th>New Economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Resources, Labor, Capital</td>
<td>Ideas</td>
<td></td>
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<table>
<thead>
<tr>
<th>Customer Focus</th>
<th>Old Economy</th>
<th>New Economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass Production</td>
<td>Mass customization, based on information technology and product design</td>
<td></td>
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<table>
<thead>
<tr>
<th>Organization</th>
<th>Old Economy</th>
<th>New Economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large corporations, economies of scale</td>
<td>Entrepreneurs, free agents, small scale, networks</td>
<td></td>
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<table>
<thead>
<tr>
<th>Factors of Success</th>
<th>Old Economy</th>
<th>New Economy</th>
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<tbody>
<tr>
<td>Labor, quantity, low cost, stability, control</td>
<td>Talent, speed, innovation, flexibility, customization</td>
<td></td>
</tr>
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</table>
THE JOINT VENTURE MODEL

Business

Government

Labor

Higher Education

Community-Based Organizations
THE JOINT VENTURE PROGRAM

- Health Care
  - Electronic Medical Records
- Wireless Infrastructure Initiative
- Regional Marketing
- Climate Protection
- Grand Boulevard (El Camino Real)
- Unified Building Code
- Cell phone coverage
- Innovation Agenda (Sacramento)
- Tax & Fiscal Reform
- Disaster Preparedness
Thanks for inviting me!

Russell Hancock
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