

Where do \$1 billion companies grow? And what do regions do to foster them?

Summary

Innovation is a critical driver of economic growth and prosperity, and not surprisingly, countries around the world are expending considerable resources to help their companies innovate. Somewhat ironically, their efforts to foster innovation look strikingly similar with strategies mostly consisting of investing in R&D, particularly in the sciences and at universities, building technology transfer capabilities and establishing large pools of risk capital to accelerate the growth of dynamic startup enterprises in “high tech” fields like life sciences, information and communication technology, clean energy, etc. In short, most would seem to be trying to emulate Silicon Valley’s model of success.

Yet, given the Valley’s near unique set of assets (i.e., extremely high levels of education, world class universities, abundant venture capital, and a culture that celebrates risk and failure), one must wonder how replicable is this model? As Monitor Group sought to answer this question, we found the typical measures of innovation—e.g., R&D spend and patenting—prejudged the answer; with metrics like that, the only places that can get counted as innovative are those that follow the standard Silicon Valley model. The trouble is, many countries are not investing in innovation to generate patents, they are investing in innovation to generate innovative companies that grow rapidly and create a lot of high paying jobs along the way. Prosperity, not patents, is the point of innovation. To better measure what we all really care about, Monitor built our Billion Dollar Dataset, which consists of those firms in the world that grew from less than \$100M to greater than \$1B between 2000 and 2010.

The resulting population of 248 companies located around the world, from Brazil to Beijing, revealed tremendous insights. As we suspected, the magic of Silicon Valley has been scarcely repeated, and it does not appear to offer a particularly viable model for others. Outside of Southern California and the greater Boston metro, almost no one is starting and scaling tech companies via new research. That said, other countries and regions across the globe—in both developed and emerging markets—have seen success through innovation. But, and this is the critical point, there does not appear to be some alternative, non-Silicon Valley recipe to follow. We cannot offer another single path to innovation that replaces the current conventional wisdom. Rather, what we found is that places succeeded—whether intentionally or by accident—not by emulating others, but by leveraging their own unique resources and capabilities.



Introduction

As the stagnating effects of the last recession stretch into their fifth year, nations are more than ever striving to boost prosperity in this low growth era. Prosperity—a high and rising standard of living—depends upon firms’ ability to create more jobs and pay higher wages. Ultimately, more jobs and higher wages come to a country because companies in that country compete and win in the market place. To win, these companies cannot make the same goods and services with the same practices and processes year after year. They must constantly develop new business models and operating configurations to make different and better products and deliver them to customers through new channels and with a more robust experience. That is to say, they must innovate.

The Consensus Approach to Innovation

Not surprisingly, virtually every city, province, state, and nation around the world that we studied is seeking to foster a favorable environment to boost innovation. What is perhaps more surprising is that they are seeking to do so in basically the same way by carrying out some combination of (see Figure 1):

- *Investing in research:* Directly funding basic research at universities and government labs, creating tax credits or subsidies for corporate R&D, setting up specialized research centers;
- *Focusing on science and technology:* Regions generally target some combination of life sciences/biotech, ICT, nanotechnology, and clean/green technology industries;
- *Nurturing tech transfer:* Building university-industry research parks, increasing funding for tech transfer offices, incentivizing private sector collaboration with universities;
- *Improving access to financing:* Government-funded venture capital organization; “seed money” for early stage technology funds; bridging the “death valley” to commercial success;
- *Supporting start-up companies:* Sponsoring incubators, entrepreneurship training, and streamlining regulations on new business formation.

This set of activities bears striking resemblance to Silicon Valley’s recipe for innovation. The image of innovation in the Valley is that ideas—generally science/technology-based products like a drug, or device, or electronic gadget—are generated in a research lab, and then somehow transferred to the commercial environment. The transfer may happen when a technology transfer office licenses IP to a company, or perhaps an individual researcher is just hired away by the private sector. The more heroic image is of researchers, and even full research teams, spinning out of a research lab, and starting-up their own company. In many of these cases, an entrepreneur—often a “serial” one—then teams with the researchers. The final piece of the puzzle is capital. A venture capitalist or other investor provides the nascent company with the funding it requires to get on its feet and grow.

How widespread is this approach to fostering innovation? We chose a set of 15 countries—large and small, developed and emerging, East and West, North and South—and then took an inventory of their activities and policies aimed at driving innovation. The results were overwhelming:¹

- Ten of the countries studied either exactly or very closely resembled the Silicon Valley model. Seven were clearly deploying all five of the aforementioned criteria. An additional three countries fulfilled four of the criteria, differing only in their choice to support small and medium-sized enterprises (SMEs) either through direct funding or through improving the regulatory and operating environment for SMEs;
- Another three countries were deploying three of the five criteria, differing from the quintessential Silicon Valley model mainly by the fact that they were not explicitly focusing on helping start-up companies;
- Only two countries were pursuing a minority of the elements of the Silicon Valley approach.

Figure 1: The Consensus Approach to Innovation



It would seem that Silicon Valley has left a strong impression on policymakers' approach to fostering innovation. And yet, one has to wonder how replicable the model is. How many regions have one of the top five research universities in the world?² How many have a workforce in which over 20% hold an *advanced* degree (i.e., not just bachelor degrees, but masters and PhDs)? How many have abundant risk capital and a culture/history of entrepreneurship? How many regions can attract the mix of savvy technologists and progressive investors that have accumulated around Silicon Valley? More telling, how many have not just one or two of these necessary ingredients, but all of them at once? And if a region does not have all these ingredients, how long is it going to take to get them? One also has to wonder, is this the best model that can successfully foster innovation in my region?

An Alternative Approach to Innovation Regions

To get a handle on this question of alternative models, we wanted to look at successful innovation regions other than Silicon Valley. As we delved into the data intended to measure innovation progress, it became clear that the operational definition of innovation was heavily influenced by the Silicon Valley model. Most indices of regional innovation are heavily influenced by metrics such as R&D spend, patent filings, collaboration between universities and industry, the availability of scientists and engineers, and the presence of venture capital.³ The model is so pervasive it is literally defining what innovation is. Using these conventional metrics of innovation was only going to bias us toward finding more examples of the default model, therefore in order to discover new patterns we would need new metrics.

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Generally, economic developers invest in innovation as a means of promoting rapid growth of companies, which in turn leads to more jobs and higher wages. So, rather than looking at theorized intermediate indicators halfway between an idea and a big successful company, we choose to look directly for these innovative, rapidly growing companies. More precisely, we created a database of the companies in the world that grew from less than \$100M to greater than \$1B in terms of revenue or market cap during the period of 2000 to

2010⁴. The resulting set of 248 companies provides a unique basis for pattern recognition both confirming the striking success of the Silicon Valley model and the hypothesis that there are in fact alternative—and perhaps more region-appropriate—models of fostering regional innovation.

The first insight to emerge stood out starkly. It is no wonder that the Silicon Valley model has such a widespread following, for of the 248 companies Monitor studied, 30, or nearly one in eight, grew up in Silicon Valley (see Figure 2). The next two regions boasting anywhere near such a concentration of \$1B companies, Southern California (including Los Angeles and San Diego) (11) and Boston (9), also rely heavily on the Silicon Valley model. In Southern California, six of ten companies studied followed Silicon Valley—style innovation models. Boston area companies were yet more reliant on this model with eight of nine companies displaying Silicon Valley—style innovations. Certainly then, the Silicon Valley model has its merits, having produced nearly a fifth of the world's most productive, fast-growing firms for those firms studied. But, outside of three regions in North America, of those studied, no one seems to have been able to replicate this model, despite years of trying.

A second important take-away is that, aside from two regions in North America (regions which, incidentally, have many of the characteristics of Silicon Valley, like a well-educated workforce, world class research universities, and abundant VC), we found no other place that has successfully emulated the Silicon Valley model. For instance, Shanghai and Beijing each produced a good number of \$1 Billion companies (10 and 8, respectively), and most of these were in "high tech" industries, notably information technology. But virtually none of the companies started and grew via the Silicon Valley model (i.e., research driven start-ups spinning out of universities and labs). Rather, most were adaptations of well-known western businesses, such as Yahoo, YouTube, and the like (more on this below). New York City has eight \$1 billion companies in our dataset, but most of them were in industries like finance, real estate, or consumer goods. Houston has six firms in our dataset, five of which are in oil and gas, and only one of which is a research driven start-up (in renewable). London also had six companies on our list, but none fit the Silicon Valley pattern. In short, outside of three regions in North America—the San Francisco Bay Area, Southern California, and Greater Boston—of the regions we studied, we could not find any other region that has generated an abundance of innovative,

rapidly growing companies via the Silicon Valley approach to economic development.

Companies

Monitor conducted additional qualitative research on the firms in the database to begin to get to the heart of their individual stories. We determined to pursue in-depth, company-level research on 50 firms based outside of the regions already discussed (Silicon Valley, Boston, and Southern California). In selecting and analyzing these 50 companies, Monitor:

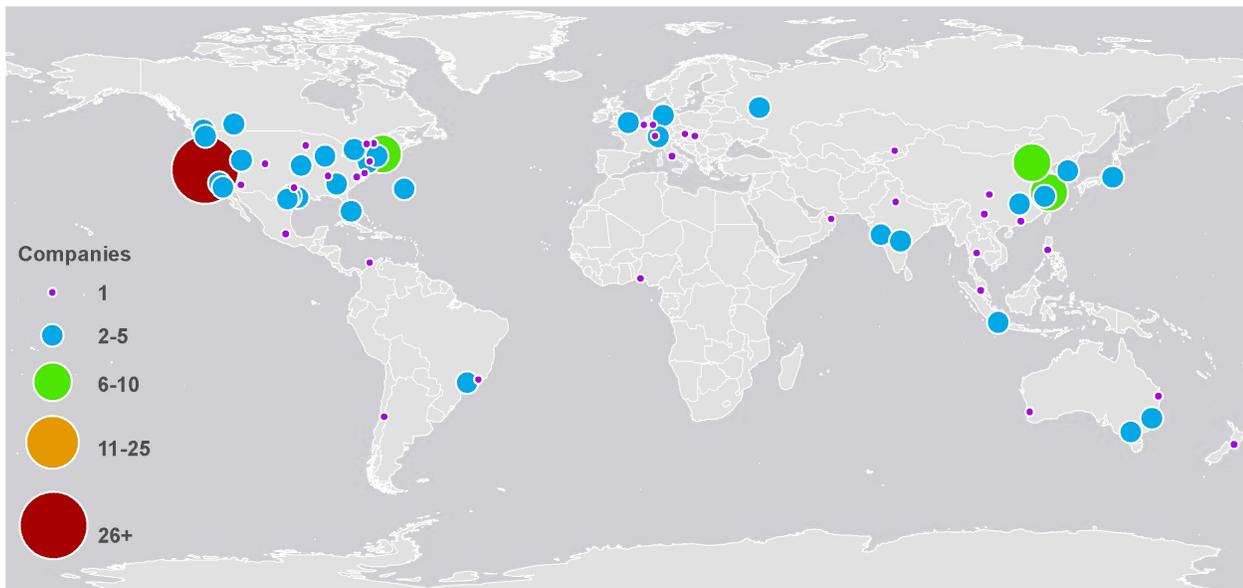
- Represented a wide range of geographic regions (e.g., Africa, South Asia, East Asia, South America);
- Skewed heavily away from the U.S. (about which much is already known);
- Strove to investigate the majority of the companies in regions that had a high concentration of innovative companies, for example Beijing, Shanghai, India, and the UK;
- Assessed only those firms where a critical mass of publicly available qualitative data existed;

Through our analysis of these 50 firms, we could not find a single clear-cut Silicon Valley-like company. Thus, while our case research on existing regional models of innovation demonstrates near ubiquity in pursuit and emulation of Silicon Valley, successful outcomes over the course of a decade as exhibited by firm-level analysis indicate the model has been far less effective elsewhere in the world.

A Look at Regional Alternatives

While Silicon Valley's concentration of companies is incomparable, we do see innovative \$1B companies all over the world.⁵ Beijing, with eight \$1B companies, was a close follower on our list of regions with high concentrations of innovative firms. Aside from the sheer concentration, Beijing is also notable for its surprising consistency of models employed to generate valuable firms. Based on the research six of eight firms in Beijing have taken Western business models and adapted them to the tastes and culture of the local Chinese market. This approach capitalizes upon Western companies' difficulty in entering the Chinese market, and presents firms with an opportunity to gain and sustain an edge through incremental local customization. Within just the \$1B company database, Wumart, Baidu, Netease, Qhioo, Sohu, and Youku bear striking resemblance to their Western counterparts not only in name but also business model. Wumart, which aspires to be the Walmart of China, has built a growing footprint in the retail space through smart operations improvements, sensitivity to local shopping tastes (such as whole raw chickens and turtles ready for slaughter), and format customizations. Baidu, a Chinese interpretation of Google, certainly boast strong software engineering talent but has flourished in part thanks to Google's unwillingness to operate according to Chinese censorship laws. And Youku, the Chinese version of YouTube, fulfills an especially valuable user-generated content provider role in a country in which state-run media has proven incapable of keeping up with the diverse tastes of its rapidly growing population of "netizens". While Beijing may not be notable for inventing once-in-a-generation innovations in the Silicon Valley sense, as a region it has proven adept at growing dynamic firms.

Figure 2: Location of all \$1B Companies Globally



Source: Monitor Group research

India, while often mentioned in the same BRIC breath as its neighbor, China, has also produced several \$1B companies but through entirely different means. Three of India's eight identified \$1B companies dedicate all or part of their operations to executing "Bottom of Pyramid" market strategies. The most literal translation of this strategy is embodied by SKS Microfinance, a microlender in India. SKS distributes small loans that begin at about \$40 to poor women so they can start and expand simple businesses and increase their incomes. Their micro-enterprises range from raising cows and goats in order to sell their milk, to opening a village tea stall. SKS also offers services such as micro-insurance to the poor. Founded in 1997, SKS quickly found the demand for their loans outstripped their non-profit operating model. In 2005 SKS converted to a for-profit non-banking financial company and in 2009 converted to a public limited company. The transition from an NGO to a public limited company has enabled SKS to achieve a growth trajectory virtually unprecedented in the micro-lending space to date. What began as a philanthropic mission has evolved into a massive for-profit lending institution that has raised numerous and increasingly large rounds of private equity investment.

We see similar bottom of the pyramid strategies across distinct industries in India. Shree Renuka Sugars, a seemingly unremarkable commodity producer of refined sugar and ethanol, at least partially owes its very existence to a similar bottom-of-the-pyramid market strategy. Shree Renuka is the product of one entrepreneur's vision to lead local farmers in the forming of a cooperative in order to raise the funds required to purchase an under-performing state-owned sugar refinery. IVRCL, one of India's largest infrastructure development firms, specializing in large scale municipal water projects, has diversified operations to include the building of residential complexes marketed to "brown collar" workers. Just as Chinese companies grew by adapting to local conditions, so too have these Indian companies, which saw a market opportunity in serving a very large and very poor population the needs of which were not being met through the usual mechanism of government programs for the poor.

While India and China provide fascinating examples of patterned firm growth in emerging markets, we also observed compelling and alternative models of innovation in more mature Western markets. With seven \$1B firms, the London/Southern England area represents not only a global financial capital but also a crucible of innovation. Whereas a lot of innovation efforts focus on developing better products, in London we have observed multiple examples of firms capitalizing on

innovations that specifically target the development of new market channels in pursuit of superior customer experiences. Four companies: M2 Europe, an electronic payment competitor to PayPal; Betfair Group, one of the world's largest internet betting exchanges; Ocado Group, an internet retailer specializing in groceries; and Rightmove, an online aggregator of real estate listings, each have staked their fortune to business model innovations devoid of laboratories and gained remarkable market traction without government funded R&D or startup incubation.

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In addition to the aforementioned regions that have demonstrated noteworthy concentrations of firms pursuing consistent innovation models, our analysis has revealed several additional, though less pronounced, patterns. Such models include:

- **Clusters:** Traded clusters play an integral part in any economic development agenda and further are capable of generating high growth companies. For example, an exporter of meat, prepared foods, and leather goods, was helped by the environment around Sao Paulo where agriculture, industrial food processing, educational focus and government support worked hand in hand.
- **Cost Optimization Innovation:** While developing markets are often seen as successful due to abundant, low-cost labor, we have observed instances of firms exploiting cost advantages in more sophisticated applications. Shanghai-based Wuxi Pharmatek operates as a pharmaceutical, biotechnology, and medical device research and development outsourcing company. The firm is a critical early stage pipeline partner to several large Western pharmaceutical producers able to provide comparably high-quality research at a lower cost than western-based competitors.
- **Consolidation and Professionalization:** Several regions around the globe have produced successful firms through the effective yet unremarkable process of consolidating and professionalizing underperforming assets. Central European Media

Enterprises Ltd. began with the launch of one television station in the Czech Republic in 1991. The company realized its potential in the substantial opportunity of the stagnant media market left in the wake of state control of media in the former Soviet Union. Through numerous relatively small acquisitions and refurbishments—including content platform upgrades and original programming—it has since grown to encompass several networks and platforms throughout the region.

- **Middle Class Capitalist:** One step up-market from the bottom-of-the-pyramid strategy, other regions have grown exclusively by targeting their growing middle class. Alliance Global Group is a Philippine holding company for numerous brands that include distilleries, middle-income residential real estate developers, McDonald’s franchises, and domestic resorts. With assets targeted directly at serving a growing middle class and communications and messaging resounding of local middle class values, Alliance thrives off being one of the first organizations in the country to introduce diverse business models targeted at a surging mid-market class of its own citizens.
- **Infrastructure for Growth:** It is fitting that many companies have grown to \$1B through the building of the infrastructure critical to the economic development of their region of domicile. These infrastructure-targeted firms have achieved success by developing technologies which, while not belonging to the ICT or life sciences families, require substantial scale and fixed assets and thereby erect significant barriers to competitive entry. Beijing Origin Water Technology Company, one such firm, provides municipal and industrial sewage treatment and recycling services primarily in China.

The common factor shared by all of these regions and their firms is that they are demonstrating effective models for growing firms that have little or nothing to do with the Silicon Valley paradigm.

The concentration of high-growth firms in India, China, and the UK demonstrate thriving alternative models of regional innovation. The various other less concentrated models we have observed, many of which are transpiring in developing markets such as Brazil and Eastern Europe, may serve as early examples of emerging regional innovation models. The common factor shared by all of these regions and their firms is that they are demonstrating effective models for growing firms that have little or nothing to do with the Silicon Valley paradigm.

General Lessons In Regional Innovation

The patterns observed in these countries and elsewhere around the globe corroborate the hypothesis that there are multiple, viable alternatives to the Silicon Valley model of innovation. From these patterns we are able to derive the following lessons:

- **Regions should build on their existing, differentiated strengths.** In the case of Silicon Valley, these were universities widely acknowledged as world class, a supporting infrastructure of venture finance and entrepreneurial talent. For most other places, some of these strengths like good universities will be the same but others will be different. Estonia, for example, boasts a little-known but burgeoning software engineering industry. This outpost of innovation is made possible in part by an aging legacy of Soviet-era programming combining with an entrepreneurial, “energetic, youthful society, which has embraced technology as the fastest way to catch up with the West.”⁶ These combined forces reflect unique Estonian characteristics and serve as a powerful vehicle for economic development. Each region should look to find its unique and differentiating strengths.

- **Innovation tends to happen in big, attractive-to-live-in cities.** The density of company headquarters is hard to ignore; each of the following major metropolitan areas boast at least three \$1B firms: San Francisco, Los Angeles, Boston, New York, Houston, Austin, Salt Lake City, Calgary, Vancouver, London, Shanghai, Beijing, Tokyo, Jakarta, and Mumbai. Dynamic firms are flourishing across the world's major cities, especially those that are globally recognized as an attractive destination—suggesting that policy makers might do well to invest in at least one major metropolis with significant potential in that regard.
- **Innovation is highly dependent on talent, scientific or otherwise.** Talent may be homegrown as we have witnessed in the formal and commercial education of the founders of two of India's most dynamic firms. In other cases, we observed entrepreneurial and managerial talent repatriating in their birth country or jumping from management positions in Western multinationals to launch or grow domestic firms. Regardless of where it comes from, high quality human talent was part of the story of many of our \$1B companies. Each region should have a talent strategy—and not just research talent—as part of its innovation strategy.
- **Innovation begets further innovation.** The fact that both Beijing and Shanghai each have multiple firms dedicated to “massively multiplayer” electronic game development is likely not a coincidence. Rather, these firms are the beneficiaries of cross-fertilization among creative people. This factor can be considered as a second generation success in regional clusters. The implication is that regions may need to make sufficiently sizeable up-front investments to get “over the hump” to self-reinforcing innovation.
- **Innovation requires local knowledge.** Innovative regional firms are often better than global competitors in understanding and addressing local market needs. In the B to B context, Ezra Holdings (Singapore) is an integrated offshore support solutions provider for the oil and gas industry, supporting mostly western-based developers that rely upon local servicing of their wells where cultural aspects often decide on success or failure. In the B to C context, Air Asia (Malaysia) operates a budget airline which has capitalized tremendously on luring in first-time flyers with very low prices.
- **Innovation can happen and does happen in almost any country.** While the US—and Silicon Valley in particular—represent a disproportionate share of the world's highest value companies, highly productive firms do form, through a variety of means, in all varieties of market circumstance.

Conclusion

While the Silicon Valley model of innovation represents one enviable model for success, it is not widely imitable. Nor, happily is it essential. This does not, however, mean that nations should give up on innovation as a means to drive economic development. Indeed, many places around the world have been highly innovative. It is just that their innovation has come about, not so much due to Silicon Valley-like assets, but rather due to the particular assets of their locality.

While there are some common themes to how nations have fostered innovation—such as talent, cultural customization, ease of doing business, clustering of like approaches, etc.—there is no secret sauce, no one recipe for all to follow. After all, if there were, we would not still be asking how to do it. Instead, places should find and follow their own path, one that acknowledges the inevitable weaknesses, finds those unique (or at least nearly unique) sources of strength, and defines a differentiated strategy. When you think about it, when it comes to innovation—to the search for something new, different, and better—isn't this the way it should be?

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ENDNOTES

1. Detailed data set is available on request from the authors
2. Actually, in 2010, according to the Academic Ranking of World Universities, only three regions did: greater Silicon Valley (UC Berkeley and Stanford), Route 128 around Boston (Harvard and MIT), and Southern England (University of Cambridge). Not sure you can classify Cambridge as being part of even greater London! Even going to the top 10 only adds three more regions: Los Angeles (Cal Tech), Chicago (University of Chicago), and New York (Columbia and Princeton). Oxford University (Southern England, again) rounds out the top 10.
3. Examples of innovation indices citing these types of metrics include the European Commission's Regional Innovation Scoreboard, the Council on Competitiveness' Guidebook for Measuring Regional Innovation, and the World Economic Forum's Innovation Pillar of the Global Competitiveness Index.
4. We excluded companies that reached this level via spin-off, merger, or privatization of state-owned assets—in other words all firms who did not grow under their own power.
5. We acknowledge limitations in our data set, which may understate the absolute number of companies which may be defined as innovative. Having set the bar firmly at \$1B, we have likely left out many large companies on the cusp of our criteria. For example, for every \$1B company, there are likely many more in the range of \$750M to \$1B. Furthermore, we have not scaled our criteria to account for market development or size variables such as GDP, a factor that may have impacted the footprint of developing markets. Nonetheless regions have emerged and have demonstrated interesting, viable alternative models to Silicon Valley.
6. http://www.nytimes.com/2005/12/13/technology/13skype.html?_r=1&pagewanted=all

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