



The Technology Sector in New York City

Highlights

- During the past five years, 22.3 percent of the City's firms added were in the tech sector.
- From 2016 to 2021, as the City's private sector employment declined by 3.3 percent, tech sector employment increased by 33.6 percent to reach a record of 172,570 jobs.
- Total wages in the tech sector more than doubled (108 percent) from 2016 to 2021, almost four times greater than the growth (28 percent) of total private sector wages.
- While manufacturing and telecommunications tech jobs declined, these accounted for just 11 percent of the City's tech sector in 2021 versus 48 percent in the rest of the State.
- Even though the tech sector accounted for just 4.9 percent of the City's total private sector, private sector job losses in the past five years would have been worse by a third (43,430 jobs) if not for the tech sector.
- The tech sector accounted for almost a tenth of the City's total private sector wages.
- From 2016 to 2021, tech employment in Brooklyn increased by 42.6 percent, greater than that of Manhattan (36.2 percent).
- Employment in the software publishing industry, the fastest growing subsector in tech, quadrupled.
- Over 76 percent of tech workers aged 25 years and older held at least a bachelor's degree, the highest share out of all industries.
- Only 29 percent of tech workers were women, a much lower share than the rest of the overall workforce share of 47 percent.

The U.S. technology sector has thrived in recent decades as the nation has emphasized the importance of a strong innovation ecosystem to keep pace with global competition. While most economic sectors suffered job losses amid the onset of the COVID-19 pandemic, the tech sector continued to grow as the need to socially distance and remote work increased the demand for technology. From 2016 to 2021, New York State's growth in the tech sector was fueled by New York City, whose tech sector increased by 33.6 percent even as its total private sector has yet to fully recover.

Not only has the number of jobs grown but the number of businesses within the tech sector has increased as well, accounting for 22.3 percent of the City's total private firms added during the past five years. Most of these firms consisted of fewer than 10 employees and contributed to the citywide growth in microbusinesses amid the pandemic. Start-up companies in the New York metropolitan area garnered more than 16 percent of the nation's total venture capital investment in 2021, the largest share behind the San Francisco Bay Area.

This boom in business activity has been reflected in greater demand for office space by tech firms that continued through much of the pandemic. Nevertheless, changes in worker preferences and firm choices regarding office space, as well as a looming economic recession, still present risks to tech real estate. The City should continue to collaborate with local businesses and corporate partners to understand trends in tech employment and identify in-demand skills needed to generate innovation in the sector. By engaging talented tech graduates with social ties to the community and expanding education opportunities, the City can foster a strong and diverse tech workforce.

Defining the Tech Sector

Unlike other formally classified employment sectors (such as financial activities or leisure and hospitality), there is no official definition of the technology sector, referred to as the “tech sector” from here on. The information sector is often used as a proxy for the tech sector. While large parts of information can be considered tech, much of it is not, such as newspaper and book publishers, motion pictures and sound recording, and broadcasting.

For this report, the Office of the State Comptroller ([OSC](#)) defines the tech sector as comprising firms, and those they employ, that principally research, design, manufacture or maintain technologies related to computer systems, software, computer and communication equipment, the internet and biotechnology.¹

An industry that was not included, which others may include, is online shopping. OSC chose not to include businesses in this sector, such as Amazon and Etsy, since their primary activity is selling goods, and many if not most of its workers are in non-technical occupations, such as warehouse workers. Instead, OSC includes the telecommunications industry because it provides the infrastructure that supports the tech sector.

New York State Tech Employment

Employment in the New York State tech sector totaled 321,280 jobs in 2021, or 5.7 percent of all sector jobs in the nation (see Figure 1). New York had the third largest total after California and Texas. Between 2016 and 2021 (following OSC’s last tech sector report), employment in New York’s tech sector increased by 14.3 percent, slower than the national rate of 15.2 percent and the slowest among the five states with the largest tech sectors.

Much of the growth in New York State was concentrated in New York City, where over half (54 percent) of the State’s tech jobs were in 2021. Between 2016 and 2021, New York City added a total of 43,430 jobs while in the rest of the State,

FIGURE 1
States with the Largest Tech Sectors

Rank	State	Jobs in 2021	Growth from 2016 to 2021
1	California	1,061,150	20.2%
2	Texas	503,780	24.7%
3	New York	321,280	14.3%
4	Massachusetts	270,900	14.5%
5	Florida	270,860	24.7%
6	Washington	240,580	34.7%
7	Virginia	233,270	8.2%
8	Illinois	180,550	3.3%
9	Pennsylvania	179,570	12.1%
10	North Carolina	178,250	17.2%
	U.S. Total	5,656,840	15.2%

Sources: U.S. Bureau of Labor Statistics; OSC analysis

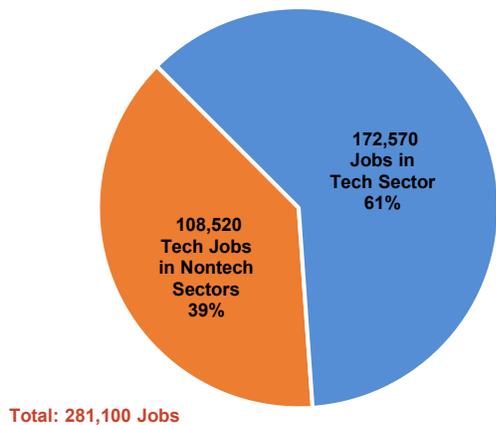
the sector lost 3,210 jobs. When compared to all other states, New York City’s growth of 33.6 percent ranked second behind only Washington State’s growth of 34.7 percent during the same period.

The difference in growth rates between New York City and the rest of the State has to do with the composition of the tech sector. In both, employment in manufacturing and telecommunications has been declining over the past half decade. However, while these types of jobs accounted for just 11 percent (18,570 jobs) of the City’s tech sector in 2021, they accounted for 48 percent (71,610 jobs) of the rest of the State’s tech sector.

New York City Tech Jobs

The large growth in tech jobs in New York City was not limited to the tech sector alone. Businesses outside the sector also employ workers in tech occupations, such as software developers or computer programmers, and those occupations also experienced growth in the past decade. As a result, there are many tech jobs in nontech sectors.

FIGURE 2
The Larger Tech Community in 2021



Sources: NYS Department of Labor; U.S. Census Bureau; OSC analysis

When combined with the jobs in the tech sector, the City had a total of 281,100 tech jobs in 2021, 58 percent higher than in 2011 (see Figure 2).² More than three-fifths (61 percent) of these jobs were in the tech sector.

Jobs in the Tech Sector

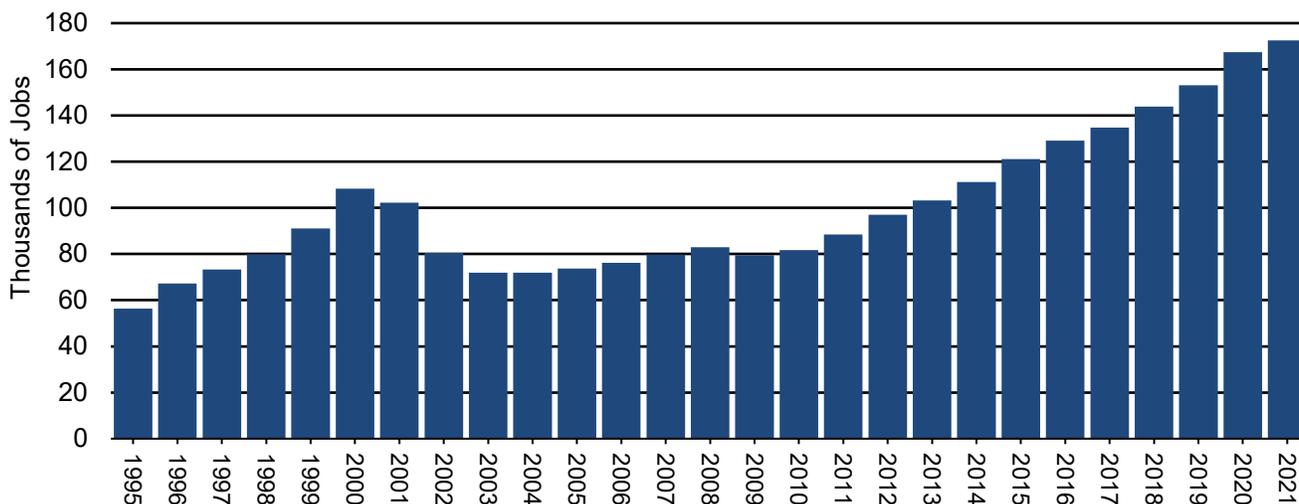
In the past 30 years, the tech sector experienced just two periods of decline in employment. The

first was a 34 percent drop due to the bursting of the dot-com bubble during the early 2000s, and the second was a 4.2 percent decline during the Great Recession in 2009 (see Figure 3). Since 2010, the tech sector has been especially strong, as growth outpaced that of the City’s total private sector in every year through 2021.

In 2020, even as the COVID-19 pandemic caused employment to decline in every major industry in the City, it did not slow down the tech sector as people became more reliant on technology during the lockdowns and the shift to working from home. As total private sector employment declined by 12.6 percent (494,810 jobs) in 2020, the tech sector grew by 9.4 percent (14,340 jobs), the largest growth since 2012. In 2021, growth in the sector slowed to 3.1 percent, though this was still larger than the total private sector’s growth of 2.4 percent.

In the past five years, the City’s overall employment would have been worse off without the tech sector. From 2016 to 2021, employment in the sector increased by 33.6 percent (43,430 jobs) to reach a record high of 172,570 jobs. During the same period, the total private sector

FIGURE 3
Jobs in New York City's Tech Sector



Sources: U.S. Bureau of Labor Statistics; NYS Department of Labor; OSC analysis

lost 121,360 jobs (3.3 percent). Even though the tech sector accounted for just 4.9 percent of the City’s total private sector, job losses in the private sector during this period would have been worse by a third if not for the tech sector. In comparison, the securities industry, commonly known as the City’s economic engine, added just 3,320 jobs (1.9 percent) to reach 176,260 jobs in 2021.

Over 87 percent of the City’s tech sector jobs (150,400 jobs) were located in Manhattan in 2021. Since 2016, the borough’s tech sector added 39,950 jobs (36.2 percent), mostly in the Midtown and Downtown areas.

While Brooklyn’s tech sector is the second largest of the five boroughs, it makes up only 7.6 percent (13,160 jobs) of the City’s tech sector. Brooklyn’s tech jobs are concentrated in the Brooklyn Heights & Fort Greene and Greenpoint & Williamsburg neighborhoods. Despite its relatively small number of jobs, from 2016 to 2021, tech employment in Brooklyn increased by 42.6 percent (3,930 jobs), greater than that of Manhattan.

During the same period, Queens’ tech sector increased by 3.5 percent (220 jobs) to reach 6,280 jobs. The growth was concentrated in the Sunnyside and Woodside neighborhoods. The relatively slow growth in Queens was still better than in the Bronx and Staten Island, which both declined (by 25 percent and 11.7 percent, respectively), to reach 1,500 jobs and 1,240 jobs, respectively. The telecommunications sector was the largest portion of the tech sector within these three boroughs, which led to a different employment trajectory than what was experienced in Manhattan and Brooklyn.

The Subsectors of Tech

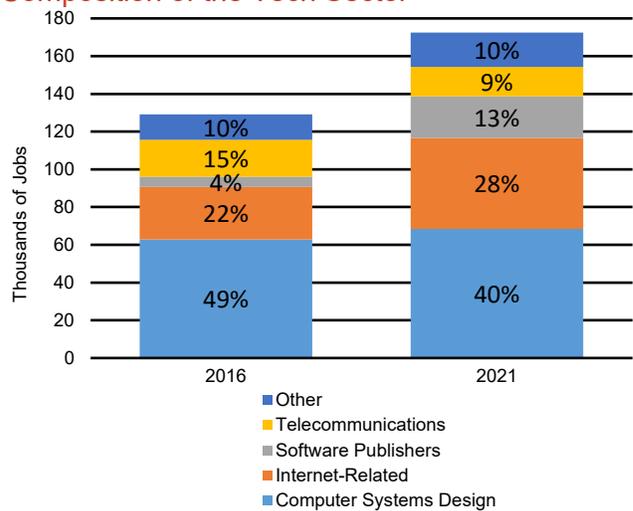
Businesses engaged in computer systems design accounted for almost 40 percent (68,380 jobs) of tech sector employment in 2021, making up the largest subsector of tech in New York City (see Figure 4). This subsector added 5,520 jobs (12.7

percent) from 2016 to 2021. Recognizing the importance of this subsector, the City has partnered with the City University of New York to create a bachelor’s degree program in Digital Game Design at the City College of New York and will provide students with strategic pathways to careers in related fields.

Accounting for 28 percent (48,220 jobs) of the tech sector in 2021, the second largest tech subsector was companies engaged in activities related to the internet (i.e., internet publishing and broadcasting and web search portals). In the past five years, this subsector, which includes companies like Google, contributed to almost half (47 percent, or 20,390) of the jobs added in the entire tech sector. As a result, this subsector increased by 73 percent between 2016 and 2021, though this was still only the second fastest growing tech subsector in the City.

The fastest growing tech subsector in the past five years was software publishers, which includes app developers. Employment in related companies more than quadrupled, adding 16,660 jobs. Job growth was especially strong during the pandemic as employment increased by 97 percent between 2019 and 2020. By 2021, the

FIGURE 4
Composition of the Tech Sector



Sources: NYS Department of Labor; OSC analysis

subsector consisted of 22,110 jobs, accounting for 13 percent of the tech sector.

The telecommunications subsector, which includes internet service providers, such as Verizon and Spectrum, accounts for 9 percent of the tech sector, a drop from 15 percent just five years ago. Between 2016 and 2021, employment fell by 20 percent (3,900 jobs), following nearly two full decades of decline, as employment decreased in 15 of the past 20 years.

The remaining 10 percent of the City’s tech sector consists of “other” subsectors, which include data processing and hosting, biotech research, tech manufacturing and computer training. These types of businesses added a total 4,760 jobs from 2016 to 2021, increasing by 35 percent.

During the pandemic, semiconductor manufacturing, in particular, has become noteworthy as COVID-19 exacerbated semiconductor chip shortages. In August 2022, the Governor signed New York’s Green CHIPS legislation, which will create jobs and lower emissions by boosting semiconductor manufacturing in the State. This will allow eligible Green CHIPS projects to qualify for the Excelsior Jobs Tax Credit Program, which provides incentives based on job creation and company investment.

Tech Jobs in Nontech Sectors

The onset of the pandemic forced many companies to rely more on technology to run their businesses. Telecommuting became the norm for many workers. In addition, e-commerce has boomed during the pandemic.³ To adapt, many traditionally nontech firms (such as retail trade and leisure and hospitality) employed workers in tech jobs, such as software developers or computer programmers. As a result, OSC estimates that nontech sectors were responsible for 108,520 tech jobs in New York City in 2021.

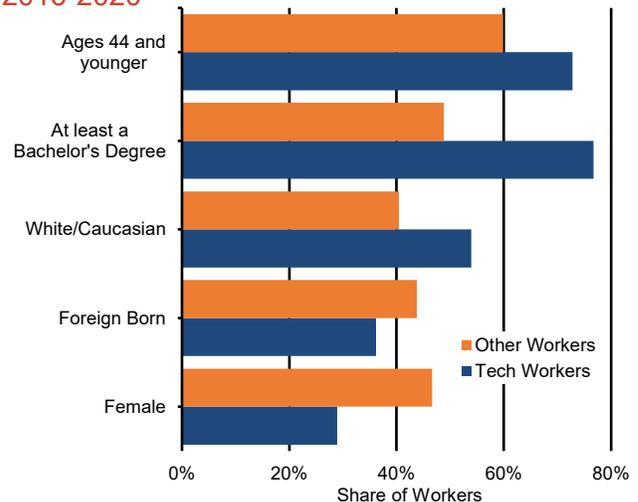
Out of all jobs in nontech sector businesses, 2.8 percent were estimated to be in tech occupations. Some sectors have a larger share than others. For example, the securities industry has a much larger share as financial technology (referred to as “fintech”) has boomed in recent years.⁴ As a result, OSC estimates 11.9 percent of securities jobs in the City were tech jobs. OSC’s estimates are likely conservative as data from 2016-2020 American Community Survey 5-year estimates (latest available) were used to determine the shares.⁵ However, this is still higher than the 9.8 percent tech share of securities jobs in 2009.

Workforce Characteristics

During the 2016-2020 period (latest data available), the tech sector had one of the youngest workforces, as the average age of the sector was 38.1 years, lower than the average of 41.4 years in the rest of the citywide private sector. Out of all major industries in the City, only retail trade and leisure and hospitality had a lower average age (37.4 and 37.5 years, respectively).

Unlike other industries with a young workforce, the tech workforce was more likely to have earned at least a bachelor’s degree. Over three quarters (77 percent) of tech workers ages 25

FIGURE 5
Select City Tech Worker Characteristics,
2016-2020



Sources: U.S. Census Bureau, 2016-2020 5-year American Community Survey estimates; OSC analysis

years and older had earned at least a bachelor's degree, the highest share out of all industries in the City, and much higher than the rest of the citywide average (49 percent). (see Figure 5.)

This high level of educational attainment is attributable to the presence of colleges such as the Fu Foundation School of Engineering and Applied Science at Columbia University, New York University Tandon School of Engineering, the Grove School of Engineering at the City College of New York and the Cornell Tech Campus located on Roosevelt Island.

The tech workforce is less diverse than the rest of the City's private sector workforce. During 2016-2020, over half (54 percent) of tech workers identified as White or Caucasian, much higher than the share of 40 percent among all other workers. Asian workers made up 22 percent of the tech workforce while Hispanic or Latino workers made up 12 percent and Black or African American workers made up 10 percent. Workers in the tech sector were also less likely to be immigrants as 36 percent were born outside the U.S., a lower share than that of the rest of the City's workforce (44 percent), though this is a higher share than the nation's tech workforce (25 percent). Only 29 percent of tech workers were women, a much lower share than the rest of the workforce share of 47 percent.

Not every occupation in the tech sector requires technological skills. OSC estimates that more than half (55 percent) of the workers in the tech sector during 2016-2020 had nontech occupations such as managers, sales representatives, customer service representatives, accountants and lawyers.⁶

High Pay in Tech

As the tech sector faces difficulty in finding skilled and qualified employees, in recent years companies have provided relatively high compensation to attract talent.⁷ In 2021, the average salary in tech reached \$228,620, almost double the average (\$117,810) of the total private sector in New York City. Out of all sectors with at least 2,000 employees, tech average salary

ranked third, behind only the management of companies and enterprises sector (\$238,770) and the [securities industry](#) (\$516,560).

From 2016 to 2021, the average salary in the tech sector increased by 55 percent. In comparison, the average salary in the securities industry increased by just 38 percent even as average bonuses in the industry reached [a record high in 2021](#).⁸ In fact, the tech average salary had the largest growth in the past five years out of all sectors with over 2,000 employees, behind only that (66 percent increase) of the nonstore retailers subsector of the retail trade sector, which includes electronic shopping companies such as Amazon. The average salary of the total private sector in New York City increased by 32 percent during the same period.

Total wages in the tech sector more than doubled (108 percent) from 2016 to 2021, almost four times greater than the growth (28 percent) of total private sector wages. This growth in tech wages was the second largest among all sectors with over 2,000 employees, behind only the 333% growth in total wages in the warehousing and storage subsector of the [transportation and warehousing sector](#), which coincided with a quadrupling of employment in that sector.⁹

By 2021, tech employees earned \$39.5 billion in total wages, the third highest of all sectors, behind only professional and technical services (\$52.7 billion) and the securities industry (\$91.0 billion). While tech employment accounted for just 4.9 percent of total private sector employment in New York City, it accounted for almost a tenth of total private sector wages.

Businesses in Tech

In 2021, there were 10,340 firms in the tech sector in New York City. In the past five years, the number of tech businesses increased by 34.4 percent (2,650 firms), much greater than the 4.5 percent growth in the total private sector. While the number of firms in the tech sector accounted

for just 3.8 percent of the total private sector in 2021, the tech sector accounted for 22.3 percent of the firms added in the past five years.

Four out of five tech firms are microbusinesses, or those consisting of fewer than 10 employees, which is similar to the total private sector (83 percent). From 2016 to 2021, the number of microbusinesses in tech increased by 38.5 percent to reach 8,270 businesses.

According to a report from the Center for an Urban Future (CUF), New York City had more tech-enabled start-ups (25,451) than anywhere else except for the San Francisco Bay Area (31,194).¹⁰

As of July 2022, there were 110 “unicorns” (privately held start-ups valued at over \$1 billion) in New York City, according to data from CB Insights.¹¹ This was the second most out of all cities in the nation, behind only San Francisco (167) but far more than Boston (21), the city with the third most unicorns. Most New York City start-ups crossed the \$1 billion threshold within the past two years, 61 in 2021 and 25 so far in 2022.

In a push to attract more high-tech industries to the State, in February 2022, the Governor announced the Focused Attraction of Shovel-Ready Tracts New York grant program (FAST NY) to provide up to \$200 million in grants to develop sites statewide.¹²

Tech’s Impact on Real Estate

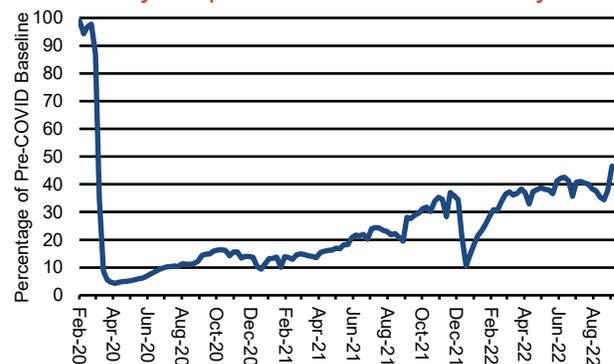
As tech is one of the few sectors with large increases in employment and establishments in recent years, it has become even more important to [New York City’s office real estate market](#), the largest in the world by area.¹³

Historically, businesses within the financial services sector have occupied the most office space in the City. According to real estate firm Cushman & Wakefield, financial services occupied 47.8 percent of office space in the City in 1990, while TAMI (technology, advertising,

media and information) businesses occupied 16.7 percent. However, the TAMI sector more than doubled in 30 years and by 2020, TAMI firms accounted for one-quarter of total leasing in the City, close to the financial services’ share of 28.6.

In 2020, as the pandemic swept through the country, there was a massive shift to remote work. According to Kastle Systems, a security company that manages access systems in select office buildings, keycard swipes in New York City in September 2022 still remain below 50 percent of pre-COVID levels (see Figure 6).¹⁴

FIGURE 6
Office Entry Swipe Rates in New York City

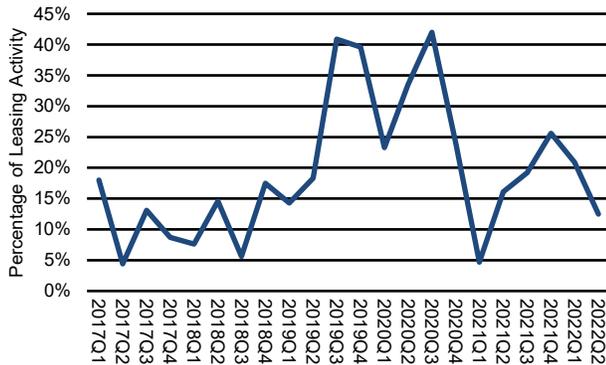


Sources: Kastle Systems; OSC analysis

According to a survey by the Partnership for New York City, the tech industry has a 47 percent average daily office attendance as of mid-September.¹⁵ As a result of changes in worker preferences that have raised questions over the future of office space, office vacancy reached 21.5 percent in the second quarter of 2022.¹⁶ This is the highest vacancy rate in over 30 years.

Despite overall weakness in the real estate market, new leasing by tech firms continued through much of the pandemic, as tech businesses accounted for a higher share of overall leasing activity than prior to the pandemic (see Figure 7). In addition to large lease renewals, Facebook, Google, Amazon, Apple, Spotify, TikTok and Microsoft all signed new leases for additional space during the pandemic and through 2021.

FIGURE 7
Tech Firms' Share of Overall Leasing Activity



Sources: Savills Research; OSC analysis

Venture capital firms, including those focused on technology such as Andreessen Horowitz and Sequoia Capital, also expanded into the City during this time.¹⁷ To accelerate the growth of the City's life sciences industry, the Mayor and New York City Economic Development Corporation (NYCEDC), awarded \$15 million to CCNY and \$11.6 million to the Mount Sinai Health System in August 2022 to support construction of new facilities which will advance health care and technology.¹⁸

However, in 2022, fears of an economic recession have slowed tech leasing, and several firms have recently announced a pause on their current expansion plans, including Amazon and Meta. Over the first eight months of 2022, the tech sector has accounted for only 16.5 percent

of new leases, compared to 29.9 percent in all of 2020 and 18.9 percent in all of 2021.¹⁹

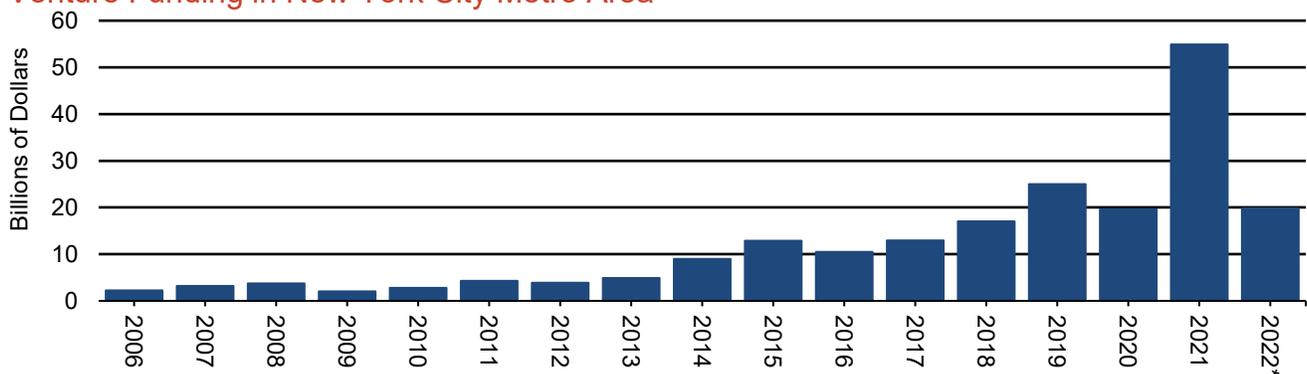
Venture Capital Funding

Tech start-ups in New York City are garnering the interest of the City's large pool of potential investors, such as those on Wall Street as well as the many venture capital (VC) firms in the area. More than half (52 percent) of VC investments in the U.S. in 2021 were in tech-related sectors (e.g., software, pharma and biotech, and IT hardware).

According to data from Pitchbook-NVCA, in 2021, VC firms in New York State had \$149.4 billion in assets under management (AUM), second only to California (\$549.9 billion).²⁰ New York has shown strong growth in recent years as AUM more than tripled in the past five years, greater than the national growth of 160 percent. As a result, New York accounted for 15.0 percent of the nation's AUM, up from 12.8 percent in 2016.

The pandemic slowed down VC activity, as investments in the New York metropolitan area, in particular, decreased by 21.6 percent to \$19.6 billion in 2020 (see Figure 8). However, in 2021, venture funding boomed, almost tripling to reach a record high of \$54.9 billion. The New York metropolitan area received 16.1 percent of the nation's total VC investment in 2021, the largest share except for the San Francisco Bay Area

FIGURE 8
Venture Funding in New York City Metro Area



Source: PitchBook-NVCA

*YTD through June

(35.7 percent) but well ahead of the Boston Area (10.6 percent), which was third.

With economic uncertainty and stock market volatility, VC activity has slowed in 2022 but remains high compared to levels prior to 2021. In the first half of 2022, venture funding declined by 17.9 percent from the first half of 2021 to \$19.8 billion. However, if 2021 were excluded, this would be the largest half on record. The decline was especially large in the second quarter of 2022, decreasing by 32.7 percent from the same period last year to \$9.3 billion, though this was still the second largest quarter on record prior to 2021.

The In-State Private Equity Program of the New York State Common Retirement Fund (CRF) provides much-needed early-stage funding to New York companies through VC partners, including Contour Venture Partners, Primary Venture Partners and Tribeca Venture Partners. In total the In-State Equity Program has invested \$1.6 billion in New York State companies and since 2016, it has allocated an additional \$180 million to target early-stage investment opportunities.

The In-State Program is designed to generate a market rate of return consistent with the risks associated with private equity, and has contributed to economic growth in New York City. The program invested in 177 companies in the

City between 2016 and 2021, including 170 that were tech-related. These investments totaled \$296.7 million and helped these companies expand. By 2021, employment had almost doubled (to 3,293 jobs) since the initial investment.

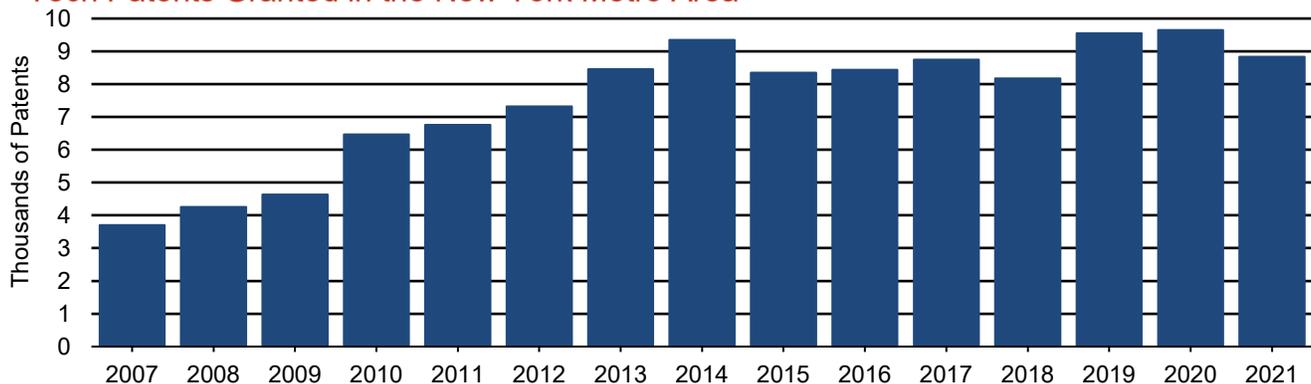
Innovation

According to data from PatentsView which analyzes data from the U.S. Patent and Trademark Office, the number of tech patents granted to inventors in the New York metropolitan area reached a peak of 9,647 in 2020 before declining to 8,830 in 2021, which follows a nationwide trend (see Figure 9).

Since 2003, out of all metropolitan areas in the nation, New York has annually been ranked third in the number of patents granted, behind the two metropolitan areas of Silicon Valley (San Jose and San Francisco).

From 2016 to 2021, the number of tech patents granted in the New York metropolitan area increased by 4.7 percent, faster than the nationwide growth of 3.5 percent.

FIGURE 9
Tech Patents Granted in the New York Metro Area



Sources: PatentsView; OSC analysis

Outlook

The national technology sector has grown robustly over the last decade. Significant investments in the sector reflect increased interest, especially in artificial intelligence, cloud technology and fintech. New York City's tech sector has benefited tremendously from these investments, enabling the larger metropolitan area to now claim the number two spot for the nation's venture capital investment.

Tech employment has also grown, both in tech companies and in traditionally nontech companies that required additional technological skills amid the pandemic. The pandemic necessitated the need for flexible, remote work arrangements that enabled office workers to stay home and use technology services more than prior to the pandemic. During this period, firms have adopted varying levels of new technology to manage their employees and cater to consumer preferences.

While the pandemic provided a significant boost to the tech sector, rapid growth experienced in 2020 began to slow nationwide in 2021. The landscape shifted further in 2022, as capital investment has slowed and expansion plans have followed with heightened fears of an economic recession. As firms continue to navigate economic challenges and weigh strategies to maintain their workforces, the City must continue to monitor trends in tech employment nationwide and locally to understand the future direction of the sector and of tech occupations overall.

The composition of the tech sector has changed drastically over the last five years, creating the need for robust workforce development programs, especially in software and in internet publishing. Through the City's Applied Sciences NYC Initiative, the Cornell Tech Campus on Roosevelt Island opened in 2017. As of 2022, Cornell Tech has produced 1,200 tech alumni and provided computer science education to over 5,000 New York City students. More recently, the

City has partnered with CUNY to develop talent pipelines for growing industries and leverage industry professionals to develop talent, including in tech.

The State has also recognized the need for adequate employee training and in 2015 created the Employee Training Incentive Program to provide tax credits to businesses that offer internship programs that provide training in tech, life science, software development or clean energy. The program was expanded in 2017 and 2019.

In providing adequate workforce development programs to support a prospering sector, the City and State will help to ensure an inclusive and diverse workforce in a sector that is overwhelmingly white and male. As the tech sector continues to face difficulty in finding skilled and qualified employees, targeted degree programs are crucial for expanding the pool of talent.

ENDNOTES

- ¹ The Office of the New York State Comptroller's (OSC) definition includes the following North American Industry Classification System (NAICS) codes: 333242 Semiconductor Machine Manufacturing; 334 Computer and Electronic Manufacturing; 335911 Storage Battery Manufacturing; 335921 Fiber Optic Cable Manufacturing; 5112 Software Publishers; 517 Telecommunications; 518 Data Processing, Hosting and Related Services; 51913 Internet Publishing and Broadcasting and Web Search Portals; 5415 Computer Systems Design and Related Services; 541713 Research and Development in Nanotechnology; 541714 Research and Development in Biotechnology (except Nanobiotechnology); and 61142 Computer Training. The NAICS codes used in OSC's definition were established in OSC, *The Technology Sector in New York City*, Report 4-2018, September 2017, <https://www.osc.state.ny.us/files/reports/osdc/pdf/report-4-2018.pdf>.
- ² Occupation data from the U.S. Census Bureau's 2016-2020 American Community Survey 5-year estimates were used to determine the share of tech occupations in nontech sectors. (Tech workers include the following occupations: biomedical and agricultural engineers, computer hardware engineers, computer and information research scientists, computer and information systems managers, computer network architects, computer programmers, computer support specialists, computer systems analysts, database administrators, electrical engineers, information security analysts, network and computer systems administrators, software developers, telecommunications installers/repairers, web developers, and other computer occupations.) The share was then applied to 2021 data from the Quarterly Census of Employment and Wages to calculate tech jobs in nontech sectors.
- ³ OSC, *The Transportation and Warehousing Sector in New York City*, Report 5-2023, June 2022, <https://www.osc.state.ny.us/reports/osdc/transportation-and-warehousing-sector-new-york-city>.
- ⁴ Eric Johansson, "How Covid-19 Created a Massive Fintech Boom" *Private Banker International*, March 11, 2022, <https://www.privatebankerinternational.com/news/how-covid-19-created-a-massive-fintech-boom/>
- ⁵ U.S. Census Bureau, 2016-2020 American Community Survey 5-year estimates.
- ⁶ Occupation data from the U.S. Census Bureau's American Community Survey was used to determine the share of tech occupations. (Tech workers include the following occupations: biomedical and agricultural engineers, computer hardware engineers, computer and information research scientists, computer and information systems managers, computer network architects, computer programmers, computer support specialists, computer systems analysts, database administrators, electrical engineers, information security analysts, network and computer systems administrators, software developers, telecommunications installers/repairers, web developers, and other computer occupations.)
- ⁷ Ryan Defenbaugh, "City Employers Say They're Still Hungry For Tech Talent, Despite Market Turmoil," *Crain's New York Business*, May 12, 2022, <https://www.craigslist.com/technology/new-york-city-employers-say-they-are-still-hungry-tech-talent-despite-market-turmoil>
- ⁸ OSC, "Wall Street's 2021 Bonuses Set a New Record", March 23, 2022, <https://www.osc.state.ny.us/press/releases/2022/03/nys-comptroller-dinapoli-wall-streets-2021-bonuses-set-new-record>.
- ⁹ OSC, *The Transportation and Warehousing Sector in New York City*, Report 5-2023, June 2022, <https://www.osc.state.ny.us/reports/osdc/transportation-and-warehousing-sector-new-york-city>.
- ¹⁰ Center for an Urban Future (CUF), *New York's New Jobs Engine*, July 2022, https://nycfuture.org/pdf/CUF_New_Jobs_Engine_Report_final.pdf.
- ¹¹ CB Insights, *The Complete List of Unicorn Companies*, July 2022, <https://www.cbinsights.com/research-unicorn-companies>.
- ¹² New York State Governor's Office, February 28, 2022, <https://www.governor.ny.gov/news/governor-hochul-announces-fast-ny-grant-program-attract-key-industries-shovel-ready-sites>.
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