

CAN SILICON VALLEY BE CLONED AROUND THE COUNTRY ... THE WORLD? THE METRICS

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Venture Capital activity has historically clustered in select regions in the U.S. and been extraordinarily resistant to most efforts by non-favored states and regions to migrate the activity and induce it to flourish outside of the Bay area, Eastern Massachusetts and a small handful of other localities. There are reasons for this phenomenon, which the following article outlines and analyzes.

The venture capital process, before it was so labeled, has existed for centuries, antedating the first public venture fund: American Research & Development (“AR&D”). It is as old as commercial society itself. In the early twentieth century, for example, Vanderbilt family interests financed Juan Trippe in the organization of Pan American Airways, Henry Ford was financed by Alexander Malcolmson, and Captain Eddie Rickenbacker was able to organize Eastern Airlines with backing from the Rockefellers. However, the era of professionally managed venture capital—pools of money contributed by unrelated investors, and organized into separate legal entities, managed by experts according to stated objectives, set forth in a contract between managers and investors, describing a structured activity, which conform to definite (albeit changing) patterns and rules—is a process that dates from the organization of AR&D.

Since the most celebrated rewards in the past have generally accrued to investments involving advances in science and technology to exploit new markets, traditional venture-capital investment is often thought of as synonymous with high-tech start-ups. However, that is not an accurate outer boundary, even in the start-up phase. For example, the technology of one of the great venture-capital winners—Federal Express—is as old as the Pony Express. But, whether high or low-tech, the traditional venture capitalist thrives when the companies in which she invests have an advantage over potential competition in a defined segment of the market, often referred to as a “niche.” The product or service is as differentiated as possible, not a “commodity.” Exploitation of scientific and technological breakdowns has historically been a principal way (but not the only way) for

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emerging companies to differentiate themselves from their more mature and better-financed competitors.

The good news is that opportunities for venture-backed companies to capitalize on scientific and technological innovations are truly breathtaking. Given only the development of therapeutics currently in the pipeline, and absent a man-made catastrophe on the planet, I confidently predict that my grandchildren, ranging in age from three to fifteen, are odds-on to live full and productive lives well past the century mark. Indeed, in the not-too-distant future, mankind will have the opportunity to live just this side of immortality. Our ability to assimilate, process, analyze, and disseminate information will continue to grow in accordance with a variant of Moore's Law: quantum computing takes hold and ultimately, software catches up with the extraordinary possibilities opened by today's hardware. Further, the healthcare crisis will wind up as a footnote in history as drugs become available to correct substance abuse, obesity, sexually transmitted diseases, and the rest of the Seven Deadly Sins. This will result in chronically sick patients—the twenty percent of the population which consumes eighty percent of our healthcare dollars. Healthcare “connectivity” will finally result in huge savings and dramatically improved outcomes. Healthcare providers, in terms of information technology, are roughly where the banking industry was twenty-five years ago: all paper. Sooner or later, we will all possess smart cards which we can input on the way to the ER or the doctor's office; at last, the Massachusetts General Hospital will know as much about the patient's medical and financial history as Wal-Mart does about her consumption habits. Distance learning is on its way to becoming an ubiquitous reality. Consider the benefits when and as millions of Africans earn and deploy advanced degrees in business from Cornell, nursing from Johns Hopkins, and computer science from Cal Tech and MIT. All this would be courtesy of asynchronous and synchronous streaming video and self paced tutorials. Even advanced diagnostics and therapeutics are available worldwide, as U.S. hospital “brands” expand to new markets. Every Ugandan peasant will be within two hours drive of a diagnostic clinic staffed by Johns Hopkins.

The point of this recitation, which only scratches the surface of the array of possibilities, is to highlight the life-or-death seriousness of the topic. However, despite Tom Friedman's theorem, the earth is *not* flat¹ in the sense that he uses the phrase. The venture capital experience in the U.S. proves it. The discipline started officially with the creation of AR&D in

¹ The ‘flatness’ Friedman discusses in his popular book, *The World is Flat*, refers to global leveling of tech-centric economic activity amongst the traditional leader, the U.S., and upstarts like India, with its sophisticated information technology industry in, e.g., Bangalore. THOMAS FRIEDMAN, *THE WORLD IS FLAT* (2005).

Boston. A coincident phenomenon occurred in Northern California, Santa Clara County, centered around the “Farm,” as the Stanford Campus was then (and is now) called. What is extraordinary about this industry is that by and large (and with some exceptions but such that would not falsify my general proposition) the centers of this enormously productive economic activity have remained in two areas: inside Route 495 around Boston and from San Jose north to San Francisco. Even when you get outside the magic circle, the activity is still selectively concentrated—with few exceptions (e.g. Austin, Texas) entirely in and around urban areas, in the Blue States: New York, California, the East Coast from New England to Florida, and in the interior: Denver, Minneapolis, and Ann Arbor. In the last decade, according to a Milken Institute study, 62.5 percent of venture capital investments went to a handful of metropolitan Standard Mean Statistical Areas (“SMSA”s). “... 25 states in the bottom half of the rankings received only 3.5 percent of all venture capital investments—despite having 20.0 percent of the country’s total number of establishments.”²

The study begs the question: *why* does venture capital activity consistently focus on a small number of discrete locations in the U.S.? VCs tend to cluster around university towns, but there are distinguished universities throughout George W. Bush country. What’s holding back Oklahoma, Tennessee, South Carolina, Kansas, etc.? If we can answer that question, perhaps there is a tip for regions and states seeking to nucleate gazelles.³

If one analyzes the Silicon Valley clones, one common theme, emblematic of these venture hot spots, is cultural: the engineers of the process, the VCs and the entrepreneurs, are largely cosmopolitan optimists. If the recurring cultural contest amongst the tribes on this planet is between Heaven vs. Utopia, the typical venture capital participants are Utopians: believers in the directional momentum of the world observed by Robert Wright in *Non Zero*.⁴ While conceivably a correlative *versus* a causative, it is likely that regions dominated by religious fundamentalists are incapable of fostering and incubating venture-backed gazelles in sufficient number to entail meaningful impact. Hostility to science⁵ is an important negative.⁶

² Brian Schmidt, *Traditional Venture Capital Missing in Most of the Country*, 8 VENTURES, 4 (2002).

³ “Nucleate” describes the process in nature which rules that the 101st iteration of an event or item is exponentially easier to achieve than the third; a “gazelle” is a venture-backed company opting to leap from the “embryo to the IPO.”

⁴ ROBERT WRIGHT, *NON ZERO: THE LOGIC OF HUMAN DESTINY* (2000)

⁵ The Creationist vs. science “Methodists” (Mencken’s label) debates focus on evolutionary “theory” (all scientific propositions are either hypotheses or theories) because they are incapable (as am I) of understanding the knockout punches science is delivering to the Gaia Theory through the intricacies of quantum mechanics; Creationists think they understand Darwin’s insights, and so they attack, all the while ignoring Einstein, Hawking, *et al.*

Let us express this another way, have a little fun (and parenthetically exceed the limits of my expertise)—meaning a meander into the relationship between Claude Shannon’s information theories and Clausius’ Second Law of Thermodynamics—a/k/a entropy. The point is that in certain communities all information is revealed (“God said it, I believe it, that settles it”), and therefore extant in a given society since its inception 2000 years ago. There is no new input into what amounts to a closed system. Accordingly, the information *and* the energy in the community descend into maximum entropy, meaning that the system has:

[L]ost its contrasts, its orderly arrangement, which gave it a potential for performing some definite task. It has lost its value. One region of the system is the same as any other region, and this uniformity renders it incapable of accomplishing anything interesting from a human point of view. The whirlwind of change beneath the surface does not produce any appreciable change at the surface itself,

⁶ See Sharon Begley, *U.S. Science Research is in Danger of Losing Place on Cutting Edge*, WALL ST. J., Aug. 12, 2005, at B1. “Allowing a minority opinion to stifle research is only one symptom of politics undermining science. Some appointees to federal scientific advisory panels have been chosen for their ideology rather than their expertise; staffers with no research credentials alter the scientific (not only the policy) content of reports on climate change. Politicians’ attacks on the science of evolution continue, even though ‘intelligence design’ may make a fascinating lesson for a philosophy class, but is not biology.” *Id.*

The article continues:

“This anti-scientism couldn’t be more damaging to young people contemplating devoting their life to research,” says neuroscientist Ira Black, whose own stem-cell institute in New Jersey has been stalled by political red tape. “The sense of opportunity that was always predominant in the U.S. now lies elsewhere.”

Since scientific innovation has long fueled economic growth, there is a danger “that the U.S. will no longer be dominant in innovation,” says G. Wayne Clough, president of the Georgia Institute of Technology and a member of the President’s Council of Advisors on Science and Technology. “A larger number of international patents are being obtained overseas, R&D facilities are moving overseas. If we are not innovating here, the economic benefits will go elsewhere, too.”

An interesting battle will come when a lab in Singapore or Seoul or Britain uses embryonic stem cells to develop a therapy for diabetes or Parkinson’s or heart disease. Its use in the U.S. would require approval by the Food and Drug Administration. Will opponents of stem-cell research demand that the FDA reject it and deprive patients of their only hope?

Id.

but merely insures that there is more of the same, for as long as someone is around to observe.⁷

Note a critically important caveat. The thesis is not that economic development—*any* type of economic development—is a breeding ground for the Silicon Valley experience. Take development largely dependent on labor arbitrage and/or the exploitation of natural resources. A recent essay in *Foreign Affairs* cites the ability of authoritarian regimes, e.g., China and Russia, to promote *economic coordination* while limiting *strategic coordination*, i.e., blocking the use of unapproved internet connections and other IT means around which political opposition could coalesce and build strength.⁸ However, growth through venture capital does not occur unless *strategic coordination* flourishes. The offshore paradigms for venture miracle are nations such as Israel, India, and Ireland—genuine, non-theocratic democracies. Many argue there is more freedom of inquiry and debate in Israel than in, say Kansas.

A significant legal point favoring California is that covenants not to compete are unenforceable and have been throughout the period we are examining. As Ron Gilson pointed out some years ago, the California ban freed the employees of Hewlett Packard to split off and organize firms on their own—Hewlett Packard as the mother ship and many of the issue thereof becoming major public venture-backed companies in their own right. In other areas of the country, including Massachusetts, the courts were much more sympathetic to the employers, and it was a good deal trickier to emigrate from Digital or Data General and to find a firm in the same line of business. Given nucleation—“them that has gits”—the alumni of Hewlett Packard and other pioneer Bay area firms produced exponential growth. Hewlett Packard’s alumni spread out across the region and multiplied the uses of the Hewlett Packard’s core technology by many orders of magnitude.

Next, as a first cousin of the point made earlier, entrepreneurs and venture capitalists like to set up shop in areas where many other entrepreneurs and venture capitalists have already congregated. Again, nucleation—but expressed as a function of lifestyle preferences. The educational institutions in this respect are not only the major research generating universities, Stanford, Berkeley, MIT, Harvard, but interestingly enough, the public secondary and high schools. Parents, from time immemorial, opt to locate in areas where they feel their children will get a quality education. “Quality” in this respect being intellectually stimulating, rigorous, and supportive of the type of free inquiry which energizes the

⁷ JEREMY CAMPBELL, GRAMMATICAL MAN: INFORMATION, ENTROPY, LANGUAGE AND LIFE 34 (1982).

⁸ Bruce Bueno de Mesquita & George W. Downs, *Development and Democracy*, FOREIGN AFFAIRS, Sept. - Oct. 2005, at 77.

tech-based businesses the parents are pushing along the trip from the embryo to the IPO. In concrete terms, this means Palo Alto High School, Wellesley High School, The Boston Latin School, Roxbury Latin, and Bronx Science. If (and again I am picking on Kansas) there is a raging debate in the public school system in a given region about intelligent design versus evolution, it is (fortunately or unfortunately depending on how you look at it) a signal to the parents to find some other area of the country in which their children are scheduled to be educated. I do not mean to suggest that venture capitalists are any more or less religious in the broad sense of the word than the Kansas School Board; however, the overwhelming majority of the VCs deem themselves liberated from cant and catechisms. If there is a philosopher on religious issues admired by the VCs, it is Spinoza. If the issue has to do with the lessons in the Christian Bible, the preference is for the Jefferson Bible.

Parenthetically, a quick mention of government support. Many regions of this country—most with less than outstanding success—have attempted to use government assistance to incubate the Silicon Valley type phenomenon with dollars. To be sure, government assistance (and more importantly enlightened government regulation) are critical to the venture environment and its growth. Thus, on the federal level (and it is the federal level that counts) we have been extraordinarily lucky to have the benefit of government actions which are obscure to those outside the inner circle but have been critically important in fostering venture-backed companies. This includes the lowering of the capital gains tax in 1973; the Bayh Dole legislation; the Plan Asset Regulation; and Rev. Proc. 97-23. However these are federal policies, and they are neutral vis-à-vis one region versus another in the United States. What then accounts for the regional disparity I am talking about?

It is not, interestingly enough, low state and municipal taxes. The venture hot spots—Massachusetts, California, and New York—impose relatively high tax rates on income and gains. One would think that that fact alone would drive tech-based industries away. Although county and municipal taxes have attracted heavy industry—for example, automobile plants, paper companies, and machine tools—to low tax jurisdictions, the effect on venture-backed, tech-based companies has been largely imperceptible. To be sure, direct government assistance can be important. Thus, Small Business Innovation Research (“SBIR”) grants often prove to be critical elements in the growth curve of those companies which are favored. However, my understanding is SBIR grants are generally clustered in those zip codes where venture activity already exists. In other words, the rich get richer in the government grant game—again nucleation. If you get venture private activity going, then SBIR grants are frosting on the cake. If you do not, you are unlikely to attract eligible recipients of the same.

Another factor which favors the coastal states as a potential home for “Silicon Valley Lite” is curiously enough, expensive residential real estate. Home prices in the suburbs of Boston, the Peninsula, Westchester County, Southern Connecticut, and Northern New Jersey would seem to inhibit the entrepreneurial population; however, in my view the reverse is true. Expensive pieces of real estate make available a source of equity capital to the garage entrepreneur—the first player in the trip from the embryo to the IPO and obviously, a necessary (although not sufficient) player. A lot of start ups, some quite successful, have been funded by a second mortgage on the founder’s home; unsecured bank loans do not work very well for that purpose. They tend to require the payment at a time when the founder is still tinkering with the Beta test.

Yet another element favoring the coastal states is the presence of educated immigrants. In my venture capital classes at NYU, the census edged up well over the 80 percent mark in terms of non-residents of the United States: Chinese, Indian, Central European, Russian, and Turk. Many of the same are able to stay in the U.S. at the end of their schooling, and they add enormous impetus to the entrepreneurial process. A successful immigrant is by definition a risk taker. She is accustomed to starting out on a new journey, often with limited resources, and working doubly hard to make a successful life. What role could be more logical for budding founders and VCs?

Where does all this lead? I suggest it is not hard to do the math. If the regional policy is to attract a Silicon Valley epiphany, all the metrics have to be aligned. If so, nucleation is possible. If not, status quo.