

Silicon Valley History

By Gregory Gromov

In the beginning was the *WORD* and the word was...
Silicon Valley. Don Hoefler is credited with coining the phrase: [Silicon Valley](#)

Silicon Valley is the only place on *Earth* not trying to figure out how to become **Silicon Valley**. ~ Robert Metcalfe

Don Hoefler "was a publicist for Fairchild Semiconductor when the electronics industry was in its infancy" ... (Los Angeles Times, Apr 17, 1986)

In 1971, in a series of articles that Hoefler wrote for ELECTRONIC NEWS, a weekly tabloid, he first used the phrase "SiliconValley" to describe the congeries of electronics firms mushrooming in Santa Clara county. "He pioneered the coverage of Silicon Valley as a distinct community," - said Michael S. Malone, author of a book chronicling the industry called THE BIG SCORE. "When we think of Silicon Valley as a collection of characters and eccentrics, he's the one who put that whole idea in our minds," - said Malone.

Hoefler began his career in electronics journalism as a publicist for Fairchild Semiconductor in Mountain View. He subsequently worked as a reporter for Fairchild Publications, owner of ELECTRONIC NEWS, and then held editorial positions with RCA Corp. and with McGrawHill.

Don C. Hoefler died in South San Francisco on April 15, 1986 at the age of 63. He was publishing a weekly newsletter called MICROELECTRONICS NEWS at the time of his death, following a recent cerebrovascular accident

Source : [Datamation](#) , 1986, May 15, by Cahners Publishing Company



DON C. HOEFLER'S
MICROELECTRONICS NEWS
WITH MANAGER'S CASEBOOK BOX 5487 SOUTH SAN FRANCISCO,
CA 94083-5487 PHONE 415-588-7577

SILICON VALLEY
MARCH 15 1986

THREE-FOR-THREE VRS. JAPANESE

Memories dumped far below cost

Good Friend

FIGHTING BACK. After many years of turning the other cheek, the United States has finally struck back hard at Japanese targeting and dumping, and pointed to the semiconductor as an obvious infraction.

On Tuesday (11), the Department of Commerce ruled that eight Japanese companies were guilty of selling erasable, programmable read-only memories below cost, and assessed anti-dumping surcharge duties ranging from 22 to 188 per cent.

On Thursday (13), Commerce ruled that Japanese companies were guilty of selling 256k dynamic random-access memories below cost, and assessed surcharges ranging from 20 to 109 per cent.

In December, the Department ruled that the Japanese had done the same earlier with 64k DRAMS.

Moreover, for the first time in history, Commerce has ruled in advance on dumping of the 1024k DRAM, which won't be on the market until summer.

Plaintiffs in the EPROM case were Advanced Micro Devices, Intel and National.

Defendants were Fujitsu, Hitachi, Matsushita, Mitsubishi, Nippon Electric, Oki, Ricoh, and Toshiba.

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"The term Silicon Valley was used occasionally mostly by easterners who would mention making a trip to Silicon Valley, until 1971 when it was popularized in a series of articles, "Silicon Valley USA," written by Don Hoefler for Electronic News. Quite likely it was the first time the term was used in

... Don C. Hoefler, publisher of Microelectronics News, telephone interview, 9 January 1985.

Hoefler was choosing a name for an article about the semiconductor industry that he was writing for *Electronic News*. Ralph Vaerst, then president of *Ion Equipment*, suggested Silicon Valley. Hoefler named his article, "Silicon Valley USA;" it was a series that ran for 3 weeks, beginning 11 January 1971."

Source: Carolyn Tajnai, 1995



Hoefler was having a hard time coming up with a good title for his series so he asked Ralph Vaerst, then president of Ion Equipment, for a suggestion. Vaerst gave him the idea of somehow using Silicon Valley because he had often heard people on the east coast refer to it that way. Hoefler, unaware of how well the name would stick, agreed with Vaerst and named his series "Silicon Valley USA," which was more than likely the first time the name was used in print.

Source: Digital Equipment Corporation, 1996

Don C. Hoefler's
MICROELECTRONICS NEWS
with Manager's Casebook



BOX 2343, SANTA CLARA, CALIFORNIA 95051 - TELEPHONE: (408)986-2693

Silicon Valley
August 23 1975

Good Friend ~

HAIL AND FAREWELL? The end of this coming week may see the abolition of the 13½-month-old vice-chairmanship at Fairchild, as Les Hogan's contract expires on August 31, with no public announcement yet concerning a renewal.

It was on July 16 a year ago that Wilf Corrigan became president and Hogan was kicked upstairs to board chairman, following the grossest power play in the history of the industry, when Corrigan panicked the directors with a phony threat to accept the presidency of Electronic Arrays at \$100,000 a year.

Six years earlier, in July 1968, Corrigan had been one of seven "Heroes" of Dr. Clarence Lester Hogan, as eight executives from Motorola set out to revitalize a ravaged Fairchild, following a nationwide search by Sherman Fairchild and aide Walter Burke for a successor to the regime of Bob Noyce, who with Gordon Moore and others had gone on to found Intel.

Hogan received a whopping salary, all moving expenses paid, and personal loans (interest-free) from Sherman to buy his house in Atherton (Ca) and a large block of Fairchild stock.

DEFENSE PERIMETER. As soon as he arrived at Mountain View, Hogan immediately staked out the seven heroes in a circle around him, thus effectively cutting himself off from all "old" Fairchild except R&D, and he soon had his own man in there as well.

Hogan next set out to eliminate anyone too closely identified with Noyce, such as Tom Bay and Jerry Sanders, replacing them with equals or lessers. These one-for-one swaps were latter characterized by National's Charlie Spork as "a travesty," and Hogan publicly admitted the moves were a mistake.

The heroes all had five-year contracts, while Hogan's contract was extended to seven years in August of 1970. When the first five years was up, only Hogan and two of the heroes remained. One was Corrigan, who now was actively bucking for president and who systematically wiped out all other pretenders. The only remaining hero was Andy Procassini, who posed no threat, but nonetheless was stashed in Germany, and later Japan, for safekeeping.

Hogan's early stance toward Noyce was damning with faint praise, characterizing Bob as a technical genius but a so-so manager. Now as one compares Intel's straight-line success with Fairchild's zigzag wheel-spinning, it must be obvious to all where the management smarts really lie. (CONTINUED OVERLEAF)

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Why 1971?

On November 15, 1971 Intel created the [world's first microprocessor: the Intel 4004](#).

What does Silicon Valley mean **geographically**?

Silicon Valley is an area *that* located on the San Francisco, California, peninsula, radiates outward from Stanford University. It is contained by the San Francisco Bay on the east, the Santa Cruz Mountains on the west, and the Coast Range to the southeast. At the turn of the century, when fruit orchards predominated, the area was known as the Valley of Heart's Delight.

as Carolyn E. Tajnai, former Director (1988 - 1997) of [Stanford Computer Forum](#) begins [one](#) of her comprehensive online-manuscripts that described Silicon Valley history from some of the WWW best personal viewpoint.

According to the "[Silicon Valley Joint Venture Index 2000](#) the Silicon Valley's cities were located around the South side of San Francisco Bay:



10 years later the above viewpoint of *Silicon Valley Joint Venture* was changed:

The geographical boundaries of Silicon Valley vary. The region's core has been defined as Santa Clara County plus adjacent parts of San Mateo, Alameda and Santa Cruz Counties. In order to reflect the geographic expansion of the region's driving industries and employment, the 2011 Index includes all of San Mateo County. Silicon Valley is defined as the following cities: Santa Clara County (all) Campbell, Cupertino, Gilroy, Los Altos, Los Altos Hills, Los Gatos, Milpitas, Monte Sereno, Morgan Hill, Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga, Sunnyvale Alameda County Fremont, Newark, Union City San Mateo County (all) Atherton, Belmont, Brisbane, Broadmoor, Burlingame, Colma, Daly City, East Palo Alto, Foster City, Half Moon Bay, Hillsborough, Menlo Park, Millbrae, Pacifica, Portola Valley, Redwood City, San Bruno, San Carlos, San Mateo, South San Francisco, Woodside Santa Cruz County Scotts Valley Santa Clara San Jose Newark Fremont Union City. [The Silicon Valley Joint Venture Index 2011](#)

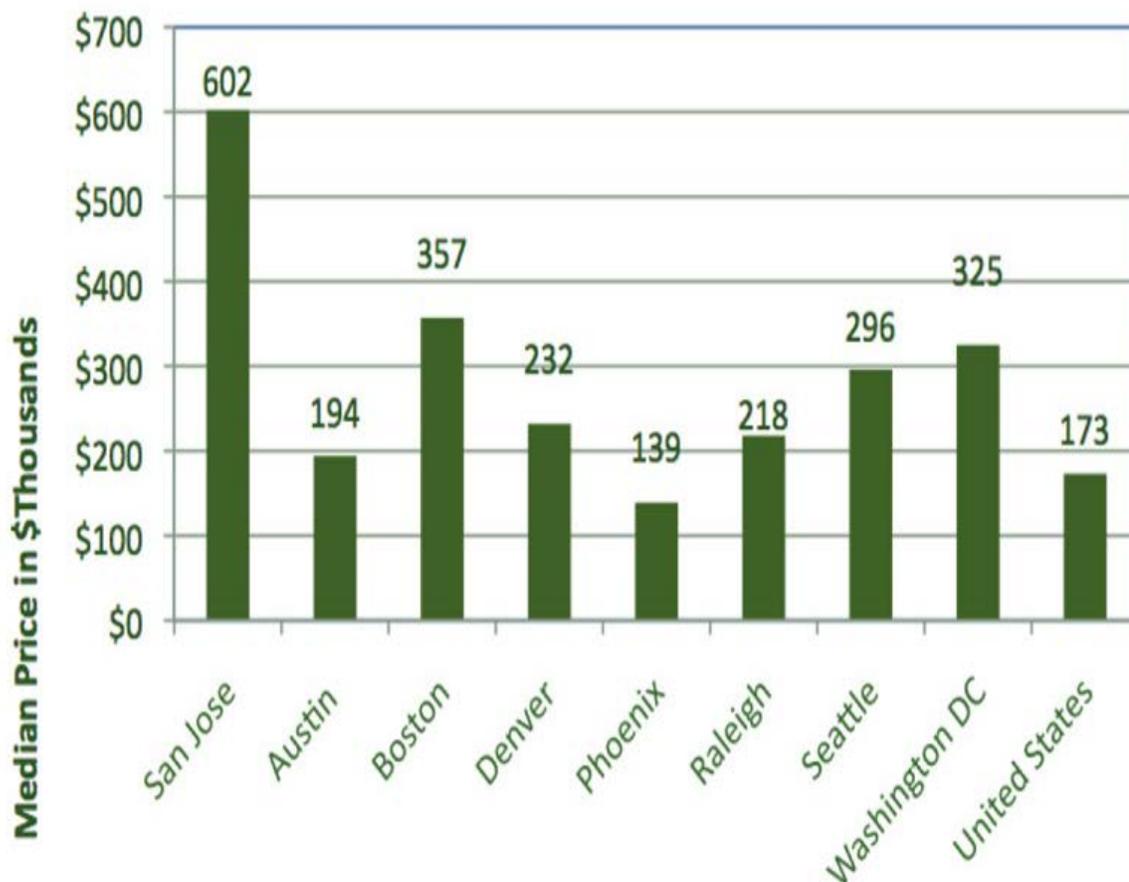


According to the [Silicon Valley Joint Venture Index 2011](#), Silicon Valley Population: 3 millions; Jobs: 1.3 millions.

Census data for 2010 show median household income was ... \$83,944 for the San Jose region, the epicenter of Silicon Valley ([WSJ, Oct. 19, 2011](#)), compared with the nationwide median of \$50,046. ([San Jose Mercury News, Oct. 19, 2011](#))

Home Prices in the US Leading High Tech Centers:

Median Home Price in 2010



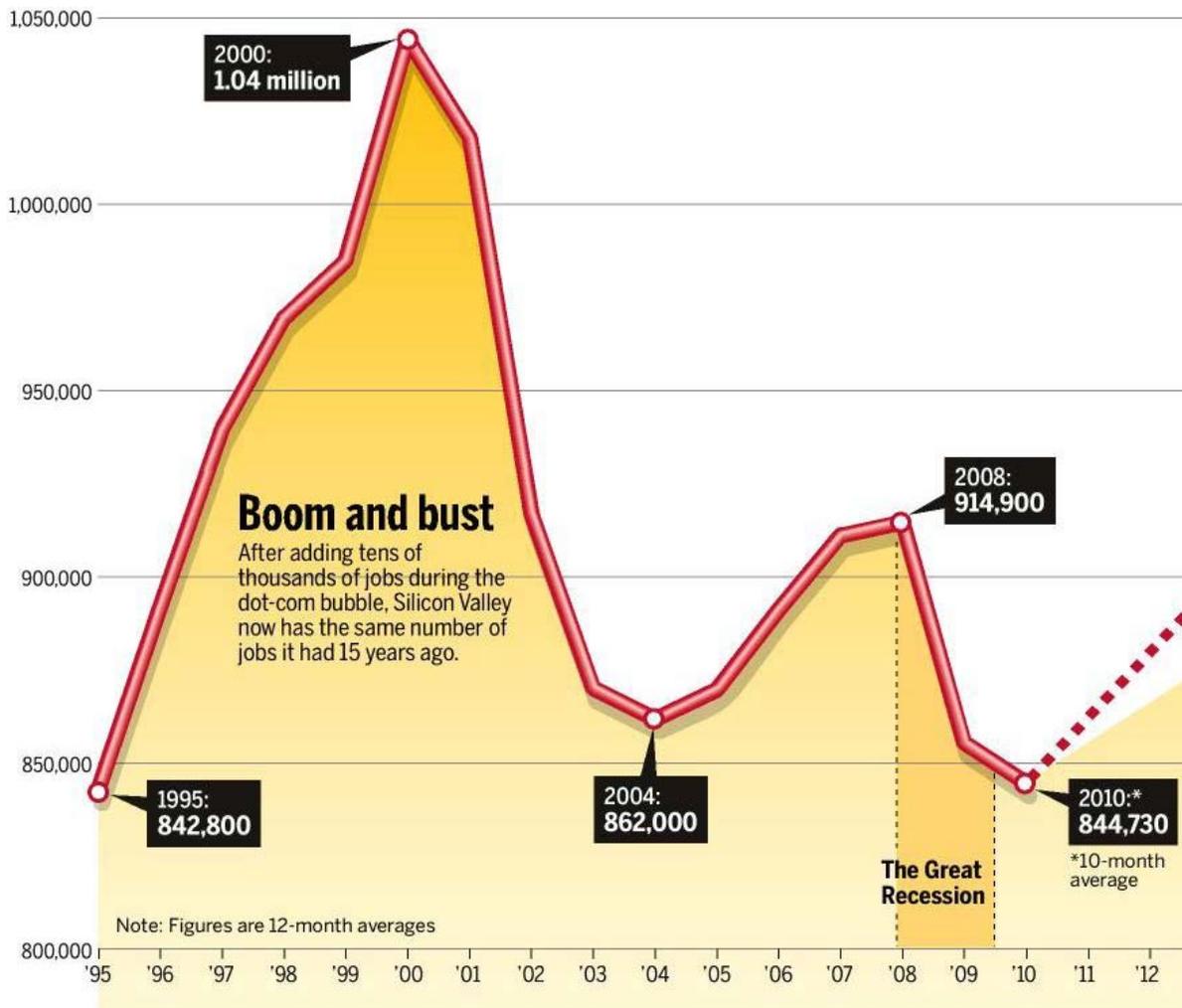
Source: 2011 Silicon Valley Information and Communications Technologies Study

If Silicon Valley Costs a Lot Now, Wait Until the Facebook Update

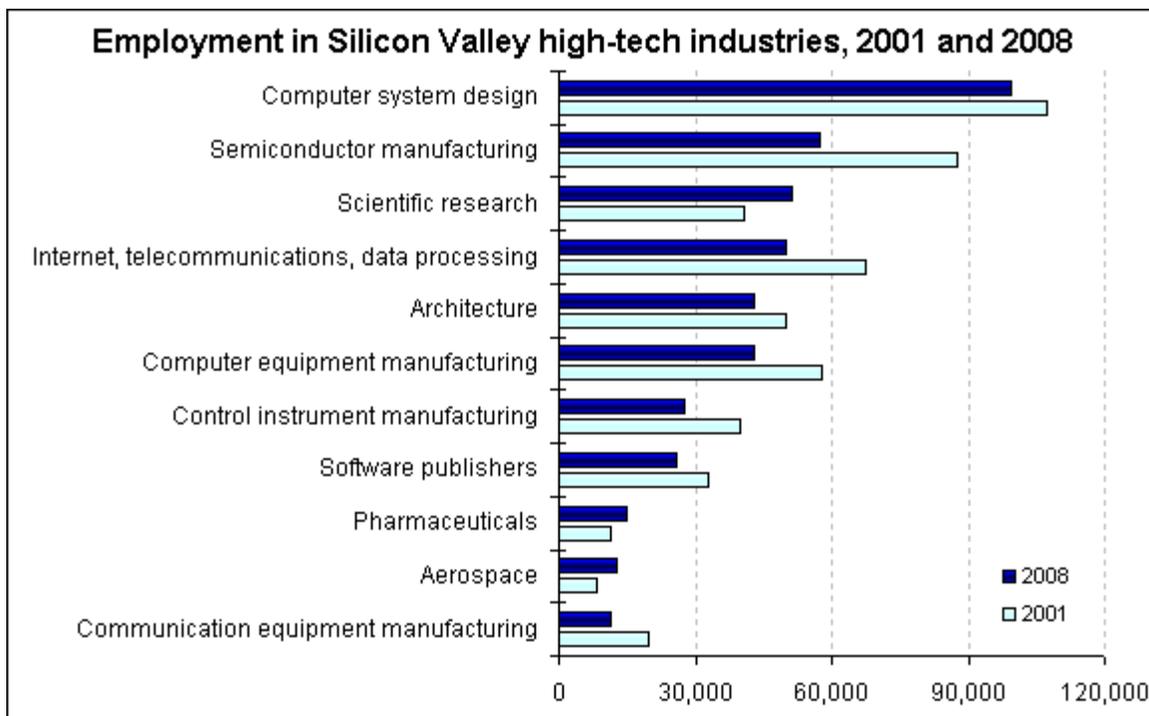
Facebook millionaires might drive up real estate prices in the already expensive area of Silicon Valley, some fear. (By Michael Cooper. NY Times, February 8, 2012)

Silicon Valley jobs: A recurring cycle of boom and bust By Pete Carey

Over the past 15 years, Silicon Valley has created some of the world's most successful companies and best-paid workers, while shedding the jobs and industries it no longer needs. As 2011 begins, the drama of job creation and destruction continues ... the number of jobs in the valley today is about the same as in 1995, the year Yahoo was founded and three years before Google was born. Over the same period, the population has grown by 20 percent. And, amid the Great Recession, the number of people here who are unemployed -- hovering around 100,000 for a year and a half -- is the highest since the state began keeping comparable records in 1990. (San Jose Mercury News, January 1, 2011)



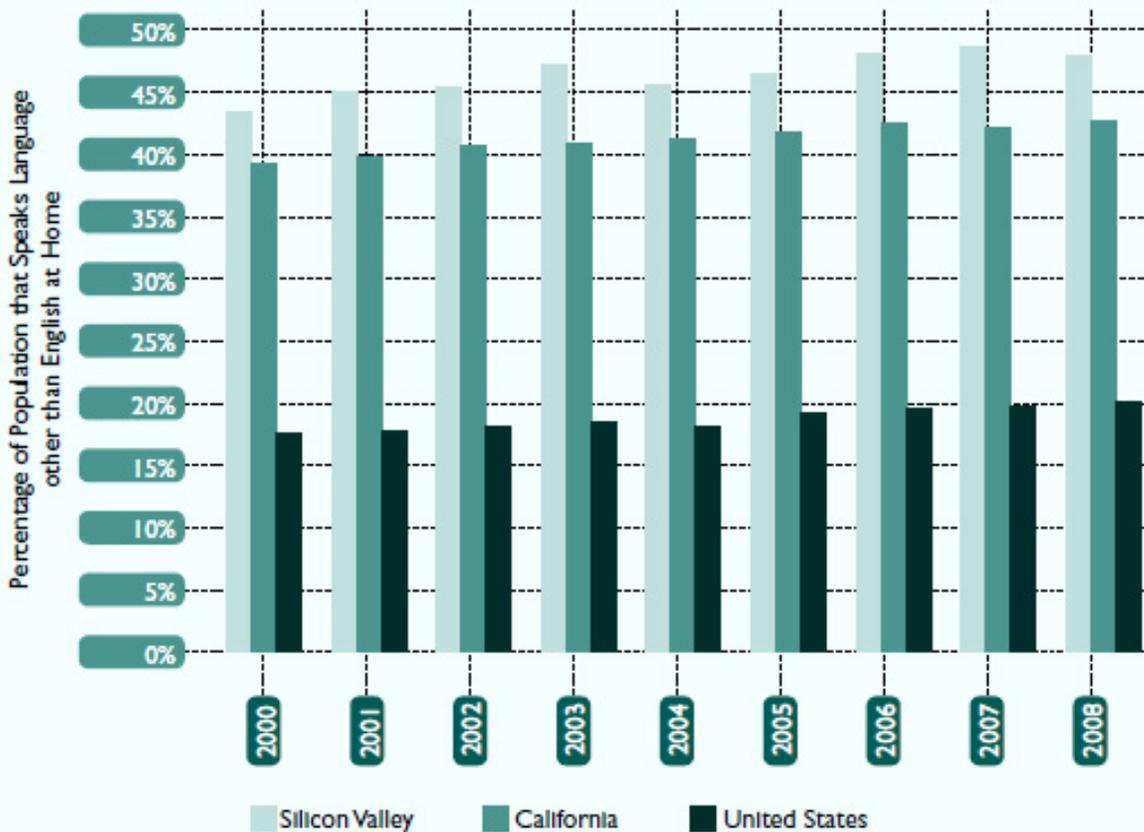
U.S. Bureau of Labor Statistics, September 08, 2009.
High-tech employment in Silicon Valley:



Where from?

Foreign Language

Percentage of Population that Speaks Language other than English at Home
Santa Clara & San Mateo Counties, California, U.S.



Data Sources: U.S. Census Bureau, American Community Survey
Analysis: Collaborative Economics

Source:

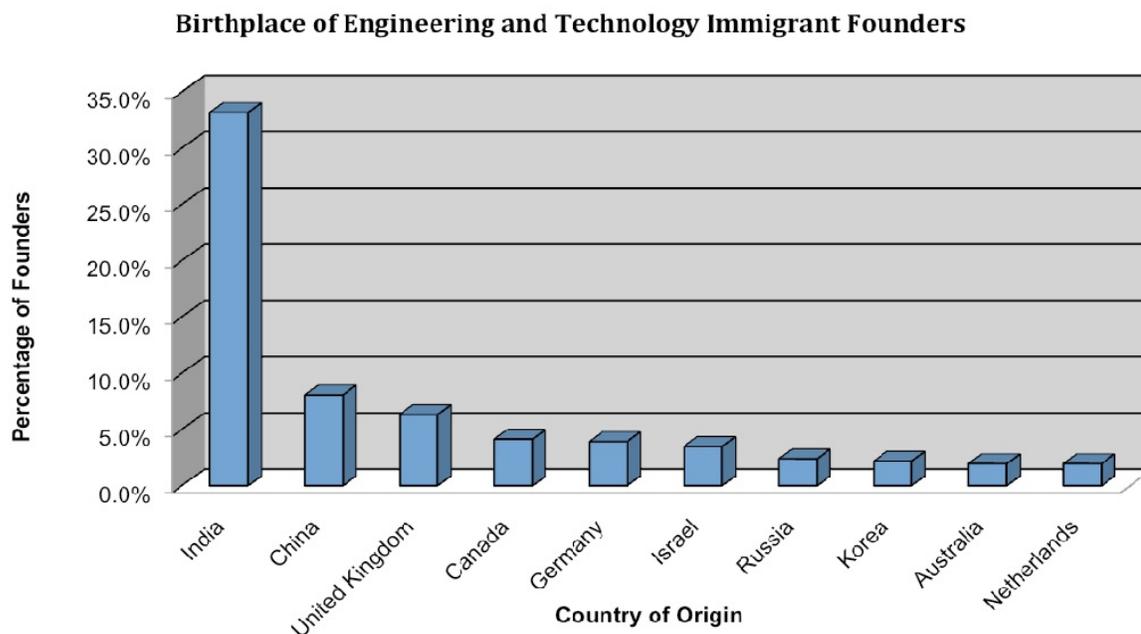
Joint Venture: Silicon Valley Network, Inc.

Where is located the Silicon Valley of India?

Some people suggest that the Silicon Valley of India is a nickname of the Indian city of [Bangalore](#). That's correct but not substantially, because main part of India's Silicon Valley located in the [San Francisco Bay Area](#).

Of the total number of engineers and scientists in the [San Francisco Bay Area] valley, 28 percent comes from India, up from 20 percent a decade ago ([Statistics offer glimpses into how Silicon Valley lives](#). By Scott Herhold, San Jose Mercury News. 02/23/2010).

Three years later the following - more detailed comparison - data were published:



Source: [How Indians defied gravity and achieved success in Silicon Valley](#) by Neesha Bapat, October 15, 2012

The process of transforming San Francisco Bay Area to the India's Silicon Valley will continue for lot of different reasons including the following - significantly more English speaking IT engineers graduates in the India than in any other countries:

Four-Year Bachelor's Degrees in Engineering, Computer Science, and Information Technology Awarded from 1999 to 2004 in the United States vs. India,

	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
United States	108,750	114,241	121,263	134,406	137,437	133,854
India		82,107	109,376	129,000	139,000	170,000

Indians have founded more engineering and technology companies [in US] during that past decade than immigrants from Britain, China, Taiwan, and Japan combined.

Source: [Where the Engineers Are](#). By Vivek Wadhwa, Gary Gereffi, Ben Rissing, Ryan Ong. University of Texas at Dallas

See also:

- [Indian Government aims to create 28 Million Jobs In Electronics By 2020](#). For comparison, there are a total of 5.75 million workers in the U.S. high-tech industry. ([U.S. High-Tech Jobs Down Again in 2010](#) By Brian Heaton, October 5, 2011)

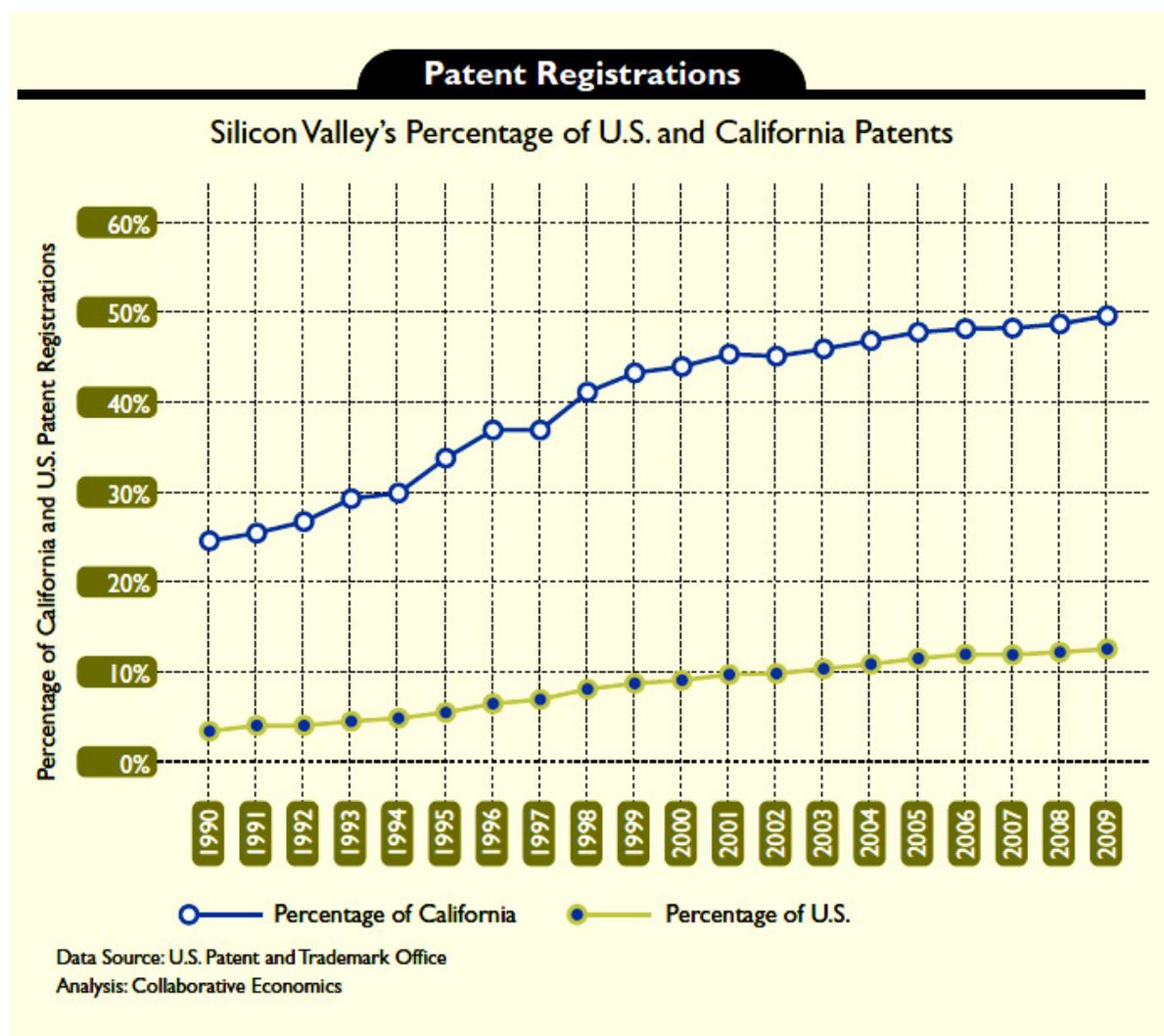
- [US ends India tech restrictions](#). Wharton Aerospace & Defense Report, February 04, 2011

Total equity investments into venture-backed companies

According to the PricewaterhouseCoopers & National Venture Capital Association 2010 Report, Silicon Valley was the top region attracting 40 percent of total US venture capital dollars and 30 percent of total US deals. New England was a distant second at 11 percent of total US funding and 12 percent of total deals:



Source: PricewaterhouseCoopers & National Venture Capital Association



Source: Joint Venture: Silicon Valley Network, Inc.

For comparison with other regions:

		total	2009
		patents	US
Total, U.S. And Foreign Origin		167,349	
State Rank	-- Subtotal- U.S. Origin	82,382	100.00%
	-- Subtotal- Foreign Origin	84,967	
1	CALIFORNIA	20,646	25.06%
2	NEW YORK	5,237	6.36%
3	NEW JERSEY	2,839	3.45%
4	TEXAS	5,934	7.20%
5	ILLINOIS	2,898	3.52%
6	PENNSYLVANIA	2,656	3.22%
7	MICHIGAN	2,983	3.62%
8	OHIO	2,341	2.84%
9	MASSACHUSETTS	3,696	4.49%
10	FLORIDA	2,197	2.67%

Source: US Patent and Trademark Office

Silicon Valley Top Companies:

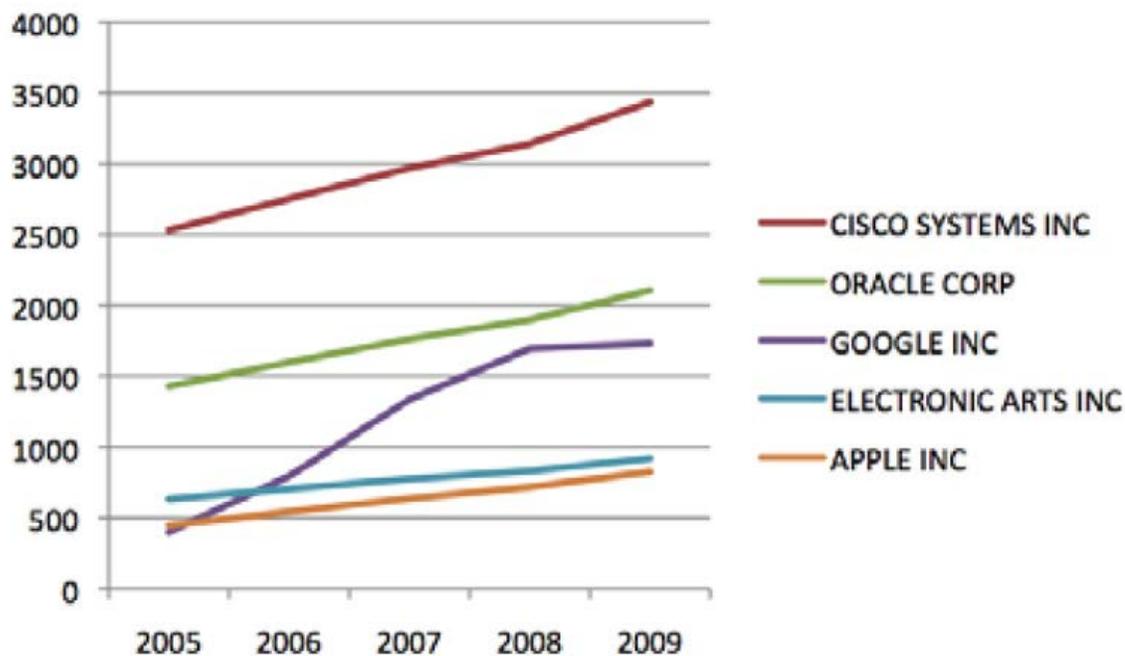
Regis McKenna: ' About every 10 years there is a new industry that arises here in Silicon Valley. Of the top 15 companies [in the region], 12 of those companies were formed in the past 15 years, they generate \$600 billion of revenues, and employ about three-quarters of the people in Silicon Valley, and they were all entrepreneurial companies 15 years ago. So we continue to see this sort of churning and creating of new industries.'

RANK BY SALES				SALES (millions)			PROFIT (millions)		PROFIT MARGIN		MARKET CAP. (millions)	
2010 rank	2009 rank	Company	Business	End quarter	Last four quarters	% chg	Rank	Last four quarters	Rank	Profit/sales	Rank	Amount
1	1	Hewlett-Packard	Computers, peripherals	JAN	\$127,158	9%	3	\$9,116	85	7%	6	\$88,656
2	2	Apple	Computers	DEC	\$76,283	63%	1	\$16,639	23	22%	1	\$321,072
3	4	Intel	Semiconductors	DEC	\$43,623	24%	2	\$11,464	15	26%	4	\$110,748
4	3	Cisco Systems	Networking equipment	JAN	\$42,361	19%	6	\$7,578	36	18%	5	\$94,805
5	5	Oracle	Business software	FEB	\$34,479	43%	5	\$7,702	21	22%	3	\$169,186
6	6	Google	Internet search	DEC	\$29,321	24%	4	\$8,505	10	29%	2	\$189,076
7	13	Applied Materials	Semiconductor mfg. equip	JAN	\$10,386	88%	10	\$1,361	52	13%	13	\$20,609
8	9	Synnex	IT supply chain services	FEB	\$9,179	15%	42	\$123	111	1%	76	\$1,188
9	8	eBay	Internet-based auction services	DEC	\$9,156	5%	8	\$1,801	27	20%	7	\$40,277
10	10	Gilead Sciences	Therapeutic viral medicines	DEC	\$7,949	13%	7	\$2,901	6	36%	9	\$33,775
11	15	Sanmina-SCI	Electronic mfg. services	DEC	\$6,503	24%	48	\$91	109	1%	88	\$899
12	14	AMD	Semiconductors	DEC	\$6,494	20%	24	\$471	83	7%	35	\$5,893
13	11	Yahoo	Internet media content	DEC	\$6,325	-2%	12	\$1,232	29	19%	12	\$21,841
14	16	Franklin Resources	Investment services	DEC	\$6,309	33%	9	\$1,591	17	25%	10	\$27,901
15	12	Symantec	Network security software	DEC	\$6,048	2%	20	\$613	70	10%	18	\$14,151
16	17	Agilent Technologies	Measurement instruments	JAN	\$5,750	27%	14	\$798	47	14%	17	\$15,455
17	18	Con-way	Trucking, air freight	DEC	\$4,952	16%	113	\$4	117	0%	59	\$2,164
18	20	SanDisk	Flash-memory storage	DEC	\$4,827	35%	11	\$1,300	13	27%	23	\$10,910
19	19	NetApp	Network data storage devices	JAN	\$4,785	31%	18	\$624	54	13%	14	\$17,712
20	23	Juniper Networks	Internet infrastructure systems	DEC	\$4,093	23%	19	\$618	44	15%	11	\$22,510
21	27	Adobe Systems	Software for printing and display	FEB	\$3,969	32%	13	\$882	22	22%	15	\$16,737
22	24	Intuit	Personal financial software	JAN	\$3,554	10%	21	\$531	45	15%	16	\$16,070
23	22	Nvidia	3D-graphics processors	JAN	\$3,543	7%	32	\$253	86	7%	22	\$10,917
24	21	Electronic Arts	Entertainment software	DEC	\$3,478	-2%	150	(\$397)	135	-11%	31	\$6,529
25	25	Robert Half Int'l	Personnel services	DEC	\$3,175	5%	57	\$66	106	2%	40	\$4,477

Source: San Jose Mercury News, 2011 Silicon Valley 150 listings.

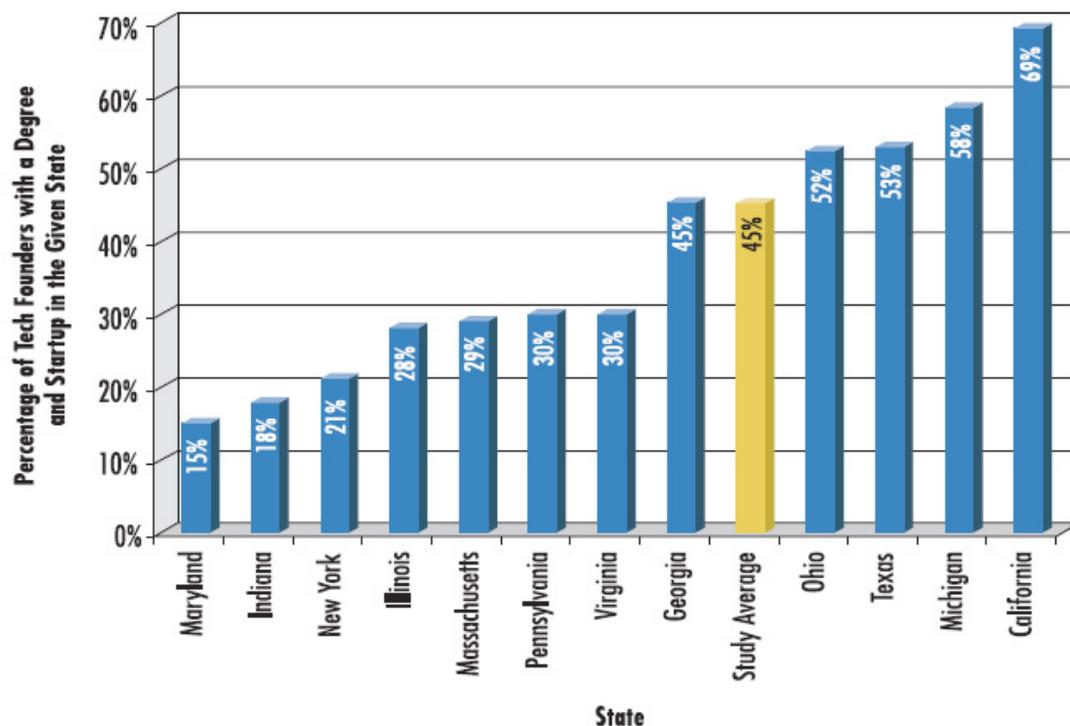
Silicon Valley Top 5 Companies by R&D

Largest R&D spenders in Silicon Valley



Source: 2011 Silicon Valley Information and Communications Technologies Study

Percentage of U.S. Tech Founders Who Established a Startup in the Same State in Which They Received a Degree



Source: "Education and Tech Entrepreneurship" by Vivek Wadhwa, Richard Freeman, Ben Rissing. Ewing Marion Kauffman Foundation, 2008

About 60 years ago, [Stanford University](#) had some financial problems. The authorities of university tried to resolve these problems by leasing part of the university land to high-tech companies for 99 years.

Carolyn Tajnai clarified this point of Stanford's history in more detail:

' In the 1950's, the idea of building an industrial park arose. The university had plenty of land over 8,000 acres....but money was needed to finance the University's rapid postwar growth. The original bequest of his farm by Leland Stanford prohibited the sale of this land, but there was nothing to prevent its being leased. It turned out that long-term leases were just as attractive to industry as out right ownership; thus, the Stanford Industrial Park was founded. The goal was to create a center of high technology close to a cooperative university. It was a stroke of genius , and Terman, calling it ``our secret weapon," quickly suggested that leases be limited to high technology companies that might be bentspanananficial to Stanford. In 1951 Varian Associates signed a lease, and in 1953 the company moved into the first building in the park. Eastman Kodak, General Electric, Preformed Line Products, Admiral Corporation, Shockley Transistor Laboratory of Beckman Instruments, Lockheed, Hewlett-Packard, and others followed soon after.'

[Fred Terman](#), *The father of Silicon Valley* by Carolyn Tajnai, 1995

According to [Varian Associates](#) it was a simple decision:

'Gradually, facilities were moved from leased quarters in San Carlos to a quiet corner of Stanford land, thus creating what is today the Company's headquarters site, and incidentally bringingi nto being the Stanford

Industrial Park - the most successful complex of its kind in the world.'

Source: **Varian Associates: An Early History**



The **First** building of **Silicon Valley**

First Varian Associates building, Stanford Industrial Park, Palo Alto, California, **1953**.

Source: '*Russell and Sigurd Varian - The Inventor and The Pilot*', by Dorothy Varian. Palo Alto, 1983, p.258.

The picture is reproduced here with **Varian Associates** permission since 1995.

Is it a reasonable doubt or ... just invitation to the further discussion?

Among the different organizations that were instrumental in the process of creating Silicon Valley the significant role was the Stanford Research Institute (SRI):

After World War II, a great industrial push was under way to reinvigorate the economy. Founded by a small group of business executives in conjunction with Stanford University, Stanford Research Institute (our founding name) was created in 1946 as a West Coast center of innovation to support economic development in the region. The world's first digital computer (ENIAC, weighing in at 30 tons) was introduced, and in what is now known as Silicon Valley a three-bedroom home sold for \$10,000. Source: [SRI Timeline](#)

Perhaps it was just one of the reasons why at least some of SRI people appeared to be very skeptical about the above photo of Silicon Valley's building #1. **Alice Resnick** Senior Director, Corporate and Marketing Communications SRI International wrote to us concerning this subject

31 Jan 2002 14:41:03 -0800:

For example, SRI had a building in Menlo Park (one that we still occupy) in 1947, several years before what you call the 'The First building of Silicon Valley: First Varian Associates building, Stanford Industrial Park, Palo Alto, California, 1953' on your web page at <http://netvalley.com/>.

● In 1995 William Hewlett decided to described in more details his own concept of Silicon Valley's birth.

Supernova  **of Silicon Valley: What does it mean?**



Bill Hewlett, center, with his partner **David Packard**, left, and former Provost **Frederick Terman**, who inspired the two graduate students to follow their dream of starting an electronics company. Hewlett and Packard honored their mentor by funding construction of the Terman Engineering Building, dedicated in 1952. (Source: Stanford News Service)

'...in June, 1995, I had lunch at the Stanford Park Hotel and while leaving, I noticed a man holding a cane and sitting on a bench as though waiting for someone. I walked on by and then stopped, turned around, and walked back. I said, 'Are you Mr. Hewlett?', and he replied, 'Yes'. I thanked him for his kindness in verifying information for me when I was writing my paper on 'Fred Terman, The Father of Silicon Valley.' He said 'But Fred Terman didn't start Silicon Valley; the beginning of Silicon Valley was a **supernova**.' He asked if I knew what a **supernova** was and I said yes, that it was an explosion of a large star. Mr. Hewlett spoke so softly that it was difficult to catch every word, but he proceeded to explain that a supernova caused a rippling effect that set the stage for future events. He explained that **Lee de Forest**, who was an electronics pioneer in the Palo Alto area in the early part of the Century, and his work were the **supernova**'. (c) Carolyn Tajnai, 1995



Moving to California in **1910**, Le De Forest (photo above -- De Forest, Palo Alto, 1915) worked for Federal Telegraph Company at **Palo Alto**. **While there, de Forest finally made his Audion tube perform as an amplifier and sold it to the telephone company as an amplifier of transcontinental wired phone calls.** For this innovation he received \$50,000. By the beginning of 1916, he had finally perfected his Audion for its most important task, that of an oscillator for the radiotelephone transmitter. By late 1916 de Forest had begun a series of experimental broadcasts from the Columbia Phonograph Laboratories on 38th Street, using for one of the very first times his Audion as a transmitter of radio: According to de Forest, 'The radio telephone equipment consists of two large Oscillion tubes, used as generators of the high frequency current.' Source: Le De Forest bio. Photo left: Lee De Forest's first Triode or 'Audion', 1906



According to Rogers and Larsen, in 1912 '**de Forest** and two fellow researchers for the Federal Telegraph Company, an early electronics firm, leaned over a table watching a housefly walk across a sheet of paper. They heard the fly's foot steps amplified 120 times, so that each step sounded like marching boots. This event was the first time that a vacuum tube had amplified a signal; it marked the birth of electronics and opened the door for the development of radio, television, radar, tape recorders, and computers.' Also Rogers and Larsen add that, 'Lee de Forest had a Stanford University connection; his work was partly financed by Stanford officials and faculty.' [Links Between Stanford University and Industry](#), by Carolyn Tajnai, 1995

Supernova of the Silicon Valley: Can we really see it ?

According to astrophysicist Joseph Shklovski (lectures, 1981) the total level of energy produced by human civilization during the last 300 years of industrial revolutions, is still about one hundredth of a percent of the total energy flow that reaches the surface of the earth from the sun. Meanwhile in recent decades of info-tech revolution, the total level of energy that earth radiates to space comes to a million times more than it would have done naturally as the planet heated to 300 K. From this point, for the last couple of decades, Earth outran planet-giants Jupiter and Saturn and became comparable to Sun. So, for a radio-telescope's observer from outer space, the earth's info-tech revolution looks like the birth of a new bright star on the cold Earth-planet. Source: 'National Information Resources', by Gregory Gromov, Nauka, 1984, p.15

RENAISSANCE GEEKS

Unfortunately, much of the rest of the world would love to be like Silicon Valley. In one subgenre of the Valley success-myth article, a journalist visits the high-tech heart of a foreign country and asks, 'Does this self-styled Silicon Glen/Alley/Gulch/Fjord/Pampas/Polder/Fen have what it takes to match the success of the original?'

Precisely because the Valley possesses the Renaissance qualities of being dynamic, entrepreneurial, innovative and wildly financially successful, it has become a model the rest of the world is keen to follow. But if what's being emulated places little value in old ideas of culture and has little interest in developing new ones, aren't we all aspiring to a debased ideal -- to an impoverished kind of Renaissance, devoid of much that makes life rich? Florence had entrepreneurial energy, education, ambition and technology; it also attracted Giotto, Donatello, Dante, Michelangelo, Brunelleschi, Petrarch and others besides. Who can Silicon Valley point to?

If the Valley wants to find a way out of the binary thinking that opposes business success and high culture, it only has to look to Renaissance Florence for help. In his 'The Building of Renaissance Florence,' historian Richard A. Goldthwaite -- in an economic analysis rigorous enough to warm the heart of any Valley CFO -- considered the Florentine approach of building for prestige, history and art's sake and reckoned its worth to the city's economy. The building of the great architectural monuments of Renaissance Florence, he concludes, 'resulted in considerable internal development and, ultimately, a more mature economy...' [RENAISSANCE GEEKS](#) by Simon Firth, Salon.com, 2000.

Silicon Valley Entrepreneurial Phenomenon

Let us take a look again on the live example. Astronomy Ph.D. **Frank Levinson** entered optics tech 1980 with Bell Labs. Left 1988 to start Finisar fiber optics -- high speed networking company - with \$60,000. According to the Forbes magazine Finisar worth \$8 billion in 2000. Frank clarifies below his personal viewpoint on the **sociological** nature of Silicon Valley Entrepreneurial Phenomenon:

Despite its many contributions to the world economy, the technical community here in Silicon Valley is actually much smaller than most people believe. People end up making connections in strange ways and often these ties last for many years... My wife Wynnette and I went to dinner at the Flea Street Cafe in Menlo Park recently with a small group to hear a presentation on saving endangered species of domesticated animals such as the Cotswold Lamb. This farm and the organization that supports it was started by Robyn Shotwell Metcalfe...Robyn's husband

You might think that I was invited to attend this dinner because Finisar is a major participant in the Ethernet industry through its Gigabit Ethernet transceivers and other Ethernet modules and because of a professional association I have with Bob. But that's not the reason we were there.

We were invited to this dinner because my cat-loving daughter Alana attended preschool in the late 1980s with Julia Metcalfe, daughter of Robyn and Bob. My wife Wynnette and Robyn also became friends and have stayed in touch. At the time our daughters first met, Bob was already an

is **Bob Metcalfe**, one of the two inventors of Ethernet. Bob and Dave Boggs invented Ethernet when they were scientists at Xerox Palo Alto Research Center (PARC) in the 1970s.

Ethernet is also a huge factor in Finisar's past successes, as well as our future growth prospects. Bob went on to be the founder of 3Com, then to work as an insightful and articulate columnist for InfoWorld magazine. He recently became a venture capitalist with Polaris Ventures. Bob is witty, engaging, way smart, funny and an especially good writer. He is a technologist's techie.

Dave Boggs (the other *Ethernet* inventor) was also at the Flea Street Cafe dinner with us. Currently, Dave is working on optical extensions for networks in the metropolitan area. He has steeped himself in the technology of networking since the 1970s. Another dinner guest was **Ron Crane**. Ron was a key technical contributor for 3Com from the very beginning of Ethernet. All of today's Ethernet adapter cards installed in the tens of millions of PCs throughout the world are related to the first adapter cards built and tested by Ron, who is still very well connected in the networking industry.

industry icon and I had to use my wife's and daughter's friendships to wedge my way in with the Silicon Valley geniuses behind Ethernet.

Bob and Robyn really liked Wynnette and Alana (and eventually me, too!), so our family would often be invited to their social occasions. During those times I would listen carefully for pearls of wisdom on how Finisar could grow and make its mark on the world.

One evening years ago, Bob and I talked about Finisar's early product line and he pointed out that since we were not supporting established standards, our appeal to the industry was being limited. Over the next few years Finisar changed our direction in line with Bob's counsel and this was a major factor in Finisar's growth during the second half of the 1990s.

As Paul Harvey would say, now you know the rest of the story!



A Tale of Lambs, Preschoolers and Networking, by Frank Levinson, 2001

Steve Jobs Three IT Revolutions

- Personal Computing:



- World Wide Web:

By Christmas 1990, Berners-Lee had set up a Next computer - an easy-to-program, Unix-based black cube that was the [brainchild of Steve Jobs - as the world's first Web server](#).

Using NeXT's object-oriented technology, the [first Web server and client machines were built](#) by CERN -- the European Laboratory for Particle Physics in November 1990. Since then the Web has truly encompassed the globe and access has proliferated across all computer platforms in both the corporate and home markets.



• Mobil Computing:



The most important Googler you've never heard of

... Google started in **Susan Wojcicki's** rented garage... Thirteen years ago, the then-tiny company's former landlord became its 16th employee and first marketing manager [She then married to Google executive Dennis Troper and introduced a future husband to her younger sister Anne, who married Brin] Today, she is one of its 12 senior vice presidents, although by one measure she is first among equals: The advertising products [AdWords and AdSense, Analytics and DoubleClick, ...] she oversees accounted for about **96** percent of Google's revenues in 2010. By [Mike Swift](#)



Susan and her house that helped build Google

If some of the other companies rented Susan Wojcicki's garage, will it be in the list of Top 10?

Rank	Company	Market Cap
1	Apple	499.87B
2	Exxon Mobil	408.97B
3	PetroChina	252.56B
4	Wal-Mart Stores	243.00B
5	China Mobile	229.42B
6	General Electric	226.59B
7	Google	223.76B
8	Microsoft	221.78B
9	Royal Dutch Shell	220.28B
10	IBM	219.36B

Ranking of Dec 10, 2012

Google 3G: why Bing more useful to Google than to Microsoft

By Gregory Gromov.

Yahoo switched to Bing-powered search results in August 2010. Shortly thereafter, search specialists at Google began noticing that many of the results for Yahoo! searches were the same as those Google searches of the same

terms.

Google engineers set up random results on their site for a series of unlikely search terms, such as 'hiybbprqag.' (Google arranged for the nonsense word to point to a Los Angeles theater seating plan on its search engine.) 'Within a couple weeks of starting this experiment, our inserted results started appearing in Bing,' Google said in a statement on its official blog ...

' Google: Sting proves Bing copied search results' By the CNN Wire Staff

When Google published the search experts' findings, their colleagues at Microsoft only shrugged, essentially saying that such things happen, that it was no big deal. However, they immediately stopped copying Google's results. Yahoo! somehow skirted the debate altogether.

However, it was not until later that the most interesting part of the story emerged. At the outset, Google's experts were very vocal in complaining about the abovementioned results. They then did an abrupt about-face, apparently accepting Microsoft's explanation. As if on a signal, all the once-spirited grumbling ceased. Both sides suddenly stopped discussing the story.

The reason for this is that with the search engine market so out of balance, Google really needs at least a nominal competitor in the business. In other words, if Bing spontaneously combusted tomorrow - if, for example, Microsoft decided that there was no further need to pursue the already long-lost race for search engine dominance - this would in fact be a great blow to Google.

Google would then be completely vulnerable to accusations of having a monopoly on the US search engine market, and would quickly become the next subject of the Department of Justice's anti-trust investigations. Conjoined twins Yahoo and Bing hold second and third places in the search engine market, protecting Google from allegations of monopoly, and making Bing more useful to Google than to Microsoft.

How I ended up working for a big corporation by Gregory Gromov

In short, knocking on the doors of some monolithic corporation to see if I could get hired by big shots - such a notion never even crossed my mind.

Furthermore, I hadn't come all the way to California just to sit in some cubicle. Ever since early 80th when I began writing my first book on trends in IT, I had been interested in studying the basic stages by which these startup companies developed. Not startup companies in general, but specifically those in Silicon Valley. As soon as I had the opportunity, in the mid-1990s, I went for it.

In the beginning, like everyone else there, I went through the agony of starting my own company from scratch, even though I had almost no hope of making it big. This experience, as it turned out, was very useful in a variety of ways ...

After that-again, like many others-I threw in my lot with the "independent contractors".

This was the right approach. You'd get contracts for two or three months to a year at a time, working for some of the newest startup companies around.

I experienced every aspect of their early development, from the birth of an idea to its market debut, to the collapse of the business, or, if it so happened, to the next round of funding. I saw it all up close and, most importantly, was able to study my subject from the inside.

Somewhere in my second dozen or so such contracts, I was the first employee to be hired "off the street" for a new startup, the latest in a series of ventures for its founders.

There were two co-founders, and then there was another trio that had worked with them for a long time. I thus became the sixth one in their group, but the first hire for this particular project.

This turned out to be the next course in my self-made "university" studying the startup secrets of California's

Silicon Valley. When my contract was up three months later, I was offered a permanent position in what had a chance of becoming a fast-growing e-commerce company.

Several years went by. As was the case with some successful startups, our company began doubling its yearly revenue to reach tens of millions. The founders had proved to investors that, beyond simple growth, the company offered a reliable source of profit. Then investors began calculating their prospective rate of return...

With the company having become an established, growing, reliably profitable business, companies higher up in the same field set their sights on us. Again, this is the usual routine in Silicon Valley. The founders received an offer-"let's work together"-from an incomparably larger company from the same sector, - where we had by this time become relatively high profile.

In this way our startup became a functionally autonomous unit in a larger, more powerful company, and we all became employees of this widely known, publicly traded company, with market capitalization of a half-billion dollars.

Meanwhile, the nature of our work hardly changed, which is the usual pattern in the first year after an acquisition. As would be expected, we tried to divine what kind of drastic changes awaited us in the following year.

We never found out. We soon learned that the company that just a couple of months ago had bought us had itself been bought out by a much bigger company. This is the usual practice when an old-fashioned, traditional business is looking for the most efficient way to enter the field of e-commerce.

Along with our entire company, I thus became an employee of one of the biggest companies in America, with market capitalization of tens of billions of dollars.

Looking into the past, it was a strange feeling. I had begun as a single cell in a fish egg that was lucky enough to survive to small fry-hood. Over the course of several years, we grew to marketable size and were then swallowed up by an incomparably larger fish. We didn't even have time to figure out what it was going to be like being inside such a big fish when we learned that this bigger fish had itself been swallowed up by a shark.

In other words, I advanced with one of my last startups as it shifted from being just one of a variety of enterprises developing in the field of e-commerce, to one of the largest, oldest corporations in the country.

This is a typical story for that relatively small segment of Silicon Valley startups that are statistically referred to as successful or "well-established"...

Silicon Valley Versus Route 128 by Annalee Saxenian

Silicon Valley has a regional-network-based industrial system -- that is, it promotes **collective learning** and flexible adjustment among companies that make specialty products within a broad range of related technologies. The region's dense social networks and open labor market encourage entrepreneurship and experimentation. Companies compete intensely while learning from one another about changing markets and technologies through informal communication and collaboration. In a network-based system, the organizational boundaries within companies are porous, as are the boundaries between companies themselves and between companies and local institutions such as trade associations and universities.

The Route 128 region is dominated by a small number of relatively vertically integrated corporations. Its industrial system is based on independent companies that keep largely to themselves. Secrecy and corporate loyalty govern relations between companies and their customers, suppliers, and competitors, reinforcing a regional culture that encourages stability and self-reliance. Corporate hierarchies ensure that authority remains centralized, and information tends to flow vertically. The boundaries between and within companies, and between

companies and local institutions, thus remain distinct in the independent-company-based system.

The performance of Silicon Valley and Route 128 in the past few decades provides insights into regional sources of competitiveness. Far from being isolated from what's outside them, companies are embedded in a social and institutional setting -- an industrial system -- that shapes, and is shaped by, their strategies and structures.

Understanding regional economies as industrial systems rather than as clusters of producers, and thinking of Silicon Valley and Route 128 as examples of the two models of industrial systems -- the regional-network-based system and the independent-company-based system -- illuminate the different fates of the two economies.

Silicon Valley and Route 128 by Paul Mackun

Job mobility statistics show the extent of success of these networks: the average turnover rate for small-to medium sized firms was 35% and the average job tenure (in the 1980s) was approximately two years (Saxenian 1994). Geography probably played a critical role in this rate as the informal social contacts. The spatial concentration of a large number of technology-based firms enabled people to change employers without altering other aspects of their lives. When a person left one firm in Palo Alto for another, there was no need to move one's residence or take one's kids out of a particular school district to enter a different firm. The attitude of the Valley served as a catalyst for this risk-taking. In many cases, a small coterie of employees in a firm dissatisfied with their current place of employment would gather together after work to tinker around with some of their own ideas. They would then develop a business plan, acquire funds from venture capitalists, and seek advice from local academic sources. If they succeeded they were heroes. If they failed, many employers were located in the same town or in a neighboring community (Saxenian 1994).

As people in the region became occupationally mobile, their roles became interchangeable: employers become employees and co-workers can become competitors. The result is that the engineers developed strong loyalties to technology and their fellow engineers and scientists while possessing far less allegiance to a single firm (Saxenian 1994). Although it may seem paradoxical that such cooperation would occur under such obviously competitive circumstances, Saxenian (1994) notes the motto of the region: 'competition demands continuous innovation, which in turn requires cooperation among firms.' Rapid flows of practical information became the currency of choice. Applied scientific research was constantly reworked to develop market goods. It is not surprising that rapid changes led to industrial diversification and contributed to the flexibility and resilience of the economic region (Saxenian 1994). The lack of rigid hierarchies extended to the firms themselves. The traditional delineations between employers and employees were not so sharp as on the East Coast, and in some cases they disappeared entirely. Beginning with Hewlett and Packard, many of the Silicon Valley companies sought a much more interactive environment between employers and employees. Decentralization of powers followed: major divisions of firms were given a large amount of autonomy (Saxenian 1994).

'In short, Silicon Valley has a regional-based industrial system -- that is, it promotes collective learning and flexible adjustment among companies that make specialty products within a broad range of related technologies. The region's dense social networks and relatively open labor markets encourage entrepreneurship and experimentation' (Saxenian 1994).

The Birth of Silicon Valley: by Carolyne Tajina

... to the early 1930's during the Great Depression. Santa Clara County, California, known as the Valley of Heart's Delight, was a tranquil expanse of apricot, plum, and cherry orchards. Professor Frederick Terman of Stanford University's Department of Electrical Engineering enjoyed the tranquillity, but he was concerned with the great lack of opportunities for Stanford Engineering graduates to find jobs in the area. His graduates had to go 3000 miles to the east coast because

there were few jobs for them locally. He began to encourage some of his students to start companies near the university.

How Silicon Valley Came To Be ...

A Legal Bridge Spanning 100 Years: From the Gold Mines of El Dorado to the 'Golden' Startups of Silicon Valley by Gregory Gromov

Why was the law that enabled Silicon Valley's successful development passed all the way back in 1872 and only in the state of California?

Main Difference of the Legal Framework of Silicon Valley

Which of the main historical features of Silicon Valley has been instrumental in its development? There have long been discussions on this subject and very different points of view have been expressed. Many believe the main reason is the unique features of Stanford University. Others point out that the Valley is an exceptionally favorable place to live on the Pacific coast and therefore any researcher, engineer or programmer who comes there for some reason is not usually willing to leave.

Finally, those who actually have an interest in seeing that the research park created somewhere with their participation would obtain adequate government funding usually pay attention first and foremost to the fact that the starting period for the formation of Silicon Valley occurred during the period of one of the peaks of the "Cold War," when high-tech enterprises benefited from the "windfall" of defense programs.

Of course, each in its own way is correct, as well as all of them together. The valley provides an exceptionally comfortable place to live, the climate is wonderful and the university is remarkable in all respects. Hardly anyone would dare to deny the well-known fact of the growth in military spending during the "Cold War" period. However, it is most likely that none of the aforementioned facts, as well as any combination of them, are and ever have been so very unique to just one state in America to explain why just one California research park in the entire country would eventually become Silicon Valley

Let's then formulate the question more specifically for the present day - which of the differences of Silicon Valley is currently the most obvious? The answer to this question of course is known to everyone - the characteristic difference of Silicon Valley is that here you have world's fastest paced unstoppable introduction of scientific and technological innovations.

Hence, it raises the following question: What was California's totally unique characteristic "component" of the local socio-economic climate, which became the "catalyst" for the process of development of technical ideas that arose here (or were imported here) at the first attempts at their formulation by inventors to market the product?

With this catalyst of scientific and technological process acting locally in just one American state, a very special law was enacted in California in 1872.

The law in question declared null and void any contract between a business owner and employee if said contract in any way restricted the employee's freedom to change employers, even if that meant joining the former employer's competition.

In other words, any previously signed agreements - for example, an employee contract signed upon hiring - that could in any way limit the employee's right to freely choose his or her place of work were deemed unenforceable in this 1872 law. More specifically, those clauses that were in conflict with this law were deemed unenforceable.

This law was initially ratified in 1872 as part of California's Civil Code. It is now listed under California Code - Section 16600, also known as CAL. BPC. CODE § 16600, and reads:

Except as provided in this chapter, every contract by which anyone is restrained from engaging in

a lawful profession, trade, or business of any kind is to that extent void.

As a result of this cascade of direct and indirect consequences from the application of this law in Silicon Valley, today a number of generally operating U.S. legal standards, including some of the most important, are practically blocked ("de facto" canceled).

Let's explain how this happens with a widely known example. Anyone who is hired to work in virtually any high-tech company in any of the American states signs an agreement that if he or she ever decides to change in his or her place of employment, then for a specified period (usually two years), determined in advance, after his or her retirement from the company, he or she shall not have the right to work for competitors. This is the so-called Non-Compete Agreement (NCA).

In addition, an agreement is usually signed that prohibits the employee from disclosing, without the express written permission of the employer, confidential information on the company's activities, which this employee will have the opportunity to learn about during his work at the company - this is the so-called Non-Disclosure Agreement (NDA).

Despite the fact that such documents are usually signed by almost everyone who works in Silicon Valley, the crucial difference, in comparison to the same situation in other American states, is that here these agreements, when they are signed by an employee changing his place of employment, actually have the character of only the mutual good wishes of both parties: the employer and his employee...

The fact of the matter is that the mere signing upon employment of a standard pair of NCA & NDA documents essentially in no way limits the ability of the employee of any company in the Valley at any time to go work for another company, not excluding in this case direct competitors of the organization he just left.

What essentially is the reason it turns out that any employee of one of the California companies cannot interest his employer in an invention or some other promising technological solution he has come up with, then in California he or she, in stark contrast to other American states, without any special efforts can take his "brainchild" to another company or found his own company based on this idea.

In this case, as a general rule for the Valley, there is no way anyone can stop him from doing this. And accordingly, all levels of managers of any company here, as a rule, understand this situation well.

You cannot hold on to talented, productive employees, dismissed from a position of authority ...

As is clear from the above excerpt, the version of the 1872 law currently in effect in California does not specify the kind of contract - be it NCA, NDA, or anything else - that a company might ask its employees to sign in order to create legal obstacles for employees who might decide to join the competition or start their own competing firm.

California courts must declare void any such contract to the extent that it concerns itself with changes in employment made by the employee.

In other words, the court must declare legally unenforceable those contract clauses that employers might use to limit the employee's ability to find new, lawful employment with any other establishment or to start their own business, even if said business would be in direct competition with their previous employer.

In this sense, a court in California need not consider what type of contract - NCA, NDA, or any other form - that the employer uses to legally restrict former employees from going to work at competing firms.

The only difference in formats is that the non-compete agreement (NCA) is by definition essentially invalid in California and such a contract will simply be ruled out of consideration. As far as the non-disclosure agreement (NDA) is concerned, the court might in certain circumstances decide to take up the case, if the worker in question has been charged by the company with breaking the terms of their signed NDA.

The court will still first be required to determine whether or not the NDA is being used by the company to encumber the employee's inalienable right (in California) to quit in order to find work in any legally sanctioned capacity.

In other words, when California's legislators adopted a law in 1872 guaranteeing residents of this state full freedom to choose and change jobs, they thus created, among other things, a guaranteed secure "legal corridor" which cannot, as it now turns out, be narrowed either by the NDA or any additional agreements concluded by the company with its workers.

The court follows particularly closely to ensure that charges of a violation of the NDA are not used in such cases for the functional transformation of the NDA into the NCA and therefore they are extremely wary of any kind of not direct, but only "indirect situational" evidence of the breach of the NDA.

For this reason, the doctrine of "*inevitable disclosure*" that is popular in other American states hardly works in the courts of California. The logical point of this "doctrine" would allow a California employer without any particular problems to breach the restrictions of the 1872 Law. In this case, the typical evidence base of violations of the NDA would then be lined up as follows, simply in execution to read: "*we cannot provide the court with specific evidence of disclosure by our former employee of company secrets, but for this situation there is every reason to believe that he simply cannot work in this position, which he was offered by our competitor without disclosing our commercial secrets there ...*"

It is this, "incidentally", that was the basic logic of evidence of a violation of the NDA on the part of Mark Hurd, stated in appeal to the court of Santa Clara County on September 7, 2010 by the company HP. The company claimed in its appeal to the court that Hurd could not fail to disclose HP secrets, working in the position to which he was invited by Oracle. In other words, HP's lawyers sent the court a document actually stating that they are trying to use the NDA to block its former CEO from starting work at Oracle.

It is clear that given this type of logic in their statement to the court that they were well aware that under no circumstances could they win the process they had undertaken in California. It was apparent by the very ostentatious character of the presentation of the legal attack, not the attack in and of itself ... Respectively, three business days after filing suit in a court HP drops fight to block Hurd's Oracle hire:

HP reached a settlement Monday with its former CEO that requires him to relinquish about \$14 million in stock in exchange for the all-clear to work for rival Oracle. The truce ends two weeks of uncertainty over whether HP, the world's biggest technology company, would drag out its lawsuit against Mark Hurd and try to cripple him in his new job leading Oracle's fight against HP. The deal lets HP save face over the handling of Hurd's ouster. It also removes the specter of a long court battle over whether Hurd, with his trove of secrets about HP, could be barred from working at Oracle as a co-president, reporting to Oracle's CEO Larry Ellison.

http://www.usatoday.com/tech/news/2010-09-21-hp-hurd_N.htm

"*The deal lets HP save face over the handling of Hurd's ouster*" and that was a real goal of the HP's lawsuit -- merely this and nothing more.

The company employee most knowledgeable about all HP secrets leaves to work for its competitor, and as it turns out once again, nobody was able to prevent him from doing this, and even more - he was even generously rewarded with a severance payment totaling about \$20 million (he received upon signing another NDA when departing HP about \$36 million, and then returned to HP about \$15 of these \$36 million).

In other words, the "[Hurd Saga](#)" was another convincing illustration that it is almost impossible in California, even by relying on the NDA, to legally prevent the transition of a Silicon Valley employee to any lawful job, including even a job for a direct competitor of his former employer.

It is noteworthy in the context being discussed as well as the following circumstance. In contrast to the absolute majority of employees of the Silicon Valley companies who routinely sign the NDA as just one of many documents upon being hired (without any additional financial compensation), Hurd signed his own NDAs in exchange for very significant remuneration in terms of money for his signature, which usually further enhances the guilt of the offender of such an agreement. And nevertheless it was clear to the parties to the conflict, which arose when it became known that Hurd was leaving to work for HP's competitor, from the very beginning that any attempt to legally prevent the transition of the HP CEO to work at Oracle would be absolutely futile in a California court ...

Does all the aforementioned mean that the NDA in no way restrict the behavior of law-abiding citizens in the California?

No, of course, this is not so. As was already stipulated above, at the very beginning of this report, the NDA is practically void in the Valley in any situation where it could prove an obstacle for transition of an employee from one work place to another. But only just. In all other cases, in no way related to the process of transition of an employee from one company, NDA also effectively protects the confidentiality of information, which is shared with someone in California, as in any other place in the U.S.

Why was the law that enabled Silicon Valley's successful development passed all the way back in 1872 and only in the state of California?

In order to understand why it was in this time and place - California, 1872 - and not in any other state or point in time in American history that lawmakers would have the inclination to apply this particular legal framework to these particular labor disputes, it is worth examining exactly how California came to be the 31st state of the USA.

After some examination of various analogous moments in history, it becomes apparent that Silicon Valley was essentially built on groundwork laid by its first inhabitants - the gold seekers.



To get from El Dorado County to Silicon Valley by car takes two or three hours, but 100 years went by between the construction of the first El Dorado County Mining Camps (1848-1851) and the arrival of first high-tech firms at Stanford University industrial park.

The aforementioned law was motivated by a desire to minimize the number of shootings in and around the gold mines of El Dorado and other California areas. If the fortune-seeker, venturesome by nature and armed to the teeth, was unable to resolve a dispute in his favor in a court of law, then it is obvious how and with what tools such conflicts were likely to be settled in the Wild West.

Thus, it was necessary to create a law that would dramatically reduce the likelihood of disputants resorting to violence to resolve the potentially quite dramatic misunderstandings between gold mine owners and hired hands.



Conflicts between mine owners - between owners of neighboring claims, for example - also had the potential to turn violent. However, such occurrences can be assumed to be rather rare when we take into account the fact that the mine owners were grossly outnumbered by their employees.

Most importantly, in comparison to their employees, the owner of a registered gold claim generally had much more motivation to do everything in their power to ensure that all business problems were resolved in a court of law.

This is one of many reasons that California's lawmakers developed a legal framework that protected the rights of the employee by guaranteeing access to the most peaceful of all methods for resolving any problem he might have with the owner of the enterprise - to turn and walk away, to leave for any of the surrounding gold claims and the potential new employers they promised.

Again - and this is vital for a proper understanding of the topic - it was necessary to pass a law guaranteeing workers of any level or position the right to leave an employer and then and there (without any legal obstacles) find a position anywhere he or she wanted, even joining the former employer's competition in a neighboring mine.

For hired help bound to an employer by some version of a "contract of non-competition", or any other similar hiring agreement, all too often the only alternative was to let the offences and injustices accumulate until the moment when one's hand, of its own accord, started creeping towards the holster...

As exploitation of the gold mines grew more and more intense, and more and more gold mines were exhausted and subsequently abandoned. By the 20th century, the law appeared to lawyers to be some sort of legal anachronism, and it was unclear why California should so dramatically differ from all the other states in the union.

Moves to revise this law were periodically proposed, but without much enthusiasm. The fact is that many states to this day preserve a great number of wildly diverse - even exotic - laws that have long since lost their applicability and are no longer used in modern legal practice.

Such a fate might have met this section of California's 1872 Civil Code, but the San Francisco Bay Area - geographically speaking quite close to El Dorado's now long-abandoned mines - became the driving force behind California's next Gold Rush.

People from all over the world were once again drawn to America's Golden State, to another new enterprise - the apparently bottomless gold mines of profits to be found in the high technology expansion at the state's main technology park.

Upon Silicon Valley's rise, this 1872 law ended nearly a century of obsolescence to acquire crucial significance in California, although in a significantly different context than that in which it had originally been

written. It quickly turned out to be the most effective catalyst for the research technology rush that steadily, year by year, turned Stanford's technology park into such a unique hotspot for high technology development in the United States

Shockley touches off the chain reaction leading to Silicon Valley's formation

In the early 1950s, the industrial park on land adjacent to Stanford University in California was one of many such parks in the country and was far from being the most notable.

The spark that set off the explosive boom of "Silicon startups" in Stanford Industrial Park was a personal dispute in 1957 between employees of Shockley Semiconductor and the company's namesake and founder, Nobel laureate and co-inventor of the transistor William Shockley.

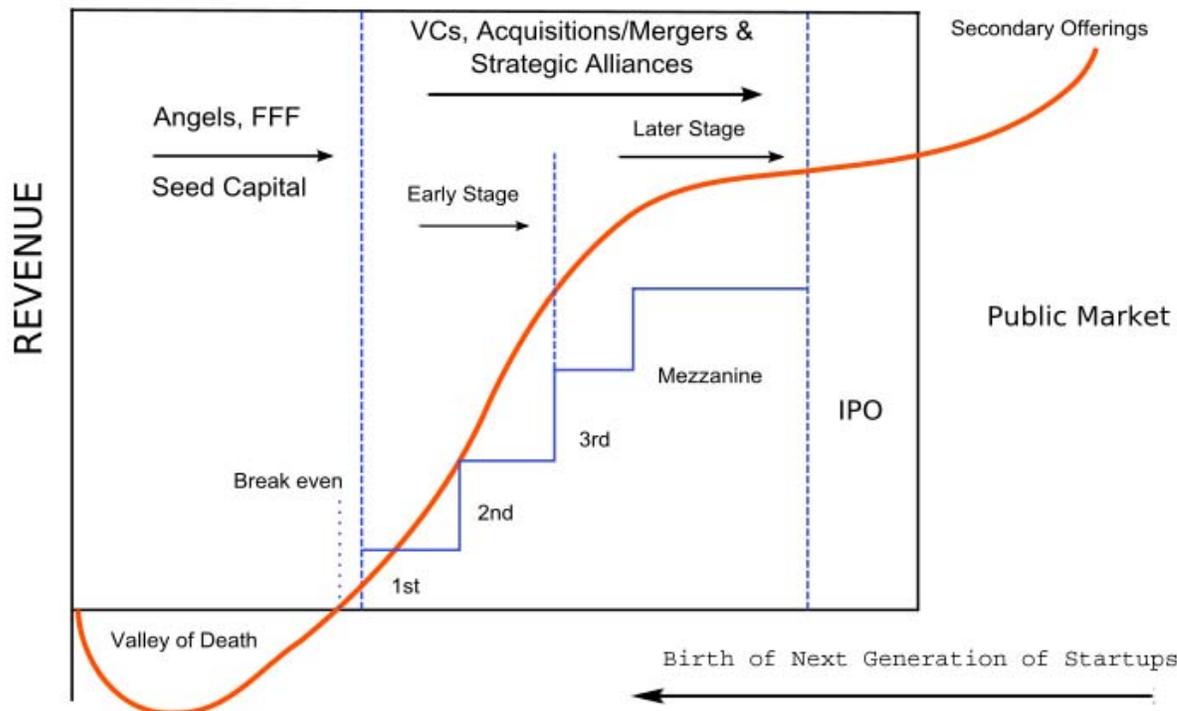
As is likely true for the majority of outstanding scientists, Shockley was not known for his easygoing nature. As a result of this ordinary "production disagreement", eight of his leading employees decided to quit to form their own firm, in direct competition with Shockley.

Shockley had only just formed his company "from scratch" a year earlier by hiring top performers from various universities, and this mutinous group of his former "students" formed Fairchild Semiconductor immediately following their departure, having received a USD 1.5 million investment from the New York company Fairchild Camera and Instrument.

After several years, Fairchild gained its footing, becoming a formidable presence in this sector. Its founders began to leave to start companies based on their own, latest ideas and were followed on this path by their own former leading employees. Thus, these generations of Silicon Valley's latter-day pioneers are called "Fairchildren".

Then began a sort of "nuclear fission" in personnel, where another crop of companies formed around the Fairchildren, and those leaving invited their coworkers along, who then went on to do the same... The process gained momentum and what had once began in a Stanford's research park became a veritable startup avalanche...

Startup Lifecycle



One of the most well-known of startups appeared in the earliest stages of this chain reaction. Gordon Moore and Robert Noyce, two of Shockley's "Traitorous Eight", left Fairchild Semiconductor to form Intel.

Thus, over the course of just 20 years, a mere eight of Shockley's former employees gave forth 65 new enterprises, which then went on to do the same...

The aforementioned "personal conflict" at Shockley Semiconductor can be found at the center of practically any study of the history of Silicon Valley. It is surprising that these histories fail to note that it was only in California that this conflict - a perfectly ordinary disagreement, easily found in any industrial park all across America - inspired this unique chain reaction and gave rise to the next generation of startups, who then went on to divide and reproduce, and so on in this sort of nuclear fission.

We again take up this question, critically important as it is in understanding the reasons that only California's Silicon Valley hosted such a boom. Can it be that there had never been a personal flare-up of this kind, or even on a much greater scale, in all the other high tech companies, long-established in various industrial parks around the country?

Why was Stanford's Research Park only host to Silicon Valley's growth and development?

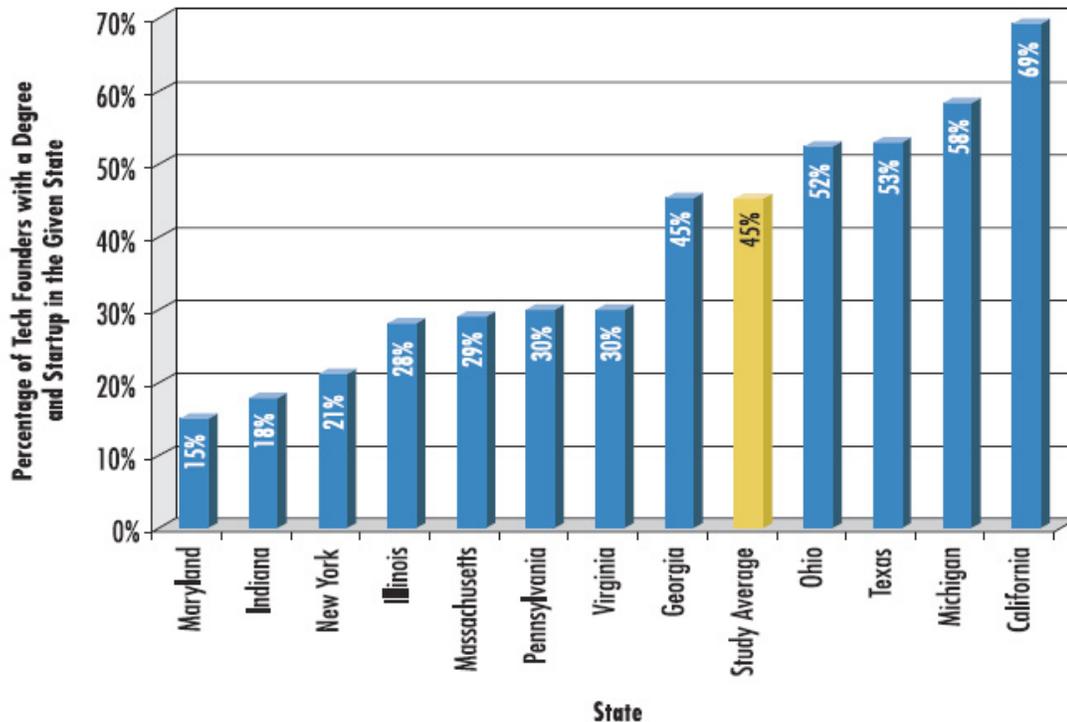
Conflicts between creative teams and their veteran leadership were of course common in all American industrial parks, both before and after the aforementioned disagreement at Shockley. However, the crux of the matter is that, with the exception of California, all across America there are many different agreements signed between business owners and their employees that restrict the employee's right to quit and join competing firms or, even worse, go on to create his or her own company in direct competition with their former employer.

These non-compete agreements, which new recruits are required to sign (generally in the form of NCAs or NCA & NDAs) play the role of graphite rods in a nuclear reactor, slowing the chain reaction of creation of new startups all over America.

Thus it was that these decelerators in the process of creating companies to compete with the industry's established figures were legally withdrawn from the nuclear reactor of innovations in what would many years later become Stanford Research Park.

As was noted earlier, it was in California (and only in California) that a particular law emerged in 1872 that defended the employee's freedom of movement, the right to leave his or her employer at any moment, even to immediately go to work in direct competition with their former employer or to create a competing firm on their own.

Percentage of U.S. Tech Founders Who Established a Startup in the Same State in Which They Received a Degree



Source: "Education and Tech Entrepreneurship" by Vivek Wadhwa, Richard Freeman, Ben Rissing. Ewing Marion Kauffman Foundation, 2008

Timeline of events in the 100 years leading to Silicon Valley's creation

1848 - The first year of the Gold Rush. All over the world spread rumors of fabulous gold reserves discovered on the west coast of North America. Gold was discovered in El Dorado County, not far from Sacramento, the current state capital of California, and "El Dorado" entered the vocabulary of treasure-seekers around the world.

1849 - The first tens of thousands of the more adventurous of gold-seekers from all over America arrive in California, in what was at that time still a territory of Mexico. Not counting the Native Americans, only about 2000 Americans lived there at the time... Thus, the first tens of thousands of California gold seekers went down in history as the "Forty-niners".

1850 - California gains statehood, becomes known as "The Golden State" (California is also known variously as The Land of Milk and Honey, The El Dorado State, and The Grape State).

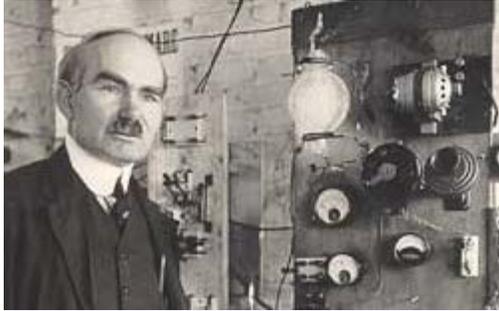
1853 - The number of new arrivals to California exceeds 300 thousand people...

1872 - As a result of the state's experience during the regulation of the more violent of business disagreements during the first two decades of the state's existence (as noted earlier, this experience was accrued particularly quickly in the first days of the Gold Rush, when the groundwork was laid for California's government) the California Civil Code was adopted, in which the state's lawmakers included a special provision guaranteeing the freedom of employees in the state of California to choose their own place of work.

1891 - Stanford University is founded by former governor of California Leland Stanford.

1910 - Lee de Forest arrives in San Francisco Bay Area. He was by then already well-known as the inventor of the triode (US Patent 879532, February 1908). Of all the influential inventions in the development of

electronics and radio technology in the first half of the 20th century, the triode turned out to be the most critical component in the development of transcontinental telephone communications, radio, television, radar and early digital electronics.



Lee De Forest, Palo Alto, 1915

Lee de Forest's arrival in what would later become Silicon Valley began the process of transformation that turned this area into one of the world's central confluences of talent and professional knowledge in electronics. A couple of years later Silicon Valley's development got its first big boost from a series of important defense contracts related to World War I, reaching critical mass 40 years later, in the first decade following World War II.

1951 - Stanford Industrial Park is established as a high tech center by businesses working in close partnership with the university. Among the first companies to rent space in the Park were Varian Associates, General Electric, and Eastman Kodak.

1956 - William Shockley, co-inventor of the semiconductor triode arrived in San Francisco Bay Area and founds Shockley Semiconductor as a division of Beckman Instruments in Mountain View. On the road to Silicon Valley's development, the baton was thus passed from Lee de Forest, inventor of the vacuum tube triode, to Shockley, inventor of the solid-state triode - transistor.



The Nobel Prize in Physics 1956 was awarded jointly to William Bradford Shockley, John Bardeen and Walter Houser Brattain *"for their researches on semiconductors and their discovery of the transistor effect"*.

1957 - The "Traitorous Eight" leave Shockley Semiconductor to found Fairchild Semiconductor.



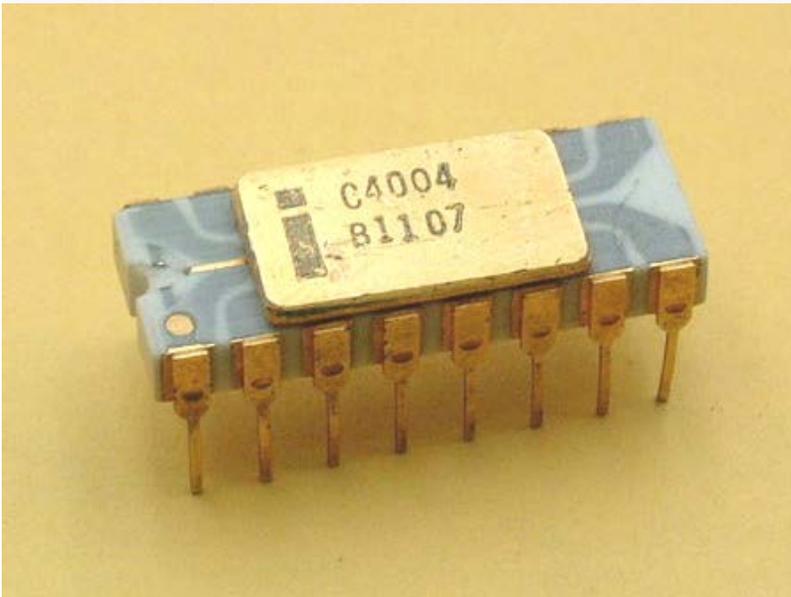
Courtesy of Special Collections, Stanford University Libraries

Fairchild Semiconductor's founders, clockwise from far left: [Jean Hoerni](#), [Julius Blank](#), [Victor Grinich](#), [Eugene Kleiner](#), [Gordon Moore](#), [Sheldon Roberts](#), [Jay Last](#), [Robert Noyce](#).

1968 - Gordon Moore and Robert Noyce leave Fairchild Semiconductor to found Intel:



1971 - Intel created the [world's first microprocessor: the Intel 4004](#):



... term 'Silicon Valley' by the [press](#)

1872 Law's Weight in Gold

The amount of gold extracted per year during the Gold Rush amounted to 80 million of that period's dollars, worth about \$2 billion in today's money.

It might be possible to compare this figure with the "gold mines" discovered by the companies operating in Silicon Valley, which were able to expand on the first generation of startups only by provision of this 1872 law.

For example, the New York Times described gold-rushing pioneer Apple Computer's financial impact as "the iPhone Gold Rush". Apple's sales in 2010 were valued at around 60 billion USD.

One might also take into account the "gold" extracted by Intel, which - like many other Silicon Valley startups

- would not have got its start had not the 19th century California Gold Rush given rise to the aforementioned 1872 law. Intel's patented "silicon gold mine" produced about 40 billion dollars of sales this year.

This modern-day gold extraction, legally speaking a direct result of a law dating back to the California Gold Rush 100 years previous, has brought financial gain on the order of hundreds of billions of dollars, earned by tens of thousands of high tech companies in Silicon Valley, all mining the seemingly bottomless gold reserves of information technology.

See also: [NDA Experiment Set up by Mark Hurd](#) by Gregory Gromov

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