THE TOP 100 U.S. STARTUP CITIES IN 2016

Edward J. Egan, Ph.D.
Baker Institute Fellow, and Director, McNair Center for Entrepreneurship and Innovation

Anne Dayton, Ph.D.
Research Manager, McNair Center

Diana Carranza
Graduate Researcher, McNair Center

December 2017

Graphics were drawn by Lin Yang.
Data source: Authors' own work based on data from Thomson–Reuters VentureXpert

Edward J. Egan, Ph.D.
Anne Dayton, Ph.D.
Diana Carranza
"The Top 100 U.S. Startup Cities in 2016"

Summary

This report uses data from Thomson–Reuters VentureXpert to examine venture capital (VC) investment in the United States for 2016 and generate a ranking for the Top 100 U.S. Startup Cities in 2016. Our overall ranking is based on equally weighting cities' ranks for growth venture capital invested, the number of new venture capital deals, and the number of active VC-backed startups, as shown in Tables 1 and 2.

A summary of 2016's national trends is as follows:

- The total amount of seed, early, and later-stage (also known as growth investment) venture capital invested in startup companies was $33 billion, down from $41 billion in the previous year.
- The number of U.S. startups receiving growth investment from a venture capital firm for the first time also declined to 1,041 from the 1,347 "new deals" recorded in 2015.
- The total stock of active venture-backed startups based in the U.S. now numbers 9,656, having risen to just past 9,700 in the previous year.

As in past years, startup activity was concentrated in a select set of American cities:

- In 2016, the top 50 cities received 73% of dollars invested, accounted for 70% of new deals, and housed 69% of VC-backed startups.
- The next 50 cities had much lower startup activity. Cities ranked 51 to 100 collectively took just 9% of dollars invested, accounted for about 11% of new deals, and housed around 11% of VC-backed startups.

Figure 1. Concentration of U.S. Startup Activity

Top 50 cities
- 73% of dollars invested
- 70% of new deals
- 69% of VC-backed startups

The next 50 cities
- 9% of dollars invested
- 11% of new deals
- 11% of VC-backed startups

The rest of the country
- 18% of dollars invested
- 19% of new deals
- 20% of VC-backed startups
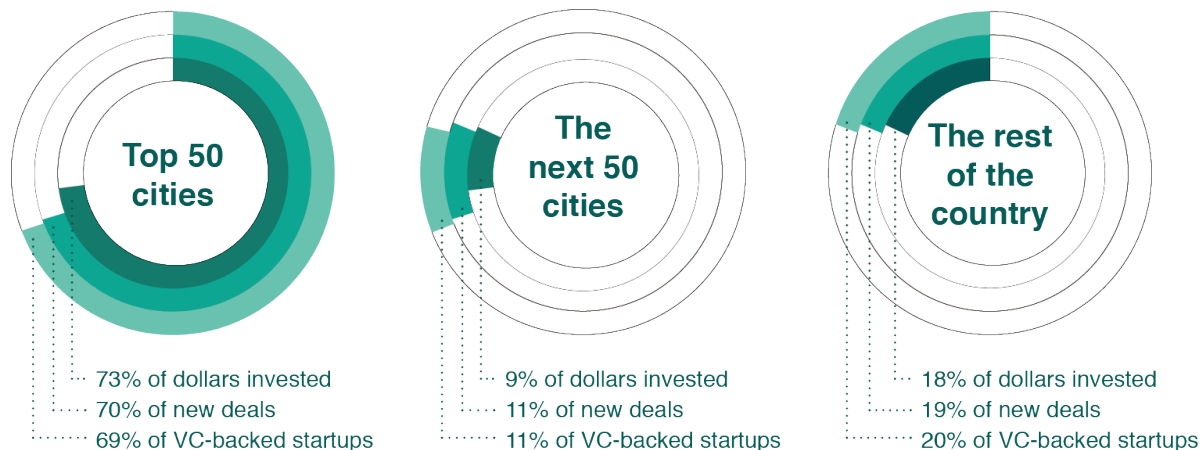
We break out the top 50 U.S. cities (Table 1) into three tiers: The first tier is composed of the top seven cities—the only U.S. cities that received more than 20 deals in 2016. Each city in this tier is an example of a major and highly successful startup ecosystem. The second tier, made up of 29 cities, ranges from would-be top-tier cities that are small and fully saturated (like Menlo Park, California)[1] and giants in the making (like Chicago) all the way down to those that appear to have just reached critical mass.[2] Third-tier cities have some startup activity—they are still top 50 cities—but they have not reached the threshold for us to confidently proclaim them as having achieved a virtuous and self-sustaining cycle of startup activity.[3]

The 2016 top-tier cities are:

1. **San Francisco, California**. Ranked highest on each individual measure and the clear winner on the composite rank since 2006, San Francisco also has the sixth-highest number of startups per capita of any top 50 city. Palo Alto and Menlo Park, both bordering Stanford University, have the highest per capita counts overall, and they are adjacent to Mountain View and Redwood City, the next-densest startup cities in the U.S. The Bay Area has seen a viral spread of startup activity, and San Francisco— the West Bay's largest city—is uncontested as America's startup capital.

2. **New York City (Manhattan), New York**. Manhattan has held second place for at least a decade now, according to our research. With a startup density around one-fifteenth that of San Francisco, Manhattan's ecosystem has room to grow substantially, and could one day take over the top spot in the rankings. Two other New York boroughs—Brooklyn[4] and Long Island City (a part of Queens)[5]—also appear in our top 100 ranking.

3 and 4. **Boston and Cambridge, Massachusetts**. These cities on either side of the Charles River have the greatest concentration of elite universities in the U.S.[6] This high-tech cluster is referred to as Route 128, named after the state highway that encircles the two cities. The ecosystems moved up one place apiece to take third and fourth place, respectively, in 2016. Boston–Cambridge startups have spread to neighboring cities like Lexington (35th), Waltham (40th), Woburn (56th), and Natick (100th).

5. **Palo Alto, California**. The original home of Silicon Valley moved down a place in 2016. We attribute this dip to sheer saturation. Palo Alto was home to 265 startups (actively receiving venture capital) and a population of just 67,024 in 2016. If a

---

[1] Saturation occurs when a city has such a high volume of startups that it struggles to accommodate further new ventures.
[2] An entrepreneurship ecosystem reaches critical mass when enough startups receive venture capital funding that the funding cycle becomes self-sustaining and creates further growth.
[3] A virtuous circle is a self-reinforcing chain of events that has favorable results.
[4] City data collection was based on the postal addresses of VC-backed startups. Brooklyn, a borough within New York City, is a self-reported city in the dataset.
[5] Long Island City in Queens is a self-reported city in the dataset.
[6] With Harvard University, MIT, Boston University, and Brandeis University, Greater Boston has the largest number of Association of American Universities members of any U.S. metropolitan area and has seven universities ranked as "highest research activity" by the Carnegie Classifications of Institutions of Higher Education.

typical VC-backed company employs 50 people, as many as 1 in 5 Palo Alto residents could work for a pre-exit startup.[7]

6. **Austin, Texas**. Austin is home to several IT giants from the 1980s and 1990s, including Dell, as well as the main campus of The University of Texas. Austin is the only southern city in the top 25. Its cost of living is the lowest among the top-tier cities—140% lower than New York City, 85% lower than San Francisco, and 55% lower than Boston.[8]

7. **Seattle, Washington**. Seattle, home to both Microsoft and Amazon, rounds out our set of 2016 top-tier cities. Seattle's cost of living is 24% lower than it is in San Francisco. The U.S. Census ranks Seattle as among the top five fastest growing cities by population in 2016.[9] Neighboring Kirkland benefits from the spillover of Seattle startups and ranks 80th on the list.

Table 1. The Top 50 U.S. Cities by Venture Capital Invested, 2016

Rank	City	Pop. (m)	Investment ($m)	New deals	VC-backed startups	Startups per capita (no. /m)	Rank change from		
							2015	2011	2006
1	San Francisco, CA	0.87	5,599	142	1,266	1,454	0	0	0
2	New York, NY	1.59	4,021	123	922	107	0	0	0
3	Boston, MA	0.67	1,362	37	266	395	+1	+9	+14
4	Cambridge, MA	0.11	1,705	30	204	1,844	+1	+1	+4
5	Palo Alto, CA	0.07	743	25	265	3,954	-2	-1	+7
6	Austin, TX	0.95	583	27	220	232	+6	0	+3
7	Seattle, WA	0.70	383	23	211	300	0	+7	+4
8	Redwood City, CA	0.08	808	15	157	1,848	+2	0	+1
9	Chicago, IL	2.70	443	18	182	67	-1	+6	+5
10	San Diego, CA	3.32	656	14	166	50	0	-4	-5
11	Los Angeles, CA	10.14	371	18	153	15	+3	+5	+20
12	Menlo Park, CA	0.03	638	14	119	3,512	+7	-4	+4
13	San Mateo, CA	0.76	357	17	134	175	-1	+3	0
14	San Jose, CA	1.03	315	8	151	147	-5	-1	-10
15	Mountain View, CA	0.08	357	6	202	2,511	-9	-12	-9
16	Pittsburgh, PA	0.30	150	15	187	616	+5	+9	+1
17	Sunnyvale, CA	0.15	281	9	115	753	-1	-8	-13
18	Irvine, CA	0.27	346	12	69	259	+6	-2	+2
19	Santa Clara, CA	1.92	194	7	114	59	+1	-8	-12
20	Philadelphia, PA	1.57	118	14	123	78	+1	+33	+52

[7] A startup exit occurs when a firm has an initial public offering (IPO) or is acquired by another firm.
[8] Cost of living comparisons were calculated from Nerd Wallet's cost of living calculator, powered by data from The Council for Community and Economic Research, https://www.nerdwallet.com/cost-of-living-calculator/compare.
[9] U.S. Census Bureau, "The 15 Cities with the Largest Numeric Increase between July 1, 2015, and July 1, 2016 (Populations of 50,000 or more in 2015)," May 25, 2017, https://www.census.gov/newsroom/press-releases/2017/cb17-81-population-estimates-subcounty.html.

Rank	City	Pop. (m)	Investment ($m)	New deals	VC-backed startups	Startups /cap m	2015	2011	2006
21	Santa Monica, CA	0.09	153	8	108	1,168	-2	+4	+26
22	South San Francisco, CA	0.07	631	5	55	821	-6	0	+1
23	Oakland, CA	0.42	205	9	41	98	+8	+20	+81
24	Brooklyn, NY	2.50	141	11	67	27	+39	+27	+235
24	Minneapolis, MN	0.41	211	8	37	89	+19	+31	+28
26	Atlanta, GA	0.47	117	6	100	212	-9	-5	-7
27	Durham, NC	0.31	169	5	46	150	0	-1	+26
28	Denver, CO	0.69	93	8	73	105	-5	-9	+6
29	Salt Lake City, UT	0.19	180	5	39	201	+7	-1	+12
30	Dallas, TX	2.57	144	6	40	16	+11	+27	+9
31	Boulder, CO	0.32	77	7	71	220	+3	-11	-4
32	Baltimore, MD	0.83	95	6	59	71	+11	+41	+4
33	Ann Arbor, MI	0.12	75	8	49	406	-3	+35	+85
33	St. Louis, MO	0.32	121	3	65	204	-7	+7	+67
35	Lexington, MA	0.03	128	5	35	1,048	+1	-3	-11
36	Los Altos, CA	0.03	108	8	33	1,080	+17	+45	+38
37	Carlsbad, CA	0.11	283	2	34	298	+27	-7	+1
38	La Jolla, CA	0.05	96	5	35	748	+2	+47	+74
39	Houston, TX	2.30	69	5	57	25	-7	-16	-17
40	Waltham, MA	0.06	179	2	33	524	+9	-13	-20
41	Washington, DC	0.60	69	4	62	103	+10	+5	+42
42	Hayward, CA	0.16	290	2	22	138	+48	+12	+104
43	Cincinnati, OH	0.30	58	6	42	141	+13	+117	+124
43	Pleasanton, CA	0.08	178	2	26	316	+2	+65	-16
45	Reston, VA	0.06	105	2	35	599	+11	0	+10
46	Burlingame, CA	0.03	104	2	34	1,122	-17	-13	+8
46	Scottsdale, AZ	0.25	71	4	34	138	+34	+15	+31
48	Culver City, CA	0.04	141	3	21	533	+23	+106	+502
49	Santa Barbara, CA	0.45	116	3	23	52	+30	+45	+109
50	Fremont, CA	0.23	203	1	35	150	+15	-20	-35

Table 2. U.S. Cities Ranked From 51 to 100 by Venture Capital Invested, 2016

| Rank | City | Pop. (m) | Investment ($m) | New deals | VC-backed startups | Startups /cap m | Rank change from | | |
							2015	2011	2006
51	Cupertino, CA	0.06	85	4	22	363	+11	-9	-7
52	Tampa, FL	0.38	71	4	22	58	-14	+25	-13
53	New Haven, CT	0.86	70	3	25	29	+2	+10	-3
53	Venice, CA	0.04	46	7	29	709	-7	+104	+155
55	Los Gatos, CA	0.03	96	2	22	720	-1	+41	+84
56	Woburn, MA	0.04	133	2	18	456	+3	+4	+28
57	Arlington, VA	0.23	90	3	20	87	+61	+36	+315
57	Berkeley, CA	0.12	32	8	37	305	+4	+30	+5
57	Emeryville, CA	0.01	208	1	25	2,142	-25	+66	-24
60	Nashville, TN	0.60	38	3	65	108	-32	-11	+135

61	Newark, CA	0.05	151	2	15	327	+62	+11	0
62	Pasadena, CA	0.14	49	4	23	162	+5	+18	+60
63	Miami, FL	0.45	53	3	21	46	-3	-8	+205
64	Jersey City, NJ	0.26	185	2	10	38	+31	+331	+11
65	Foster City, CA	0.03	141	1	17	497	+3	+11	-28
66	Cleveland, OH	0.39	24	2	44	114	+9	-30	-17
66	Princeton, NJ	0.01	67	2	14	1,138	+36	+12	+108
68	Phoenix, AZ	1.62	45	2	18	11	+35	+64	+34
69	Madison, WI	0.25	22	3	38	150	-11	+144	-9
70	Milpitas, CA	0.08	38	2	20	258	-22	-29	-11
71	Portland, OR	0.64	20	2	75	117	-46	-33	-36
72	Charlottesville, VA	0.05	72	1	19	405	+9	+47	+201
73	Indianapolis, IN	0.86	18	5	31	36	0	-34	+11
74	Raleigh, NC	0.46	50	1	18	39	+12	+42	+7
75	Birmingham, AL	0.21	30	3	13	61	+300	+169	+57
76	Franklin, TN	0.07	57	1	14	187	+159	-6	+94
77	Kansas City, MO	0.48	42	2	10	21	N/A[10]	+9	+57
78	Columbus, OH	0.86	12	4	34	40	-40	-27	+4
79	Alpharetta, GA	0.07	36	1	20	306	+4	+20	+65
80	Kirkland, WA	0.09	28	3	13	148	+39	-9	-17
81	Omaha, NE	0.45	22	2	16	36	+28	+57	+79
82	Watertown, MA	0.03	69	1	10	313	+12	-3	+21
83	Long Island City, NY	0.07	194	1	6	88	+142	0	+546
84	Provo, UT	0.12	42	1	14	120	-12	+75	+124
85	San Bruno, CA	0.04	35	1	16	372	+20	-37	-30
86	Albuquerque, NM	0.56	21	1	24	43	+21	-21	+45
86	Malvern, PA	0.00	35	1	14	4,106	-9	+5	-8
86	Rochester, NY	0.21	33	1	15	72	+18	+51	+5
89	Aliso Viejo, CA	0.05	21	2	14	272	+2	+1	-21
90	Herndon, VA	0.02	11	2	24	984	+9	-25	-42
91	Kalamazoo, MI	0.26	41	1	11	42	+158	-29	+211
92	Bellevue, WA	0.14	8	2	39	276	-42	-45	-66
92	McLean, VA	0.05	10	3	22	457	+81	-63	-26
94	King of Prussia, PA	0.02	32	1	13	652	+28	-7	+130
95	Sandy, UT	0.10	44	2	6	63	+362	+91	+236
96	Campbell, CA	0.04	164	0	29	708	-44	-61	-66
97	San Juan Capistrano, CA	0.04	18	1	18	496	+9	0	0
98	Newport Beach, CA	0.09	17	2	10	115	-5	+117	+72
98	San Carlos, CA	0.03	108	0	27	906	-63	-48	-28
100	Natick, MA	0.04	49	1	6	600	+210	+179	+462

---

[10] Kansas City was not ranked in 2015.

Classifying Cities

Methodology

We analyzed three metrics to score each city:[11] the dollars invested, which measures the total amount of growth-oriented venture capital (VC) invested into startup firms in a city; the number of new deals, which looks at the number of startups that received their first-ever round of VC financing; and the number of VC-backed startups, which gauges the overall scale of a city's ecosystem. We ranked cities on each of these three measures for 2016 and then assigned them an overall rank by equally weighting the component metric rankings.

Venture capital is a type of private equity provided to newly formed firms with high growth potential. The total amount of seed, early, and later-stage venture capital invested in U.S. startup companies dropped to $33 billion in 2016, down from $41 billion in the previous year. Seed, early, and later-stage investment is the most important type of venture capital and is targeted at growing nascent firms. Because startup firms have different capital requirements, the amount of venture capital invested can vary wildly from one startup to another. Some of this is explained by industry and stage of development, but a lot of it is idiosyncratic. This makes the amount invested a very noisy measure.

A new deal is when one or more venture capitalists invest in a startup firm for the first time. It is the first round of investment, often referred to as a seed round or a "Series A" round. Successful startups will go on to receive many subsequent rounds, perhaps from different syndicates of venture capitalists. The number of new deals shows how many startups have pitched high-quality business models and attracted venture capital. The number of new deals is therefore a measure of the flow of new startups entering the venture financing process. As deals vary in size, importance, and odds of success, this is also a somewhat noisy measure.

Our third metric is the number of VC-backed startups that are alive in an ecosystem.[12] Ecosystems may need a critical mass of startup firms undergoing venture financing for ecosystem institutions—like accelerators, incubators, and hubs—to become viable. The number of VC-backed startups is a stock rather than a flow measure, and so it is less volatile. In general, the more VC-backed companies in an ecosystem, the more robust the startup activity. However, it is possible for an ecosystem to have a large number of legacy startups and little new deal flow.

We also include the density of startups—measured by the number of active VC-backed startups per million people—in our ranking tables, even though we do not rank by this factor. Much like GDP contribution, this measure gives a sense of how economically important startup activity is to a city. In general, greater density is a good thing. However,

---

[11] All data comes from Thomson–Reuters VentureXpert. We use the self-reported postal address city of the headquarters of venture capital-backed startups to identify their location.
[12] We follow the academic convention of treating a VC-backed startup as alive until it has not received a subsequent round of venture capital for five years or it achieves an IPO or an acquisition.

there are clear signs that some cities—especially in the San Francisco Bay Area—may be reaching capacity, which is encouraging startups to spill over into adjacent cities.
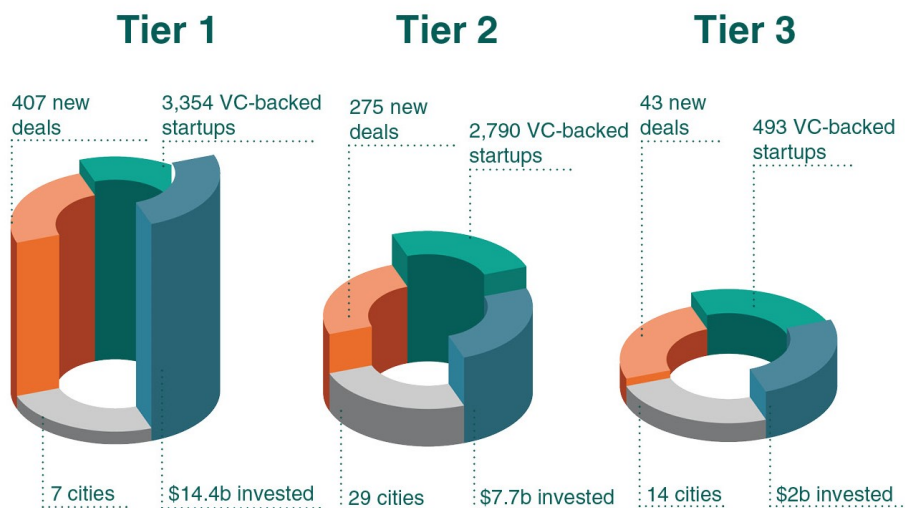
Finally, the ranking tables include each city's one-year, five-year, and 10-year change in rank. For example, Boston went up the ranking by one position from 4th place in 2015, increased its rank nine positions since 2011, and was ranked 17th in 2005. Rank changes provide insight into a city's relative stability or volatility as a startup location.

Three Tiers of Cities

We classify the top 50 cities into one of three tiers. The first tier, composed of just seven cities, contains firms that had more than 20 new deals and more than 210 active startups in 2016. The second tier contains firms ranked from 8 to 36. These cities have high single-digit deal flows and annual growth investments in the hundreds of millions. The third tier contains firms ranked from 37 to 50. The total investment, number of new deals, and number of active startups for each tier is shown in Figure 2.

The tier cut-offs are not clear-cut, and there is little difference between firms on either side of the boundary for each division. For example, the 8th ranked city (Redwood City) actually had much more annual investment than the 7th ranked city (Seattle), but fewer new deals and active startups. However, the tiers provide a useful conceptual breakdown: first-tier cities are major and highly successful startup ecosystems; second-tier cities have reached critical mass; and third-tier cities have some startup activity but probably have not achieved a virtuous and self-sustaining cycle of startup activity as yet. In this context, we can say that in 2016, Brooklyn moved from our third tier to our second tier, and is fast becoming an exciting location for startups.

Figure 2. Three Tiers of Startup Concentration

Tier 1 — 407 new deals — 3,354 VC-backed startups — 7 cities — $14.4b invested

Tier 2 — 275 new deals — 2,790 VC-backed startups — 29 cities — $7.7b invested

Tier 3 — 43 new deals — 493 VC-backed startups — 14 cities — $2b invested

Tier 1 is composed of the top seven cities in the U.S. for startups. They are San Francisco, New York, Boston, Cambridge, Palo Alto, Austin, and Seattle. Tier 1 cities each received an average of $2 billion in investment, 58 new deals, and had an average of 479 VC-backed startups in 2016.

Tier 2 includes the rest of the Silicon Valley and the major startup cities in Southern California (Los Angeles, San Diego, Irvine, and Santa Monica), as well as Chicago, Pittsburgh, Philadelphia, Brooklyn, Minneapolis, Atlanta, Durham, Denver, Salt Lake City, Dallas, Boulder, Baltimore, Ann Arbor, St. Louis, and Lexington. These second-tier cities (29 in total) each received an average of $265 million in investment, nine new deals, and had an average of 96 active VC-backed startups in 2016. These are the cities ranked between 8 and 36 in Table 1.

Due to their nationally dominant ecosystems, Bay Area and other California cities are spread throughout the tiers. Notable Tier 3 cities include Houston, Waltham, Washington, D.C., Cincinnati, Reston, and Scottsdale. Tier 3 contains the 14 cities that ranked between 37 and 50. These cities each had an average of $140 million in investment, three new deals, and 35 VC-backed startups.

The tiers put the differences in performance across ecosystems into stark contrast. In Tier 1 cities, the average investment in startup activity per city is 8 times larger than in Tier 2, which in turn is almost 2 times larger than in Tier 3 cities. The trend is similar in the rest of the metrics, which gives a better perspective on the size and relevance of a city's venture capital activity based on its tier classification.
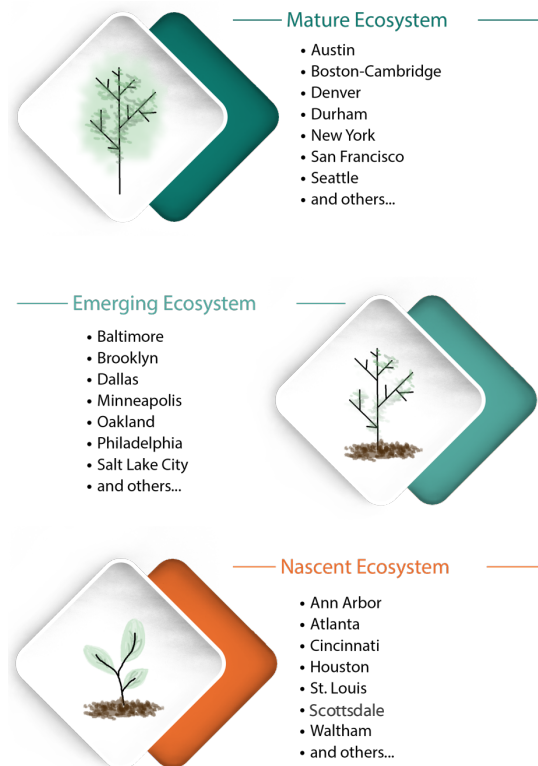
Mature, Emerging, and Nascent Ecosystems

We also grouped cities into mature, emerging, and nascent ecosystems. For these categories we analyzed the growth, stability, and saturation of the cities as measured by rank change and startup density.

A key indicator is the volatility of the rank changes over the past decade. A mature ecosystem will show minimal changes to its ranking, an emerging ecosystem will potentially show positive advances, and a nascent ecosystem will tend to have a higher level of volatility in its ranking.

Unsurprisingly, the two ecosystems that show no rank change over the past 10 years are San Francisco and New York, which are the two

Figure 3. Mature, Emerging, and Nascent Ecosystems

Mature Ecosystem
- Austin
- Boston-Cambridge
- Denver
- Durham
- New York
- San Francisco
- Seattle
- and others...

Emerging Ecosystem
- Baltimore
- Brooklyn
- Dallas
- Minneapolis
- Oakland
- Philadelphia
- Salt Lake City
- and others...

Nascent Ecosystem
- Ann Arbor
- Atlanta
- Cincinnati
- Houston
- St. Louis
- Scottsdale
- Waltham
- and others...

biggest ecosystems in the country. Other standouts among mature ecosystems include Boston–Cambridge, Austin, Seattle, Los Angeles, Denver, and Durham. Their rank changes are either minimal or slightly positive.

Emerging ecosystems show considerable positive rank changes. For instance, Philadelphia moved from the 72nd spot in 2006 to the 20th spot over a 10-year period. Other notable emerging ecosystems include Baltimore, Brooklyn, Dallas, Minneapolis, Philadelphia, Salt Lake City, and—in California—Los Altos, Carlsbad, Hayward, and Oakland.

Figure 4. Houston's Ranking, 2006–2016

2006 (#22)

2011 (#23)

2015 (#32)

2016 (#39)
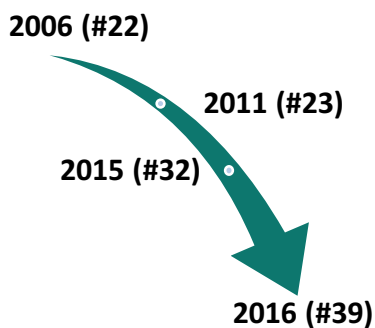
Nascent ecosystems show negative or highly volatile rank changes. An example of a nascent ecosystem is Houston, which was ranked 22nd in 2006 and declined to its present rank of 39 in 2016. Atlanta, likewise, has dropped 9 places in the rankings since last year. Other nascent ecosytems just have not, as yet, reached critical mass. Many of them are small, which makes their rankings volatile, but are generally on the rise. Examples include Ann Arbor, Cincinnati, St. Louis, Scottsdale, and Waltham.

Mature and emerging ecosystems show a greater saturation of startups as they approach and achieve critical mass; the more stable or promising an ecosystem, in general, the more it will attract startups.

U.S. Startup Geography

Regions and States

Almost half of the dollars invested in 2016 went to firms on the West Coast, while firms in the Northeast took a quarter of the funds, and a group of Midwestern, Sunbelt, and Rocky Mountain state firms received just shy of 7% (Figure 5).

Figure 5. Dollars Invested in U.S. Startups by Regions
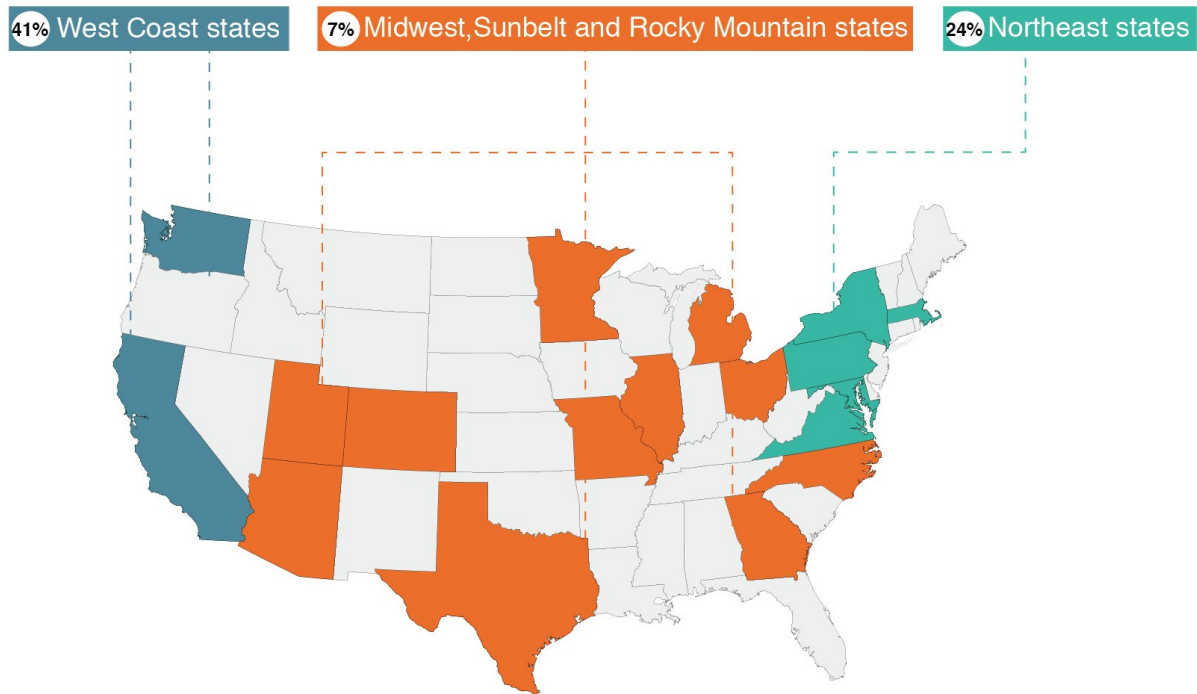
Over a third of new deals are located on the West Coast, a quarter in the Northeast, and 11% in the Midwest, Sunbelt, and Rocky Mountain regions. The same trend applies for the results on VC-backed startups. Higher investments in the Northeast and on the West Coast are associated with more mature ecosystems.

Almost half of startup dollars go to the West Coast, while the Northeast takes a quarter.

The geographical divide of startup activity is clear. The West Coast takes the lead due to the San Francisco Bay Area's interconnected ecosystems. [13] The Northeast's second-place position is driven by New York and Boston, while the rest of the country's startup performance is scattered in large cities like Chicago and Atlanta, or concentrated in the urban areas of larger states, such as Austin, Dallas, and Houston, or Boulder and Denver.

California is the strongest contender with 24 cities on the top 50 list. The Bay Area accounts for 80% of California's overall performance in the three metrics (dollars invested, number of deals, and number of VC-backed startups). Los Angeles, San Diego, and Santa Barbara together make up the remaining 20% of the state's startup performance.

The Bay Area accounts for 80% of California's overall results.

---

[13] For the purpose of our research, the San Francisco Bay Area refers to Greater San Francisco, Silicon Valley, and the East Bay counties.

New York and Massachusetts are the second and third most active states for venture capital. The rest of the states, and consequently their cities, perform in single-digit percentages at best in all three metrics. Texas leads this group, with its performance largely driven by Austin.

The states that garner the most venture capital funding tend to also be powerhouses when it comes to spending on corporate research and development and on patent production by research universities. California led the nation in corporate R&D spending in 2016 with \$4.647 billion invested.[14] R&D-intensive companies can make strong development partners for startup firms, as well as be potential future acquirers. Startups can also originate in university research. Many of the top universities in terms of the number of U.S. patents granted are located in the states receiving the most venture capital.[15]

Table 3. Startup Geography for Select U.S. States

Regions & States	Investment	New Deals	VC-backed Startups
West	**40.9%**	**34.6%**	**37.2%**
California	39.7%	32.4%	35.0%
Washington	1.2%	2.2%	2.2%
Northeast	**24.4%**	**23.9%**	**20.6%**
New York	12.6%	12.9%	10.2%
Massachusetts	10.2%	7.1%	5.6%
Pennsylvania	0.8%	2.8%	3.2%
Maryland	0.3%	0.6%	0.6%
Virginia	0.3%	0.2%	0.4%
Washington, D.C.	0.2%	0.4%	0.6%
Midwest, Sunbelt, and Rocky Mountain states	**6.8%**	**10.7%**	**10.4%**
Texas	2.4%	3.7%	3.3%
Illinois	1.3%	1.7%	1.9%
Minnesota	0.6%	0.8%	0.4%
Georgia	0.4%	0.6%	1.0%
Colorado	0.5%	1.4%	1.5%
Utah	0.5%	0.5%	0.4%
Michigan	0.2%	0.8%	0.5%
Missouri	0.4%	0.3%	0.7%
Ohio	0.2%	0.6%	0.4%
Arizona	0.2%	0.4%	0.4%

[14] Corporate R&D spending calculated from CompuStat. \$381 million was reported for Oregon and \$178 million for New York state in 2016. While Oregon underperformed its West Coast neighbors in VC funding, Portland did rank 71st overall.

[15] The ranking of U.S. universities by patent production was determined by McNair Center data on all U.S. patents granted to U.S. universities between 2006 and 2015, inclusively. The universities in the top 10 are the University of California (1st, all campuses), followed by the Massachusetts Institute of Technology (2nd), Stanford University (3rd), The University of Texas (4th, all campuses), California Institute of Technology (5th), the University of Michigan (6th, all campuses), Johns Hopkins University (7th), the University of Illinois (8th, all campuses), Columbia University (9th), and the University of Florida (10th).

San Francisco Bay Area

The tendency for innovative activity to cluster is reflected in the 16 Bay Area cities in the top 50 ranking. While San Francisco has the strongest results, activity is evenly spread over the rest of the Bay Area cities, and a third of the entire country's startup activity is located in the Bay Area.

As the high-tech industry developed, startups and associated institutions could not be confined to Silicon Valley and spread into the surrounding San Francisco Bay Area. The geographical interconnectivity facilitated the growth of the industry: this spillover effect can be clearly seen in the positive rank changes in Bay Area cities over the last 10 years. The close proximity of the cities also creates a cohesive network, where cities complement each other rather than compete.

Figure 6. San Francisco Bay Area
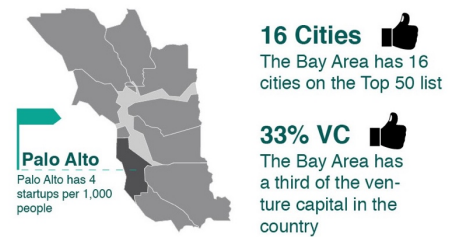
Cities like Fremont have been able to capitalize on this phenomenon, rising 15 spots in only one year to reach a 50th place ranking in 2016. Part of Fremont's tech growth can be attributed to the Tesla's factory relocation there from Palo Alto in 2010. As a result, entrepreneurs interested in clean tech may be attracted to what is now Fremont's Warm Springs Innovation District.

New York City

Manhattan accounts for slightly over a tenth of U.S. startup activity. Unlike the Bay Area, New York City's ecosystem has not spread out as extensively to adjacent cities. The concentration of startup activity is potentially driven by the Big Apple's density: Manhattan has the highest spatial concentration of residential and commercial buildings in the United States.[16]

Manhattan accounts for over a tenth of U.S. startup activity.

However, Brooklyn (24th) is a fast riser, and other locations near Manhattan can be found throughout the top 100, including Jersey City (64th), Princeton (66th), and Long Island City (83rd).

---

[16] Manhattan is in the most populous city in the U.S. (New York County), with an estimated 8.5 million people in 2016. Manhattan is in the most densely populated county in the U.S., housing 72,000 people per square mile. Data per U.S. Census Bureau, Population Division. Annual estimates of the resident population: April 1, 2010 to July 1, 2016. Retrieved from https://www.census.gov/data/tables/2016/demo/popest/nation-total.html. New York City also has the world's second-largest concentration of skyscrapers. See Council on Tall Buildings and Urban Habitat, "Cities Ranked by Number of 150m+ Completed Buildings," accessed October 2017, The Skyscraper Center: The Global Tall Building Database of the CTBUH, http://www.skyscrapercenter.com/cities.

Route 128

The state of Massachusetts comes in a distant third in the race for venture capital. With 10% of the country's investment, 7% of new deals, and 6% of VC-backed startups, Massachusetts' venture capital performance is close to that of the New York City ecosystem. Local industry ranges from microchips to military communications and automation. Route 128 also houses the research centers of several major pharmaceutical companies.[17]

Massachusetts comes in third in the race for venture capital.

The Northeast Corridor

The remainder of the "Boston–New York–Washington" corridor on the East Coast receives the second-highest amount of venture funds. In addition to the Boston and New York metropolitan areas, this corridor includes New Haven (53rd), with three deals in 2016 totaling $70 million investment. The D.C. area is also well represented in the top 50. The District itself ranks 41st, Baltimore is 32nd, and Reston is 45th. Together they account for about 1% of U.S. startup activity. Washington, D.C.'s entrepreneurship is influenced by the concentration of biotech startups, due in part to the proximity to federal labs and startups led by former government contractors.[18]

The Research Triangle

The Research Triangle, a 7,000-acre research and technology park in North Carolina that houses at least 170 companies, sits between Durham, Raleigh, and Chapel Hill.

Despite this concentration of high-tech research and an educated workforce, the startup ecosystems in the Research Triangle do not live up to their reputation. Durham achieves a respectable 27th place in the rankings, but Raleigh is in the 74th spot, and Chapel Hill does not make the top 100.

Durham had investments of $169 million in 2016 and five new deals, which is a long way from a top-tier city like Austin, with $583 million in investments and 27 new deals. Durham has risen 26 places from its spot just outside of the top 50 in 2006, but since 2011 it has remained stable, ranking either 26th or 27th. Maintaining five deals per year is probably not enough to spin up a virtuous cycle. The ecosystem may have matured to a level where additional growth is hard to achieve.

---

[17] Sanofi, Pfizer, Biogen-Idec, and Novartis all have large research centers located just outside of Boston.

[18] Maryann P. Feldman, "The Entrepreneurial Event Revisited: Firm Formation in a Regional Context," *Industrial and Corporate Change* 10, no. 4 (2001): 861–91.

<u>Strong Cities, Weak States</u>
Seattle and Chicago are the sole performers in their states and have been quickly gaining ground since 2006 in the national startup race. While Austin is not the sole performer in Texas, it makes up almost all of Texas' overall startup activity.

Austin, Texas—6th

Seattle, Washington—7th

Chicago, Illinois–9th

Seattle—Amazon's hometown—has capitalized on the tech behemoth's presence in the South Lake Union innovation district. Chicago's ecosystem is concentrated in Merchandise Mart, the iconic commercial building that houses the 1871 incubator and Motorola Mobility.

Austin represents around 70% of the startup activity in Texas.

Austin receives 2% of VC dollars invested, is the site of 3% of first-round deals, and houses 2% of active startups in the U.S.; for the state of Texas, Austin represents around 70% of each metric we measured. In terms of investment alone, Austin receives four times that of Dallas and eight times that of Houston. Austin's ecosystem draws on established technology companies like Dell, as well as the presence of UT Austin, which is the strongest university in The University of Texas system.

The city's low cost of living compared to other top-tier cities makes Austin an attractive option for entrepreneurs. Austin has also been ranked among the most creative cities in the United States.[19] Dallas (30th), the city with the strongest communications and media presence in Texas,[20] and Houston (39th), the oil capital of America, have not yet achieved critical mass.

---

[19] See Richard Florida, "Insight—Rise Revisited: Creativity Index," Rotman School of Management, University of Toronto, June 27, 2012, http://martinprosperity.org/insight-rise-revisited-creativity-index/. See also Erin Carlyle, "America's Most Creative Cities in 2014," *Forbes*, July 15, 2014, https://www.forbes.com/sites/erincarlyle/2014/07/15/americas-most-creative-cities/ - 5fb5fb743e2a. Forbes ranked Austin as the 4th most creative city based on a measure of activity on creativity-focused websites like Kickstarter.
[20] Edward J. Egan and Rachel L. Garber, "The State of Venture Capital in Texas," Issue Brief no. 03.07.16., Rice University's Baker Institute for Public Policy, Houston, Texas, March 7, 2016.

Success Factors

Clusters that Spill Over

Highly successful ecosystems build to saturation and then spill over into the next-best adjacent place. This pattern can be seen in advanced stages in California, where there is an obvious geographic cluster in the Bay Area and a notable cluster in Southern California. The same is true of Route 128 in Massachusetts, and the spillover effect is at an early stage for New York City and the Northeast Corridor. All of the 10 densest cities for startups are in California or Massachusetts (Table 4).

The 10 densest cities for startups are in California or Massachusetts.

Table 4. The Top 10 U.S. Cities by Startups Per Million Capita, 2016

Rank by Startup Density	Rank by Venture Capital	City	Startups Per Million Capita
1	5	Palo Alto, CA	3,954
2	12	Menlo Park, CA	3,512
3	15	Mountain View, CA	2,511
4	8	Redwood City, CA	1,848
5	4	Cambridge, MA	1,844
6	1	San Francisco, CA	1,454
7	20	Santa Monica, CA	1,168
8	46	Burlingame, CA	1,122
9	36	Los Altos, CA	1,080
10	35	Lexington, MA	1,048

Build It and They Will Come?

The spectacular impact of successful ecosystems on economic growth has led policymakers to identify and attempt to replicate their characteristics. One common urban model is the innovation district: a geographic area where anchor institutions—such as medical centers, universities, and corporations—and startups, business incubators, and accelerators all cluster and connect.[21] Successful innovation districts tend to be physically compact areas that combine residential, office, and retail space. This dense concentration in a walkable area provides frequent opportunities for entrepreneurs to meet not just each other but their customers, suppliers, partners, and stakeholders.

---

[21] See Bruce Katz and Julie Wagner, "The Rise of Innovation Districts: A New Geography of Innovation in America," Metropolitan Policy Program at the Brookings Institution, May 2014.

One common urban model is the innovation district— a geographic area where anchor institutions and startups, incubators, and accelerators all cluster and connect.

In many Tier 1 cities, startups are concentrated in districts that are anchored by large tech companies, as in Seattle's South Lake Union district, or by research universities, as in Cambridge's Kendall Square. Notably, a number of our top-ranked cities—New York City, Boston, Chicago, the San Francisco Bay Area, and Seattle—are also among the most walkable in the country.[22]

The development of an innovation district can have a substantial impact on a city's ecosystem. Both St. Louis and Philadelphia have developed innovation districts within the last decade and have risen 67 and 52 positions respectively since 2006.

Outlook

While a handful of well-known cities continue to dominate the landscape, startup clusters are forming all over the U.S. Policymakers in many cities that historically were not associated with high-growth, high-tech firms are now seeking ways to cultivate startups as a strategy to boost income and employment opportunities.

Startup clusters are forming all over the U.S.

All stakeholders—entrepreneurs, startup institutions, government, corporations, and research universities—must work together to create a city's unique value proposition. Entrepreneurs need to be better off in their hometowns if officials want to stem the loss of local talent to more established ecosystems.

Finally, startup activity is clearly becoming ever more prominent outside of the first-tier cities and their surrounding clusters. We can observe this wave in big metropolitan areas such as Dallas (30th) and Houston (39th), but also in midsize cities like St. Louis (33rd), Cincinnati (43rd), and Scottsdale (46th). While this new wave of entrepreneurship ecosystems will not overtake the established leaders in the near future, we expect to see their share of venture capital increase steadily as has been the case over the last decade.

---

[22]Christopher B. Leinberger and Michael Rodriguez, "Foot Traffic Ahead: Ranking Walkable Urbanism in America's Largest Metros 2016," George Washington University School of Business and Smart Growth America, 2016, https://smartgrowthamerica.org/resources/foot-traffic-ahead-2016/.