



TECHNOLOGY ECOSYSTEM BEST PRACTICES REPORT

PREPARED BY: TECHNIACS

CHAPTER 2

OVERVIEW:

This report shares best practices from four U.S. cities that have been successful in technology economic development and creating and sustaining a technology ecosystem.

TABLE OF CONTENTS:

SF/SILICON VALLEY, CA	2.1
NEW YORK CITY, NY	2.5
CHICAGO, IL	2.9
BOULDER, CO	2.12



SF/BAY AREA, CA— SILICON VALLEY

Population: ~3M¹

INTRODUCTION:

Silicon Valley remains the epicenter of entrepreneurship and the gold standard for tech ecosystems. Silicon Valley's geographic boundaries vary but are generally defined as the following counties: Santa Clara County, San Mateo County, Alameda County, and Santa Cruz County.

HISTORY:

Silicon Valley is the product of more than 60 years of public and private investment. It grew organically with big forces at play, including Cold War spending patterns, large-scale migration and immigration, risk-tolerant capital, entrepreneurial leadership, etc. The U.S. government seeded innovation through research grants and defense contracts and much of that money flowed to research universities. Government-sponsored projects gave rise to many successful semiconductor companies and the rise of institutional venture capital, academic, and private sectors drove the region's success.²

Silicon Valley has experienced growth and success through multiple waves of tech innovations: electronics, semiconductors, computer hardware, software, biotech, internet, and cleantech.

SILICON VALLEY		
CATEGORY	INITIATIVE	DESCRIPTION
ACCESS TO WORKSPACES/ INCUBATORS/ ACCELERATORS	COWORKING SPACES	
	RocketSpace	www.rocket-space.com - Only caters to tech entrepreneurs
	PariSoma	www.parisoma.com
	Citizen Space	www.citizenspace.us
	NextSpace	www.nextspace.us
	Others	Hatchery SF, The HUB, Founders Den, Sandbox Suites, Founders Den
	INCUBATORS/ACCELERATORS	
	Plug & Play Tech Center	http://www.pluginandplaytechcenter.com/ : Helps over 300 startups from all over the world grow through strategic partnerships (including 170 investors), active International, University, and Corporate divisions, professional workspace/environment, networking events, educational programs, seminars, and a number of services including banking, accounting, funding, and M&A support
	500 Startups	www.500.co : Startup accelerator and seed fund founded in 2010 by Dave McClure; Provides early-stage internet companies with mentors, workspace, access to founders, and \$10k-\$250K funding
	Y Combinator	www.ycombinator.com : Founded in 2005 by Paul Graham; Runs two 3-mo funding cycles/year; Invests an average of \$18k twice/year in a large number of startups; Each cycle culminates in Demo Day, where startups pitch/present to investors
	The Founder Institute	www.fi.co : Founded by Adeo Ressi in 2009; Global network of startups and mentors that help tech entrepreneurs via a 4-month idea-stage incubator program
	ACCESS TO CAPITAL	KickLabs
AngelPad		www.angelpad.org : A 10-week extensive mentorship program founded by ex-Googleers to help tech startups attract seed funding and grow; office space provided
Lester Center for Entrepreneurship		http://entrepreneurship.berkeley.edu/resources/general.html UC Berkeley portal for entrepreneurial support
QB3 Garage		http://qb3.org/startups/qb3-garage : Research facilities at UC Berkeley, UC Santa Cruz, and UCSF; Education/training in quantitative biosciences; The InnoLab helps researchers commercialize scientific discoveries and supports the Bay Area's commercial life-science ecosystem
Others		Dog Patch Labs, I/O Ventures, La Cocina, Greenstart, Lightspeed Summer Fellowship
ACCESS TO NETWORKS	Venture Capital Firms	Accel Partners, Benchmark Capital, Greylock Partners, Khosla Ventures, Kleiner Perkins Caufield & Byers, SV Angel, Draper Fisher Jurvetson, Lightspeed Ventures, Menlo Ventures, Sequoia Capital, Andreessen Horowitz, Mayfield Fund, Matrix Partners
	Corporate Funds	Google Ventures, Applied Ventures, Intel Capital
	AngelList	www.angel.co : A curated list of angel investors; Connects startups to a network of early stage investors
COMPETITIONS/ EVENTS	Meetups/User Groups	SF New Tech, Silicon Valley New Tech, SF Beta, SF NetSquared, SF Ruby Meetup Group, SF Android User Group, SF and Silicon Valley Entrepreneur Meetup, Designers & Geeks, FailCon, Hacks and Hackers
	Web 2.0 Expo & Web 2.0 Summit	www.web2expo.com : Co-Produced by O'Reilly Media, this annual conference showcases the latest Web 2.0 business models and brings together Web 2.0 communities; held in SF /NY www.web2summit.com : Annual conference about the Web's future and how the tools and principles of Web 2.0 are impacting businesses
	Where Conference	www.whereconf.com : Produced by O'Reilly Media, this annual conference brings together developers building location-aware technology with the businesses and entrepreneurs that need location apps, platforms, and hardware
	Tech Crunch Disrupt	www.disrupt.techcrunch.com : Annual conference produced by TechCrunch, a web publication profiling startups, products, and websites and offering tech news and analysis
	MacWorld	www.macworld.com : Annual tradeshow in January dedicated to Apple's Macintosh platform
MISC.	Other Events	Women 2.0, Google I/O, Salesforce's Dreamforce, Oracle Open World, CrowdConf, FailCon, #140Conf, GigaOM's Mobilize, Startup Weekend, The Startup Conference, CTIA, APPNATION, DEMO, Jive, Think Mobile, Vator Splash, Enterprise 2.0
	Startup Digest	www.startupdigest.com : Directory that lists technology events in the SF Bay Area and other cities around the world
MISC.	Success Stories	Apple, Intel, HP, Yahoo, Facebook, Google, Twitter, Zynga, PayPal, eBay, LinkedIn, Oracle, Cisco, SanDisk, Applied Materials, Intuit, Salesforce, Cypress Semiconductor, Adobe, Electronic Arts, Nvidia, Broadcom, IDEO, TiVo, Yelp, YouTube, Evernote, Uber, Netflix, Eventbrite, Instagram, Foodspotting, Pandora, Square

CULTURE

Silicon Valley fosters a liberal culture that tolerates odd ideas, promotes independent (counterculture) thought and values ambition, curiosity, risk-taking, and experimentation — all essential to innovation. The diverse backgrounds of highly-educated people, coupled with a large immigrant workforce (50% are foreign born), are a major advantage in an era of globalization.

Most people in the Valley are highly networked. Trust and strong relationships are precursors to new business formation and there are numerous tech meetup groups, tradeshows, conferences, and other tech/web-related events that help facilitate idea-sharing and relationship-building. Information flows freely — similar to an academic environment — and the collaborative ethos is strong because entrepreneurs believe that together, they can make the pie bigger, rather than viewing competition as a zero sum game.

Key Best Practices

- Risk tolerant and risk capital culture: Failure is accepted and celebrated as a mark of experience; lessons learned are carried over to next ventures; willingness to test, adapt, iterate, and fail is common
- Risk employment culture: Tech jobs are readily available and entrepreneurship is a respected career choice
- An “equity culture” with stock option savvy individuals: People in the ecosystem are willing to take an equity stake in a company instead of cash payment/salary
- Highly networked, collaborative community

Takeaways

- Foster a culture that tolerates risk, mistakes, and failure. Host a conference (ex: FailCon) that shares lessons learned from failed ventures by key executives, founders, and entrepreneurs
- Build tech cluster so alternative employment opportunities exist for workers
- Sponsor/host tech events to promote networking and collaboration
- Market appropriate Quality of Life factors to attract tech entrepreneurs and a diverse set of support networks (i.e. lawyers, accountants, marketing, etc.)
- Celebrate startup/entrepreneurial successes through local media to elevate social status of entrepreneurs, making it a viable career option
- Foster an “equity culture” by raising awareness of startup successes

FINANCIAL CAPITAL

According to *VentureSource*, Venture Capitalists (VCs) — including corporate funds - invested \$32.6B in 3209 deals in the U.S. in 2011. Silicon Valley received 41% of all venture funding in 2011, followed by New England and New York at 11% and 9.5% respectively.³ In addition to venture capital, Silicon Valley has a growing number of angel investors providing unrivaled access to institutionalized investment funds and private capital for startups. VCs - who generally prefer to fund local startups - keep the cycle of innovation going as one generation of successful entrepreneurs invests in the next generation, producing “smart capital” (i.e. money from former tech entrepreneurs who have domain knowledge, experience, and access to valuable networks).

Silicon Valley’s VCs take risks and place big bets on startups that focus on efficiency, rapid iteration, and low-cost experimentation. Dow Jones VentureSource reported that the most active VC firms in 4Q11 were 500 Startups, SV Angel and First Round Capital, all early stage investors, with a combined 77 investments in 4Q11. The internet/digital media and software industries were the valuation leaders, followed by cleantech and life science.⁴

Key Best Practices

- Access to smart capital is highly concentrated
- Serial entrepreneurs rarely leave the system, re-investing their experience, time, and often their money back into the tech ecosystem, helping to sustain it
- Risk-tolerant capital: CA has the largest VC funds and receives the highest venture funding; VCs are comfortable placing big bets due to risk tolerant culture
- Proximity to networks: VCs prefer to invest locally where a critical mass develops to facilitate dealflow and easier management of startup firms

Takeaways

- Encourage successful serial entrepreneurs to give back to the system
- Establish a local VC/angel community to support high-growth startups and address the seed-stage investment gap
- Actively court non-native investors and VCs to give startups access to funding
- Explore other sources of funding: micro-loans, debt-financing, public funds, etc.
- Host investor conferences/pitch events that showcase local companies to outside investors
- Explore creation of a state/city tech startup fund
- Establish relationships with local banks to provide debt financing and/or other products/services specifically tailored for high-growth startups
- Educate entrepreneurs on available financial resources from private and public sector: grants, SBA/SBD loans, etc.

HUMAN CAPITAL

Silicon Valley’s world-renowned academic institutions have the technical superiority, research dollars, and entrepreneurial philosophy to contribute to and sustain a successful tech ecosystem. Top-tier universities, Stanford and UC Berkeley, draw the world’s best students, professors, and researchers to transform the regional economy and drive high-tech entrepreneurship. Their world-leading computer science and math departments and research facilities provide impetus for the Valley’s innovation and serve as a feeder source for local companies that are recruiting top talent.

Cold War research money from Washington played a big role in transforming Stanford into a science and engineering powerhouse. In the 1960s, Stanford increased endowments by promoting a culture that allowed students and faculty to participate in entrepreneurship freely, unencumbered by administrative constraints to protect the status quo. Not being greedy has paid off - Stanford has graduated more future tech-company CEOs than anywhere else in the world (HP, Yahoo, Google to name a few).⁵

The two universities boast leading research labs that attract government and industry funding and serve as networking hubs for entrepreneurs through entrepreneurial programs, competitions, educational workshops, and events. Students are given access to advisors and investors (who often walk the hallways) and “mentor capital” in the form of experienced serial entrepreneurs or professors who are retired entrepreneurs themselves. The ease with which university professors, lab researchers, and students move around between academia (R&D) and industry encourages the free flow of ideas and innovation.

Stanford Research Park, located adjacent to Stanford University, is actively engaged in economic development and considered to be the first and premiere technology park in the world, serving as a worldwide model to other high-tech parks. The 700 acres park is home to over 150 leading high-tech companies with about 23,000 employees in electronics, software, biotechnology and other high-tech fields. Research and development and supporting service companies occupy ~10Msqft in more than 160 buildings.⁶

Key Best Practices

- Strong research universities draw and produce top tier Science, Technology, Engineering, Math (STEM) talent
- Universities actively encourage smooth flow of IP from labs to startups via tech transfer programs
- Stanford Research Park has formed a high-tech cluster
- Strong entrepreneurial culture percolates through academic programs

Takeaways

- Promote entrepreneurship as a viable career path through university entrepreneurial programs that coach, mentor, and train students
- Encourage tech transfer: Form partnerships with universities to facilitate movement of research into businesses which will commercialize the applications
- Incentivize companies to collaborate with educational establishments (v-v)
- Review/revise educational curriculum to train young workers for jobs being created; focus on STEM skills
- Enable maintaining and updating workforce skills at academic institutions
- Form Charter schools and/or Academy of Tech Training Institutes
- Increase public sector funding to research institutions

SUPPORTS

Today's high-tech workers are increasingly mobile and searching for the right opportunities but cities that can't provide competitive amenities will lose out on attracting and retaining top talent. Silicon Valley's unrivaled Quality of Life factors — a temperate climate, sought-after Real-Estate, outdoor activities, top-notch universities, a plethora of tech industry jobs, etc. - contribute to a healthy work/life balance and continue to be marketed as the "Californian Dream," attracting a steady stream of the world's top talent.

Silicon Valley's tech clusters have formed around well-preserved, integrated neighborhoods, such as San Francisco and Palo Alto that have in-tact centers and exhibit personality with locally-owned shops and cafes as opposed to mass-produced, national chains. Though Stanford and UC Berkeley are over 40 miles away, Silicon Valley has managed to overcome the challenges of urban sprawl and provide enabling infrastructure for tech clusters to form.

Several Silicon Valley venues provide event space for meetings, conferences, workshops, seminars, training, etc. San Francisco's state-of-the-art conference facility, the Moscone Center, plays host to some of the largest, leading tech conferences in the world, including Apple's MacWorld, O'Reilly's Web 2.0, Salesforce's Dreamforce, and Oracle's Open World.

The Valley benefits from having a critical mass of companies (legal, accounting, marketing/PR, sales, investment bankers, technology, SaaS, etc.) that have experience supporting startups at various stages of their growth. In addition, there are numerous coworking spaces (shared office spaces offering standard office amenities and flexible lease terms to startups) and entrepreneurial programs to facilitate networking, collaboration, and accelerated innovation. RocketSpace (www.rocket-space.com), a SF shared office space that caters exclusively to tech and new media companies, has a Corporate Ambassador Program that matches its startups with established brands seeking to partner with emerging tech companies. The program provides corporations access to leading innovation and gives startups early access to blue chip customers/partners who have access to capital and the ability to scale their ideas.

Several established tech companies (many who started as venture-backed startups themselves) are headquartered in Silicon Valley and play multiple roles in the ecosystem. They:

- Collaborate/partner with startups providing them with revenue streams
- Help startups shape their product/services
- Give startups access to their clients, suppliers, and partners
- Train the next generation of executives that will go on to staff startups
- Often acquire startups, providing profitable exits for founders/investors (ex: Cisco, Google, Yahoo)

Since acquiring companies are often also located in Silicon Valley, they remain part of the ecosystem and continually spin-off more entrepreneurial companies, helping to sustain the tech ecosystem.

High-tech clusters have received a great deal of attention from the public policy arena because they foster faster learning, sharing, and efficiencies and fuel economic growth. Entrepreneurs find access to capital easier in a cluster and VCs and investment bankers also find it easier to locate new investment opportunities. Stanford and Berkeley are closely linked to the commercial activities in the Valley's tech clusters. Information about innovations, market opportunities, etc. flows through a cluster's institutions and through its informal networks very rapidly. This accelerates innovation and decreases time to market which are critical in competing successfully on a global platform.

Key Best Practices

- Sophisticated public transportation infrastructure: Airports (SFO, SJO, OAK), BART system, Cal Train, Buses, Biker-friendly paths, zip-car, share-rides, company-provided shuttles (Google)
- Ubiquitous WiFi hot spots
- State-of-the-art conference/event hosting facilities
- High cost of living is outweighed by the opportunities afforded by living within a tech cluster: access to capital, skilled workforce, world-class universities, etc.
- Big companies outsource their R&D to small companies and often acquire them, providing them with lucrative exit opportunities

Takeaways

- Form tech cluster(s) to create a critical mass of support services/products
- Promote (comparative) low cost of living and Florida's tax incentives (no income/state tax) in recruiting and retaining talent/companies
- Identify venues suited for various types of tech events and budgets and promote these to event organizers
- Conduct outreach to national/international tech conferences
- Encourage established companies to "outsource" R&D to the region and stimulate company spin-offs
- Promote collaboration between established tech companies and emerging tech companies

COMMUNITY

Silicon Valley is a magnet attracting smart people from all over the world (more than 50% of Silicon Valley companies are founded by immigrants),⁷ which creates a diverse network from a variety of disciplines and backgrounds (entrepreneurs, bankers, accountants, lawyers, and academics). A huge early adopter crowd of tech geeks provides proof-of-concept testing and is said to carry so much influence on making things go "viral" that it is rare for a product to go mainstream without Silicon Valley adoption. This phenomenon has been coined the "Valley Effect" and makes Silicon Valley a great test market for a company wishing to validate its product/service. Additionally, a well-integrated tech press of traditional and new media ensures that the latest and greatest innovation is reported and/or reviewed the minute it is discovered.

Silicon Valley's tech community is highly networked and connected, so there is easy access to information and the knowledge-base. Many user groups

targeting specific topics have started with a handful of members and organically grown to several thousand members with active participation. Local guides like StartupDigest (www.startupdigest.com), which distributes a curated email list of the best startup events in the area to over 250K subscribers, ensure that entrepreneurs are spoiled for choice when it comes to choosing which tech event, workshop, mixer, tradeshow, conference, investor pitch, etc. to go to. Numerous tech/startup events, such as SF New Tech Meetup and Silicon Valley New Tech Meetup (each with several thousand members), host monthly startup demo nights and facilitate networking to connect startups to the right resources, mentors, and talent.

Key Best Practices

- Very active tech/startup community: Numerous monthly tech events that draw hundreds of tech entrepreneurs & multiple entrepreneurial organizations
- Easy access to serial entrepreneurs and their expertise due to high concentration
- Local directories of tech startup events (ex: Startup Digest) ensure each event is effectively marketed and well-attended

Takeaways

- > Host tech events to promote networking and collaboration in community
- > Create a go-to source for tech event listings & curate an opt-in email list of entrepreneurs (or leverage sources like StartupDigest and GarysGuide)
- > Identify and grow local test/early-adopter markets

POLICY

Silicon Valley's public policy is shaped via a long-term approach and the general consensus is that you don't build a Silicon Valley, you let one grow. California is often cited as being at the forefront of modern legislative/legal infrastructure for co-creation and dissolution of companies, hiring and rewarding best talent, capital formation and allocation, IP protection and licensing, and exporting/importing of products & technology, among other things.

Key Best Practices

- Smart immigration policy to let world's top talent in
- Great civil liberties
- Flexible employment laws and tax laws

Takeaways

- > Relax immigration requirements to let STEM-skilled workforce in easily
- > Speed up Visa requirements
- > Reform tax/regulatory laws to incentivize small business and entrepreneurship
- > Review/revise employment laws: Make it easy to start/dissolve a startup — too much paperwork impedes innovation
- > Increase public sector funding of tech initiatives
- > Facilitate access to site selection, infrastructure improvements, funding, etc.



NEW YORK CITY

Population: ~8M

INTRODUCTION:

New York City (NYC) is fast becoming the second leading startup capital after Silicon Valley as the city continues to invest heavily in “Silicon Alley” and building a strong tech industry and startup culture.

HISTORY:

NYC has been a hotbed for entrepreneurial activity since its early days and played host to ventures in the garment business, banking, media, and advertising, building these industries into powerhouses.

NYC has fared well in the past due to the strength of its financial industry and arrival of immigrant groups who contribute to its diverse workforce. After 9/11, the city’s efforts targeted renewal of its infrastructure, economy, school system, parks, streets, and neighborhoods.

When Mayor Bloomberg came into office in 2002, he expanded job growth outside of Wall Street by creating a 5-borough economic development strategy focused on expanding the industries that had the potential to grow and expand in NY, including Finance, Film & Television, Fashion, Bio-tech, Arts and Culture, Tourism, Modern Manufacturing, and Small Businesses.⁸ With the collapse of the market in 2008, NYC began to pursue its diversification strategy more aggressively.

The Bloomberg Administration is strongly behind the emerging tech sector and supporting it with several public/private initiatives.

NEW YORK CITY		
CATEGORY	INITIATIVE	DESCRIPTION
		COWORKING SPACES
	New Work City	www.nwc.co
	We Work Labs	www.wework.com
	General Assembly	www.generalassemb.ly : NYEDC-funded coworking space for design & tech entrepreneurs; Aims to foster community & collaborative idea exchange by offering regular educational programs and affordable workspace according to membership tiers
	Hive at 55	www.hiveat55.com : 5K sqft of office space for freelancers for up to 50 media pros; Access to services such as contract editing, news feeds and conference rooms
	Others	Green Spaces NY, Greenpoint Coworking, SparkSpace, Sunshine Suites, Grind, Projective Space, Dogpatch Labs, The Makery, Soho Haven, TechSpace
		INCUBATORS/ACCELERATORS
	TechStars NYC	www.techstars.com : One of the top accelerators in the world; Offers tech startups a 3-month intensive mentorship program and \$18K+ in seed investments
	Entrepreneurs Roundtable Accelerator (ERA)	Accelerator that injects funds into promising startups; 3-mo program (June-Aug) concluding in demo day and investor pitch; The 10 startups selected to participate in program each receive \$25k and free collaborative office space for the summer in exchange for 8% equity
	DreamIt Ventures	www.dreamitventures.com : Startup accelerator that offers Summer and Fall programs and up to \$25k in seed funding/company
	NYC SeedStart	www.nycseedstart.com : A 12-week summer program providing seed funding to tech companies to build and launch their company; Offers workspace and up to \$20K/company in exchange for 5% equity
	Others	Prehype, Betaworks, Astia, Founder Labs, First Growth Venture Network
	Venture Capital Firms	Union Square Ventures, First Round Capital, Spark, FirstMark Capital, Founder Collective, Insight Venture Partners, Matrix Partners, Radius Ventures, Rho Ventures, RRE Ventures, Greycroft Partners, Harris & Harris Group, Inc., Apax Partners, Rose Tech Ventures
	NYC Entrepreneurial Fund	\$22M fund managed by FirstMark Capital investing up to \$750K in seed-stage NYC-headquartered tech companies
	New York Angels Network	www.newyorkangels.com : Independent consortium of 70 + angel investors investing \$100-1M in early-stage co’s; meet monthly to screen prospective deals
	Kickstarter	www.kickstarter.com : The world’s largest crowd funding platform for creative projects
	Local Resources	Echoing Green, NYC Seed, Starting Bloc (all provide resources for early-stage NY startups)
	Meetups/User Groups	NY Tech Meetup, Ignite, Ultra Lite Startups, nextNY, Social Media Week, Startup Weekend NY, Brooklyn Future Meetup, Digital DUMBO, Open Angel Forum, Google NYC Tech Talks, NY Tech Mixer, Digital Somethings, Wimlink, Girls in Tech NYC, NY Entrepreneurs Business Network, NY Video, nextNY
	NYC Big Apps	www.nycbigapps.com : Annual software competition to develop online & mobile apps that utilize city data; In conjunction with Challenge Post, NYC Dept of IT & Telecommunications, and BMV Ventures Fund. Last year it generated >140 apps; Will feature a \$100K BMW Fund, Idea Challenge contest, and two Hackathons in 2012
	NYC Next Idea Challenge	www.nycedc.com/program/nyc-next-idea : Annual business plan competition in its 3 rd year; Promotes NYC as an international business destination, while sourcing and supporting promising business ideas from abroad
	Other Events	ad:tech, NextNY, #140Conf, RWW, TechCrunch Disrupt NYC, Web 2.0 Expo, GigaOM’s Structure Data, Interop, Strata NY, Search Marketing Expo, Pivot, NY Entrepreneur Week
	Event Directories	Startup Digest (www.startupdigest.com) and Garys Guide (www.garysguide.com)
	NYC MediaLab	www.nycmedialab.org : Partnership between companies looking to advance new media technologies with academic institutions undertaking related research; Launched by NYCEDC, NYU-Poly and Columbia University
	NYConvergence	www.nyconvergence.com : A digest of digital media tech news in NY, NJ, and Connecticut
	Made in New York City	www.nytm.org/made : A project by the NY Tech Meetup that simply lists all the tech companies made (coded) in NYC
	Bus. Incubator Assoc. of NY State, Inc.	www.bianys.com : Expands the resources available to startups and works with policy makers on matters affecting the growth and development of incubators
	Online Media Networks	Gizmodo, Engadget, Gawker, The Huffington Post
	Success Stories	Foursquare, Tumblr, Delicious, Meetup, Boxee, Etsy, College Humor, Gilt Groupe, Hunch, DoubleClick, Thrillist, Boxee, Buddy Media, Blip.tv, Ideeli, Rent the Runway, SecondMarket, Turntable.fm, Foodspotting, GroupMe, Yipit, OnSwipe, Vimeo, Drop.io

CULTURE

As a powerhouse in areas like finance, advertising, PR, news, media, publishing, film, entertainment, arts, and tourism, New York City (NYC) has attracted a critical mass of diverse, Ivy-league educated, creative professionals and Wall Street bankers. Although several startups are inspired by NYC's legacy industries, innovative startups like Foursquare, Meetup, Yipit, Etsy, and Kickstarter are also popping up and using the city as their laboratory to test and market their ideas.

There is a bit of an "overthrow of the overlords" spirit at work in the tech space in NYC. Technology is being used to enrich urban face-to-face interactions and facilitate more networking and community building. The city is the ideal playground for entrepreneurs developing tools that enable individuals to collaborate. Foursquare (a location-based social networking check-in application that documents and shares urban interactions in real time) and Meetup (a platform for self-organized groups) both embody NYC's leadership in this sector. Both startups have challenged the canard that technology can be alienating by encouraging social interactions and offering new, richer, deeper ways for urbanites to experience their cities.

NYC is far less homogeneous than Silicon Valley and its demographics and density, coupled with an ethnically diverse population made up of a huge immigrant population, makes it a unique city to launch a startup and test new products/ideas. The fast-paced city demands efficiency and fosters a culture that is very driven, high energy, competitive, and focused. Most people are independent extroverts, craving social interactions and racing around planning and multitasking throughout the day.

NYC is a merchant, commercial city with a Wall Street mentality and the finance world competes with startups to snap up local talent. NYC has historically been pretty conventional and the corporate mentality has a large voice - most young people are set on following well-defined paths to success and either not viewing entrepreneurship as a viable option or seeing it as too risky. Wall Street's domination makes it tough for startups to compete for talent (especially when it comes to salaries), so efforts are being made to raise awareness of successful startups and lucrative liquidity events/exits to develop an "equity culture" akin to Silicon Valley. Local press plays a huge role in helping raise awareness and positioning NYC as a hotbed of tech innovation.

NYC's rich media assets make it a fertile incubator to what some have coined "Creative Content 2.0," with Gawker, The Huffington Post, Daily Candy, Thrillist, LearnVest, JauntSetter, and countless others eroding marketshare from "old school" media.⁹

Key Best Practices

- Competes in multiple industries that lend themselves to innovative startup ideas; Startups leverage the unique strengths and assets of the city
- Critical mass of creative professionals spawning innovative startups
- Several startups focused on facilitating social interaction/community engagement which fosters collaboration and innovation
- Bloomberg Administration is actively diversifying into tech industry to become less reliant on Wall Street
- Media is aggressively positioning NYC as a digital/startup city for tech innovation and raising the profile of entrepreneurs

Takeaways

- Engage local press to raise awareness of tech startup activity and position Miami as a "Startup City"
- Highlight startup success stories that serve as models
- Inspire startups to capitalize on Miami's strengths and assets (finance, hospitality, tourism, trade, real-estate)

FINANCIAL CAPITAL

Venture-capital firms and angel investors have been looking at NY more seriously than they once did and investment in the city is on the rise. 2Q11 saw more than \$416M going to 48 internet-based companies in NYC. PriceWaterhouse Coopers and the National Venture Capital Association report that a total of 98 companies landed venture funding in 2Q11. The Big Apple overtook Boston in venture capital funding for internet and tech startups, making it second only to Silicon Valley.¹⁰

Brian Cohen, Chairman of the New York Angels Network, believes a more synchronized environment of increased supply (universities, startup academics, incubators, competitions, etc.) and demand (a mentoring culture, more funds) coupled with positive media coverage is driving the growth.

Whereas Silicon Valley's mentality seems to be more about experimenting, growing, and then monetizing, NYC startups tend to be more focused on generating immediate revenue and business fundamentals. Hence, it can be argued that VCs in NYC expect more immediate return on investment (ROI) and are less risk-tolerant than their West Coast counterparts.

Most investments at first angel-round stages are from serial entrepreneurs who follow the typical migration path of making money through a successful venture, becoming an angel investor, mentoring a few startups, and going on to becoming VCs. This path creates a sustainable startup economy by ensuring that startups have access to smart capital. In the past, NYC had a nascent, albeit growing, network of experienced early-stage investors but it is now starting to see the investment community and a crop of veteran entrepreneurs playing an active role in funding local startups.

First Round Capital, Lerer Ventures, and Union Square Ventures are just some of the few active VC firms in NYC offering seed/early-stage investments to startups. The rapid expansion of NYC's tech ecosystem has also caught the attention of outside firms (particularly in Boston and Silicon Valley) who actively seek investments in the city.

City initiatives such as NYC Seed (a city investment fund) and the NYC Entrepreneurial Fund (a \$22M seed and early-stage investment fund established by the city and managed by First Mark Capital) also contribute to deal flow.

Key Best Practices

- Serial entrepreneurs following typical migration path and contributing back into the system to sustain the entrepreneurial model
- Presence of non-native investment community seeking to fund hot startups
- City funds provide additional sources of early-stage capital to startups

Takeaways

- Encourage serial entrepreneurs to follow typical migration path to create smart capital and a sustainable tech "knowledge" economy
- Establish a state and/or city Tech Startup Fund
- Conduct outreach to outside investors/firms to earmark assets for investments in Miami

HUMAN CAPITAL

NYC is home to America's largest student population with approximately 500,000 students enrolled at the City's 110 higher education institutions (One Campus NYC). These schools are international destinations and catalytic environments for creativity, individual achievement, and innovation. NYC's universities (Columbia University, NYU, NYU-Poly, Cooper Union, CUNY) continue to drive research and innovation and contribute to a highly-skilled

workforce. According to *The Wall Street Journal*, the percentage of NY students pursuing careers in tech and the information sector is growing.¹¹

NYC's universities, historically known for their licensing prowess, are also in the game to support entrepreneurship. Columbia Tech Ventures, the nation's most lucrative university licensing office, is working hard to bridge the gap between scientists and investors and CUNY recently established its first technology commercialization office.

Between 2005 and 2010, employment in NY's high-tech sector grew by nearly 30%. Google alone has about 1,200 engineers in the city.¹² However, the city's appetite for innovation and entrepreneurship is outstripping the capacity of its labs. Even with the largest consolidated workforce in the country, NYC has challenges matching candidates with companies. Additionally, engineers and computer science graduates from top-tier universities have historically "flocked to write algorithms for hedge funds" rather than write code at startups. Wall Street jobs offer high wages and annual cash bonuses and unlike Silicon Valley, the top talent in NYC is not accustomed to being paid in stock options. For bootstrapping startups, this poses a challenge in attracting top talent. The collapse of the financial community has changed this slightly with so many laid off workers but the attitude is still pervasive in NYC.¹³

NYC is still developing the engineering talent needed to support the city's startups. Although world-class institutions producing engineering talent are nearby in Boston, NYC has realized that its educational institutions need to start producing students with skills that local startups need. To that end, the city has partnered with Cornell University and The Technion - Israel Institute of Technology to create a world-class applied science and engineering campus (NYC Tech Campus) on Roosevelt Island to fuel the rapid expansion of the tech ecosystem in NY. As part of the \$2B plan, the Bloomberg Administration is providing NY real-estate at virtually no cost and \$100M in infrastructure upgrades. Governments offering land and funding in exchange for university development is not a new practice. Land grant colleges, such as Cornell, MIT, Berkeley, Stanford, University of Michigan, and many other universities have served as magnets for economic innovation and growth.

Set to open by September 2012, the NYC Tech Campus will eventually grow to more than 2Msqft on Roosevelt Island, accommodating, at full build-out, nearly 2,000 graduate students and 250 faculty, as well as visitors and corporate researchers. This partnership will provide an interdisciplinary environment to better prepare students for careers in tech companies and transform NYC into a world hub of innovation and technology commercialization.¹⁴

Building a state-of-the-art campus will take years and attracting a critical mass of tech entrepreneurs will take longer. In a Keynote Speech, Mayor Bloomberg pointed out that "Governments around the world are offering land and capital and offering to pick up the tab on operating costs associated with expansion on their soil because they recognize how important universities are to their economic growth." Bloomberg estimates that the NYC Tech Campus could result in 400 new companies, the creation of 7k construction jobs, and more than 22k jobs in its first 30yrs.¹⁵ These jobs will support restaurants, shops, and other local businesses which will bring an estimated \$1.4B in tax revenue and billions of dollars in new economic activity.¹⁶

Key Best Practices

- The Bloomberg Administration is committed to a long-term approach in growing NYC's tech industry and continues to invest millions towards growing local tech/engineering talent

- Creation of a graduate engineering and applied science campus to ensure that NYC startups/companies have access to a relevant STEM-skilled workforce
- Creation of at least 12 Charter schools by the end of 2013 that will focus on career and technical education¹⁷

Takeaways

- Think younger: Create charter schools (k-12) that focus on STEM disciplines
- Create and/or support Tech Academies where workers can train, maintain, and update their skills
- Lobby for public sector leadership/funding committed to a long-term approach
- Collaborate with academic institutions to ensure that they are producing relevant workforce for local tech companies

SUPPORTS

The land stretching from 42nd Street to SoHo in Manhattan has been given the namesake "Silicon Alley," with the arrival of many tech start-ups such as Foursquare (located near Union Square) and the establishment of new offices for corporate titans such as Google in Chelsea and Facebook in Midtown. While high-tech companies are mostly located in sprawling office parks in Northern California, offices of tech firms in Manhattan are situated mere blocks from each other, giving rise to efficiencies that result from proximity. Reliance on mass transit in commuting continues to shape where employers choose to locate in NYC. Start-up technology firms have oriented themselves near mass transit, along what is known as the "Silicon Subway."

Dense urban areas makes it easier to form a critical mass where everyone is in close proximity to each other and are hence, a natural fit for startups, co-working spaces, and major tech companies alike. NYC's geography is a great asset since it's a small island with great density and incredible public transportation which makes it easy to get almost anywhere at anytime without the need for a car. Furthermore, with JFK, La Guardia, and Newark airports nearby, NYC has flights serving almost every destination in the world.

Tech clusters have emerged in several NYC neighborhoods, including the Flatiron District, Union Square (Apple, Yelp, TechSpace, Dogpatch Labs, Jibe), SoHo, Dumbo (Etsy), and Chelsea (Google's NY offices). Union Square, traditionally home to architecture firms, marketing companies and publishing firms, appears to have the most momentum and is now aptly termed "Silicon Square." Although average asking rents are very expensive at \$46/sqft in the neighborhood, employees and startups are incentivized to locate here by the creative vibe, easy subway and PATH train access, and tons of nearby restaurants and bars. According to the Union Square Partnership, nearly a dozen tech firms, including household names like Apple and Yelp, have signed leases in 2011 for a combined 135,000sqft of office space in Union Square. These firms are drawing even more startups and creating a critical mass of like-minded entrepreneurs.¹⁸ Unfortunately, many of the buildings in the area aren't wired for high-speed internet but infrastructure improvements are being made to draw even more tech companies to the neighborhood.

Many credit Union Square Ventures — a prominent NY-based VC firm established in 2003 — with kick starting the neighborhood's momentum. Polaris Venture Partners is another venture capital firm active in the neighborhood.

As the headquarters of choice for many Fortune 500 companies, NYC provides exposure and access to top companies in nearly every industry. This bodes well for startups looking for corporate partnerships and a home market to test and/or sell their products/services to.

NYC's world-class arts organizations and venues also give rise to endless entertainment opportunities and support growing colonies of artists. The city's creative assets and high concentration of creative talent make it a fertile incubator for innovation and hatching a startup.

Key Best Practices

- Growing trend of tech startups moving from suburban office parks into the city
- City is supporting the emergence of tech clusters by building and funding a network of incubators and workspaces
- Headquarters to several Fortune 500 companies that provide partnerships, customers, and/or test markets for startups
- Serves as East Coast branch for several prominent West Coast companies, including Facebook, Google, and Yelp

Takeaways

- Form a tech cluster in Downtown Miami
- Create a map of assets and resources that will allow entrepreneurs to easily connect with opportunities and valuable resources
- Conduct outreach to successful non-native companies to relocate or set up branch operations in Miami
- Increase connectivity infrastructure between Downtown Miami and other South Florida regions

COMMUNITY

NYC has an impressive cast of startups, VCs, and a plethora of events and organizations geared towards entrepreneurs and startups. Tech entrepreneurs looking to network with the startup community can choose from numerous social networking events and a myriad of Meetup groups such as NY New Tech (www.nytm.org), which has over 22,000 members and hosts monthly events that attract close to a thousand people for a night of startup demonstrations and networking. NY New Tech recently launched a simple project, "Made in NYC" (www.nytm.org/made), to showcase companies that have launched in NYC.

The startup community in NYC is still very young and there aren't many who have made their fortunes in technology. However, the current iteration of the tech community in NY is now supported by serial entrepreneurs and veterans such as, Fred Wilson (Union Square Ventures), Kevin Ryan (Gilt Groupe), Scott Heiferman (Meetup), and Charlie O'Donnell (First Round Capital), who are all contributing to sustaining the innovation model.

Key Best Practices

- Hosts numerous tech events to build community and promote collaboration
- Advocates are partnering to build a startup ecosystem and serial entrepreneurs are recycling their time, experience and money back into the system

Takeaways

- Support tech community by hosting events and/or providing logistical support
- Identify serial entrepreneurs who can invest in and mentor the next generation of entrepreneurs

POLICY

Government policy to support tech economic development and a startup culture is where NYC shines. The Bloomberg Administration has made several efforts to diversify NYC's economy and move dependency away from Wall Street and is preoccupied with expanding the tech sector by stepping up engineering and science education. Tech growth has been encouraged by investment funds like NYC Seed, incubators like General Assembly and Hive 55, city-sponsored open data competitions like NYC BigApps 3.0, and a new NYC Open Data portal that improves the

accessibility, transparency, and accountability of the city's government by offering access to a repository of government data sets.

Mayor Bloomberg also launched the *New York City Innovation Index* to track NYC's latest wave of innovation activity. The Index, developed and administered by NYC Economic Development Corporation (NYCEDC), provides detailed analysis of the drivers of innovation in the city and how they are faring. The data is updated annually and used to measure the scale and pace of the city's economic transformation, as well as inform policies and shape a regulatory environment that promotes innovation in NYC. The Index documents that barriers to business continue to decrease. It also shows that more entrepreneurs are establishing businesses, and securing VC funding and federal funding.¹⁹

NYC's current higher-education systems still do not meet the needs of companies in high-growth stages looking to hire smart, trained workers who specialize in particular STEM skill-sets. As part of an effort to address this gap, over 350 mayors and business leaders from all 50 states have joined Mayor Bloomberg in the *Partnership for a New American Economy* (established in June 2010) to call for immigration reform.²⁰ The coalition will work with Congress and the White House to pass legislation that provides a path to legal status for undocumented residents, ends illegal immigration, increases opportunities for immigrants to enter the U.S. workforce, and allows foreign students to stay and contribute to the economy.

NYC's immigrant population is a significant part of the city's entrepreneurial economy, making up 49% of all self-employed workers in NYC (Fiscal Policy Institute 2011). The City's Department of Small Business Services (SBS) and EDC have strategically aligned with the Mayor's Office of Immigrant Affairs (MOIA) to develop a series of programs designed to assist immigrant small business. The city offers small business courses in different languages and hosts a business plan competition addressing concerns of immigrant entrepreneurs to ensure that immigrant entrepreneurs integrate into the local economy and succeed.

Key Best Practices

- City has partnered with public, private and academia to overcome barriers that inhibit innovation, from lack of space to lack of funding
- Strong, proactive political leadership with a clear long-term vision that is fueling the rapid expansion of the tech ecosystem
- Conducts regular stakeholder discussions with private sector to identify challenges and send message to business community that they are being heard
- City is building a strong international brand as a startup city, helping it to recruit and retain talent
- Uses a mix of private and public funding to support programs designed to support immigrant small business

Takeaways

- Craft a long-term vision and identify milestones for tech economic development
- Build long-term political leadership and support for creating and sustaining a tech ecosystem
- Increase livability and grow enabling infrastructure to support emerging companies before embarking on a smart-city branding initiative
- Conduct discussions, roundtables, and meetings to gauge issues and challenges faced by business owners/ entrepreneurs
- Survey immigrant entrepreneurs to identify their unique business challenges and design programs/policies that address them

CULTURE:

The Midwest is usually the largest sales region for companies due to its diverse economy so it offers a huge base of customers. There are more Fortune 500s in the Chicago region than anywhere else in the US.²¹ Couple that with Midwestern sensibility and a developing tech ecosystem, and you've got a recipe for startup success.

Connectivity is big in Chicago- a huge percentage of Silicon Valley entrepreneurs went to school in the Midwest (YouTube executives, Larry Ellison) and there is a critical mass of seasoned entrepreneurs (including fourth-generation entrepreneurs) with big networks and deep connections in Chicago.

New programs and companies are focused on bridging entrepreneurs with mentors, seed capital and customers and others are focused on celebrating the tech leaders of today. Chicago is trying to create a robust tech community to help retain talent and ensure that a Chicago-based company that is backed by an outside investor is not tempted to relocate to be closer to its backers, as is often the case.

Chicagoans are known to have a special mentality referred to as the "Midwest Mindset" that lends itself to a degree of loyalty to companies they work for (unlike Silicon Valley, where it isn't uncommon for employees to bounce around from company to company). This creates much-needed stability for an early-stage struggling startup. The Midwest Mindset "focuses on sound business fundamentals and people building and investing in businesses with a clear value proposition and monetization strategy."²²

Key Best Practices

- Home to a large percentage of Fortune 500 company headquarters providing startups exposure and access to customers and/or partners
- Connectivity and ties to Midwest alumni that have become successful in other cities contributes to Chicago's startup culture

Takeaways

- Outreach to Fortune 500 companies
- Establish more tech company headquarters in Miami to grow local test market and provide partnership opportunities for startups

FINANCIAL CAPITAL

Chicago's capital market works because serial entrepreneurs invest time and money into the next generation ensuring that there is a healthy mix of generational entrepreneurs mixing with smart capital to get the ecosystem kicked into high gear. Investors Barris, Lefkofsky, Walter, and Keywell are all active investors and advocates in the tech community.

With \$23B worth of exits coming out of the region, Chicago is a billion dollar exit playing field.²³ In 2011, there were 16 exit events by Chicago digital technology companies, 1 notable IPO (Groupon), and 15 acquisitions.²⁴ In 2011, Chicago startups raised a collective \$250M and with Groupon added, that total leaps to \$1.4B.²⁵

Chicago has an influx of early-stage capital from a variety of sources, including traditional VC firms such as New World Ventures and OCA Ventures and angel investors such as 12A Fund, Hyde Park Angels, and Wildcat Angels. In addition, a new \$100M fund called LightBank has been established to give startups access to much needed growth capital and a soon to be announced seed fund created by 30+ Chicago digital founders is on its way. Note: The *ChicagoTribune* reported that many of the city's ventures must be funded through equity outside the region. The majority of

Chicago-based VC firm investments are also aimed at companies in other cities.

Key Best Practices

- Access to smart, early-stage capital readily available
- Boasts successful startup exits (Groupon = breakout success story)

Takeaways

- Grow access to early-stage smart capital
- Incubate and accelerate promising high-growth ventures that are likely to lead to successful exit events which will serve as a model for others

HUMAN CAPITAL

Chicago's top-notch universities ensure a highly-skilled and educated workforce for local companies that are hiring. There are more federal research dollars flowing into the universities in Chicago than any other region in the US. ²⁶ Top Universities - Northwestern, University of Chicago, University of Illinois, Illinois Institute of Technology- and federally-funded research institutions such as, Argonne National Labs and Fermilab, have played an important role in educating computer programmers (VC and Mosaic pioneer, Marc Andreessen, and the founders of YouTube, PayPal, Netscape are all University of Illinois alums).

Most Chicago universities support and promote entrepreneurship and devote significant resources to their programs. University of Chicago's Booth School of Business New Venture Challenge jump-started the success stories of GrubHub and Bump among others.

The University of Illinois is set on incubating the state's next big tech business on campus. Its Academy for Entrepreneurial Leadership started a non-profit called Illinois Launch, an incubator currently working with 35 companies such as Chicago-based Tech.Li.

Key Best Practices

- Universities devote significant resources to entrepreneurial programs
- Universities grab a big percentage of federal research dollars

Takeaways

- Apply for federal funding of university research programs
- Ensure all universities have entrepreneurial programs in place that match needs of local tech companies and current startup environment

SUPPORTS

Chicago has two major airports, a massive public transportation system, and a variety of live/work options to support a tech hub. Top universities, beautiful architecture and skyline, waterfront views, museums, sports, fantastic food and culture, all draw entrepreneurs and innovative companies to the Windy City. Chicago's metropolitan offerings combined with its affordability in relation to other cities like NY, LA, or SF, make it a favorite for many, especially those looking to raise a family. [Note: According to Salary.com, the cost of living in Chicago is 29.1% lower than NY and 26.8% lower than SF]. ²⁷

The rocket-like rise of Groupon, the daily deals site that launched in 2008, has become the posterchild for the explosion of startup growth in Chicago and has been instrumental in attracting tech talent to the city. The company has put Chicago on the startup map and it's most lasting impact may be that it is producing a steady stream of entrepreneurs and tech talent that will contribute back into the innovation cycle by perhaps, starting their own new ventures.

Chicago has corporate headquarters with digital agendas and is home to 400+ major corporate headquarters (27 Fortune 500) who are customers and acquirers of startups.²⁸ Big tech companies are continuously spawning talent to nurture emerging companies and attract newcomers. Thanks to sites like BuiltInChicago (www.builtinchicago.org), launched by entrepreneur Matt Moog, these corporations now have a way to connect with the local startup community.

New incubators, venture firms, and 2-3rd generation entrepreneurs are emerging in Chicago and helping it grow its startup culture. The city's first accelerator, Excelerate Labs, launched in 2010 and has been joined by Healthbox and Impact Engine among others.

Key Best Practices

- Sophisticated public transportation infrastructure
- Emergence of a number of incubators and accelerators to support startups
- A website (www.builtinchicago.org) that serves to raise Chicago's startup profile by connecting and informing the startup tech community

Takeaways

- Establish incubators/accelerators to support tech community
- Create a central information portal for all-things-tech in Miami to shorten learning curve for startups and promote unified voice for tech community

COMMUNITY

Resources like BuiltInChicago.com, Chicago Entrepreneurial Center (CEC), and Illinois Technology Association (ITA) facilitate events and interactions among Chicago's startup community and help orient outside entrepreneurs quickly, so they can pack their calendars with pitch events, mixers, educational seminars, etc.

There has also been an explosion of entrepreneurial resources serving to connect the community (hackathons, startup weekends, Chicago Lean Startup Circle, Chicagoland Entrepreneurial Center, TechWeek, etc.). One such organization, Tech Cocktail, began as a periodic mixer and expanded to host events around the world. It now attracts hundreds of tech professionals to its quarterly networking events.

Aside from Groupon, some of the most popular startups to emerge from Chicago are 37Signals (Basecamp developers), Orbitz, FeedBurner, Apartments.com (travel booking sites), and EveryBlock (hyper-local news funded by the Knight Foundation). Various generations of entrepreneurs are helping build the city's startup culture. Several notable tech entrepreneurs actively engage with the tech community and support it (Dick Costolo, Jimmy Crouthamel, Matt McCall to name a few).

One of the unique things about Chicago is that it offers access to a massive population of customers to provide products and services to. Chicago's consumers are more representative of the nation than Silicon Valley's, so products developed for its market are theoretically, more likely to succeed nationwide.

Key Best Practices

- Serial entrepreneurs actively engaged with and supporting tech community
- Huge customer base to serve as representative national test market for startups
- Several tech networking events

Takeaways

- Identify and create access to home-based markets so that startups can leverage them to test ideas, products, services
- Identify serial entrepreneurs who can champion/ evangelize tech initiatives and have an active voice that is representative of the community

POLICY

Support at both the city and state level further bolsters Chicago's startup environment as the city works to knock down bureaucratic barriers and help startups succeed. Chicago's tech industry has a very supportive city government: Mayor Rahm Emanuel has demonstrated extreme interest in growing the digital tech community and has injected streamlined policy objectives to release publicly available data online. *Apps For Metro Chicago* (www.appsformetrochicago.com) launched in 2011 to urge the local developer community to assist the city in its efforts to draw efficiencies from data sets. Recently, the city committed a \$20M innovation fund to incentivize city departments to build apps for themselves.²⁹

Aside from Appointed Digital Stewards (CTO and Chief Data Officer), the Governor announced a public/private partnership — Excelerate Labs' 2011 - whereby startups receive \$50K in convertible debt from New World Ventures and TechWeek.

The State of Illinois has also created a \$78M *Illinois Advantage Program* aimed at helping Illinois businesses and entrepreneurs gain access to funding and accelerating job creation and economic growth. The Program is funded through an initiative within the federal Small Business Jobs Act which was signed into law in September 2010.³⁰

The city's steps to promote a startup culture are paying off: Illinois' latest job report shows that job losses were offset by 13,000 startups in the Chicago area that produced 23,000 new jobs.³¹

Key Best Practices

- Commitment to engage with local tech developers to draw efficiencies from online public data sets
- Appointed Digital Stewards

Takeaways

- Appoint Digital Stewards that guide tech economic initiatives
- Engage local tech community and government departments to solve city's civic problems through technology (Gov 2.0 initiatives)



Boulder, Colorado

Population: ~99,000 (Metro = ~293,000)

INTRODUCTION:

Boulder, CO is a small town with a highly networked population of active, serial entrepreneurs. Many tech entrepreneurs moved here to escape institutionalized tech scenes and perhaps, for the opportunity to become “a big fish in a small pond.”

HISTORY:

Boulder’s strengths lie in the storage, telecom, natural foods, and life sciences industries. It has many advantages of a university town - tech talent and openness - without many of the costs, traffic and congestion that may disadvantage incumbent centers of innovation. This balance did not come about accidentally. Natural foods companies like Wild Oats Markets and Celestial Seasonings started here and several national labs and big-tech companies like IBM and StorageTek opened outposts and helped foster a tech community. Early on, the biotech, telecom and data storage industries took off in Boulder, bolstered by Sun Microsystem’s \$4.1B acquisition of Storage Technology in 2005.³² That generation of successful entrepreneurs chose to stay in Boulder, contributing back to its innovation cycle.

Over the years, software, data services, and biotech blossomed as employees of those companies branched out to pursue other interests. The combination of entrepreneurship, engineering talent, and a counterculture vibe gave rise to many pre-bubble Net startups. By the mid-1990s, Boulder had a growing software industry. In 2006, TechStars, a business boot camp for startups, turned Boulder into a huge startup magnet by bringing dozens of great companies to a successful exit.

BOULDER, COLORADO		
CATEGORY	INITIATIVE	DESCRIPTION
ACCESS TO WORKSPACES/ INCUBATORS/ ACCELERATORS	TechStars	Founder = David Cohen. A 3-mo intensive business bootcamp for startups that prepares them for seed funding; Has spurred the start-up community’s growth. Goal = create 10 Internet companies/year. Almost half of the 30 companies that have gone through the program have decided to stay in town
	University of CO Silicon Flatirons Center	Hosts meet-ups, a campus-wide business plan competition and a law clinic, where entrepreneurs get free legal help on things like intellectual property protection.
ACCESS TO CAPITAL	The Foundry Group	www.foundrygroup.com : Boulder’s biggest software and internet VC firm; Invests in early-stage IT, internet, and s/w startups in CO and across North America; Manages a \$22M current VC fund
ACCESS TO NETWORKS	Boulder Denver New Tech Meetup	www.bdnewtech.com : Monthly forum for startups with over 7,500 current members; Promotes networking and collaboration for local startup community
	Boulder Beta	www.boulderbeta.com : Startup mixer event for over 300 founders, hackers, students, investors, designers, media professionals, etc.; Launched in 2011
	Boulder Open Coffee Club	http://www.facebook.com/BoulderOpenCoffeeClub : Casual, bi-weekly Tuesday forum to discuss local and national tech business activities
COMPETITIONS EVENTS	Startup Weekend	www.startupweekend.org : Launched by Chicagoan, Andrew Hyde, this workshop outfit tours over 52 cities around the world; 54-hr event where developers, designers, marketers, etc come together to share ideas, form teams, build products, and launch startups
	Other Events	TechStars Demo Day, TEDxBoulder, Boulder Open Coffee Club, Drupal Meetup, House of Genius, Ruby Code & Coffee, Quick Left Hackfest, Ignite Boulder, Startup Women, Startup Drinks Boulder, BarCamp Boulder, Boulder Startup Week
MISC.	Startup Colorado	An initiative aimed at company creation along the Front Range. Affiliated with the Startup America Partnership, an effort announced earlier this year to bring together entrepreneurs, investors, top-level executives and educators to foster the growth of innovative companies. Though Startup Colorado is billed as regional initiative, it has a heavy focus on Boulder, at least initially. Also launching Startup Summer, which will bring a total of 30 students to Boulder to work as summer interns at 30 different, early stage companies. The program will provide free housing at the CU-Boulder campus dorms, paid internships at local companies, and other activities such as dinners, events, and workshops for those students. The program is targeted at “would-be” entrepreneurs in Colorado, and also includes transportation to Boulder.
	Boulder.me	www.boulder.me : Started by Brad Feld; A group of Boulder companies launched an effort to find and recruit developers from all over the nation, saying it will fly in 100 developers to apply to jobs at 20 local startups
	Success Stories	TechStars, Socialthing, Agile, Kerpoof, Trada, Rally Software, OneRiot, SendGrid, Lijit, Intel, RoundPegg

CULTURE

Boulder has been luring tech industry veterans and young entrepreneurs from Silicon Valley and Manhattan with promises of a tech community that allows for lunch-break hikes in the foothills of the Rocky Mountains. Boulder has an extremely collaborative startup-friendly tech scene that attracts active life-styled entrepreneurs.

The town has a strong tech community and is in its 4th generation of entrepreneurs (pre-bubble fame entrepreneurs with experience and money and success- many who failed between 1998-2003 and hence, understand what is required for success).

Boulder is a small, hippie town with a counterculture vibe and is full of independent, smart entrepreneurs. The University of Colorado (the state's flagship institution) represents approximately 20% of the city's population and hence, has a significant effect on the city's demographics (Boulder Economic Council). As a college town, Boulder not only feels safe and family-oriented (offering long-term family potential) but also offers the intellectual capital, university resources, and student population needed to spur innovation. There is a high comfort level with individuality, ambiguity, and failure.

People in Boulder really care about the community they live in and contribute to it by supporting each other. Locals value health, fitness and the environment and maintain an integrated work/life balance. Creating and improving businesses, while supporting environmental stewardship and sustainable practices, embody the spirit and character of Boulder. Entrepreneurs maintain a balanced approach to work — taking breaks (bike, hike, run) from the routine 9-5pm hours.

Wonderful weather, mountains, ski resorts, a great downtown, craft beer, and a mix of money, universities and high-tech talent make Boulder an appealing choice for hatching a startup. There is very little friction in Boulder — its small size enables easy commutes and easy access to everyone.

Key Best Practices

- Promotes active outdoor life-style to entrepreneurs seeking a work/life balance
- People take pride in the town, contributing to making it better
- Easy access to everyone
- A hippie, counterculture vibe that is typically attractive to entrepreneurs
- Small size allows startups to enjoy benefits of being a big fish in a small pond

Takeaways

- Educate residents on ways to get more involved and contribute to the local community they live in
- Run a campaign that instills pride in local community about being from Miami by celebrating its unique assets

FINANCIAL CAPITAL

From 2007-2009, venture capitalists invested \$1.9B in 275 Colorado startups, up from \$1.6B in 247 companies from 2004-2006 (National Venture Capital Association). The money is coming from Colorado venture firms, including the Foundry Group - a prominent firm in Boulder- as well as from Silicon Valley and New York.

There are approximately 19 venture capital firms located in Colorado that are ready to invest in the right opportunities and while funding for new companies is low right now, VCs are hungry for good opportunities.

Boulder still depends on Silicon Valley for access to capital markets. There are not enough investors in Colorado to finance growing companies. Many entrepreneurs open California offices, including Matt Galligan, who started and sold Socialthing in Boulder and is now the founder of SimpleGeo based in San Francisco.

The Foundry Group is Boulder's biggest software and internet venture capital firm (with investments in companies like Lijit and Socialthing). Boulder is shy on billion-dollar exits namely because most software internet companies get acquired.

Key Best Practices

- Still dependent on outside investment community but slowly growing local sources of funding

Takeaways

- Highlight success stories and best-in-class startups to entice outside community to invest in Miami startups

HUMAN CAPITAL

Boulder claims it has the highest density of entrepreneurs per capita in the world.³³ It is one of the most highly educated cities in the nation. Nearly 70% of adults 25 and older who live in the city have earned a bachelor's degree or higher compared to the national average of 38% (Boulder Economic Council).

The University of Colorado and prestigious research labs such as the National Center for Atmospheric Research and the National Institute of Standards & Technology have long attracted well-educated folks to Boulder. With an influx of entrepreneurs and numerous federally funded research facilities, Boulder is fast becoming a destination for Internet startups. The town has the highest concentration of software engineers, computer scientists, and PhDs per capita in the nation. It is second only to Silicon Valley in percentage of workers employed in tech, according to the American Electronics Association. Best-selling author and urban development expert Richard Florida credits Boulder with the greatest concentration of the "creative class"—scientists, artists, engineers- in the U.S.³⁴

Though the University of Colorado has opened to the tech community, it plays nowhere near the pivotal role that Stanford does. "Creating a culture somewhat like M.I.T. or Stanford, where it's expected in the technical disciplines that you will do a start-up, or at least it's not looked at askew, is not part of the faculty DNA in most departments yet in Boulder."³⁵

Key Best Practices

- Highly-educated population & high concentration of the "creative class"
- Numerous federally-funded research facilities

Takeaways

- Promote higher-education among population to ensure steady supply of young, relevant workforce

SUPPORTS

Boulder offers an award-winning quality of life that helps employers attract and retain a high quality workforce. Its location at the base of the Rockies, 45,000+ acres of open space, and more than 150 miles of biking and hiking trails provide countless recreational opportunities for life-styled entrepreneurs. It is consistently ranked as one of the nation's healthiest places to live (Boulder Economic Council).

Google, Microsoft, AOL, and Oracle have made acquisitions in Boulder in recent years and have growing outposts in town. Success stories such as Rally Software, Socialthing, Kerpoof, Agile, Trada have inspired a new flock of startups as well.

TechStars, a startup accelerator led by David Cohen and Brad Feld, is one of Boulder's biggest success stories. TechStars' 3-month summer program has worked so well in providing startups with seed funding (\$18K each) and access to a network of mentors and investors, that it has been duplicated in Boston, Seattle, and New York City. Nearly half of all participating firms that enroll in the Boulder program end up staying in Boulder.

TechStars is directly funded by over 75 venture funds and angel investors but has recently raised an additional \$24M in new funding from a number of top-tier VC firms, TechStars' Alumni, and several individuals. This new funding will be used to offer every single new TechStars company an additional \$100,000 in funding in the form of a convertible note upon acceptance into the program. TechStars is funding approximately 60 companies per year. More than 70% of TechStars companies go on to raise venture or angel capital after the program ends and 7 of the first 20 companies incubated have been acquired.³⁶

Key Best Practices

- An exemplary accelerator program that provides direct seed funding to early-stage startups
- Growing companies to successful exits/acquisitions by larger companies

Takeaways

- Create an Accelerator to support local tech startups (draw from existing models such as, TechStars, YCombinator, Plug and Play Tech Center, Excelerate Labs)
- Evaluate establishing a seed fund as part of accelerator program to give startups direct access to funding

COMMUNITY

Boulder is an open-door community where entrepreneurs are willing to share their experience and help each other. www.boulder.me, a website run by a group of volunteers, is devoted to serving the local tech community and informing them of tech events, job openings, successful local companies, and local tech activities. The site also lists Boulder's tech Ambassadors (people who have volunteered to help orient new entrepreneurs to Boulder's tech scene) like Brad Feld and Jason Mendelson (Foundry Group), Ari Newman (Filtrbox), Andrew Hyde (Startup Weekend), and Brad Bernthal (Silicon Flatirons Center).

Boulder is at the center of Colorado's tech scene with events such as, TechStars Demo Day, Ignite Boulder, Open Coffee Club, Entrepreneurs Unplugged, Startup Weekend, Startup Drinks, Bar Camp Boulder, Boulder Startup Week providing plenty of opportunities to network with the entrepreneurial crowd. The Boulder Denver New Tech Meetup has over 7,000 members and draws 400+ attendees to its monthly networking events, where startups can showcase what they're working on.

Key Best Practices

- A central information portal (Boulder.me) serving to inform tech community on local startup activity and welcome those who have relocated
- Open-office hours by veteran entrepreneurs who volunteer to mentor/advise local startups

Takeaways

- Appoint a team of Ambassadors to welcome newcomers to Miami and orient them with its tech scene (reduces learning curve)
- Create a central website to report on all startup/tech activity in Miami

POLICY

The common refrain in Boulder is that the best thing government can do is invest in education and provide enabling infrastructure. The Boulder Economic Council, an affiliate of the Boulder Chamber, is made up of a group of prominent business leaders that serve as advocates for Boulder's business community. According to the Boulder Economic Council, the City of Boulder has over 6,500 employers, of which approximately 75 percent have 10 or fewer employees, so it is critical to support small business in the area.

Public-private collaboration between the City of Boulder, Boulder Economic Council, Boulder Chamber and other local groups supports the healthy and sustainable business environment that fosters the creation and growth of businesses in Boulder. The City of Boulder has also partnered with banks and the Colorado Enterprise Fund to create the *Boulder Microloan Fund*, a fund that extends up to \$50k to qualifying businesses and non-profits with annual gross revenue of less than \$2M. The city has contributed \$100k to the fund's current balance of \$575k.³⁷

The Boulder Innovation Center (BIC) provides assistance and expertise in areas such as recruiting management teams, writing business plans, and raising capital to help launch business ventures. The BIC works closely with the University of Colorado's Technology Transfer Office and researchers helping determine the commercial feasibility of University IP and seeking ways to license the technology they develop.

Also located in Boulder, CO-LABS is a coalition of federally funded scientific laboratories, universities, businesses, local governments, and legislators that work together to establish Colorado as a global leader in research, technology, and technology transfer.

Key Best Practices

- Websites that serve as resources to promote local business community: Boulder Innovation Center, Boulder Economic Council
- Sophisticated Technology Transfer programs to move innovations from academic settings into the commercial world

Takeaways

- Establish a public/private fund for businesses that can't obtain financing through traditional sources

ENDNOTES:

- ¹ Silicon Valley Index 2012, Joint Venture & Silicon Valley Community Foundation [<http://www.jointventure.org/images/stories/pdf/2012index.pdf>]
- ² O'mara, Margaret, "Don't Try This at Home — You can't build a new Silicon Valley just anywhere," *Foreign Policy*, Oct 2010 [http://www.foreignpolicy.com/articles/2010/08/16/dont_try_this_at_home?page=full]
- ³ "Trends in Terms of Venture Financings In Silicon Valley (Fourth Quarter 2011)," *Venture Capital Survey Silicon Valley Fourth Quarter 2011*, Fenwick & West LLP [<http://www.fenwick.com/publications/6.12.1.asp?vid=21>]
- ⁴ "Trends in Terms of Venture Financings in Silicon Valley (Fourth Quarter 2011)," *Venture Capital Survey Silicon Valley Fourth Quarter 2011*, Fenwick & West LLP [<http://www.fenwick.com/publications/6.12.1.asp?vid=21>]
- ⁵ O'Mara, Margaret, "Don't Try This at Home," *Foreign Policy*, Sept/Oct 2010 [http://www.foreignpolicy.com/articles/2010/08/16/dont_try_this_at_home?page=full]
- ⁶ Stanford Facts: The Stanford Lands, Stanford University Website [<http://facts.stanford.edu/lands.html>]
- ⁷ Lauder, Leonard A., "The Immigration Solution for Job Growth," *The Wall Street Journal*, 19 Oct 2011 [<http://online.wsj.com/article/SB10001424052970203914304576631452123306760.html?KEYWORDS=leonard+lauder>]
- ⁸ "Mayor Bloomberg Delivers Keynote Speech on the City's Initiative to Persuade A Top-Tier University to Build or Expand an Engineering and Applied Sciences Campus in New York City," News from the Blue Room — Press Release, NYC.gov, 19 Jul 2011 [http://www.nyc.gov/portal/site/nycgov/menuitem.c0935b9a57bb4ef3daf2f1c701c789a0/index.jsp?pageID=mayor_press_release&catID=1194&doc_name=htp%3A%2F%2Fwww.nyc.gov%2Fhtml%2Fom%2Fhtml%2F2011b%2Fpr262-11.html&cc=unused1978&rc=1194&ndi=1]
- ⁹ Katz, Mike, "Hot or Not? Technology Entrepreneurship in New York City," *Business Insider*, 18 May 2010 [http://articles.businessinsider.com/2010-05-18/tech/30000566_1_angel-investors-seed-funds-seed-investment]
- ¹⁰ Rosenbaum, Steve, "New York's Venture Funds for Startups Are on the Rise," *Business Insider*, 28 Nov 2011 [http://articles.businessinsider.com/2011-11-28/tech/30449316_1_national-venture-capital-association-supply-and-demand-mayor-bloomberg]
- ¹¹ Glazer, Emily, "Students Shift to Computer Science," *The Wall Street Journal*, 21 Dec 2011, [<http://online.wsj.com/article/SB10001424052970204791104577110810802528098.html>]
- ¹² Katz, Mike, "Hot or Not? Technology Entrepreneurship in New York City," *Business Insider*, 18 May 2010 [http://articles.businessinsider.com/2010-05-18/tech/30000566_1_angel-investors-seed-funds-seed-investment]
- ¹³ Katz, Mike, "Hot or Not? Technology Entrepreneurship in New York City," *Business Insider*, 18 May 2010 [http://articles.businessinsider.com/2010-05-18/tech/30000566_1_angel-investors-seed-funds-seed-investment]
- ¹⁴ "Cornell and the Technion will Partner in Groundbreaking NYC Tech Campus," *Chronicle Online*, Cornell University, 18 October 2011 [<http://www.news.cornell.edu/stories/Oct11/NYCpartner.html>]
- ¹⁵ "Mayor Bloomberg Delivers Keynote Speech on the City's Initiative to Persuade A Top-Tier University to Build or Expand an Engineering and Applied Sciences Campus in New York City," News from the Blue Room — Press Release, NYC.gov, 19 Jul 2011 [http://www.nyc.gov/portal/site/nycgov/menuitem.c0935b9a57bb4ef3daf2f1c701c789a0/index.jsp?pageID=mayor_press_release&catID=1194&doc_name=htp%3A%2F%2Fwww.nyc.gov%2Fhtml%2Fom%2Fhtml%2F2011b%2Fpr262-11.html&cc=unused1978&rc=1194&ndi=1]
- ¹⁶ Perez-Pena, Richard, "Cornell Alumnus is Behind \$350 Million Gift to Build Science School in City," *The New York Times*, 19 Dec 2011 [<http://www.nytimes.com/2011/12/20/nyregion/cornell-and-technion-israel-chosen-to-build-science-school-in-new-york-city.html>]
- ¹⁷ Jeffries, Adrienne, "City Says Engineering High School Will Have 420 to 460 Students by 2015," *BetaBeat -Silicon Alley High*, 12 Jan 2012 [<http://www.betabeat.com/2012/01/12/city-says-engineering-high-school-will-have-420-to-460-students-by-2015/>]
- ¹⁸ De Avila, Joseph, "Tech Firms Move to Hip New Home," *The Wall Street Journal*, 25 August 2011 [http://online.wsj.com/article/SB10001424053111903461304576527000140083840.html?mod=WSJ_Tech_LEFTTopNews]
- ¹⁹ "Mayor Bloomberg Launches Innovation Index to Measure New York City's Economic Transformation," Press Release — NYC.gov, 14 Apr 2011 [http://www.nyc.gov/portal/site/nycgov/menuitem.c0935b9a57bb4ef3daf2f1c701c789a0/index.jsp?pageID=mayor_press_release&catID=1194&doc_name=htp%3A%2F%2Fwww.nyc.gov%2Fhtml%2Fom%2Fhtml%2F2011a%2Fpr124-11.html&cc=unused1978&rc=1194&ndi=1]
- ²⁰ "Economic Growth Among Top Accomplishments of Mayor Bloomberg's Third Term," Mike Bloomberg.com, 20 Oct 2011 [<http://www.mikebloomberg.com/index.cfm?objectid=223D171B-C29C-7CA2-F070476198ABC037>]
- ²¹ Rich, Laura, "Why You Should Start a Company in... Chicago," *Fast Company*, 19 Feb 2010 [<http://www.fastcompany.com/article/why-you-should-start-a-company-in-chicago>]
- ²² Krieger, Jonathan, "5 Reasons the Windy City is a Great Place for Startups," 6 February 2012 [<http://tech.li/2012/02/5-reasons-the-windy-city-is-a-great-place-for-startups/>]
- ²³ *Fast Company* 2010
- ²⁴ www.builtinchicago.com
- ²⁵ Guy, Sandra, "Tech Center to Launch this Spring at Merchandise Mart," *Chicago Sun Times*, 21 February 2012 [<http://www.suntimes.com/business/10083964-420/tech-center-1871-to-launch-this-spring-at-merchandise-mart.html>]

-
- ²⁶ Rich, Laura, "Why You Should Start a Company in . . . Chicago," *Fast Company*, 19 Feb 2010
[<http://www.fastcompany.com/article/why-you-should-start-a-company-in-chicago>]
- ²⁷ Krieger, Jonathan, "5 Reasons the Windy City is a Great Place for Startups," 6 February 2012
[<http://tech.li/2012/02/5-reasons-the-windy-city-is-a-great-place-for-startups/>]
- ²⁸ Katris, Maria, "Chicagos's Thriving Startup Ecosystem-Help Us Spread the Word," *BuiltInChicago.com*, 19, Dec 2011
[http://www.builtinchicago.org/profiles/blogs/chicago-s-thriving-entrepreneurial-ecosystem-help-us-spread-the-wo?xg_source=activity]
- ²⁹ McCann, Bailey, "Chicago Launches Innovation Fund, Asks City Depts to Create Apps," *CivSource*, 11 Jan 2012
[<http://civsourceonline.com/2012/01/11/chicago-launches-innovation-fund-asks-city-depts-to-create-apps/>]
- ³⁰ Cancino, Alejandra, "Quinn Announces \$78M State Venture Capital Program," *Chicago Tribune*, 05 Oct 2011
[http://articles.chicagotribune.com/2011-10-05/business/chi-quinn-announces-78m-state-venture-capital-program-20111005_1_venture-capital-veteran-owned-businesses-new-businesses]
- ³¹ Falk, Tyler, "Should Cities Act More Like Tech Startups?," *SmartPlanet*, 20 January 2012,
[<http://www.smartplanet.com/blog/cities/should-cities-act-more-like-tech-startups/1698>]
- ³² Miller, Claire Cain, "Boulder, Colo., a Magnet for High-Tech Startups," *The New York Times*, 13 May 2010
[http://www.nytimes.com/2010/05/14/business/14boulder.html?_r=2]
- ³³ Lewis, Jerry, "Boulder Likes Its Entrepreneurial Density," *Huffington Post Denver*, 20 May 2011
[http://www.huffingtonpost.com/jerry-lewis/boulder-entrepreneurial-density_b_864522.html]
- ³⁴ Wadhwa, Vivek, "Why Boulder is America's Best Town for Startups," *Bloomberg Businessweek*, 22 April 2010
[http://www.businessweek.com/smallbiz/content/apr2010/sb20100421_531161.htm]
- ³⁵ Miller, Claire Cain, "Boulder, Colo., a Magnet for High-Tech Startups," *The New York Times*, 13 May 2010
[http://www.nytimes.com/2010/05/14/business/14boulder.html?_r=2]
- ³⁶ Rao, Leena, "Startup Incubator TechStars Raises \$24M, Increases Funding For Each Company By \$100K," *TechCrunch*, 21 September 2011
[<http://techcrunch.com/2011/09/21/startup-incubator-techstars-raises-24m-increases-funding-for-each-company-by-100k/>]
- ³⁷ City of Boulder, Colorado — Business Incentive Programs
[http://www.bouldercolorado.gov/index.php?option=com_content&view=article&id=5816&Itemid=2401]