



2019 TECH-30

MEASURING TECH INDUSTRY IMPACT ON
NORTH AMERICAN OFFICE MARKETS

CBRE





CONTENTS

04	EXECUTIVE SUMMARY
06	THE TECH-30 & THE LABOR MARKET
14	SPREADING MARKET STRENGTH
16	SPREADING GROWTH
18	TECH SUBMARKETS OUTPERFORM
20	SUBLEASE SPACE MUTED
22	MARKET CYCLE POSITIONING
24	HIGH-TECH INDUSTRY OUTLOOK
26	MARKET WATCH
32	WHERE IS THE TECH INDUSTRY HEADED?
34	APPENDIX: TECH-30 MARKET PROFILES

Tech-30 is a comprehensive analysis of office markets in the U.S. and Canada that are influenced by the high-tech industry. The 30 markets were ranked according to high-tech industry job growth and analyzed to determine how the industry influences office market fundamentals.

EXECUTIVE SUMMARY

HOW IS THE TECH INDUSTRY PERFORMING?

The U.S. high-tech software/services industry created 1.4 million jobs since 2010 for an annual growth rate of 6%—a pace more than three times the national average job-growth rate. While high-tech job growth moderated to 4.5% in the first half of 2019, its share of major office leasing activity increased to 21% and remained the largest of any industry.

WHICH ARE THE TOP-GROWTH TECH CITIES?

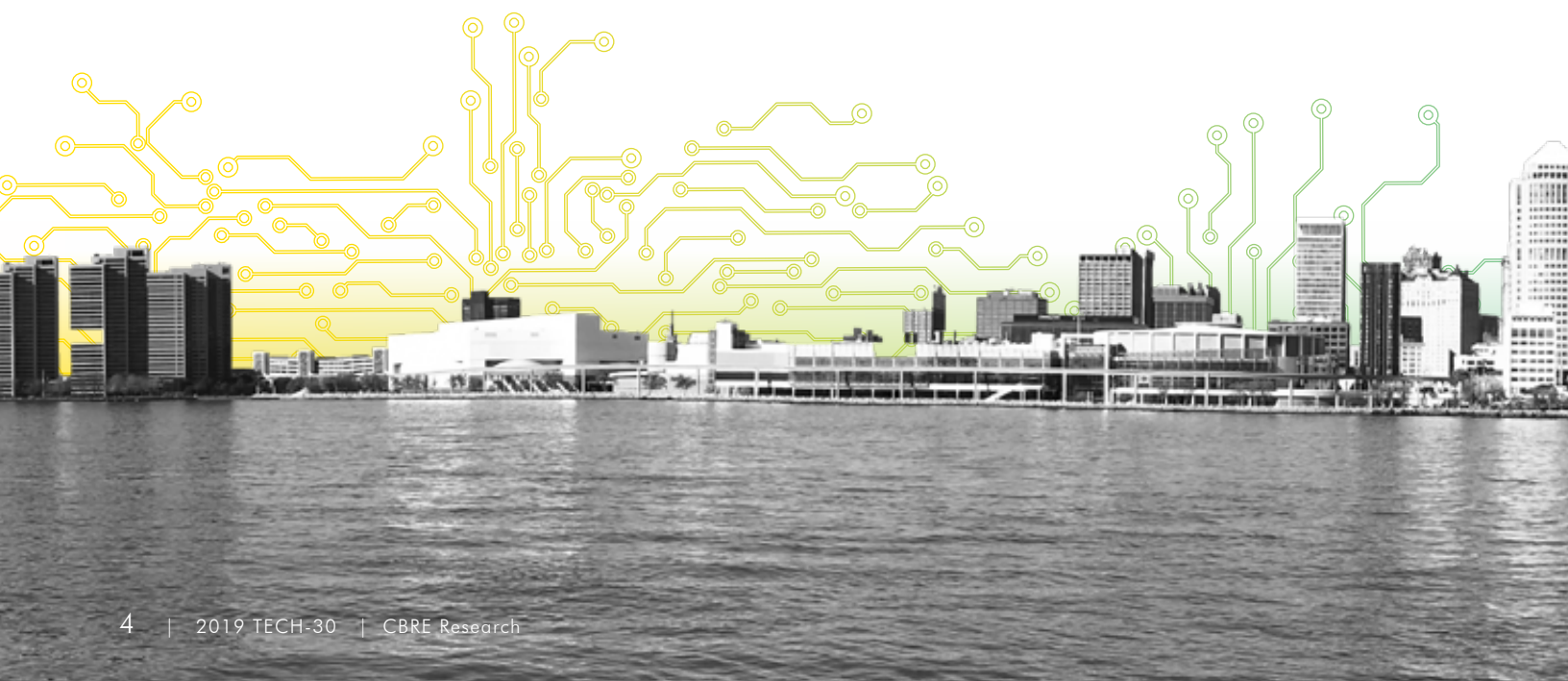
Vancouver was the top Tech-30 market for high-tech job growth over the past two years, bumping Seattle from the top spot. Vancouver's high-tech job base grew 30%, and its average asking rent increased 9%. San Francisco (25%), Toronto (24%) and Seattle (24%) had the next highest job growth rates, with rent increases of 18%, 9% and 12%, respectively.

WHICH ARE THE MOMENTUM MARKETS FOR HIGH-TECH INDUSTRY JOBS?

Nine markets increased or maintained their high-tech software/service job growth rates over the past two years compared with the prior two years, led by San Diego (+16 percentage points), Vancouver (+12) and Toronto (+6). Of the 21 markets with slower growth during these comparison periods, job creation was still strong with 15 markets exceeding the 3.4% U.S. average of high-tech job growth in the past two years.

HOW ARE TECH OFFICE MARKETS PERFORMING?

In aggregate, the Tech-30 markets recorded increased net absorption and a low level of available sublease space, suggesting strengthening market conditions ahead. Ten markets had double-digit rent growth over the past two years, led by San Francisco (18%), Portland (16%) and Silicon Valley (15%).



WHICH TECH SUBMARKETS OFFER RENT PREMIUMS/DISCOUNTS?

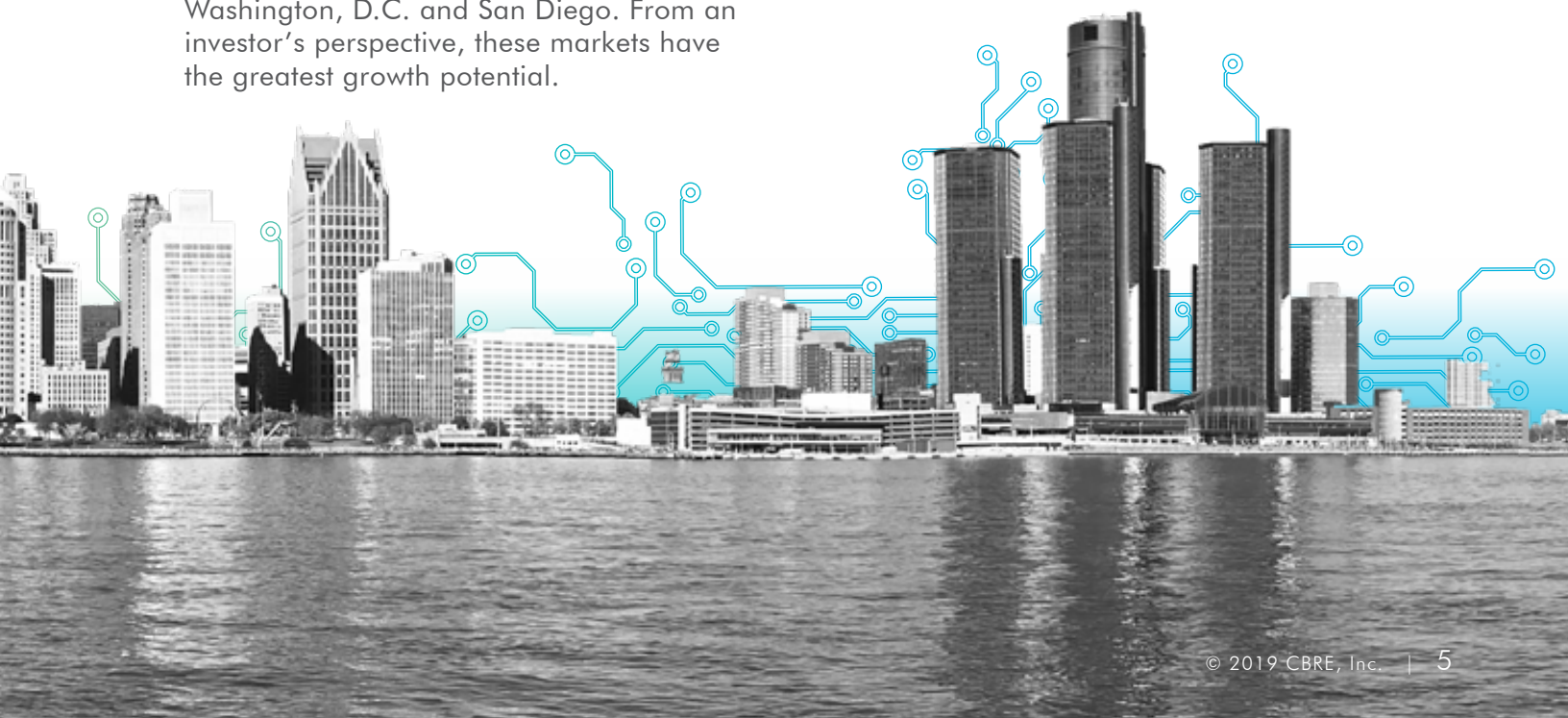
Rent premiums outpaced discounts in tech submarkets relative to the overall average in each Tech-30 market, resulting in an aggregate premium of 14%. The submarkets with the highest premiums were East Cambridge (128%), Santa Monica (78%) and Palo Alto (71%). Discounts were greatest in Northeast Charlotte (-21%), Reston/Herndon in Washington, D.C. (-14%) and Oakland/East End in Pittsburgh (-13%).

WHICH TECH MARKETS OFFER THE BEST VALUE?

Markets that are attractive to occupiers and offer the best combination of low office rents and a growing high-tech labor pool include Portland, Raleigh-Durham, Atlanta, Washington, D.C. and San Diego. From an investor's perspective, these markets have the greatest growth potential.

WHERE IS THE TECH INDUSTRY HEADED?

CBRE forecasts high-tech job growth above the national average in the year ahead, but slower than in years past due to tight labor market conditions. Increased technology investment by businesses to boost productivity and by consumers with rising wages should keep the high-tech industry healthy through 2021 and benefit commercial real estate investors. However, the potential for increased high-tech industry regulation, competition and trade disputes could lead to a less optimistic outlook.



THE TECH-30 & THE LABOR MARKET

The U.S. high-tech industry has created 1.4 million jobs since 2010, accounting for one of every four new jobs requiring office space. This growth has been fueled by rapid innovation and use of technology products and services to drive productivity and economic gains, combined with accommodative capital markets. Total annual high-tech industry job growth of 6% between 2010 and 2018 was four times the U.S. national average (Figure 1). Tighter labor supply and sustained demand for technical skills from other industries slowed high-tech job growth to 4.5% in the past 12 months—more than twice the national average. Lower corporate taxes and favorable capital repatriation rules have helped put the tech industry on track to add 156,000 jobs this year.

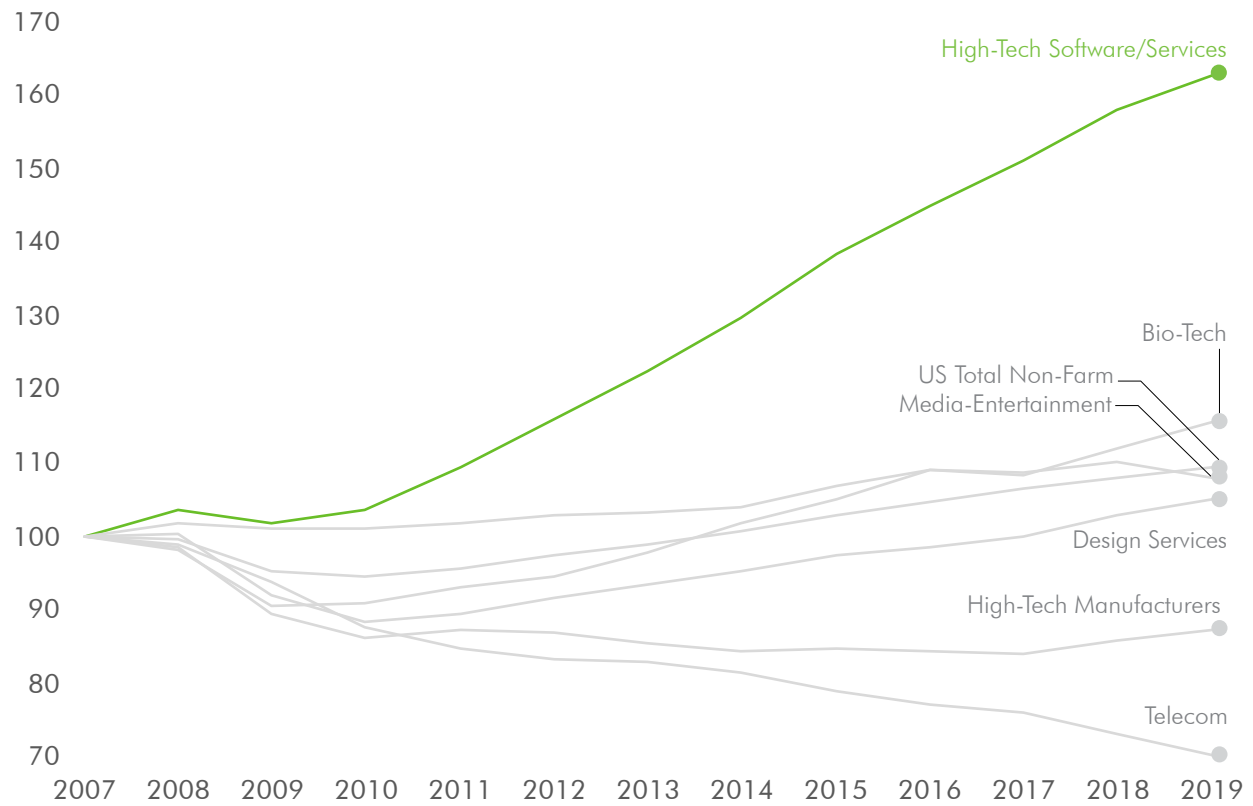
Future tech industry growth faces a structural barrier for available talent because the labor pool with specific skills, such as software development, is limited. Only 37% of all tech workers are employed by the high-tech industry, according to [CBRE's 2019 Scoring Tech Talent](#) report, meaning tech companies must compete with other industries that employ the remaining 63% of tech workers. Additionally, the unemployment rate for U.S. college-educated workers is 2.4%, causing stiff competition among companies. This could ease slightly in coming years due to a 53% increase in U.S. college graduates with high-tech degrees over the past five years.

The high-tech industry has steadily leased office space despite slower job growth. Since 2013, the industry has accounted for the largest share of U.S. major office leasing activity¹ with a 21% share in the first half of 2019, up from annual shares of 19% in 2018 and 18% in 2017. The 10 most active tech companies leasing office space accounted for 27% of tech industry leasing, indicating that large-cap companies are driving growth and adding further stability to this once volatile sector. Additionally, the forward commitments by large-cap tech are an indicator of the tech industry's confidence.

¹Includes transactions 10,000 sq. ft. or larger each quarter for the 54 U.S. markets tracked by CBRE Research.

FIGURE 1
U.S. JOB GROWTH FOR HIGH-TECH AND CREATIVE INDUSTRIES

Index = 2007



Source: CBRE Research, U.S. Bureau of Labor Statistics, July 2019.



While leasing activity remains steady, rent growth slowed in some office markets. This trend is most apparent in large markets where there is a lower concentration of tech companies, such as Dallas/Ft. Worth, Orange County and Atlanta—all of which have seen slower high-tech hiring, mainly because of talent constraints rather than a lack of job openings. The fastest rent growth year-to-date has been in large and established tech markets like New York, Silicon Valley, Washington, D.C and San Francisco, where rent growth outpaced the U.S. national average of 3.7% in H1 2019.

Within the Tech-30—the 30 leading technology markets in the U.S. and Canada—high-tech software/services job growth has overwhelmingly outperformed national averages over the past two years (Figure 2). Among these markets, 24 exceeded the 3.4% U.S. high-tech job growth rate in 2017 and 2018. Vancouver was the top high-tech job growth market at 30%. Comparing the past two years (2017 and 2018) with the prior two years (2015 and 2016), nine markets posted the same or faster growth, including San Diego, Vancouver, Toronto and Seattle. Of the 21 markets with slower growth during these comparison periods, job growth still was strong. Among these were San Francisco, Austin, New York, Silicon Valley and Los Angeles—all of which had high-tech job growth of 13% or more in 2017 and 2018.

Tech job growth is strongly correlated with office market rent growth in Tech-30 markets, with one-third of the markets posting rent growth of 10% or more between Q2 2017 and Q2 2019. San Francisco was the top market for rent growth, followed by Portland, Silicon Valley, Charlotte and Atlanta—large markets with growing tech industries (Figure 3.1). Furthermore, office rents increased in 28 primary tech submarkets between Q2 2017 and Q2 2019. The highest rent growth during this period was in the up-and-coming tech submarkets of Midtown Atlanta, the RTP/I-40 Corridor in Raleigh-Durham and Downtown Nashville (Figure 3.2). The top submarkets for net absorption during this period were Salt Lake City's Tech Corridor, East Cambridge in Boston and Downtown Nashville (Figure 3.4).

FIGURE 2**HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH, PAST TWO YEARS****HIGH-TECH SOFTWARE/SERVICES JOB GROWTH**

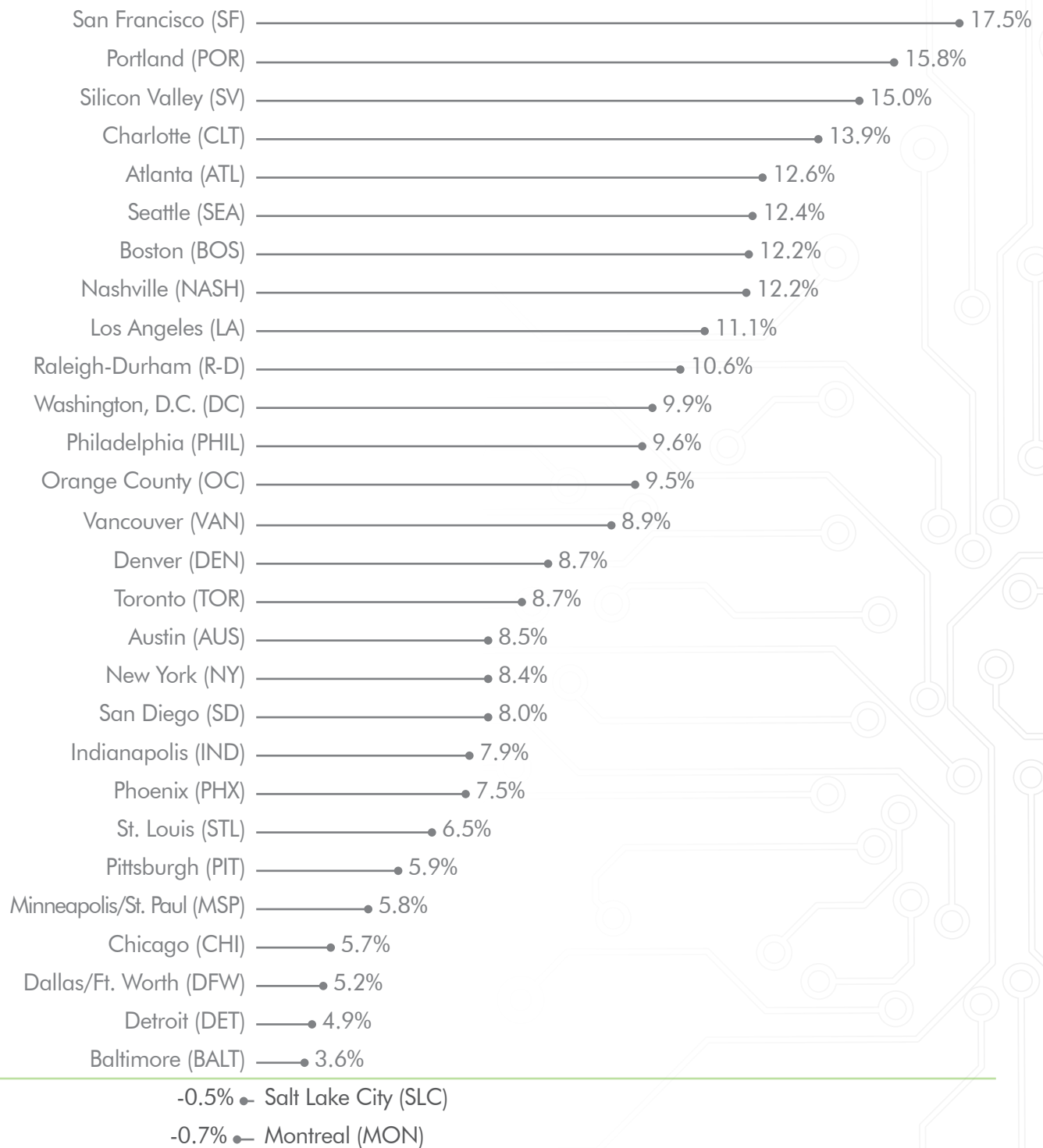
Market	GROWTH RATE		NEW HIGH-TECH JOBS	
	Current Period 2017 & 18	Previous Period 2015 & 16	New Jobs Added 2017 & 18	As a % of New Office Jobs 2017 & 18
1 Vancouver	29.5%	17.9%	13,600	55.5%
2 San Francisco	24.7%	38.5%	19,947	84.7%
3 Toronto	23.9%	17.7%	30,200	72.6%
4 Seattle	23.7%	19.1%	34,536	131.2%
5 Austin	22.5%	22.8%	10,517	60.4%
6 San Diego	19.7%	3.9%	5,860	77.5%
7 New York	14.8%	17.9%	15,259	29.0%
8 Silicon Valley	14.7%	16.0%	27,720	76.7%
9 Salt Lake City	14.3%	12.3%	6,879	34.9%
10 Denver	13.8%	11.5%	8,544	42.2%
11 Los Angeles	13.4%	19.4%	9,989	84.5%
12 Atlanta	13.0%	11.7%	9,899	21.2%
13 St. Louis	11.7%	17.1%	2,772	78.0%
14 Montreal	11.4%	14.0%	8,800	24.0%
15 Orange County	10.9%	15.7%	3,909	20.1%
16 Portland	10.3%	10.2%	2,647	23.2%
17 Nashville	9.6%	15.2%	1,375	7.5%
18 Dallas/Ft. Worth	8.7%	11.8%	8,397	21.1%
19 Boston	7.6%	11.1%	8,774	26.9%
20 Charlotte	7.3%	31.7%	1,702	8.8%
21 Raleigh-Durham	6.8%	13.5%	2,502	19.2%
22 Chicago	6.7%	19.1%	4,582	39.4%
23 Washington, D.C.	6.4%	5.9%	11,281	56.2%
24 Baltimore	6.0%	6.5%	2,010	19.4%
25 Pittsburgh	1.9%	24.4%	425	51.0%
26 Minneapolis/St. Paul	1.2%	6.2%	565	4.9%
27 Detroit	0.9%	13.8%	427	5.0%
28 Phoenix	-0.2%	24.2%	-103	-0.3%
29 Philadelphia	-2.1%	3.5%	-952	-6.5%
30 Indianapolis	-10.7%	26.8%	-3,203	-94.2%

OFFICE MARKET RENT GROWTH

Market	GROWTH RATE	
	Current Period Q2'17 vs. Q2'19	Previous Period Q2'15 vs. Q2'17
1 San Francisco	17.5%	7.2%
2 Portland	15.8%	14.5%
3 Silicon Valley	15.0%	16.2%
4 Charlotte	13.9%	16.9%
5 Atlanta	12.6%	17.6%
6 Seattle	12.4%	11.7%
7 Boston	12.2%	7.7%
8 Nashville	12.2%	21.2%
9 Los Angeles	11.1%	11.1%
10 Raleigh-Durham	10.6%	8.9%
11 Washington, D.C.	9.9%	4.3%
12 Philadelphia	9.6%	4.3%
13 Orange County	9.5%	23.3%
14 Vancouver	8.9%	-1.1%
15 Denver	8.7%	8.3%
16 Toronto	8.7%	-5.6%
17 Austin	8.5%	11.2%
18 New York	8.4%	6.2%
19 San Diego	8.0%	13.5%
20 Indianapolis	7.9%	6.7%
21 Phoenix	7.5%	13.4%
22 St. Louis	6.5%	1.0%
23 Pittsburgh	5.9%	3.5%
24 Minneapolis/St. Paul	5.8%	7.1%
25 Chicago	5.7%	4.9%
26 Dallas/Ft. Worth	5.2%	15.7%
27 Detroit	4.9%	7.0%
28 Baltimore	3.6%	-1.1%
29 Salt Lake City	-0.5%	3.1%
30 Montreal	-0.7%	2.2%

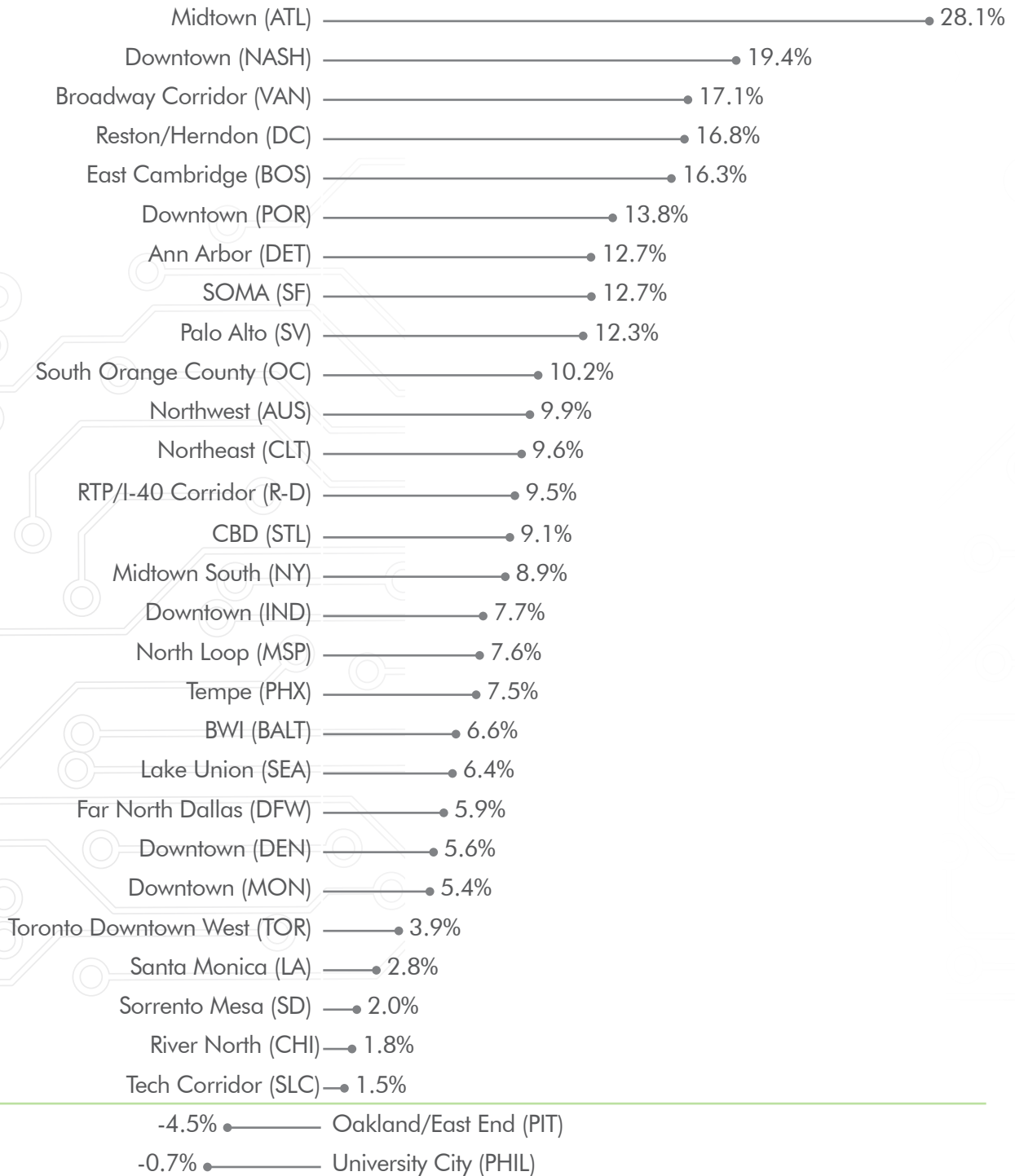
Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

FIGURE 3.1
RENT GROWTH OVERALL MARKET Q2 2017 VS. Q2 2019



Source: CBRE Research, Q2 2019.

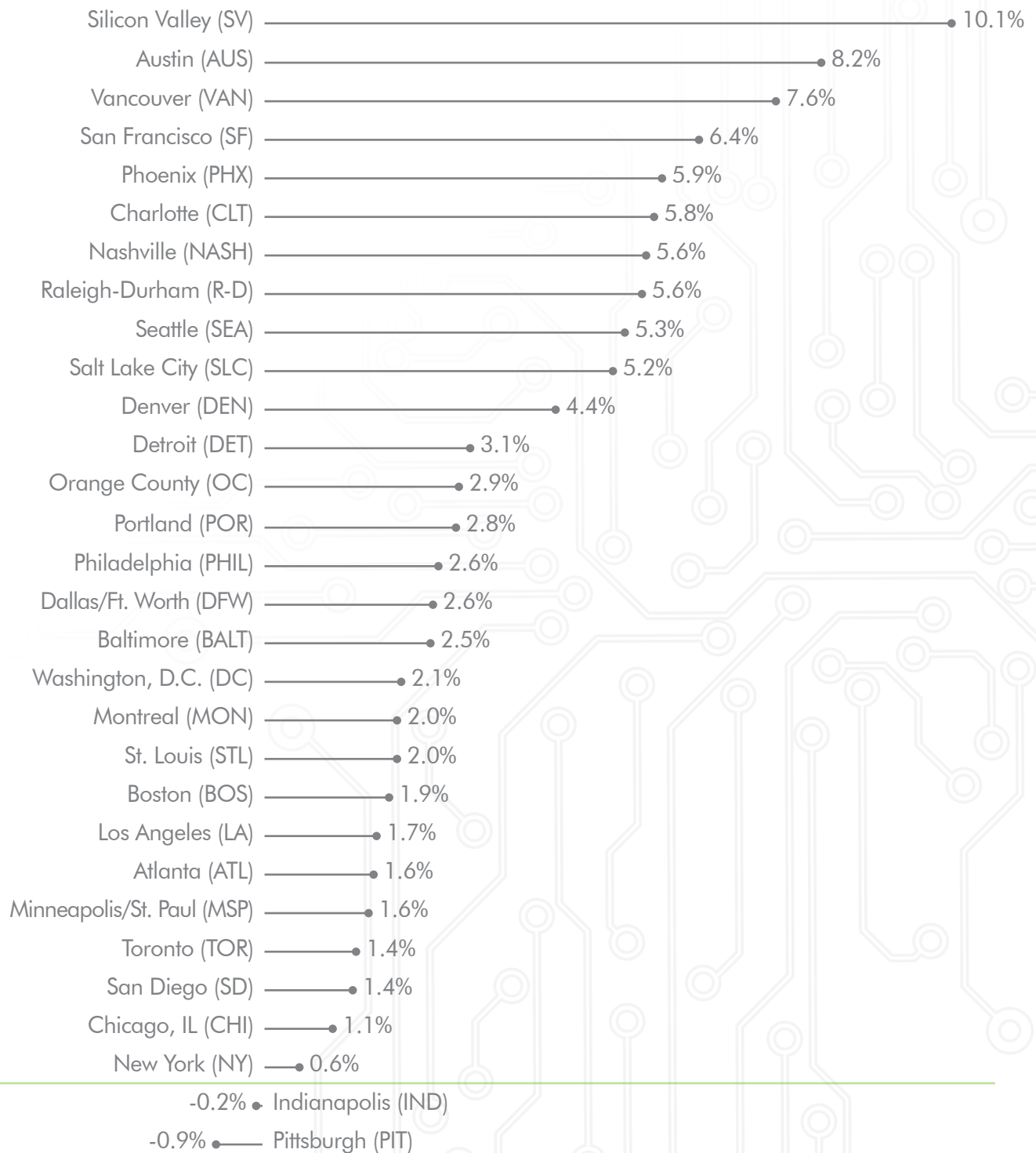
FIGURE 3.2
RENT GROWTH TOP TECH SUBMARKET Q2 2017 VS. Q2 2019



Source: CBRE Research, Q2 2019.

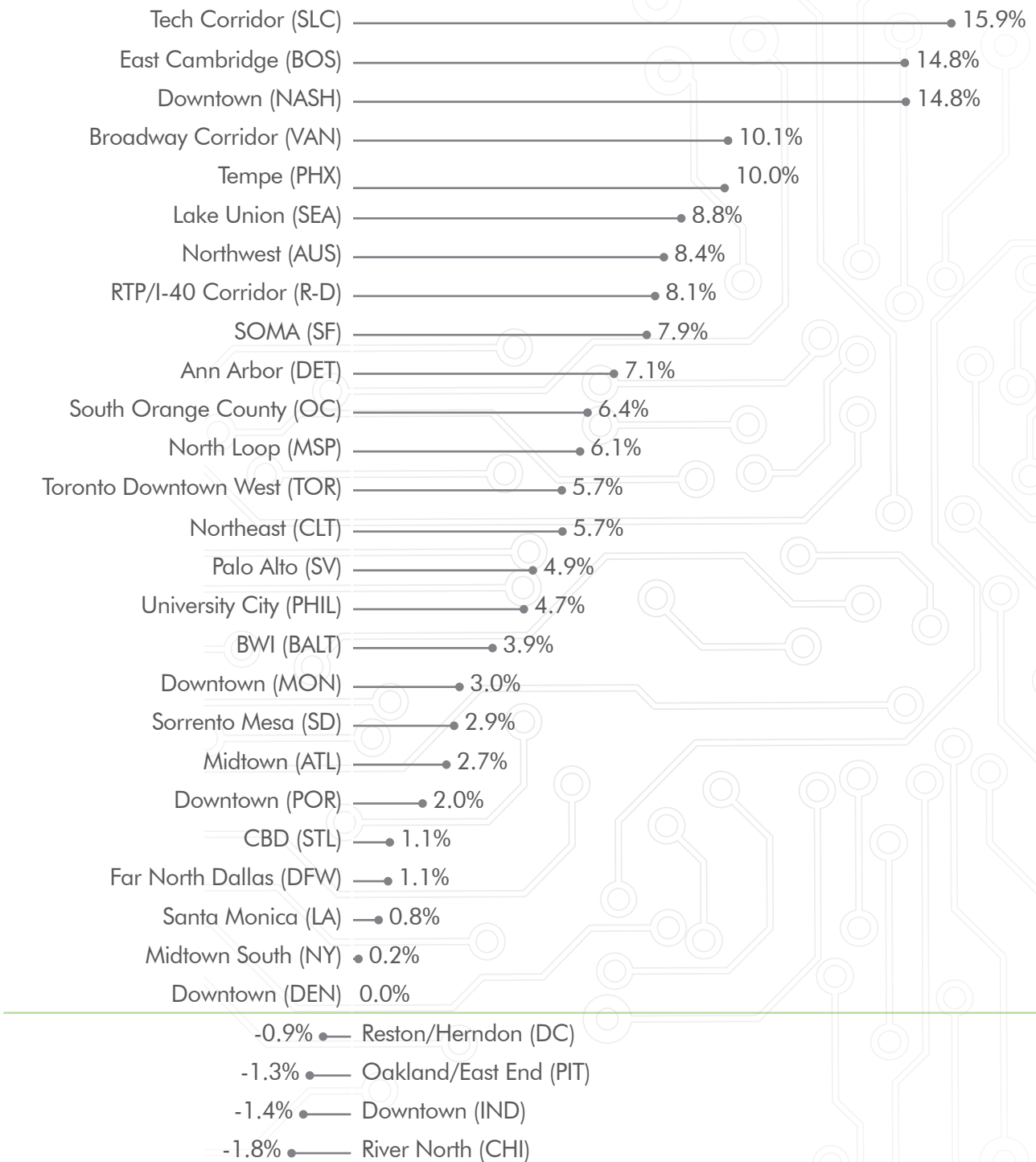
FIGURE 3.3

**NET ABSORPTION GROWTH OVERALL MARKET Q3 2017-Q2 2019
(% OF TOTAL BUILDING SUPPLY)**



Source: CBRE Research, Q2 2019.

FIGURE 3.4
NET ABSORPTION GROWTH TOP TECH SUBMARKET Q3 2017-Q2 2019
(% OF TOTAL BUILDING SUPPLY)



Source: CBRE Research, Q2 2019.



SPREADING MARKET STRENGTH

The Tech-30 Power Diagram (Figure 4) illustrates the strength of each market's high-tech software/services job growth rate and office market performance, providing insight into where potential value and growth likely will occur. Generally, above-average high-tech software/services job growth coincides with above-average office market performance. Silicon Valley, San Francisco and Seattle led in office market strength and high-tech job growth and, along with Austin and Vancouver, are the strongest in the Growth Leaders quadrant. Other Growth Leader markets are Boston, Portland, Raleigh-Durham, Atlanta and Denver.

Office market fundamentals have strengthened in many lower-cost and smaller markets, with Charlotte, Nashville and Phoenix leading the Emerging quadrant. Leaders in the High-Potential quadrant, in which tech companies are entering and boosting job growth, include Toronto, Washington, D.C., Salt Lake City and San Diego.

FIGURE 4
TECH-30 MARKET POWER DIAGRAM



Source: U.S. Bureau of Labor Statistics, July 2019, Statistics Canada, CBRE Research, Q2 2019.

Tech-30 Market Power Diagram measures the relative strength of the Tech-30 office markets on a scale of 0 to 100. High-tech software/services job strength includes high-tech software/services job growth over the past two years and their current concentration within office-using job categories. Office market strength includes rent and net absorption growth over the past two years. The quadrant lines represent the 30-market aggregate average for each strength measure.

FIGURE 5
TECH COMPANY EXPANSION INTO DIVERSIFIED U.S. MARKETS



Source: CBRE Research, includes lease transactions from Q1 2013 to Q2 2019.

TECH SUBMARKETS OUTPERFORM

Leading tech submarkets often outperform their overall office markets because tenants are willing to pay a premium in areas preferred by tech talent. Many of these submarkets have limited office availability and are near leading universities. The top tech submarkets with the lowest vacancy rates as of Q2 2019 were East Cambridge in Boston (1.0%), Broadway Corridor in Vancouver (2.6%) and Tempe in Phoenix (2.8%).

As the tech industry became more prominent in these submarkets, the office rent premium paid by tenants grew (Figure 6). Average rental rates for top tech submarkets have increased faster than their overall markets since 2011 and, as of Q2 2019, have a 14% premium. Some markets are significantly higher, such as East Cambridge (128%), Santa Monica (78%) and Palo Alto (71%). Several emerging tech submarkets have rent discounts, such as Northeast Charlotte (-21%), Reston/Herndon near Washington, D.C. (-14%) and Oakland/East End in Pittsburgh (-13%). Low vacancy in top tech submarkets often forces expanding companies into adjacent submarkets, creating larger tech clusters.

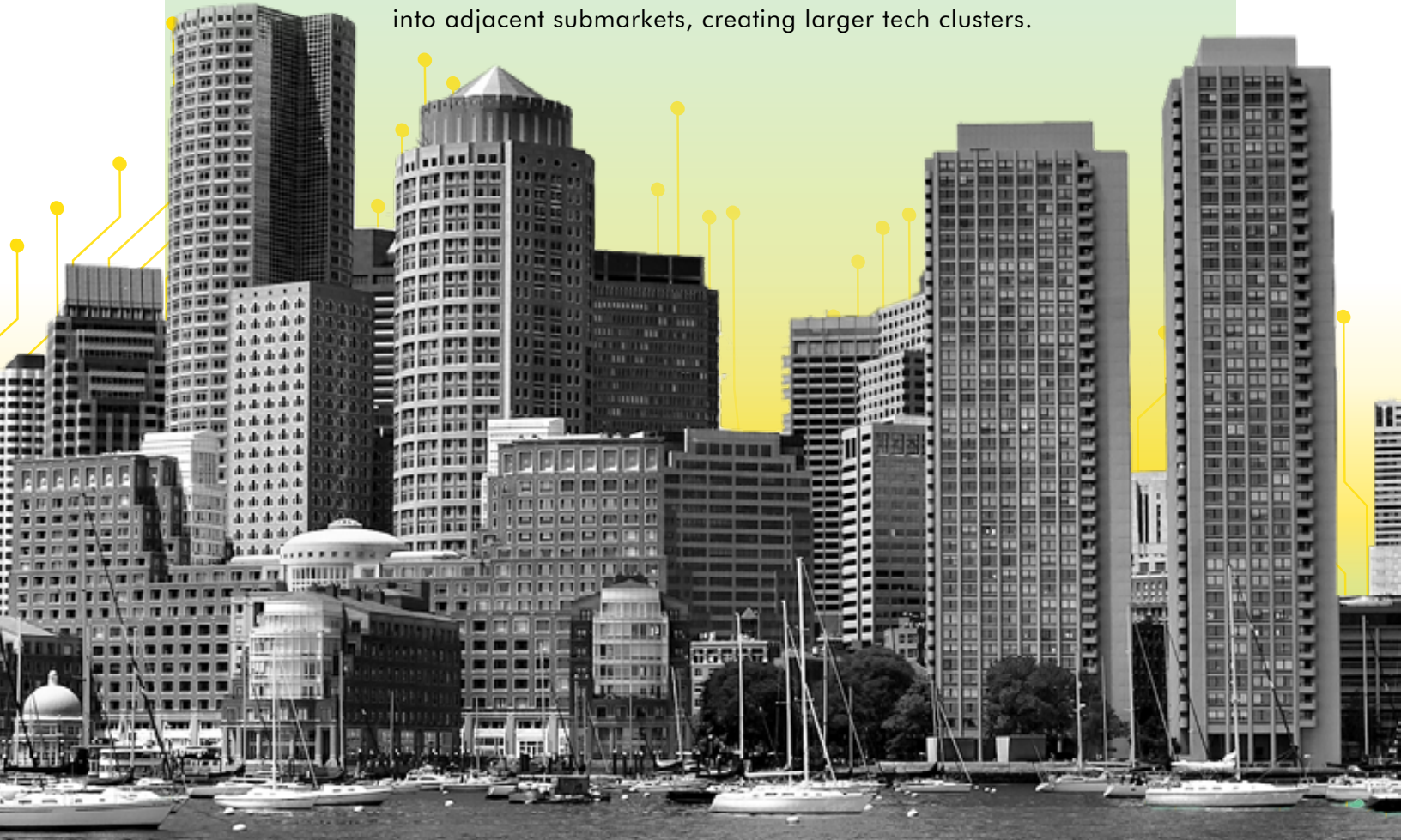
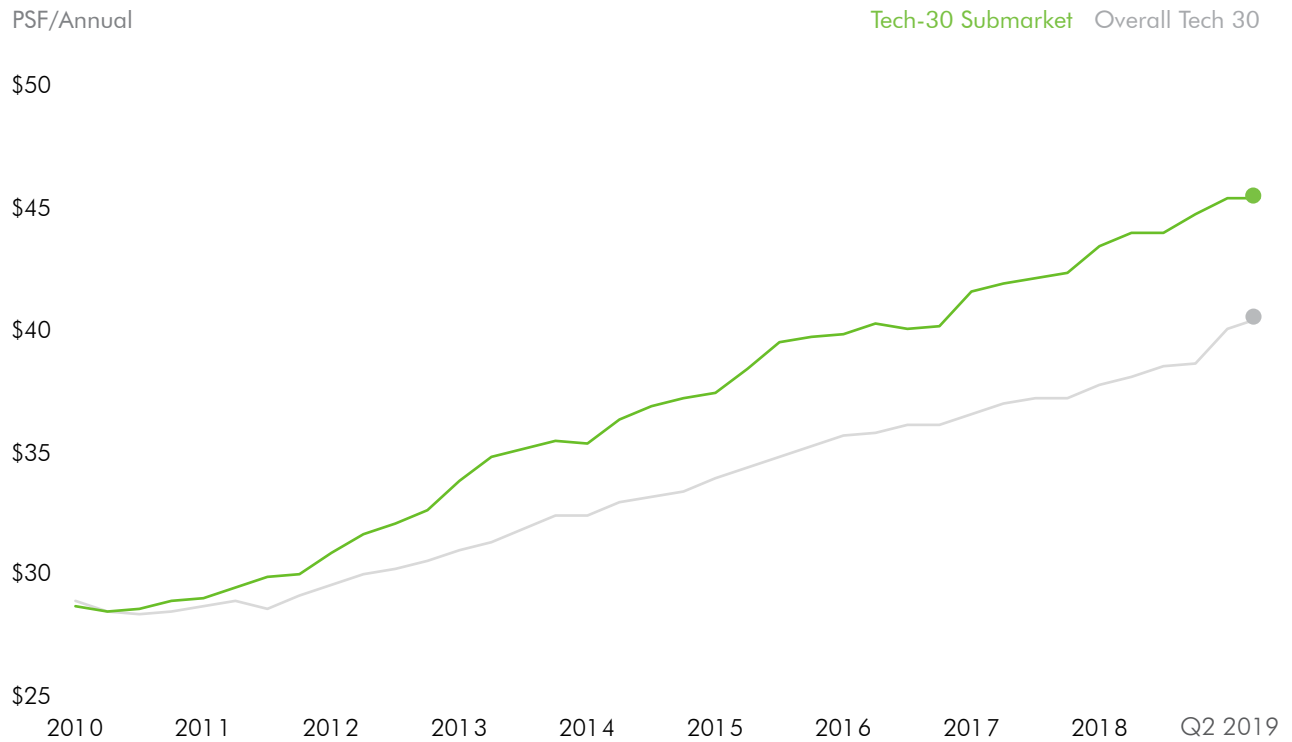


FIGURE 6
TECH-30 MARKETS AND SUBMARKETS AGGREGATE ANNUAL AVERAGE ASKING RENT



Source: CBRE Research, Q2 2019.

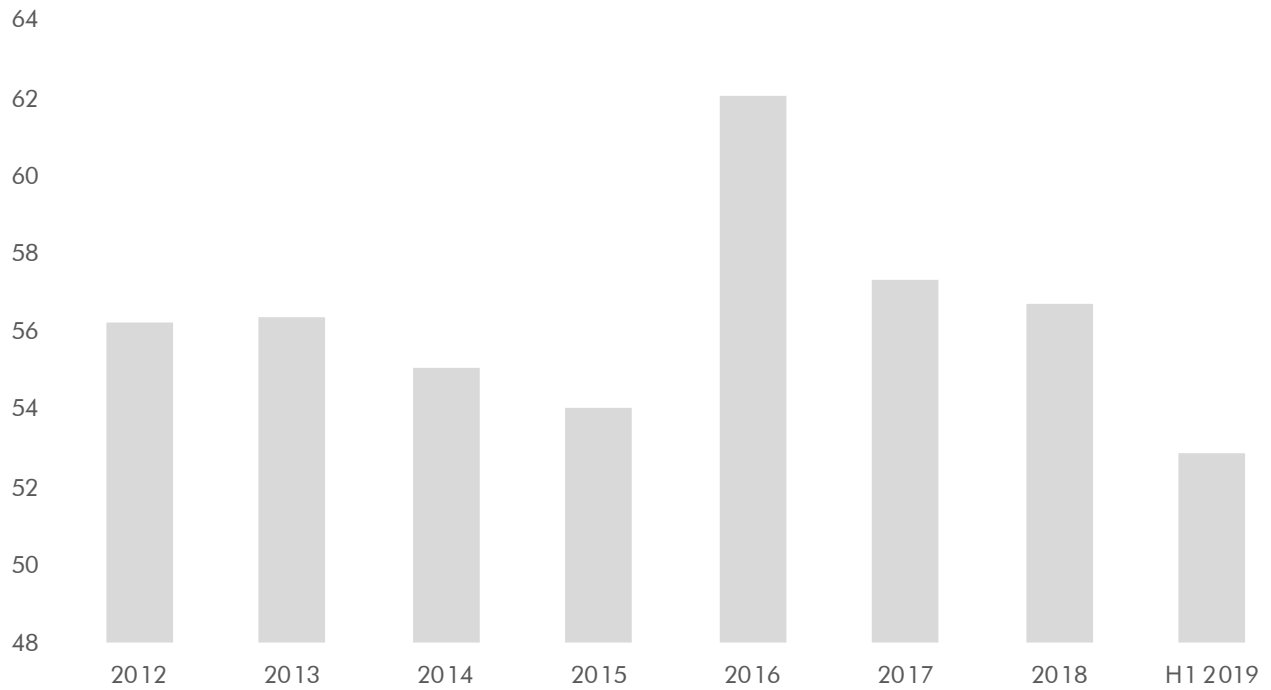


SUBLEASE SPACE MUTED

Office leasing by tech companies surged over the past six years, with tech's share of major leasing activity at 21% in 2019—nearly double that of early 2013. This growing share caused some concern that the tech industry might be over-leasing office space, just like the energy industry did in 2014 and the financial services industry in 2007. Although not currently a problem given the tech industry's strong growth trajectory, this is a trend that should be monitored. A large increase in sublease availability occurred across the Tech-30 markets during a period of financial market turmoil in 2016 but has decreased by 15% to 52.9 million sq. ft. as of Q2 2019 (Figure 7).

FIGURE 7
TECH-30 AGGREGATE AVAILABLE SUBLEASE OFFICE SPACE

MSF



Source: CBRE Research, H1 2019.



MARKET CYCLE POSITIONING

Office market cycle phases influence investment and occupancy decisions. Markets generally move across four cyclical phases at varying degrees, with some remaining in one cyclical phase for an extended period. In aggregate, the Tech-30 moved to the maturation phase of the office market cycle in 2018 (Figure 8). Twenty-six markets were in the maturation/stable phase and four were in the expansion phase.

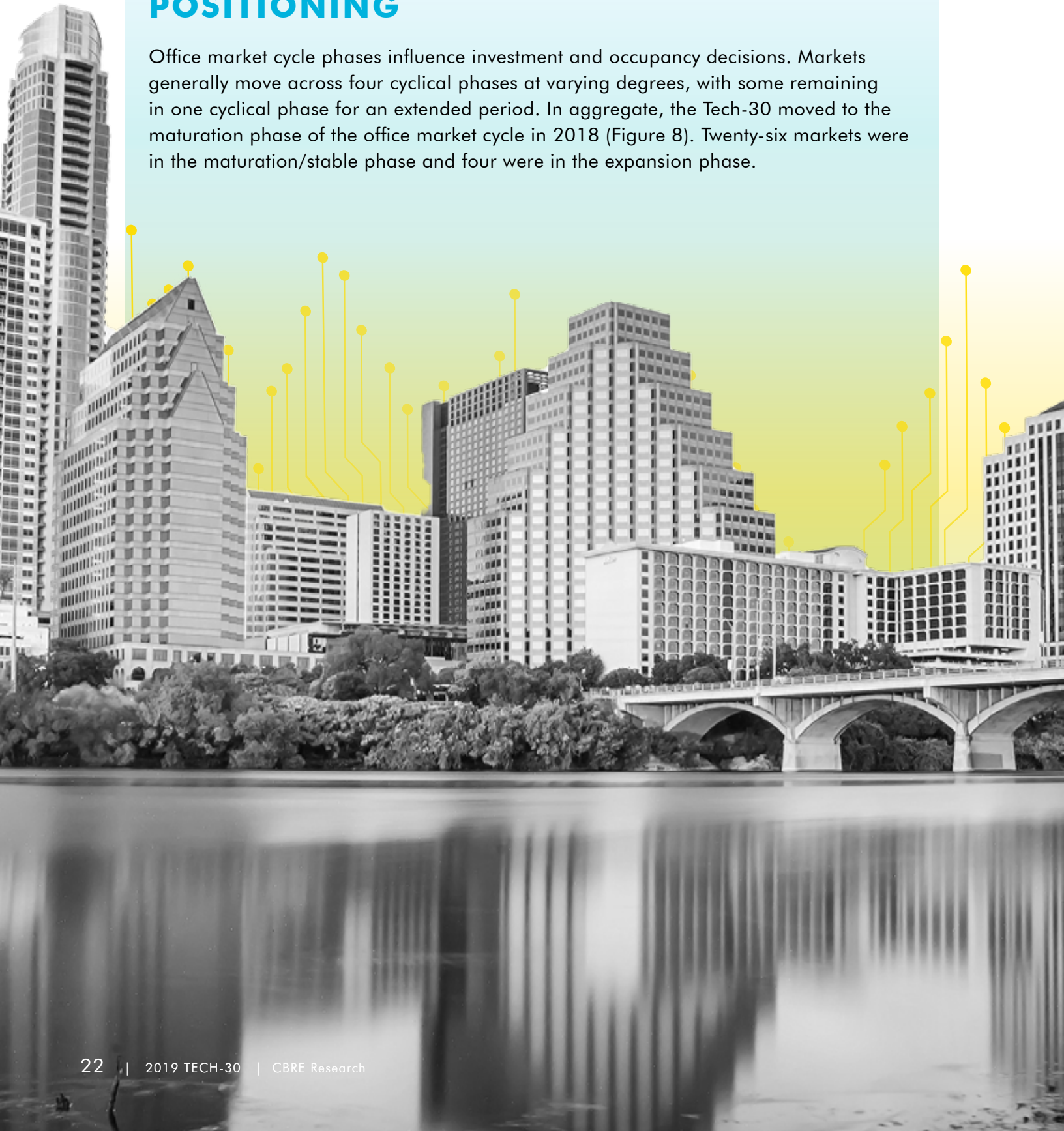
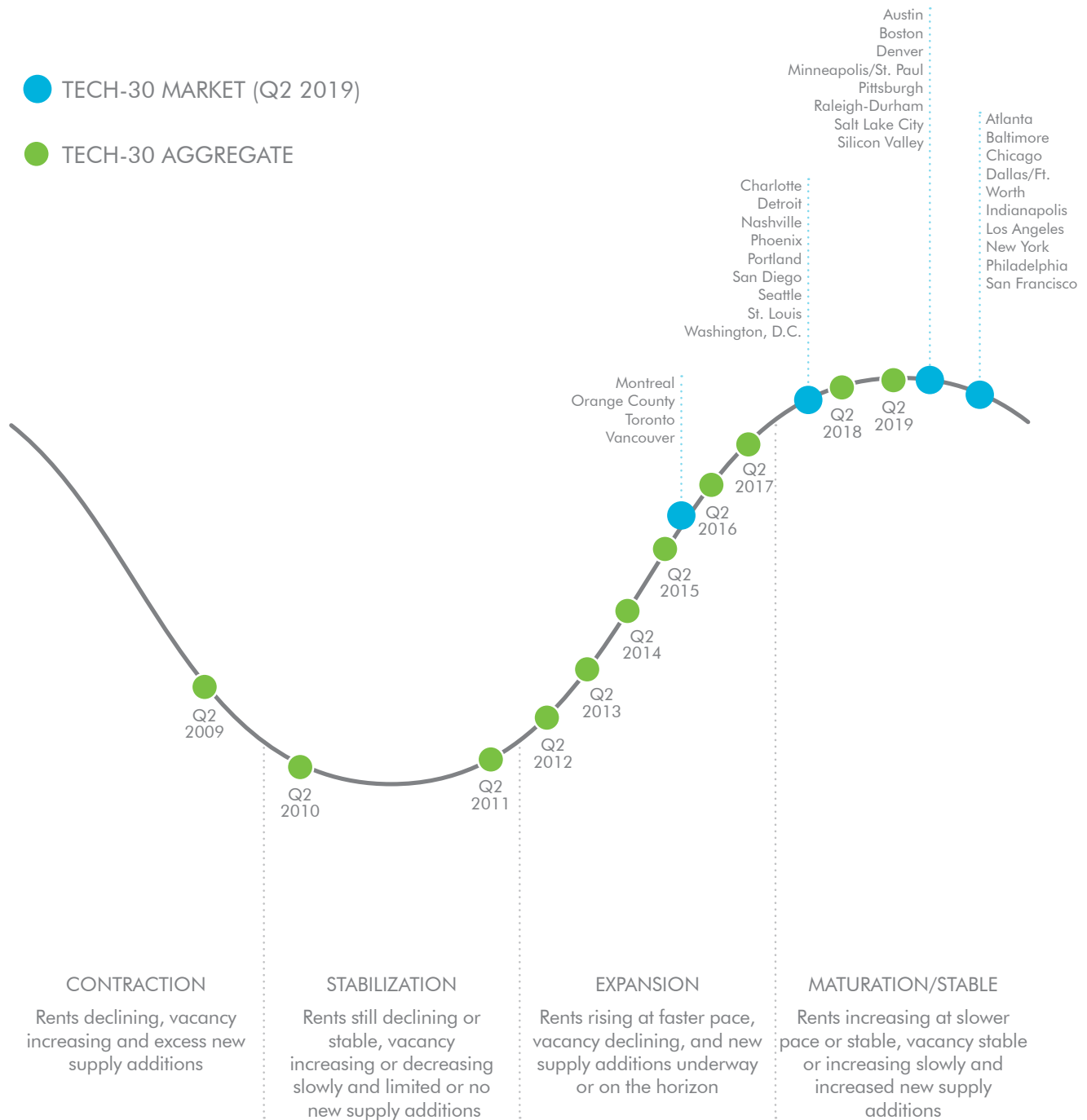


FIGURE 8
TECH-30 OFFICE MARKET CYCLE



Source: CBRE Research, Q2 2019.

HIGH-TECH INDUSTRY OUTLOOK

Business and economic indicators suggest a favorable outlook for the high-tech industry, despite predictions of slower overall economic growth in the next 18 months. The high-tech industry's resilience and its integration into other industries to fuel growth and productivity have led to its outperforming the overall economy.

According to the U.S. Bureau of Economic Analysis, the digital economy grew on average more than four times faster than total gross domestic product (GDP) between 1998 and 2017 (9.9% vs. 2.3%). Over this period, real value added from the digital economy outpaced overall economic growth each year and mitigated the downturn during the 2008-2009 recession. In 2017, the digital economy accounted for 6.9% of the economy and contributed an outsized one-quarter of the total 2.2% U.S. GDP growth.

Given the high-tech industry's impact on the U.S. economy and real estate demand, keeping track of and understanding the industry's most reliable indicators is important. CBRE finds that the San Francisco Federal Reserve's Tech Pulse Index, financial market trends, and consumer and business demand for IT products and services are the most informative indicators for the high-tech industry.

***“THE HIGH-TECH INDUSTRY’S RESILIENCE AND ITS
INTEGRATION INTO OTHER INDUSTRIES TO FUEL
GROWTH AND PRODUCTIVITY HAVE LED TO ITS
OUTPERFORMING THE OVERALL ECONOMY. ”***



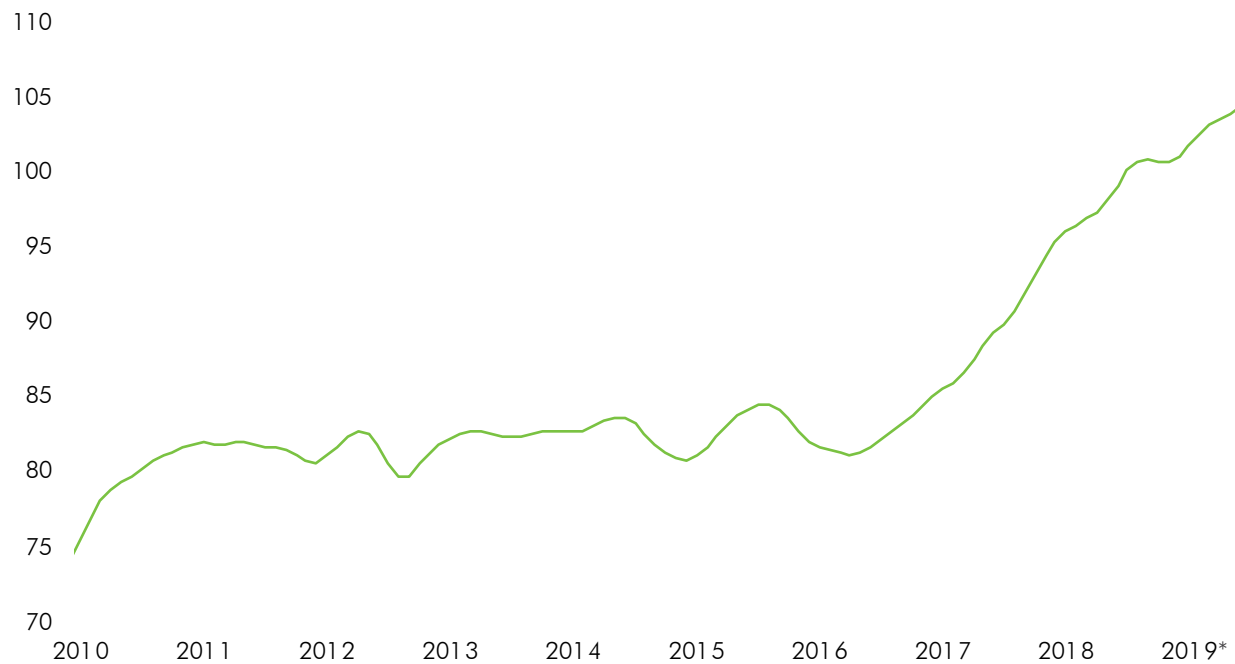


MARKET WATCH

The Tech Pulse Index indicates a strong national economy that should support tech industry expansion (Figure 9). The index, which measures the U.S. IT sector's health, has been steadily rising since 2016 and indicates strong support for tech company expansion. The annualized rate of growth, while moderating in recent years, was 5.9% through July 2019 and well above national economic growth. Continued tech industry growth should generate additional jobs and bolster the real estate footprint of high-tech companies and high-tech office market clusters across North America.

FIGURE 9 U.S. TECH PULSE

Index: Jan 2000 = 100



*As of July 2019.

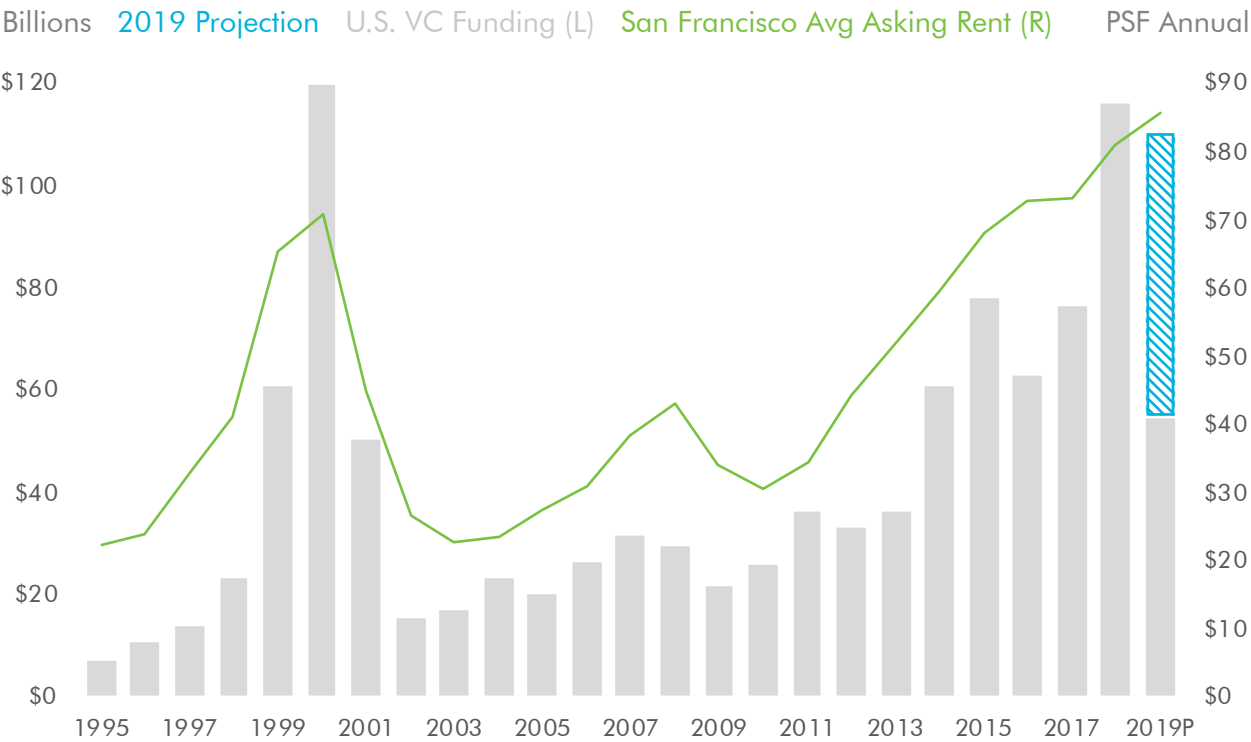
Source: U.S. Federal Reserve Board, July 2019.

Note: The Tech Pulse Index is an index of coincident indicators of activity in the U.S. information technology sector. It can be interpreted as a summary statistic that tracks the health of the tech sector in a timely manner. The indicators used to compute the index are investment in IT goods, consumption of personal computers and software, employment in the IT sector, as well as industrial production of and shipments by the technology sector.



Capital to fuel high-tech industry growth has historically foretold future growth prospects. At the early stages of tech company growth, venture capital funding is the key indicator of business formation. Thus, the availability and flow of venture capital fuels business and employment growth for private tech companies. Capital flowing into venture funds has been very high in recent years, especially with the emergence of mega funds such as Softbank Vision Fund, which focuses on large amounts of funding to the most promising companies. According to PriceWaterhouseCoopers and CB Insights, VC funding in the U.S. has been increasing since 2010, reaching \$116 billion in 2018 and only \$4 billion short of the all-time high in 2000 (Figure 10).

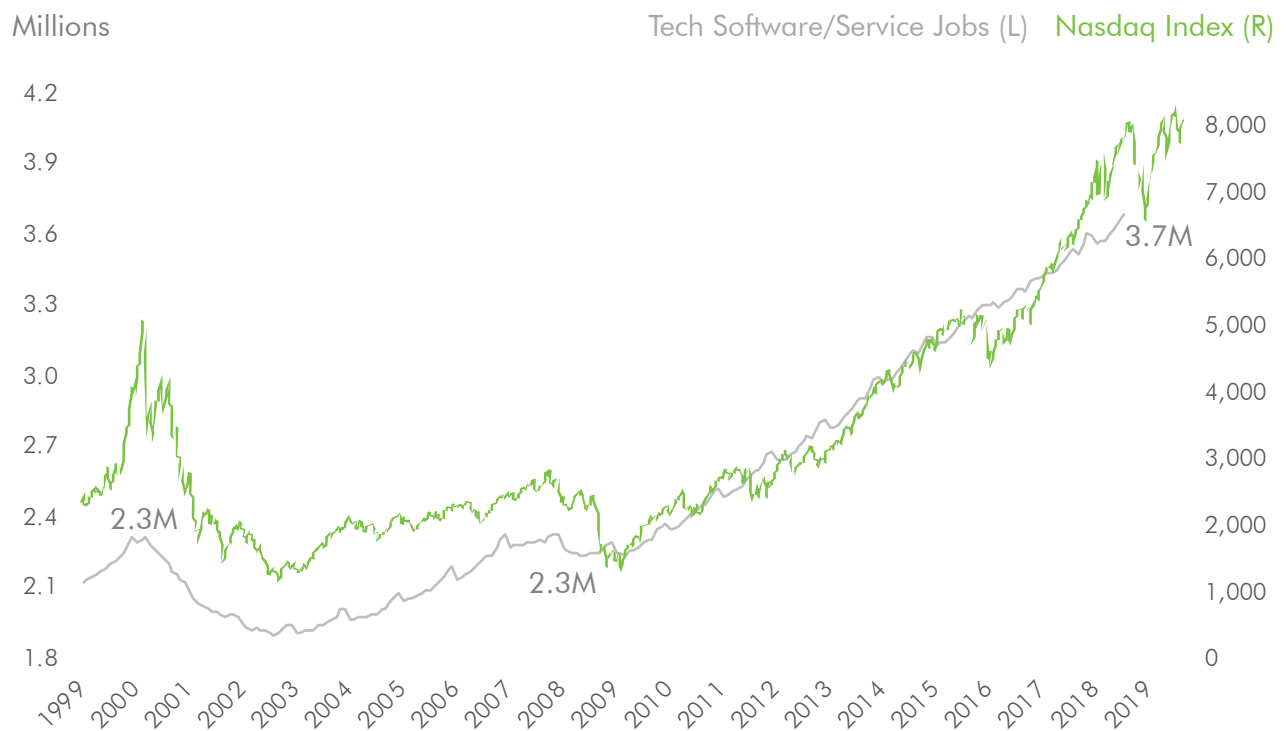
FIGURE 10
U.S. VENTURE CAPITAL VS. SAN FRANCISCO OFFICE AVERAGE ASKING RENT



Source: PwC/CB Insights MoneyTree and CBRE Research, Q2 2019.

Growth prospects for publicly traded tech companies typically are associated with their stock value. Because most tech companies are listed on the Nasdaq stock exchange, the Nasdaq Index has become a reliable indicator of business and employment activity. Analysis of high-tech employment patterns suggests that the Nasdaq Index acts as a 12-month leading indicator of employment levels at a robust 90% correlation (Figure 11). The recent volatility in the Nasdaq has not established clear or sustained upward or downward movement, although index levels above 8,000 indicate that high-tech employment growth will continue into 2020 and that high tech will remain a leading industry for real estate demand generation.

FIGURE 11
NASDAQ VS. TECH EMPLOYMENT



Source: U.S. Bureau of Labor Statistics, NSADAQ, CBRE Research Q2 2019.

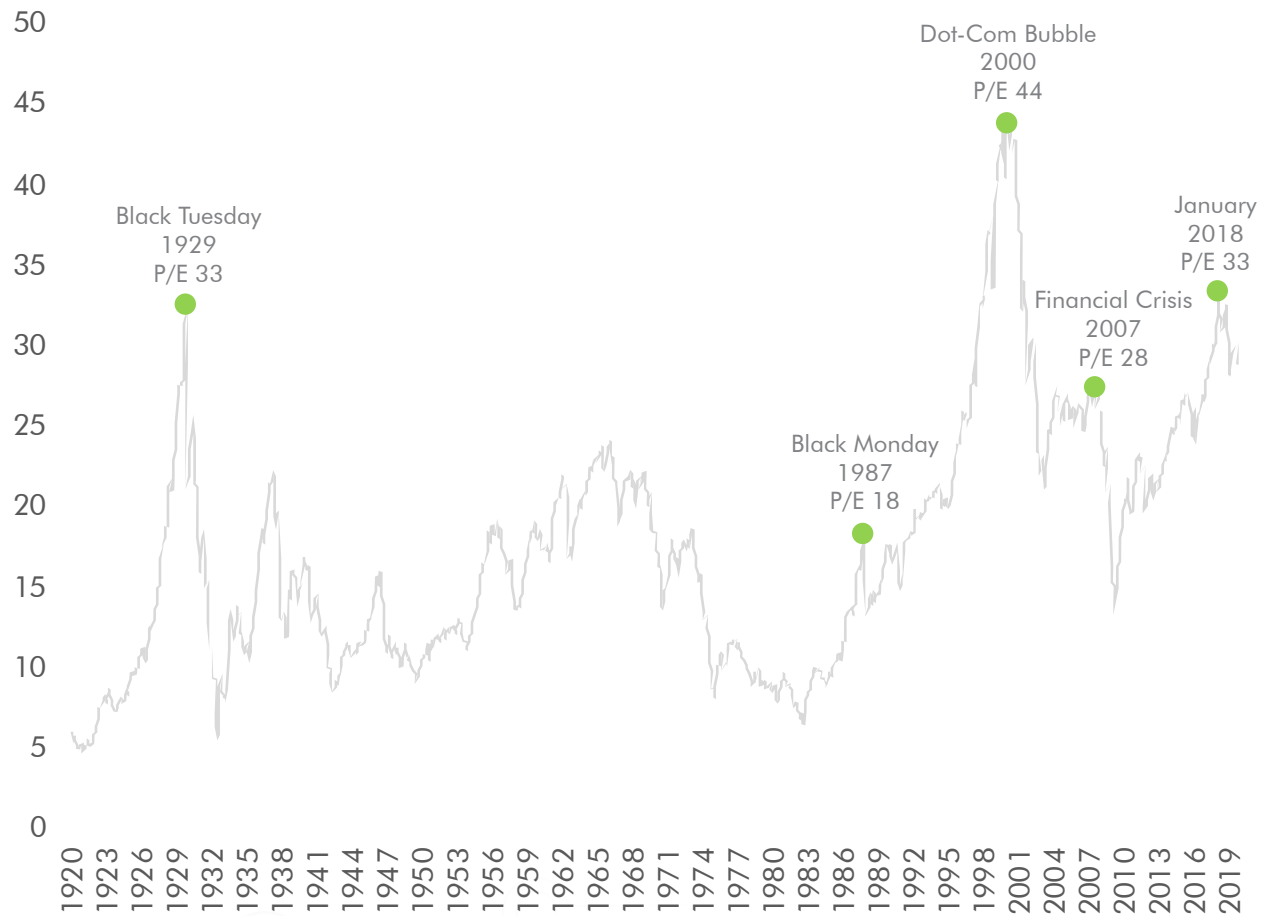


The longest bull market in history, now about 10 years old, has many analysts wondering how much longer it can last and if the stock market is overvalued. The Shiller S&P 500 Cyclically Adjusted Price-to-Earnings (CAPE) Ratio measures the broader equity market and is an important metric for gauging the economy's overall health and the financing environment. Historically, an above-average ratio has preceded significant financial market corrections. The current CAPE ratio exceeds the long-term average and has surpassed the level preceding the 2008 financial crisis. However, it recently declined and is at about two-thirds of the dot-com peak level. In addition, the Nasdaq is more than 60% above the dot-com peak, with gains driven by a small number of large tech companies. Strong earnings by major tech companies are driving increased valuations. These companies are major consumers of office space, which suggests the office market is on stronger footing than in previous cycles.

CBRE's overall U.S. economic outlook is for continued growth at a slower pace through 2021. The high-tech industry's above-average job growth over the past decade, coupled with the large rise in tech company valuations, has increased concern over the industry's prospects for sustained growth. Valuations aside, the shortage of tech labor likely will constrain growth that depends on new hiring.

While a stock-market correction is likely at some point, the resilient high-tech industry's integration into the general economy should insulate it from severe downside risks. Economic and productivity gains depend on the high-tech industry and support an optimistic outlook for real estate markets closely linked to the high-tech industry. Nevertheless, real estate investors should manage their risk and exposure to the most volatile and less financially stable sectors of the high-tech industry. Tech-30 office markets should expand further in the near term, albeit at a slower pace, and investors and occupiers should be mindful of how a cyclical downturn may impact real estate decisions.

FIGURE 12
SHILLER S&P 500 CYCLICALLY ADJUSTED PRICE-TO-EARNINGS RATIO
(CAPE RATIO)

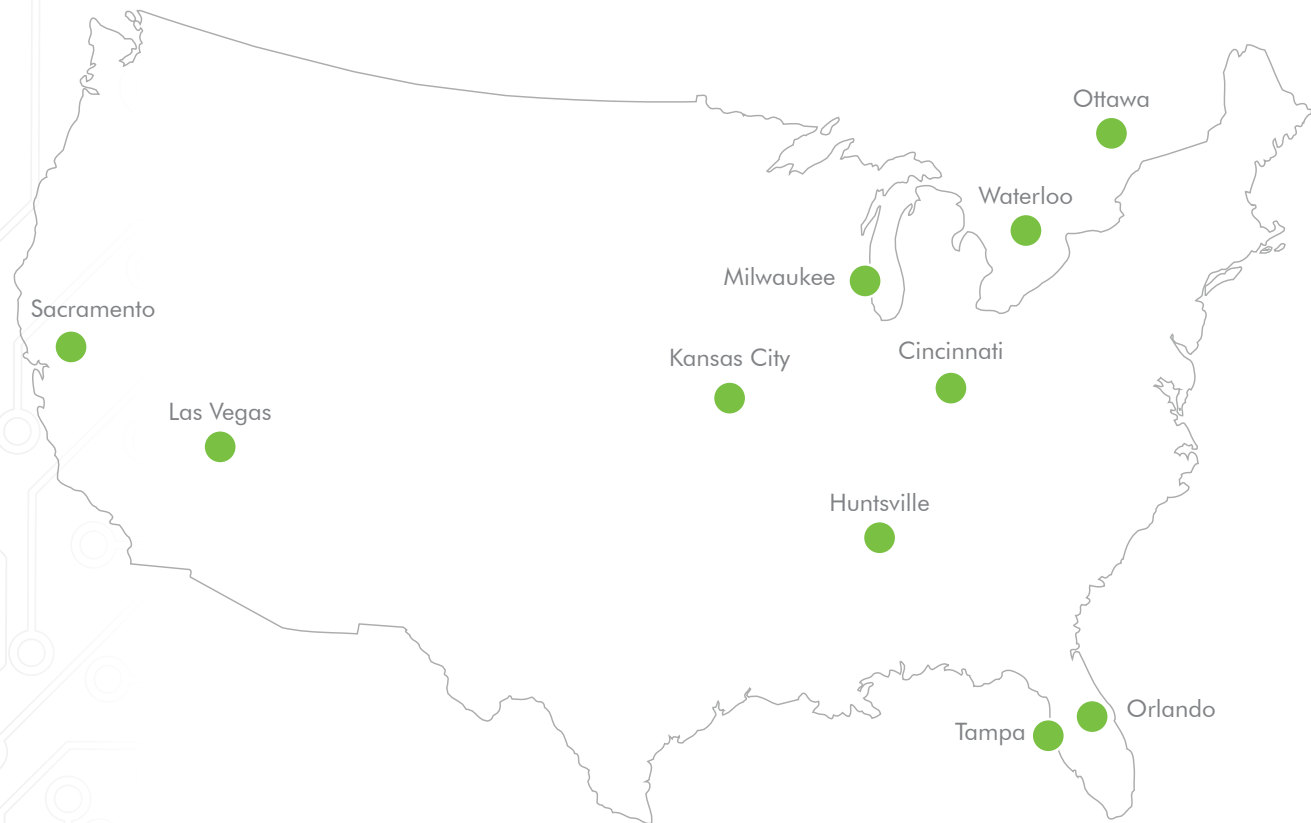


Source: Shiller PE Ratio, September 2019.

WHERE IS THE TECH INDUSTRY HEADED?

CBRE forecasts high-tech job growth above the national average in the year ahead, but slower than in years past due to tight labor market conditions. Increased technology investment by businesses to boost productivity and by consumers with rising wages should keep the high-tech industry healthy through 2021. Commercial real estate investors should benefit from these trends and a more stable tech industry that has a much wider economic base compared with previous economic cycles. However, the potential for increased high-tech industry regulation, competition and trade disputes could lead to a less optimistic outlook.

FIGURE 13
THE NEXT 10 TECH MARKETS TO WATCH



Market	High-Tech Services Employment	High-Tech Employment Clustering*	Avg Asking Office Rent (Q2 2019)	Market	High-Tech Services Employment	High-Tech Employment Clustering*	Avg Asking Office Rent (Q2 2019)
Ottawa**	33,600	24.7%	\$32.87	Tampa	30,824	8.8%	\$23.20
Waterloo**	14,000	23.3%	\$22.38	Orlando	26,747	8.8%	\$23.78
Huntsville	10,389	16.9%	N/A	Sacramento	13,673	6.8%	\$23.76
Kansas City	35,954	13.2%	\$20.15	Milwaukee	11,706	6.3%	\$18.93
Cincinnati	21,853	12.7%	\$19.32	Las Vegas	12,315	6.0%	\$25.92

*High-Tech Services employment as a % of office-using employment.

** Waterloo and Ottawa rents represented in C\$.

Source: U.S. Bureau of Labor Statics, Statistics Canada, CBRE Research, Q2 2019.

APPENDIX: TECH-30 MARKET PROFILES



QUICK STATS



**MAJOR OFFICE LEASE
TRANSACTIONS**



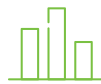
HOT TOPICS



MARKET RANKINGS



TECH EMPLOYMENT



CHARTS

EMPLOYMENT CATEGORIES



Bio-Tech includes scientific research and development services, medical equipment and supplies, pharmaceuticals and medicines, and medical and diagnostic laboratories.



Design Services includes architectural and engineering services, and specialized design services.



High-Tech Manufacturing includes computer and electronic products, electrical equipment, and other electrical equipment and components.



Media-Entertainment includes motion picture and video production, and advertising and related services.



High-Tech Services includes computer systems design and related services, software publishing, data processing, hosting and related services, electronic shopping and electronic auctions, and internet publishing and broadcasting and web search portals.



Office-Using Jobs includes professional and business services, financial activities and information.



Telecom includes telecommunications.

Data sources used in this report include industry employment data from the U.S. Bureau of Labor Statistics, Statistics Canada, the PriceWaterhouseCoopers/National Venture Capital Association Moneytree Report, the Shiller S&P 500 Cyclically Adjusted PE Ratio (CAPE Ratio), Consumer Electronics Association, and CBRE Research.

VANCOUVER (#1)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	CS43.37
Direct FS/YR	
Vacancy Rate	4.2%
Supply	
Under Construction	5.1 MSF
Sublease Available	0.4 MSF
Top Tech Submarket	Broadway Corridor
Rents/Vacancy	CS46.63/2.6%

HIGH-TECH INDUSTRY STATS, 2018

Employment	59,700
High-Tech Software/Services	
Employment Clustering	17.7%
% of Office-Using Jobs	
Educational Attainment	34.8%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	CS84,261
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Apple	400 W Georgia St	44,600 SF
Slack	550 Burrard St	34,100 SF
Canada Drives	1500 West Georgia St	22,700 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Technology tenants are fueling demand in the downtown core and Broadway Corridor, with these two submarkets boasting the lowest vacancy rates across Metro Vancouver.
- Preleasing of new construction downtown has been dominated by a handful of U.S. West Coast tech giants.
- Along the Broadway Corridor, neighborhoods such as Mount Pleasant and False Creek Flats have evolved from industrial service submarkets to hubs for tech, animation and creative industry firms.

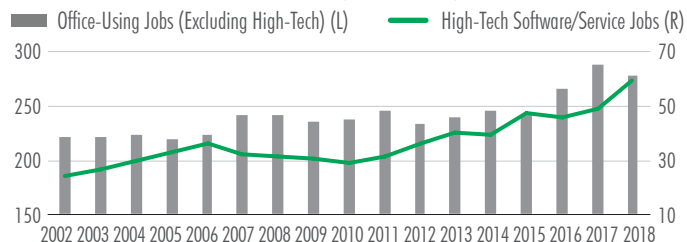
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

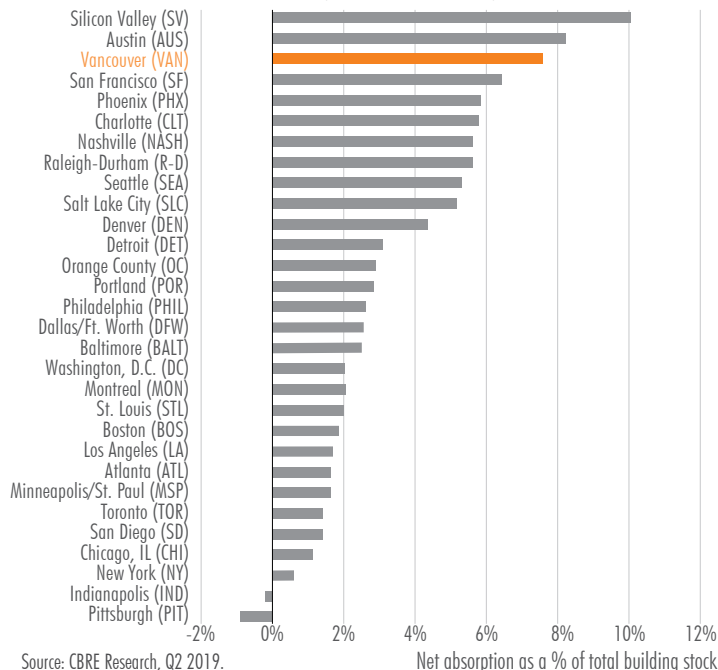
Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



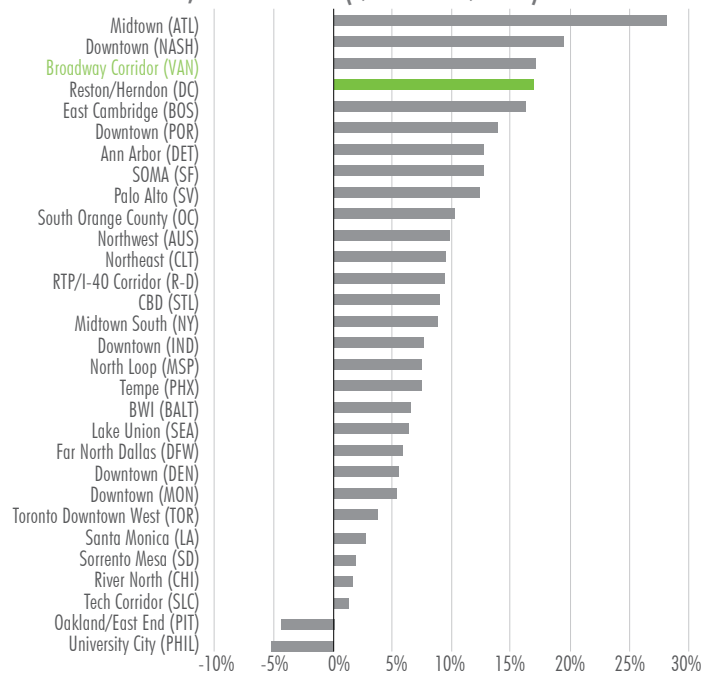
Source: CBRE Research, Q2 2019 and Statistics Canada, July 2019.

NET ABSORPTION GROWTH OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

SAN FRANCISCO (#2)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$85.64
Direct FS/YR	
Vacancy Rate	3.6%
Supply	
Under Construction	5.1 MSF
Sublease Available	1.7 MSF
Top Tech Submarket	SOMA
Rents/Vacancy	\$82.50/3.0%

HIGH-TECH INDUSTRY STATS, 2018

Employment	100,644
High-Tech Software/Services	
Employment Clustering	33.1%
% of Office-Using Jobs	
Educational Attainment	55.1%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$136,212
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Pinterest	88 Bluxome St	490,000 SF
Asana	633 Folsom St	266,000 SF
Slack	45 Fremont St	205,600 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- The Bay Area attracted \$26 billion of venture capital funding in H1 2019, accounting for nearly half of all such funding nationwide.
- Tech tenants signed eight of the 11 leasing deals of more than 100,000 sq. ft. in H1, accounting for 59% or 2.9 million sq. ft. of all leasing during the half.
- Insatiable tech demand has pushed the San Francisco vacancy rate down to 3.6%, the lowest overall office vacancy rate in North America.

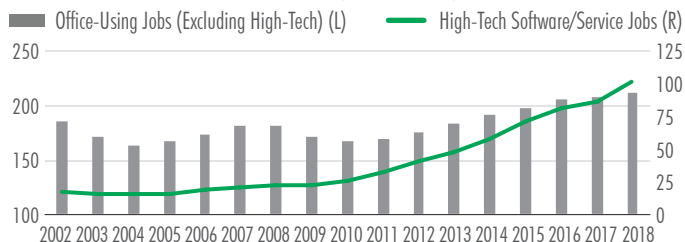
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

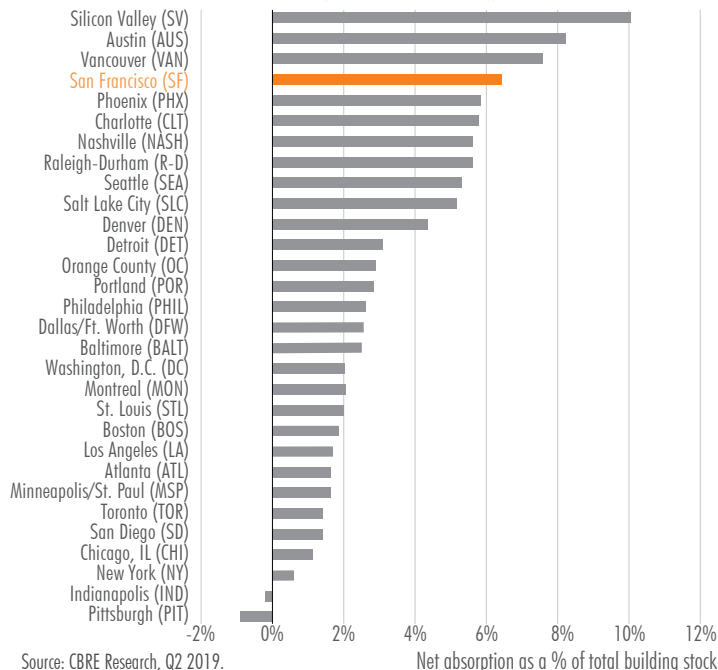
HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH

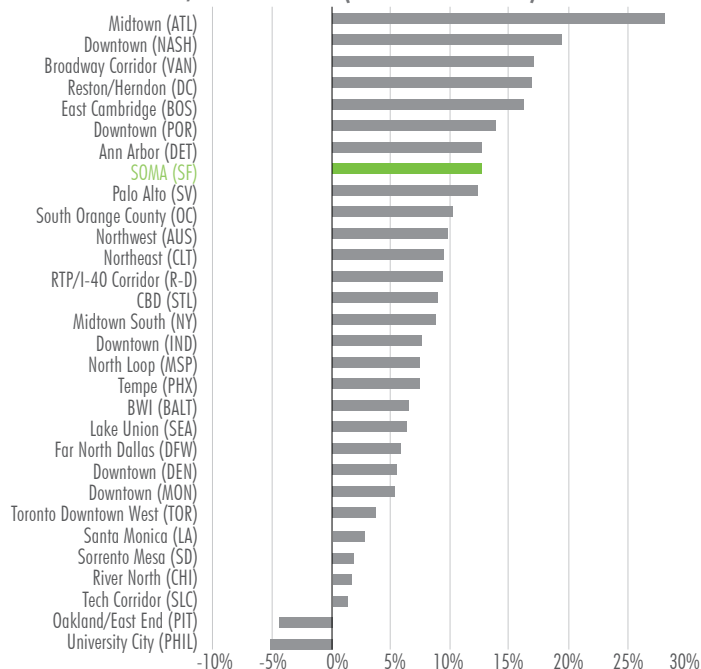
OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH

TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

TORONTO (#3)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	C\$36.39
Direct FS/YR	
Vacancy Rate	7.3%
Supply	
Under Construction	9.2 MSF
Sublease Available	1.5 MSF
Top Tech Submarket	Toronto Downtown West
Rents/Vacancy	C\$42.11/2.9%

HIGH-TECH INDUSTRY STATS, 2018

Employment	156,500
High-Tech Software/Services	
Employment Clustering	17.0%
% of Office-Using Jobs	
Educational Attainment	36.7%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	C\$82,805
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Microsoft	1050 Meadowvale Blvd	160,700 SF
Finastra	5995 Avebury Rd	81,700 SF
Achievers	99 Atlantic Ave	60,000 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Toronto has a vibrant tech ecosystem thanks to several incubators and world-class educational facilities that foster growth and create talent.
- Boasting the most active venture capital market in Canada, Toronto-based tech companies raised C\$1.5 billion in seed, early-stage and later-stage funding in 2018.
- University of Toronto received a \$100-million grant from the Gerald Schwartz and Heather Reisman Foundation towards a 750,000 sq. ft. research facility on artificial intelligence, biomedicine and disruption.
- One of largest tech markets in North America, Toronto is the headquarters for some of top tech companies in the world. Firms are drawn to Toronto due to its positive business environment, affordable labor costs, supportive immigration policies and ample research funding.

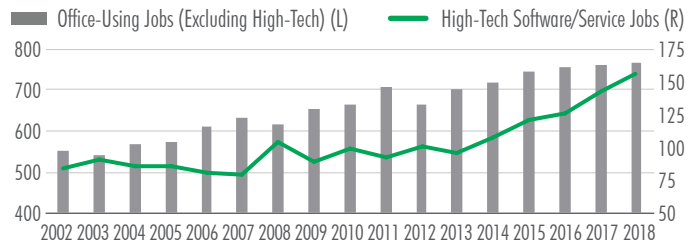
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

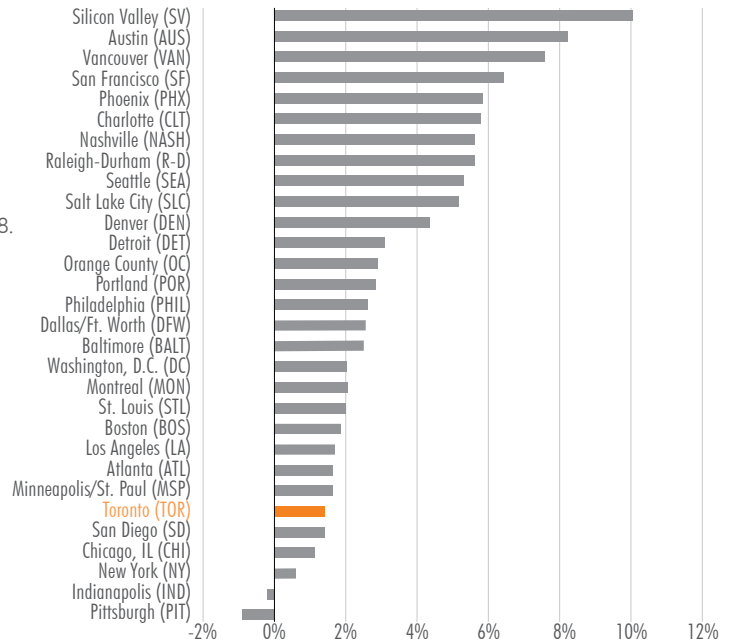
HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



Source: CBRE Research, Q2 2019 and Statistics Canada, July 2019.

NET ABSORPTION GROWTH

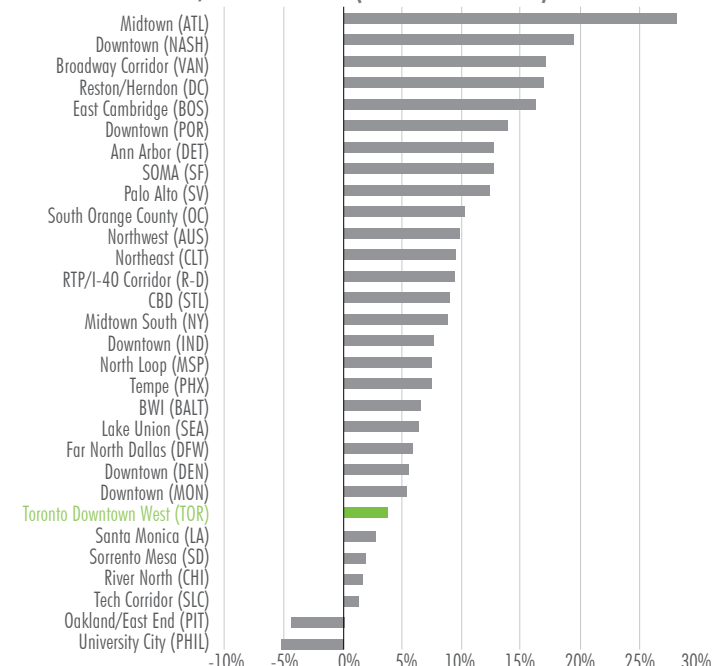
OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH

TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

SEATTLE (#4)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent Direct FS/YR	\$36.53
Vacancy Rate	9.7%
Supply	
Under Construction	5.5 MSF
Sublease Available	2.5 MSF
Top Tech Submarket	Lake Union
Rents/Vacancy	\$41.44/3.2%

HIGH-TECH INDUSTRY STATS, 2018

Employment	180,428
High-Tech Software/Services	
Employment Clustering % of Office-Using Jobs	44.1%
Educational Attainment	46.4%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$128,879
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Amazon	110 106th Ave NE	715,000 SF
Apple	333 Dexter Ave N	635,000 SF
Facebook	1229 124th Ave NE	160,700 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Major technology companies have leased nearly 2.8 million sq. ft. in the in the past year, accounting for 45% of all leasing activity in the Puget Sound market.
- In the region's core submarkets, limited new development has pushed vacancy to 8.4% in Seattle's CBD, 3.2% in Lake Union and 4.8% in Bellevue's CBD.
- The Bellevue CBD and Bel-Red Corridor are attracting Bay Area technology companies because of a new light-rail line that will open in 2023 and connect to Redmond in 2024.

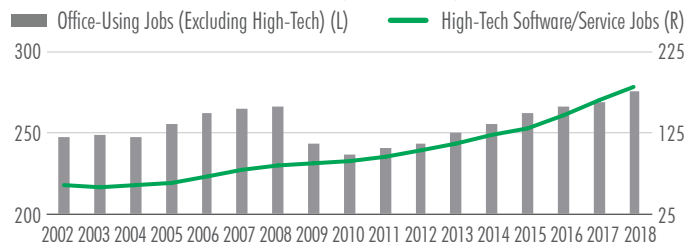
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

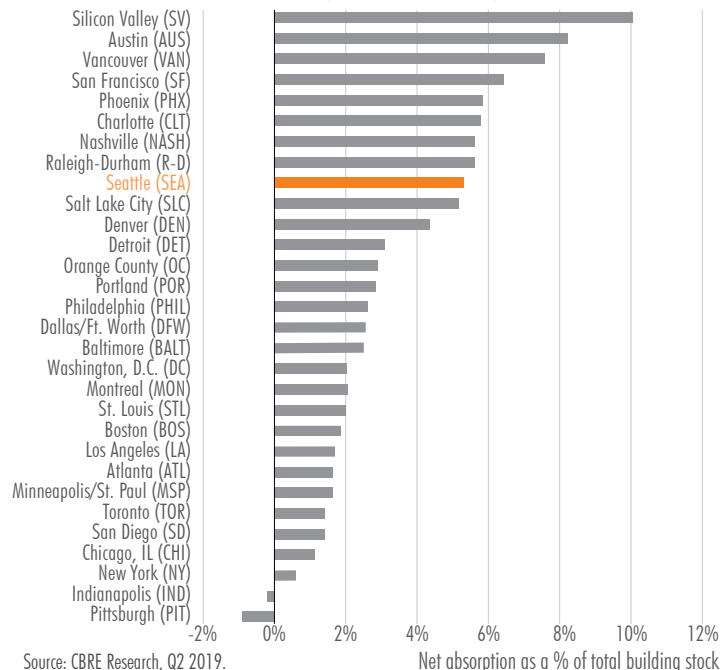
HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH

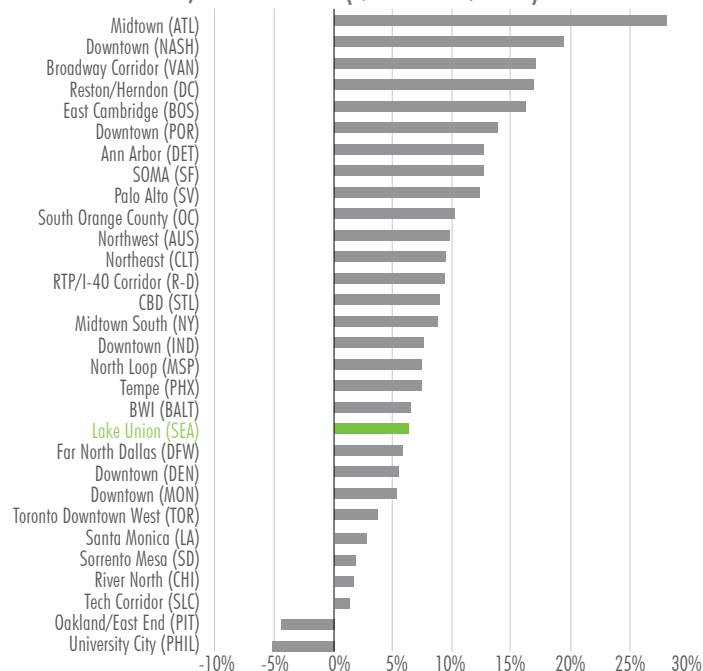
OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH

TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

AUSTIN (#5)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$37.79
Direct FS/YR	
Vacancy Rate	9.0%
Supply	
Under Construction	5.6 MSF
Sublease Available	2.0 MSF
Top Tech Submarket	Northwest
Rents/Vacancy	\$37.84/9.3%

HIGH-TECH INDUSTRY STATS, 2018

Employment	57,237
High-Tech Software/Services	
Employment Clustering	21.7%
% of Office-Using Jobs	
Educational Attainment	44.8%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$104,642
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Google	901 E 5th St	790,000 SF
Google	601 W 2nd St	723,000 SF
Indeed	2900 Esperanza Crossing	183,900 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- West Coast tech firms continue to expand in Austin because of its favorable business costs and high-quality talent.
- Commute time and associated costs are an increasing concern for downtown occupiers, which has brought attention to alternative mixed-use submarkets outside the downtown core.
- Landlords and developers are providing a larger array of building amenities to attract and retain tech tenants.

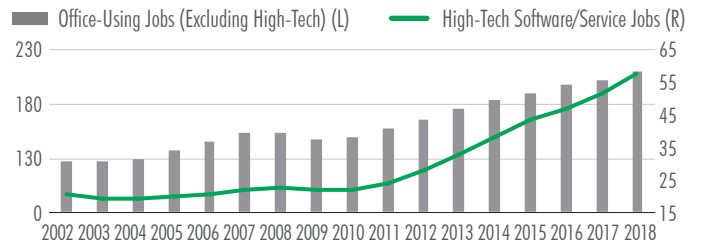
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

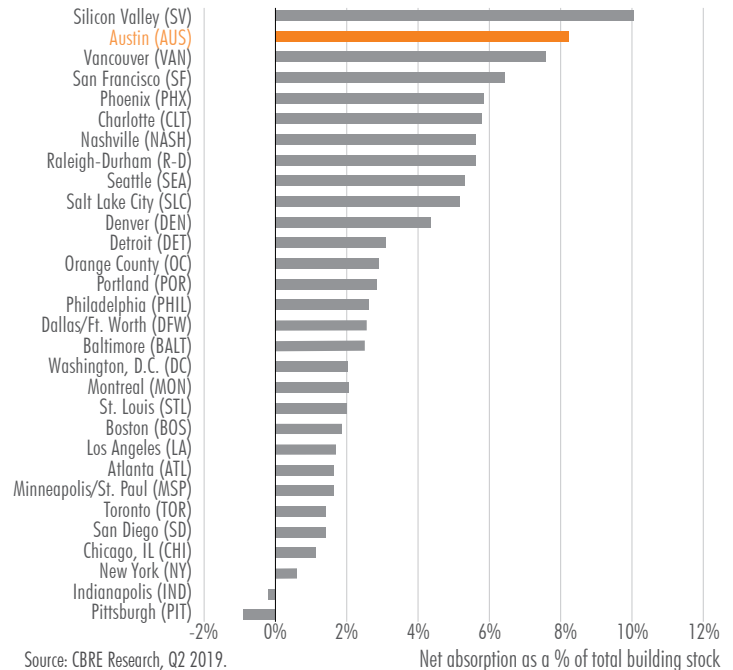
Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



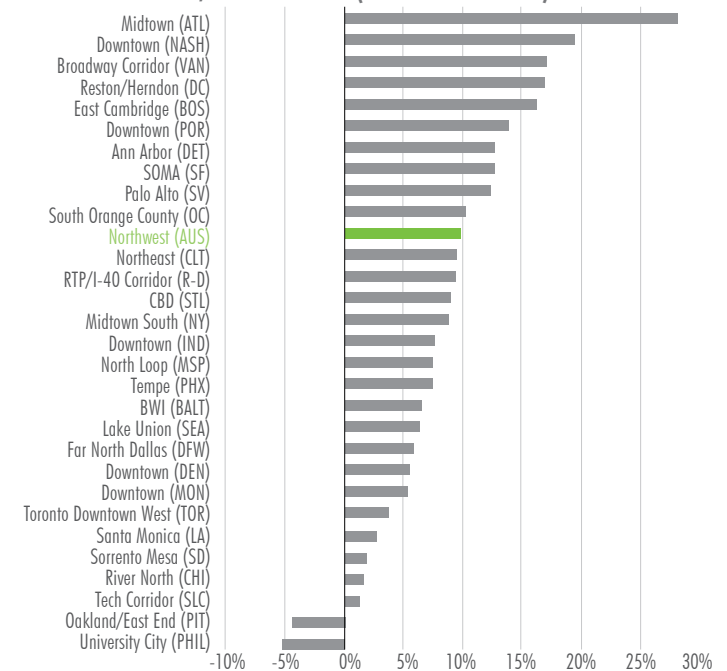
Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

SAN DIEGO (#6)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent Direct FS/YR	\$36.81
Vacancy Rate	10.4%
Supply Under Construction	0.5 MSF
Sublease Available	1.6 MSF
Top Tech Submarket Rents/Vacancy	Sorrento Mesa \$36.1/16.6%

HIGH-TECH INDUSTRY STATS, 2018

Employment	35,614
High-Tech Software/Services	
Employment Clustering % of Office-Using Jobs	10.3%
Educational Attainment Residents w/ BA or higher (Metro Area)	38.8%
Labor Cost (MSA) Software Engineer	\$107,785

SIGNIFICANT OFFICE LEASE DEALS, 2019

Brain Corp	10182 Telesis Ct	100,000 SF
Seismic Software	12390 El Camino Real	73,000 SF
Kyriba	9620 Towne Centre Dr	50,000 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Venture capital investment in San Diego tech companies in H1 2019 exceeded the annual total of 2018. Robotics, automation, cybersecurity and SaaS platforms are the fastest-growing tech subsectors in San Diego, with three locally based tech companies exceeding the \$1 billion valuation threshold for unicorn status in the past year.
- New office developments aimed at attracting tech tenants in key submarkets are remedying a shortage of adequate large blocks of space.
- Major Bay Area tech companies have expanded in San Diego or are inquiring about potential expansion opportunities.

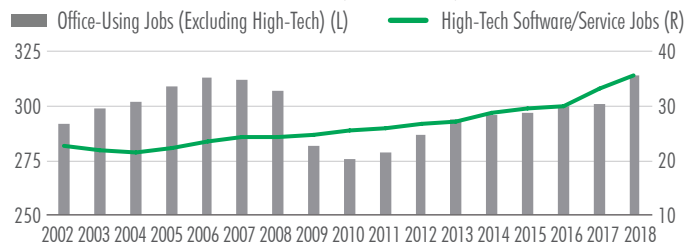
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

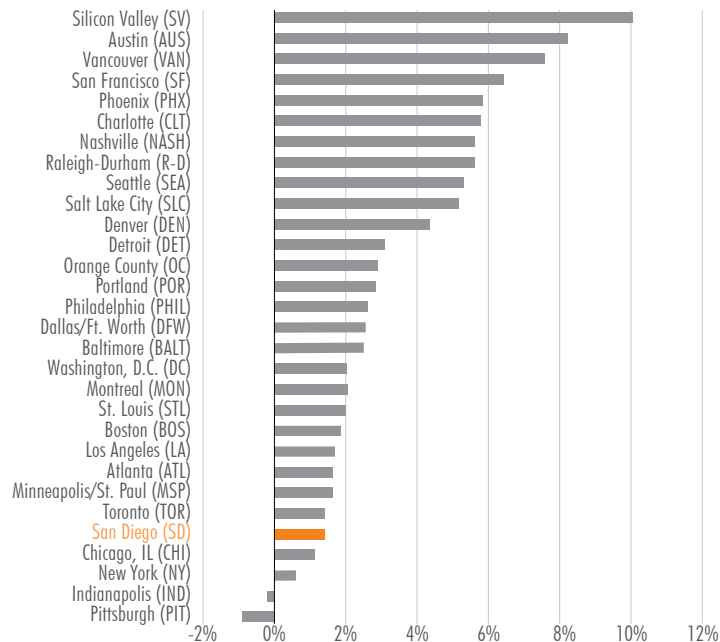
HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH

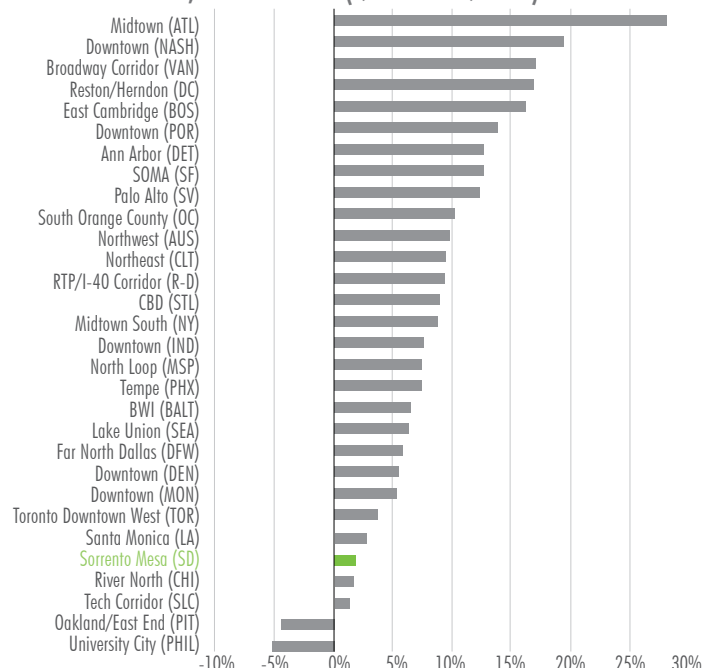
OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH

TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

NEW YORK (#7)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$80.25
Direct FS/YR	
Vacancy Rate	7.9%
Supply	
Under Construction	13.4 MSF
Sublease Available	9.8 MSF
Top Tech Submarket	Midtown South
Rents/Vacancy	\$83.12/6.8%

HIGH-TECH INDUSTRY STATS, 2018

Employment	118,215
High-Tech Software/Services	
Employment Clustering	10.3%
% of Office-Using Jobs	
Educational Attainment	22.9%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$112,892
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Google Inc.	450 West 15th Street (Purchase)	316,500 SF
Peloton Interactive LLC	441 Ninth Avenue	312,200 SF
Google Inc.	315 Hudson Street	280,000 SF

Note: Deals reflects the top tech transactions from Q3 2018 through Q2 2019.

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Manhattan tech leasing velocity totaled approximately 1.3 million sq. ft. in Q2 2019, up by 125% from Q1. Midtown South remains the most desirable Manhattan market for technology tenants, accounting for 63% of leasing velocity.
- Manhattan tech tenants pay an average taking rent of \$76.33 per sq. ft. as of Q2 2019, up by 7% from 2017. Midtown South is the only Manhattan market with tech taking-rent growth since 2018.
- Manhattan technology tenants received \$3.6 billion of venture capital in Q2 2019, a 60% increase from a year earlier.

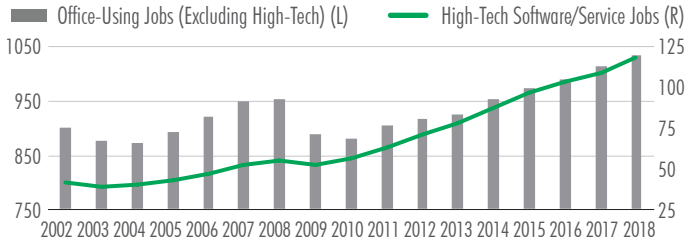
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

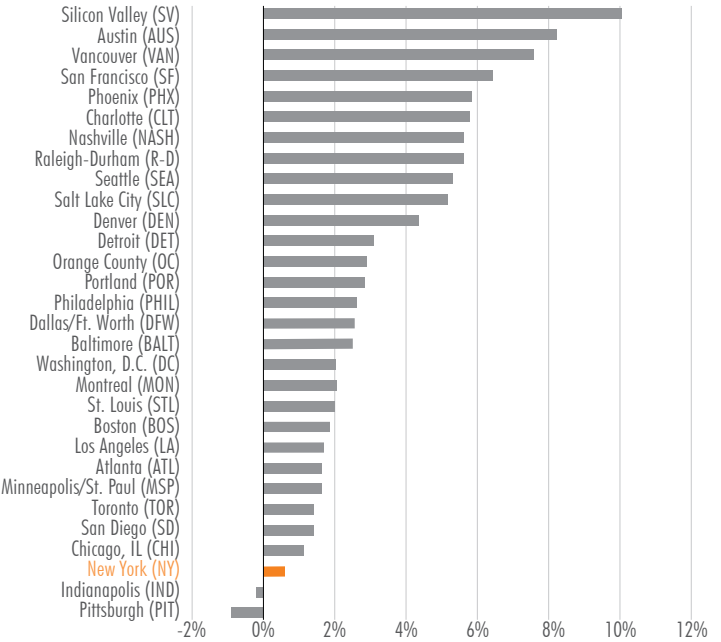
HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH

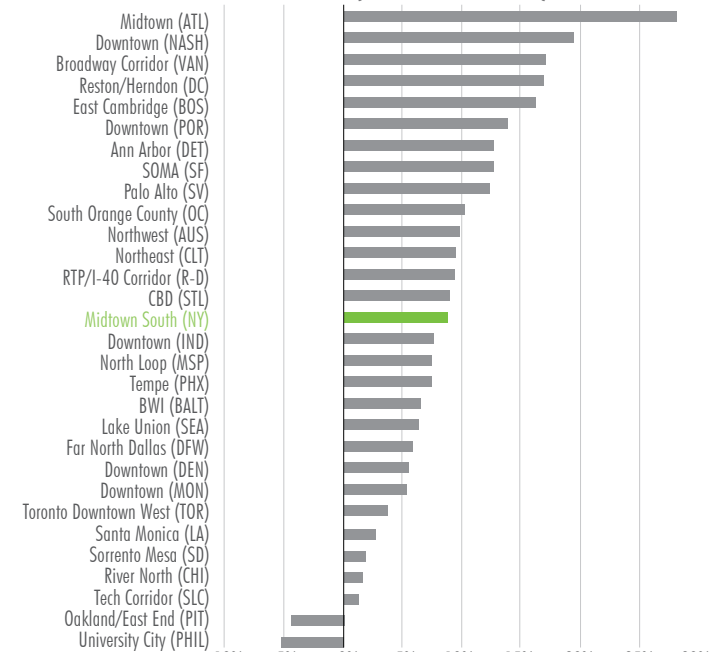
OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH

TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

SILICON VALLEY (#8)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$65.73
Direct FS/YR	
Vacancy Rate	5.9%
Supply	
Under Construction	8.4 MSF
Sublease Available	1.5 MSF
Top Tech Submarket	Palo Alto
Rents/Vacancy	\$112.56/3.7%

HIGH-TECH INDUSTRY STATS, 2018

Employment	216,724
High-Tech Software/Services	
Employment Clustering	42.7%
% of Office-Using Jobs	
Educational Attainment	50.8%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$134,704
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Google	60 Brokaw Rd	736,800 SF
Uber	190 Mathilda Pl	290,200 SF
ASML	125 Rio Robles	265,000 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Insatiable tech demand has pushed the Silicon Valley vacancy rate down to 5.9%, the second-lowest overall office vacancy rate in the U.S.
- The tech industry was responsible for 96% of the 25 largest leases in H1 2019, primarily from software companies.
- Limited available space and consistent demand from tech companies have spurred new speculative office construction.

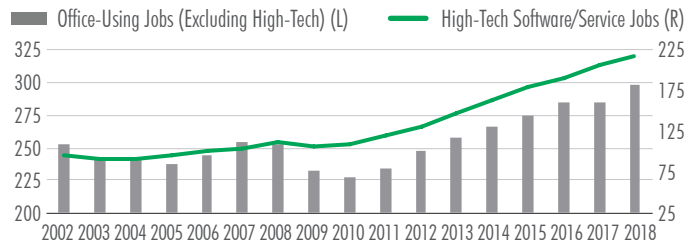
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

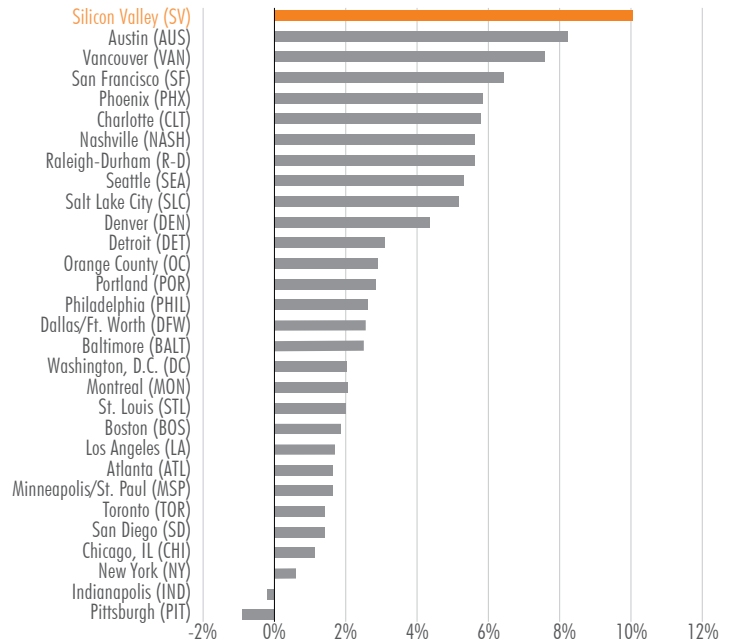
HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH

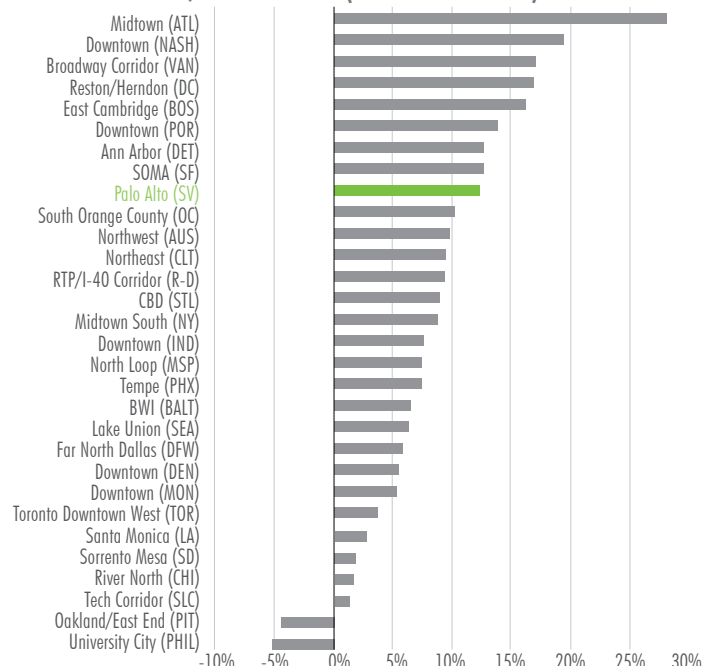
OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH

TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

SALT LAKE CITY (#9)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$23.81
Direct FS/YR	
Vacancy Rate	11.2%
Supply	
Under Construction	3.6 MSF
Sublease Available	1.0 MSF
Top Tech Submarket	Tech Corridor
Rents/Vacancy	\$25.08/7.1%

HIGH-TECH INDUSTRY STATS, 2018

Employment	55,041
High-Tech Software/Services	
Employment Clustering	18.2%
% of Office-Using Jobs	
Educational Attainment	35.5%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$98,326
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Divvy Pay	103700 S 700 West	150,000 SF
Podium	3400 N Frontage Road	80,000 SF
PDQ.com	2200 S Main Street	75,000 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- The Tech Corridor (Sandy South Towne, Draper and Utah County North) has attracted major, national tech companies from the West Coast due to availability of talent and competitive costs. Other locally grown tech unicorns are also headquartered in the Corridor.
- The area attracts a highly educated talent pool due to its central location between Utah's major universities and its live-work-play amenities.
- The Tech Corridor's Class A rental rate is priced competitively to downtown, while offering new land availability and population growth. This has in turn fueled new development in the Tech Corridor for both leased and owned buildings.

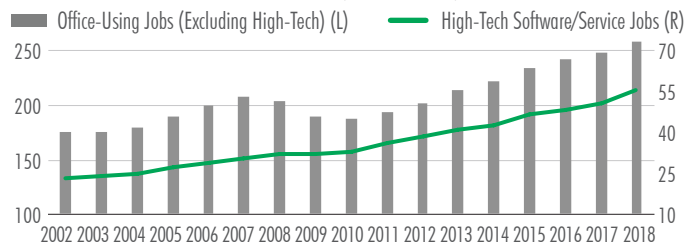
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

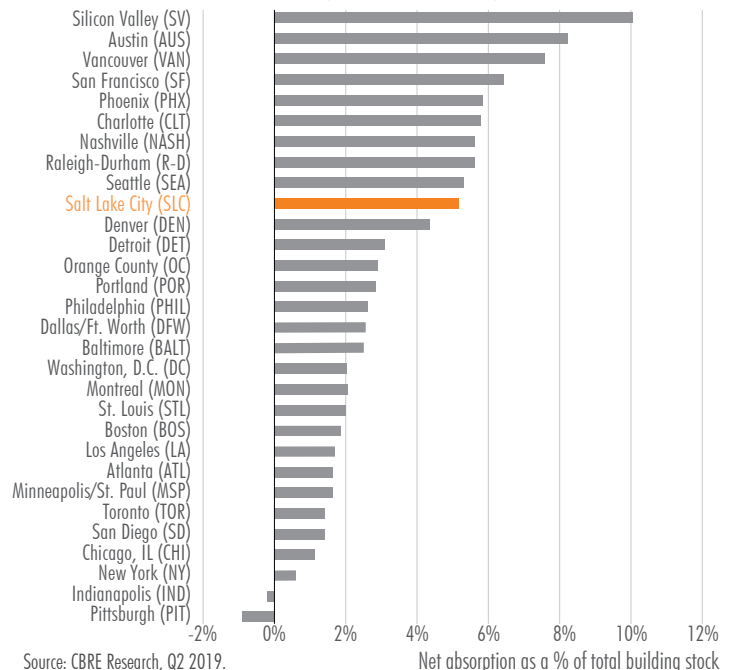
Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



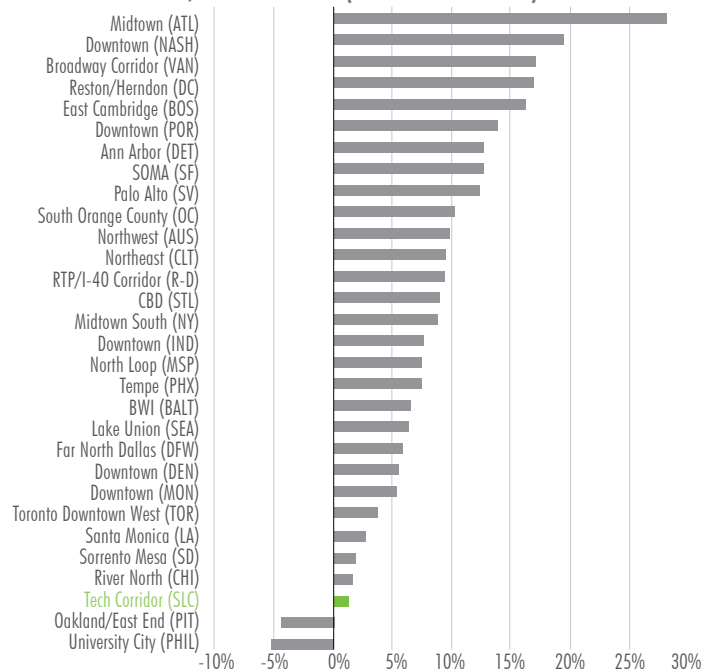
Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

DENVER (#10)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent Direct FS/YR	\$28.43
Vacancy Rate	13.1%
Supply	
Under Construction	2.5 MSF
Sublease Available	2.7 MSF
Top Tech Submarket	Downtown
Rents/Vacancy	\$35.66/15.2%

HIGH-TECH INDUSTRY STATS, 2018

Employment	70,465
High-Tech Software/Services	
Employment Clustering % of Office-Using Jobs	15.3%
Educational Attainment	43.9%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$109,889
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Gusto	1515 Arapahoe St & 1200 17th St	97,900 SF
Amazon	1515 Wynkoop St	98,000 SF
Vmware	380 Interlocken Crescent	95,800 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- The Downtown submarket has become the preferred hub for tech companies, outpacing the equally attractive Northwest and Boulder submarkets. Numerous tech companies from California have migrated to Downtown Denver, attracted in part by its large millennial talent base.
- Tech leasing activity in metro Denver exceeded 2.0 million sq. ft. in 2018, up by 54% year-over-year and accounting for 24% of total office transactions.
- Flexible office space supply that is attractive to new tech companies totals 2.8 million sq. ft. in metro Denver, 65% of it in the Downtown and adjacent River North submarkets.

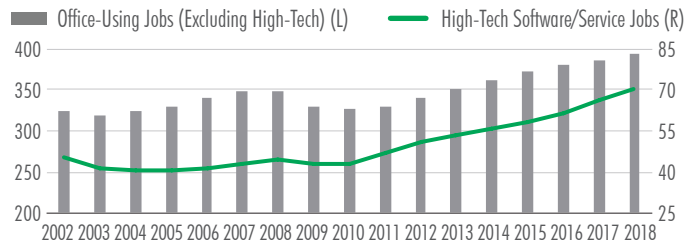
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

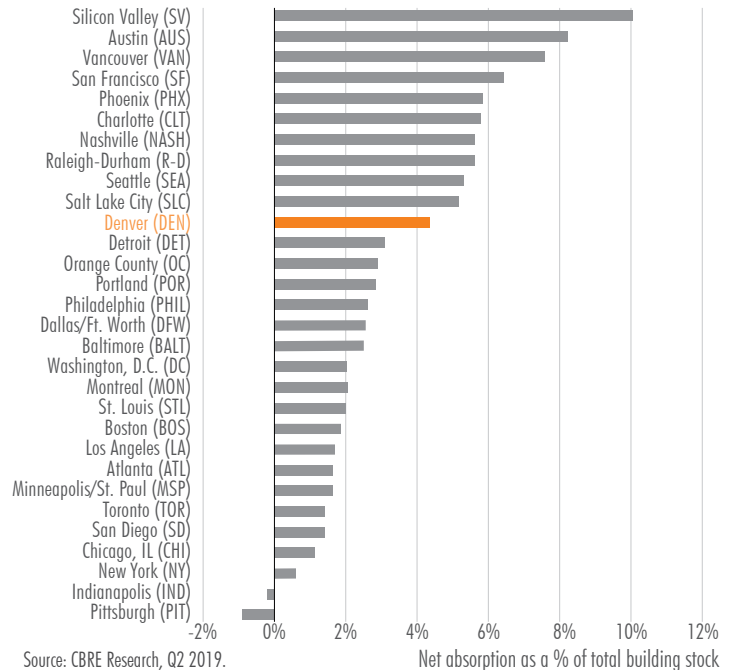
HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH

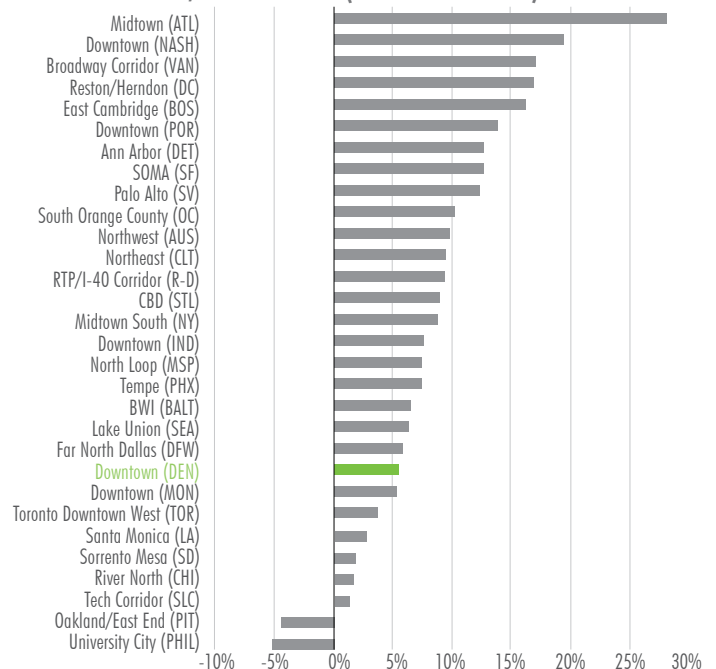
OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH

TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

LOS ANGELES (#11)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent Direct FS/YR	\$41.26
Vacancy Rate	14.3%
Supply Under Construction	3.8 MSF
Sublease Available	2.1 MSF
Top Tech Submarket Rents/Vacancy	Santa Monica \$73.27/12.4%

HIGH-TECH INDUSTRY STATS, 2018

Employment	84,263
High-Tech Software/Services	
Employment Clustering % of Office-Using Jobs	7.7%
Educational Attainment Residents w/ BA or higher (Metro Area)	32.3%
Labor Cost (MSA) Software Engineer	\$110,491

SIGNIFICANT OFFICE LEASE DEALS, 2019

Google	10730 W Pico Blvd	584,000 SF
Facebook	12105 W Waterfront Dr	260,000 SF
Honey Science	963 E Fourth St	130,000 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Content continues to be king. An insatiable appetite for streaming content boosts demand from FAANG companies and the major studios.
- Bay Area and foreign tech firms are expanding to Southern California to tap into the large available talent base.
- Positive net absorption has resulted in single-digit vacancy in more than a dozen submarkets including Century City, Olympic Corridor, West Hollywood and Burbank.
- A combination of low vacancy and limited new construction pushed large tenants to secure long-term commitments leaving few options for expanding companies.

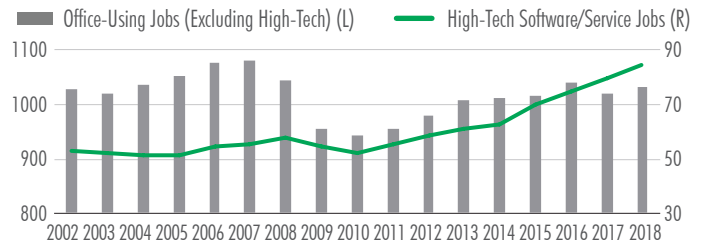
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

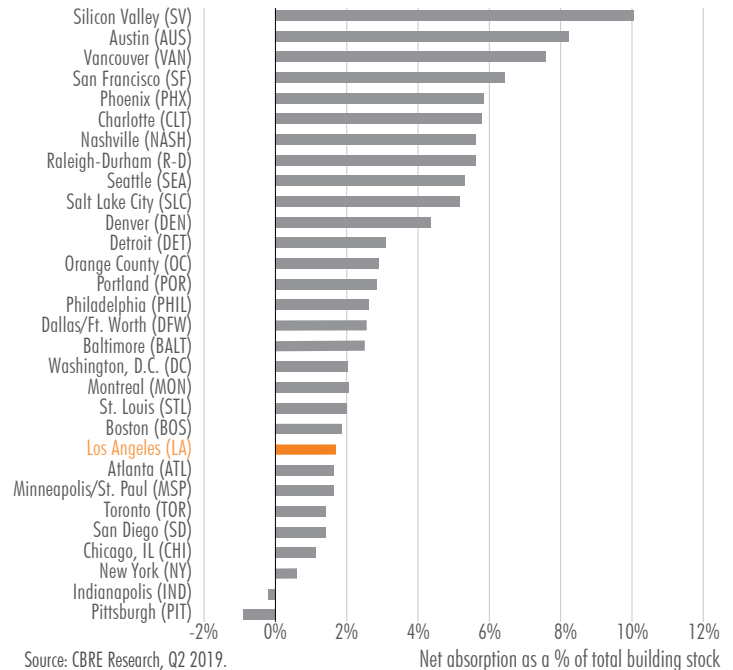
Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



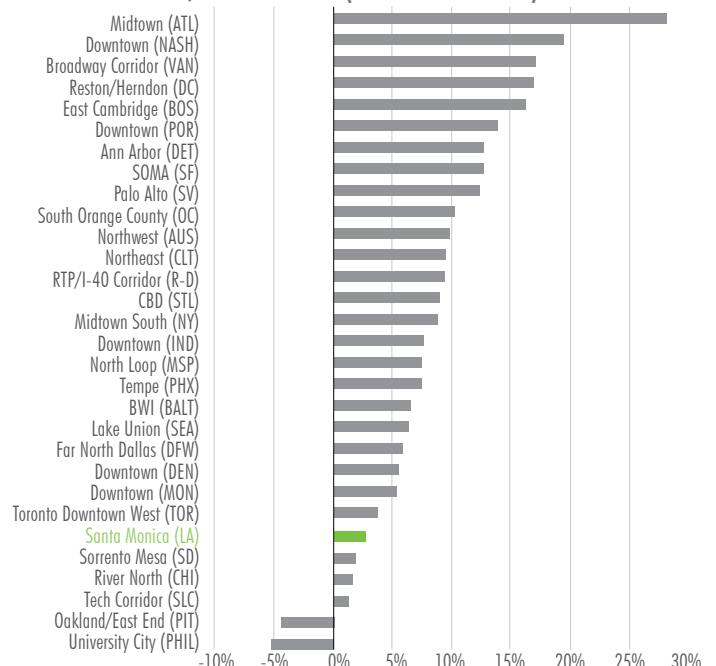
Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

ATLANTA (#12)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$27.90
Direct FS/YR	
Vacancy Rate	17.2%
Supply	
Under Construction	3.9 MSF
Sublease Available	2.8 MSF
Top Tech Submarket	Midtown
Rents/Vacancy	\$37.80/16.1%

HIGH-TECH INDUSTRY STATS, 2018

Employment	86,252
High-Tech Software/Services	
Employment Clustering	11.8%
% of Office-Using Jobs	
Educational Attainment	37.9%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$104,117
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Salesforce	950 E Paces Ferry Rd NE	158,200 SF
VMWare Airwatch	155 Perimeter Ctr W	203,400 SF
Samsara	1170 Peachtree St	79,200 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Atlanta has the South's second-largest pool of tech workers, which has grown by nearly 32,000 over the past five years.
- Atlanta is ranked seventh in the U.S. and Canada for total number of tech-degree completions.
- Atlanta is one of the most attractive locations for tech talent from a housing-cost standpoint; the average annual rent accounts for just 15.3% of the average annual tech wage.

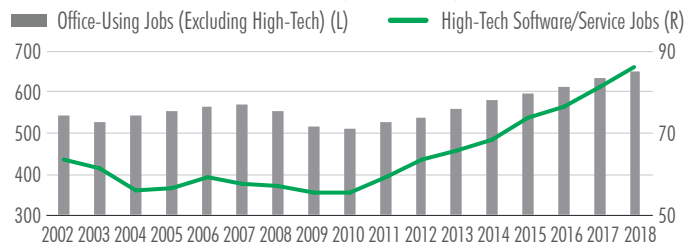
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

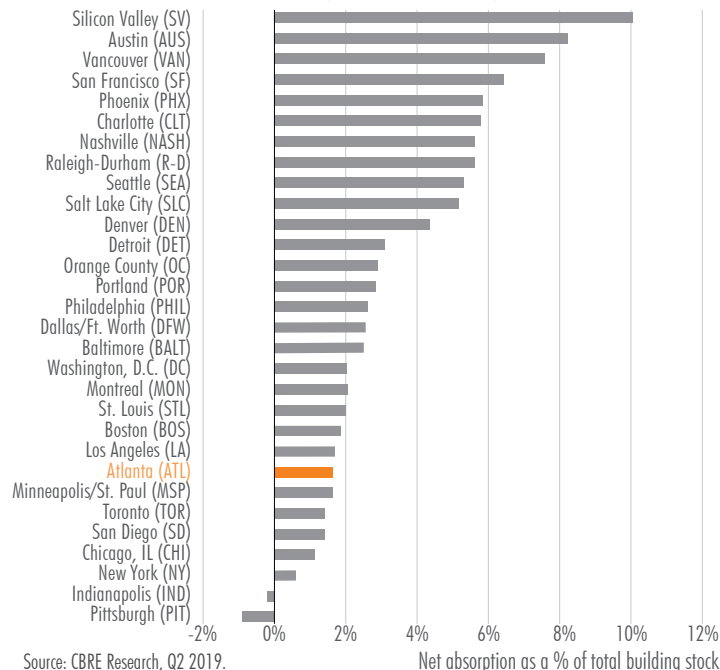
HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH

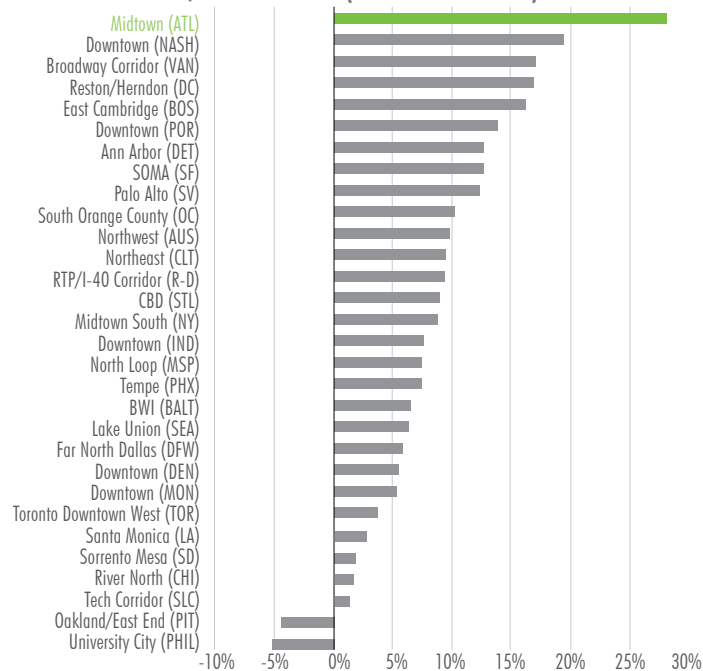
OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH

TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

ST. LOUIS (#13)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$20.07
Direct FS/YR	
Vacancy Rate	11.2%
Supply	
Under Construction	1.1 MSF
Sublease Available	0.2 MSF
Top Tech Submarket	CBD
Rents/Vacancy	\$17.55/17.0%

HIGH-TECH INDUSTRY STATS, 2018

Employment	26,484
High-Tech Software/Services	
Employment Clustering	10.0%
% of Office-Using Jobs	
Educational Attainment	34.6%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$94,835
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Square	900 N Tucker	150,000 SF
Mastercard	5555 Winghaven	74,000 SF
Lumeris	3251 Riverport Ln	66,000 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- The National Geospatial Intelligence Agency will construct a new \$1.75 billion campus, including more than 700,000 sq. ft. of high-tech Class A office space.
- The Cortex Innovation District remains the epicenter of tech and startup activity in St. Louis.
- The 39° Innovation Community in West County is becoming a potential competitor to Cortex for tech users, especially those focused on biotechnology.

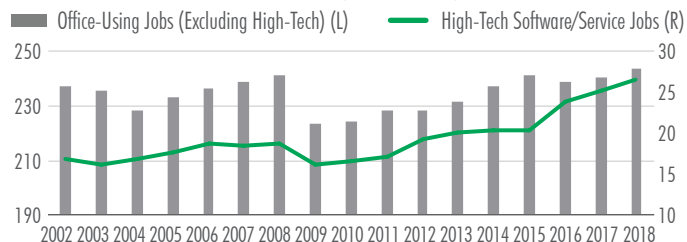
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

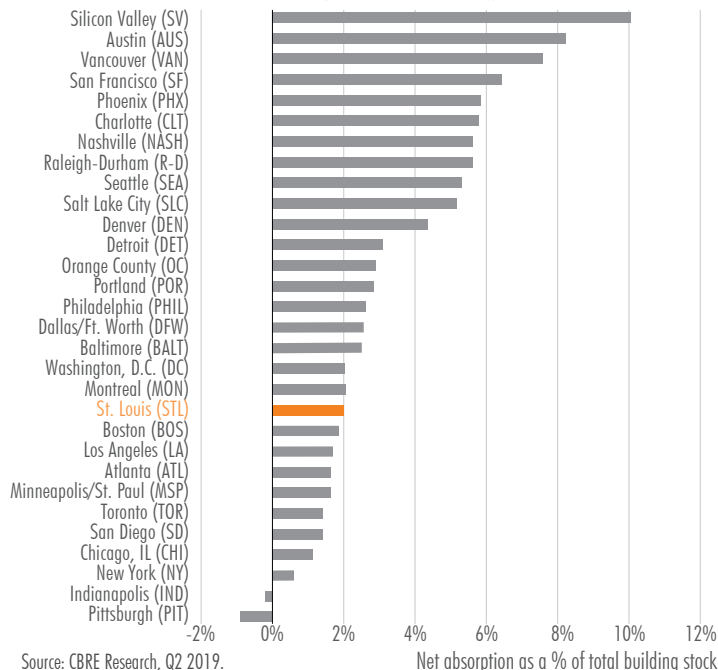
Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



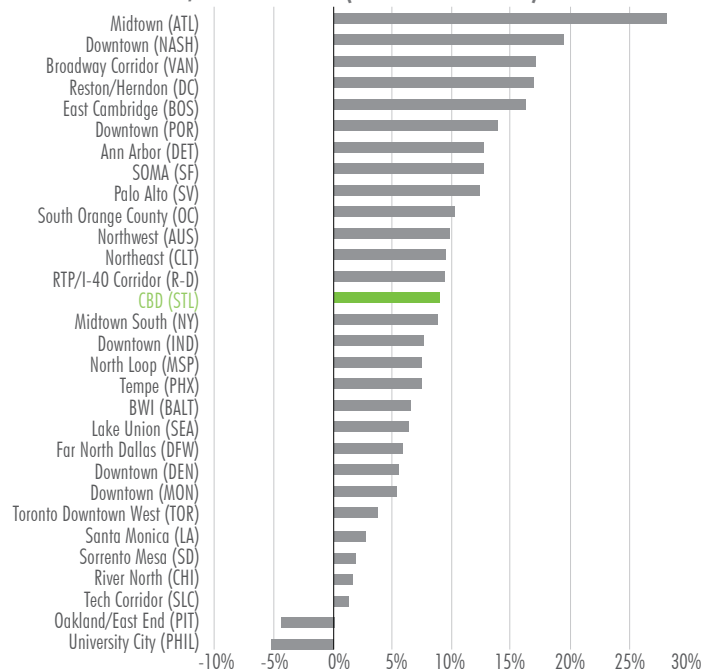
Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

MONTREAL (#14)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent Direct FS/YR	C\$31.69
Vacancy Rate	11.2%
Supply	
Under Construction	2.1 MSF
Sublease Available	0.8 MSF
Top Tech Submarket	Downtown
Rents/Vacancy	C\$39.85/7.5%

HIGH-TECH INDUSTRY STATS, 2018

Employment	86,200
High-Tech Software/Services	
Employment Clustering	17.7%
% of Office-Using Jobs	
Educational Attainment	29.3%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	C\$74,194
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Google	425 Viger St W	100,000 SF
Cinesite	250 St-Antoine St W	81,700 SF
Squarepoint Technologies	1190 Des Canadiens-de-Montréal Ave	25,600 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Montreal's growing high-tech labor market is being fueled by immigration, primarily by well-educated information technology workers.
- Large global companies specializing in artificial intelligence have established R&D offices in the city within the past year.
- Montreal has seen an increase in U.S.-based tech companies expanding their existing footprints in the city.

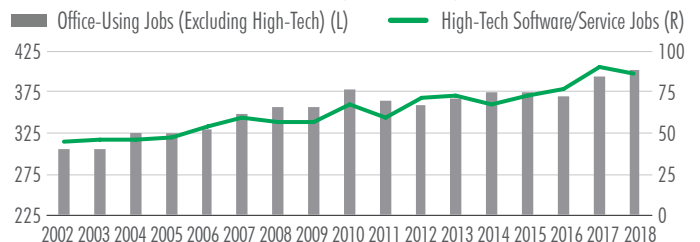
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

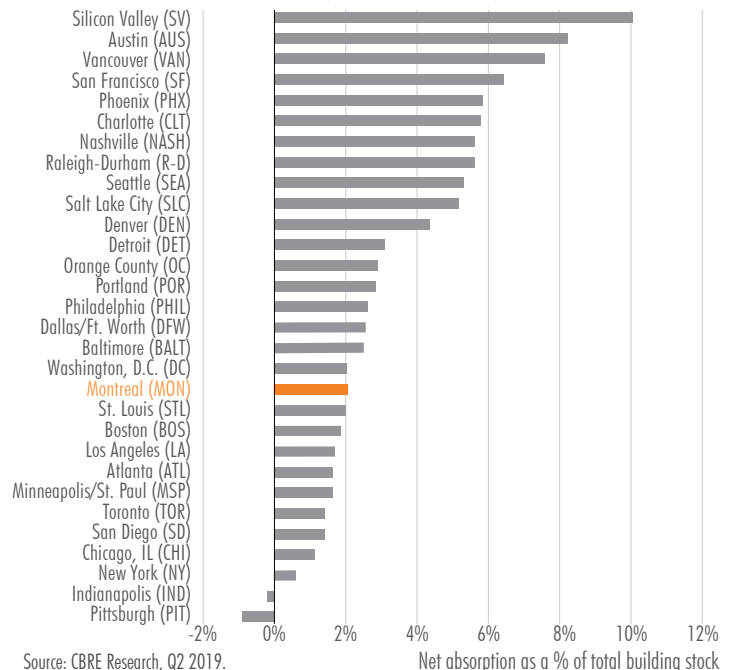
Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



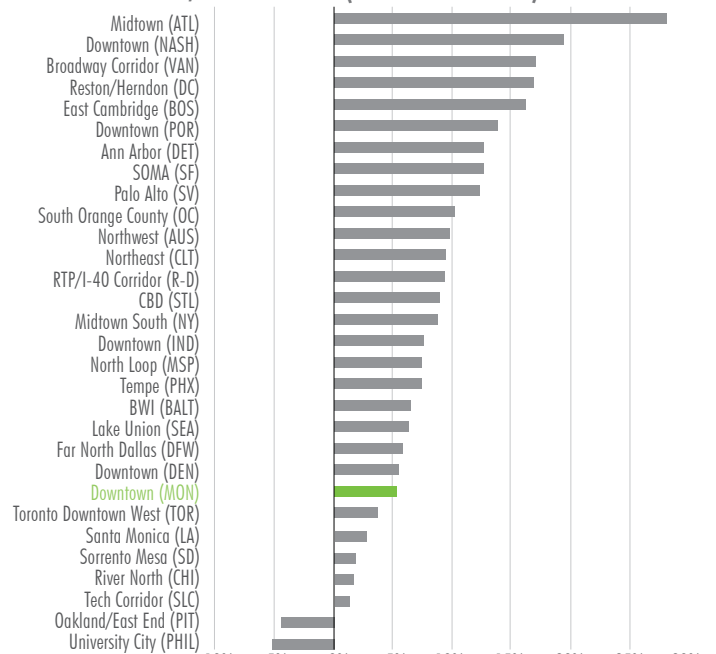
Source: CBRE Research, Q2 2019 and Statistics Canada, July 2019.

NET ABSORPTION GROWTH OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

ORANGE COUNTY (#15)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$36.12
Direct FS/YR	
Vacancy Rate	9.9%
Supply	
Under Construction	0.4 MSF
Sublease Available	1.9 MSF
Top Tech Submarket	South Orange County
Rents/Vacancy	\$37.68/8.9%

HIGH-TECH INDUSTRY STATS, 2018

Employment	39,773
High-Tech Software/Services	
Employment Clustering	8.7%
% of Office-Using Jobs	
Educational Attainment	26.1%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$114,293
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Skyworks Solutions	5211-5221 & 5260 California	217,900 SF
Anduril	2722 Michelson	155,000 SF
Epson America	3131 Katella Ave	150,200 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Tech tenants accounted for 16.4% of all leasing deals in OC in H1 2019, with the average asking rental rate hitting a historic high of \$36.12 per sq. ft.
- A strong concentration of tech companies, paired with a highly skilled labor force, has led to the addition of more than 4 million sq. ft. of office space since 2016.
- The tech labor pool has increased by 20.6% since 2007.

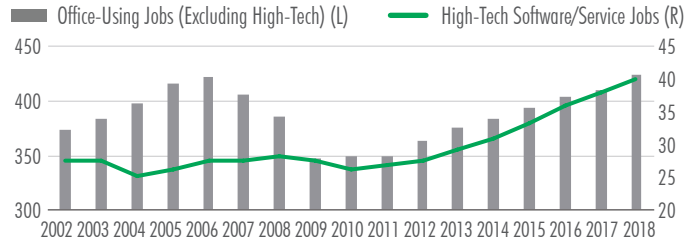
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

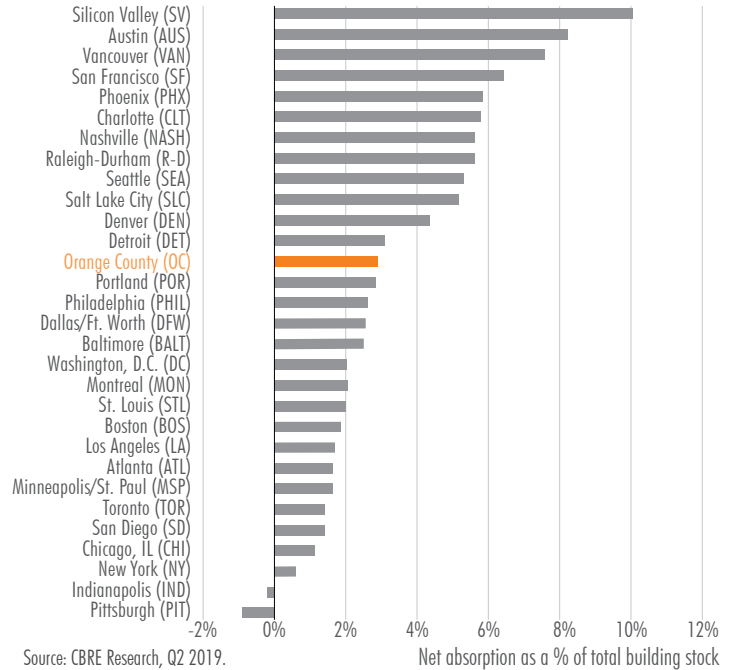
HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH

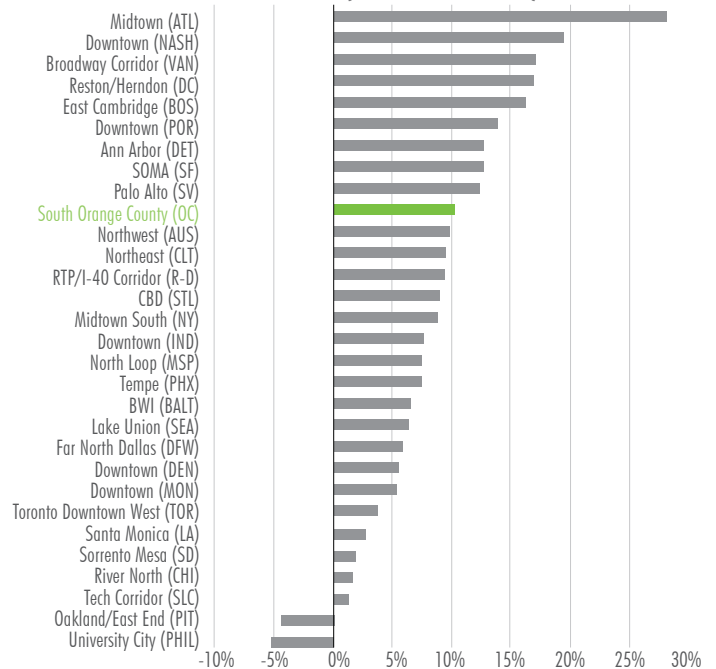
OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH

TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

PORTLAND (#16)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$30.98
Direct FS/YR	
Vacancy Rate	11.8%
Supply	
Under Construction	0.6 MSF
Sublease Available	0.8 MSF
Top Tech Submarket	Downtown
Rents/Vacancy	\$35.14/12.9%

HIGH-TECH INDUSTRY STATS, 2018

Employment	28,465
High-Tech Software/Services	
Employment Clustering	12.2%
% of Office-Using Jobs	
Educational Attainment	40.3%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$100,524
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Hacker	525 SE MLK Blvd	31,700 SF
Kronos	11850 SW 67th Ave	29,500 SF
Marketo	1500 SW 1st Ave	24,000 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Historically known for hardware companies that produce microchips and semiconductors, Portland is seeing a surge in growth by software companies.
- High-tech and software services employment has grown by 29% over the past five years.
- Flexible space operators have increased their footprint to more than 700,000 sq. ft. to meet demand from expanding tech companies.

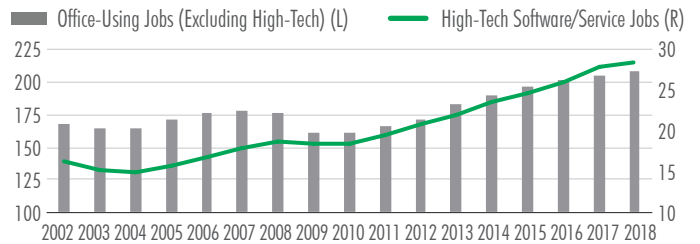
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

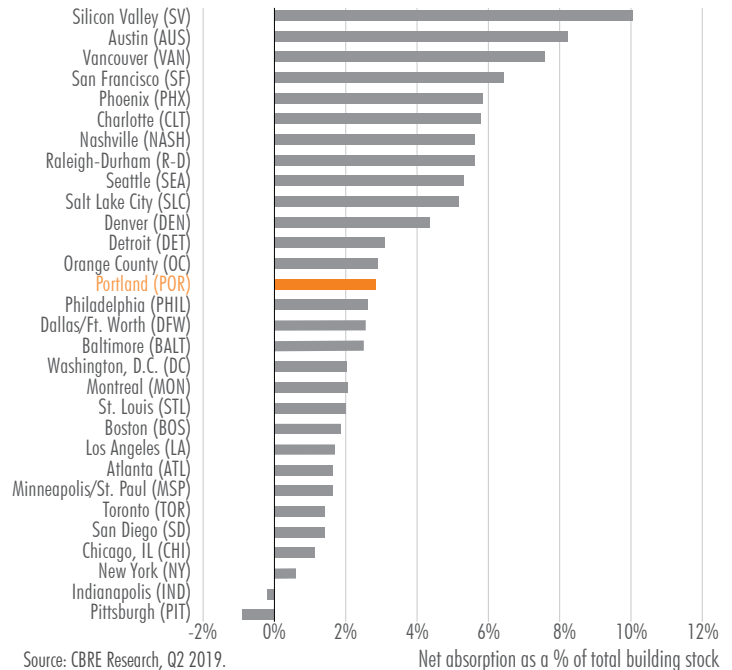
HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH

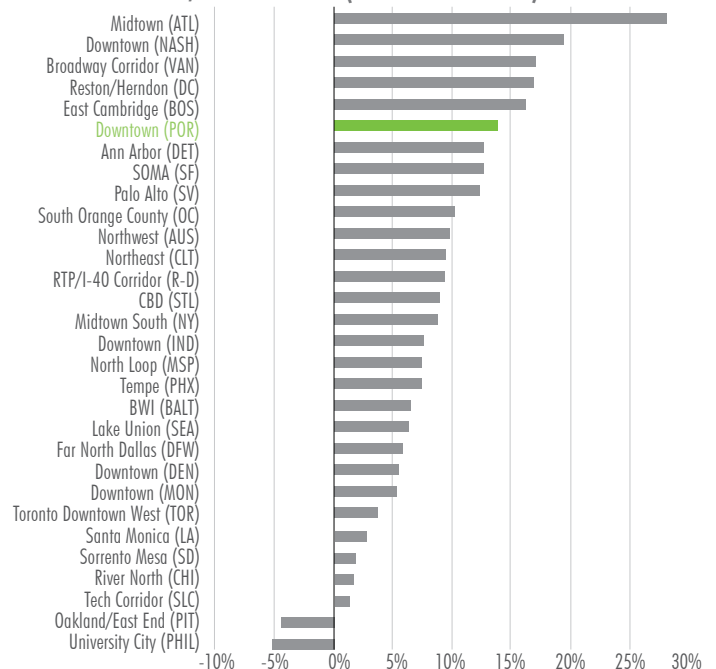
OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH

TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

NASHVILLE (#17)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$27.81
Direct FS/YR	
Vacancy Rate	10.4%
Supply	
Under Construction	3.8 MSF
Sublease Available	0.7 MSF
Top Tech Submarket	Downtown
Rents/Vacancy	\$30.73/7.9%

HIGH-TECH INDUSTRY STATS, 2018

Employment	15,762
High-Tech Software/Services	
Employment Clustering	7.9%
% of Office-Using Jobs	
Educational Attainment	36.0%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$89,425
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Amazon	1000 Church St	500,000 SF
Postmates	445 Great Circle	94,100 SF
Smile Direct Club	315 Deadrick St	36,800 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- A significant increase in private equity and venture capital investment has increased the demand for tech talent in Nashville.
- Greater Nashville/Middle Tennessee has an information technology ecosystem valued at \$7.5 billion, according to the Nashville Technology Council.
- High-tech and software-services industry employment has increased by 38% over the past five years, with expansion by global tech companies and investment in tech startups fueling growth.

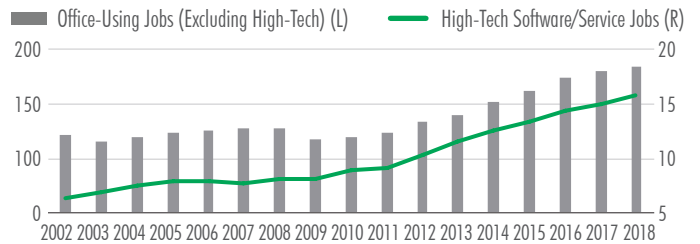
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

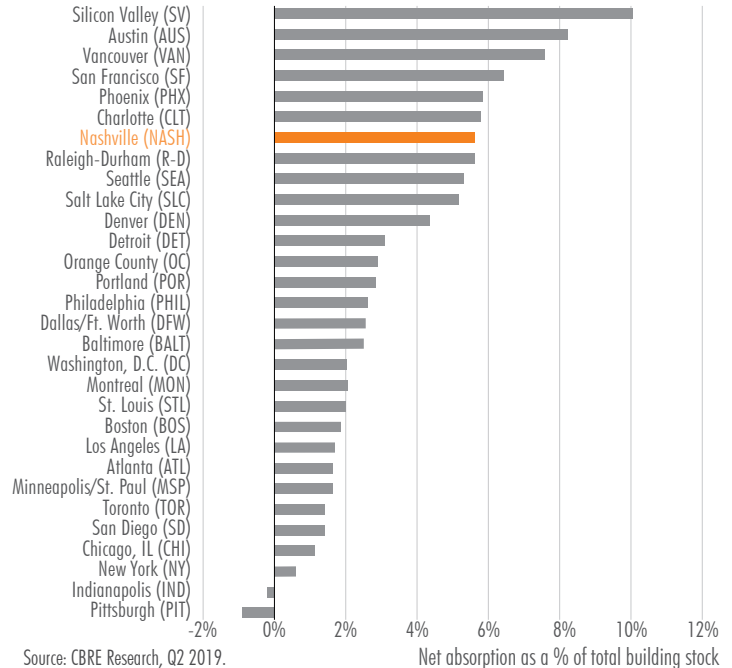
Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



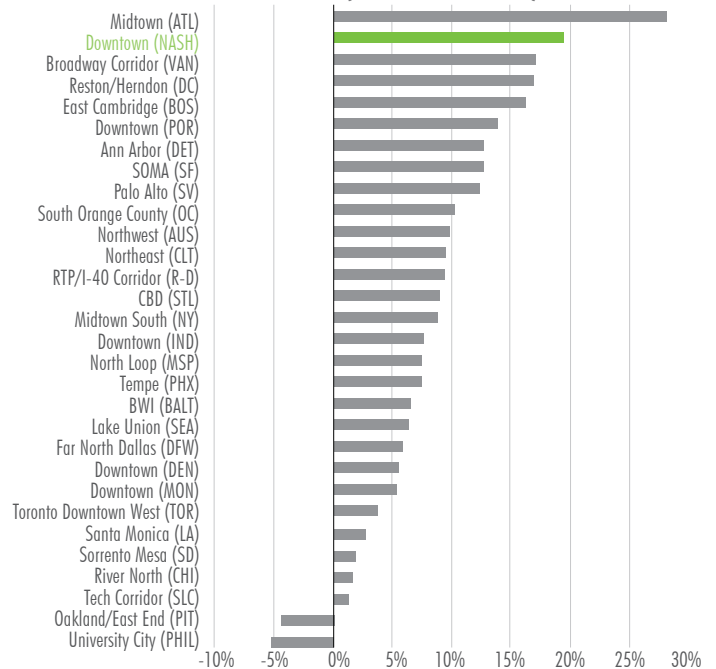
Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

DALLAS/FT. WORTH (#18)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$25.26
Direct FS/YR	
Vacancy Rate	20.6%
Supply	
Under Construction	4.4 MSF
Sublease Available	5.3 MSF
Top Tech Submarket	Far North Dallas
Rents/Vacancy	\$27.05/21.5%

HIGH-TECH INDUSTRY STATS, 2018

Employment	105,226
High-Tech Software/Services	
Employment Clustering	11.4%
% of Office-Using Jobs	
Educational Attainment	34.6%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$107,255
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Lockheed Martin	5401 N Beach St	431,600 SF
Nokia	3100 & 3201 Olympus Blvd	357,100 SF
Samsung	6550 Chase Oaks Blvd	216,000 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Lower-cost large blocks of space and a favorable business climate have made DFW attractive to high-tech companies relative to more expensive markets.
- DFW continues to see large demand from major tech companies with varying space requirements.
- Building owners are offering attractive tenant improvement packages to offset the large cost associated with tech talent build-outs.
- DFW presents a high-quality labor pool that is attracting tech companies to look here regarding business expansions and relocations.

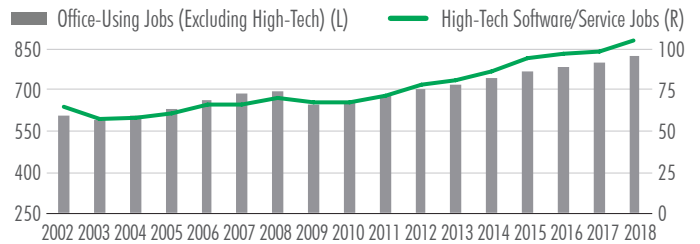
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

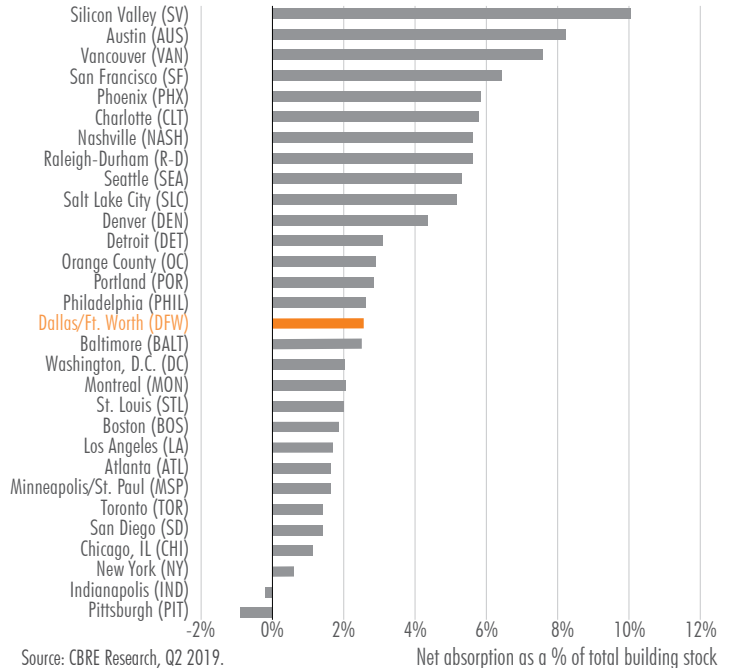
Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



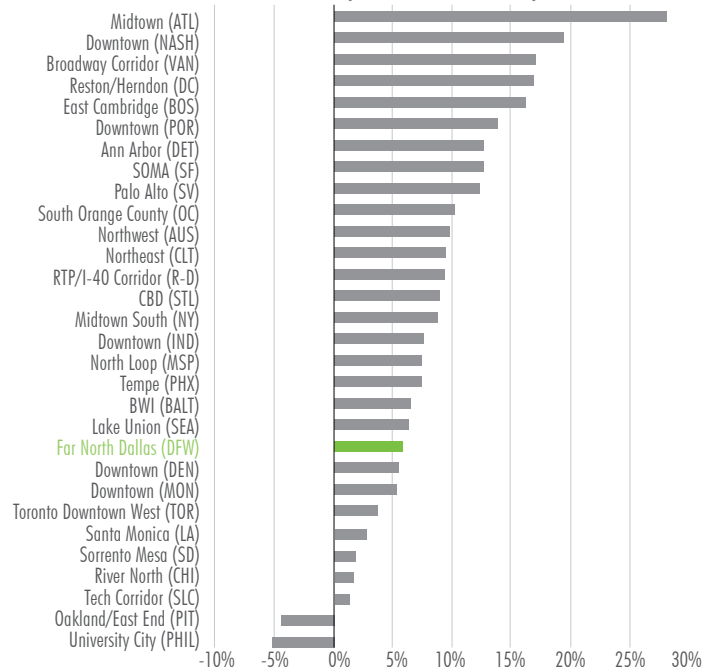
Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

BOSTON (#19)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$40.55
Direct FS/YR	
Vacancy Rate	11.8%
Supply	
Under Construction	6.6 MSF
Sublease Available	4.6 MSF
Top Tech Submarket	East Cambridge
Rents/Vacancy	\$92.62/1.0%

HIGH-TECH INDUSTRY STATS, 2018

Employment	124,210
High-Tech Software/Services	
Employment Clustering	18.1%
% of Office-Using Jobs	
Educational Attainment	47.6%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$111,358
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Wayfair	10 Saint James	305,000 SF
Toast	401 Park Dr	185,000 SF
Klaviyo	125 Summer St	160,000 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Since the beginning of 2018, there have been 18 tech transactions over 100,000 sq. ft. in Greater Boston, totaling 3.6 million sq. ft. of activity.
- Despite the perception that tech companies are choosing the Seaport location first, tech companies are in fact clustering in bigger numbers in the CBD.
- The CBD, Seaport and Back Bay continue to have the strongest appeal to tech tenants, but the suburbs have been attracting large tech tenants as well offering a better value and competitive high-end amenities.

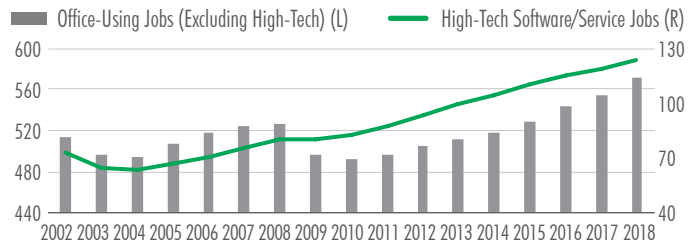
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

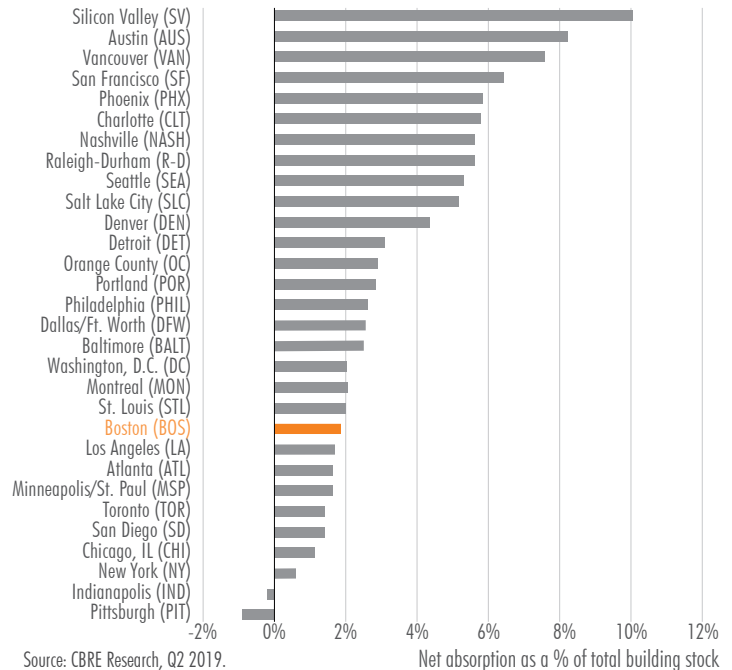
HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH

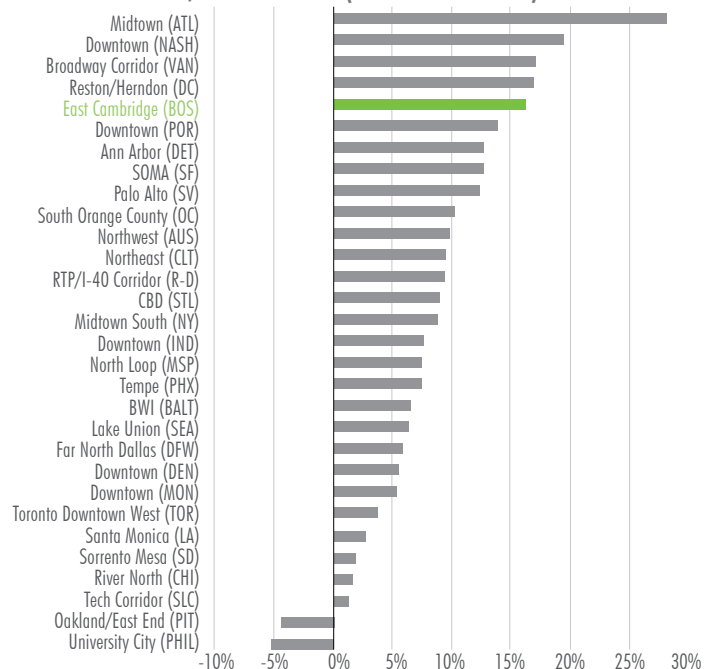
OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH

TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

CHARLOTTE (#20)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$28.94
Direct FS/YR	
Vacancy Rate	6.0%
Supply	
Under Construction	2.5 MSF
Sublease Available	0.1 MSF
Top Tech Submarket	Northeast
Rents/Vacancy	\$23.01/6.4%

HIGH-TECH INDUSTRY STATS, 2018

Employment	25,139
High-Tech Software/Services	
Employment Clustering	10.0%
% of Office-Using Jobs	
Educational Attainment	35.5%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$103,221
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Lowe's (Innovation)	100 W Worthington Ave	375,000 SF
LendingTree	South End Project	175,000 SF
GPN Data	3540 Toringdon Way	77,100 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Charlotte's 48.4% tech talent job growth rate over the past five years is triple the national average of 16.0%.
- Demand for tech talent has outpaced supply from educational institutions in the region but Charlotte has been able to attract workers from other regions.
- Charlotte's millennial population—a top source of tech talent—grew by 13.5% since 2012, well above the U.S. average of 2.5%.

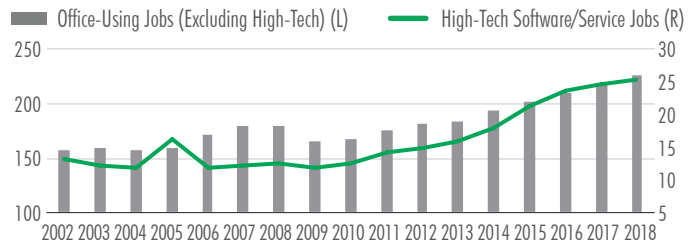
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

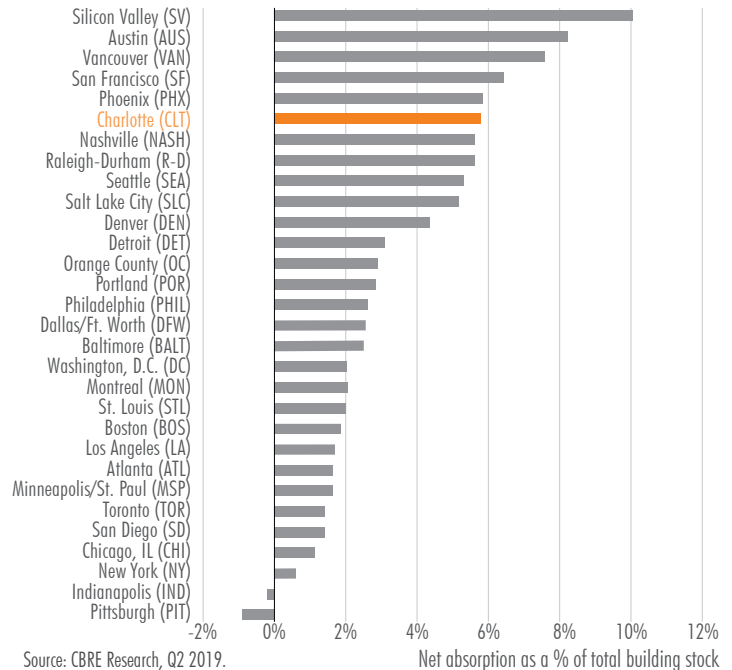
HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH

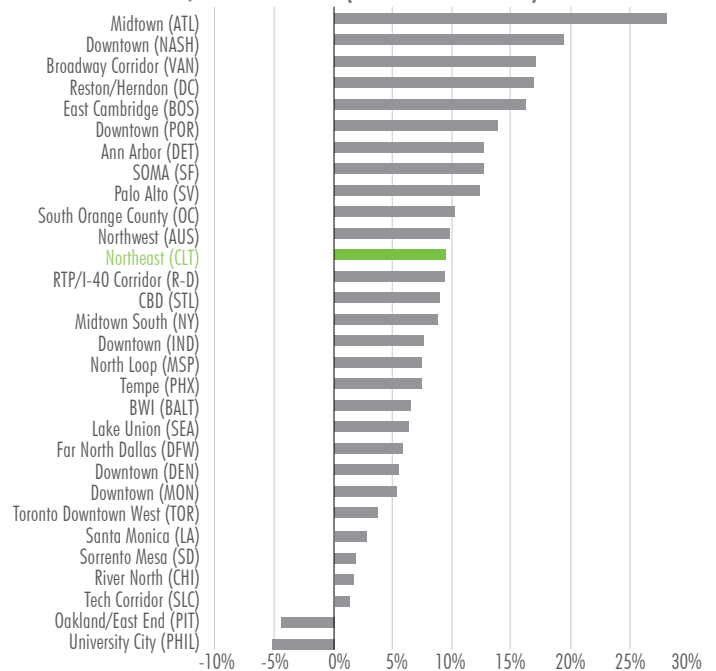
OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH

TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

RALEIGH-DURHAM (#21)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$28.41
Direct FS/YR	
Vacancy Rate	12.1%
Supply	
Under Construction	2.1 MSF
Sublease Available	0.8 MSF
Top Tech Submarket	RTP/I-40 Corridor
Rents/Vacancy	\$26.28/19.9%

HIGH-TECH INDUSTRY STATS, 2018

Employment	39,439
High-Tech Software/Services	
Employment Clustering	17.3%
% of Office-Using Jobs	
Educational Attainment	46.4%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$102,052
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Pendo	301 Hillsborough St	125,000 SF
Prometheus	4601 Six Forks Rd	35,700 SF
Bandwidth	900 Main Campus Dr	30,100 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Tech companies have a large pool of new tech talent to recruit each year from the University of North Carolina at Chapel Hill, Duke University and North Carolina State University.
- Coworking firms are expanding in the market and providing the innovative urban office space that tech occupiers seek to attract and retain talent.
- The Triangle technology sector benefits from the depth of millennial talent in the market, while offering an affordable alternative to traditional West Coast technology hubs.

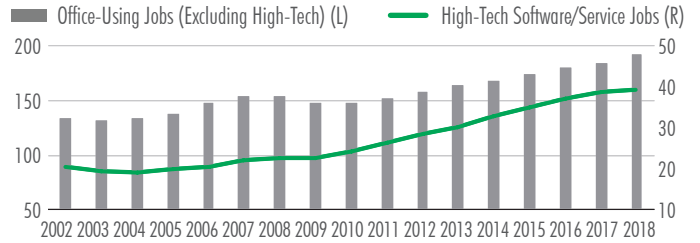
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

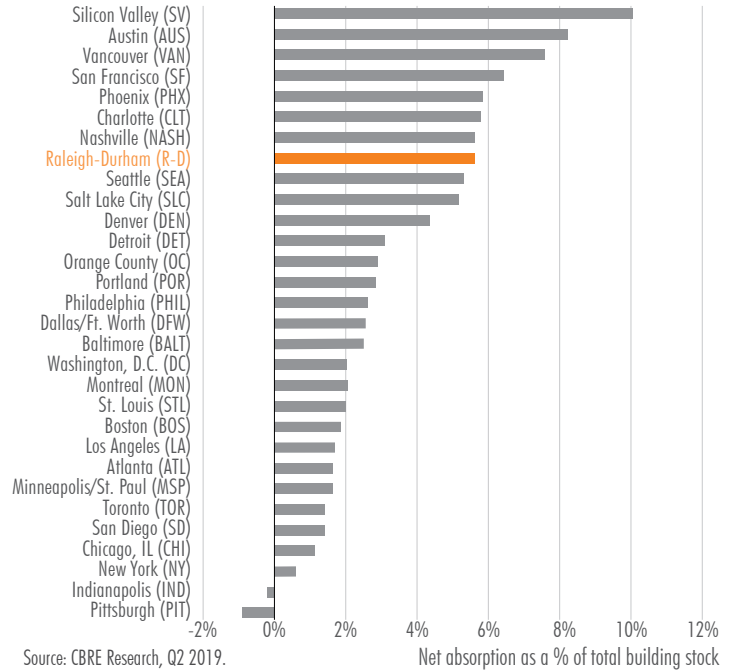
Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



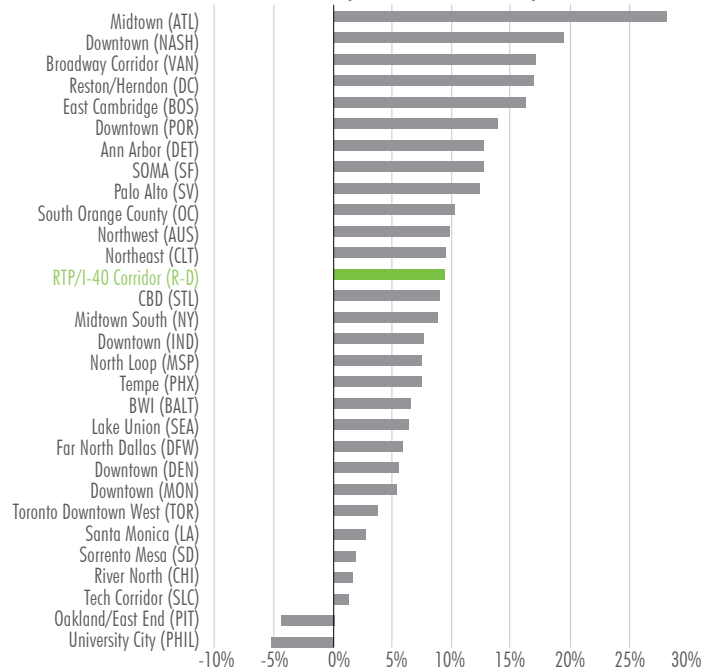
Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

CHICAGO (#22)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$31.51
Direct FS/YR	
Vacancy Rate	14.7%
Supply	
Under Construction	4.1 MSF
Sublease Available	0.0 MSF
Top Tech Submarket	River North
Rents/Vacancy	\$41.56/8.2%

HIGH-TECH INDUSTRY STATS, 2018

Employment	73,127
High-Tech Software/Services	
Employment Clustering	8.2%
% of Office-Using Jobs	
Educational Attainment	37.7%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$98,626
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Uber	433 W Van Buren St	461,500 SF
Amazon	227 W Monroe St	70,000 SF
Showpad	1 N State St	68,400 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- While maintaining a strong presence of sales and finance talent, Chicago also is becoming a hub of engineering and computer science talent.
- Tech occupancy in the Chicago CBD grew by more than 4 million sq. ft. since last year and now accounts for more than 17.7 million sq. ft. of office space.
- Chicago is an ideal market for connecting startups with financing; the city launches an average of 370 startups annually and drew \$1.9 billion in venture capital funding in 2018 alone.

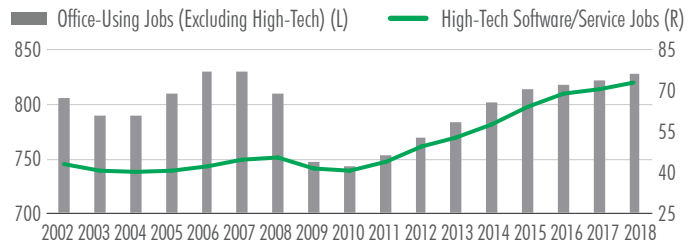
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

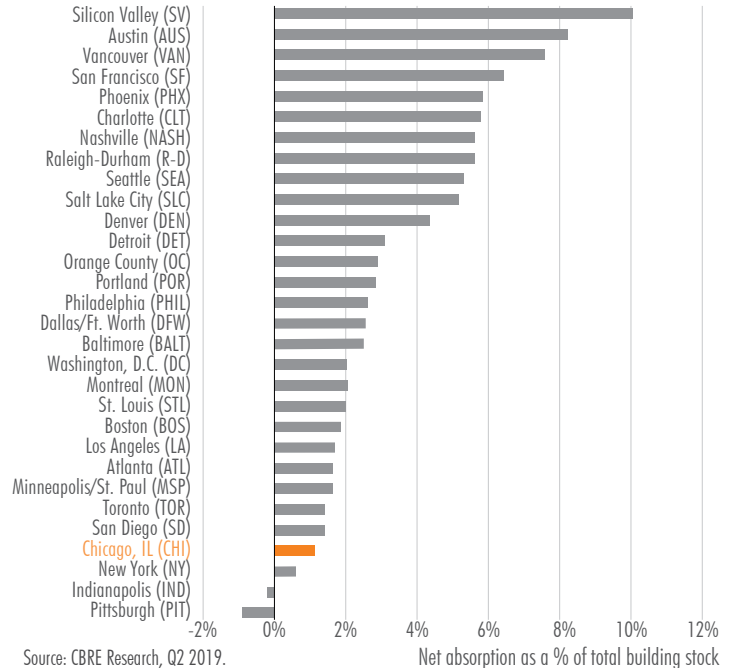
Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



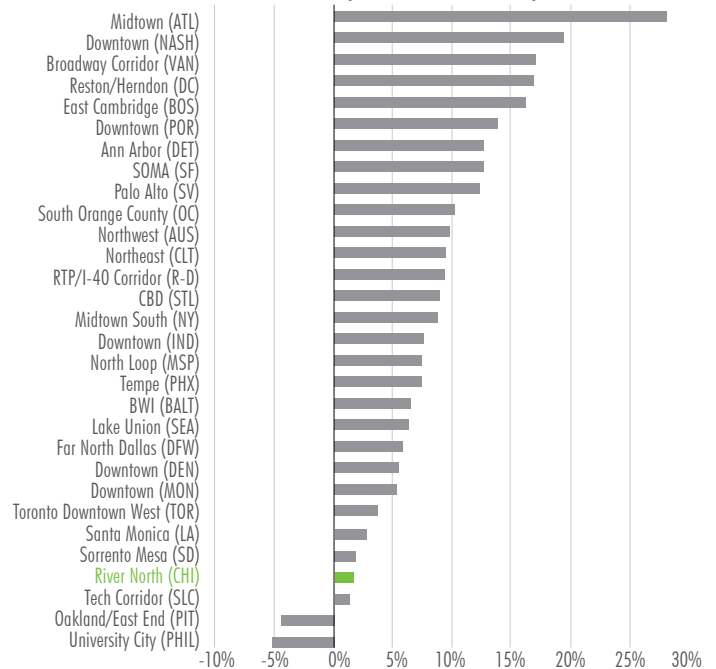
Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

WASHINGTON, D.C. (#23)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent Direct FS/YR	\$42.02
Vacancy Rate	16.6%
Supply	
Under Construction	9.3 MSF
Sublease Available	2.9 MSF
Top Tech Submarket	Reston/Herndon
Rents/Vacancy	\$36.8/17.3%

HIGH-TECH INDUSTRY STATS, 2018

Employment	188,130
High-Tech Software/Services	
Employment Clustering	21.4%
% of Office-Using Jobs	
Educational Attainment	50.8%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$116,004
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Amazon Web Services	13820 Sunrise Valley Drive	268,200 SF
Amazon	1750 Crystal Drive	258,000 SF
Amazon	1800 S. Bell Street	191,000 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Washington, D.C. boasts a high concentration of educated workers, with premium salaries and a diverse demographic that attract tech and media companies.
- Major tech firms expanded their footprints in the city by a combined 109,000 sq. ft. in H1 2019.
- The technology sector accounted for 1.5 million sq. ft. of positive absorption in Northern Virginia in H1.

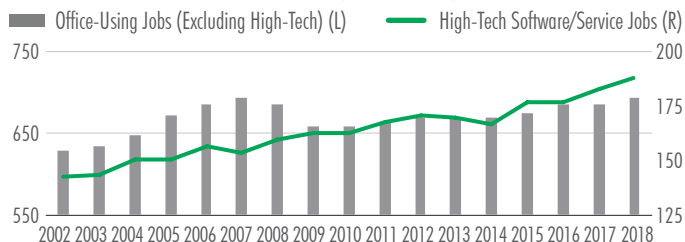
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

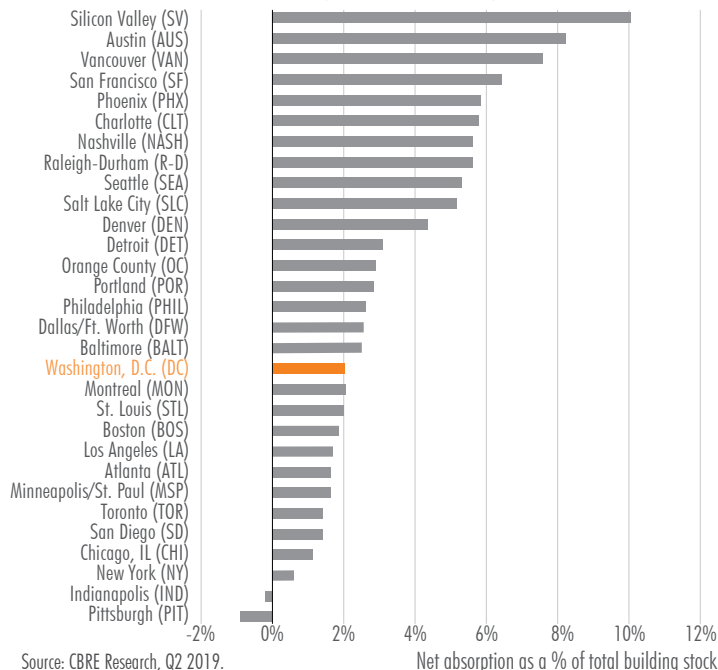
HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH

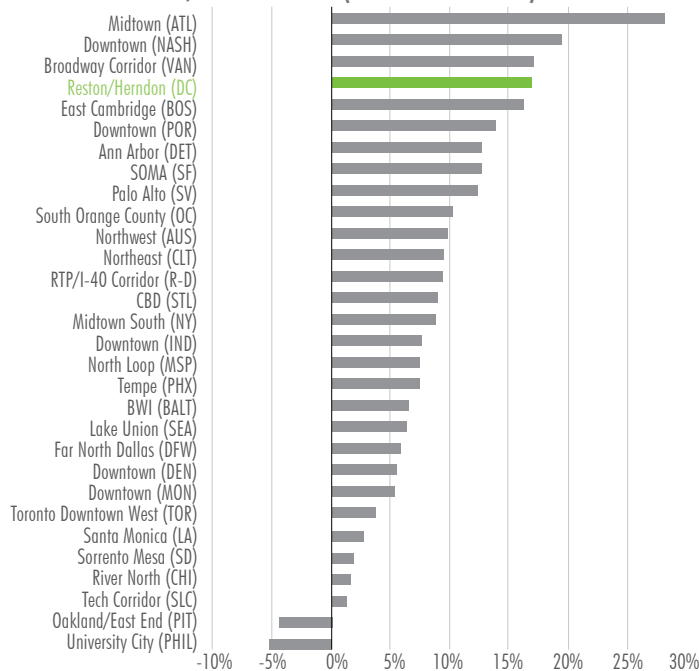
OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH

TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

BALTIMORE (#24)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$23.27
Direct FS/YR	
Vacancy Rate	14.6%
Supply	
Under Construction	1.1 MSF
Sublease Available	1.0 MSF
Top Tech Submarket	BWI
Rents/Vacancy	\$28.29/13.3%

HIGH-TECH INDUSTRY STATS, 2018

Employment	35,460
High-Tech Software/Services	
Employment Clustering	12.0%
% of Office-Using Jobs	
Educational Attainment	39.5%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$108,852
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Paypal	9690 Deereco Rd	73,100 SF
Focal Point Data Risk	8890 McGraw Rd	27,800 SF
Freedom Consulting Group	7061 Columbia Gateway Dr	25,000 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Baltimore ranks 14th in CBRE's 2019 Scoring Tech Talent report, which details the quality and availability of tech workers in top North American markets.
- Baltimore stands out for its combination of world-class educational institutions, talented and diverse workforce and entrepreneurial spirit to attract financial and cyber technology firms.
- Synergy between Baltimore and Washington, D.C. educational institutions and businesses positions the market for continued growth.

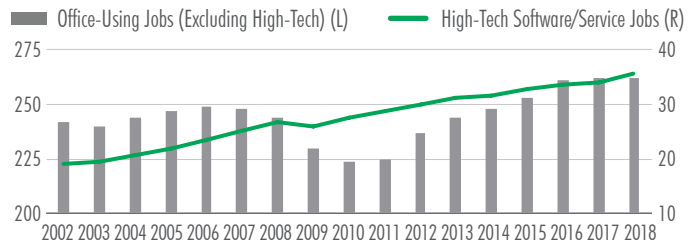
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

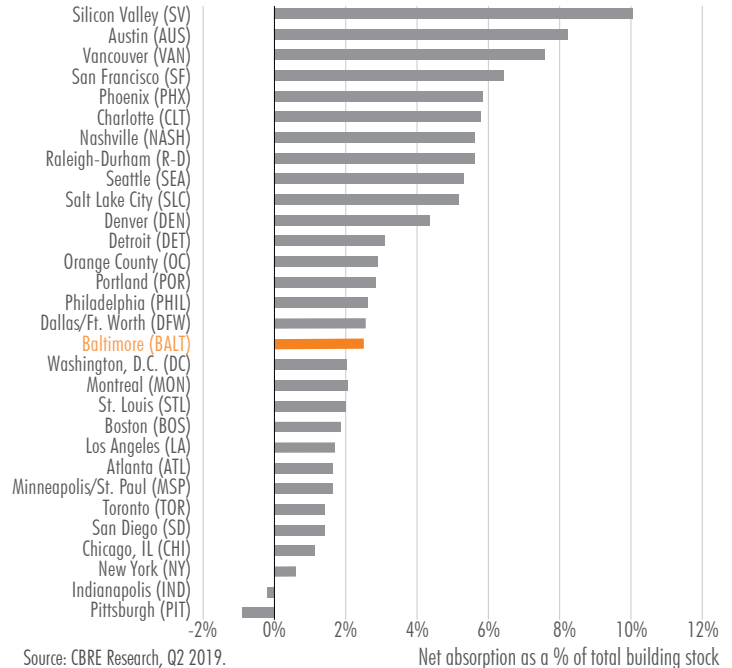
HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH

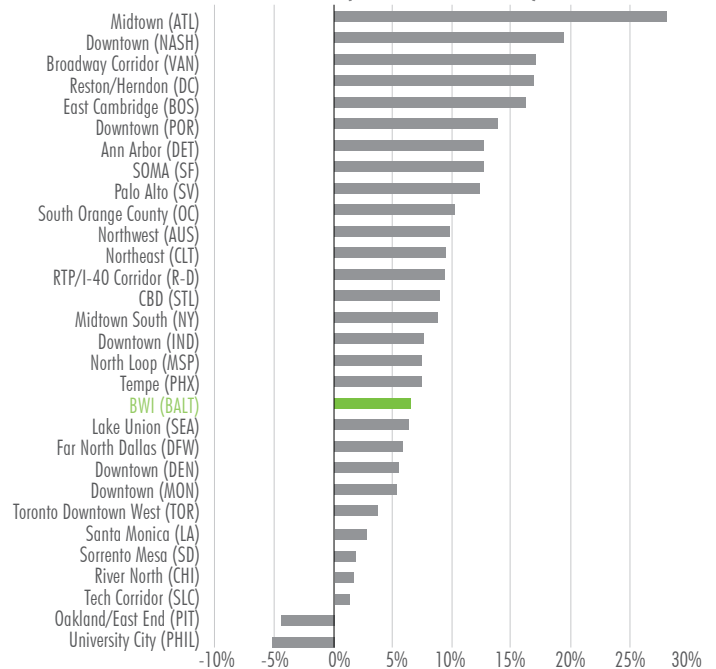
OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH

TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

PITTSBURGH (#25)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$23.16
Direct FS/YR	
Vacancy Rate	14.9%
Supply	
Under Construction	1 MSF
Sublease Available	1.4 MSF
Top Tech Submarket	Oakland/East End
Rents/Vacancy	\$20.25/10.0%

HIGH-TECH INDUSTRY STATS, 2018

Employment	22,793
High-Tech Software/Services	
Employment Clustering	9.0%
% of Office-Using Jobs	
Educational Attainment	35.1%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$88,292
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Wabtec	30 Isabella St	84,000 SF
Siemens Mobility	162 E Bridge St	56,000 SF
Tobii Dynavox	2100 Wharton St	43,000 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Pittsburgh's premier tech submarket, Oakland/East End, commands Class A asking rates that exceed \$43.00 per sq. ft. and maintains the tightest Class A vacancy of 1.2%.
- Pittsburgh's leading universities provide top tech talent specializing in robotics and artificial intelligence.
- Autonomous-vehicle and robotics companies account for the largest investment of technology capital in the region.
- Growing demand for new amenity-rich office space in primary tech submarkets is fueling a near-record level of new construction.

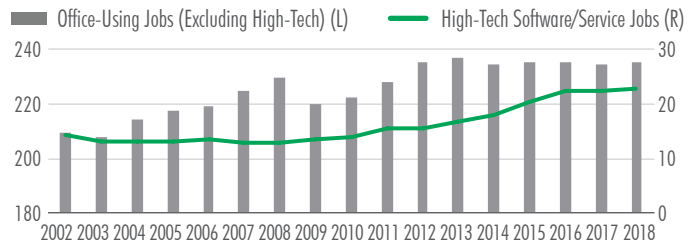
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

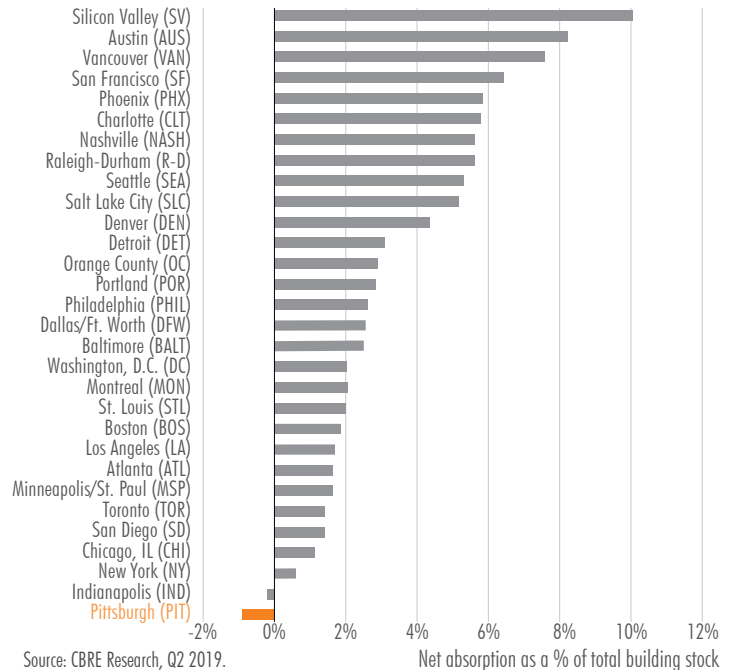
Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



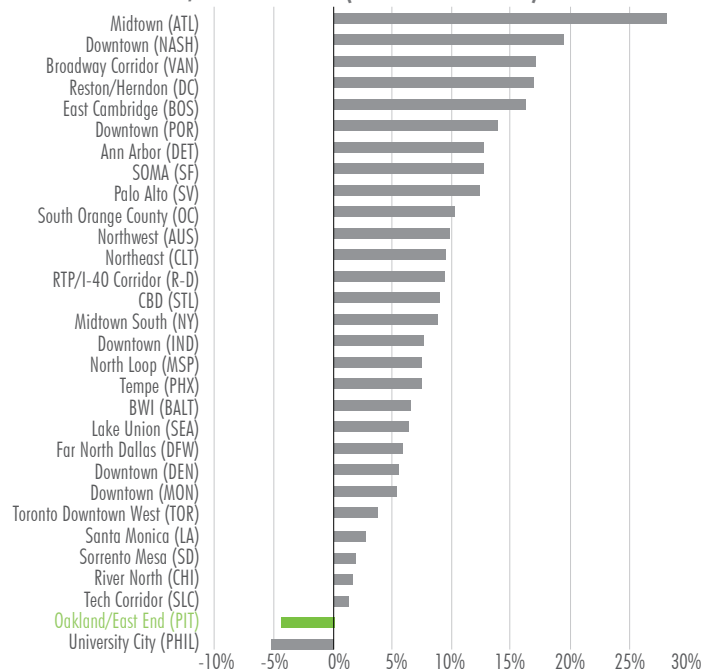
Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

MINNEAPOLIS/ST. PAUL (#26)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$28.17
Direct FS/YR	
Vacancy Rate	18.6%
Supply	
Under Construction	0.7 MSF
Sublease Available	0.3 MSF
Top Tech Submarket	North Loop
Rents/Vacancy	\$30.85/16.2%

HIGH-TECH INDUSTRY STATS, 2018

Employment	49,085
High-Tech Software/Services	
Employment Clustering	10.2%
% of Office-Using Jobs	
Educational Attainment	41.7%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$98,174
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Infor	380 St. Peter St	144,000 SF
PeopleNet	4400 Baker Rd	90,000 SF
JAMF Software	100 S Washington Ave	77,500 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Technology employers in the Minneapolis/St. Paul market are in diverse industries, including health insurance, biotech, retail and food.
- The corridor between St. Cloud, Minneapolis/St. Paul and Rochester is known as "Medical Alley" because it is home to medical device companies creating new innovative med-tech.
- The Minneapolis/St. Paul market is attractive to tech companies for its highly-educated workforce. Since 2006, the University of Minnesota has launched more than 150 tech startups that have attracted \$405 million in investment capital.

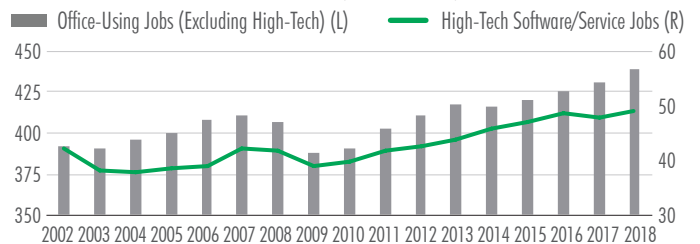
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

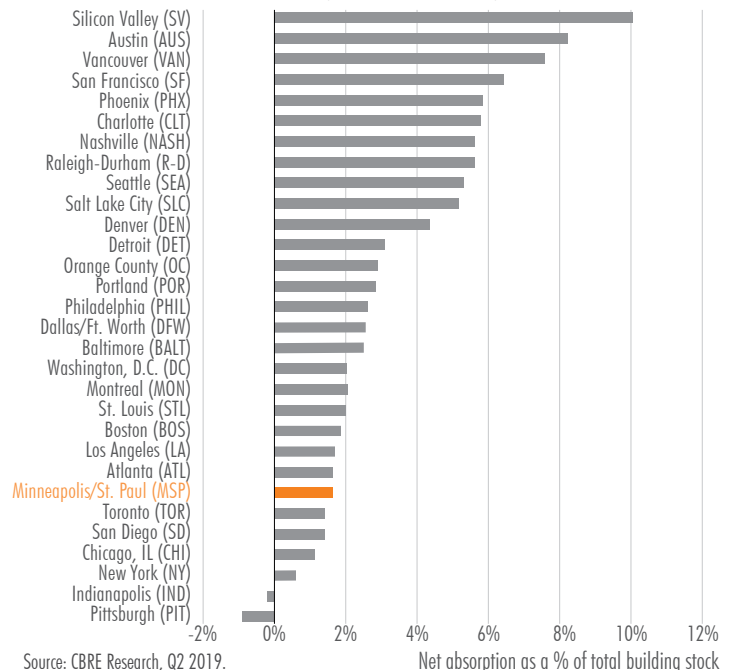
Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



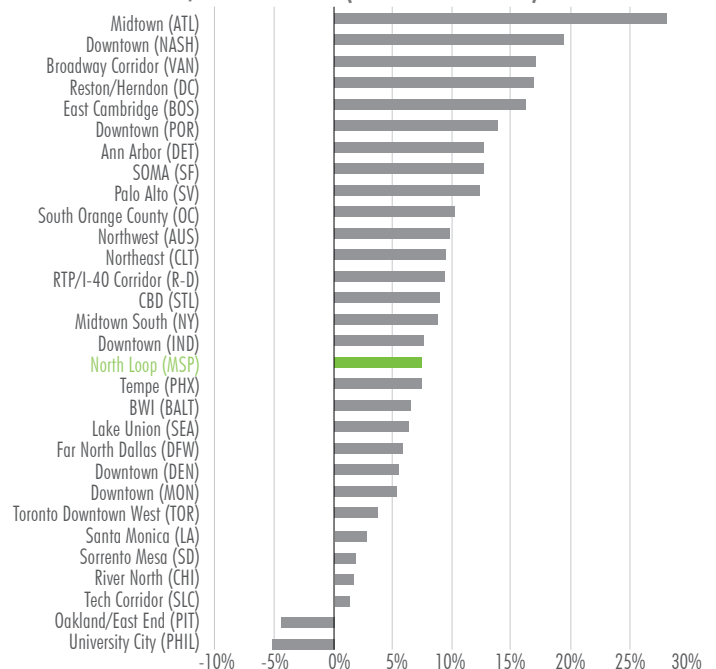
Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

DETROIT (#27)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent Direct FS/YR	\$19.14
Vacancy Rate	14.5%
Supply Under Construction	2.5 MSF
Sublease Available	0.0 MSF
Top Tech Submarket Rents/Vacancy	Ann Arbor \$26.84/3.6%

HIGH-TECH INDUSTRY STATS, 2018

Employment	48,794
High-Tech Software/Services	
Employment Clustering % of Office-Using Jobs	9.4%
Educational Attainment Residents w/ BA or higher (Metro Area)	31.1%
Labor Cost (MSA) Software Engineer	\$92,055

SIGNIFICANT OFFICE LEASE DEALS, 2019

Secure 24	4000 Town Center	99,800 SF
LinkedIn	1523 Woodward Ave	74,500 SF
One10	2800 Livernois	51,200 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Wayne County had 37 active venture capital-backed tech startups as of 2018, a 54% increase over the past five years.
- There are 70,000 tech workers in Greater Detroit who specialize in tech manufacturing, software, telecommunications and other information services.
- Michigan remains the preeminent state for auto-related research and development, and automotive tech companies are expanding in Detroit to take advantage of its talent and experience.

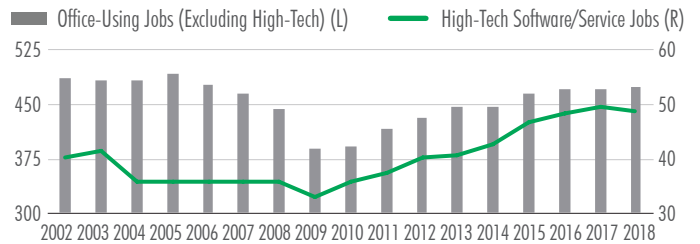
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

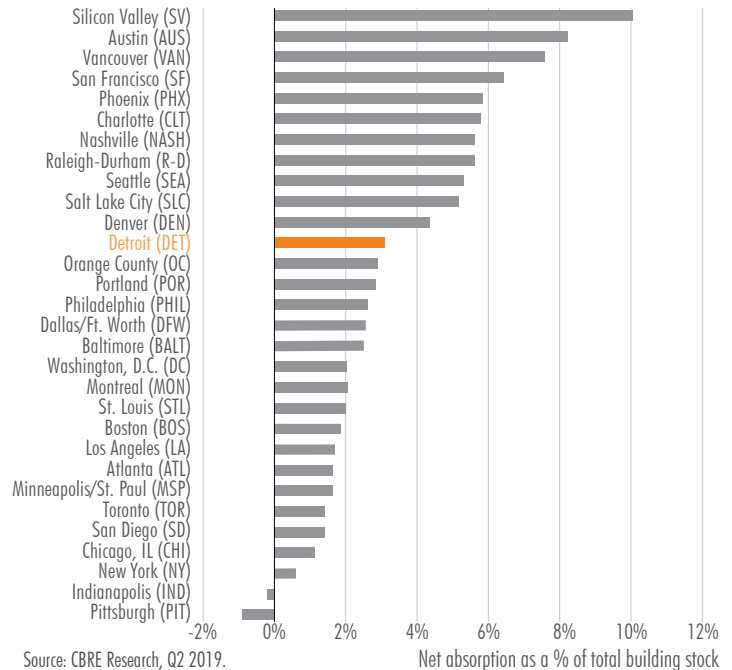
Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



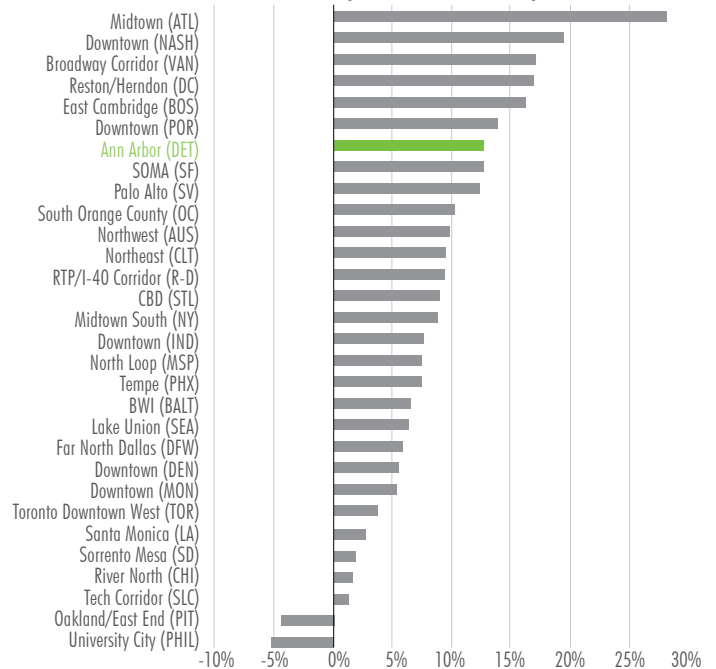
Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

PHOENIX (#28)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$26.89
Direct FS/YR	
Vacancy Rate	14.9%
Supply	
Under Construction	2.5 MSF
Sublease Available	1.1 MSF
Top Tech Submarket	Tempe
Rents/Vacancy	\$30.47/2.8%

HIGH-TECH INDUSTRY STATS, 2018

Employment	55,434
High-Tech Software/Services	
Employment Clustering	9.8%
% of Office-Using Jobs	
Educational Attainment	31.1%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$98,270
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Paypal	3000 Payment Way	188,700 SF
Indeed	4343 N Scottsdale Rd	77,700 SF
Zillow	4343 N Scottsdale Rd	49,700 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Tech tenants that were new to the Phoenix market over the past five years and signed shorter-term leases are now expanding and signing longer-term commitments.
- Tempe and South Scottsdale have the most demand from the tech sector.
- Tech tenants want to move quickly and are attracted to quality built-out space.

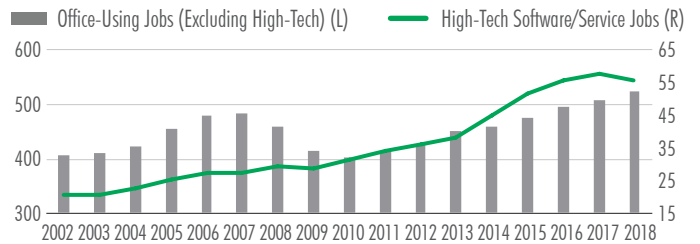
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

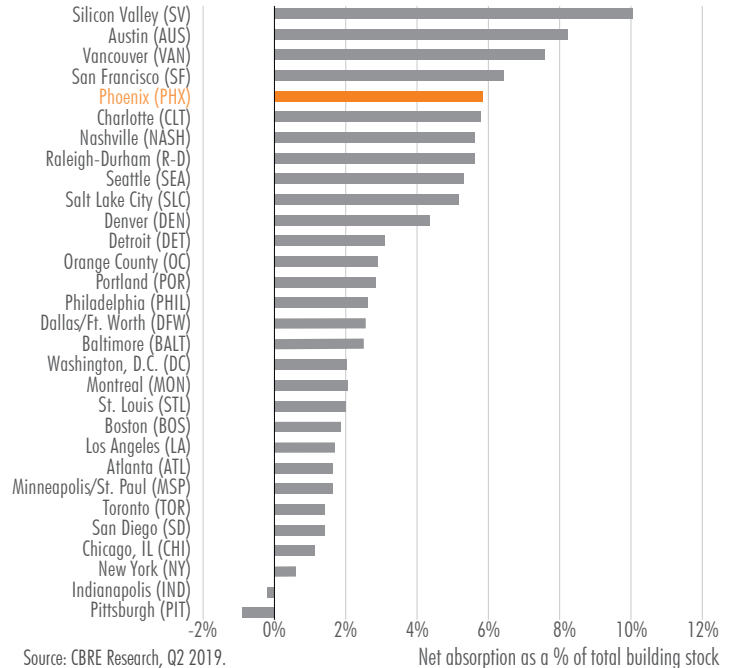
Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



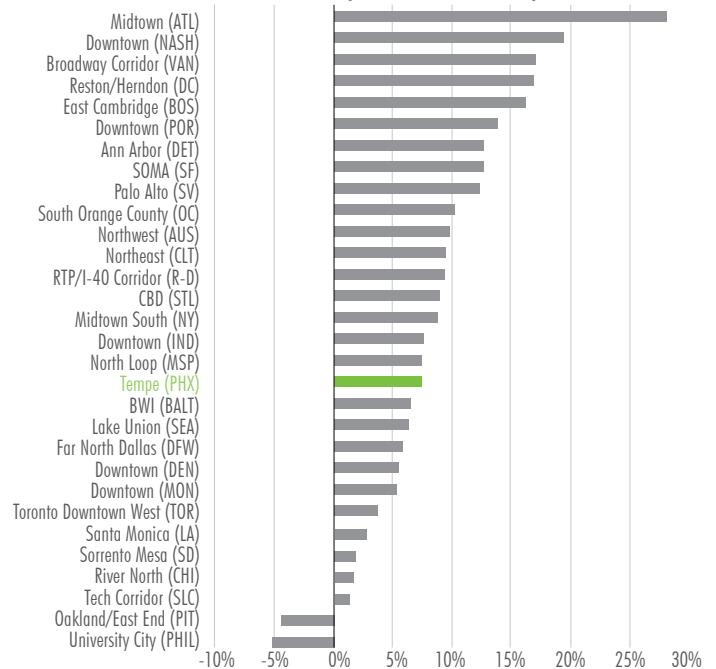
Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

PHILADELPHIA (#29)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent Direct FS/YR	\$29.46
Vacancy Rate	13.9%
Supply Under Construction	0.8 MSF
Sublease Available	1.7 MSF
Top Tech Submarket	University City
Rents/Vacancy	\$39.02/10.6%

HIGH-TECH INDUSTRY STATS, 2018

Employment	44,572
High-Tech Software/Services	
Employment Clustering % of Office-Using Jobs	9.4%
Educational Attainment Residents w/ BA or higher (Metro Area)	37.7%
Labor Cost (MSA) Software Engineer	\$100,367

SIGNIFICANT OFFICE LEASE DEALS, 2019

Comcast	400 Commerce Dr	148,100 SF
Sungard Availability Services	1500 Spring Garden Sr	135,100 SF
Bracket	785 Arbor Way	105,600 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- Consumer technology is transcending industries with significant demand for tech talent growing among telecom companies. In particular, telecom is expected to add more than 4,000 jobs in the near term in Philadelphia.
- Benjamin Franklin Technology Partners created a \$50 million fund to invest in Philadelphia tech startups.
- The Spring Arts submarket, which offers creative office loft spaces, is a cost-effective alternative for growing tech companies compared to the more expensive product along Market Street.

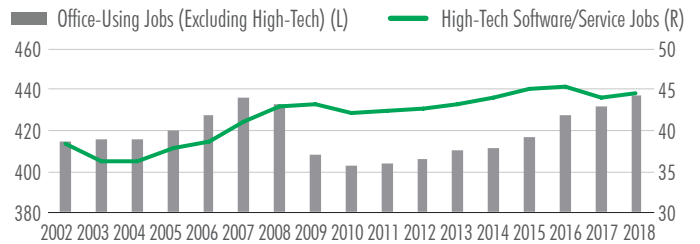
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

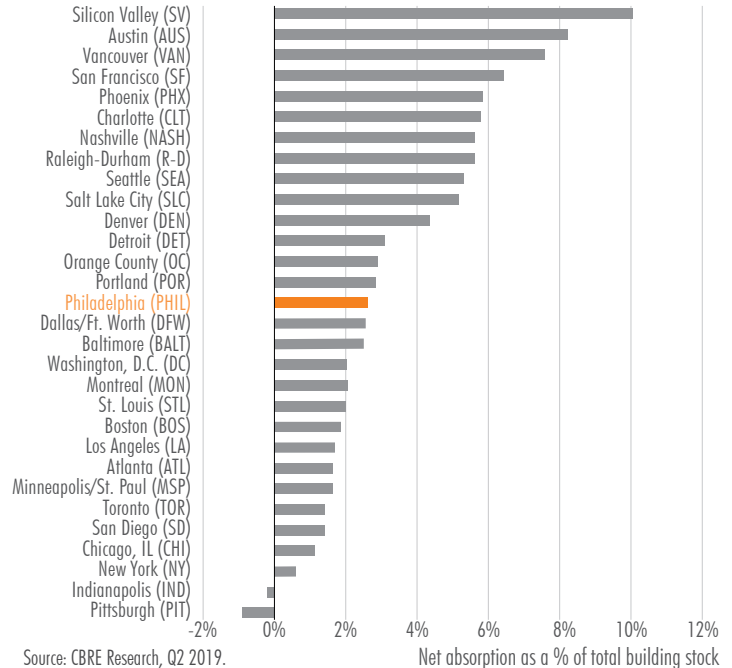
Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



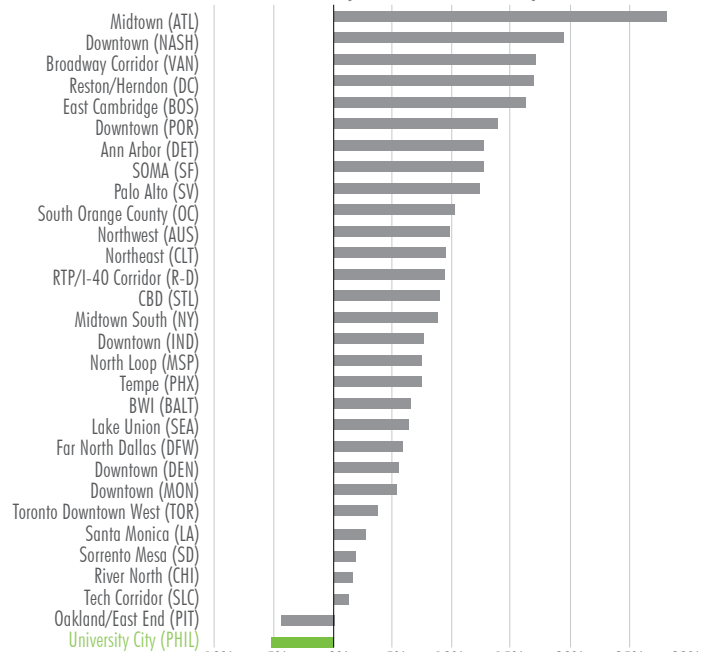
Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

INDIANAPOLIS (#30)

QUICK STATS

OFFICE MARKET STATS, Q2 2019

Average Asking Rent	\$20.51
Direct FS/YR	
Vacancy Rate	16.8%
Supply	
Under Construction	0.6 MSF
Sublease Available	0.3 MSF
Top Tech Submarket	Downtown
Rents/Vacancy	\$21.94/16.8%

HIGH-TECH INDUSTRY STATS, 2018

Employment	26,712
High-Tech Software/Services	
Employment Clustering	11.3%
% of Office-Using Jobs	
Educational Attainment	35.6%
Residents w/ BA or higher (Metro Area)	
Labor Cost (MSA)	\$86,282
Software Engineer	

SIGNIFICANT OFFICE LEASE DEALS, 2019

Infosys	1 American Sq	53,100 SF
Kronos	101 W Washington St	42,600 SF
Baker Hill Solutions	1320 City Center Dr	26,400 SF

Source: CBRE Research, Q2 2019.

HOT TOPICS

- The tech sector accounts for an estimated \$9.3 billion or 7.7% of the local economy.
- Most high-tech companies are expanding downtown to take advantage of its urban amenities.
- Indianapolis is one of Midwest's most affordable cities, which is attractive for tech company locations.

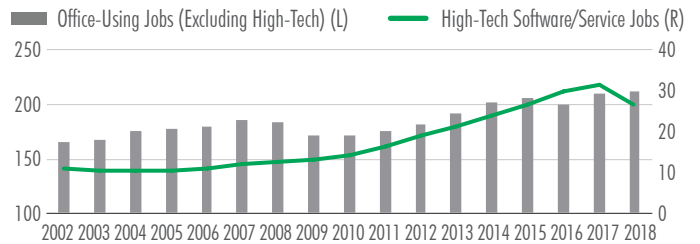
HIGH-TECH SOFTWARE/SERVICES JOB AND OFFICE RENT GROWTH

Rank* Market	High-Tech Job Growth		Office Market Rent Growth	
	Current Period 2017 & 2018	Prior Period 2015 & 2016	Current Period Q2'17 vs Q2'19	Prior Period Q2'15 vs Q2'17
1 Vancouver	29.5%	17.9%	8.5%	-1.1%
2 San Francisco	24.7%	38.5%	17.5%	7.2%
3 Toronto	23.9%	17.7%	8.7%	-5.6%
4 Seattle	23.7%	19.1%	12.4%	11.7%
5 Austin	22.5%	22.8%	8.5%	11.2%
6 San Diego	19.7%	3.9%	8.0%	13.5%
7 New York	14.8%	17.9%	8.4%	6.2%
8 Silicon Valley	14.7%	16.0%	15.0%	16.2%
9 Salt Lake City	14.3%	12.3%	-0.5%	3.1%
10 Denver	13.8%	11.5%	8.7%	8.3%
11 Los Angeles	13.4%	19.4%	11.1%	11.1%
12 Atlanta	13.0%	11.7%	12.6%	17.6%
13 St. Louis	11.7%	17.1%	6.5%	1.0%
14 Montreal	11.4%	14.0%	-0.7%	2.2%
15 Orange County	10.9%	15.7%	9.5%	23.3%
16 Portland	10.3%	10.2%	15.8%	14.5%
17 Nashville	9.6%	15.2%	12.2%	21.2%
18 Dallas/Ft. Worth	8.7%	11.8%	5.2%	15.7%
19 Boston	7.6%	11.1%	12.2%	7.7%
20 Charlotte	7.3%	31.7%	13.9%	16.9%
21 Raleigh-Durham	6.8%	13.5%	10.6%	8.9%
22 Chicago	6.7%	19.1%	5.7%	4.9%
23 Washington, D.C.	6.4%	5.9%	9.9%	4.3%
24 Baltimore	6.0%	6.5%	3.6%	-1.1%
25 Pittsburgh	1.9%	24.4%	5.9%	3.5%
26 Minneapolis/St. Paul	1.2%	6.2%	5.8%	7.1%
27 Detroit	0.9%	13.8%	4.9%	7.0%
28 Phoenix	-0.2%	24.2%	7.5%	13.4%
29 Philadelphia	-2.1%	3.5%	9.6%	4.3%
30 Indianapolis	-10.7%	26.8%	7.9%	6.7%

*Ranked by high-tech job growth rate.

Source: U.S. Bureau of Labor Statistics, Statistics Canada, CBRE Research, Q2 2019.

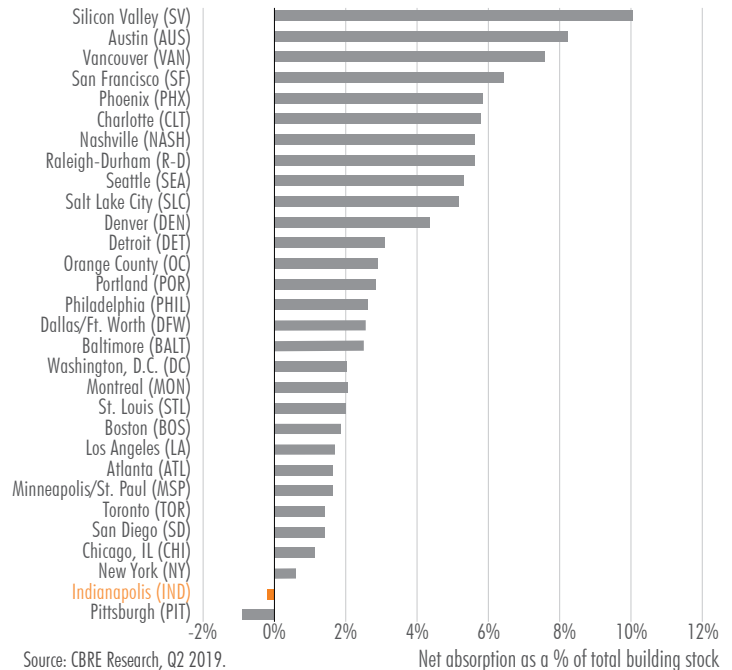
HIGH-TECH SOFTWARE/SERVICES VS. OFFICE-USING JOBS (THOUSANDS)



Source: CBRE Research, Q2 2019 and U.S. Bureau of Labor Statistics, July 2019.

NET ABSORPTION GROWTH

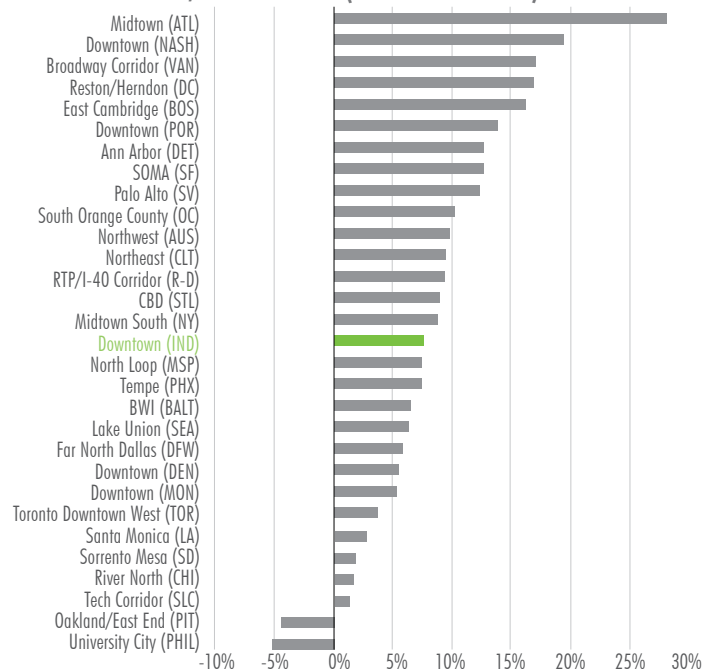
OVERALL MARKET, PAST TWO YEARS (Q3 2017 - Q2 2019)



Source: CBRE Research, Q2 2019.

RENT GROWTH

TOP TECH SUBMARKET, PAST TWO YEARS (Q2 2017 VS. Q2 2019)



Source: CBRE Research, Q2 2019.

CONTACTS

To learn more about CBRE Research, or to access additional research reports, please visit www.cbre.com/research-and-reports. Additional U.S. Research from CBRE can be found [here](#).

FOR MORE INFORMATION PLEASE CONTACT:

Chris Connelly
CEO,
Americas Advisory Services
+1 312 297 7604
chris.connelly@cbre.com

FOR MORE INFORMATION ABOUT OCCUPIER SERVICES, PLEASE CONTACT:

Whitley Collins
Global President,
Occupier Advisory & Transaction Services
+1 310 363 4842
whitley.collins@cbre.com

Todd Husak
Managing Director
Technology and Media Practice
+1 650 494 5182
todd.husak@cbre.com

FOR MORE INFORMATION REGARDING 2019 TECH-30, PLEASE CONTACT:

Colin Yasukochi
Executive Director
Technology and Media Insights Center
+1 415 772 0190
colin.yasukochi@cbre.com

Lexi Russell
Research Director
+1 415 772 0272
lexi.russell@cbre.com

FOR MORE INFORMATION REGARDING CBRE RESEARCH, PLEASE CONTACT:

Richard Barkham, Ph.D., MRICS
Global Chief Economist & Head of Americas Research
+1 617 912 5215
richard.barkham@cbre.com

Spencer G. Levy
Chairman Americas Research & Senior Economic Advisor
+1 617 912 5236
spencer.levy@cbre.com
Follow Spencer on Twitter: @SpencerGLevy



WANT TO KNOW MORE ABOUT SCORING TECH TALENT?

CBRE Research recently released a comprehensive report on tech talent across the U.S. The report, identifies the top markets for tech talent using a proprietary scoring system, explains what tech talent markets look like, and identifies the top tech talent momentum and innovation markets and corresponding operating costs. Download **Scoring Tech Talent: Influencing Innovation, Economic and Real Estate Growth in 50 U.S. and Canadian Markets**.

Disclaimer: Information contained herein, including projections, has been obtained from sources believed to be reliable. While we do not doubt its accuracy, we have not verified it and make no guarantee, warranty or representation about it. It is your responsibility to confirm independently its accuracy and completeness. This information is presented exclusively for use by CBRE clients and professionals and all rights to the material are reserved and cannot be reproduced without prior written permission of CBRE.