CBRE RESEARCH

2018 SCORING TECH TALENT

Influencing Innovation, Economic & Real Estate Growth in 50 U.S. & Canadian Markets

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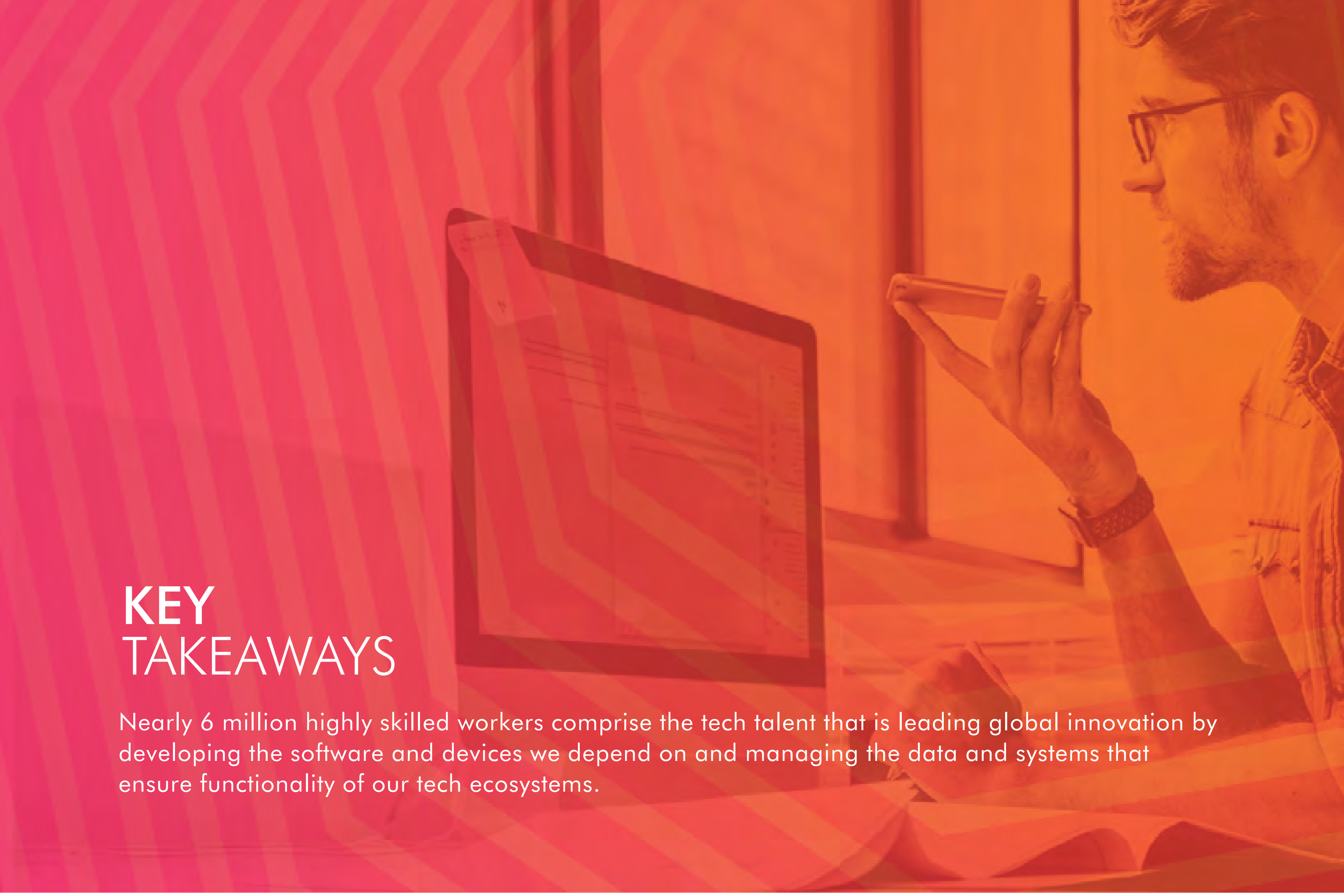
CONTENTS

Scoring Tech Talent is a comprehensive analysis of labor market conditions, cost and quality in the U.S. and Canada for highly skilled tech workers. The top-50 markets were ranked according to their competitive advantages and appeal to tech employers and tech talent. The analysis also provides insight into the quality of tech talent, their demographics and how tech talent growth patterns are impacting cities and real estate markets.



KEY TAKEAWAYS

Nearly 6 million highly skilled workers comprise the tech talent that is leading global innovation by developing the software and devices we depend on and managing the data and systems that ensure functionality of our tech ecosystems.

MOMENTUM

Tech talent job growth has accelerated in 23 of 50 markets, with notable surges in: Ottawa, Los Angeles & Madison.

QUALITY

Quality tech talent is becoming costlier.

Highest Quality and Cost: The San Francisco Bay Area & Seattle.

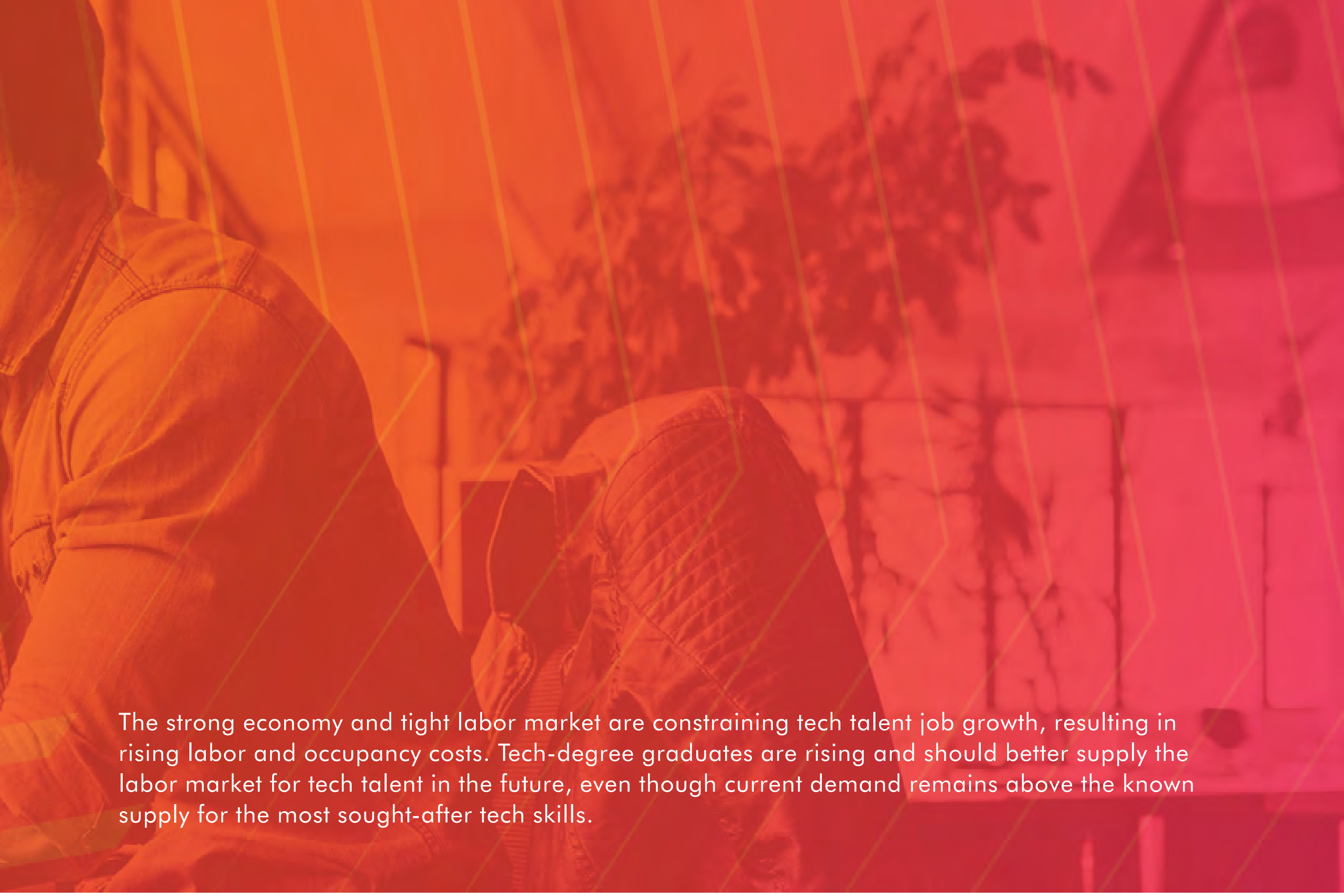
Best Value: Canada & the Midwest.

#SCORE

Thirteen metrics measured each market's depth, vitality and attractiveness.

Top-Ranked Markets: San Francisco Bay Area, Seattle & Washington, D.C.

Markets Rising in Rank: Cleveland, Columbus & San Diego.



The strong economy and tight labor market are constraining tech talent job growth, resulting in rising labor and occupancy costs. Tech-degree graduates are rising and should better supply the labor market for tech talent in the future, even though current demand remains above the known supply for the most sought-after tech skills.

BRAIN GAIN

The number of tech degree graduates were compared with tech talent job creation in each market to determine brain gains or brain drains.

Drain: Boston & Washington, D.C.

Gain: Toronto, the San Francisco Bay Area & Charlotte.

$COST

The typical 500-person tech company needing 75,000 sq. ft. of office space can expect a total annual cost to range from $27 million in Montreal to $59 million in the San Francisco Bay Area.

TECH TALENT ANALYZER

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WHAT IS
TECH TALENT?

Technology is integrated into nearly everything we do, highlighting the growing scope of devices and software that form the Internet of Things. Highly skilled tech talent workers create and enable this evolving culture between work and home. Computers in the home and workplace are commonplace, but new tools (i.e., wearable technology, Wi-Fi-enabled devices and sensors, and voice-activated home assistants) are becoming more universally adopted, and expectations for fast deliveries and real-time information updates are increasing. Technology is the future and companies across all industries are expanding their innovation capabilities to satisfy changing consumer demands.

Nearly 6 million highly skilled tech talent workers are leading global innovation that will shape our daily lives and economy for decades to come. These tech talent workers comprise 20 different occupations—from software developers who enable the devices we depend on, to systems and data managers who ensure that our tech ecosystems function.[1] These positions are highly concentrated within the high-tech services industry but are spread across all industry sectors (Figure 1). Using this definition, a software developer who works for a logistics or financial services company is included in our data.

The 5 million tech talent workers in the U.S. and 834,000 in Canada account for 3.5% and 5.3% of total workers in each country, respectively. This relatively small labor force has an outsized impact on real estate markets and the economy. The number of tech talent workers has increased by 16% in the past five years, adding 682,000 jobs to the U.S. economy at a pace more than three times the national average. They are fueling new innovation and adapting technology within non-traditional tech sectors to increase productivity and strengthen the national economy.

[1] Tech Talent includes the following occupation categories: software developers and programmers; computer support, database and systems; technology and engineering related; and computer and information system managers.

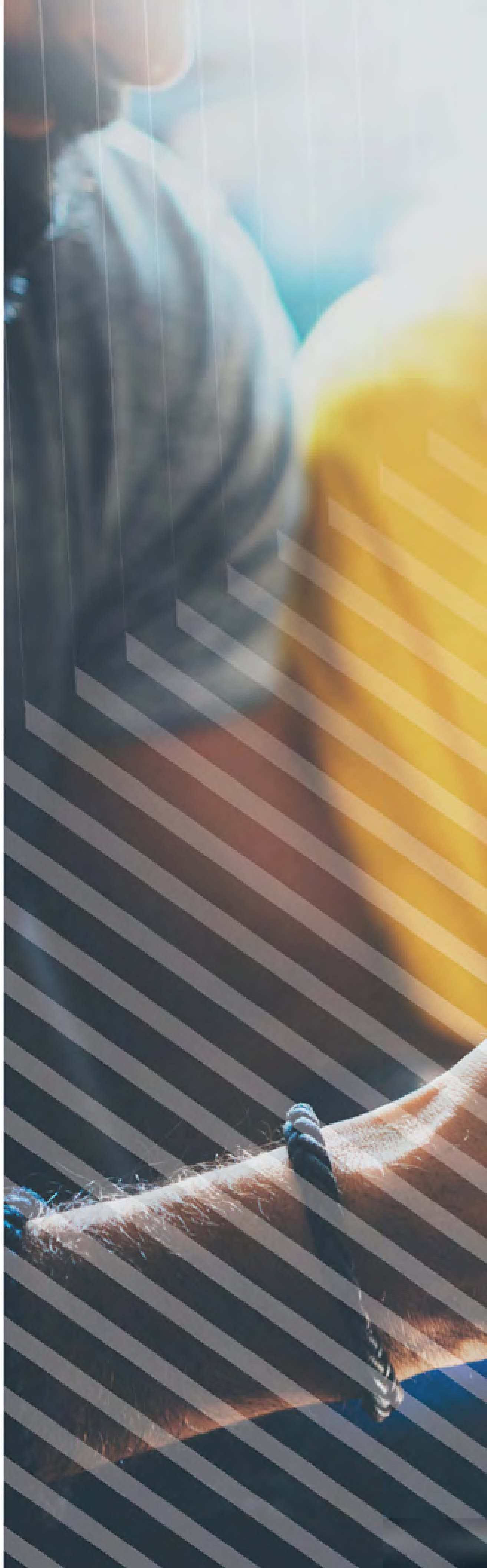


FIGURE 1
TECH TALENT LABOR BY INDUSTRY (2017)*
Tech Talent occupations in each industry as a % of U.S. Tech Talent

37.0%
Core High-Tech*

10.5%
Professional, Scientific & Technical Services**

8.2%
Finance, Insurance & Real Estate

5.1%
Transportation, Wholesale & Warehousing

4.8%
Education

4.7%
Manufacturing**

Source: U.S. Bureau of Labor Statistics (National), April 2018.
*Includes computer software and services and computer product manufacturing
**Excluding High-Tech

6.1%
Mgmt. of Companies & Enterprises

6.1%
Information**

6.0%
Government

2.8%
Health Care

8.8%
Other

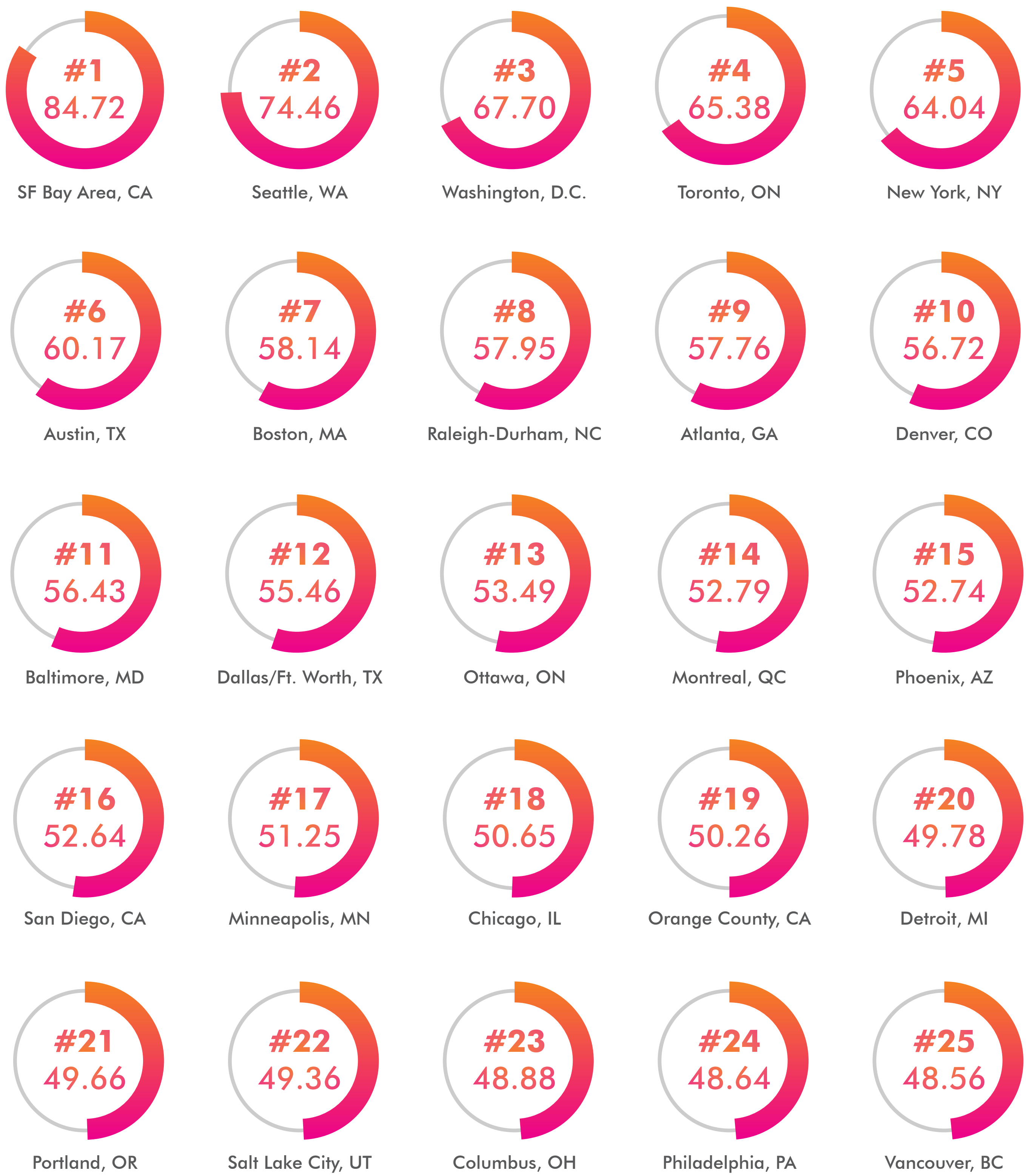
WHICH ARE THE TOP-RANKED TECH TALENT MARKETS?

The highly competitive and supply-constrained market for tech talent, along with advanced communications infrastructure, has accelerated the expansion of tech talent pools beyond major hubs and into smaller markets. These previously undersupplied regions are gaining demand for tech talent from start-ups and established companies. Accordingly, demand for commercial real estate to accommodate this growing workforce is on the rise.

Fifty of the largest markets by number of tech talent professionals in the U.S. and Canada were analyzed to create a scorecard that ranks them (Figure 2). The scorecard uses 13 metrics to measure each market's depth, vitality and attractiveness to companies seeking tech talent and to tech workers seeking employment. Each metric was weighted by its relative importance to job creation and innovation. Tech talent concentration metrics have the highest weights because they signify clustering of tech workers. Labor costs for tech talent are weighted more heavily than office rents because companies allocate more capital to labor than to real estate.

The top-three markets are the San Francisco Bay Area, Seattle and Washington, D.C. Comparing the 2018 market rankings with the previous year, a few markets shifted positions. While the San Francisco Bay Area and Seattle maintained the top-two scores, Washington, D.C. moved up one spot to third and Toronto moved up two spots to fourth. Supported by strong tech-centric universities, Boston and Pittsburgh (the No. 3-ranked small market) each rose two spots to 7th and 28th, respectively.

FIGURE 2
TECH TALENT SCORECARD RANKING



Rank	Score	Market
#26	46.51	Los Angeles, CA
#27	46.12	Newark, NJ
#28	45.37	Pittsburgh, PA
#29	44.84	Kansas City, MO
#30	43.33	Charlotte, NC
#31	43.11	Tampa, FL
#32	41.54	Houston, TX
#33	39.52	Orlando, FL
#34	38.38	Indianapolis, IN
#35	37.66	Madison, WI
#36	36.37	St. Louis, MO
#37	36.30	Hartford, CT
#38	33.84	Long Island, NY
#39	33.30	Cleveland, OH
#40	33.17	Rochester, NY
#41	32.75	Sacramento, CA
#42	32.14	Cincinnati, OH
#43	31.35	Milwaukee, WI
#44	30.57	Ft. Lauderdale, FL
#45	26.50	Nashville, TN
#46	26.49	San Antonio, TX
#47	25.51	Jacksonville, FL
#48	24.85	Norfolk, VA
#49	24.72	Richmond, VA
#50	21.95	Miami, FL

Source: CBRE Research, CBRE Econometric Advisors, U.S. Bureau of Labor Statistics, Statistics Canada, Moody's Analytics, The National Center of Education Statistics, National Science Foundation, Axiometrics.

WHAT ARE TECH TALENT MOMENTUM MARKETS?

As companies expand their technology capabilities, demand for tech talent is growing in both large and small markets across all industries. Major gateway markets such as New York, Toronto and the San Francisco Bay Area dominate overall tech talent growth because of their size. These markets, along with others with a tech talent labor pool of more than 50,000 workers, are categorized as "large," while those below this threshold are categorized as "small." Charlotte moved up into the large-market bracket, as did the Canadian markets of Montreal and Ottawa. Both large and small markets have their advantages: While large markets tend to have a deeper pool of talent, small markets typically offer business and cost-of-living savings.

Tech labor concentration—the percentage of total employment—is an influential factor in how "tech" the market is and its growth potential. Tech talent comprises 11.2% of total employment in Ottawa and 9.8% in the San Francisco Bay Area—the highest concentrations of the top-50 markets and more than three times the national average of tech talent density. Toronto, Seattle and Washington, D.C. round out the top-five most concentrated tech markets, ranging from 8.0% to 8.9% of their total employment. This sizeable concentration of highly skilled workers offers an environment conducive to innovation.

To evaluate up-and-coming markets and determine their growth momentum, we considered "large" and "small" categories separately. Except for Washington, D.C., which has remained about the same size, the five fastest-growing large markets increased their tech labor pools by between 15% and 50% over the past five years (Figure 3). Smaller tech talent markets also grew quickly. The top-10 small tech markets increased by more than 10%. Charlotte grew at the fastest pace of all 50 markets, increasing by 59%.

Tech talent job momentum has increased in 23 of the 50 markets over the past two years (2016 and 2017), compared to the previous two-year period. The top-seven markets for tech talent job momentum grew at least 10% faster during the recent two-year period (Figure 4). Tech talent job growth has a multiplier effect that positively impacts economic growth, which in turn can have an immense impact on commercial real estate.

FIGURE 3
TECH TALENT LABOR POOLS (2017)

Large Tech Talent Markets (>50,000 Labor Pools)

Market	Tech Talent Total	% Change (2012-2017)	By Volume (2012-2017)	Concentration (2017)
SF Bay Area, CA	329,150	31.0%	77,830	9.8%
New York, NY	254,270	17.2%	37,238	3.8%
Washington, D.C.	248,150	-1.3%	-3,170	8.0%
Toronto, ON	241,400	51.5%	82,100	8.9%
Dallas/Ft. Worth, TX	160,750	15.3%	21,390	4.6%
Seattle, WA	145,140	19.4%	23,610	8.8%
Chicago, IL	140,080	12.7%	15,760	3.8%
Atlanta, GA	134,770	34.7%	34,730	5.1%
Los Angeles, CA	133,400	11.0%	13,240	3.0%
Montreal, QC	127,300	21.2%	22,300	6.8%
Boston, MA	113,960	-4.0%	-4,760	6.2%
Denver, CO	99,760	23.8%	19,200	6.2%
Houston, TX	94,810	10.4%	8,900	3.2%
Minneapolis, MN	91,210	11.5%	9,420	4.7%
Detroit, MI	84,910	24.6%	16,780	4.3%
Phoenix, AZ	83,930	17.7%	12,650	4.2%
Philadelphia, PA	79,080	18.1%	12,130	4.1%
Baltimore, MD	72,600	17.9%	11,040	5.3%
Ottawa, ON	70,600	15.9%	9,700	11.2%
San Diego, CA	70,100	20.4%	11,870	4.9%
Austin, TX	69,610	20.3%	11,740	7.0%
Orange County, CA	69,480	14.4%	8,770	4.3%
Vancouver, BC	68,500	30.7%	16,100	5.9%
Raleigh-Durham, NC	59,360	20.7%	10,200	6.6%
Charlotte, NC	54,200	58.8%	20,070	4.6%
St. Louis, MO	53,310	1.1%	590	3.9%
Kansas City, MO	52,820	26.4%	11,040	5.0%
Portland, OR	51,720	25.4%	10,470	4.5%
Newark, NJ	50,620	5.7%	2,725	4.3%

Small Tech Talent Markets (<50,000 Labor Pools)

Market	Tech Talent Total	% Change (2012-2017)	By Volume (2012-2017)	Concentration (2017)
Columbus, OH	49,300	15.8%	6,710	4.7%
Tampa, FL	45,360	16.2%	6,340	3.5%
Pittsburgh, PA	44,320	18.2%	6,830	3.9%
Sacramento, CA	39,470	11.7%	4,120	4.1%
Orlando, FL	38,080	27.2%	8,140	3.1%
Cincinnati, OH	36,900	11.8%	3,880	3.5%
Cleveland, OH	35,820	10.7%	3,470	3.5%
Indianapolis, IN	35,700	28.1%	7,830	3.5%
Salt Lake City, UT	31,740	21.2%	5,550	4.6%
Long Island, NY	31,290	19.7%	5,140	2.4%
San Antonio, TX	31,180	17.8%	4,710	3.1%
Milwaukee, WI	30,850	6.7%	1,930	3.7%
Nashville, TN	29,130	43.3%	8,800	3.1%
Norfolk, VA	26,620	2.2%	570	3.6%
Hartford, CT	26,050	15.6%	3,520	4.5%
Richmond, VA	24,890	12.8%	2,820	3.9%
Madison, WI	23,740	39.5%	6,720	6.1%
Ft. Lauderdale, FL	23,700	25.8%	4,860	2.9%
Miami, FL	23,070	21.5%	4,080	2.0%
Rochester, NY	21,760	10.1%	2,000	4.3%
Jacksonville, FL	20,180	38.9%	5,650	3.0%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018, Statistics Canada (Metro), 2018.

FIGURE 4
MOMENTUM OF TECH TALENT LABOR POOLS

Market	Momentum Change in % Points (Past 2 years minus Prior 2 years)	Employment Growth Past 2 Years (2016-2017)	Employment Growth Prior 2 Years (2014-2015)
Ottawa, ON	25.2	15.2%	-10.0%
Los Angeles, CA	12.3	11.7%	-0.6%
Madison, WI	10.6	27.4%	16.7%
Orange County, CA	10.6	9.8%	-0.8%
Pittsburgh, PA	10.4	13.8%	3.4%
Richmond, VA	10.4	9.6%	-0.8%
Hartford, CT	10.0	10.3%	0.3%
Cleveland, OH	9.0	13.0%	4.0%
Seattle, WA	8.9	10.2%	1.4%
Ft. Lauderdale, FL	7.5	19.9%	12.3%

Source: U.S. Bureau of Labor Statistics (Metro), Statistics Canada, April 2018.

WHAT DEFINES A TECH TALENT MARKET?

A key aspect that top tech talent markets share is high educational attainment. Two-thirds of the top-50 tech talent markets have a city-level educational attainment rate above the U.S. average (31.3%). In Seattle, Madison and Washington, D.C., 55% or more of residents over 25 years old hold a bachelor's degree or higher (Figure 5). In Atlanta, Denver, Portland, Raleigh-Durham and Austin, the educational attainment rate is above 49%.

Education, particularly with a focus on technology,[2] is best analyzed through degrees completed and issued from higher educational institutions. Metro areas that produced the largest number of tech graduates using the latest data available were New York, Washington, D.C., Los Angeles, Boston and the San Francisco Bay Area (Figure 6). Large tech talent markets dominate the top-10 degree-granting regions, with the smaller markets of Detroit, Phoenix and Philadelphia just missing the list. Demand is high for tech-related classes and degrees, and tech-related degree completions have grown by an average of 43% across all markets since 2012. These numbers provide insight into which markets will produce the highest amount of tech talent entering the labor pool each year.

Graduates do not always remain in the labor market where they earn their degrees; they often migrate to locations that offer the best pay or have the most job opportunities. Analyzing tech-related graduation data and tech-related employment growth, Figure 7 presents the difference between where tech talent workers are employed and where they were educated. Tech degrees cover the most recent five-year period available (2012-2016) and tech talent jobs added cover the period when most graduates would be counted in employment figures (2013-2017). The San Francisco Bay Area stands out as a strong tech talent job creator, adding nearly 46,500 more tech talent jobs than graduates. On the other end of the spectrum, Washington, D.C., Boston and Los Angeles produce the most tech graduates, but post a deep deficit in employing them locally.

Reflected in the brain gain/drain calculation, the increase in tech-degree graduates is beginning to better supply the labor market for tech talent. This year, fewer markets posted a brain gain, but there still is a high level of demand and inadequate supply for the most sought-after tech skills.

FIGURE 5
TOP-10 MARKETS FOR EDUCATIONAL ATTAINMENT
25+ years old, bachelor's degree or higher

63.1%	Seattle, WA
59.6%	Madison, WI
56.8%	Washington, D.C.
50.5%	Atlanta, GA
50.3%	Denver, CO
49.6%	Portland, OR
49.4%	Raleigh-Durham, NC
49.2%	Austin, TX
48.5%	SF Bay Area, CA
48.4%	Minneapolis, MN

Source: U.S. Census Bureau (City), 2018.

FIGURE 6
TOP-10 REGIONS FOR TECH DEGREE COMPLETIONS

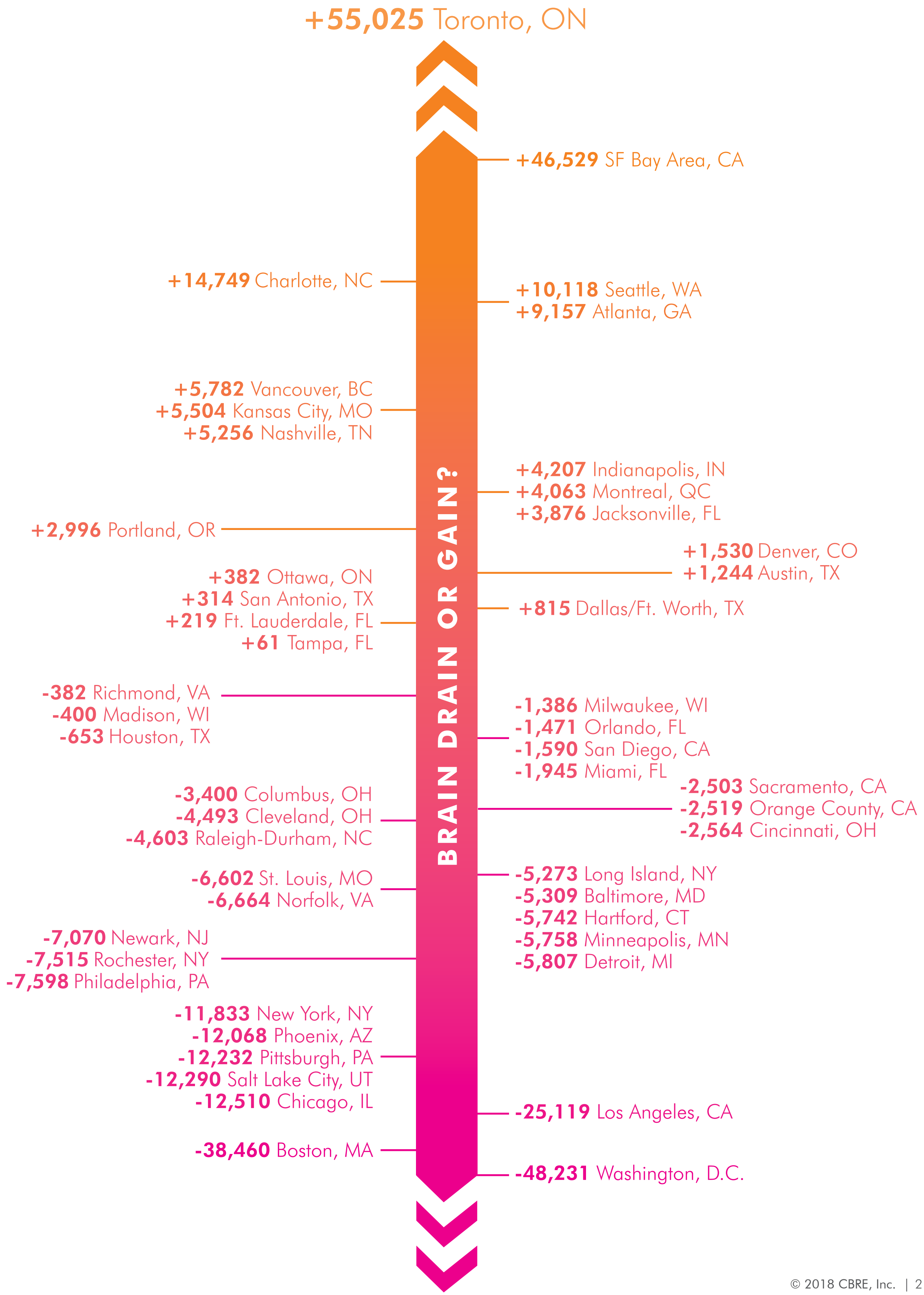
Market	Tech Degree Completions (2016)	Growth (2011-2016)
New York, NY	12,046	48.6%
Washington, D.C.	10,526	44.6%
Los Angeles, CA	9,137	40.0%
Boston, MA	8,499	57.0%
Bay Area, CA	7,616	33.2%
Chicago, IL	6,614	27.8%
Toronto, ON	6,243	34.1%
Atlanta, GA	6,018	41.2%
Dallas/Ft. Worth, TX	5,697	81.8%
Detroit, MI	5,241	28.2%

Source: National Center for Education Statistics (Metro), Common University Data Ontario (Metro), BC HEADset (Metro), Government of Quebec (Metro), June 2018.
Note: Bachelor's Degree or Higher.

FIGURE 7
WHERE ARE TALENT WORKERS COMING FROM AND WHERE ARE THEY HEADED?

Market	Tech Degrees (2011-2016)*	Tech Jobs Added (2012-2017)*	Brain Gain or Drain?
Toronto, ON	27,075	82,100	55,025
SF Bay Area, CA	31,301	77,830	46,529
Charlotte, NC	5,321	20,070	14,749
Seattle, WA	13,492	23,610	10,118
Atlanta, GA	25,573	34,730	9,157
Vancouver, BC	10,318	16,100	5,782
Kansas City, MO	5,536	11,040	5,504
Nashville, TN	3,544	8,800	5,256
Indianapolis, IN	3,623	7,830	4,207
Montreal, QC	18,237	22,300	4,063
Jacksonville, FL	1,774	5,650	3,876
Portland, OR	7,474	10,470	2,996
Denver, CO	17,670	19,200	1,530
Austin, TX	10,496	11,740	1,244
Dallas/Ft. Worth, TX	20,575	21,390	815
Ottawa, ON	9,318	9,700	382
San Antonio, TX	4,396	4,710	314
Ft. Lauderdale, FL	4,641	4,860	219
Tampa, FL	6,279	6,340	61
Richmond, VA	3,202	2,820	-382
Madison, WI	7,120	6,720	-400
Houston, TX	9,553	8,900	-653
Milwaukee, WI	3,316	1,930	-1,386
Orlando, FL	9,611	8,140	-1,471
San Diego, CA	13,460	11,870	-1,590
Miami, FL	6,025	4,080	-1,945
Sacramento, CA	6,623	4,120	-2,503
Orange County, CA	11,289	8,770	-2,519
Cincinnati, OH	6,444	3,880	-2,564
Columbus, OH	10,110	6,710	-3,400
Cleveland, OH	7,963	3,470	-4,493
Raleigh-Durham, NC	14,803	10,200	-4,603
Long Island, NY	10,413	5,140	-5,273
Baltimore, MD	16,349	11,040	-5,309
Hartford, CT	9,262	3,520	-5,742
Minneapolis, MN	15,178	9,420	-5,758
Detroit, MI	22,587	16,780	-5,807
St. Louis, MO	7,192	590	-6,602
Norfolk, VA	7,234	570	-6,664
Newark, NJ	9,795	2,725	-7,070
Rochester, NY	9,515	2,000	-7,515
Philadelphia, PA	19,728	12,130	-7,598
New York, NY	49,071	37,238	-11,833
Phoenix, AZ	24,718	12,650	-12,068
Pittsburgh, PA	19,062	6,830	-12,232
Salt Lake City, UT	17,840	5,550	-12,290
Chicago, IL	28,270	15,760	-12,510
Los Angeles, CA	38,359	13,240	-25,119
Boston, MA	33,700	-4,760	-38,460
Washington, D.C.	45,061	-3,170	-48,231

Source: National Center for Education Statistics (Metro), Common University Data Ontario (Metro), BC HEADset (Metro), Government of Quebec (Metro), June 2018.
*Tech degrees cover the most recent five-year period available (2011-2016) and tech jobs added cover the time period reflecting when most graduates would be counted in employment figures (2012-2017).



+55,025 Toronto, ON
+46,529 SF Bay Area, CA
+14,749 Charlotte, NC
+10,118 Seattle, WA
+9,157 Atlanta, GA
+5,782 Vancouver, BC
+5,504 Kansas City, MO
+5,256 Nashville, TN
+4,207 Indianapolis, IN
+4,063 Montreal, QC
+3,876 Jacksonville, FL
+2,996 Portland, OR
+1,530 Denver, CO
+1,244 Austin, TX
+382 Ottawa, ON
+314 San Antonio, TX
+219 Ft. Lauderdale, FL
+61 Tampa, FL
+815 Dallas/Ft. Worth, TX
BRAIN DRAIN OR GAIN?
-382 Richmond, VA
-400 Madison, WI
-653 Houston, TX
-1,386 Milwaukee, WI
-1,471 Orlando, FL
-1,590 San Diego, CA
-1,945 Miami, FL
-2,503 Sacramento, CA
-2,519 Orange County, CA
-2,564 Cincinnati, OH
-3,400 Columbus, OH
-4,493 Cleveland, OH
-4,603 Raleigh-Durham, NC
-5,273 Long Island, NY
-5,309 Baltimore, MD
-5,742 Hartford, CT
-5,758 Minneapolis, MN
-5,807 Detroit, MI
-6,602 St. Louis, MO
-6,664 Norfolk, VA
-7,070 Newark, NJ
-7,515 Rochester, NY
-7,598 Philadelphia, PA
-11,833 New York, NY
-12,068 Phoenix, AZ
-12,232 Pittsburgh, PA
-12,290 Salt Lake City, UT
-12,510 Chicago, IL
-25,119 Los Angeles, CA
-38,460 Boston, MA
-48,231 Washington, D.C.

Another notable characteristic of tech talent markets is the presence and growth of millennials[3] in the workforce. The younger part of this generation has matured with the internet-connected world and continues to advocate for an integrated and efficient working environment. Generally, this well-educated cohort prefers city living. This has revitalized many downtown neighborhoods and provided a distinct geography to measure the trend—cities.

As the largest demographic cohort, millennials' robust entry into and maturity within the labor pool contributes greatly to the growth of tech talent across all 50 markets (Figure 8). Five large tech markets have increased their millennial populations by more than 9% since 2011. Seattle grew the fastest at 22.7%. During the same period, four of the smaller tech markets increased their millennial populations by more than 9%, with San Antonio and Madison growing faster than the rest. Aided by the presence of higher educational institutions, Madison, Pittsburgh, Norfolk and Boston rank highest for concentration of millennials as a portion of the urban population, accounting for 24% or more (Figure 9).

[3]Analysis conducted in this report includes millennials aged 20-29 years.

Similar traits among markets cause many of them to appear equivalent, but top tech markets distinguish themselves from the rest with tech clusters and higher concentrations of tech talent. These clusters typically form around preeminent universities that tend to invest the most in innovation and provide a constant flow of new talent for local companies. Stanford University is an essential catalyst for tech clustering in the San Francisco Bay Area, as is Georgia Institute of Technology in Atlanta and the Massachusetts Institute of Technology in Boston. Tech clusters can also form around leading companies that draw other, smaller companies to a region, in turn supporting entrepreneurs as they develop their innovations. Examples can be found in Seattle with large tech companies and in Charlotte with large financial services companies. Tech companies use these clusters to collaborate and compete with one another, thereby accelerating the innovation process. These companies in the core high-tech industry are heavily concentrated, with about half of their workers doing tech-related jobs (Figure 10). Consequently, tech clusters are likely to form in markets with a strong concentration of high-tech companies.

FIGURE 8

MILLENNIAL POPULATION CHANGE BY MARKET* (2011–2016)

Large Tech Talent Markets (>50,000 Labor Pools)

Market	% Change
Seattle, WA	22.7%
Raleigh-Durham, NC	15.7%
Charlotte, NC	13.5%
Detroit, MI	10.4%
Minneapolis, MN	9.2%
Dallas/Ft. Worth, TX	8.4%
Bay Area, CA	8.2%
Toronto, ON	7.2%
Denver, CO	6.8%
Phoenix, AZ	6.4%
Vancouver, BC	6.3%
Houston, TX	6.1%
Kansas City, MO	4.6%
Ottawa, ON	4.2%
Below U.S. Average (3.7%)	
Portland, OR	3.6%
Montreal, QC	3.5%
Los Angeles, CA	3.5%
Orange County, CA	3.5%
Austin, TX	3.4%
Washington, D.C.	3.1%
San Diego, CA	1.8%
New York, NY	0.5%
Boston, MA	-0.6%
Newark, NJ	-0.8%
Philadelphia, PA	-1.2%
Chicago, IL	-2.2%
Atlanta, GA	-2.8%
Baltimore, MD	-3.5%
St. Louis, MO	-8.7%

Small Tech Talent Markets (<50,000 Labor Pools)

Market	% Change
San Antonio, TX	12.5%
Madison, WI	12.1%
Cleveland, OH	10.5%
Long Island, NY	10.3%
Orlando, FL	8.1%
Jacksonville, FL	5.7%
Nashville, TN	5.4%
Indianapolis, IN	5.4%
Columbus, OH	5.2%
Pittsburgh, PA	5.0%
Miami, FL	4.0%
Below U.S. Average (3.7%)	
Salt Lake City, UT	2.5%
Sacramento, CA	2.4%
Tampa, FL	1.4%
Ft. Lauderdale, FL	1.2%
Rochester, NY	1.0%
Cincinnati, OH	-0.2%
Norfolk, VA	-1.0%
Milwaukee, WI	-1.0%
Richmond, VA	-2.2%
Hartford, CT	-7.9%

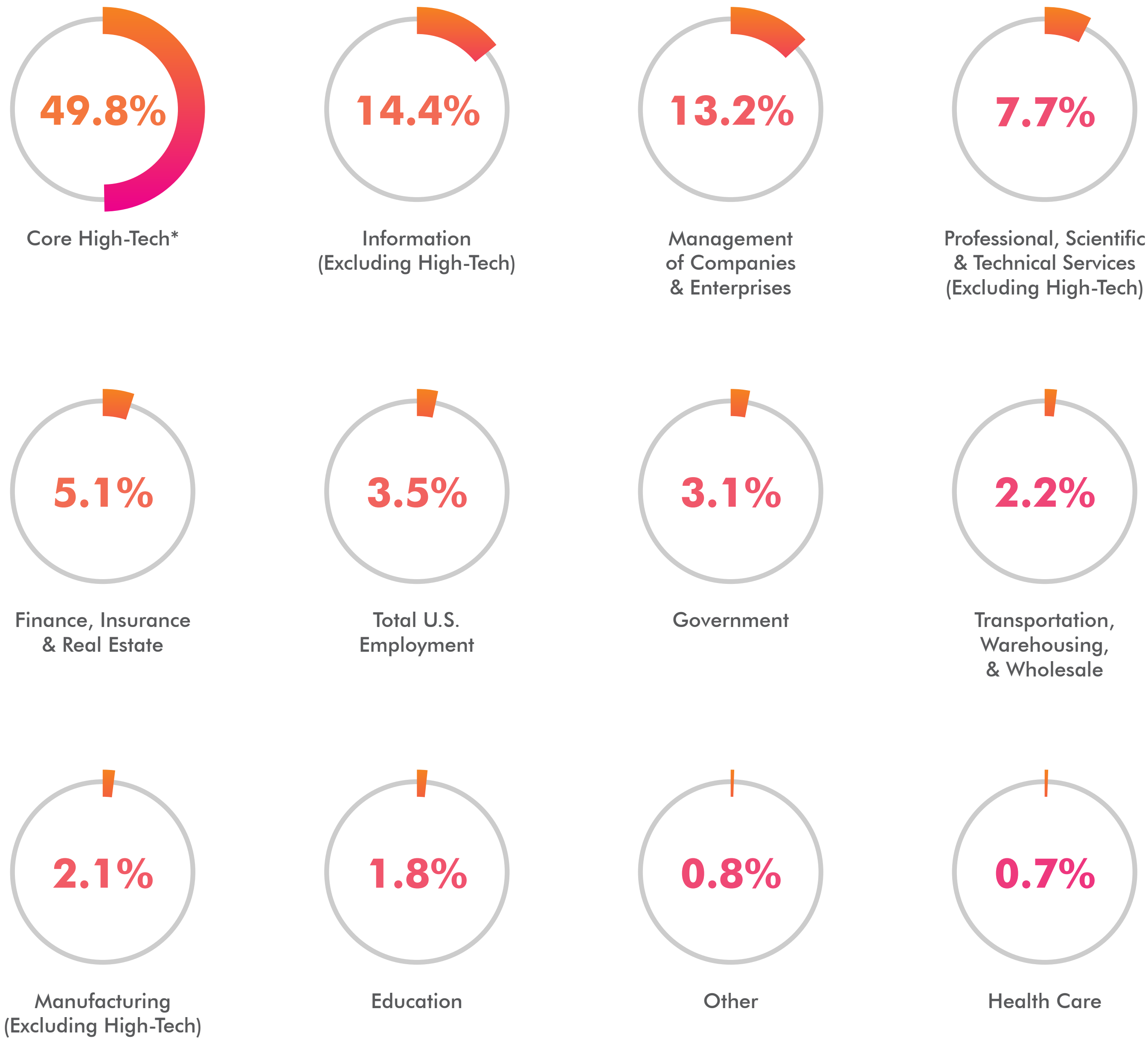
Source: U.S. Census Bureau (City), Statistics Canada (Metro), 2018.
*Millennials aged 20-29 years living in downtown areas.

FIGURE 9
TOP 10 MOST CONCENTRATED MILLENNIAL MARKETS* (2016)
U.S. Average (13.9%)

26.4%	24.9%	24.1%	23.5%	22.0%
Madison, WI	Norfolk, VA	Boston, MA	Pittsburgh, PA	Minneapolis, MN
21.3%	21.0%	20.9%	20.8%	20.2%
Seattle, WA	Salt Lake City, UT	Rochester, NY	Richmond, VA	Washington, D.C.

Source: U.S. Census Bureau (City), 2018.
*Millennials aged 20-29 years living in downtown areas.

FIGURE 10
TECH TALENT LABOR CONCENTRATION BY INDUSTRY (2017)
Tech Talent occupations as a % of all occupations in each industry



Source: U.S. Bureau of Labor Statistics (National), April 2018.
*Includes computer software and services and computer product manufacturing.

WHICH ARE THE HIGHEST AND LOWEST COST MARKETS TO OPERATE IN?

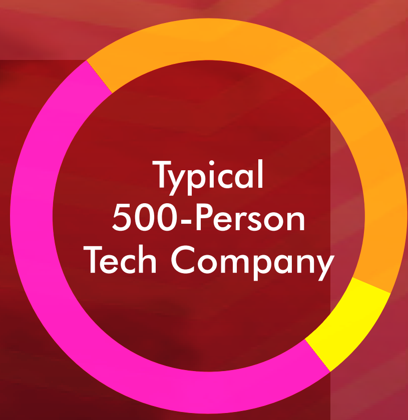
The greatest cost for companies within tech talent markets is employee wages. These highly skilled and educated workers command a premium that can reach more than double the average non-tech salary. The San Francisco Bay Area ranked the highest for average tech talent worker salary at more than $125,000 per year, more than $8,000 above the next highest market (Seattle). The average tech worker wage in 19 of the 50 top tech talent markets was above the U.S. tech talent worker average.

The second-highest cost for most companies is office rent. Companies continue to pursue the benefits of tech clustering and often place a higher value on specific submarkets and even specific streets where tech talent is ample. This has led to some competition for office space and caused rental rates in these areas to increase. Average office rents are the highest in Manhattan, followed by the San Francisco Bay Area and Washington, D.C. Among the top-10 most expensive office markets, Miami and Ft. Lauderdale are the only small tech markets with an average asking rate above $30 per sq. ft.

Combining wage and real estate costs provides insight into what a tech company might pay to operate in one or more of the top-50 tech talent markets. For this comparison, U.S. occupational averages were analyzed to determine the makeup of a typical 500-person tech company needing 75,000 sq. ft. of office space. This breakdown provides interesting insight into relative costs, market-by-market (Figure 12).

Local market wages were applied to the various occupations to determine total annual wage costs by market, and local market rents were used to estimate the annual cost of renting a 75,000-sq.-ft. office to house 500 employees. The San Francisco Bay Area topped the list with the highest estimated annual cost at more than $59.1 million, followed distantly by the other major tech markets of New York, Washington, D.C. and Seattle. These high-cost markets continue to attract employers seeking to push the boundaries of innovation, as well as the tech talent that makes it possible.

FIGURE 11
AVERAGE U.S. TECH COMPANY OCCUPATION POOLS



Tech Talent Employees*
250 (50%)

Support Non-Tech Employees (Excluding Management)
211 (42%)

Management
39 (8%)

Source: U.S. Bureau of Labor Statistics (National), April 2018.
*Tech Talent includes the following occupation categories: software developers and programmers; computer support, database and systems; technology and engineering related; and computer information system managers.

FIGURE 12

ESTIMATED ONE-YEAR COSTS BY MARKET: WAGE & RENT OBLIGATION FOR TYPICAL TECH FIRM

Sample Tech Firm Estimates: 500 Employees, 75,000 Sq. Ft.

Market	Rent Cost (Avg Rent x 75,000 SF)	Tech Talent Wages (Avg. Wage x 250 People)	Support Non-Tech Wages (Avg. Wage x 213 People)	Management Wages (Avg. Wage x 37 People)	Total Estimated Cost
SF Bay Area, CA	$4,704,639	$31,359,561	$15,361,063	$7,699,350	**$59,124,612**
New York, NY	$5,615,741	$28,161,717	$13,920,442	$7,766,070	**$55,463,970**
Washington, D.C.	$2,979,750	$27,777,690	$14,487,193	$6,640,685	**$51,885,318**
Seattle, WA	$2,562,410	$29,314,844	$13,349,712	$6,326,970	**$51,553,936**
Newark, NJ	$1,968,000	$27,544,329	$12,771,419	$7,269,990	**$49,553,738**
Boston, MA	$2,836,500	$25,936,594	$14,224,911	$6,176,430	**$49,174,435**
Los Angeles, CA	$2,847,750	$25,372,804	$12,010,433	$6,359,730	**$46,590,717**
Denver, CO	$2,029,719	$25,187,684	$12,821,101	$6,390,803	**$46,429,307**
Orange County, CA	$2,610,000	$24,855,803	$12,401,701	$6,072,300	**$45,939,804**
San Diego, CA	$2,630,152	$25,748,430	$11,415,317	$6,045,780	**$45,839,679**
Houston, TX	$2,189,250	$23,699,874	$13,233,989	$6,362,070	**$45,485,183**
Austin, TX	$2,624,250	$23,738,519	$12,734,414	$6,349,590	**$45,446,773**
Baltimore, MD	$1,696,500	$25,749,409	$11,892,921	$5,745,870	**$45,084,700**
Dallas/Ft. Worth, TX	$1,818,750	$24,158,258	$12,198,416	$6,415,377	**$44,590,801**
Philadelphia, PA	$2,067,000	$23,806,119	$12,251,963	$6,289,546	**$44,414,628**
Long Island, NY	$2,010,000	$23,532,340	$12,077,567	$6,509,490	**$44,129,397**
Hartford, CT	$1,485,750	$24,419,604	$11,878,483	$5,616,390	**$43,400,226**
Minneapolis, MN	$2,040,750	$23,413,459	$12,190,203	$5,711,550	**$43,355,961**
Chicago, IL	$2,302,500	$23,153,256	$12,103,743	$5,541,510	**$43,101,009**
Charlotte, NC	$1,973,250	$23,850,941	$11,372,816	$5,642,520	**$42,839,527**
Raleigh-Durham, NC	$1,928,250	$23,701,444	$11,543,497	$5,583,925	**$42,757,117**
Portland, OR	$2,157,750	$23,406,573	$11,410,127	$5,392,920	**$42,367,369**
Columbus, OH	$1,461,750	$23,727,566	$11,061,558	$5,747,820	**$41,998,695**
Atlanta, GA	$1,968,750	$23,233,099	$11,044,183	$5,573,490	**$41,819,522**
San Antonio, TX	$1,578,000	$22,685,570	$11,142,427	$6,044,610	**$41,450,607**
Sacramento, CA	$1,674,000	$22,868,235	$11,449,329	$5,389,800	**$41,381,365**
Richmond, VA	$1,482,270	$22,837,355	$11,305,247	$5,726,370	**$41,351,242**
Phoenix, AZ	$1,923,750	$22,073,930	$10,292,024	$5,392,920	**$39,682,623**
Detroit, MI	$1,411,500	$21,321,029	$11,567,694	$5,371,324	**$39,671,546**
St. Louis, MO	$1,386,750	$22,045,219	$10,684,068	$5,454,930	**$39,570,967**
Norfolk, VA	$1,435,500	$21,279,973	$10,534,532	$5,752,110	**$39,002,115**
Pittsburgh, PA	$1,651,500	$20,779,318	$10,982,948	$5,422,170	**$38,835,936**
Cincinnati, OH	$1,461,000	$21,148,753	$11,057,898	$5,116,410	**$38,784,061**
Ft. Lauderdale, FL	$2,470,500	$20,277,073	$10,343,483	$5,353,920	**$38,444,976**
Nashville, TN	$1,956,750	$20,764,272	$10,679,159	$4,877,340	**$38,277,522**
Indianapolis, IN	$1,466,250	$20,210,642	$11,455,074	$4,948,710	**$38,080,677**
Miami, FL	$2,793,750	$19,884,628	$10,418,030	$4,893,720	**$37,990,129**
Kansas City, MO	$1,459,500	$20,874,920	$10,619,989	$5,022,810	**$37,977,219**
Orlando, FL	$1,644,000	$20,948,124	$10,100,533	$5,139,810	**$37,832,467**
Cleveland, OH	$1,371,750	$19,819,232	$11,377,768	$5,217,030	**$37,785,780**
Madison, WI	$1,527,000	$20,392,234	$11,150,305	$4,687,020	**$37,756,558**
Milwaukee, WI	$1,387,500	$20,167,485	$11,216,532	$4,885,530	**$37,657,046**
Salt Lake City, UT	$1,798,500	$21,195,699	$9,881,263	$4,344,210	**$37,219,672**
Tampa, FL	$1,703,250	$20,081,401	$9,919,405	$5,235,360	**$36,939,416**
Jacksonville, FL	$1,440,750	$20,626,438	$9,777,515	$4,891,770	**$36,736,473**
Rochester, NY	$1,481,250	$19,055,264	$10,339,319	$5,463,900	**$36,339,734**
Ottawa, ON*	$1,839,315	$16,967,675	$10,035,310	$3,349,179	**$32,191,480**
Toronto, ON*	$1,995,114	$16,051,248	$8,811,825	$3,366,072	**$30,224,259**
Vancouver, BC*	$2,442,264	$14,454,740	$8,718,994	$2,968,775	**$28,584,775**
Montreal, QC*	$1,848,184	$14,314,617	$8,615,772	$2,849,274	**$27,627,847**

Source: U.S. Bureau of Labor Statistics, April 2018, Canada Statistics, April 2018, CBRE Research (Metro), Q1 2018; *in USD

HOW IS TECH TALENT QUALITY VS COST MEASURED?

Assessing the quality of a labor market is challenging because there are no standard metrics to measure. Since the cost of talent is the largest expense category for most firms seeking tech talent, the quality of that tech talent is becoming one of their most important considerations. The skills of the available labor pool do not appear to align with available jobs, causing a structural barrier to growth for companies across North America and slowing job creation. Jobs that require specific skills, such as software development, remain in high demand, while the pool of available talent to fill them is limited. Only 37% of all tech talent workers are employed in the high-tech software/services industry (Figure 1), meaning tech companies must compete with other industries that employ the remaining 63% of tech workers. In addition, the unemployment rate for college-educated workers dipped to 1.8% in 2018, further stiffening competition.

Figure 13 plots a quality assessment for software developers against their average salary by market to visualize this trade-off across the top-50 tech talent markets. Labor quality was measured by the number and concentration of software engineers with three or more years of experience and who graduated from one of the top-25 computer science programs in North America and including the top-five in Canada, as determined by U.S. News & World Report. The highest cost markets (San Francisco Bay Area and Seattle) also have the highest concentration of quality tech talent. However, good, high and very high concentrations of quality tech talent are available in moderate and low-cost markets, providing a range of options. Due in part to the strong U.S. dollar, Toronto, Vancouver, Montreal and Ottawa provide the best value when it comes to cost and quality, followed by Indianapolis, Pittsburgh and Detroit.


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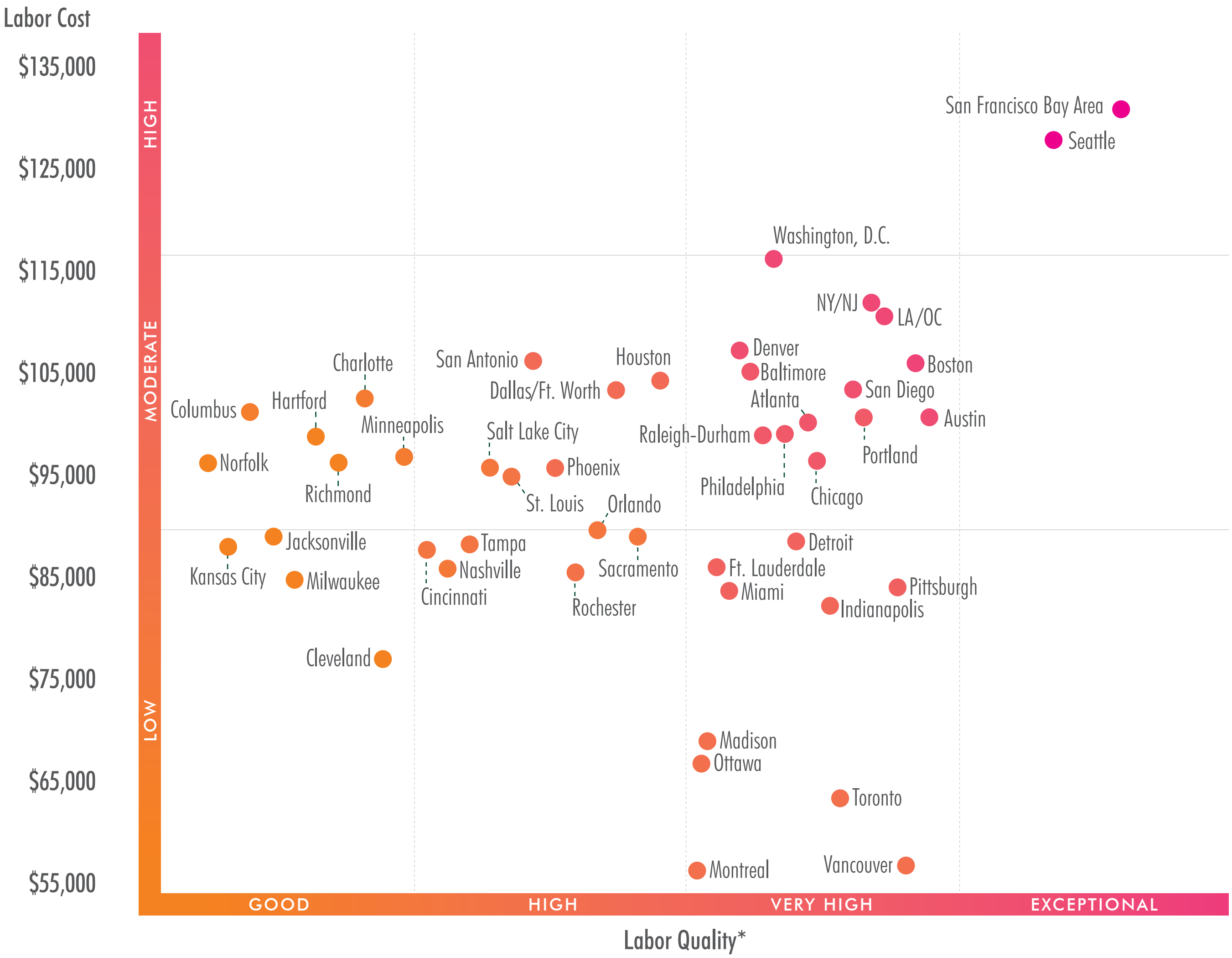
FIGURE 13

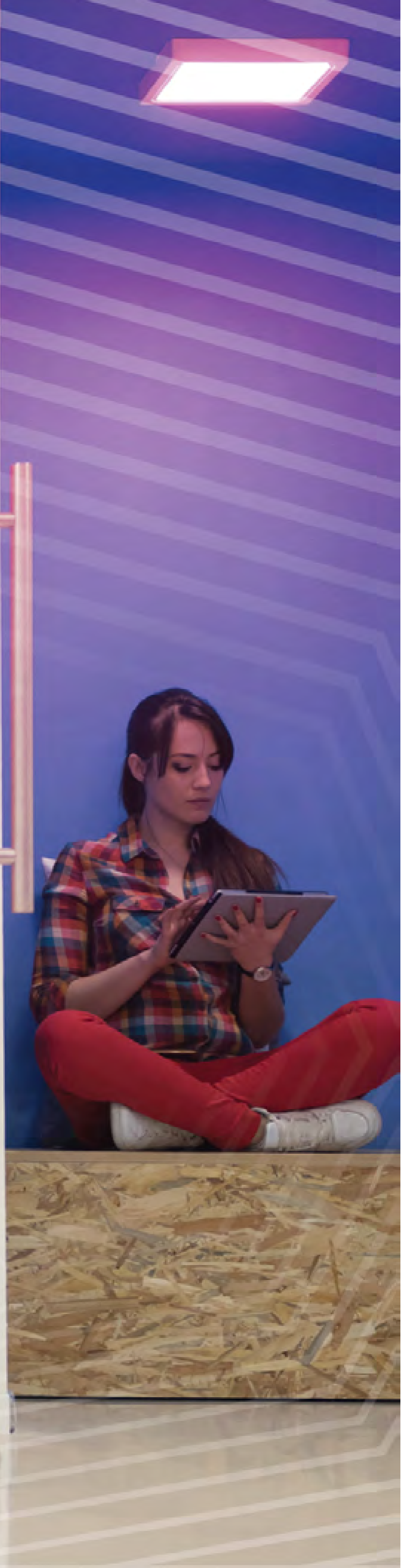
TECH TALENT QUALITY VS. COST ANALYSIS

Average Annual Salary for Software Engineer (USD)



Source: U.S. Bureau of Labor Statistics, April 2018, Statistics Canada, April 2018, U.S. News & World Report, CBRE Labor Analytics, CBRE Research, 2018.

*Concentration of software engineers/developers with 3+ years of experience that have earned degrees from the Top 25 Computer Information Science programs in North America and including the top-five in Canada as rated by U.S. News, 2018.



HOW DOES TECH TALENT IMPACT COMMERCIAL REAL ESTATE?

Tech talent growth, primarily within the high-tech industry, has added 682,000 employees in the past five years and been the top driver of office leasing activity in the U.S. during that time. The high-tech industry's share of major leasing activity[4] nationwide increased to 20% in Q1 2018 from 11% in 2011—the largest single share of any industry. Many tech talent markets, especially those with high concentrations or clusters of tech companies, have seen rising rents and declining vacancies. Significant demand for office space in top markets that have added tens of thousands of workers during the past five years raised rents to their highest levels and pushed down vacancy rates to their lowest levels.

Rent growth is most prominent in the large tech markets, with office rents in the San Francisco Bay Area and Orange County 50% higher than they were five years ago. But the decrease in vacancy rates is present across both large and small tech markets. Vacancy rates in Madison, Vancouver and Charlotte are the lowest of the top-50 tech talent markets, and some larger markets like New York, Toronto and the San Francisco Bay Area are not far behind (Figure 14).

The in-migration of talent to these tech markets also has a sizeable impact on residential real estate. Although Manhattan remains the most-expensive market in which to rent an apartment, 33 of the top-50 tech talent markets have a cost of living above the U.S. national average, according to Moody's Analytics (Figure 15). Comparing the annual average apartment rent with the annual average tech-worker salary, tech salaries generally can cover the cost of living in even the most-expensive markets (Figure 16), based on the affordability standard of 30% of income to housing.

The extended structural shift of technological innovation on the economic cycle could cushion markets during a downturn. Considering the underlying fundamentals of these top tech talent markets, we conclude that both occupiers and investors can pursue profitable real estate strategies.

FIGURE 14

OFFICE ASKING RENT BY MARKET (Q1 2018)

Market	Annual Gross Direct Asking Rent Per SF	Vacancy Rate
New York, NY	$74.88	7.9%
SF Bay Area, CA	$62.73	8.1%
Washington, D.C.	$39.73	17.0%
Los Angeles, CA	$37.97	15.0%
Boston, MA	$37.82	13.6%
Miami, FL	$37.25	10.7%
San Diego, CA	$35.07	11.2%
Austin, TX	$34.99	9.7%
Orange County, CA	$34.80	10.9%
Seattle, WA	$34.17	11.1%
Ft. Lauderdale, FL	$32.94	11.3%
Vancouver, BC*	$32.56	6.4%
Chicago, IL	$30.70	14.7%
Houston, TX	$29.19	17.8%
Portland, OR	$28.77	11.6%
Philadelphia, PA	$27.56	13.9%
Minneapolis, MN	$27.21	17.9%
Denver, CO	$27.06	14.9%
Long Island, NY	$26.80	10.5%
Toronto, ON*	$26.60	7.9%
Charlotte, NC	$26.31	7.3%
Atlanta, GA	$26.25	17.4%
Newark, NJ	$26.24	18.9%
Nashville, TN	$26.09	10.6%
Raleigh-Durham, NC	$25.71	14.1%
Phoenix, AZ	$25.65	16.5%
Montreal, QC*	$24.64	12.8%
Ottawa, ON*	$24.52	10.0%
Dallas/Ft. Worth, TX	$24.25	20.5%
Salt Lake City, UT	$23.98	11.4%
Tampa, FL	$22.71	11.2%
Baltimore, MD	$22.62	14.3%
Sacramento, CA	$22.32	12.8%
Pittsburgh, PA	$22.02	12.4%
Orlando, FL	$21.92	10.2%
San Antonio, TX	$21.04	15.8%
Madison, WI	$20.36	6.1%
Hartford, CT	$19.81	18.5%
Richmond, VA	$19.76	9.8%
Rochester, NY	$19.75	14.1%
Indianapolis, IN	$19.55	16.8%
Columbus, OH	$19.49	14.4%
Cincinnati, OH	$19.48	20.0%
Kansas City, MO	$19.46	12.4%
Jacksonville, FL	$19.21	13.4%
Norfolk, VA	$19.14	12.6%
Detroit, MI	$18.82	16.0%
Milwaukee, WI	$18.50	14.8%
St. Louis, MO	$18.49	11.3%
Cleveland, OH	$18.29	18.6%

Source: CBRE Research (Office Market), Q1 2018; *in USD

FIGURE 15

APARTMENT ASKING RENT BY MARKET (Q1 2018)

Market	Average Monthly Apartment Rent	Cost of Living (U.S. = 100%)
New York, NY	$4,042	120%
SF Bay Area, CA	$2,892	157%
Long Island, NY	$2,278	125%
Los Angeles, CA	$2,264	126%
Boston, MA	$2,179	119%
Orange County, CA	$2,039	145%
San Diego, CA	$1,975	128%
Newark, NJ	$1,733	119%
Washington, D.C.	$1,720	118%
Seattle, WA	$1,713	127%
Miami, FL	$1,648	113%
Ft. Lauderdale, FL	$1,581	111%
Chicago, IL	$1,503	99%
Sacramento, CA	$1,435	108%
Denver, CO	$1,429	110%
Portland, OR	$1,372	110%
Philadelphia, PA	$1,311	98%
Hartford, CT	$1,308	104%
Minneapolis, MN	$1,299	101%
Baltimore, MD	$1,271	106%
Orlando, FL	$1,252	103%
Austin, TX	$1,207	113%
Atlanta, GA	$1,163	102%
Tampa, FL	$1,156	101%
Nashville, TN	$1,135	105%
Madison, WI	$1,134	101%
Pittsburgh, PA	$1,110	94%
Dallas/Ft. Worth, TX	$1,105	97%
Houston, TX	$1,104	107%
Milwaukee, WI	$1,099	99%
Salt Lake City, UT	$1,081	106%
Charlotte, NC	$1,063	98%
Raleigh-Durham, NC	$1,060	100%
Norfolk, VA	$1,060	99%
Richmond, VA	$1,056	100%
Rochester, NY	$1,029	89%
Jacksonville, FL	$1,014	100%
Phoenix, AZ	$1,014	106%
Toronto, ON*	$1,003	115%
Vancouver, BC*	$1,000	107%
Detroit, MI	$982	94%
San Antonio, TX	$948	102%
Kansas City, MO	$941	97%
Cincinnati, OH	$921	91%
Columbus, OH	$920	95%
Cleveland, OH	$897	89%
St. Louis, MO	$895	94%
Ottawa, ON*	$858	95%
Indianapolis, IN	$853	94%
Montreal, QC*	$591	90%

Source: CBRE Econometric Advisors (City), Axiometrics, CMHC, Moody's Analytics, Q1 2018. *in USD; Note: New York represents Manhattan only.

FIGURE 16
TECH WAGE TO APARTMENT RENT RATIO

Market	Annualized Apartment Rent (2018)	2017 Average Annual Tech Wage	Rent-to-Tech Wage Ratio
New York, NY	$48,504	$112,647	43.1%
Long Island, NY	$27,340	$94,129	29.0%
SF Bay Area, CA	$34,705	$125,438	27.7%
Los Angeles, CA	$27,165	$101,491	26.8%
Boston, MA	$26,152	$103,746	25.2%
Miami, FL	$19,781	$79,539	24.9%
Orange County, CA	$24,464	$99,423	24.6%
Ft. Lauderdale, FL	$18,967	$81,108	23.4%
San Diego, CA	$23,701	$102,994	23.0%
Vancouver, BC*	$12,004	$57,819	20.8%
Chicago, IL	$18,036	$92,613	19.5%
Newark, NJ	$20,794	$110,177	18.9%
Sacramento, CA	$17,216	$91,473	18.8%
Toronto, ON*	$12,032	$64,205	18.7%
Washington, D.C.	$20,639	$111,111	18.6%
Orlando, FL	$15,029	$83,792	17.9%
Portland, OR	$16,460	$93,626	17.6%
Seattle, WA	$20,552	$117,259	17.5%
Nashville, TN	$13,616	$78,163	17.4%
Tampa, FL	$13,875	$80,326	17.3%
Madison, WI	$13,608	$79,939	17.0%
Denver, CO	$17,147	$100,751	17.0%
Minneapolis, MN	$15,587	$93,654	16.6%
Philadelphia, PA	$15,737	$95,224	16.5%
Milwaukee, WI	$13,188	$80,670	16.3%
Rochester, NY	$12,344	$76,221	16.2%
Hartford, CT	$15,691	$97,678	16.1%
Pittsburgh, PA	$13,316	$83,117	16.0%
Salt Lake City, UT	$12,974	$84,783	15.3%
Austin, TX	$14,486	$94,954	15.3%
Ottawa, ON*	$10,301	$67,871	15.2%
Atlanta, GA	$13,954	$92,932	15.0%
Norfolk, VA	$12,720	$85,120	14.9%
Baltimore, MD	$15,255	$102,998	14.8%
Jacksonville, FL	$12,174	$82,506	14.8%
Detroit, MI	$11,780	$83,081	14.2%
Houston, TX	$13,253	$94,799	14.0%
Richmond, VA	$12,678	$91,349	13.9%
Phoenix, AZ	$12,169	$88,296	13.8%
Dallas/Ft. Worth, TX	$13,263	$96,633	13.7%
Cleveland, OH	$10,760	$79,277	13.6%
Kansas City, MO	$11,296	$83,500	13.5%
Raleigh-Durham, NC	$12,722	$94,806	13.4%
Charlotte, NC	$12,761	$95,404	13.4%
Cincinnati, OH	$11,046	$84,595	13.1%
Indianapolis, IN	$10,236	$80,843	12.7%
San Antonio, TX	$11,378	$90,742	12.5%
Montreal, QC*	$7,090	$57,258	12.4%
St. Louis, MO	$10,737	$88,181	12.2%
Columbus, OH	$11,038	$94,910	11.6%

Source: U.S. Bureau of Labor Statistics, April 2018, Statistics Canada, May 2018, CBRE Econometric Advisors, Axiometrics, CMHC, Q1 2018.
*in USD

APPENDIX

1 Bay Area, CA

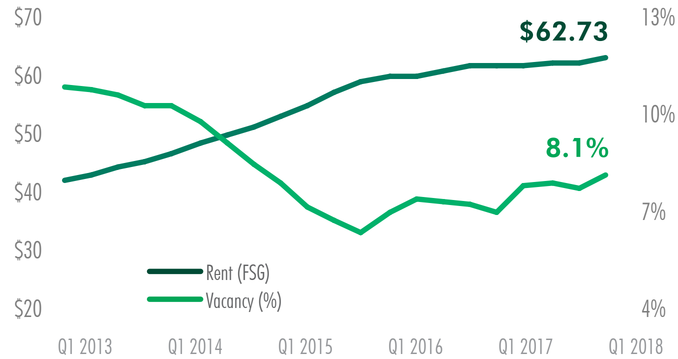
SCORE
84.72

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2011-17
TOTAL TECH OCCUPATIONS	329,150	31.0%	$125,438	15.3%
Software Developers & Programmers	149,150	38.5%	$130,894	15.7%
Computer Support, Database & Systems	112,060	32.1%	$106,460	16.7%
Computer & Infor. Systems Managers	24,840	34.3%	$197,419	15.4%
Technology Engineering-Related	43,100	6.9%	$114,418	8.5%
TOTAL NON-TECH OCCUPATIONS	413,320	15.6%	$72,801	9.0%
Sales	59,690	17.4%	$86,263	-8.1%
Administrative & Office Support	221,230	8.2%	$56,320	13.0%
Business Operations & Finance	81,380	21.9%	$96,545	10.8%
Marketing	51,020	43.6%	$90,646	4.0%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.
*Aggregate of San Francisco, Oakland and Silicon Valley Metro Areas

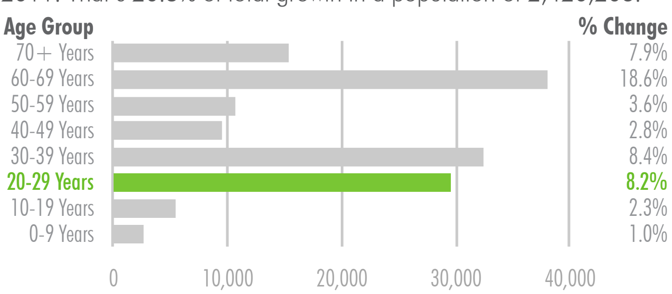
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

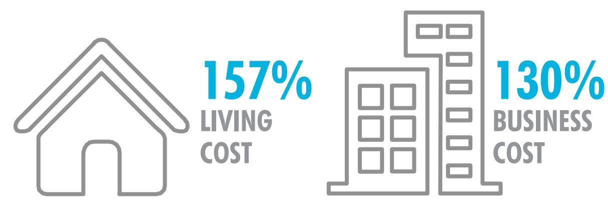
POPULATION TRENDS

The population of millennials in their 20s grew by 29,541 (8.2%) since 2011. That's 20.3% of total growth in a population of 2,420,206.



Source: U.S. Census Bureau (Cities of San Francisco, Oakland, San Mateo and San Jose), 2017.

HOUSING & RELATIVE COSTS* (US=100%)



Source: Relative Costs from Moody's Analytics (Metro), Q1 2018
*Average of San Francisco, Oakland and Silicon Valley Metro Areas.

AVERAGE APT. RENT:
$2,892 PER UNIT/MO.
30% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.
*Weighted Average of San Francisco, Oakland and Silicon Valley Metro Areas

EDUCATIONAL ATTAINMENT

49%
BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (Cities of San Francisco, Oakland, San Mateo and San Jose), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	7,616	33.2%
Computer Engineering	4,618	44.0%
Math/Statistics	1,026	32.0%
Other Tech Engineering	578	11.6%

Source: The National Center for Education Statistics (Region), July 2017.* Aggregate of San Francisco, Oakland and Silicon Valley Metro Areas.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Confidential	1190 Discovery Way (Silicon Valley)	1,052,000
Confidential	34790 Campus Dr (Silicon Valley)	767,800
Confidential	250 Howard St (San Francisco)	755,900
Micron	110 Holger Way (Silicon Valley)	604,000
NVIDIA	2071 San Thomas Expwy (Silicon Valley)	500,000

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY

Source: U.S. Census Bureau (Metro), 2017.
* Weighted Average of San Francisco, Oakland and Silicon Valley Metro Areas.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
Stanford University	957	$22,630
University of California Berkeley	961	$17,050

VC-Funded Companies Founded by Alumni of Top Regional Universities:

Snapchat, Solyndra, SunRun, Flipboard, Okta, Cloudera, Zynga, Machine Zone, Sapphire Energy, Harvest Powers

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

2 Seattle, WA

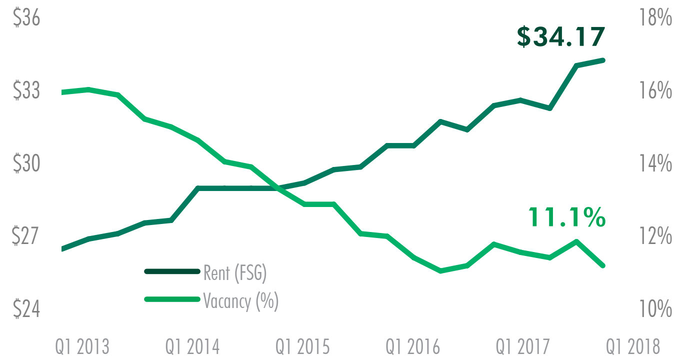
SCORE
74.46

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	145,140	19.4%	$117,259	20.7%
Software Developers & Programmers	75,200	18.0%	$128,030	27.5%
Computer Support, Database & Systems	49,760	24.1%	$92,866	11.6%
Computer & Infor. Systems Managers	10,340	30.4%	$162,230	11.2%
Technology Engineering-Related	9,840	0.8%	$111,043	18.7%
TOTAL NON-TECH OCCUPATIONS	198,990	28.6%	$63,269	11.9%
Sales	18,960	13.7%	$77,691	-3.4%
Administrative & Office Support	118,650	24.3%	$52,314	17.9%
Business Operations & Finance	39,760	49.1%	$79,580	7.5%
Marketing	21,620	35.5%	$80,745	7.7%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

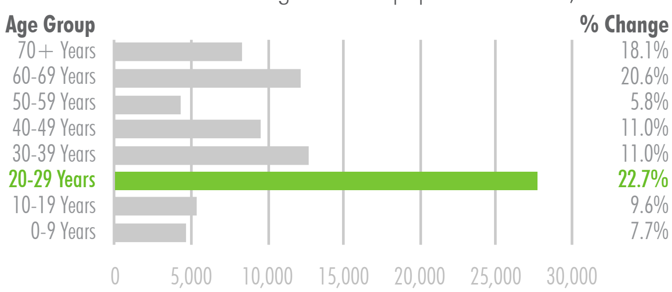
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

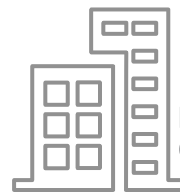
The population of millennials in their 20s grew by 27,735 (22.7%) since 2011. That's 33.2% of total growth in a population of 704,358.



Source: U.S. Census Bureau (City of Seattle), 2017.

HOUSING & RELATIVE COSTS (US=100%)

127% LIVING COST



110% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,713 PER UNIT/MO.
29% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

63% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Seattle), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	3,283	60.2%
Computer Engineering	1,953	71.3%
Math/Statistics	584	28.4%
Other Tech Engineering	349	120.9%

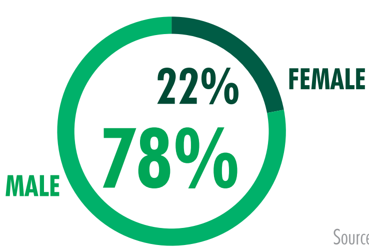
Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Outreach	333 Elliott Ave W	86,000
Confidential	7277 164th Ave NE	85,900
Zillow	1301 2nd Ave	80,000
Eagle View Technologies	10900 NE 4th St	55,600
Confidential	837 N 34th St	54,800

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
University of Washington	312	$4,341

VC-Funded Companies Founded by Alumni of Top Regional Universities:

N/A

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

3 Washington, D.C.

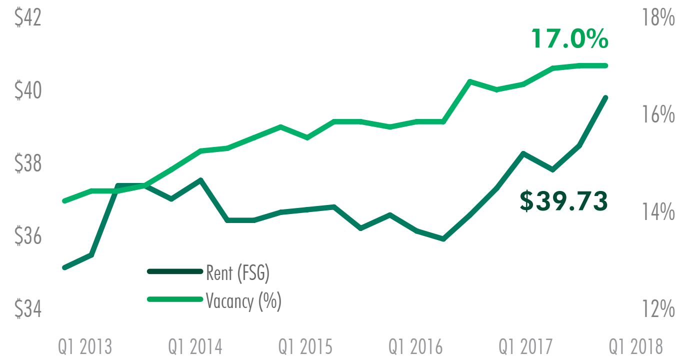
SCORE 67.70

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	248,150	-1.3%	$111,111	9.6%
Software Developers & Programmers	71,280	-12.0%	$116,382	12.2%
Computer Support, Database & Systems	142,320	8.4%	$101,422	9.3%
Computer & Infor. Systems Managers	17,910	-7.6%	$170,274	10.7%
Technology Engineering-Related	16,640	-15.6%	$107,723	10.9%
TOTAL NON-TECH OCCUPATIONS	393,730	9.9%	$68,660	9.1%
Sales	39,300	38.6%	$86,820	7.8%
Administrative & Office Support	216,580	6.4%	$52,396	7.7%
Business Operations & Finance	89,090	3.0%	$90,028	7.4%
Marketing	48,760	22.7%	$87,220	11.7%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

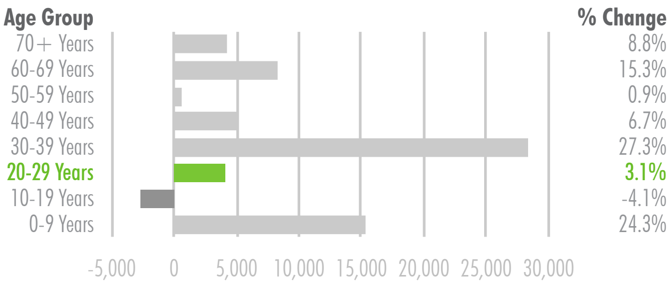
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 4,109 (3.1%) since 2011. That's 6.5% of total growth in a population of 681,170.



Source: U.S. Census Bureau (District of Columbia), 2017.

HOUSING & RELATIVE COSTS (US=100%)

118% LIVING COST

118% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,720 PER UNIT/MO.
4% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

57% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (District of Columbia), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	10,526	44.6%
Computer Engineering	8,366	58.2%
Math/Statistics	768	26.7%
Other Tech Engineering	797	-9.7%

Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Confidential	13200 Woodland Park Rd	400,700
CRSA	3170 Fairview Park Dr	282,000
MicroStrategy	1850 Towers Crescent Plz	213,100
Appian Corporation	7950 Jones Branch Dr	205,000
Hughes Network Systems	100 Lake Forest Blvd	111,200

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY

Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
University of Maryland	297	$3,402
University of Virginia	295	$4,013
Georgetown University	244	$3,880

VC-Funded Companies Founded by Alumni of Top Regional Universities:

N/A

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

4 Toronto, ON

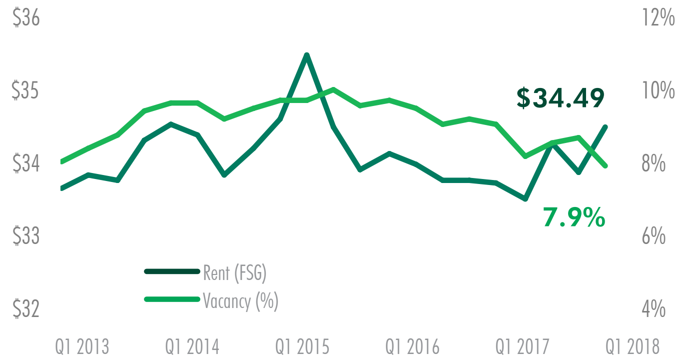
SCORE
65.38

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	241,400	51.5%	$83,245	9.8%
Software Developers & Programmers	62,100	47.9%	$84,656	20.2%
Computer Support, Database & Systems	95,400	81.7%	$76,627	5.8%
Computer & Infor. Systems Managers	28,400	54.3%	$111,904	10.2%
Technology Engineering-Related	55,500	19.6%	$78,374	5.3%
TOTAL NON-TECH OCCUPATIONS	353,700	14.1%	$54,146	4.4%
Sales	32,400	17.8%	$49,982	8.2%
Administrative & Office Support	188,500	17.6%	$43,389	7.9%
Business Operations & Finance	91,400	8.4%	$75,587	9.2%
Marketing	41,400	9.2%	$59,051	-11.3%

Source: Statistics Canada (Metro), April 2018.
Data in CAD

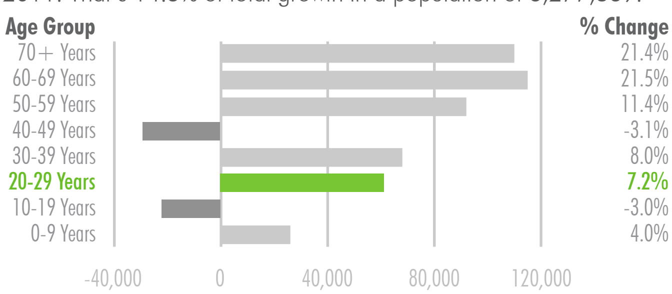
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.
Data in CAD

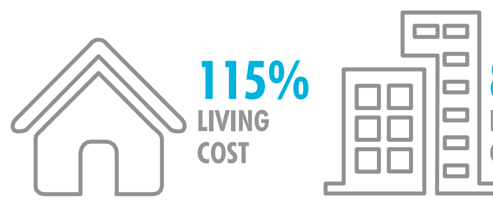
POPULATION TRENDS

The population of millennials in their 20s grew by 61,080 (7.2%) since 2011. That's 14.5% of total growth in a population of 6,277,369.



Source: Environics Analytics (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)



115% LIVING COST

86% BUSINESS COST

Source: Relative Costs from Numbeo and KPMG (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,300 PER UNIT/MO.
18% INCREASE SINCE 2013

Source: Apt. rent data from CMHC (Metro), Q1 2018.
Data in CAD

EDUCATIONAL ATTAINMENT

36% BACHELOR'S OR HIGHER

Source: Environics Analytics (Metro), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	6,243	34.1%
Computer Engineering	964	60.4%
Math/Statistics	893	42.2%
Other Tech Engineering	4,386	28.0%

Source: Common University Data Ontario (Metro), June 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
SAP Canada Inc.	222 Bay St	60,000
OneEleven	325 Front St W	50,000
Rubikloud Technologies Inc.	207 Queens Quay W	37,000
League	225 King St W	37,000
Oracle Corp Canada Inc.	27 Allstate Pkwy	26,000

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY

Source: Statistics Canada (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
University of Waterloo	299	$7,058
University of Toronto	269	$4,355

VC-Funded Companies Founded by Alumni of Top Regional Universities:
Wish, Pivotal Software, Kuaidi Dache, Instacart, Storm8

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

5 New York, NY

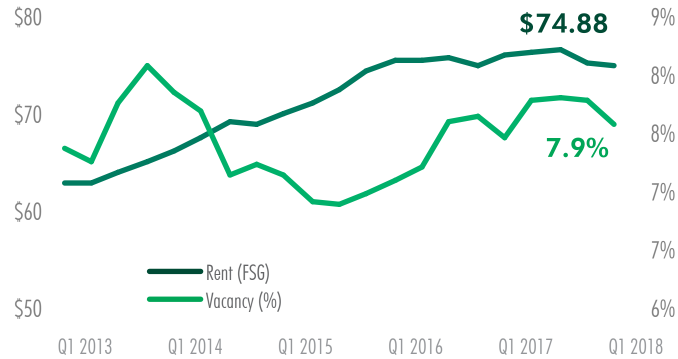
SCORE
64.04

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	254,270	17.2%	$112,647	17.1%
Software Developers & Programmers	97,420	21.8%	$112,172	18.1%
Computer Support, Database & Systems	120,310	20.3%	$97,173	17.4%
Computer & Infor. Systems Managers	24,320	0.6%	$199,130	27.7%
Technology Engineering-Related	12,220	7.5%	$96,665	2.8%
TOTAL NON-TECH OCCUPATIONS	950,960	9.8%	$65,974	29.2%
Sales	88,110	27.3%	$85,470	14.7%
Administrative & Office Support	576,490	-0.6%	$48,172	33.7%
Business Operations & Finance	194,850	30.9%	$104,599	17.0%
Marketing	91,510	41.2%	$77,100	8.8%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

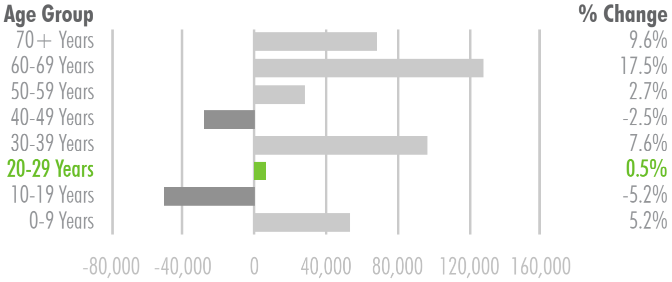
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 6,496 (0.5%) since 2011. That's 2.2% of total growth in a population of 8,537,673.



Source: U.S. Census Bureau (City of New York), 2017.

HOUSING & RELATIVE COSTS (US=100%)

120% LIVING COST

164% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$4,042 PER UNIT/MO.
4% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

37% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of New York), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	12,046	48.6%
Computer Engineering	7,568	60.6%
Math/Statistics	2,530	43.3%
Other Tech Engineering	573	14.4%

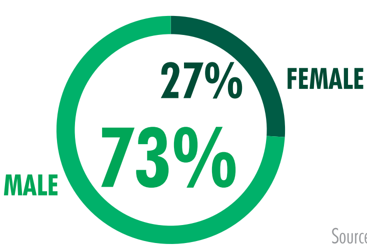
Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Confidential	75 Ninth Ave (Purchase)	1,188,500*
Confidential	770 Broadway	319,400
Flatiron Health	161 Avenue of the Americas	104,200
Confidential	770 Broadway	78,000
Computer Associates International	520 Madison Ave	45,800

Source: CBRE Research (Office Market), 2018.
*Size of the 75 Ninth Ave purchase represents the entire building.

TECH TALENT DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
Princeton University	424	$8,516
Columbia University	396	$6,186
New York University	333	$3,753

VC-Funded Companies Founded by Alumni of Top Regional Universities:

Jet, Leaf Group, AppNexus, Earnest, Harvest Power

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

6 Austin, TX

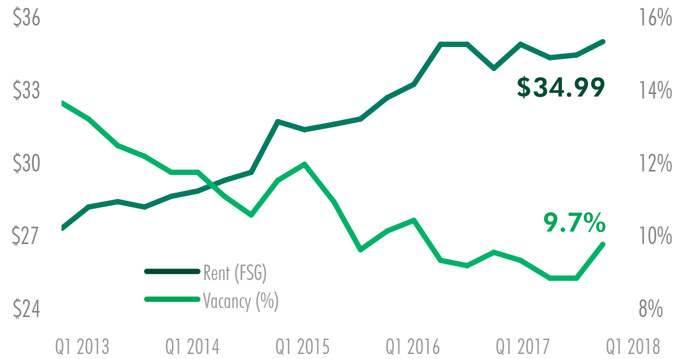
SCORE
60.17

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	69,610	20.3%	$94,954	11.9%
Software Developers & Programmers	25,770	23.4%	$101,150	6.5%
Computer Support, Database & Systems	32,450	34.8%	$82,624	11.1%
Computer & Infor. Systems Managers	3,080	37.5%	$162,810	22.5%
Technology Engineering-Related	8,310	-22.1%	$98,737	25.3%
TOTAL NON-TECH OCCUPATIONS	156,190	32.5%	$60,353	16.9%
Sales	25,440	68.4%	$83,804	15.8%
Administrative & Office Support	95,560	22.1%	$49,346	14.0%
Business Operations & Finance	24,000	31.9%	$72,826	10.3%
Marketing	11,190	77.1%	$74,280	15.5%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

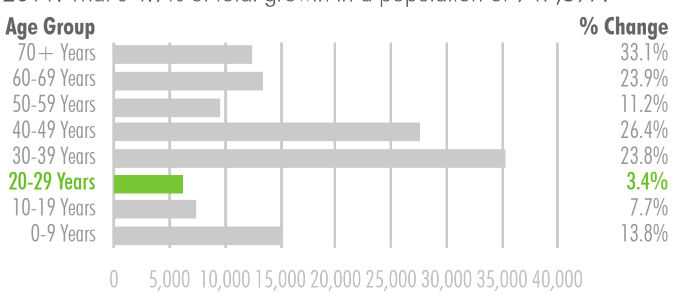
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

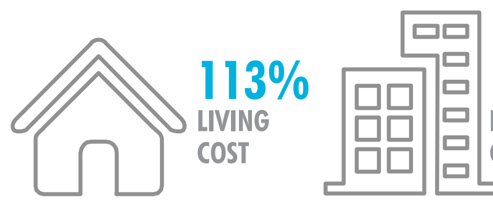
POPULATION TRENDS

The population of millennials in their 20s grew by 06,203 (3.4%) since 2011. That's 4.9% of total growth in a population of 947,897.



Source: U.S. Census Bureau (City of Austin), 2017.

HOUSING & RELATIVE COSTS (US=100%)



113% LIVING COST

104% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,207 PER UNIT/MO.
15% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

49% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Austin), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	2,522	44.2%
Computer Engineering	1,393	75.2%
Math/Statistics	451	38.3%
Other Tech Engineering	169	-3.4%

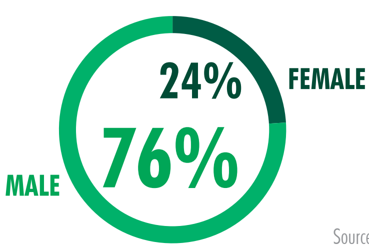
Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
HomeAway	3110 Esparanza Crossing	315,900
Indeed.com	10721 Domain Dr	310,000
Indeed.com	200 W 6th St	307,000
3M Company	13011 McCallen Pass	272,000
Confidential	208 Nueces St	230,000

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
University of Texas	511	$4,763

VC-Funded Companies Founded by Alumni of Top Regional Universities:

Casper, Zalora, Apollo Endosurgery, Jounce Therapeutics, HotelTonight

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

7 Boston, MA

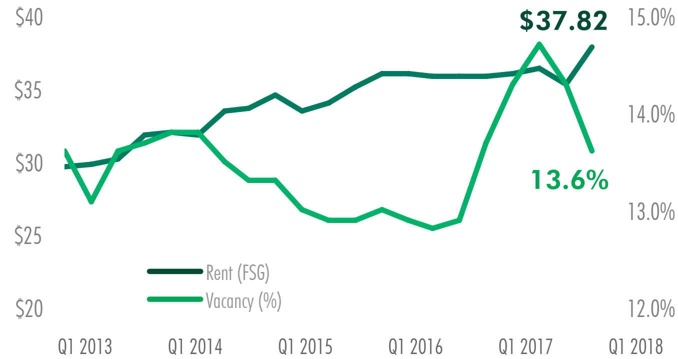
SCORE
58.14

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	113,960	-4.0%	$103,746	5.9%
Software Developers & Programmers	43,910	-9.0%	$106,165	3.0%
Computer Support, Database & Systems	47,590	3.9%	$88,736	8.0%
Computer & Infor. Systems Managers	11,400	0.8%	$158,370	10.9%
Technology Engineering-Related	11,060	-17.2%	$102,428	6.9%
TOTAL NON-TECH OCCUPATIONS	235,850	7.4%	$67,417	9.4%
Sales	29,470	27.4%	$88,274	-1.3%
Administrative & Office Support	135,130	5.8%	$55,188	12.9%
Business Operations & Finance	49,620	-0.6%	$85,021	6.5%
Marketing	21,630	14.7%	$75,008	14.0%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

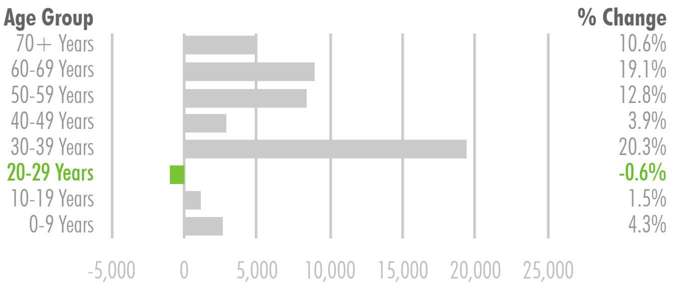
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s declined by -962 (-0.6%) since 2011. That's -2.0% of total growth in a population of 672,840.



Source: U.S. Census Bureau (City of Boston), 2017.

HOUSING & RELATIVE COSTS* (US=100%)

119% LIVING COST

130% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.
*Includes Cambridge

AVERAGE APT. RENT:
$2,179 PER UNIT/MO.
14% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

48% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Boston), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	8,499	57.0%
Computer Engineering	5,323	67.7%
Math/Statistics	1,366	77.4%
Other Tech Engineering	976	21.4%

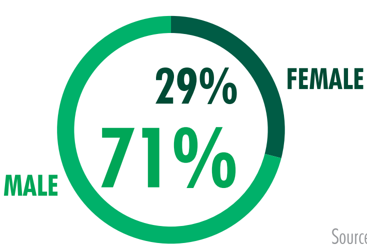
Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Confidential	Seaport Sq	430,000
Confidential	222 Berkeley St/500 Boylston St	395,000
Philips	250 North St	334,000
Akamai Technologies	150 Broadway	177,000
Cengage	100 Northern Ave	117,000

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
Massachusetts Institute of Technology	780	$16,112
Harvard University	750	$21,922
Boston University	279	$5,040
Tufts University	223	$3,155

VC-Funded Companies Founded by Alumni of Top Regional Universities:

Oscar, Dropbox, Human Longevity, Gilt, Humacyte, Coupang, Cloudera, BabyTree, Zenefits, Affirm

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

8 Raleigh-Durham, NC

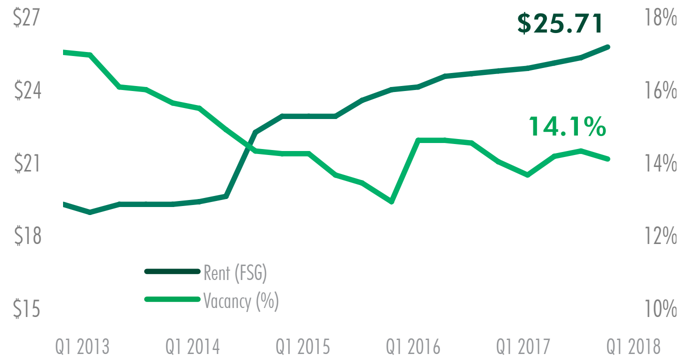
SCORE 57.95

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	59,360	20.7%	$94,806	15.5%
Software Developers & Programmers	20,780	18.7%	$99,213	12.1%
Computer Support, Database & Systems	28,650	25.0%	$83,551	17.5%
Computer & Infor. Systems Managers	4,630	8.2%	$143,178	23.2%
Technology Engineering-Related	5,300	18.8%	$96,108	19.7%
TOTAL NON-TECH OCCUPATIONS	118,510	19.1%	$54,709	12.4%
Sales	16,290	62.7%	$76,231	-3.3%
Administrative & Office Support	74,760	11.0%	$43,882	12.4%
Business Operations & Finance	18,130	16.4%	$72,802	9.2%
Marketing	9,330	40.9%	$68,720	17.0%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

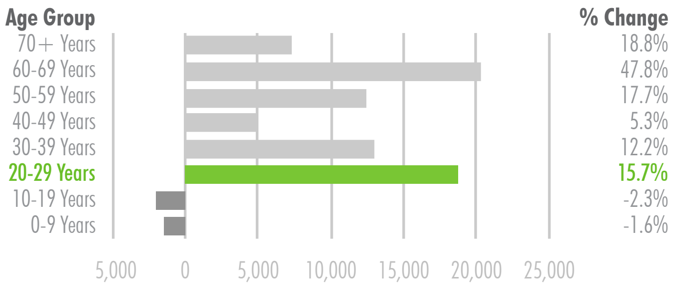
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 18,737 (15.7%) since 2011. That's 25.8% of total growth in a population of 721,851.



Source: U.S. Census Bureau (Cities of Raleigh and Durham), 2017.

HOUSING & RELATIVE COSTS (US=100%)

100% LIVING COST

90% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,060 PER UNIT/MO.
17% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

49% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (Cities of Raleigh and Durham), 2017.

DEGREE COMPLETIONS	2016	Growth 2011-16
TOTAL TECH DEGREES	3,459	28.3%
Computer Engineering	2,064	44.4%
Math/Statistics	643	23.4%
Other Tech Engineering	242	-18.0%

Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Relias	3024 Carrington Mill Blvd	130,600
Infosys Limited	7751 Brier Creek Pkwy	60,500
Varonis	2200 Perimeter Park Dr	53,000
Pendo	8510 Colonnade Center Dr	42,700
Solarwinds	3030 Slater Rd	41,200

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY

Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
Duke	331	$5,168
University of North Carolina	212	$2,475

VC-Funded Companies Founded by Alumni of Top Regional Universities:

N/A

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

9 Atlanta, GA

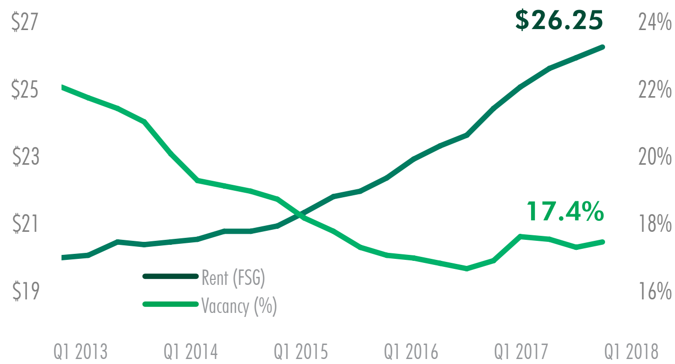
SCORE
57.76

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	134,770	34.7%	$92,932	13.5%
Software Developers & Programmers	42,510	34.9%	$100,410	11.7%
Computer Support, Database & Systems	70,350	38.8%	$81,761	15.2%
Computer & Infor. Systems Managers	11,410	37.0%	$142,910	13.9%
Technology Engineering-Related	10,500	10.2%	$83,193	10.2%
TOTAL NON-TECH OCCUPATIONS	343,620	15.3%	$52,342	4.5%
Sales	40,600	50.4%	$67,025	-1.5%
Administrative & Office Support	220,410	6.9%	$42,894	2.0%
Business Operations & Finance	56,770	15.2%	$73,441	4.2%
Marketing	25,840	64.9%	$63,509	5.3%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

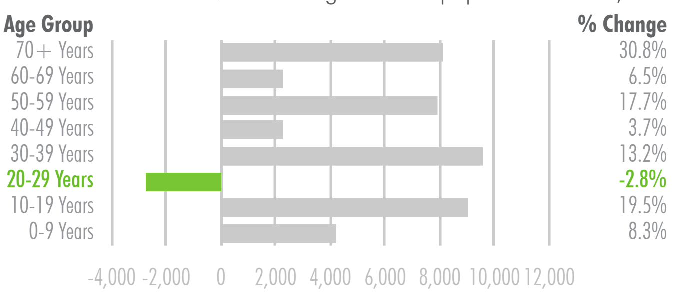
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s declined by -2,754 (-2.8%) since 2011. That's -6.9% of total growth in a population of 472,506.



Source: U.S. Census Bureau (City of Atlanta), 2017.

HOUSING & RELATIVE COSTS (US=100%)

102% LIVING COST

94% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,163 PER UNIT/MO.
30% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

51% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Atlanta), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	6,018	41.2%
Computer Engineering	4,036	47.0%
Math/Statistics	599	28.0%
Other Tech Engineering	522	32.5%

Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Ultimate Software	11700 Great Oaks Way	55,400
Keysight Technologies	771 Spring St	51,000
SAP	2660 Old Milton Pkwy	43,800
Confidential	3333 Piedmont Rd NE	43,300
Terminus	3340 Peachtree Rd NE	42,000

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY

Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
Georgia Institute of Technology	245	$3,601

VC-Funded Companies Founded by Alumni of Top Regional Universities:

N/A

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

10 Denver, CO

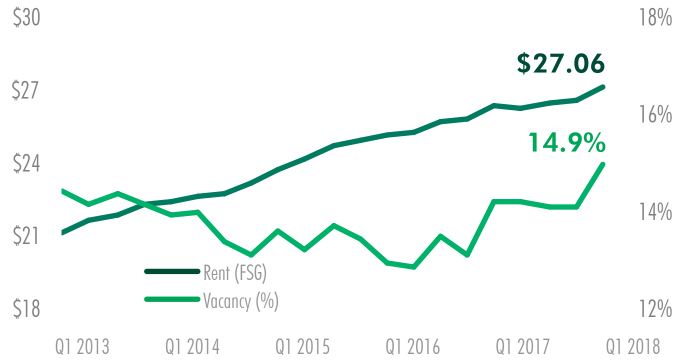
SCORE
56.72

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	99,760	23.8%	$100,751	15.3%
Software Developers & Programmers	36,030	23.9%	$107,842	17.5%
Computer Support, Database & Systems	47,060	26.2%	$88,542	12.6%
Computer & Infor. Systems Managers	5,750	37.2%	$163,867	22.4%
Technology Engineering-Related	10,920	9.2%	$96,732	10.3%
TOTAL NON-TECH OCCUPATIONS	1,621,590	16.6%	$60,764	18.7%
Sales	29,680	66.6%	$79,328	6.2%
Administrative & Office Support	120,130	-1.9%	$47,038	17.3%
Business Operations & Finance	44,040	23.9%	$80,904	9.5%
Marketing	20,080	50.1%	$71,265	16.2%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

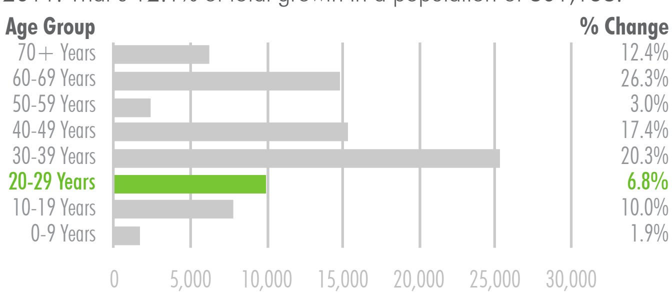
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 9,929 (6.8%) since 2011. That's 12.1% of total growth in a population of 801,168.



Source: U.S. Census Bureau (Cities of Denver and Boulder), 2017.

HOUSING & RELATIVE COSTS (US=100%)

110% LIVING COST

103% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,429 PER UNIT/MO.
31% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

50% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (Cities of Denver and Boulder), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	3,968	26.9%
Computer Engineering	2,538	55.8%
Math/Statistics	457	8.6%
Other Tech Engineering	516	-29.6%

Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Webroot	385 Interlocken	123,200
Confidential	3333 Walnut St	96,800
Conga (AppExtremes)	13601 Via Varra Rd	88,300
Pax8	5500 S Quebec St	47,100
Xactly	1125 17th St	40,800

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY

Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
University of Colorado	303	$4,314

VC-Funded Companies Founded by Alumni of Top Regional Universities:

N/A

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

11 Baltimore, MD

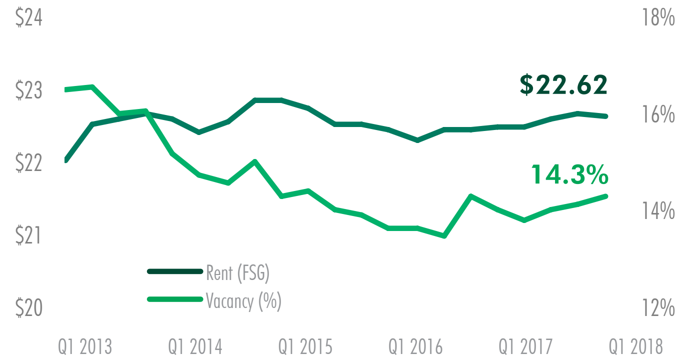
SCORE
56.43

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	72,600	17.9%	$102,998	11.3%
Software Developers & Programmers	19,230	13.0%	$105,664	1.6%
Computer Support, Database & Systems	39,460	24.8%	$95,832	16.4%
Computer & Infor. Systems Managers	4,890	1.7%	$147,330	18.8%
Technology Engineering-Related	9,020	11.2%	$104,628	16.8%
TOTAL NON-TECH OCCUPATIONS	172,420	10.4%	$56,365	10.8%
Sales	19,540	76.2%	$74,854	-1.5%
Administrative & Office Support	113,530	1.4%	$47,016	10.5%
Business Operations & Finance	29,970	13.5%	$77,952	7.7%
Marketing	9,380	38.1%	$62,024	-1.5%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

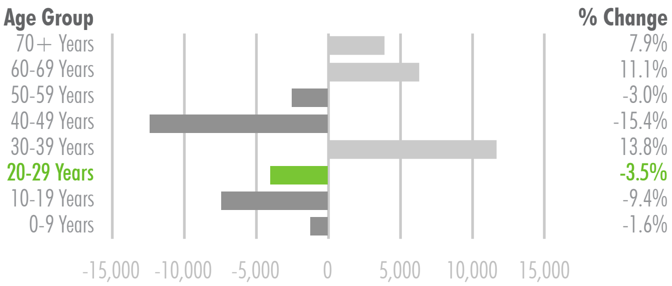
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s declined by -3,957 (-3.5%) since 2011. That's 81.9% of total growth in a population of 614,664.



Source: U.S. Census Bureau (City of Baltimore), 2017.

HOUSING & RELATIVE COSTS (US=100%)

106% LIVING COST

112% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,271 PER UNIT/MO.
8.8% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

31% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Baltimore), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	3,525	17.9%
Computer Engineering	2,182	19.9%
Math/Statistics	429	14.4%
Other Tech Engineering	673	18.3%

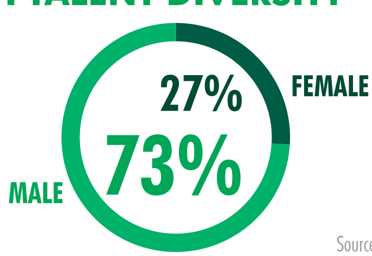
Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Tenable Network Security, Inc.	6100 Merriweather Dr	159,100
CSRA Inc.	2711 Technology Dr	152,000
PayPal, Inc.	9690 Deereco Rd	59,800
PayPal, Inc.	55 Schiling Rd	53,800
Skyline Network Engineering	6956 Aviation Blvd	28,800

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
University of Maryland	297	$3,402
Georgetown University	244	$3,880

VC-Funded Companies Founded by Alumni of Top Regional Universities:

N/A

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

12 Dallas-Ft. Worth, TX

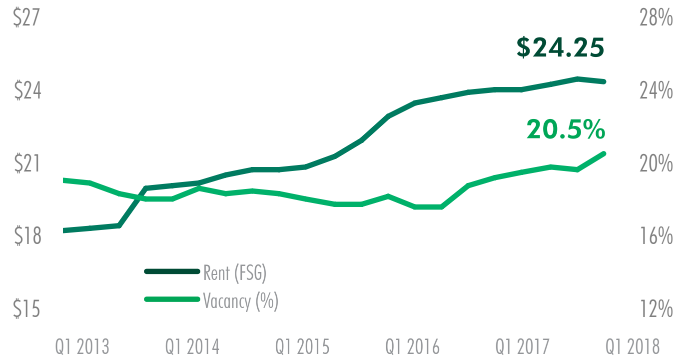
SCORE
55.46

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	160,750	15.3%	$96,633	14.8%
Software Developers & Programmers	51,380	15.1%	$103,664	15.7%
Computer Support, Database & Systems	85,170	24.6%	$86,247	17.3%
Computer & Infor. Systems Managers	7,640	1.5%	$164,497	12.9%
Technology Engineering-Related	16,560	-12.0%	$96,927	13.3%
TOTAL NON-TECH OCCUPATIONS	476,500	22.0%	$57,812	16.8%
Sales	50,450	36.6%	$71,498	7.1%
Administrative & Office Support	325,260	16.5%	$49,554	18.6%
Business Operations & Finance	76,020	33.0%	$80,089	11.2%
Marketing	24,770	41.3%	$70,013	12.6%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

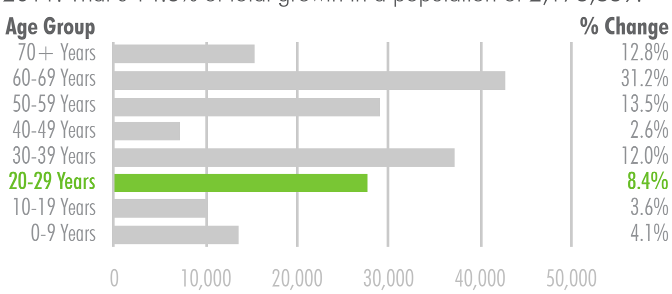
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 27,655 (8.4%) since 2011. That's 14.6% of total growth in a population of 2,173,839.



Source: U.S. Census Bureau (Cities of Dallas and Ft. Worth), 2017.

HOUSING & RELATIVE COSTS (US=100%)

97% LIVING COST

92% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,105 PER UNIT/MO.
23% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

30% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (Cities of Dallas and Ft. Worth), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	5,697	81.8%
Computer Engineering	4,041	119.5%
Math/Statistics	446	19.3%
Other Tech Engineering	333	0.0%

Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
DexYP	2200 W Airfield Dr	449,000
NTT Data	6501 Legacy Dr	232,700
NetScout Systems	Central Park Dr	145,000
NTT Data	7950 Legacy Dr	126,700
Alkami Technology	5601 Granite Pkwy	89,300

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY

Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
University of Texas	511	$4,763

VC-Funded Companies Founded by Alumni of Top Regional Universities:

Casper, Zalora, Apollo Endosurgery, Jounce Therapeutics, HotelTonight

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

13 Ottawa, ON

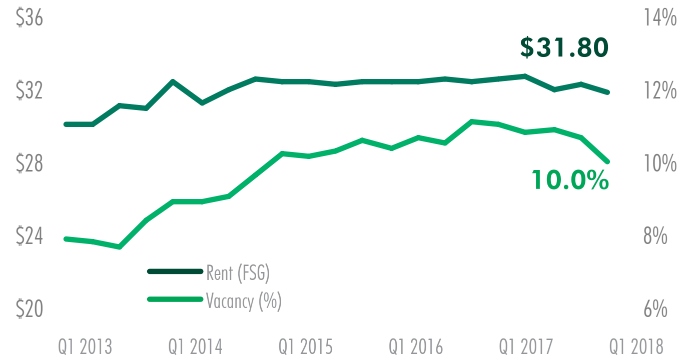
SCORE
53.49

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	70,600	15.9%	$87,997	8.3%
Software Developers & Programmers	22,800	-4.6%	$89,461	8.0%
Computer Support, Database & Systems	28,000	40.0%	$78,998	3.5%
Computer & Infor. Systems Managers	6,900	43.8%	$111,342	5.9%
Technology Engineering-Related	12,900	5.7%	$92,456	20.5%
TOTAL NON-TECH OCCUPATIONS	88,900	9.5%	$61,664	5.2%
Sales	6,700	81.1%	$44,429	-21.9%
Administrative & Office Support	42,000	17.6%	$47,258	4.9%
Business Operations & Finance	27,800	1.1%	$83,990	14.7%
Marketing	12,400	-13.3%	$69,722	7.6%

Source: Statistics Canada (Metro), April 2018.
Data in CAD

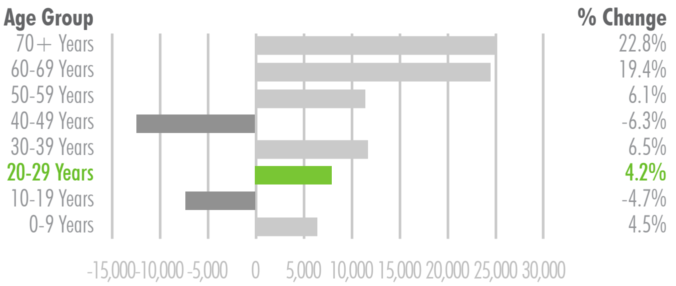
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.
Data in CAD

POPULATION TRENDS

The population of millennials in their 20s grew by 8,001 (4.2%) since 2011. That's 11.8% of total growth in a population of 1,353,517.



Source: Environics Analytics (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

95%
LIVING COST

AVERAGE APT. RENT:
$1,113 PER UNIT/MO.
12% INCREASE SINCE 2013

Source: Apt. rent data from CMHC (Metro), Q1 2018.
Data in CAD

EDUCATIONAL ATTAINMENT

41%
BACHELOR'S OR HIGHER

Source: Environics Analytics (Metro), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	2,217	56.5%
Computer Engineering	293	56.7%
Math/Statistics	120	8.1%
Other Tech Engineering	1,804	61.2%

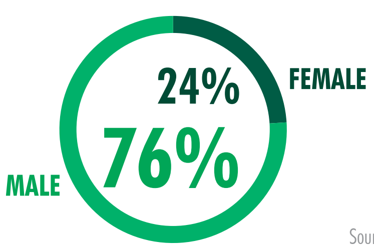
Source: Common University Data Ontario (Metro), June 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Shopify	234 Laurier Ave W	440,000
Telesat	160 Elgin St	75,000
Flextronic	3001 Solandt Dr	62,000
Ford Motors - Autonomous Vehicles Division	700 Palladium Dr	62,000
Survey Monkey	200 Laurier Ave W	50,000

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY



Source: Statistics Canada (Metro), 2017.

BACK TO SCORECARD RANKINGS

14 Montreal, QC

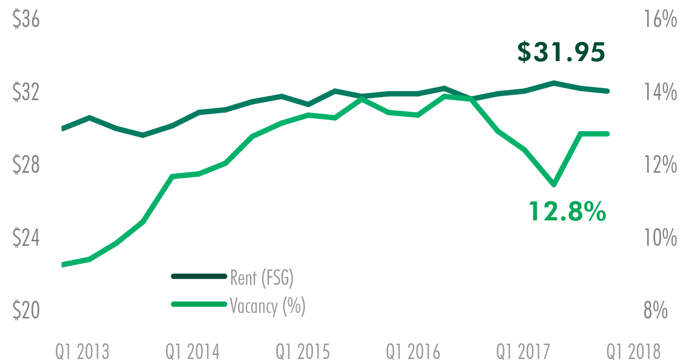
SCORE
52.79

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	127,300	21.2%	$74,238	12.6%
Software Developers & Programmers	33,300	27.1%	$68,702	8.9%
Computer Support, Database & Systems	42,100	12.0%	$69,389	9.9%
Computer & Infor. Systems Managers	12,100	44.0%	$94,723	12.6%
Technology Engineering-Related	39,800	21.3%	$77,771	16.6%
TOTAL NON-TECH OCCUPATIONS	228,100	9.7%	$52,942	10.1%
Sales	21,700	10.7%	$43,597	-0.1%
Administrative & Office Support	116,100	3.2%	$42,661	7.9%
Business Operations & Finance	58,100	19.8%	$72,634	13.9%
Marketing	32,200	17.5%	$60,778	3.7%

Source: Statistics Canada (Metro), April 2018.
Data in CAD

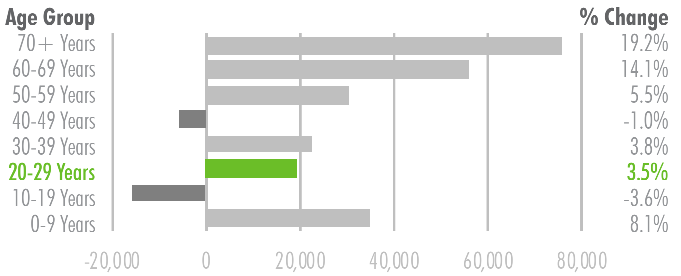
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.
Data in CAD

POPULATION TRENDS

The population of millennials in their 20s grew by 19,361 (3.5%) since 2011. That's 8.9% of total growth in a population of 4,149,278.



Source: Environics Analytics (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

90% LIVING COST

85% BUSINESS COST

Source: Relative Costs from Numbeo (Metro), Q1 2018.

AVERAGE APT. RENT:
$766 PER UNIT/MO.
11% INCREASE SINCE 2013

Source: Apt. rent data from CMHC (Metro), Q1 2018.
Data in CAD

EDUCATIONAL ATTAINMENT

29% BACHELOR'S OR HIGHER

Source: Environics Analytics (Metro), 2017.

DEGREE COMPLETIONS 2015		Growth 2010-15
TOTAL TECH DEGREES	4,120	27.4%
Computer Engineering	1,011	37.2%
Math/Statistics	344	25.5%
Other Tech Engineering	2,765	24.4%

Source: Government of Quebec (Metro), June 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Element AI	6666 St-Urbain St	65,500
Montreal Institute for Learning Algorithms	6666 St-Urbain St	63,600
Autodesk	100 Peel St	60,400
Unity 3D	1751 Richardson St	50,000
Double Negative	810-830 St-Antoine St	45,000

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY

Source: Statistics Canada (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
McGill University	276	$5,594

VC-Funded Companies Founded by Alumni of Top Regional Universities:

Cloudflare, Lamudi, VarageSale, Laurel & Wolf, Grokker

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

15 Phoenix, AZ

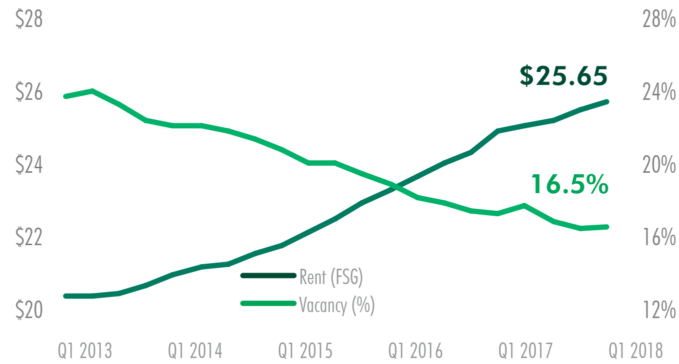
SCORE
52.74

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	83,930	17.7%	$88,296	11.2%
Software Developers & Programmers	26,830	25.6%	$96,303	12.3%
Computer Support, Database & Systems	44,580	34.9%	$77,295	10.4%
Computer & Infor. Systems Managers	5,890	37.3%	$138,280	18.9%
Technology Engineering-Related	6,630	-47.3%	$85,456	5.7%
TOTAL NON-TECH OCCUPATIONS	265,460	18.8%	$48,777	4.0%
Sales	25,600	9.7%	$62,663	-6.4%
Administrative & Office Support	190,560	19.7%	$42,390	6.3%
Business Operations & Finance	36,040	20.7%	$67,695	8.4%
Marketing	13,260	18.9%	$62,352	-1.5%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

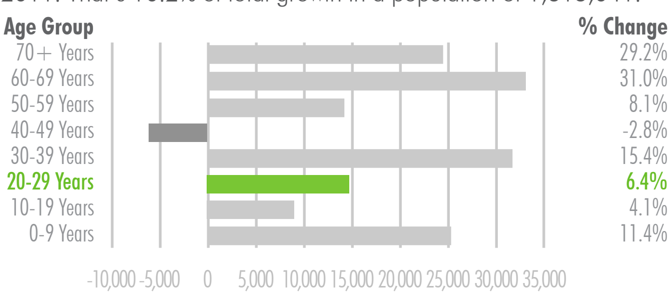
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 14,777 (6.4%) since 2011. That's 10.2% of total growth in a population of 1,615,041.



Source: U.S. Census Bureau (City of Phoenix), 2017.

HOUSING & RELATIVE COSTS (US=100%)

106% LIVING COST

103% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,014 PER UNIT/MO.
29% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

28% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Phoenix), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	4,735	-8.0%
Computer Engineering	3,624	-17.0%
Math/Statistics	185	10.8%
Other Tech Engineering	430	87.8%

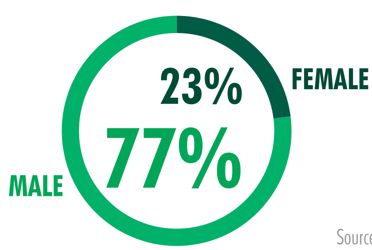
Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2017/2018)

Tenant	Address	Sq. Ft.
First Solar	350 E Washington St	119,200
PayPal	9999 N 90th St	92,600
Endurance International Group	1500 N Priest Dr	71,600
ZipRecruiter	40 E Rio Salado Pkwy	54,300
Indeed	4301 N Scottsdale Rd	52,600

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
N/A		

VC-Funded Companies Founded by Alumni of Top Regional Universities:
N/A

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

16 San Diego, CA

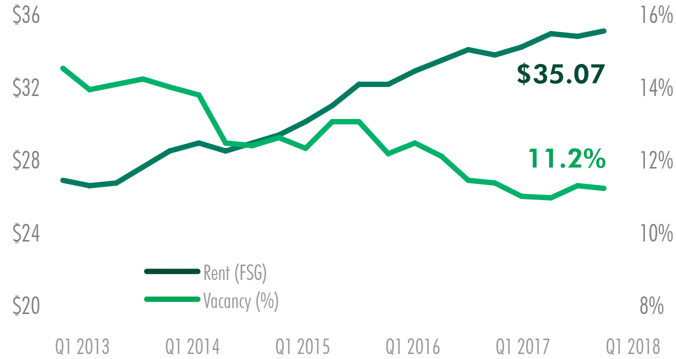
SCORE
52.64

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	70,100	20.4%	$102,994	16.6%
Software Developers & Programmers	24,850	23.2%	$103,720	9.7%
Computer Support, Database & Systems	25,270	20.5%	$89,311	19.4%
Computer & Infor. Systems Managers	4,650	22.7%	$155,020	13.8%
Technology Engineering-Related	15,330	15.3%	$108,590	25.5%
TOTAL NON-TECH OCCUPATIONS	158,250	-0.1%	$54,101	7.2%
Sales	16,950	9.4%	$64,115	-14.6%
Administrative & Office Support	106,770	-4.3%	$46,121	10.3%
Business Operations & Finance	22,230	5.0%	$78,277	7.9%
Marketing	12,300	20.2%	$65,881	6.6%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

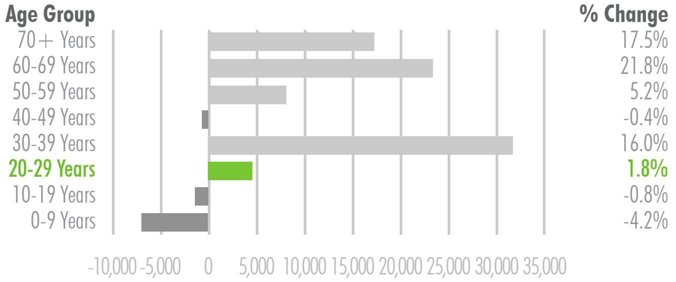
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 4,594 (1.8%) since 2011. That's 5.7% of total growth in a population of 1,406,622.



Source: U.S. Census Bureau (City of San Diego), 2017.

HOUSING & RELATIVE COSTS (US=100%)

128% LIVING COST

132% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,975 PER UNIT/MO.
28% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

44% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of San Diego), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	3,303	47.5%
Computer Engineering	1,997	42.1%
Math/Statistics	479	51.1%
Other Tech Engineering	353	66.5%

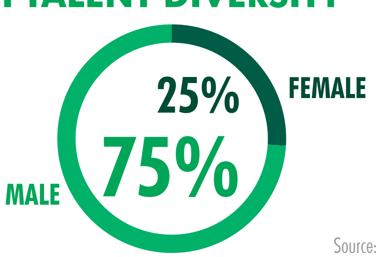
Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Sony	9645 Scranton Rd	119,000
TrellisWare	10641 Scripps Summit Ct	69,500
Samsung	9808-9868 Scranton Rd	48,700
PayLease	9330 Scranton Rd	40,700
Confidential	5600 Avenida Encinas	32,300

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
University of California San Diego	308	$4,473
University of California Los Angeles	433	$8,024

VC-Funded Companies Founded by Alumni of Top Regional Universities:

N/A

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

17 Minneapolis/St. Paul, MN

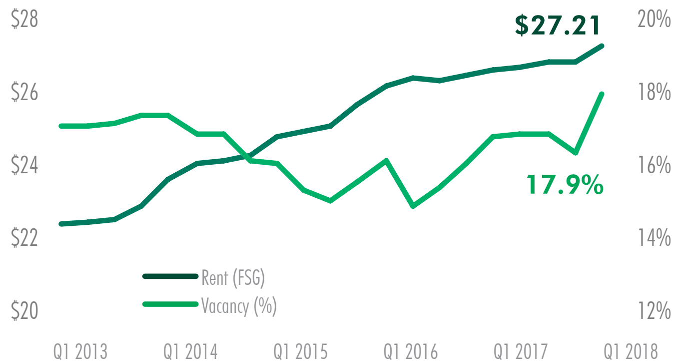
SCORE 51.25

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	91,210	11.5%	$93,654	12.5%
Software Developers & Programmers	27,720	16.0%	$97,316	9.0%
Computer Support, Database & Systems	48,070	16.5%	$83,272	13.6%
Computer & Infor. Systems Managers	8,000	-0.2%	$146,450	20.9%
Technology Engineering-Related	7,420	-13.7%	$90,310	14.6%
TOTAL NON-TECH OCCUPATIONS	236,640	8.2%	$57,773	12.2%
Sales	25,920	17.6%	$79,065	9.4%
Administrative & Office Support	148,280	3.9%	$48,171	10.6%
Business Operations & Finance	41,320	12.4%	$73,738	13.3%
Marketing	21,120	23.1%	$67,829	10.5%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

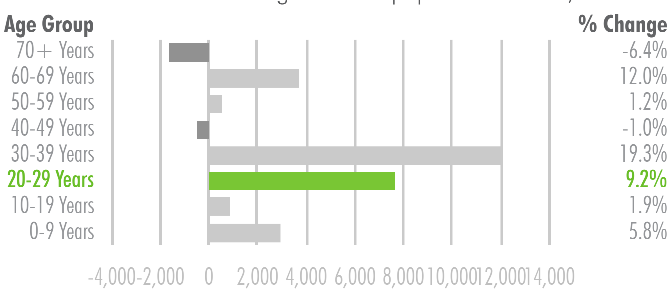
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 7,639 (9.2%) since 2011. That's 29.5% of total growth in a population of 413,645.



Source: U.S. Census Bureau (City of Minneapolis), 2017.

HOUSING & RELATIVE COSTS (US=100%)

101% LIVING COST

102% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,299 PER UNIT/MO.
15% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

48% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Minneapolis), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	3,461	29.2%
Computer Engineering	2,373	36.8%
Math/Statistics	577	36.7%
Other Tech Engineering	205	-5.1%

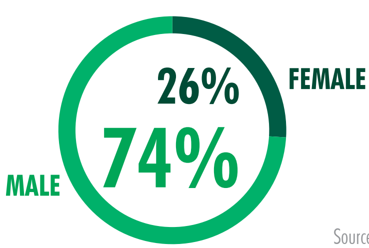
Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
SPS Commerce	333 S 7th St	214,100
Confidential	316 3rd Ave N	103,100
Field Nation	733 Marquette Ave	34,500
Arcserve	8855 Flying Cloud Dr	33,500
Mobile Soft	120 S 6th St	31,600

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
University of Minnesota	203	$3,480

VC-Funded Companies Founded by Alumni of Top Regional Universities:

N/A

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

18 Chicago, IL

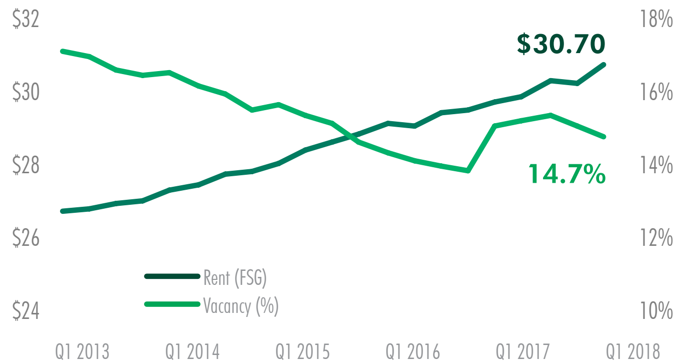
SCORE 50.65

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	140,080	12.7%	$92,613	12.3%
Software Developers & Programmers	45,300	-7.2%	$96,964	13.6%
Computer Support, Database & Systems	74,060	35.5%	$83,009	11.4%
Computer & Infor. Systems Managers	11,140	22.0%	$142,090	17.3%
Technology Engineering-Related	9,580	-18.5%	$88,749	14.9%
TOTAL NON-TECH OCCUPATIONS	446,270	6.9%	$57,364	11.7%
Sales	47,820	0.0%	$66,713	-6.4%
Administrative & Office Support	297,320	1.5%	$50,817	17.2%
Business Operations & Finance	70,820	33.1%	$76,674	3.7%
Marketing	30,310	29.0%	$61,715	4.6%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

OFFICE RENT & VACANCY TRENDS

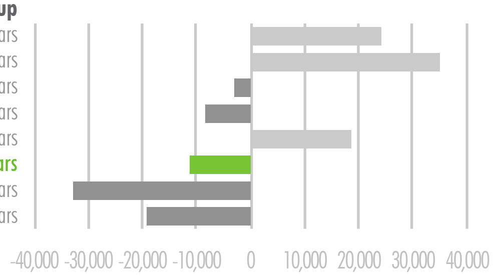


Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s declined by -11,221 (-2.2%) since 2011. That's 520.0% of total growth in a population of 2,704,965.

Age Group	% Change
70+ Years	12.8%
60-69 Years	16.8%
50-59 Years	-0.9%
40-49 Years	-2.4%
30-39 Years	4.2%
20-29 Years	-2.2%
10-19 Years	-9.4%
0-9 Years	-5.5%



Source: U.S. Census Bureau (City of Chicago), 2017.

HOUSING & RELATIVE COSTS (US=100%)

99% LIVING COST

103% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,503 PER UNIT/MO.
10% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

39% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Chicago), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	6,614	27.8%
Computer Engineering	4,690	28.0%
Math/Statistics	1,075	23.1%
Other Tech Engineering	256	37.6%

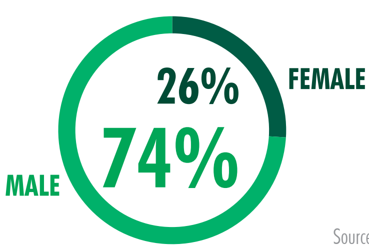
Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Tempus Labs	600 W Chicago Ave	85,000
Strata Decision Technology	200 E Randolph St	66,500
FTD Companies	1 N Dearborn St	52,900
Fiserv Solutions	350 N Orleans St	43,700
Project44	222 Merchandize Mart Plz	42,300

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
University of Illinois	460	$6,307
Northwestern University	285	$4,911

VC-Funded Companies Founded by Alumni of Top Regional Universities:

NAvant, Affirm, ZocDoc, Desktop Metal, CRISPR Therapeutics

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

19 Orange County, CA

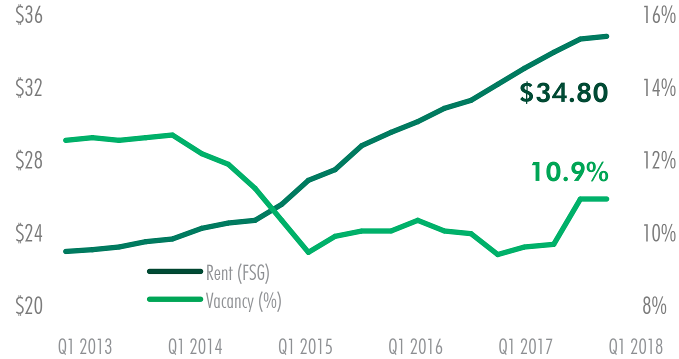
SCORE 50.26

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	69,480	14.4%	$99,423	9.5%
Software Developers & Programmers	23,670	6.7%	$110,955	14.8%
Computer Support, Database & Systems	29,650	31.3%	$83,056	10.3%
Computer & Infor. Systems Managers	5,130	15.5%	$155,700	11.9%
Technology Engineering-Related	11,030	-4.1%	$92,498	1.2%
TOTAL NON-TECH OCCUPATIONS	194,160	1.0%	$58,776	13.5%
Sales	25,570	12.2%	$76,861	3.7%
Administrative & Office Support	122,010	-6.7%	$48,392	14.8%
Business Operations & Finance	31,010	14.1%	$79,323	8.2%
Marketing	15,570	35.2%	$69,519	5.1%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

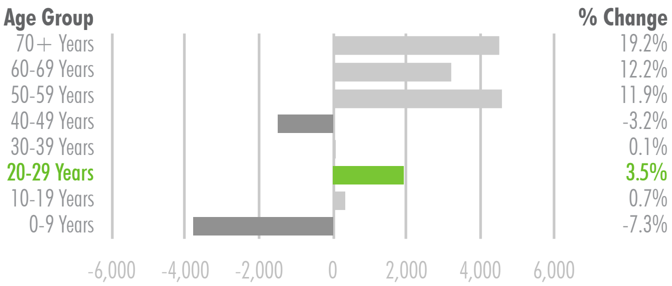
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

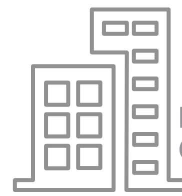
The population of millennials in their 20s grew by 1,925 (3.5%) since 2011. That's 19.8% of total growth in a population of 351,066.



Source: U.S. Census Bureau (City of Anaheim), 2017.

HOUSING & RELATIVE COSTS (US=100%)

145% LIVING COST



114% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$2,039 PER UNIT/MO.
23% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

25% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Anaheim), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	2,933	63.3%
Computer Engineering	2,137	67.5%
Math/Statistics	274	20.2%
Other Tech Engineering	110	77.4%

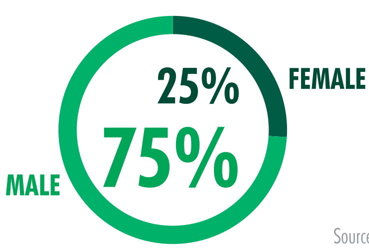
Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Cylance	400 Spectrum Ctr	133,300
Toshiba America	5231-5241 California	96,400
Ghost Management Group	41 & 43 Discovery	76,200
Panasonic Avionics	26110-26160 Enterprise Way	75,000
Toshiba America	25530 Commerce Center Dr	70,600

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
University of California Los Angeles	433	$8,024
University of Southern California	374	$5,788

VC-Funded Companies Founded by Alumni of Top Regional Universities:

Pinterest, MongoDB, CODA Energy, Gilt, Thumbtack

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

20 Detroit, MI

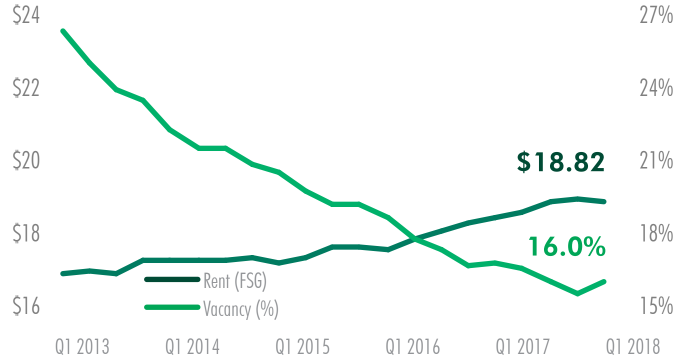
SCORE
49.78

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	84,910	24.6%	$85,284	9.9%
Software Developers & Programmers	28,130	26.4%	$89,637	12.4%
Computer Support, Database & Systems	39,520	19.0%	$76,404	12.2%
Computer & Infor. Systems Managers	5,040	27.6%	$137,726	-8.8%
Technology Engineering-Related	12,220	40.0%	$82,354	10.1%
TOTAL NON-TECH OCCUPATIONS	228,220	15.1%	$54,823	8.7%
Sales	21,710	25.7%	$72,426	6.6%
Administrative & Office Support	157,660	7.8%	$47,824	6.7%
Business Operations & Finance	32,950	30.7%	$77,110	14.9%
Marketing	15,900	68.1%	$54,007	-11.6%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

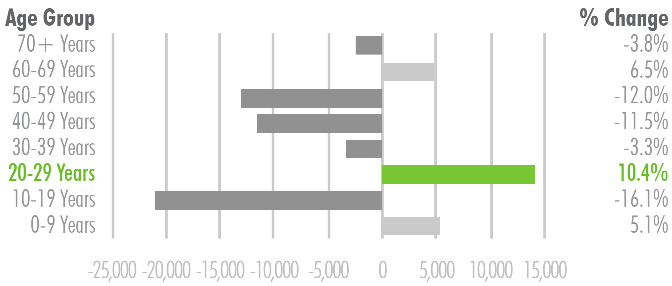
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 14,119 (10.4%) since 2011. That's -50.5% of total growth in a population of 793,606.



Source: U.S. Census Bureau (Cities of Detroit and Ann Arbor), 2017.

HOUSING & RELATIVE COSTS (US=100%)

94% LIVING COST

100% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$982 PER UNIT/MO.
19% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

44% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (Cities of Ann Arbor and Detroit), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	3,303	47.5%
Computer Engineering	1,997	42.1%
Math/Statistics	479	51.1%
Other Tech Engineering	353	66.5%

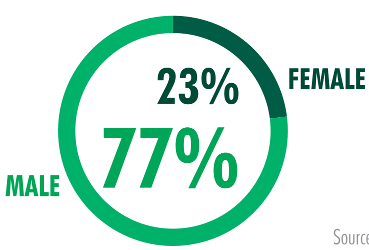
Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
DXC Technology	3000 University Dr	122,300
WorkForce Software	38705 7 Mile Rd	60,800
Confidential	150 W Jefferson	53,200
Confidential	1 Campus Martius	43,800
Alte Technologies	260-270 Rex Blvd	40,900

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
University of Michigan	614	$9,434

VC-Funded Companies Founded by Alumni of Top Regional Universities:

Groupon, Medallia, Twilio, 23andMe, Altiostar

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

21 Portland, OR

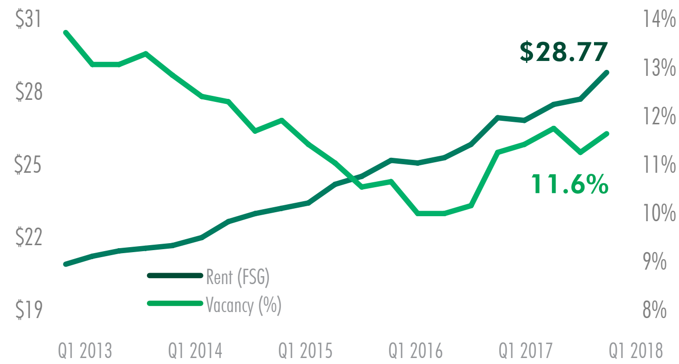
SCORE
49.66

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	51,720	25.4%	$93,626	14.5%
Software Developers & Programmers	20,090	53.1%	$101,255	17.2%
Computer Support, Database & Systems	21,960	20.8%	$78,100	6.1%
Computer & Infor. Systems Managers	4,550	50.2%	$138,280	19.0%
Technology Engineering-Related	5,120	-26.0%	$90,602	13.9%
TOTAL NON-TECH OCCUPATIONS	132,090	12.3%	$54,076	10.6%
Sales	12,090	9.4%	$73,007	-5.9%
Administrative & Office Support	89,680	7.2%	$45,770	13.9%
Business Operations & Finance	19,780	20.7%	$71,363	4.9%
Marketing	10,540	60.9%	$70,600	10.4%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

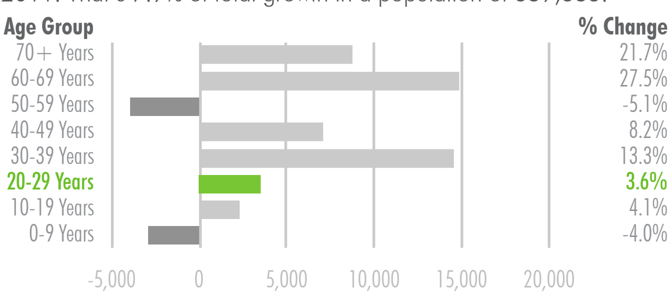
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 3,518 (3.6%) since 2011. That's 7.9% of total growth in a population of 639,635.



Source: U.S. Census Bureau (City of Portland), 2017.

HOUSING & RELATIVE COSTS (US=100%)

110% LIVING COST

99% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,372 PER UNIT/MO.
34% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

50% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Portland), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	1,786	37.6%
Computer Engineering	1,072	44.5%
Math/Statistics	253	21.1%
Other Tech Engineering	69	109.1%

Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Confidential	1320 SW Broadway	101,400
Autodesk	17 SE 3rd Ave	100,000
McAfee	5555 NE Moore Ct	98,400
Confidential	1455 SW Broadway	85,000
Fiserv	8500 SW Creekside Pl	65,000

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY

Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
N/A		

VC-Funded Companies Founded by Alumni of Top Regional Universities:

N/A

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

22 Salt Lake City, UT

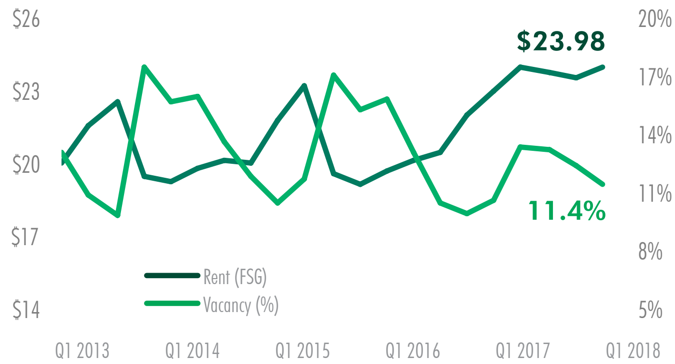
SCORE 49.36

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	31,740	21.2%	$84,783	14.0%
Software Developers & Programmers	11,830	29.0%	$96,203	19.5%
Computer Support, Database & Systems	14,550	29.4%	$70,334	11.0%
Computer & Infor. Systems Managers	3,310	104.3%	$111,390	-2.7%
Technology Engineering-Related	2,050	-50.7%	$78,470	4.7%
TOTAL NON-TECH OCCUPATIONS	108,680	16.6%	$46,831	4.7%
Sales	11,460	7.4%	$59,392	-6.1%
Administrative & Office Support	75,950	15.0%	$40,258	7.7%
Business Operations & Finance	14,490	25.8%	$66,658	2.0%
Marketing	6,780	35.6%	$56,856	4.8%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

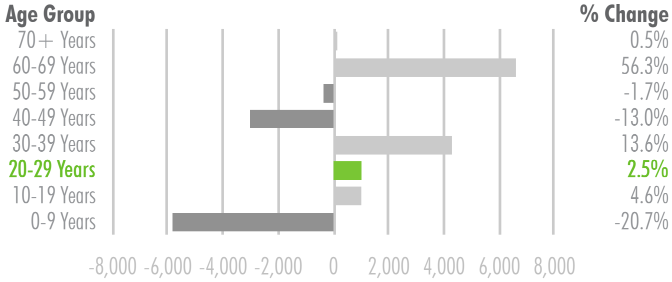
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 1,003 (2.5%) since 2011. That's 25.9% of total growth in a population of 193,776.



Source: U.S. Census Bureau (City of Salt Lake City), 2017.

HOUSING & RELATIVE COSTS (US=100%)

106% LIVING COST

94% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,081 PER UNIT/MO.
22% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

46% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Salt Lake City), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	4,391	70.2%
Computer Engineering	3,701	82.3%
Math/Statistics	379	50.4%
Other Tech Engineering	42	13.5%

Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Pluralsight	65 E Highland Dr	350,000
Podium	3400 N Frontage Rd	100,000
Recursion	41 S Rio Grande St	99,200
Canopy	4100 N Chapel Ridge	90,000
Insidesales.com	1712 E Bay Blvd	78,600

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY

Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
Brigham Young	283	$5,261

VC-Funded Companies Founded by Alumni of Top Regional Universities:

Qualtrics, Elevance, Renewable Science, Lendio, InsideSales.com, Okta

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

23 Columbus, OH

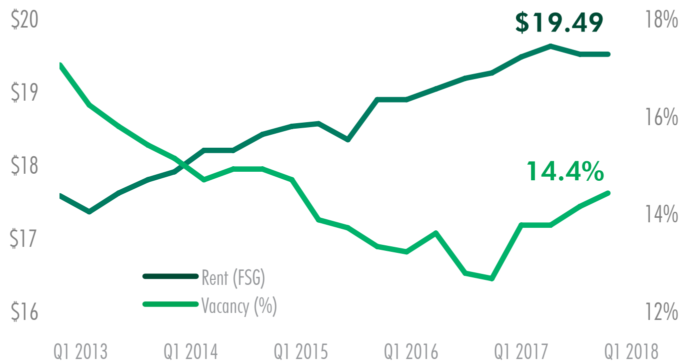
SCORE
48.88

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	49,300	15.8%	$94,910	21.6%
Software Developers & Programmers	15,920	24.5%	$101,286	25.8%
Computer Support, Database & Systems	26,450	12.6%	$85,072	19.3%
Computer & Infor. Systems Managers	4,150	24.6%	$147,380	17.5%
Technology Engineering-Related	2,780	-7.0%	$73,676	8.6%
TOTAL NON-TECH OCCUPATIONS	129,310	13.2%	$52,424	9.9%
Sales	13,110	46.2%	$67,785	8.3%
Administrative & Office Support	85,660	7.7%	$44,327	9.6%
Business Operations & Finance	21,740	22.8%	$69,894	4.0%
Marketing	8,800	10.8%	$65,203	8.2%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

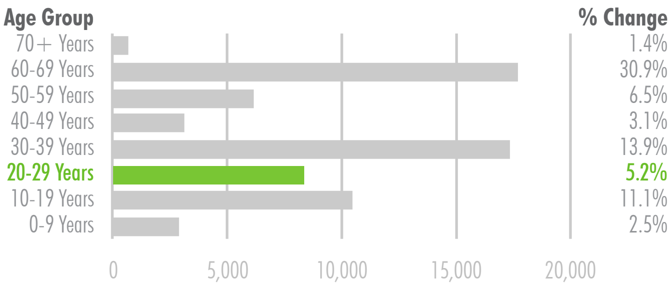
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 8,350 (5.2%) since 2011. That's 12.5% of total growth in a population of 862,643.



Source: U.S. Census Bureau (City of Columbus), 2017.

HOUSING & RELATIVE COSTS (US=100%)

95% LIVING COST

98% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$920 PER UNIT/MO.
16% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

35% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Columbus), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	2,209	12.1%
Computer Engineering	1,199	5.0%
Math/Statistics	312	17.3%
Other Tech Engineering	300	29.9%

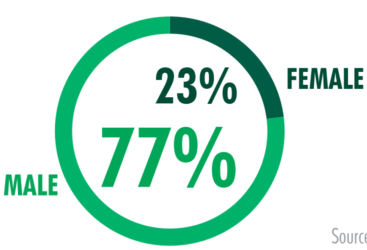
Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Root Insurance	80 E Rich St	60,000
Confidential	41 S High St	47,200
Veeva Systems	5555 Parkcenter Cir	30,200
Updox	6555 Longshore St	28,100
Pillar Technology Group	711 N High St	25,000

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
Ohio State University	201	$1,551

VC-Funded Companies Founded by Alumni of Top Regional Universities:

N/A

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

24 Philadelphia, PA

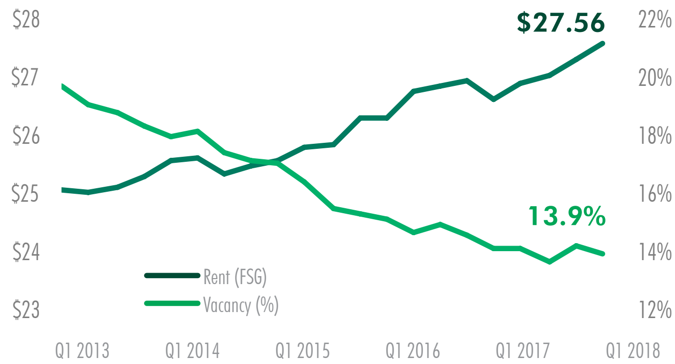
SCORE
48.64

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	79,080	18.1%	$95,224	10.1%
Software Developers & Programmers	26,260	20.3%	$99,529	9.2%
Computer Support, Database & Systems	40,880	17.4%	$84,178	8.0%
Computer & Infor. Systems Managers	5,730	50.8%	$161,270	9.5%
Technology Engineering-Related	6,210	-4.5%	$88,801	9.3%
TOTAL NON-TECH OCCUPATIONS	264,270	3.8%	$58,066	7.5%
Sales	23,580	21.5%	$80,387	-4.0%
Administrative & Office Support	177,250	0.2%	$48,206	7.4%
Business Operations & Finance	43,610	8.1%	$80,722	8.0%
Marketing	19,830	9.9%	$69,831	7.5%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

OFFICE RENT & VACANCY TRENDS

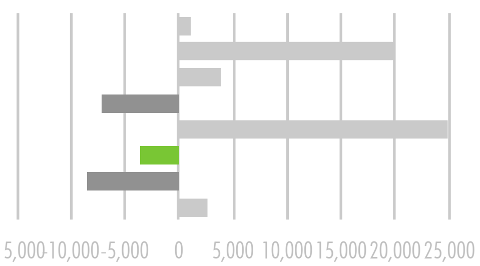


Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s declined by -3,567 (-1.2%) since 2011. That's -11.4% of total growth in a population of 1,567,872.

Age Group	% Change
70+ Years	0.8%
60-69 Years	14.9%
50-59 Years	2.0%
40-49 Years	-3.8%
30-39 Years	11.7%
20-29 Years	-1.2%
10-19 Years	-4.3%
0-9 Years	1.3%



Source: U.S. Census Bureau (City of Philadelphia), 2017.

HOUSING & RELATIVE COSTS (US=100%)

98% LIVING COST

103% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,311 PER UNIT/MO.
10% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

29% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Philadelphia), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	4,525	38.8%
Computer Engineering	3,039	46.2%
Math/Statistics	711	43.9%
Other Tech Engineering	335	6.0%

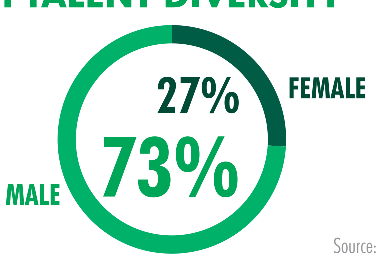
Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
SICOM Systems	1684 S Broad St	92,000
Cotiviti	785 Arbor Way	86,600
Qlik Technologies	211 S Gulph Rd	62,000
Softerware	601 Office Center Dr	45,500
Astea International	240 Gibraltar Rd	24,000

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
University of Pennsylvania	712	$13,925
Penn State	269	$3,221

VC-Funded Companies Founded by Alumni of Top Regional Universities:

Snapdeal, Zynga, Fuze, Flatiron Health, EVA Automation

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

25 Vancouver, BC

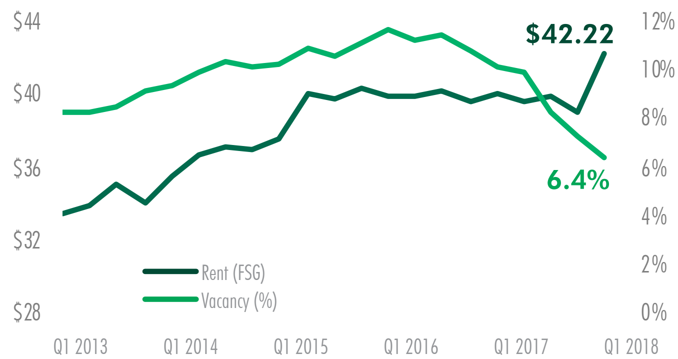
SCORE
48.56

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	68,500	30.7%	$74,965	3.6%
Software Developers & Programmers	21,800	26.7%	$71,926	-1.9%
Computer Support, Database & Systems	25,000	61.3%	$72,530	7.7%
Computer & Infor. Systems Managers	5,300	-3.6%	$98,696	11.3%
Technology Engineering-Related	16,400	15.5%	$75,046	6.6%
TOTAL NON-TECH OCCUPATIONS	136,800	23.9%	$53,576	9.2%
Sales	12,600	27.3%	$45,573	-9.3%
Administrative & Office Support	66,600	4.4%	$43,576	8.2%
Business Operations & Finance	32,300	20.1%	$73,029	7.2%
Marketing	25,300	158.2%	$59,051	12.2%

Source: Statistics Canada (Metro), April 2018.
Data in CAD

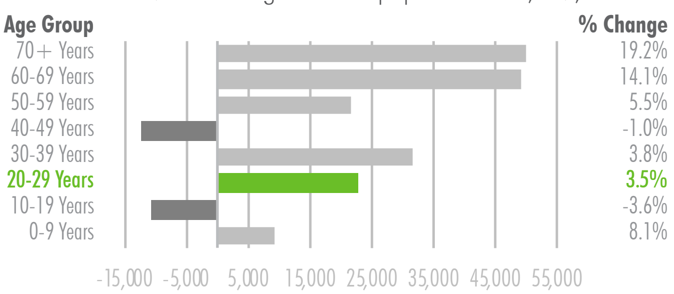
OFFICE RENT & VACANCY TRENDS



Source: CBRE Research (Metro), Q1 2018.
Data in CAD

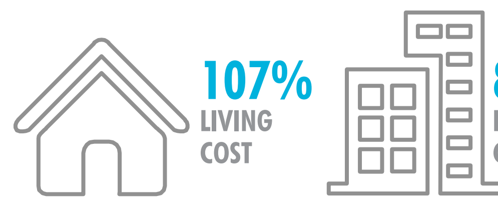
POPULATION TRENDS

The population of millennials in their 20s grew by 19,361 (3.5%) since 2011. That's 8.9% of total growth in a population of 4,149,278.



Source: Environics Analytics (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)



107% LIVING COST

86% BUSINESS COST

Source: Relative Costs from Numbeo and KPMG (Metro), Q1 2018.

AVERAGE APT. RENT:
$1,297 PER UNIT/MO.
24% INCREASE SINCE 2013

Source: Apt. rent data from CMHC (Metro), Q1 2018.
Data in CAD

EDUCATIONAL ATTAINMENT

34% BACHELOR'S OR HIGHER

Source: Environics Analytics (Metro), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	2,396	41.3%
Computer Engineering	993	55.9%
Math/Statistics	258	7.1%
Other Tech Engineering	1,145	40.0%

Source: BC HEADset (Metro), June 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Confidential	349 West Georgia St	416,000
Confidential	402 Dunsmuir St	147,000
Arista Networks	9100 Glenlyon Pkwy	61,800
FLIR Integrated Imaging Solutions	12051 Riverside Way	52,000
Visier Solutions	858 Beatty St	39,100

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY

Source: Statistics Canada (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
University of British Columbia	178	$1,265

VC-Funded Companies Founded by Alumni of Top Regional Universities:

N/A

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

26 Los Angeles, CA

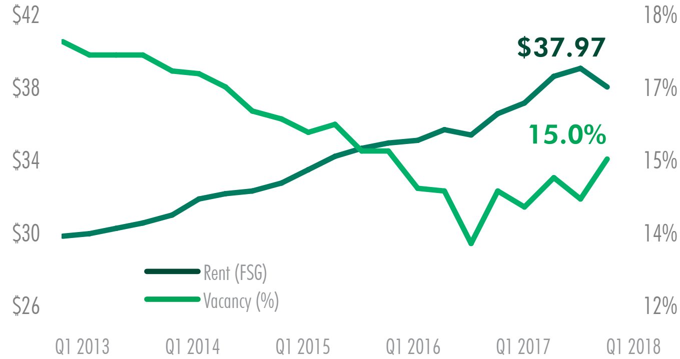
SCORE
46.51

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH OCCUPATIONS	133,400	11.0%	$101,491	13.8%
Software Developers & Programmers	43,980	3.5%	$107,265	13.4%
Computer Support, Database & Systems	62,030	24.8%	$84,086	11.4%
Computer & Infor. Systems Managers	10,340	16.7%	$163,070	19.5%
Technology Engineering-Related	17,050	-10.6%	$112,577	24.0%
TOTAL NON-TECH OCCUPATIONS	514,940	6.8%	$56,921	12.0%
Sales	49,500	21.7%	$70,539	-0.8%
Administrative & Office Support	342,990	2.4%	$47,766	16.2%
Business Operations & Finance	77,720	7.3%	$82,616	7.4%
Marketing	44,730	31.4%	$67,415	1.4%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

OFFICE RENT & VACANCY TRENDS

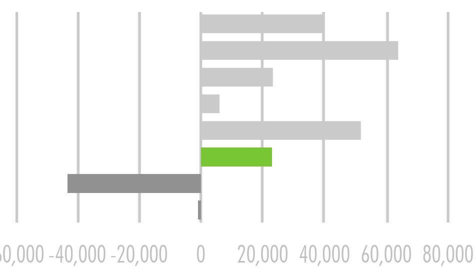


Source: CBRE Research (Metro), Q1 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 22,962 (3.5%) since 2011. That's 14.7% of total growth in a population of 3,976,324.

Age Group	% Change
70+ Years	13.8%
60-69 Years	21.5%
50-59 Years	4.9%
40-49 Years	1.2%
30-39 Years	8.9%
20-29 Years	3.5%
10-19 Years	-8.6%
0-9 Years	-0.1%



Source: U.S. Census Bureau (City of Los Angeles), 2017.

HOUSING & RELATIVE COSTS (US=100%)

126% LIVING COST

113% BUSINESS COST

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.

AVERAGE APT. RENT:
$2,264 PER UNIT/MO.
24% INCREASE SINCE 2013

Source: Apt. rent data from CBRE EA (City), Q1 2018.

EDUCATIONAL ATTAINMENT

33% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Los Angeles), 2017.

DEGREE COMPLETIONS 2016		Growth 2011-16
TOTAL TECH DEGREES	9,137	40.0%
Computer Engineering	4,760	54.4%
Math/Statistics	1,543	42.9%
Other Tech Engineering	934	2.9%

Source: The National Center for Education Statistics (Metro), July 2017.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Confidential	9336 Washington Blvd	280,000
Snap	3340 Ocean Park Blvd	144,100
Epson America	3840 Kilroy Airport Way	136,000
Confidential	8777 Washington Blvd	128,000
Spotify	555 Mateo St	120,000

Source: CBRE Research (Office Market), 2018.

TECH TALENT DIVERSITY

Source: U.S. Census Bureau (Metro), 2017.

START-UP PIPELINE

Top Regional Universities	Company Count	Capital Raised (Millions)
University of California Los Angeles	433	$8,024
University of Southern California	374	$5,788

VC-Funded Companies Founded by Alumni of Top Regional Universities:

Pinterest, MongoDB, CODA Energy, Gilt, Thumbtack

Source: Pitchbook, 2018.

BACK TO SCORECARD RANKINGS

27 Newark, NJ

SCORE
46.12

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	50,620	5.7%	$110,177	8.6%
Software Developers & Programmers	17,970	8.5%	$108,994	-2.7%
Computer Support, Database & Systems	23,730	5.1%	$97,556	19.3%
Computer & Infor. Systems Managers	5,030	-3.3%	$186,410	21.8%
Technology Engineering-Related	3,890	-10.9%	$94,064	-5.3%
TOTAL NON-TECH TALENT	142,860	2.3%	$60,528	18.6%
Sales	15,380	8.0%	$82,408	-16.3%
Administrative & Office Support	95,670	-3.0%	$47,028	28.9%
Business Operations & Finance	21,800	7.6%	$91,759	11.8%
Marketing	10,010	40.7%	$87,924	28.3%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s declined by -392 (-0.8%) since 2011. That's -9.3% of total growth in a population of 281,770.

Source: U.S. Census Bureau (City of Newark), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $24.38 PSF (up 31.6%); Vacancy: 16.9% (down -510 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Sony Electronics	115 West Century Rd	55,200
Confidential	33 Washington St	49,400
Jet.com	221 River St	42,000
SRS Health	155 Chestnut Ridge Rd	25,400
W20 Group	100 Campus Dr	25,000

Source: CBRE Research (Office Market), 2017.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	2,336	37.3%
Computer Engineering	1,562	52.1%
Math/Statistics	366	9.9%
Other Tech Engineering	39	-40.9%

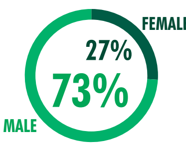
Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

14% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Newark), 2017.

TECH DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

119% LIVING COST

109% BUSINESS COST

AVERAGE APT. RENT:
$1,733 PER UNIT/MO.
13% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

28 Pittsburgh, PA

SCORE
45.37

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	44,320	18.2%	$83,117	13.3%
Software Developers & Programmers	13,150	19.0%	$84,678	7.0%
Computer Support, Database & Systems	23,050	19.3%	$75,504	15.8%
Computer & Infor. Systems Managers	3,130	37.9%	$139,030	16.1%
Technology Engineering-Related	4,990	2.9%	$79,098	11.6%
TOTAL NON-TECH TALENT	146,460	1.3%	$52,052	10.8%
Sales	9,940	-2.0%	$67,471	-6.5%
Administrative & Office Support	106,370	-0.6%	$46,148	14.0%
Business Operations & Finance	21,490	9.0%	$70,727	8.6%
Marketing	8,660	11.2%	$60,523	5.2%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 3,395 (5.0%) since 2011. That's -87.6% of total growth in a population of 303,624.

Source: U.S. Census Bureau (City of Pittsburgh), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $22.02 PSF (up 22.9%); Vacancy: 12.4% (up 300 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Omnicell Technologies	500 Cranberry Woods Dr	103,000
Evoqua Water Technologies	210 Sixth Ave	74,000
Argo AI	2545 Railroad St	65,500

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	4,354	34.9%
Computer Engineering	2,910	39.2%
Math/Statistics	457	-4.8%
Other Tech Engineering	384	118.2%

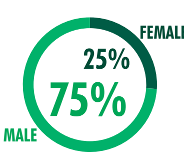
Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

46% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Pittsburgh), 2017.

TECH DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

94% LIVING COST

99% BUSINESS COST

AVERAGE APT. RENT:
$1,110 PER UNIT/MO.
-1% DECREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

BACK TO SCORECARD RANKINGS

29 Kansas City, MO

SCORE
44.84

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	52,820	26.4%	$83,500	8.2%
Software Developers & Programmers	15,150	27.5%	$88,522	4.6%
Computer Support, Database & Systems	28,050	25.8%	$74,402	6.9%
Computer & Infor. Systems Managers	3,940	47.6%	$128,790	16.3%
Technology Engineering-Related	5,680	15.0%	$83,615	10.9%
TOTAL NON-TECH TALENT	136,450	6.7%	$50,332	5.0%
Sales	12,410	3.3%	$69,429	-7.1%
Administrative & Office Support	92,360	3.3%	$42,262	4.4%
Business Operations & Finance	21,990	11.6%	$68,290	9.7%
Marketing	9,690	44.8%	$62,032	9.2%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 3,394 (4.6%) since 2011. That's 18.6% of total growth in a population of 481,360.

Source: U.S. Census Bureau (City of Kansas City), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $19.46 PSF (up 18.0%); Vacancy: 12.4% (down -610 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Mediware	College Blvd & Switzer Rd	66,000
Honeywell	6700 W 115th St	60,000
AutoAlert	114 W 11th St	45,000

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	1,517	70.8%
Computer Engineering	943	52.3%
Math/Statistics	136	30.8%
Other Tech Engineering	60	20.0%

Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

35% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Kansas City), 2017.

TECH DIVERSITY

FEMALE 22%
MALE 78%

Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

97% LIVING COST

93% BUSINESS COST

AVERAGE APT. RENT:
$941 PER UNIT/MO.
15% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

30 Charlotte, NC

SCORE
43.33

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	54,200	58.8%	$95,404	10.0%
Software Developers & Programmers	16,800	56.9%	$102,531	11.9%
Computer Support, Database & Systems	29,200	78.0%	$83,397	10.8%
Computer & Infor. Systems Managers	5,170	42.8%	$144,680	9.8%
Technology Engineering-Related	3,030	-10.9%	$87,520	11.3%
TOTAL NON-TECH TALENT	153,480	39.0%	$53,900	13.5%
Sales	16,300	50.9%	$70,336	11.1%
Administrative & Office Support	99,300	29.9%	$43,827	12.9%
Business Operations & Finance	26,390	51.8%	$78,795	10.6%
Marketing	11,490	98.4%	$60,454	-1.5%

Source: U.S. Bureau of Labor Statistics (Metro), April 2017.

POPULATION TRENDS

The population of millennials in their 20s grew by 16,237 (13.5%) since 2011. That's 17.9% of total growth in a population of 842,029.

Source: U.S. Census Bureau (City of Charlotte), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $24.55 PSF (up 31.5%); Vacancy: 8.1% (down -750 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
AvidXchange	935 Hamilton St	200,000
Integration Point	10720 Sikes Pl	48,000
Midrex Technologies	3735 Glen Lake Dr	46,300
PF2 EIS, LLC	10735 David Taylor Dr	42,400
Confidential	2359 Perimeter Pointe Pkwy	23,200

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	1,418	71.7%
Computer Engineering	988	77.1%
Math/Statistics	207	28.6%
Other Tech Engineering	40	110.5%

Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

44% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Charlotte), 2017.

TECH DIVERSITY

FEMALE 25%
MALE 75%

Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

98% LIVING COST

89% BUSINESS COST

AVERAGE APT. RENT:
$1,063 PER UNIT/MO.
20% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

BACK TO SCORECARD RANKINGS

31 Tampa, FL

SCORE
43.11

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	45,360	16.2%	$80,326	4.5%
Software Developers & Programmers	13,980	14.3%	$88,677	12.5%
Computer Support, Database & Systems	25,830	25.4%	$70,574	-0.6%
Computer & Infor. Systems Managers	2,670	40.5%	$134,240	-4.2%
Technology Engineering-Related	2,880	-33.0%	$77,265	8.6%
TOTAL NON-TECH TALENT	195,240	20.7%	$47,011	14.7%
Sales	19,330	13.7%	$62,632	1.3%
Administrative & Office Support	140,110	19.3%	$40,081	19.1%
Business Operations & Finance	26,810	25.5%	$66,458	7.0%
Marketing	8,990	51.1%	$63,448	26.2%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 825 (1.4%) since 2011. That's 2.7% of total growth in a population of 377,172.

Source: U.S. Census Bureau (City of Tampa), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $22.71 PSF (up 17.5%); Vacancy: 11.2% (down -770 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Digital Media Solutions	4800 140th Ave N	24,700
Malware Bytes	5731-5799 Rio Vista Dr	22,600
Confidential	5426 Bay Center Dr	22,200

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS

2016		Growth 2011-16
TOTAL TECH DEGREES	1,450	26.4%
Computer Engineering	1,121	22.8%
Math/Statistics	94	-5.1%
Other Tech Engineering	11	37.5%

Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

37% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Tampa), 2017.

TECH DIVERSITY

FEMALE 25%
MALE 75%

Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

101% LIVING COST

101% BUSINESS COST

AVERAGE APT. RENT:
$1,156 PER UNIT/MO.
23% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

32 Houston, TX

SCORE
41.54

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	94,810	10.4%	$94,799	10.0%
Software Developers & Programmers	26,420	11.9%	$104,592	16.2%
Computer Support, Database & Systems	50,700	14.2%	$88,986	12.8%
Computer & Infor. Systems Managers	5,520	11.1%	$163,130	13.3%
Technology Engineering-Related	12,170	-5.7%	$66,767	-18.8%
TOTAL NON-TECH TALENT	312,450	-2.5%	$62,720	19.0%
Sales	39,140	19.7%	$71,959	-2.6%
Administrative & Office Support	192,510	-15.0%	$52,648	18.8%
Business Operations & Finance	64,670	32.8%	$85,171	12.5%
Marketing	16,130	28.8%	$70,500	19.3%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 22,962 (6.1%) since 2011. That's 14.5% of total growth in a population of 2,304,388.

Source: U.S. Census Bureau (City of Houston), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $29.19 PSF (up 24.2%); Vacancy: 17.8% (up 530 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Empyrean Benefit Solutions	3010 Briarpark Dr	106,900
SoftLayer	315 Capitol St	78,100
FairfieldNodal	9811 Katy Fwy	46,700

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS

2016		Growth 2011-16
TOTAL TECH DEGREES	2,501	67.6%
Computer Engineering	1,755	83.4%
Math/Statistics	395	38.1%
Other Tech Engineering	81	76.1%

Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

32% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Houston), 2017.

TECH DIVERSITY

FEMALE 22%
MALE 78%

Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

107% LIVING COST

105% BUSINESS COST

AVERAGE APT. RENT:
$1,104 PER UNIT/MO.
12% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

BACK TO SCORECARD RANKINGS

33 Orlando, FL

SCORE
39.52

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	38,080	27.2%	$83,792	13.9%
Software Developers & Programmers	12,550	44.3%	$91,280	22.3%
Computer Support, Database & Systems	19,510	19.0%	$72,650	5.9%
Computer & Infor. Systems Managers	2,640	106.3%	$131,790	5.6%
Technology Engineering-Related	3,380	-5.1%	$82,820	9.7%
TOTAL NON-TECH TALENT	155,270	20.2%	$47,870	14.5%
Sales	16,890	0.4%	$66,856	18.4%
Administrative & Office Support	106,580	17.6%	$39,715	12.8%
Business Operations & Finance	21,410	30.9%	$66,655	11.2%
Marketing	10,390	92.1%	$61,948	19.0%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 4,190 (8.1%) since 2011. That's 12.3% of total growth in a population of 277,198.

Source: U.S. Census Bureau (City of Orlando), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $21.92 PSF (up 10.3%); Vacancy: 10.2% (down -920 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Luminar Technologies	2603 Discovery Dr	42,400
IANPAGE Services, LLC	725 Primera Blvd	37,900
Launch That	1 S Orange Ave	8,000

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	2,332	46.0%
Computer Engineering	1,808	51.2%
Math/Statistics	97	1.0%
Other Tech Engineering	138	51.6%

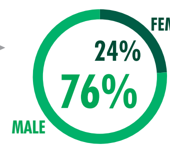
Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

38% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Orlando), 2017.

TECH DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

103% LIVING COST

111% BUSINESS COST

AVERAGE APT. RENT:
$820 PER UNIT/MO.
15% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

34 Indianapolis, IN

SCORE
38.38

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	35,700	28.1%	$80,843	6.3%
Software Developers & Programmers	10,920	22.3%	$82,834	1.7%
Computer Support, Database & Systems	19,670	36.3%	$74,726	10.8%
Computer & Infor. Systems Managers	2,590	18.3%	$126,890	13.9%
Technology Engineering-Related	2,520	8.6%	$72,628	-4.1%
TOTAL NON-TECH TALENT	117,550	15.4%	$54,289	12.3%
Sales	13,790	25.9%	$79,018	22.2%
Administrative & Office Support	77,390	13.3%	$46,815	14.2%
Business Operations & Finance	18,500	11.6%	$66,551	2.2%
Marketing	7,870	29.4%	$55,637	-0.4%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 7,110 (5.4%) since 2011. That's 25.1% of total growth in a population of 852,506.

Source: U.S. Census Bureau (City of Indianapolis), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $19.55 PSF (up 14.3%); Vacancy: 16.8% (down -190 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
ANGI Homeservices	130 E Washington St	65,600
SEI Archway Technology	8888 Keystone Crossing	42,300
Availity	510 E. 96th St	39,400

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	730	9.9%
Computer Engineering	505	7.4%
Math/Statistics	90	-9.1%
Other Tech Engineering	44	91.3%

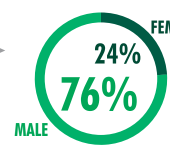
Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

30% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Indianapolis), 2017.

TECH DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

94% LIVING COST

91% BUSINESS COST

AVERAGE APT. RENT:
$853 PER UNIT/MO.
13% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

BACK TO SCORECARD RANKINGS

35 Madison, WI

SCORE 37.66

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	23,740	39.5%	$81,569	12.9%
Software Developers & Programmers	9,660	107.3%	$81,676	2.4%
Computer Support, Database & Systems	11,450	17.9%	$76,571	18.5%
Computer & Infor. Systems Managers	1,460	2.8%	$120,180	19.5%
Technology Engineering-Related	1,170	-4.9%	$81,415	15.1%
TOTAL NON-TECH TALENT	49,930	15.6%	$52,845	8.0%
Sales	3,460	-5.2%	$68,683	-2.1%
Administrative & Office Support	33,190	10.0%	$46,502	9.5%
Business Operations & Finance	8,800	37.1%	$66,584	5.6%
Marketing	4,480	51.9%	$60,619	3.7%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 7,216 (12.1%) since 2011. That's 46.1% of total growth in a population of 252,557.

Source: U.S. Census Bureau (City of Madison), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $19.40 PSF (up 16.3%); Vacancy: 8.0% (down -300 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
StartingBlock	821 E Washington Ave	50,000
Confidential	801 E Washington Ave	29,000
AkitaBox	212 E Washington Ave	10,300

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	1,635	35.7%
Computer Engineering	896	34.5%
Math/Statistics	353	56.2%
Other Tech Engineering	193	26.1%

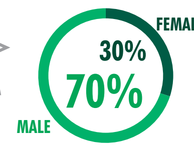
Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

60% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Madison), 2017.

TECH DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

101% LIVING COST

101% BUSINESS COST

AVERAGE APT. RENT: $1,134 PER UNIT/MO. 12% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

36 St. Louis, MO

SCORE 36.37

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	53,310	1.1%	$88,181	11.5%
Software Developers & Programmers	15,590	-1.2%	$95,402	12.3%
Computer Support, Database & Systems	30,320	6.1%	$78,415	9.6%
Computer & Infor. Systems Managers	3,170	2.3%	$139,870	20.5%
Technology Engineering-Related	4,230	-19.6%	$92,826	14.8%
TOTAL NON-TECH TALENT	168,810	10.4%	$50,635	4.3%
Sales	16,460	37.6%	$60,445	-4.8%
Administrative & Office Support	116,570	6.6%	$42,525	1.2%
Business Operations & Finance	25,650	9.1%	$75,532	11.5%
Marketing	10,130	25.2%	$64,982	9.8%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s delined by -5,328 (-8.7%) since 2011. That's 79.9% of total growth in a population of 311,404.

Source: U.S. Census Bureau (City of St. Louis), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $18.49 PSF (up 0.3%); Vacancy: 11.3% (down -450 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Lumeris	13900 Riverport Dr	150,000
Trizetto	3300 Rider Trail S	87,000
Daugherty Business Solutions	3 CityPlace Dr	63,100

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	1,842	58.7%
Computer Engineering	1,129	63.2%
Math/Statistics	270	9.8%
Other Tech Engineering	171	106.0%

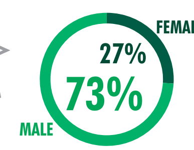
Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

34% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of St. Louis), 2017.

TECH DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

94% LIVING COST

92% BUSINESS COST

AVERAGE APT. RENT: $895 PER UNIT/MO. 11% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

BACK TO SCORECARD RANKINGS

37 Hartford, CT

SCORE
36.30

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	26,050	15.6%	$97,678	13.8%
Software Developers & Programmers	8,550	53.2%	$99,216	18.0%
Computer Support, Database & Systems	12,520	1.4%	$86,354	9.1%
Computer & Infor. Systems Managers	3,210	10.3%	$144,010	16.5%
Technology Engineering-Related	1,770	4.7%	$86,327	14.1%
TOTAL NON-TECH TALENT	72,210	8.1%	$56,296	6.2%
Sales	5,560	7.8%	$72,898	-14.9%
Administrative & Office Support	50,620	7.5%	$47,960	9.4%
Business Operations & Finance	12,370	9.4%	$78,760	7.3%
Marketing	3,660	12.6%	$70,445	11.5%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s declined by -1,905 (-7.9%) since 2011. That's 120.9% of total growth in a population of 123,287.

Source: U.S. Census Bureau (City of Hartford), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $19.81 PSF (up 0.6%); Vacancy: 18.5% (up 150 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Stanley Black & Decker	Multiple Locations	55,000
Tallan	45 Glastonbury Blvd	22,000
Clarus	500 Enterprise Dr	17,000

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	2,491	68.9%
Computer Engineering	1,309	71.6%
Math/Statistics	636	50.4%
Other Tech Engineering	208	66.4%

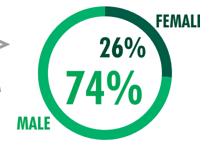
Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

17% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Hartford), 2017.

TECH DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

104% LIVING COST

115% BUSINESS COST

AVERAGE APT. RENT:
$1,308 PER UNIT/MO.
6% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

38 Long Island, NY

SCORE
33.84

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	31,290	19.7%	$94,129	12.0%
Software Developers & Programmers	9,190	12.3%	$99,871	13.4%
Computer Support, Database & Systems	16,120	35.7%	$80,282	10.0%
Computer & Infor. Systems Managers	2,500	26.3%	$166,910	21.5%
Technology Engineering-Related	3,480	-15.3%	$90,826	10.3%
TOTAL NON-TECH TALENT	174,660	2.4%	$57,240	10.1%
Sales	15,360	59.8%	$79,282	-2.3%
Administrative & Office Support	129,580	-4.8%	$49,804	9.2%
Business Operations & Finance	22,110	19.9%	$83,301	4.0%
Marketing	7,610	19.1%	$63,634	1.0%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 842 (10.3%) since 2011. That's 114.1% of total growth in a population of 60,916.

Source: U.S. Census Bureau (Cities of Glen Cove and Long Beach), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $26.80 PSF (up 0.8%); Vacancy: 10.5% (down -430 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
LBi Software	999 Walt Whitman Rd	25,200
Kemp Technologies	3 Huntington Quadrangle	13,100
Micro Merchant Systems	6800 Jericho Turnpike	9,000

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	2,649	55.3%
Computer Engineering	1,437	72.3%
Math/Statistics	519	1.4%
Other Tech Engineering	287	93.9%

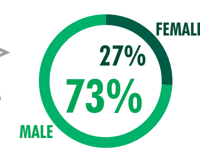
Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

43% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (Cities of Glen Cove and Long Beach), 2017.

TECH DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

125% LIVING COST

94% BUSINESS COST

AVERAGE APT. RENT:
$2,278 PER UNIT/MO.
14% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

BACK TO SCORECARD RANKINGS

39 Cleveland, OH

SCORE
33.30

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	35,820	10.7%	$79,277	10.4%
Software Developers & Programmers	11,840	40.8%	$77,667	4.6%
Computer Support, Database & Systems	18,310	0.5%	$71,339	9.2%
Computer & Infor. Systems Managers	2,930	25.8%	$133,770	15.9%
Technology Engineering-Related	2,740	-19.4%	$81,004	14.8%
TOTAL NON-TECH TALENT	121,570	8.0%	$53,923	8.5%
Sales	13,070	-2.2%	$71,482	-2.6%
Administrative & Office Support	80,560	6.4%	$45,642	10.6%
Business Operations & Finance	19,700	23.0%	$72,434	9.6%
Marketing	8,240	9.9%	$62,782	9.4%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 6,139 (10.5%) since 2011. That's -76.8% of total growth in a population of 385,810.

Source: U.S. Census Bureau (City of Cleveland), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $18.29 PSF (up 7.5%); Vacancy: 18.6% (down -210 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
MIM Software	258000 Science Park Dr	35,700
Electronic Merchant Systems	250 Huron Rd	29,900
MCPc	Link 59, E 59th St	20,000

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	2,216	73.1%
Computer Engineering	1,487	95.4%
Math/Statistics	335	53.7%
Other Tech Engineering	111	15.6%

Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

16% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Cleveland), 2017.

TECH DIVERSITY

FEMALE 24%
MALE 76%

Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

89% LIVING COST

98% BUSINESS COST

AVERAGE APT. RENT:
$1,051 PER UNIT/MO.
14% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

40 Rochester, NY

SCORE
33.17

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	21,760	10.1%	$76,221	6.3%
Software Developers & Programmers	6,370	5.3%	$86,277	13.0%
Computer Support, Database & Systems	11,470	34.3%	$63,299	2.9%
Computer & Infor. Systems Managers	1,190	-6.3%	$140,100	22.1%
Technology Engineering-Related	2,730	-30.0%	$79,202	8.8%
TOTAL NON-TECH TALENT	65,190	3.7%	$49,002	7.7%
Sales	5,500	41.0%	$65,077	-7.7%
Administrative & Office Support	46,570	1.4%	$42,258	12.3%
Business Operations & Finance	9,020	-4.1%	$68,757	2.5%
Marketing	4,100	13.3%	$60,576	-2.2%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 433 (1.0%) since 2011. That's -22.0% of total growth in a population of 208,886.

Source: U.S. Census Bureau (City of Rochester), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $19.75 PSF (up 2.6%); Vacancy: 14.1% (down -290 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Datto	The Metropolitan	70,000
Mindex Technologies	Alexander Park	35,000
eLogic	Riverwood Tech Campus	30,000

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	2,179	33.4%
Computer Engineering	1,463	35.5%
Math/Statistics	360	7.1%
Other Tech Engineering	17	-32.0%

Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

24% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Rochester), 2017.

TECH DIVERSITY

FEMALE 26%
MALE 74%

Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

89% LIVING COST

94% BUSINESS COST

AVERAGE APT. RENT:
$1,029 PER UNIT/MO.
17% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

BACK TO SCORECARD RANKINGS

41 Sacramento, CA

SCORE
32.75

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	39,470	11.7%	$91,473	6.1%
Software Developers & Programmers	13,950	21.9%	$90,408	1.8%
Computer Support, Database & Systems	17,850	2.7%	$82,555	6.6%
Computer & Infor. Systems Managers	2,440	-9.6%	$138,200	15.7%
Technology Engineering-Related	5,230	36.6%	$102,950	8.7%
TOTAL NON-TECH TALENT	115,940	13.4%	$54,262	10.0%
Sales	8,560	18.2%	$67,266	-2.0%
Administrative & Office Support	81,320	8.8%	$46,819	11.0%
Business Operations & Finance	19,940	27.3%	$74,317	10.8%
Marketing	6,120	33.0%	$69,638	-6.0%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 1,981 (2.4%) since 2011. That's 8.6% of total growth in a population of 495,200.

Source: U.S. Census Bureau (City of Sacramento), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $22.32 PSF (up 12.0%); Vacancy: 12.8% (down -890 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
VOXPRO GROUP	225 Parkshore Dr	40,800
VOXPRO GROUP	225 Parkshore Dr	14,000
Panduit Corp	Palladio Pkwy	13,900

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	1,645	53.2%
Computer Engineering	939	50.0%
Math/Statistics	358	109.4%
Other Tech Engineering	203	45.0%

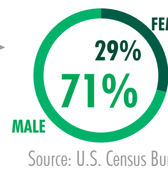
Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

31% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Sacramento), 2017.

TECH DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

108% LIVING COST

116% BUSINESS COST

AVERAGE APT. RENT:
$1,435 PER UNIT/MO.
44% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.; Apt. rent data from CBRE EA (City), Q1 2018.

42 Cincinnati, OH

SCORE
32.14

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	36,900	11.8%	$84,595	11.3%
Software Developers & Programmers	9,980	-0.9%	$88,153	14.0%
Computer Support, Database & Systems	21,170	21.9%	$76,530	9.1%
Computer & Infor. Systems Managers	3,290	30.6%	$131,190	19.5%
Technology Engineering-Related	2,460	-19.6%	$77,246	-0.2%
TOTAL NON-TECH TALENT	121,660	10.3%	$52,407	7.4%
Sales	13,390	0.4%	$69,726	-1.9%
Administrative & Office Support	79,870	4.5%	$44,196	5.9%
Business Operations & Finance	20,200	51.9%	$69,295	9.8%
Marketing	8,200	13.3%	$62,500	12.1%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s declined by -90 (-0.2%) since 2011. That's -3.5% of total growth in a population of 298,802.

Source: U.S. Census Bureau (City of Cincinnati), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $19.48 PSF (up 0.5%); Vacancy: 20.0% (down -440 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
NCS Global	4705 Duke Dr	14,000
PCM IT Solutions	4600 McAuley Pl	12,000
Dell EMC	8280 Montgomery Rd	8,100

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	1,566	50.6%
Computer Engineering	1,011	48.2%
Math/Statistics	234	66.0%
Other Tech Engineering	185	23.3%

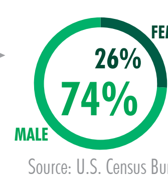
Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

37% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Cincinnati), 2017.

TECH DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

91% LIVING COST

94% BUSINESS COST

AVERAGE APT. RENT:
$921 PER UNIT/MO.
14% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

BACK TO SCORECARD RANKINGS

43 Milwaukee, WI

SCORE
31.35

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	30,850	6.7%	$80,670	9.2%
Software Developers & Programmers	8,840	0.9%	$85,411	12.1%
Computer Support, Database & Systems	16,580	16.8%	$71,778	4.3%
Computer & Infor. Systems Managers	2,640	17.9%	$125,270	10.7%
Technology Engineering-Related	2,790	-25.0%	$76,287	19.1%
TOTAL NON-TECH TALENT	103,450	10.7%	$53,159	4.4%
Sales	9,030	14.4%	$67,847	-5.4%
Administrative & Office Support	69,810	5.3%	$46,843	5.1%
Business Operations & Finance	17,270	27.9%	$69,146	2.8%
Marketing	7,340	26.6%	$57,540	0.3%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s declined by -1,110 (-1.0%) since 2011. That's 39.4% of total growth in a population of 595,070.

Source: U.S. Census Bureau (City of Milwaukee), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $18.50 PSF (up 6.0%); Vacancy: 14.8% (down -90 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Baldwin Americas Corporation	20900 Swenson Dr	15,200
Lytx	13400 Bishops LN	12,200
TechCanary	1322 N 8th St	10,000

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	791	38.8%
Computer Engineering	565	35.5%
Math/Statistics	68	36.0%
Other Tech Engineering	28	55.6%

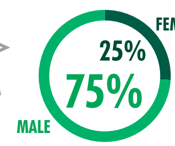
Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

23% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Milwaukee), 2017.

TECH DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

99% LIVING COST

104% BUSINESS COST

AVERAGE APT. RENT:
$1,099 PER UNIT/MO.
5% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

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44 Ft. Lauderdale, FL

SCORE
30.57

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	23,700	25.8%	$81,108	11.4%
Software Developers & Programmers	7,980	11.1%	$86,628	8.8%
Computer Support, Database & Systems	12,710	35.9%	$71,019	13.0%
Computer & Infor. Systems Managers	1,670	98.8%	$137,280	5.7%
Technology Engineering-Related	1,340	-8.8%	$73,931	4.6%
TOTAL NON-TECH TALENT	123,160	17.0%	$49,021	10.4%
Sales	13,550	11.3%	$64,696	-3.4%
Administrative & Office Support	86,630	14.2%	$41,910	14.4%
Business Operations & Finance	16,120	18.7%	$68,763	6.4%
Marketing	6,860	86.9%	$61,473	11.2%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 294 (1.2%) since 2011. That's 2.9% of total growth in a population of 178,764.

Source: U.S. Census Bureau (City of Ft. Lauderdale), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $32.94 PSF (up 32.0%); Vacancy: 11.3% (down -740 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Harris Corporation	1000 Sawgrass Corporate Pkwy	28,200
Oracle	1300 Concord	11,600
Telmex	3350 SW 148th Ave	10,200

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	1,031	38.9%
Computer Engineering	900	37.8%
Math/Statistics	56	7.7%
Other Tech Engineering	5	N/A

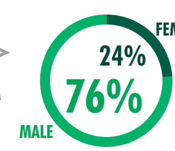
Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

34% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Ft. Lauderdale), 2017.

TECH DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

111% LIVING COST

112% BUSINESS COST

AVERAGE APT. RENT:
$1,581 PER UNIT/MO.
21% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018.; Apt. rent data from CBRE EA (City), Q1 2018.

BACK TO SCORECARD RANKINGS

45 Nashville, TN

SCORE
26.50

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	29,130	43.3%	$83,057	16.4%
Software Developers & Programmers	7,900	44.4%	$86,560	13.4%
Computer Support, Database & Systems	15,680	40.9%	$73,637	17.4%
Computer & Infor. Systems Managers	3,040	56.7%	$125,060	17.4%
Technology Engineering-Related	2,510	40.2%	$80,008	11.4%
TOTAL NON-TECH TALENT	122,350	22.5%	$50,612	10.2%
Sales	11,570	11.5%	$72,147	15.5%
Administrative & Office Support	84,840	20.6%	$43,305	10.6%
Business Operations & Finance	19,490	30.0%	$66,427	3.7%
Marketing	6,450	55.4%	$60,311	11.5%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 6,139 (5.4%) since 2011. That's 12.1% of total growth in a population of 660,393.

Source: U.S. Census Bureau (City of Nashville), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $26.09 PSF (up 37.3%); Vacancy: 10.6% (down -50 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Inovalon Corporation	443 Donelson Pike	40,600
Snapworx	1573 Mallory Ln	28,800
Eventbrite	209 10th Ave S	17,200

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	771	26.6%
Computer Engineering	469	39.6%
Math/Statistics	173	10.9%
Other Tech Engineering	64	25.5%

Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

39% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Nashville), 2017.

TECH DIVERSITY

FEMALE 24%
MALE 76%

Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

105% LIVING COST

98% BUSINESS COST

AVERAGE APT. RENT:
$1,135 PER UNIT/MO.
21% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

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46 San Antonio, TX

SCORE
26.49

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	31,180	17.8%	$90,742	18.9%
Software Developers & Programmers	8,570	31.4%	$106,662	18.8%
Computer Support, Database & Systems	18,390	11.1%	$79,522	17.1%
Computer & Infor. Systems Managers	1,260	3.3%	$154,990	35.6%
Technology Engineering-Related	2,960	35.8%	$87,009	10.8%
TOTAL NON-TECH TALENT	130,500	24.6%	$52,808	16.7%
Sales	9,860	24.3%	$61,771	16.3%
Administrative & Office Support	96,710	22.8%	$47,286	17.8%
Business Operations & Finance	18,440	27.9%	$72,600	10.8%
Marketing	5,490	53.4%	$67,505	13.8%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 27,212 (12.5%) since 2011. That's 20.5% of total growth in a population of 1,492,494.

Source: U.S. Census Bureau (City of San Antonio), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $21.04 PSF (up 6.2%); Vacancy: 15.8% (down -300 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Hulu	4511 Horizon Hill Blvd	58,900
Becton Dickinson	12678 Silicon Dr	21,700
Scaleworks	116 E Houston	20,000

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	1,037	41.7%
Computer Engineering	678	59.9%
Math/Statistics	132	-5.0%
Other Tech Engineering	36	-42.9%

Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

26% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of San Antonio), 2017.

TECH DIVERSITY

FEMALE 24%
MALE 76%

Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

102% LIVING COST

88% BUSINESS COST

AVERAGE APT. RENT:
$948 PER UNIT/MO.
8% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

BACK TO SCORECARD RANKINGS

47 Jacksonville, FL

SCORE 25.51

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	20,180	38.9%	$82,506	12.4%
Software Developers & Programmers	6,500	87.3%	$90,531	21.8%
Computer Support, Database & Systems	10,900	31.5%	$72,637	6.4%
Computer & Infor. Systems Managers	1,470	69.0%	$125,430	-0.4%
Technology Engineering-Related	1,310	-31.1%	$76,634	9.0%
TOTAL NON-TECH TALENT	91,980	14.4%	$46,339	8.4%
Sales	8,530	14.3%	$63,523	3.6%
Administrative & Office Support	67,520	11.3%	$40,315	11.7%
Business Operations & Finance	12,130	24.9%	$64,247	-4.0%
Marketing	3,800	48.4%	$57,632	4.0%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 7,501 (5.7%) since 2011. That's 14.2% of total growth in a population of 880,623.

Source: U.S. Census Bureau (City of Jacksonville), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $19.21 PSF (up 12.3%); Vacancy: 13.4% (down -820 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Web.com	5379 Gate Pkwy	218,700
Availity LLC	5555 Gate Pkwy	93,400
AutoQuotes	8800 Baymeadows Way	43,800

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	395	28.2%
Computer Engineering	307	38.3%
Math/Statistics	51	30.8%
Other Tech Engineering	3	N/A

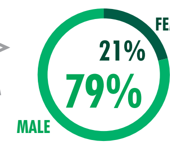
Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

28% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Jacksonville), 2017.

TECH DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

100% LIVING COST

95% BUSINESS COST

AVERAGE APT. RENT:
$1,014 PER UNIT/MO.
20% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

48 Norfolk, VA

SCORE 24.85

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	26,620	2.2%	$85,120	11.6%
Software Developers & Programmers	5,720	-2.9%	$96,620	21.1%
Computer Support, Database & Systems	14,370	3.6%	$77,416	9.7%
Computer & Infor. Systems Managers	1,120	-23.8%	$147,490	24.4%
Technology Engineering-Related	5,410	12.2%	$80,511	6.5%
TOTAL NON-TECH TALENT	80,340	1.9%	$49,927	10.9%
Sales	5,430	21.7%	$64,041	16.0%
Administrative & Office Support	59,150	-0.8%	$43,595	8.1%
Business Operations & Finance	12,390	7.8%	$71,272	13.6%
Marketing	3,370	3.1%	$59,848	10.2%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s declined by -594 (-1.0%) since 2011. That's -23.9% of total growth in a population of 245,115.

Source: U.S. Census Bureau (City of Norfolk), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $19.14 PSF (up 5.9%); Vacancy: 12.6% (down -560 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Trader Interactive, LLC	999 Waterside Dr	39,100
Mythics	4525 Main St	39,000
Lockheed Martin Corp	1293 Perimeter Pkwy	30,600

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	1,515	23.9%
Computer Engineering	1,012	20.8%
Math/Statistics	148	28.7%
Other Tech Engineering	263	20.6%

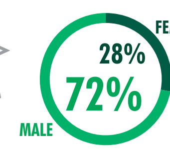
Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

28% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Norfolk), 2017.

TECH DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

99% LIVING COST

89% BUSINESS COST

AVERAGE APT. RENT:
$1,060 PER UNIT/MO.
5% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

BACK TO SCORECARD RANKINGS

49 Richmond, VA

SCORE
24.72

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	24,890	12.8%	$91,349	11.2%
Software Developers & Programmers	8,060	30.2%	$96,783	7.9%
Computer Support, Database & Systems	13,850	13.0%	$81,710	11.8%
Computer & Infor. Systems Managers	1,550	-13.9%	$146,830	19.2%
Technology Engineering-Related	1,430	-21.4%	$93,949	21.6%
TOTAL NON-TECH TALENT	83,350	3.9%	$53,579	9.1%
Sales	6,100	-3.2%	$72,785	7.1%
Administrative & Office Support	56,800	1.8%	$44,652	7.1%
Business Operations & Finance	15,150	7.4%	$74,902	11.9%
Marketing	5,300	30.9%	$66,194	9.9%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s declined by -1,059 (-2.2%) since 2011. That's -6.0% of total growth in a population of 223,170.

Source: U.S. Census Bureau (City of Richmond), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $19.76 PSF (up 9.8%); Vacancy: 9.8% (down -620 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Capital One	1717 E Cary St	42,000
CoStar Group Inc	501 S 5th St	33,200
BlueGrace Logistics	7443 Lee Davis Rd	7,700

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	694	25.7%
Computer Engineering	484	29.1%
Math/Statistics	129	41.8%
Other Tech Engineering	58	31.8%

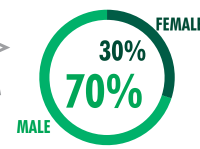
Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

39% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Richmond), 2017.

TECH DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

100% LIVING COST

92% BUSINESS COST

AVERAGE APT. RENT:
$1,056 PER UNIT/MO.
15% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

50 Miami, FL

SCORE
21.95

EMPLOYMENT BREAKDOWN

	Employed 2017	Growth 2012-17	Average Wage	Growth 2012-17
TOTAL TECH TALENT	23,070	21.5%	$79,539	5.3%
Software Developers & Programmers	6,820	23.1%	$84,409	8.4%
Computer Support, Database & Systems	13,140	22.2%	$71,449	5.0%
Computer & Infor. Systems Managers	1,690	67.3%	$125,480	-9.0%
Technology Engineering-Related	1,420	-16.0%	$76,332	-2.9%
TOTAL NON-TECH TALENT	154,260	12.2%	$49,375	9.3%
Sales	13,100	-23.0%	$60,537	-6.5%
Administrative & Office Support	112,800	16.5%	$43,296	17.0%
Business Operations & Finance	19,900	9.2%	$70,753	7.5%
Marketing	8,460	57.0%	$62,850	3.4%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018.

POPULATION TRENDS

The population of millennials in their 20s grew by 2,372 (4.0%) since 2011. That's 5.3% of total growth in a population of 453,584.

Source: U.S. Census Bureau (City of Miami), 2017.

OFFICE RENT & VACANCY TRENDS

Asking Rent: $37.25 PSF (up 20.1%); Vacancy: 10.7% (down -690 bps) (Q1 2018 data with change since Q1 2013)

Source: CBRE Research (Metro), Q1 2018.

TOP TECH OFFICE SPACE DEALS (2018)

Tenant	Address	Sq. Ft.
Amadeus North America	3470 NW 82nd Ave	115,000
WIX	1691 Michigan Ave	28,300
PCM	9250 W Flagler St	16,000

Source: CBRE Research (Office Market), 2018.

LABOR POOL

DEGREE COMPLETIONS 2016

	2016	Growth 2011-16
TOTAL TECH DEGREES	1,470	46.9%
Computer Engineering	1,111	56.9%
Math/Statistics	99	23.8%
Other Tech Engineering	18	-52.6%

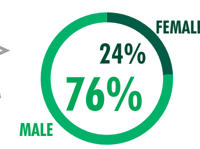
Source: The National Center for Education Statistics (Metro), July 2017.

EDUCATION ATTAINMENT

27% BACHELOR'S OR HIGHER

Source: U.S. Census Bureau (City of Miami), 2017.

TECH DIVERSITY



Source: U.S. Census Bureau (Metro), 2017.

HOUSING & RELATIVE COSTS (US=100%)

113% LIVING COST

115% BUSINESS COST

AVERAGE APT. RENT:
$1,648 PER UNIT/MO.
19% INCREASE SINCE 2013

Source: Relative Costs from Moody's Analytics (Metro), Q1 2018; Apt. rent data from CBRE EA (City), Q1 2018.

BACK TO SCORECARD RANKINGS

FULL REPORT
DATA SUMMARY

WHAT IS TECH TALENT AND WHY IS IT IMPORTANT?

TABLE 1
TECH TALENT LABOR BY INDUSTRY (2017)
Tech Talent Occupations in Each Industry as a % of U.S. Tech Talent

Industry	% of Total Tech Talent Labor
Core High-Tech*	37.0%
Professional, Scientific, and Technical Services (Excluding High-Tech)	10.5%
Other	8.8%
FIRE	8.2%
Management of Companies and Enterprises	6.1%
Information (Excluding High-Tech)	6.1%
Government	6.0%
Transportation, Warehousing, and Wholesale	5.1%
Education	4.8%
Manufacturing (Excluding High-Tech)	4.7%
Health Care	2.8%

Source: U.S. Bureau of Labor Statistics (National), April 2018; *Includes computer software and services and computer product manufacturing.

WHICH ARE THE TOP-RANKED TECH-TALENT MARKETS?

TABLE 2
TECH TALENT SCORECARD RANKING

Rank	Market	Score	Rank	Market	Score
1	SF Bay Area, CA	84.72	26	Los Angeles, CA	46.51
2	Seattle, WA	74.46	27	Newark, NJ	46.12
3	Washington, D.C.	67.70	28	Pittsburgh, PA	45.37
4	Toronto, ON	65.38	29	Kansas City, MO	44.84
5	New York, NY	64.04	30	Charlotte, NC	43.33
6	Austin, TX	60.17	31	Tampa, FL	43.11
7	Boston, MA	58.14	32	Houston, TX	41.54
8	Raleigh-Durham, NC	57.95	33	Orlando, FL	39.52
9	Atlanta, GA	57.76	34	Indianapolis, IN	38.38
10	Denver, CO	56.72	35	Madison, WI	37.66
11	Baltimore, MD	56.43	36	St. Louis, MO	36.37
12	Dallas/Ft. Worth, TX	55.46	37	Hartford, CT	36.30
13	Ottawa, ON	53.49	38	Long Island, NY	33.84
14	Montreal, QC	52.79	39	Cleveland, OH	33.30
15	Phoenix, AZ	52.74	40	Rochester, NY	33.17
16	San Diego, CA	52.64	41	Sacramento, CA	32.75
17	Minneapolis, MN	51.25	42	Cincinnati, OH	32.14
18	Chicago, IL	50.65	43	Milwaukee, WI	31.35
19	Orange County, CA	50.26	44	Ft. Lauderdale, FL	30.57
20	Detroit, MI	49.78	45	Nashville, TN	26.50
21	Portland, OR	49.66	46	San Antonio, TX	26.49
22	Salt Lake City, UT	49.36	47	Jacksonville, FL	25.51
23	Columbus, OH	48.88	48	Norfolk, VA	24.85
24	Philadelphia, PA	48.64	49	Richmond, VA	24.72
25	Vancouver, BC	48.56	50	Miami, FL	21.95

Source: CBRE Research; CBRE Econometric Advisors; U.S. Bureau of Labor Statistics; Statistics Canada; CMHC; Moody's Analytics; The National Center of Education Statistics; National Science Foundation; Axiometrics.

WHAT ARE TECH-TALENT MOMENTUM MARKETS?

TABLE 3
TECH TALENT LABOR CONCENTRATION

Market	Tech Talent Jobs as % of Total Jobs	Market	Tech Talent Jobs as % of Total Jobs
Ottawa, ON	11.2%	Orange County, CA	4.3%
SF Bay Area, CA	9.8%	Rochester, NY	4.3%
Toronto, ON	8.9%	Phoenix, AZ	4.2%
Seattle, WA	8.8%	Sacramento, CA	4.1%
Washington, D.C.	8.0%	Philadelphia, PA	4.1%
Austin, TX	7.0%	St. Louis, MO	3.9%
Montreal, QC	6.8%	Pittsburgh, PA	3.9%
Raleigh-Durham, NC	6.6%	Richmond, VA	3.9%
Boston, MA	6.2%	Chicago, IL	3.8%
Denver, CO	6.2%	New York, NY	3.8%
Madison, WI	6.1%	Milwaukee, WI	3.7%
Vancouver, BC	5.9%	Norfolk, VA	3.6%
Baltimore, MD	5.3%	Tampa, FL	3.5%
Atlanta, GA	5.1%	Cincinnati, OH	3.5%
Kansas City, MO	5.0%	Cleveland, OH	3.5%
San Diego, CA	4.9%	Indianapolis, IN	3.5%
Columbus, OH	4.7%	Houston, TX	3.2%
Minneapolis, MN	4.7%	Orlando, FL	3.1%
Dallas/Ft. Worth, TX	4.6%	San Antonio, TX	3.1%
Charlotte, NC	4.6%	Nashville, TN	3.1%
Salt Lake City, UT	4.6%	Jacksonville, FL	3.0%
Hartford, CT	4.5%	Los Angeles, CA	3.0%
Portland, OR	4.5%	Ft. Lauderdale, FL	2.9%
Newark, NJ	4.3%	Long Island, NY	2.4%
Detroit, MI	4.3%	Miami, FL	2.0%

Source: U.S. Bureau of Labor Statistics (Metro), April 2018, Statistics Canada (Metro), 2018.

TABLE 4
TECH TALENT LABOR POOLS BY MARKET (2017)

Labor Pool Size	Market	Tech Talent Total
Large Tech Talent Markets (>50,000 Labor Pool)	SF Bay Area, CA	329,150
	New York, NY	254,270
	Washington, D.C.	248,150
	Toronto, ON	241,400
	Dallas/Ft. Worth, TX	160,750
	Seattle, WA	145,140
	Chicago, IL	140,080
	Atlanta, GA	134,770
	Los Angeles, CA	133,400
	Montreal, QC	127,300
	Boston, MA	113,960
	Denver, CO	99,760
	Houston, TX	94,810
	Minneapolis, MN	91,210
	Detroit, MI	84,910
	Phoenix, AZ	83,930
	Philadelphia, PA	79,080
	Baltimore, MD	72,600
	Ottawa, ON	70,600
	San Diego, CA	70,100
	Austin, TX	69,610
	Orange County, CA	69,480
	Vancouver, BC	68,500
	Raleigh-Durham, NC	59,360
	Charlotte, NC	54,200
	St. Louis, MO	53,310
	Kansas City, MO	52,820
	Portland, OR	51,720
	Newark, NJ	50,620
Small Tech Talent Markets (<50,000 Labor Pool)	Columbus, OH	49,300
	Tampa, FL	45,360
	Pittsburgh, PA	44,320
	Sacramento, CA	39,470
	Orlando, FL	38,080
	Cincinnati, OH	36,900
	Cleveland, OH	35,820
	Indianapolis, IN	35,700
	Salt Lake City, UT	31,740
	Long Island, NY	31,290
	San Antonio, TX	31,180
	Milwaukee, WI	30,850
	Nashville, TN	29,130
	Norfolk, VA	26,620
	Hartford, CT	26,050
	Richmond, VA	24,890
	Madison, WI	23,740
	Ft. Lauderdale, FL	23,700
	Miami, FL	23,070
	Rochester, NY	21,760
	Jacksonville, FL	20,180

Source: U.S. Bureau of Labor Statistics (Metro) April 2018, Statistics Canada (Metro), 2018.

TABLE 5
TECH LABOR POOL GROWTH RATES (2012-2017)

Labor Pool Size	Market	% Change	By Volume
Large Tech Talent Markets (>50,000 Labor Pool)	Charlotte, NC	58.8%	20,070
	Toronto, ON	51.5%	82,100
	Atlanta, GA	34.7%	34,730
	SF Bay Area, CA	31.0%	77,830
	Vancouver, BC	30.7%	16,100
	Kansas City, MO	26.4%	11,040
	Portland, OR	25.4%	10,470
	Detroit, MI	24.6%	16,780
	Denver, CO	23.8%	19,200
	Montreal, QC	21.2%	22,300
	Raleigh-Durham, NC	20.7%	10,200
	San Diego, CA	20.4%	11,870
	Austin, TX	20.3%	11,740
	Seattle, WA	19.4%	23,610
	Philadelphia, PA	18.1%	12,130
	Baltimore, MD	17.9%	11,040
	Phoenix, AZ	17.7%	12,650
	New York, NY	17.2%	37,238
	Ottawa, ON	15.9%	9,700
	Dallas/Ft. Worth, TX	15.3%	21,390
	Orange County, CA	14.4%	8,770
	Chicago, IL	12.7%	15,760
	Minneapolis, MN	11.5%	9,420
	Los Angeles, CA	11.0%	13,240
	Houston, TX	10.4%	8,900
	Newark, NJ	5.7%	2,725
	St. Louis, MO	1.1%	590
	Washington, D.C.	-1.3%	-3,170
	Boston, MA	-4.0%	-4,760
Small Tech Talent Markets (<50,000 Labor Pool)	Nashville, TN	43.3%	8,800
	Indianapolis, IN	39.5%	6,720
	Hartford, CT	38.9%	5,650
	Long Island, NY	28.1%	7,830
	Orlando, FL	27.2%	8,140
	Miami, FL	25.8%	4,860
	Milwaukee, WI	21.5%	4,080
	Pittsburgh, PA	21.2%	5,550
	Jacksonville, FL	19.7%	5,140
	Norfolk, VA	18.2%	6,830
	San Antonio, TX	17.8%	4,710
	Sacramento, CA	16.2%	6,340
	Columbus, OH	15.8%	6,710
	Cincinnati, OH	15.6%	3,520
	Ft. Lauderdale, FL	12.8%	2,820
	Cleveland, OH	11.8%	3,880
	Salt Lake City, UT	11.7%	4,120
	Rochester, NY	10.7%	3,470
	Tampa, FL	10.1%	2,000
	Madison, WI	6.7%	1,930
	Richmond, VA	2.2%	570

Source: U.S. Bureau of Labor Statistics (Metro) April 2018, Statistics Canada (Metro), 2018.

WHAT DEFINES A TECH TALENT MARKET?

TABLE 6
TOP-10 MARKETS FOR EDUCATIONAL ATTAINMENT
25+ Years Old, Bachelor's Degree or Higher

Market	Educational Attainment Rate
Seattle, WA	63.1%
Madison, WI	59.6%
Washington, D.C.	56.8%
Atlanta, GA	50.5%
Denver, CO	50.3%
Portland, OR	49.6%
Raleigh-Durham, NC	49.4%
Austin, TX	49.2%
SF Bay Area, CA	48.5%
Minneapolis, MN	48.4%

Source: U.S. Census Bureau (City), 2018.

TABLE 7
TOP-10 REGIONS FOR TECH DEGREE COMPLETIONS (2016)

Market	Tech Degree Completions (2016)	Growth (2011-2016)
New York, NY	12,046	48.6%
Washington, D.C.	10,526	44.6%
Los Angeles, CA	9,137	40.0%
Boston, MA	8,499	57.0%
Bay Area, CA	7,616	33.2%
Chicago, IL	6,614	27.8%
Toronto, ON	6,243	34.1%
Atlanta, GA	6,018	41.2%
Dallas/Ft. Worth, TX	5,697	81.8%
Detroit, MI	5,241	28.2%

Source: National Center for Education Statistics (Metro), Common University Data Ontario (Metro), BC HEADset (Metro), Government of Quebec (Metro), June 2018.

TABLE 8

WHERE ARE TECH TALENT WORKERS COMING FROM AND WHERE ARE THEY HEADED?

Market	Tech Degrees (2011-2016)*	Tech Jobs Added (2012-2017)*	Brain Gain/Drain
Toronto, ON	27,075	82,100	55,025
SF Bay Area, CA	31,301	77,830	46,529
Charlotte, NC	5,321	20,070	14,749
Seattle, WA	13,492	23,610	10,118
Atlanta, GA	25,573	34,730	9,157
Vancouver, BC	10,318	16,100	5,782
Kansas City, MO	5,536	11,040	5,504
Nashville, TN	3,544	8,800	5,256
Indianapolis, IN	3,623	7,830	4,207
Montreal, QC	18,237	22,300	4,063
Jacksonville, FL	1,774	5,650	3,876
Portland, OR	7,474	10,470	2,996
Denver, CO	17,670	19,200	1,530
Austin, TX	10,496	11,740	1,244
Dallas/Ft. Worth, TX	20,575	21,390	815
Ottawa, ON	9,318	9,700	382
San Antonio, TX	4,396	4,710	314
Ft. Lauderdale, FL	4,641	4,860	219
Tampa, FL	6,279	6,340	61
Richmond, VA	3,202	2,820	-382
Madison, WI	7,120	6,720	-400
Houston, TX	9,553	8,900	-653
Milwaukee, WI	3,316	1,930	-1,386
Orlando, FL	9,611	8,140	-1,471
San Diego, CA	13,460	11,870	-1,590
Miami, FL	6,025	4,080	-1,945
Sacramento, CA	6,623	4,120	-2,503
Orange County, CA	11,289	8,770	-2,519
Cincinnati, OH	6,444	3,880	-2,564
Columbus, OH	10,110	6,710	-3,400
Cleveland, OH	7,963	3,470	-4,493
Raleigh-Durham, NC	14,803	10,200	-4,603
Long Island, NY	10,413	5,140	-5,273
Baltimore, MD	16,349	11,040	-5,309
Hartford, CT	9,262	3,520	-5,742
Minneapolis, MN	15,178	9,420	-5,758
Detroit, MI	22,587	16,780	-5,807
St. Louis, MO	7,192	590	-6,602
Norfolk, VA	7,234	570	-6,664
Newark, NJ	9,795	2,725	-7,070
Rochester, NY	9,515	2,000	-7,515
Philadelphia, PA	19,728	12,130	-7,598
New York, NY	49,071	37,238	-11,833
Phoenix, AZ	24,718	12,650	-12,068
Pittsburgh, PA	19,062	6,830	-12,232
Salt Lake City, UT	17,840	5,550	-12,290
Chicago, IL	28,270	15,760	-12,510
Los Angeles, CA	38,359	13,240	-25,119
Boston, MA	33,700	-4,760	-38,460
Washington, D.C.	45,061	-3,170	-48,231

Source: National Center for Education Statistics (Metro), Common University Data Ontario (Metro), BC HEADset (Metro), Government of Quebec (Metro), June 2018.
*Tech degrees cover the most recent five-year period available (2011-2016) and tech jobs added cover the time period reflecting when most graduates would be counted in employment figures (2012-2017).

TABLE 9
TOP-10 MOST CONCENTRATED MILLENNIAL MARKETS* (2016)

Market	Population Concentration of Millennials
UNITED STATES	13.9%
Madison, WI	26.4%
Norfolk, VA	24.9%
Boston, MA	24.1%
Pittsburgh, PA	23.5%
Minneapolis, MN	22.0%
Seattle, WA	21.3%
Salt Lake City, UT	21.0%
Rochester, NY	20.9%
Richmond, VA	20.8%
Washington, D.C.	20.2%

Source: U.S. Census Bureau (City), 2018.
*Millennials aged 20-29 years living in downtown areas.

TABLE 11
TOP- & BOTTOM-10 MARKETS BY GENDER DIVERSITY IN TECH OCCUPATIONS (2016)

Market		% Male	% Female
Newark, NJ	▼ TOP 10 (most diverse)	72.70	27.30
Norfolk, VA		72.40	27.60
Toronto, ON		72.30	27.70
Atlanta, GA		71.10	28.90
Boston, MA		71.10	28.90
Sacramento, CA		70.60	29.40
Madison, WI		70.40	29.60
Richmond, VA		70.30	29.70
Washington, D.C.		69.80	30.20
Raleigh-Durham, NC		69.62	30.38
Montreal, QC	▼ BOTTOM 10 (least diverse)	80.80	19.20
Salt Lake City, UT		79.50	20.50
Dallas/Ft. Worth, TX		79.00	21.00
Jacksonville, FL		78.90	21.10
Kansas City, MO		77.70	22.30
Seattle, WA		77.70	22.30
Houston, TX		77.60	22.40
Columbus, OH		77.20	22.80
Phoenix, AZ		76.90	23.10
Detroit, MI		76.79	23.21

Source: U.S. Census Bureau (City), Statistics Canada, 2018.

TABLE 10
MILLENNIAL POPULATION CHANGE BY MARKET* (2011–2016)

U.S. Average = 3.7%

Labor Pool Size	Market	% Change
Large Tech Talent Markets (>50,000 Labor Pool)	Seattle, WA	22.7%
	Raleigh-Durham, NC	15.7%
	Charlotte, NC	13.5%
	Detroit, MI	10.4%
	Minneapolis, MN	9.2%
	Dallas/Ft. Worth, TX	8.4%
	Bay Area, CA	8.2%
	Toronto, ON	7.2%
	Denver, CO	6.8%
	Phoenix, AZ	6.4%
	Vancouver, BC	6.3%
	Houston, TX	6.1%
	Kansas City, MO	4.6%
	Ottawa, ON	4.2%
	Portland, OR	3.6%
	Montreal, QC	3.5%
	Los Angeles, CA	3.5%
	Orange County, CA	3.5%
	Austin, TX	3.4%
	Washington, D.C.	3.1%
	San Diego, CA	1.8%
	New York, NY	0.5%
	Boston, MA	-0.6%
	Newark, NJ	-0.8%
	Philadelphia, PA	-1.2%
	Chicago, IL	-2.2%
	Atlanta, GA	-2.8%
	Baltimore, MD	-3.5%
	St. Louis, MO	-8.7%
Small Tech Talent Markets (<50,000 Labor Pool)	San Antonio, TX	12.5%
	Madison, WI	12.1%
	Cleveland, OH	10.5%
	Long Island, NY	10.3%
	Orlando, FL	8.1%
	Jacksonville, FL	5.7%
	Nashville, TN	5.4%
	Indianapolis, IN	5.4%
	Columbus, OH	5.2%
	Pittsburgh, PA	5.0%
	Miami, FL	4.0%
	Salt Lake City, UT	2.5%
	Sacramento, CA	2.4%
	Tampa, FL	1.4%
	Ft. Lauderdale, FL	1.2%
	Rochester, NY	1.0%
	Cincinnati, OH	-0.2%
	Norfolk, VA	-1.0%
	Milwaukee, WI	-1.0%
	Richmond, VA	-2.2%
	Hartford, CT	-7.9%

Source: U.S. Census Bureau (City), Statistics Canada (Metro), 2018.
*Millennials aged 20-29 years living in downtown areas.

TABLE 12
TECH TALENT LABOR CONCENTRATION BY INDUSTRY (2017)
Tech Talent Occupations as a % of All Occupations in Each Industry

Industry	Tech-Talent as % of Total Industry Occupations
Core High-Tech*	49.8%
Information (Excluding High-Tech)	14.4%
Management of Companies and Enterprises	13.2%
Professional, Scientific and Technical Services (Excluding High-Tech)	7.7%
Finance, Insurance and Real Estate	5.1%
Total U.S. Employment	3.5%
Government	3.1%
Transportation, Warehousing, and Wholesale	2.2%
Manufacturing (Excluding High-Tech)	2.1%
Education	1.8%
Other	0.8%
Health Care	0.7%

Source: U.S. Bureau of Labor Statistics (National), April 2018.
*Includes computer software and services and computer product manufacturing.

TECH TALENT HAS UNIQUE CONCENTRATIONS ACROSS MARKETS

TABLE 13

TECH TALENT BY TYPE
SOFTWARE DEVELOPERS & PROGRAMMERS

Ranked by % of Tech Talent

Market	Software Developers & Programmers	% of Tech Talent
Seattle, WA	75,200	51.8%
SF Bay Area, CA	149,150	45.3%
Madison, WI	9,660	40.7%
Portland, OR	20,090	38.8%
Boston, MA	43,910	38.5%
New York, NY	97,420	38.3%
Salt Lake City, UT	11,830	37.3%
Austin, TX	25,770	37.0%
Denver, CO	36,030	36.1%
Newark, NJ	17,970	35.5%
San Diego, CA	24,850	35.4%
Sacramento, CA	13,950	35.3%
Raleigh-Durham, NC	20,780	35.0%
Orange County, CA	23,670	34.1%
Ft. Lauderdale, FL	7,980	33.7%
Philadelphia, PA	26,260	33.2%
Detroit, MI	28,130	33.1%
Cleveland, OH	11,840	33.1%
Los Angeles, CA	43,980	33.0%
Orlando, FL	12,550	33.0%
Hartford, CT	8,550	32.8%
Richmond, VA	8,060	32.4%
Chicago, IL	45,300	32.3%
Ottawa, ON	22,800	32.3%
Columbus, OH	15,920	32.3%

Market	Software Developers & Programmers	% of Tech Talent
Jacksonville, FL	6,500	32.2%
Phoenix, AZ	26,830	32.0%
Dallas/Ft. Worth, TX	51,380	32.0%
Vancouver, BC	21,800	31.8%
Atlanta, GA	42,510	31.5%
Charlotte, NC	16,800	31.0%
Tampa, FL	13,980	30.8%
Indianapolis, IN	10,920	30.6%
Minneapolis, MN	27,720	30.4%
Pittsburgh, PA	13,150	29.7%
Miami, FL	6,820	29.6%
Long Island, NY	9,190	29.4%
Rochester, NY	6,370	29.3%
St. Louis, MO	15,590	29.2%
Washington, D.C.	71,280	28.7%
Kansas City, MO	15,150	28.7%
Milwaukee, WI	8,840	28.7%
Houston, TX	26,420	27.9%
San Antonio, TX	8,570	27.5%
Nashville, TN	7,900	27.1%
Cincinnati, OH	9,980	27.0%
Baltimore, MD	19,230	26.5%
Montreal, QC	33,300	26.2%
Toronto, ON	62,100	25.7%
Norfolk, VA	5,720	21.5%

Source: U.S. Bureau of Labor Statistics, Statistics Canada, April 2018.
Note: Software developers include: computer programmers; software application developers, software systems software developers, and web developers.

TABLE 14

TECH TALENT BY TYPE

COMPUTER, SUPPORT DATABASE & SYSTEMS

Ranked by % of Tech Talent

Market	Computer, Support Database & Systems	% of Tech Talent
San Antonio, TX	18,390	59.0%
Cincinnati, OH	21,170	57.4%
Washington, D.C.	142,320	57.4%
Miami, FL	13,140	57.0%
Tampa, FL	25,830	56.9%
St. Louis, MO	30,320	56.9%
Richmond, VA	13,850	55.6%
Indianapolis, IN	19,670	55.1%
Baltimore, MD	39,460	54.4%
Jacksonville, FL	10,900	54.0%
Norfolk, VA	14,370	54.0%
Charlotte, NC	29,200	53.9%
Nashville, TN	15,680	53.8%
Milwaukee, WI	16,580	53.7%
Columbus, OH	26,450	53.7%
Ft. Lauderdale, FL	12,710	53.6%
Houston, TX	50,700	53.5%
Phoenix, AZ	44,580	53.1%
Kansas City, MO	28,050	53.1%
Dallas/Ft. Worth, TX	85,170	53.0%
Chicago, IL	74,060	52.9%
Rochester, NY	11,470	52.7%
Minneapolis, MN	48,070	52.7%
Atlanta, GA	70,350	52.2%
Pittsburgh, PA	23,050	52.0%

Market	Computer, Support Database & Systems	% of Tech Talent
Philadelphia, PA	40,880	51.7%
Long Island, NY	16,120	51.5%
Orlando, FL	19,510	51.2%
Cleveland, OH	18,310	51.1%
Raleigh-Durham, NC	28,650	48.3%
Madison, WI	11,450	48.2%
Hartford, CT	12,520	48.1%
New York, NY	120,310	47.3%
Denver, CO	47,060	47.2%
Newark, NJ	23,730	46.9%
Austin, TX	32,450	46.6%
Detroit, MI	39,520	46.5%
Los Angeles, CA	62,030	46.5%
Salt Lake City, UT	14,550	45.8%
Sacramento, CA	17,850	45.2%
Orange County, CA	29,650	42.7%
Portland, OR	21,960	42.5%
Boston, MA	47,590	41.8%
Ottawa, ON	28,000	39.7%
Toronto, ON	95,400	39.5%
Vancouver, BC	25,000	36.5%
San Diego, CA	25,270	36.0%
Seattle, WA	49,760	34.3%
SF Bay Area, CA	112,060	34.0%
Montreal, QC	42,100	33.1%

Source: U.S. Bureau of Labor Statistics, Statistics Canada, April 2018.

Note: Computer Support, Database & Systems include: computer and information research scientists, computer systems analysts, information security analysts, database administrators, network and computer systems administrators, computer network architects, computer user support specialists, computer network support specialists, and all other computer occupations.

TABLE 15

TECH TALENT BY TYPE: COMPUTER & INFORMATION SYSTEMS MANAGERS

Ranked by % of Tech Talent

Market	Computer & Information Systems Managers	% of Tech Talent
Hartford, CT	3,210	12.3%
Toronto, ON	28,400	11.8%
Nashville, TN	3,040	10.4%
Salt Lake City, UT	3,310	10.4%
Boston, MA	11,400	10.0%
Newark, NJ	5,030	9.9%
Ottawa, ON	6,900	9.8%
New York, NY	24,320	9.6%
Charlotte, NC	5,170	9.5%
Montreal, QC	12,100	9.5%
Cincinnati, OH	3,290	8.9%
Portland, OR	4,550	8.8%
Minneapolis, MN	8,000	8.8%
Milwaukee, WI	2,640	8.6%
Atlanta, GA	11,410	8.5%
Columbus, OH	4,150	8.4%
Cleveland, OH	2,930	8.2%
Long Island, NY	2,500	8.0%
Chicago, IL	11,140	8.0%
Raleigh-Durham, NC	4,630	7.8%
Los Angeles, CA	10,340	7.8%
Vancouver, BC	5,300	7.7%
SF Bay Area, CA	24,840	7.5%
Kansas City, MO	3,940	7.5%
Orange County, CA	5,130	7.4%

Market	Computer & Information Systems Managers	% of Tech Talent
Miami, FL	1,690	7.3%
Jacksonville, FL	1,470	7.3%
Indianapolis, IN	2,590	7.3%
Philadelphia, PA	5,730	7.2%
Washington, D.C.	17,910	7.2%
Seattle, WA	10,340	7.1%
Pittsburgh, PA	3,130	7.1%
Ft. Lauderdale, FL	1,670	7.0%
Phoenix, AZ	5,890	7.0%
Orlando, FL	2,640	6.9%
Baltimore, MD	4,890	6.7%
San Diego, CA	4,650	6.6%
Richmond, VA	1,550	6.2%
Sacramento, CA	2,440	6.2%
Madison, WI	1,460	6.1%
St. Louis, MO	3,170	5.9%
Detroit, MI	5,040	5.9%
Tampa, FL	2,670	5.9%
Houston, TX	5,520	5.8%
Denver, CO	5,750	5.8%
Rochester, NY	1,190	5.5%
Dallas/Ft. Worth, TX	7,640	4.8%
Austin, TX	3,080	4.4%
Norfolk, VA	1,120	4.2%
San Antonio, TX	1,260	4.0%

Source: U.S. Bureau of Labor Statistics, Statistics Canada, April 2018.

TABLE 16
TECH TALENT BY TYPE:
TECHNOLOGY ENGINEERING-RELATED

Ranked by % of Tech Talent

Market	Technology Engineering Related	% of Tech Talent
Montreal, QC	39,800	31%
Vancouver, BC	16,400	24%
Toronto, ON	55,500	23%
San Diego, CA	15,330	22%
Norfolk, VA	5,410	20%
Ottawa, ON	12,900	18%
Orange County, CA	11,030	16%
Detroit, MI	12,220	14%
Sacramento, CA	5,230	13%
SF Bay Area, CA	43,100	13%
Houston, TX	12,170	13%
Los Angeles, CA	17,050	13%
Rochester, NY	2,730	13%
Baltimore, MD	9,020	12%
Austin, TX	8,310	12%
Pittsburgh, PA	4,990	11%
Long Island, NY	3,480	11%
Denver, CO	10,920	11%
Kansas City, MO	5,680	11%
Dallas/Ft. Worth, TX	16,560	10%
Portland, OR	5,120	10%
Boston, MA	11,060	10%
San Antonio, TX	2,960	9%
Milwaukee, WI	2,790	9%
Raleigh-Durham, NC	5,300	9%

Market	Technology Engineering Related	% of Tech Talent
Orlando, FL	3,380	9%
Nashville, TN	2,510	9%
Minneapolis, MN	7,420	8%
St. Louis, MO	4,230	8%
Phoenix, AZ	6,630	8%
Philadelphia, PA	6,210	8%
Atlanta, GA	10,500	8%
Newark, NJ	3,890	8%
Cleveland, OH	2,740	8%
Indianapolis, IN	2,520	7%
Chicago, IL	9,580	7%
Hartford, CT	1,770	7%
Seattle, WA	9,840	7%
Washington, D.C.	16,640	7%
Cincinnati, OH	2,460	7%
Jacksonville, FL	1,310	6%
Salt Lake City, UT	2,050	6%
Tampa, FL	2,880	6%
Miami, FL	1,420	6%
Richmond, VA	1,430	6%
Ft. Lauderdale, FL	1,340	6%
Columbus, OH	2,780	6%
Charlotte, NC	3,030	6%
Madison, WI	1,170	5%
New York, NY	12,220	5%

Source: U.S. Bureau of Labor Statistics, Statistics Canada, April 2018.

Note: Technology Engineering-Related includes: computer programmers; computer hardware engineers, electrical engineers, electronics engineers except computer, electrical and electronics drafters, electrical and electronics engineering technicians, and electro-mechanical technicians.

WHICH ARE THE HIGHEST- AND LOWEST-COST MARKETS TO OPERATE IN?

TABLE 17

TECH TALENT WAGES BY MARKET (2017)

U.S Average = 100%

Market	Average Tech Talent Wage	Wage Relative to U.S. Average	Talent Wage 5 Yr. Growth
SF Bay Area, CA	$125,438	133%	15%
Seattle, WA	$117,259	124%	21%
New York, NY	$112,647	119%	17%
Washington, D.C.	$111,111	118%	10%
Newark, NJ	$110,177	117%	9%
Boston, MA	$103,746	110%	6%
Baltimore, MD	$102,998	109%	11%
San Diego, CA	$102,994	109%	17%
Los Angeles, CA	$101,491	107%	14%
Denver, CO	$100,751	107%	15%
Orange County, CA	$99,423	105%	9%
Hartford, CT	$97,678	103%	14%
Dallas/Ft. Worth, TX	$96,633	102%	15%
Charlotte, NC	$95,404	101%	10%
Philadelphia, PA	$95,224	101%	10%
Austin, TX	$94,954	100%	12%
Columbus, OH	$94,910	100%	22%
Raleigh-Durham, NC	$94,806	100%	16%
Houston, TX	$94,799	100%	10%
Long Island, NY	$94,129	100%	12%
Minneapolis, MN	$93,654	99%	12%
Portland, OR	$93,626	99%	14%
Atlanta, GA	$92,932	98%	13%
Chicago, IL	$92,613	98%	12%
Sacramento, CA	$91,473	97%	6%

Market	Average Tech Talent Wage	Wage Relative to U.S. Average	Talent Wage 5 Yr. Growth
Richmond, VA	$91,349	97%	11%
San Antonio, TX	$90,742	96%	19%
Phoenix, AZ	$88,296	93%	11%
St. Louis, MO	$88,181	93%	11%
Detroit, MI	$85,284	90%	10%
Norfolk, VA	$85,120	90%	12%
Salt Lake City, UT	$84,783	90%	14%
Cincinnati, OH	$84,595	90%	11%
Orlando, FL	$83,792	89%	14%
Kansas City, MO	$83,500	88%	8%
Pittsburgh, PA	$83,117	88%	13%
Nashville, TN	$83,057	88%	16%
Jacksonville, FL	$82,506	87%	12%
Madison, WI	$81,569	86%	13%
Ft. Lauderdale, FL	$81,108	86%	11%
Indianapolis, IN	$80,843	86%	6%
Milwaukee, WI	$80,670	85%	9%
Tampa, FL	$80,326	85%	5%
Miami, FL	$79,539	84%	5%
Cleveland, OH	$79,277	84%	10%
Rochester, NY	$76,221	81%	6%
Ottawa, ON	$67,871	72%	8%
Toronto, ON	$64,205	68%	10%
Vancouver, BC	$57,819	61%	4%
Montreal, QC	$57,258	61%	13%

Source: U.S. Bureau of Labor Statistics (Metro), Statistics Canada (Metro), April 2018.

TABLE 18
AVERAGE U.S. TECH COMPANY OCCUPATION POOLS

500 Employees

Occupation Pools	Employees	% of Total Labor
Tech Talent Employees*	250	50%
Support Non-Tech Employees (excluding Management)	211	42%
Management	39	8%

Source: U.S. Bureau of Labor Statistics (National), April 2018.

*Tech Talent includes the following occupation categories: software developers and programmers; computer support, database and systems; technology and engineering related; and computer information system managers.

TABLE 19

ESTIMATED ONE-YEAR COSTS BY MARKET: WAGE & RENT OBLIGATION FOR TYPICAL TECH FIRM

Sample Tech Firm Estimates: 500 Employees, 75,000 Sq. Ft.

Market	Rent Cost (Avg Rent x 75,000 SF)	Tech Talent Wages (Avg. Wage x 250 People)	Support Non-Tech Wages (Avg. Wage x 213 People)	Management Wages (Avg. Wage x 37 People)	Total Estimated Cost
SF Bay Area, CA	$4,704,639	$31,359,561	$15,361,063	$7,699,350	**$59,124,612**
New York, NY	$5,615,741	$28,161,717	$13,920,442	$7,766,070	**$55,463,970**
Washington, D.C.	$2,979,750	$27,777,690	$14,487,193	$6,640,685	**$51,885,318**
Seattle, WA	$2,562,410	$29,314,844	$13,349,712	$6,326,970	**$51,553,936**
Newark, NJ	$1,968,000	$27,544,329	$12,771,419	$7,269,990	**$49,553,738**
Boston, MA	$2,836,500	$25,936,594	$14,224,911	$6,176,430	**$49,174,435**
Los Angeles, CA	$2,847,750	$25,372,804	$12,010,433	$6,359,730	**$46,590,717**
Denver, CO	$2,029,719	$25,187,684	$12,821,101	$6,390,803	**$46,429,307**
Orange County, CA	$2,610,000	$24,855,803	$12,401,701	$6,072,300	**$45,939,804**
San Diego, CA	$2,630,152	$25,748,430	$11,415,317	$6,045,780	**$45,839,679**
Houston, TX	$2,189,250	$23,699,874	$13,233,989	$6,362,070	**$45,485,183**
Austin, TX	$2,624,250	$23,738,519	$12,734,414	$6,349,590	**$45,446,773**
Baltimore, MD	$1,696,500	$25,749,409	$11,892,921	$5,745,870	**$45,084,700**
Dallas/Ft. Worth, TX	$1,818,750	$24,158,258	$12,198,416	$6,415,377	**$44,590,801**
Philadelphia, PA	$2,067,000	$23,806,119	$12,251,963	$6,289,546	**$44,414,628**
Long Island, NY	$2,010,000	$23,532,340	$12,077,567	$6,509,490	**$44,129,397**
Hartford, CT	$1,485,750	$24,419,604	$11,878,483	$5,616,390	**$43,400,226**
Minneapolis, MN	$2,040,750	$23,413,459	$12,190,203	$5,711,550	**$43,355,961**
Chicago, IL	$2,302,500	$23,153,256	$12,103,743	$5,541,510	**$43,101,009**
Charlotte, NC	$1,973,250	$23,850,941	$11,372,816	$5,642,520	**$42,839,527**
Raleigh-Durham, NC	$1,928,250	$23,701,444	$11,543,497	$5,583,925	**$42,757,117**
Portland, OR	$2,157,750	$23,406,573	$11,410,127	$5,392,920	**$42,367,369**
Columbus, OH	$1,461,750	$23,727,566	$11,061,558	$5,747,820	**$41,998,695**
Atlanta, GA	$1,968,750	$23,233,099	$11,044,183	$5,573,490	**$41,819,522**
San Antonio, TX	$1,578,000	$22,685,570	$11,142,427	$6,044,610	**$41,450,607**
Sacramento, CA	$1,674,000	$22,868,235	$11,449,329	$5,389,800	**$41,381,365**
Richmond, VA	$1,482,270	$22,837,355	$11,305,247	$5,726,370	**$41,351,242**
Phoenix, AZ	$1,923,750	$22,073,930	$10,292,024	$5,392,920	**$39,682,623**
Detroit, MI	$1,411,500	$21,321,029	$11,567,694	$5,371,324	**$39,671,546**
St. Louis, MO	$1,386,750	$22,045,219	$10,684,068	$5,454,930	**$39,570,967**
Norfolk, VA	$1,435,500	$21,279,973	$10,534,532	$5,752,110	**$39,002,115**
Pittsburgh, PA	$1,651,500	$20,779,318	$10,982,948	$5,422,170	**$38,835,936**
Cincinnati, OH	$1,461,000	$21,148,753	$11,057,898	$5,116,410	**$38,784,061**
Ft. Lauderdale, FL	$2,470,500	$20,277,073	$10,343,483	$5,353,920	**$38,444,976**
Nashville, TN	$1,956,750	$20,764,272	$10,679,159	$4,877,340	**$38,277,522**
Indianapolis, IN	$1,466,250	$20,210,642	$11,455,074	$4,948,710	**$38,080,677**
Miami, FL	$2,793,750	$19,884,628	$10,418,030	$4,893,720	**$37,990,129**
Kansas City, MO	$1,459,500	$20,874,920	$10,619,989	$5,022,810	**$37,977,219**
Orlando, FL	$1,644,000	$20,948,124	$10,100,533	$5,139,810	**$37,832,467**
Cleveland, OH	$1,371,750	$19,819,232	$11,377,768	$5,217,030	**$37,785,780**
Madison, WI	$1,527,000	$20,392,234	$11,150,305	$4,687,020	**$37,756,558**
Milwaukee, WI	$1,387,500	$20,167,485	$11,216,532	$4,885,530	**$37,657,046**
Salt Lake City, UT	$1,798,500	$21,195,699	$9,881,263	$4,344,210	**$37,219,672**
Tampa, FL	$1,703,250	$20,081,401	$9,919,405	$5,235,360	**$36,939,416**
Jacksonville, FL	$1,440,750	$20,626,438	$9,777,515	$4,891,770	**$36,736,473**
Rochester, NY	$1,481,250	$19,055,264	$10,339,319	$5,463,900	**$36,339,734**
Ottawa, ON*	$1,839,315	$16,967,675	$10,035,310	$3,349,179	**$32,191,480**
Toronto, ON*	$1,995,114	$16,051,248	$8,811,825	$3,366,072	**$30,224,259**
Vancouver, BC*	$2,442,264	$14,454,740	$8,718,994	$2,968,775	**$28,584,775**
Montreal, QC*	$1,848,184	$14,314,617	$8,615,772	$2,849,274	**$27,627,847**

Source: U.S. Bureau of Labor Statistics, April 2018, Canada Statistics, April 2018, CBRE Research (Metro), Q1 2018; *in USD

HOW DOES TECH TALENT IMPACT COMMERCIAL REAL ESTATE?

TABLE 20
OFFICE ASKING RENT BY MARKET (Q1 2018)

Market	Annual Gross Direct Asking Rent	Office Rent 5 Year Growth
New York, NY	$74.88	19%
SF Bay Area, CA	$62.73	50%
Washington, D.C.	$39.73	13%
Los Angeles, CA	$37.97	28%
Boston, MA	$37.82	28%
Miami, FL	$37.25	20%
San Diego, CA	$35.07	31%
Austin, TX	$34.99	29%
Orange County, CA	$34.80	52%
Seattle, WA	$34.17	29%
Ft. Lauderdale, FL	$32.94	32%
Vancouver, BC*	$32.56	26%
Chicago, IL	$30.70	15%
Houston, TX	$29.19	24%
Portland, OR	$28.77	38%
Philadelphia, PA	$27.56	10%
Minneapolis, MN	$27.21	22%
Denver, CO	$27.06	28%
Long Island, NY	$26.80	1%
Toronto, ON*	$26.60	3%
Charlotte, NC	$26.31	31%
Atlanta, GA	$26.25	32%
Newark, NJ	$26.24	7%
Nashville, TN	$26.09	37%
Raleigh-Durham, NC	$25.71	34%
Phoenix, AZ	$25.65	26%
Montreal, QC*	$24.64	7%
Ottawa, ON*	$24.52	6%
Dallas/Ft. Worth, TX	$24.25	34%
Salt Lake City, UT	$23.98	20%
Tampa, FL	$22.71	18%
Baltimore, MD	$22.62	3%
Sacramento, CA	$22.32	12%
Pittsburgh, PA	$22.02	23%
Orlando, FL	$21.92	10%
San Antonio, TX	$21.04	6%
Madison, WI	$20.36	16%
Hartford, CT	$19.81	1%
Richmond, VA	$19.76	10%
Rochester, NY	$19.75	3%
Indianapolis, IN	$19.55	14%
Columbus, OH	$19.49	11%
Cincinnati, OH	$19.48	0%
Kansas City, MO	$19.46	18%
Jacksonville, FL	$19.21	12%
Norfolk, VA	$19.14	6%
Detroit, MI	$18.82	12%
Milwaukee, WI	$18.50	6%
St. Louis, MO	$18.49	0%
Cleveland, OH	$18.29	8%

Source: CBRE Research (Office Market), Q1 2018 ; *in USD

TABLE 21
OFFICE VACANCY RATE BY MARKET (Q1 2018)

Market	Vacancy Rate	5 Years Ago (Q1 2013)
Madison, WI	6.1%	11.0%
Vancouver, BC	6.4%	8.3%
Charlotte, NC	7.3%	15.6%
New York, NY	7.9%	7.6%
Toronto, ON	7.9%	8.0%
SF Bay Area, CA	8.1%	10.8%
Austin, TX	9.7%	13.6%
Richmond, VA	9.8%	16.0%
Ottawa, ON	10.0%	7.9%
Orlando, FL	10.2%	19.4%
Long Island, NY	10.5%	14.8%
Nashville, TN	10.6%	11.1%
Miami, FL	10.7%	17.6%
Orange County, CA	10.9%	12.5%
Seattle, WA	11.1%	15.9%
San Diego, CA	11.2%	14.5%
Tampa, FL	11.2%	18.9%
St. Louis, MO	11.3%	15.8%
Ft. Lauderdale, FL	11.3%	18.7%
Salt Lake City, UT	11.4%	13.1%
Portland, OR	11.6%	13.7%
Pittsburgh, PA	12.4%	9.4%
Kansas City, MO	12.4%	18.5%
Norfolk, VA	12.6%	18.2%
Sacramento, CA	12.8%	21.7%
Montreal, QC	12.8%	9.2%
Jacksonville, FL	13.4%	21.6%
Boston, MA	13.6%	13.6%
Philadelphia, PA	13.9%	19.7%
Raleigh-Durham, NC	14.1%	17.0%
Rochester, NY	14.1%	17.0%
Baltimore, MD	14.3%	16.5%
Columbus, OH	14.4%	17.4%
Chicago, IL	14.7%	17.1%
Milwaukee, WI	14.8%	15.7%
Denver, CO	14.9%	14.4%
Los Angeles, CA	15.0%	17.4%
San Antonio, TX	15.8%	18.8%
Detroit, MI	16.0%	26.3%
Phoenix, AZ	16.5%	23.6%
Indianapolis, IN	16.8%	18.7%
Washington, D.C.	17.0%	14.2%
Atlanta, GA	17.4%	22.0%
Houston, TX	17.8%	12.5%
Minneapolis, MN	17.9%	17.0%
Hartford, CT	18.5%	17.0%
Cleveland, OH	18.6%	20.7%
Newark, NJ	18.9%	17.7%
Cincinnati, OH	20.0%	24.3%
Dallas/Ft. Worth, TX	20.5%	19.0%

Source: CBRE Research (Office Market), Q1 2018.

TABLE 22
APARTMENT ASKING RENT BY MARKET (Q1 2018)

Market	Apartment Rent	Apt Rent 5 Year Growth	Market	Apartment Rent	Apt Rent 5 Year Growth
New York, NY	$4,042	7%	Madison, WI	$1,134	12%
SF Bay Area, CA	$2,892	30%	Pittsburgh, PA	$1,110	-1%
Long Island, NY	$2,278	14%	Dallas/Ft. Worth, TX	$1,105	23%
Los Angeles, CA	$2,264	24%	Houston, TX	$1,104	12%
Boston, MA	$2,179	14%	Milwaukee, WI	$1,099	5%
Orange County, CA	$2,039	23%	Salt Lake City, UT	$1,081	22%
San Diego, CA	$1,975	28%	Charlotte, NC	$1,063	20%
Newark, NJ	$1,733	13%	Raleigh-Durham, NC	$1,060	17%
Washington, D.C.	$1,720	4%	Norfolk, VA	$1,060	5%
Seattle, WA	$1,713	29%	Richmond, VA	$1,056	15%
Miami, FL	$1,648	19%	Rochester, NY	$1,029	17%
Ft. Lauderdale, FL	$1,581	21%	Jacksonville, FL	$1,014	20%
Chicago, IL	$1,503	10%	Phoenix, AZ	$1,014	29%
Sacramento, CA	$1,435	44%	Toronto, ON*	$1,003	18%
Denver, CO	$1,429	31%	Vancouver, BC*	$1,000	24%
Portland, OR	$1,372	34%	Detroit, MI	$982	19%
Philadelphia, PA	$1,311	10%	San Antonio, TX	$948	8%
Hartford, CT	$1,308	6%	Kansas City, MO	$941	15%
Minneapolis, MN	$1,299	15%	Cincinnati, OH	$921	14%
Baltimore, MD	$1,271	9%	Columbus, OH	$920	16%
Orlando, FL	$1,252	31%	Cleveland, OH	$897	12%
Austin, TX	$1,207	15%	St. Louis, MO	$895	11%
Atlanta, GA	$1,163	30%	Ottawa, ON*	$858	12%
Tampa, FL	$1,156	23%	Indianapolis, IN	$853	13%
Nashville, TN	$1,135	21%	Montreal, QC*	$591	11%

Source: CBRE Econometric Advisors (City), Axiometrics, CMHC, Q1 2018; *in USD; Note: New York represents Manhattan only.

TABLE 23
COST OF LIVING RELATIVE TO U.S. AVERAGE
U.S. Average = 100%

Market	Cost of Living	Market	Cost of Living	Market	Cost of Living
SF Bay Area, CA	157%	Houston, TX	107%	Milwaukee, WI	99%
Orange County, CA	145%	Vancouver, BC	107%	Norfolk, VA	99%
San Diego, CA	128%	Baltimore, MD	106%	Philadelphia, PA	98%
Seattle, WA	127%	Salt Lake City, UT	106%	Charlotte, NC	98%
Los Angeles, CA	126%	Phoenix, AZ	106%	Kansas City, MO	97%
Long Island, NY	125%	Nashville, TN	105%	Dallas/Ft. Worth, TX	97%
New York, NY	120%	Hartford, CT	104%	Columbus, OH	95%
Boston, MA	119%	Orlando, FL	103%	Ottawa, ON	95%
Newark, NJ	119%	Atlanta, GA	102%	Pittsburgh, PA	94%
Washington, D.C.	118%	San Antonio, TX	102%	Detroit, MI	94%
Toronto, ON	115%	Minneapolis, MN	101%	St. Louis, MO	94%
Miami, FL	113%	Tampa, FL	101%	Indianapolis, IN	94%
Austin, TX	113%	Madison, WI	101%	Cincinnati, OH	91%
Ft. Lauderdale, FL	111%	Richmond, VA	100%	Montreal, QC	90%
Denver, CO	110%	Jacksonville, FL	100%	Rochester, NY	89%
Portland, OR	110%	Raleigh-Durham, NC	100%	Cleveland, OH	89%
Sacramento, CA	108%	Chicago, IL	99%		

Source: Moody's Analytics, Numbeo, Q1 2018.

TABLE 24
TECH WAGE TO APARTMENT RENT RATIO

Market	2018 Annualized Apartment Rent	2017 Average Annual Tech Wage	Rent-to-Tech Wage Ratio
New York, NY	$48,504	$112,647	43.1%
Long Island, NY	$27,340	$94,129	29.0%
SF Bay Area, CA	$34,705	$125,438	27.7%
Los Angeles, CA	$27,165	$101,491	26.8%
Boston, MA	$26,152	$103,746	25.2%
Miami, FL	$19,781	$79,539	24.9%
Orange County, CA	$24,464	$99,423	24.6%
Ft. Lauderdale, FL	$18,967	$81,108	23.4%
San Diego, CA	$23,701	$102,994	23.0%
Vancouver, BC*	$12,004	$57,819	20.8%
Chicago, IL	$18,036	$92,613	19.5%
Newark, NJ	$20,794	$110,177	18.9%
Sacramento, CA	$17,216	$91,473	18.8%
Toronto, ON*	$12,032	$64,205	18.7%
Washington, D.C.	$20,639	$111,111	18.6%
Orlando, FL	$15,029	$83,792	17.9%
Portland, OR	$16,460	$93,626	17.6%
Seattle, WA	$20,552	$117,259	17.5%
Nashville, TN	$13,616	$78,163	17.4%
Tampa, FL	$13,875	$80,326	17.3%
Madison, WI	$13,608	$79,939	17.0%
Denver, CO	$17,147	$100,751	17.0%
Minneapolis, MN	$15,587	$93,654	16.6%
Philadelphia, PA	$15,737	$95,224	16.5%
Milwaukee, WI	$13,188	$80,670	16.3%
Rochester, NY	$12,344	$76,221	16.2%
Hartford, CT	$15,691	$97,678	16.1%
Pittsburgh, PA	$13,316	$83,117	16.0%
Salt Lake City, UT	$12,974	$84,783	15.3%
Austin, TX	$14,486	$94,954	15.3%
Ottawa, ON*	$10,301	$67,871	15.2%
Atlanta, GA	$13,954	$92,932	15.0%
Norfolk, VA	$12,720	$85,120	14.9%
Baltimore, MD	$15,255	$102,998	14.8%
Jacksonville, FL	$12,174	$82,506	14.8%
Detroit, MI	$11,780	$83,081	14.2%
Houston, TX	$13,253	$94,799	14.0%
Richmond, VA	$12,678	$91,349	13.9%
Phoenix, AZ	$12,169	$88,296	13.8%
Dallas/Ft. Worth, TX	$13,263	$96,633	13.7%
Cleveland, OH	$10,760	$79,277	13.6%
Kansas City, MO	$11,296	$83,500	13.5%
Raleigh-Durham, NC	$12,722	$94,806	13.4%
Charlotte, NC	$12,761	$95,404	13.4%
Cincinnati, OH	$11,046	$84,595	13.1%
Indianapolis, IN	$10,236	$80,843	12.7%
San Antonio, TX	$11,378	$90,742	12.5%
Montreal, QC*	$7,090	$57,258	12.4%
St. Louis, MO	$10,737	$88,181	12.2%
Columbus, OH	$11,038	$94,910	11.6%

Source: U.S. Bureau of Labor Statistics, April 2018, Statistics Canada, May 2018, CBRE Econometric Advisors, Axiometrics, CMHC, Q1 2018; *in USD

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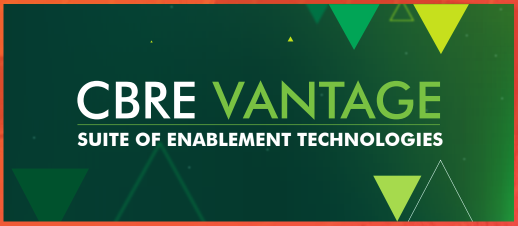

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