

Cyberstates 2020

The definitive guide to
the U.S. tech industry
and tech workforce

Nationwide | State | Metro Area



CYBERSTATES 2020™
IS PRODUCED BY
The Computing Technology Industry Association (CompTIA)

Copyright © 2020 CompTIA Properties, LLC, used under license by CompTIA Member Services, LLC. All rights reserved. All membership activities and offerings to members of CompTIA, Inc. are operated exclusively by CompTIA Member Services, LLC. CompTIA and Cyberstates are registered trademarks of CompTIA Properties, LLC in the U.S. and internationally. Other brands and company names mentioned herein may be trademarks or service marks of CompTIA Properties, LLC or of their respective owners.

Any data or content used from this report should be properly sourced to CompTIA.

Published in the U.S. March 2020

CompTIA is responsible for all content and analysis. Any questions regarding the report should be directed to CompTIA Research and Market Intelligence staff at research@compia.org.

Cyberstates can be accessed online at [Cyberstates.org](https://www.cyberstates.org).

CompTIA
3500 Lacey Road, Suite 100
Downers Grove, IL 60515
Phone: (630) 678 - 8300

ABOUT

ABOUT THIS REPORT

In an era when every individual is tech engaged and every organization is tech enabled, CompTIA is the leading destination for both. As an association dedicated to innovation, CompTIA unifies learning, advocacy and career networking in a welcoming, forward-thinking place. We are the connected global community of informed advocates, championing modern technology (and the people who advance it) one day, one deployment, one discovery at a time. CompTIA is tech forward.

CompTIA designed *Cyberstates* to serve as a reference tool, making national, state, and metropolitan area-level data accessible to a wide range of users. *Cyberstates* quantifies the size and scope of the tech industry and the tech workforce across multiple vectors. To provide additional context, *Cyberstates* includes time-series trending, average wages, business establishments, job postings, gender ratios, innovation and emerging tech metrics, and more. For the interactive, online version of *Cyberstates*, visit www.cyberstates.org.

As with any sector-level report, there are varying interpretations of what constitutes the tech sector and the tech workforce. Some of this variance may be attributed to the objectives of the author. Is the goal to depict the broadest possible representation of STEM and digital economy fields, or a more narrowly defined technology subset? Is the goal to capture all possible knowledge workers, or a more narrowly defined technology subset? For the purposes of this report, CompTIA focuses on the more narrowly defined technology subset. See the methodology section for details of the specific NAICS codes and SOC codes CompTIA uses in its definitions of the tech sector and the tech workforce.

Due to periodic updates to industry and occupation categories by the U.S. Bureau of Labor Statistics, as well as occasional revisions of historical data, direct comparisons to previous publications of *Cyberstates* is not always possible. Additionally, CompTIA adjusts its methodology at times to best reflect available data and the needs of users. For these reasons, it is best to view the most recent release as the best representation of the state of the tech industry and workforce. If historical comparison data is required, requests can be submitted to research@comptia.org.

ABOUT COMPTIA

The Computing Technology Industry Association (CompTIA) is the tech-forward community of the \$5.2 trillion global information technology ecosystem and the hub for the 75 million professionals who design, deploy, manage and secure the technology that powers the modern economy. Through collaboration, education, certifications, advocacy and market research, CompTIA advances the industries and careers that rely on tech.

Through our Public Sector and Advocacy arm, CompTIA champions industry innovation, a skilled workforce and solutions that drive business. We advocate on behalf of a diverse technology sector through public affairs efforts at the federal, state, local and international levels and through exclusive public sector councils. We bridge the tech ecosystem and government impacting all technology companies – from small solution providers and software developers to the world's largest manufacturers and communications service providers. CompTIA gives eyes, ears and a voice to technology companies, informing them of policy developments – and providing the means to do something about it.



TABLE OF CONTENTS

| | |
|---|------------|
| BACKGROUND AND KEY FINDINGS | 5 |
| NATIONAL SNAPSHOT | 15 |
| STATE SNAPSHOTS | 17 |
| METROPOLITAN AREA SNAPSHOTS | 69 |
| APPENDIX TABLES - A | 120 |
| NET TECH EMPLOYMENT 2010-2019 | |
| NET TECH EMPLOYMENT BY STATE | |
| RANKINGS: STATE NET TECH EMPLOYMENT | |
| RANKINGS: HISTORICAL CHANGE IN NET TECH EMPLOYMENT RANKINGS | |
| NET TECH EMPLOYMENT BY METRO AREA | |
| RANKINGS: METRO AREA NET TECH EMPLOYMENT | |
| APPENDIX TABLES - B | 127 |
| TECH OCCUPATION EMPLOYMENT | |
| EMPLOYMENT OUTLOOK 2018-2028 | |
| EMPLOYMENT OUTLOOK 2018-2028 BY STATE | |
| EMPLOYMENT OUTLOOK 2018-2028 BY METRO AREA | |
| GENDER RATIOS | |
| RANKINGS: SECTOR GENDER RATIOS | |
| RANKINGS: OCCUPATION GENDER RATIOS | |
| APPENDIX TABLES - C | 135 |
| WAGE PERCENTILES BY STATE | |
| WAGE PERCENTILES BY METRO AREA | |
| WAGE PERCENTILES FOR IT SUPPORT AND CYBERSECURITY | |
| WAGE PERCENTILES FOR SOFTWARE AND NETWORK ARCHITECTS | |
| RANKINGS: ECONOMIC IMPACT BY STATE | |
| RANKINGS: ECONOMIC IMPACT BY METRO AREA | |
| APPENDIX TABLES - D | 144 |
| COMPARISONS OF EMPLOYMENT BY INDUSTRY SECTOR | |
| TOP INDUSTRIES BY JOB GAINS 2018-2019 BY STATE | |
| TOP INDUSTRIES BY JOB GAINS 2018-2019 BY METRO AREA | |
| COMPARISONS OF ECONOMIC IMPACT BY INDUSTRY SECTOR | |
| METHODOLOGY | 150 |
| BACKGROUND | |
| DEFINITION OF TECH INDUSTRY | |
| DEFINITION OF TECH OCCUPATIONS | |

BACKGROUND – KEY FORCES SHAPING THE TECH LANDSCAPE

The iterative fusion of technology building blocks and emerging technology, coupled with a generous helping of people and process, will set the stage for the next wave of innovation. This may entail the stacking of foundational infrastructure and enabling components with emerging general-purpose technologies, such as AI, and then rounded out with data, an ‘as-a-service’ user experience, and business process optimization. The implications are both exciting – the ingredients of innovation have never been more accessible, and trying, as users and technology providers work to understand an ever-growing set of building blocks and how the pieces fit to drive digital transformation. Against this backdrop, CompTIA’s *IT Industry Outlook* explores the forces shaping the information technology industry, its workforce, and its business models in the year ahead. See www.comptia.org for full report.



Artificial Intelligence Eats the World

When Marc Andreessen made his now-famous statement about software in 2011, he may not have even realized the extent to which the world would be consumed over the next decade. Cloud computing lowered both the barrier for developing software and the barrier for distribution, and mobile devices extended the reach of software to previously unreachable corners. The net effect was an exponential increase in software’s ability to drive activity. This created a new challenge in conducting said activity and acting on the data being collected. Enter artificial intelligence. With a foundation of software-driven routines and the compute resources to broadly run advanced algorithms, AI can push software to the next level. However, there’s a fine line between “eating the world” and “global domination.”



Hype Meets Reality with Emerging Technology

Over the past several years, there has been a lot of excitement around emerging technologies. At an operational level, this has been a positive trend as it has helped businesses build better practices for evaluating early-stage topics and accelerating adoption. At a tactical level, though, it has created some chaos. Without the chance to wait and see which technologies prove their worth, companies have found themselves confronted with a bevy of options—a situation that exacerbates resource constraint and skill gaps. Heading into a new year, the hype around emerging technology remains high, especially among those firms selling and supporting technology



Cybersecurity Becomes More Operational

The theme of cybersecurity over the past decade was a shift from a purely defensive mindset to a proactive approach that combined technology, process, and education. Moving forward, the shift will be from cybersecurity as a component of IT to cybersecurity as a critical business function. When treated as part of IT, a proactive approach to cybersecurity may still struggle to get the proper budget allocation or properly demonstrate value to the business. As a result, organizations are beginning to treat cybersecurity as a dedicated function.



Demand for Integration Drives Demand for Automation

Businesses of all sizes recognize the need to better integrate disparate platforms, applications, and data. Whether integration is outsourced or being done in-house, the next step for many businesses will be automation. Internet of things implementations expand the ability to gather inputs from a variety of sources, and artificial intelligence can help drive actions based on those inputs. From there, the vast array of other emerging technologies allows companies to imagine and build complex automation. The goal of this automation, as with all technological advances, is to reduce the amount of routine work and to create breathing room for innovation.



Internet of Things Continues to Redefine IT Architecture

As one of the two emerging technologies to be gaining significant traction, internet of things seems poised to join cloud computing and mobile devices as a permanent part of the modern technology landscape. Businesses are quickly discovering the value in digitizing their environment and their operations, collecting data that can help with future decision-making. The trend is also showing positive returns for companies that sell and support technology. Half of these firms report either major or minor levels of IoT-related sales in the last year, with others experimenting internally. Today, IoT as a managed services play is driving the most revenue in this category, but looking ahead to the next two years companies are predicting that analytics on data captured by IoT sensors – then shared with customers – holds the most financial promise.



Workforce Diversity Grows in Many Ways

In 2020, the call for improved diversity will continue to pay dividends, even if fully diverse and inclusive environments still lie further in the future. Going beyond efforts around common conceptions of diversity, there will also be a marked increase in the skill diversity that companies are seeking. Twenty years ago, the stereotypical IT worker had a heavy concentration in infrastructure skills and worked in relative isolation from the rest of the business. Today, companies are seeking expertise across all areas of CompTIA’s IT framework—infrastructure, devices, software development, cybersecurity, data, operations, and emerging technology. Beyond technical skills, businesses are also looking for technology professionals that can speak the language of the business, collaborating with other departments in order to drive technology-fueled business results.

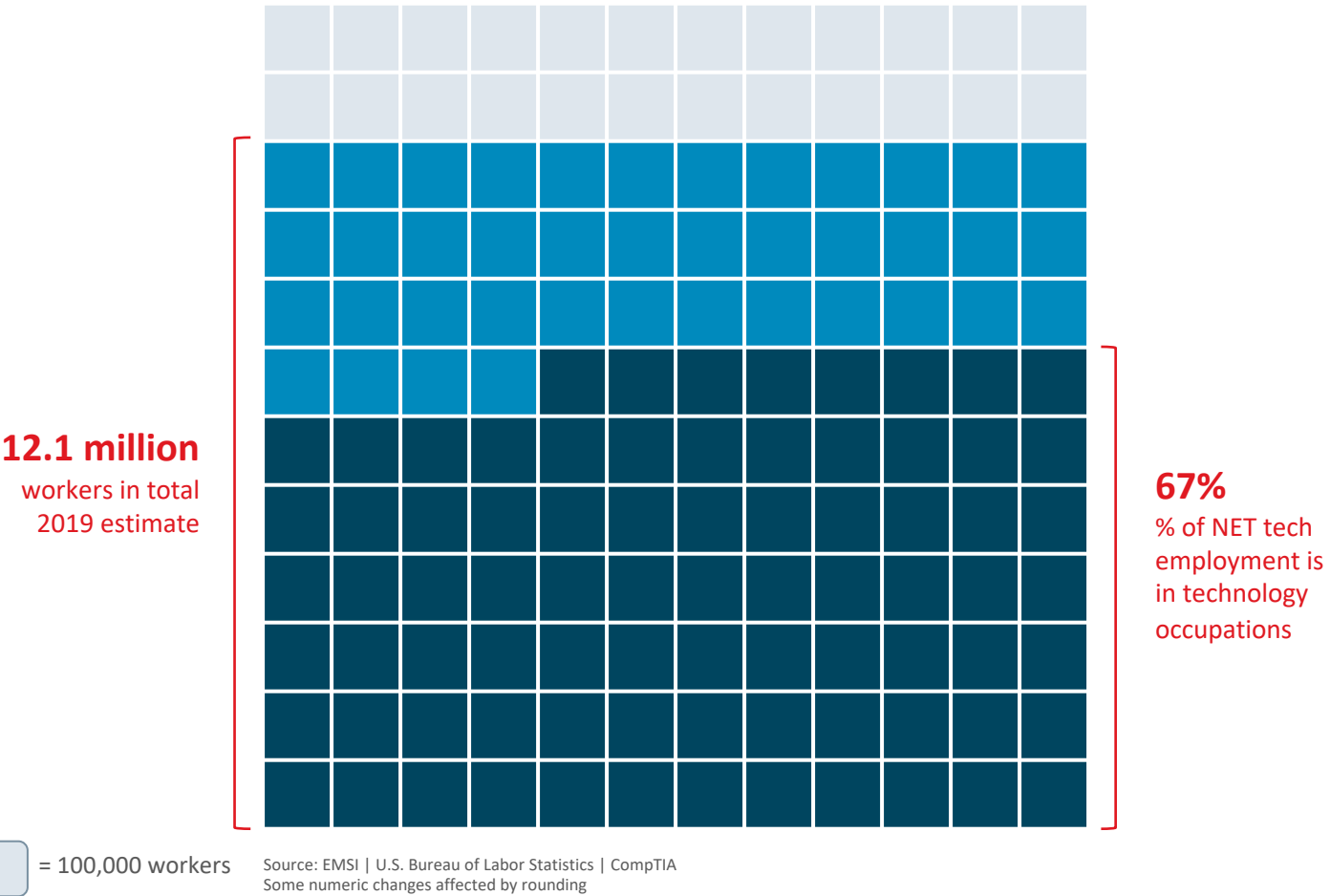
BACKGROUND – DEFINING NET TECH EMPLOYMENT

The tech workforce consists of two primary components, represented as a single figure by the ‘net tech employment’ designation. The foundation is the set of technology professionals working in technical positions, such as IT support, network engineering, software development, data scientist, and related roles. Many of these professionals work for technology companies (47 percent), but many others are employed by organizations across every industry sector in the U.S. economy (53 percent).

The second component consists of the business professionals employed by technology companies. These professionals – encompassing sales, marketing, finance, HR, operations and management, play an important role in supporting the development and delivery of the technology products and services used throughout the economy. Slightly more than 34 percent of the net tech employment total consists of tech industry business professionals.

One final segment involves workers classified as self-employed. For the purposes of this report, only dedicated, full-time self-employed technology workers are counted towards net tech employment. Workers that are characterized as “gig” workers, which may entail working on the side for supplementary income, are excluded from this analysis due to a number of uncertainties with the data and to minimize the possibility of double counting.

- N = Technology professionals employed by organizations across the economy**
(e.g. software developers, network architects, database admins, etc.)
- N = Support/business professionals employed by tech companies**
(e.g. sales, marketing, finance, HR, etc.)

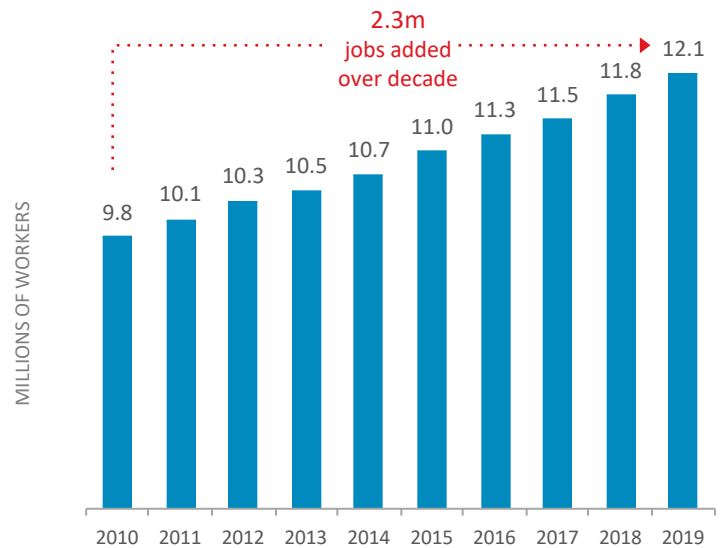


BACKGROUND – DECADE IN REVIEW

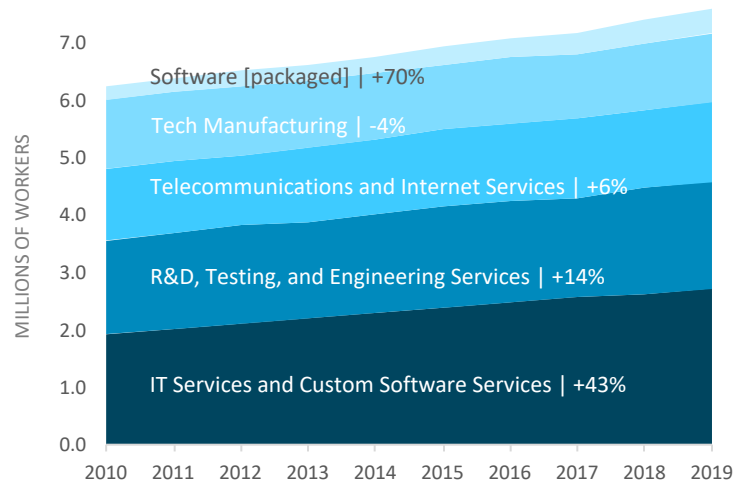
KEY POINTS

- Net tech employment in the United States – as described on the previous page, reached an estimated 12.1 million in 2019, an increase of nearly 2.3 million workers or 23 percent during the decade.
- Over the 10-year period, the year 2018 experienced the highest growth, recording nearly 334,000 net new jobs, followed by 2015 at 315,000 net new jobs. The only negative growth occurred in 2010, mirroring the job losses experienced nationwide on the heels of the Great Recession.
- Among the two components of net tech employment, the occupation side of the equation accounted for 80 percent of job gains during the past decade. This highlights the degree to which every industry sector across the economy embraced technology to further their business goals, often described as digital transformation.
- Top growth occupations during the decade on a change basis:
 - +504k Software developers, applications
 - +265k IT support specialists
 - +244k Emerging tech, IT project mgt., data, and other
 - +137k CIOs and IT managers
 - +101k Systems engineers/analysts
- Top growth occupations during decade on a % change basis:
 - +158% Cellular tower equipment installers/repairers
 - +134% Cybersecurity analysts
 - +120% Emerging tech, IT project mgt., data, and other
 - +102% Software developers, applications
 - +88% Web developers
- Within the technology industry category, which encompasses technology occupations and supporting business occupations, growth has varied. Since 2010, the IT services and custom software services category powered job growth, accounting for 65 percent of job gains. This category represents a range of business types, from IT solution providers and MSPs to software/web/mobile app development firms and cybersecurity consultants.
- The packaged software category (aka off-the-shelf or SaaS), while quite large in earnings and market cap, is secondary in terms of total employment. There are many examples of relatively small software teams servicing applications consumed by tens or even hundreds of millions of users.
- At the other end of the spectrum, tech manufacturing shed over 52,000 jobs. Although, this trend has reversed slightly over the past two years with growth of about 1 percent in tech manufacturing employment. The telecommunications category, which does encompass a mix of mature and emerging business lines, has also experienced relatively modest growth over the decade coming in at 6 percent or a net gain of 75,000 jobs.
- Economic impact data further corroborates the growth and importance of the tech sector. In current dollars, tech industry GDP increased 66 percent during the decade, adding \$745.5 billion in output during the period (in inflation-adjusted dollars, 39 percent and \$528.5 billion, respectively).

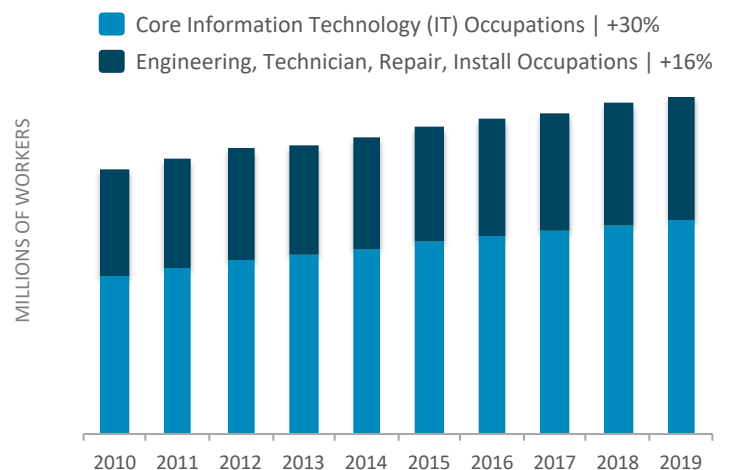
NET TECH EMPLOYMENT DECADE RECAP



TECH INDUSTRY EMPLOYMENT DECADE RECAP



TECH OCCUPATION EMPLOYMENT DECADE RECAP



Source: EMSI | U.S. Bureau of Labor Statistics | CompTIA

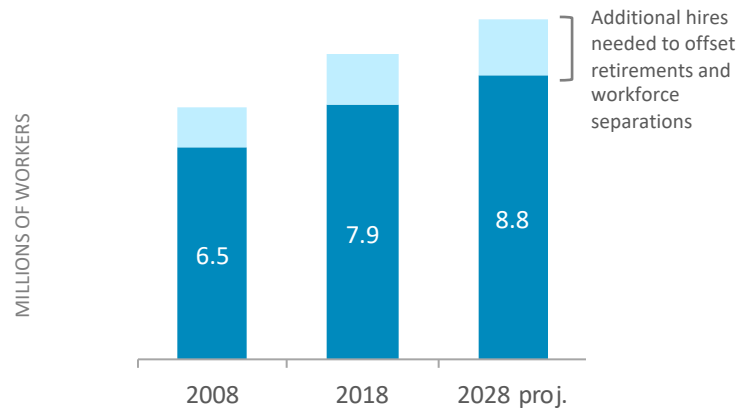
BACKGROUND – A LOOK AHEAD

KEY POINTS

- Looking ahead, the outlook for technology employment points to a continuation of the growth trend. By 2028, projections from the U.S. Bureau of Labor Statistics and EMSI indicate the base of tech occupation employment will grow to more than 8.8 million (note: this covers occupations only and represents a subset of the net tech employment figure presented previously).
- Calculating the workforce need during this period is a function of several variables. First, there is a growth component, which may entail organizations adding headcount due to expansion or possibly to support new emerging technologies. Secondly, there is a retirement factor, with a portion of the workforce transitioning away from the workforce permanently. And lastly, there is a segment leaving the workforce for some other reason, also referred to as separations. These may stem from a career change, a return to school, family pursuits, or other.
- The average replacement rate for tech occupations during 2018-2028 is projected to reach approximately 8.1 percent annually, or 660,000 workers on average each year, totaling several million through 2028.
- For context, national employment during the 2018-2028 period is projected to grow by +10.5 percent versus +15.0 percent for tech occupations (inclusive of all 50 categories used in *Cyberstates*). Looking beyond the overall average reveals occupations within technology growing at faster rates:
 - Cybersecurity analysts: +37%
 - Software developers, applications: +37%
 - Data and computer scientists: +31%
 - Emerging tech, IT proj. mgt., data, and other: +30%
 - Web developers: +22%
 - CIOs, CTOs, and IT managers: +23%
 - IT support specialists: +18%
- Job posting data provides another layer of insight into the tech job market outlook. Because government labor taxonomies – Standard Occupation Codes (SOCs), lag the speed with which the market changes, job posting data provides a more up-to-date look at the skills and experiences employers seek.
- Overall quarterly tech job postings among U.S. employers peaked during Q4 2019 at over 1.2 million. With job posting data, it's important to keep in mind that there is not a 1:1 relationship with the actual number of hires, but rather, the data is a proxy for demand intensity.
- Demand for emerging tech skills and experiences continue to grow as employers across industries pursue digital transformation strategies. Over the past 5 years, posting volume increased 200 percent, bringing the total number of postings to 822,000 for 2019.
 - Artificial intelligence
 - Big data / data science
 - Automation
 - IoT
 - Robotics
 - Drones
 - 5G
 - AR/VR/XR

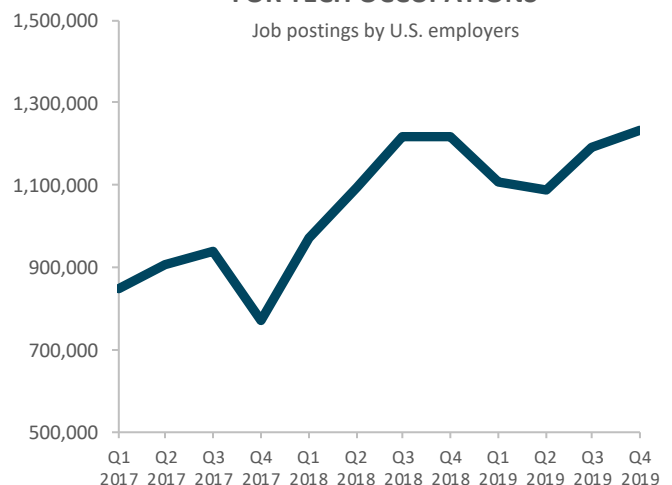
TECH OCCUPATION EMPLOYMENT OUTLOOK

Workforce need = annual replacement rate + growth rate



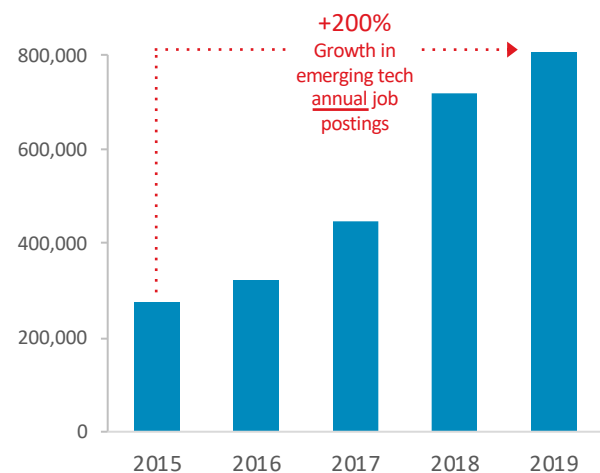
AGGREGATE QUARTERLY JOB POSTINGS FOR TECH OCCUPATIONS

Job postings by U.S. employers



EMERGING TECH DEMAND RAMPES UP

Annual emerging tech job postings by U.S. employers



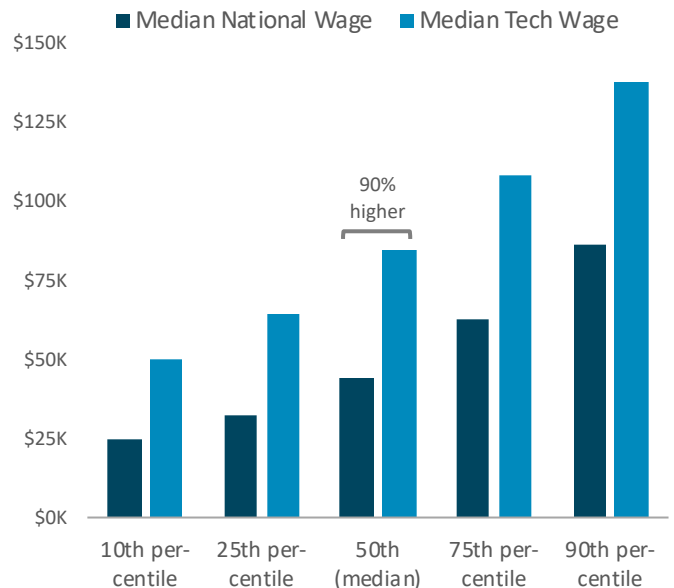
Source: EMSI | U.S. Bureau of Labor Statistics | Burning Glass Labor Insights | CompTIA

BACKGROUND – THE MANY FACETS OF WAGE DATA

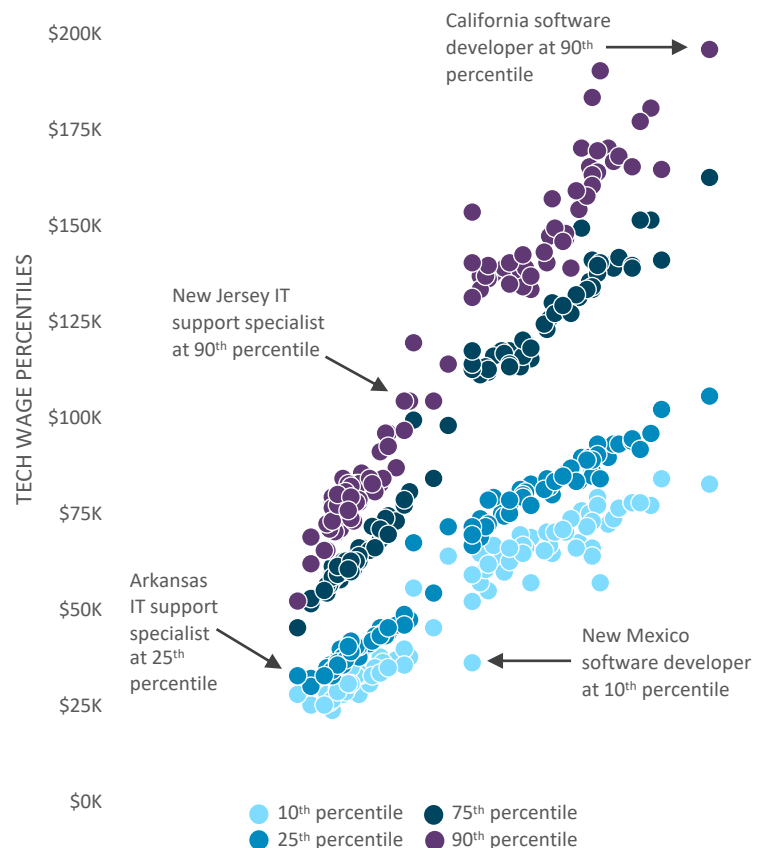
KEY POINTS

- There are many nuances to the tech wage discussion. At the industry level – meaning the universe of technology companies in the sector, wages encompass all staff positions, from the CEO down to entry-level helpdesk workers. Both technical and non-technical positions factor into the industry wage calculation. Because of the diversity of positions covered, interpreting summary industry wage data requires accounting for these factors. In comparison, tech occupation wages cover only technical positions. This is the primary focus of the wage data of this report.
- Cost of living differences mean the wages in one location are not directly comparable to another. For example, the buying power of a salary in San Francisco will not go nearly as far as in Des Moines. According to the National Association of Realtors, the median price for a home in Silicon Valley topped \$1 million last year. See CompTIA's *Tech Town Index* for guidance on tech wages relative to cost of living.
- Beyond location, the other important variables to consider when reviewing wage data are job role, areas of expertise, job experience, industry sector, and company size. A skilled employee in a hot field such as artificial intelligence, working for a Fortune 500 company, will earn on average far more than a tech worker in an established field, working for a small business in a rural area.
- Percentiles help provide insight into wage ranges. This approach minimizes the impact of outlier data points, such as workers receiving massive stock payouts. It is also useful in depicting wages along common career paths, with workers just starting out earning wages at the 10th percentile, and then with experience and additional training and certification, moving up through the higher wage levels.
- Across all tech occupation categories covered by *Cyberstates*, the median wage, also referred to as the 50th percentile or midpoint, was an estimated \$84,284 in 2018, the most recent year of available data. This figure is nearly double the \$44,432 median wage of the U.S. labor force.
- At the 10th percentile, tech occupation wages are over nearly \$51,000, while at the 90th percentile wage reaches nearly \$138,000, or 174 percent higher. Again, the higher wage may reflect greater levels of expertise, experience, the industry sector where employed, or geographic location.
- The scatterplot graph to the right illustrates the degree to which wages will differ across states. The data presents wages for software developers and IT support specialists at the 10th, 25th, 75th and 90th percentiles. California and Washington have the highest 90th percentile wages for software developers, New Jersey and the District of Columbia have the highest 90th percentile rates for IT support specialists.
- When drilling down to the metro area level, wage differences may become even more pronounced. Top tier wages in locations such as San Jose or New York City may run into hundreds of thousands, if not millions, of dollars in annual compensation.

MEDIAN ANNUAL OCCUPATIONAL WAGE COMPARISON



TECH WAGES CAN VARY SIGNIFICANTLY BASED ON OCCUPATION, LOCATION, AND PERCENTILE

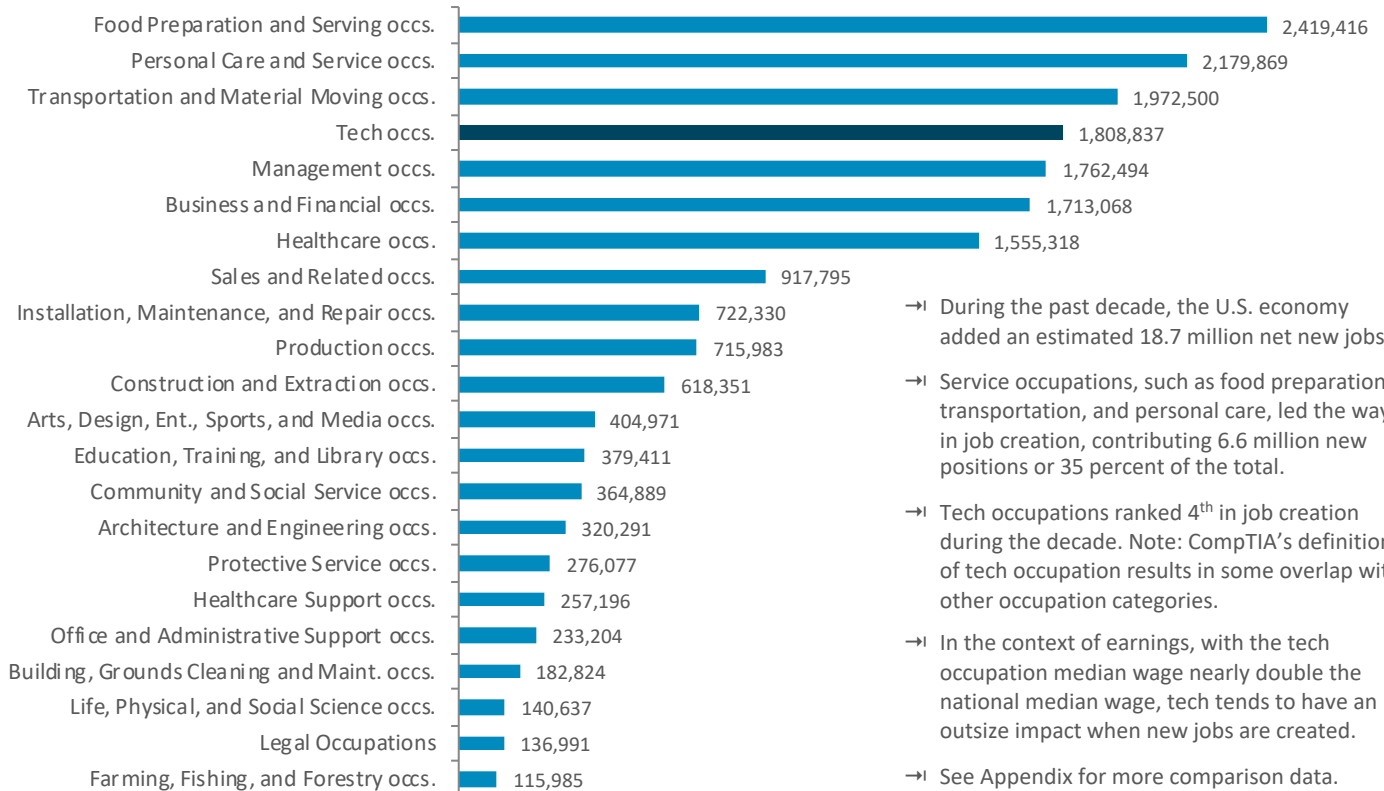


Source: EMSI | U.S. Bureau of Labor Statistics | CompTIA

BACKGROUND – INDUSTRY SECTOR COMPARISONS

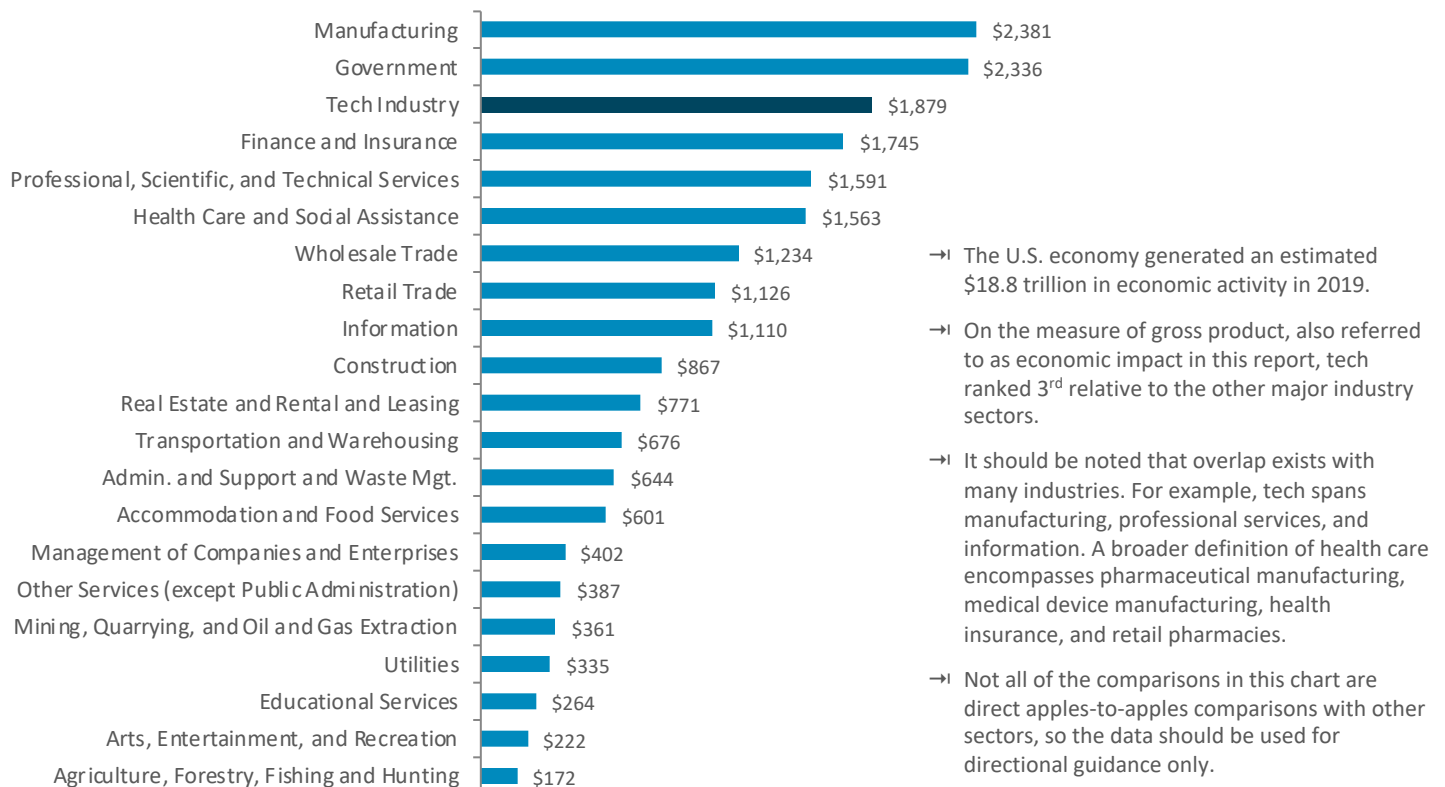
RANKING OF OCCUPATION JOBS ADDED DURING DECADE, 2010-2019

2-digit SOCs | QCEW + self-employed



RANKING OF INDUSTRY SECTORS GROSS PRODUCT (ECONOMIC IMPACT), 2019 est.

\$ billions | 2-digit NAICS | 2019 estimate



Source: EMSI | U.S. Bureau of Labor Statistics | CompTIA

KEY FINDINGS – NATIONAL

U.S. NET TECH EMPLOYMENT

- U.S. net tech employment totaled an estimated 12.1 million in 2019, an increase of more than 307,000 workers over the 2018 base of 11.8 million. Net tech employment grew an estimated 2.6 percent year-over-year.
- Net tech employment accounted for approximately 7.7 percent of the overall U.S. workforce in 2019. As noted previously, because of the blurring of lines across industries, there is a degree of undercounting in tech sector employment.

U.S. TECH INDUSTRY EMPLOYMENT

- U.S. tech industry employment totaled an estimated 7.6 million in 2019, an increase of 183,033 workers from 7.4 million in 2018. Tech industry employment grew an estimated 2.5 percent year-over-year. As noted, tech industry employment is a subset of net tech employment.
- Tech manufacturing employment totaled an estimated 1.2 million in 2019, an increase of approximately 16,421 jobs from the previous year.
- Among the seven major tech manufacturing subsectors, two experienced employment losses, while the remaining categories experienced job gains. The space and defense system manufacturing had the highest rate of employment growth at +3.4 percent. Measuring and Control Instruments manufacturing, the largest component of tech manufacturing by employment, saw the largest numeric gain.
- Employment in the telecommunications and Internet services sector totaled an estimated 1.4 million in 2019, up by 19,352 jobs from 2018. These employment gains were driven by growth in the data processing, hosting, and search portal services categories, where employment increased by 38,210 jobs. Wired and wireless telecommunications services shed 19,642 jobs, a loss of 2.9 percent.
- The software category, consisting of published or packaged software products (including SaaS), rather than custom developed software, employed an estimated 435,049 workers in 2019, adding more than 24,000 net new jobs. On a percent change basis, software led the tech sector with a 6.1 percent year-over-year growth rate.
- The IT services and custom software services subsector generated the largest numerical gain in employment, adding more than 85,000 net-new jobs in 2019. This gain of 3.2 percent increased the employment base to 2.7 million. This growth reflects the ongoing digital transformations occurring across the economy and the corresponding need for expertise in areas such as cloud computing migration, application integration, process automation, data analytics, and cybersecurity.

U.S. TECH OCCUPATION EMPLOYMENT

- Tech occupation jobs reached an estimated 8.1 million workers in 2019, an increase of 187,024 workers over 2018. On a percent change basis, the rate is on par with the annual growth rates experienced over the past several years, with the exception of the 2015 rate, which exceeded 3.6 percent.
- Since 2009, nearly 1.8 million new tech occupation jobs were added, a function of the demand for tech talent across every industry sector in the economy.
- The IT occupations segment of tech occupations accounts for 64 percent of the total. IT occupations added over 139,000 net-new jobs in 2019, a year-over-year growth rate of 2.8 percent. On a numeric basis, software developers, systems analysts and cybersecurity analysts, network architects, and IT support specialists recorded the largest gains in employment. The U.S. Bureau of Labor Statistics does not yet break out many emerging tech roles, other data sources indicate these new specialties are starting to make meaningful contributions to the growth of the tech workforce.

U.S. NET TECH EMPLOYMENT

| | <u>2018</u> | <u>2019 est.</u> | <u>Numeric Change</u> |
|--|-------------|------------------|-----------------------|
| Tech employment net of industry, occupation, and self-employed | 11.8m | 12.1m | +307,017 |
| Total | 11.8m | 12.1m | +307,017 |

U.S. TECH INDUSTRY EMPLOYMENT

| | <u>2018</u> | <u>2019 est.</u> | <u>Numeric Change</u> |
|--|-------------|------------------|-----------------------|
| Tech Manufacturing | 1.2m | 1.2m | +16,421 |
| Telecommunications and Internet Services | 1.4m | 1.4m | +19,352 |
| Software [packaged] | 0.4m | 0.4m | +24,899 |
| IT Services & Custom Software services | 2.6m | 2.7m | +85,336 |
| Engineering Services, R&D, and Testing | 1.8m | 1.9m | +37,025 |
| Total | 7.4m | 7.6m | +183,033 |

U.S. TECH OCCUPATION EMPLOYMENT

| | <u>2018</u> | <u>2019 est.</u> | <u>Numeric Change</u> |
|--|-------------|------------------|-----------------------|
| IT Occupations | 5.0m | 5.1m | +139,304 |
| Engineering and Technician Occupations | 2.9m | 2.9m | +47,720 |
| Total | 7.9m | 8.1m | +187,024 |

TOP TECH OCCUPATION KEY CATEGORIES

| | <u>2019 est.</u> | <u>% Change</u> |
|--|------------------|-----------------|
| Software and Web Developers | 1,593,546 | +4.3% |
| Systems and Cybersecurity Analysts | 740,286 | +2.6% |
| Network Architects, Admins., and Support | 705,484 | 0.0% |
| IT Support Specialists | 664,577 | +3.0% |

Source: EMSI | U.S. Bureau of Labor Statistics | CompTIA
Some numeric changes affected by rounding

KEY FINDINGS – STATES

STATE NET TECH EMPLOYMENT

- Forty-six states generated positive tech employment job growth in 2019. While the largest job gains are associated with the states with a significant tech presence, the fact that most states experienced tech employment job gains speaks to the broad-based impact of technology across the nation.
- Job gains in tech employment have grown steadily over time. Over the span of the recent decade, 46 states experienced positive tech employment gains. Twenty-four states generated gains of more than 25,000 net new tech jobs during this stretch, while six states topped the 100,000 mark for tech job additions.
- On an industry sector basis, the IT services and custom software services has been the growth engine for the greatest number of states over the past few years. This is both in response to as well as an enabler of the ongoing digital business transformation trend. Distribution of counts of top categories by state:
 - IT services/custom software services: 38 states
 - R&D, Testing, and Engineering Services: 9 states
 - Tech manufacturing: 4 states
- The metrics used to provide context and insight into the data tend to be based on absolute size or are relative, which may involve percent change or account for factors such as population or economic size differences. Absolute measures tend to be highly correlated with the size of the state or metro area. For example, California is the largest state in the nation by a wide margin. Its population is 40 percent larger and its economy is 54 percent larger than second place Texas. California's economy is equal to the combined total of the bottom 25 states. Unsurprisingly, California is the leader in many *Cyberstates* categories.
- California's net tech employment was an estimated 1,866,951 workers in 2019, a gain of 61,195 net new jobs year-over-year. Other states that experienced notable tech employment gains include Texas, Florida, New York, North Carolina, and Washington.
- On a percent change basis, the top five states for job growth in 2019 were Nevada (+6.0 percent), North Carolina (+4.3 percent), Idaho (+4.2 percent), Maine (+4.1 percent), and Utah (+4.0 percent).
- Employment concentration is a relative metric that compares tech employment to the overall base of employment within a state. Sixteen states are at or higher than the national average of 7.7 percent.
- Massachusetts has the highest concentration (11.5 percent) of tech workers relative to its overall employment base, which means citizens of the state are more likely to hold a tech job relative to other industry sectors. Top ten states for net tech employment concentration:
 - Massachusetts: 11.5%
 - Virginia: 10.7%
 - Washington: 10.7%
 - Colorado: 10.5%
 - Maryland: 10.3%
 - District of Columbia: 10.2%
 - New Hampshire: 10.1%
 - California: 9.7%
 - Utah: 9.4%
 - Michigan: 8.9%
- Conversely, the states with the lowest concentration of tech workers are: Wyoming, Mississippi, Louisiana, West Virginia, and Arkansas. Because these states are starting with a relatively low base, modest increases in tech employment can translate to large percentage change gains.

TOP CYBERSTATES BY NET TECH EMPLOYMENT

| | | |
|-----|---------------|-----------|
| 1. | California | 1,866,951 |
| 2. | Texas | 1,025,106 |
| 3. | New York | 679,083 |
| 4. | Florida | 585,296 |
| 5. | Virginia | 446,507 |
| 6. | Pennsylvania | 445,168 |
| 7. | Illinois | 441,205 |
| 8. | Massachusetts | 440,793 |
| 9. | Michigan | 412,324 |
| 10. | Ohio | 401,066 |

TOP CYBERSTATES BY NET TECH EMPLOYMENT JOB GAINS

| | | |
|-----|----------------|---------|
| 1. | California | +61,195 |
| 2. | Texas | +27,466 |
| 3. | Florida | +17,987 |
| 4. | New York | +15,528 |
| 5. | North Carolina | +15,085 |
| 6. | Washington | +14,281 |
| 7. | Massachusetts | +11,544 |
| 8. | Michigan | +10,963 |
| 9. | Colorado | +10,118 |
| 10. | Georgia | +9,746 |

TOP CYBERSTATES BY PROJECTED PERCENT CHANGE IN TECH OCCUPATION GROWTH 2018-2028

| | | |
|-----|----------------|------|
| 1. | Nevada | +43% |
| 2. | Utah | +34% |
| 3. | Colorado | +25% |
| 4. | Idaho | +25% |
| 5. | Texas | +24% |
| 6. | Arizona | +22% |
| 7. | South Carolina | +21% |
| 8. | Florida | +20% |
| 9. | North Carolina | +18% |
| 10. | Wyoming | +18% |

Source: EMSI | U.S. Bureau of Labor Statistics | CompTIA
Some numeric changes affected by rounding

KEY FINDINGS – STATES CONTINUED

STATE INNOVATION

- According to data from the Pitchbook-National Venture Capital Association (NVCA) Venture Monitor, venture capital investments flowing to the software category increased 14 percent in 2019 year-over-year, pushing the category total to \$17.2 billion. The IT hardware category increased 35 percent to \$2.0 billion. Many VC investments in other categories, such as media, healthcare, or commercial services, are in startups that often have a strong technology and data component, so the figures tend to understate the true impact of tech.
- The top five states garnered an estimated 80 percent of venture capital investment in 2019, down slightly from 83 percent in the prior year. It is important to remember that venture capital is only one source of financing for startups and/or expanding firms. Self-funding, traditional bank loans, SBA loans, low dollar equity placements, and crowdfunding may all come into play.
- On a percent change basis, tech startups and new tech business formations were down in 2019 compared to 2018, according to data from D&B Hoovers. Across the economy, startups as a share of all businesses have been in slow decline since the late 1970s, a trend that is concerning and not easily explained.
- Job postings among U.S. employers for emerging tech roles increased 15 percent in 2019 compared to the previous year, according to data from Burning Glass Technologies Labor Insights.

STATE TECH BUSINESS ESTABLISHMENTS

- Forty-eight states added to their base of tech business establishments. On a numeric basis, California had the largest year-over-year increase of net-new tech business establishments (+2,287). Rounding out the top five for net-new tech business establishments were Texas, Arizona, Florida, Wisconsin, and Missouri.

STATE TECH ECONOMIC IMPACT

- Economic impact is an assessment of output – the dollar value of goods and services produced during a given year (also referred to as gross domestic or regional product). As a percentage of the overall U.S. economy, the tech industry accounts for about 10.0 percent of direct economic value, which translates to over \$1.9 trillion.
- In addition to the direct economic impact, there are downstream, indirect benefits of the technology industry. One way to assess this impact is through the use of job multiplier metrics, also referred to as input-output modeling. For example, the IT services and custom software development services category has an estimated jobs multiplier of 4.8. For every one job in this tech subsector, an estimated 4.8 additional jobs are created or supported through direct, indirect, or induced means.

STATE EMPLOYMENT CHARACTERISTICS

- Nationally, the composition of the tech sector workforce in 2019 consisted of 5.1 million men and 2.5 million women, translating to 67 percent and 33 percent, respectively.
- The District of Columbia again had the highest representation of women in the tech sector workforce at 39.7 percent. Rounding out the top five were South Dakota, New York, South Carolina, and Missouri.
- The tech occupation categories with the highest percentage of women include: assemblers, database administrators, systems analysts, web developers, computer operators, information systems managers, and computer network support specialists.

TOP CYBERSTATES BY INNOVATION¹ RANK

| | | |
|----|------------|-----------------|
| 1. | California | 1 st |
| 2. | New York | 2 nd |
| 3. | Florida | 3 rd |
| 4. | Texas | 4 th |
| 5. | Colorado | 5 th |

TOP CYBERSTATES BY NUMBER OF TECH BUSINESS ESTABLISHMENTS

| | | |
|----|------------|--------|
| 1. | California | 66,084 |
| 2. | Texas | 41,824 |
| 3. | Florida | 34,525 |
| 4. | New York | 26,454 |
| 5. | Virginia | 22,986 |

TOP CYBERSTATES BY TECH ECONOMIC IMPACT AS A PERCENT OF STATE ECONOMY

| | | |
|----|---------------|-------|
| 1. | Washington | 20.2% |
| 2. | California | 18.1% |
| 3. | Massachusetts | 17.2% |
| 4. | Colorado | 14.3% |
| 5. | Oregon | 14.1% |

TOP CYBERSTATES BY PERCENT OF WOMEN EMPLOYED IN TECH SECTOR

| | | |
|----|----------------------|-------|
| 1. | District of Columbia | 39.7% |
| 2. | South Dakota | 36.7% |
| 3. | New York | 35.4% |
| 4. | South Carolina | 35.3% |
| 5. | Missouri | 35.3% |

Source: EMSI | U.S. Bureau of Labor Statistics | U.S. Bureau of Economic Analysis | U.S. Patent & Trademark Office | D&B Hoovers | Pitchbook-National Venture Capital Association

¹CompTIA metric based on VC investment funding and the volume of tech startup activity

KEY FINDINGS – METROPOLITAN STATISTICAL AREA (MSA)

METROPOLITAN AREA NET TECH EMPLOYMENT

- The top ten metropolitan areas employ a little more than 4 million tech industry and tech occupation workers, or about 1 in 3 tech workers in the nation.
- New York City is the largest metropolitan area in the country by a wide margin. It follows that it also has the largest base of tech employment.
- Silicon Valley continues to be a critically important hub for innovation. Between San Francisco and San Jose, nearly 37,000 net tech employment jobs were added over the past year. The discussion doesn't end there, however, as technology increasingly has a significant presence across the nation. Cities such as Boston, Seattle, New York, Dallas, Atlanta, Los Angeles, Denver and more, boast sizable tech workforces and notable job gain rates. This includes the sometimes "under the radar" tech cities of Austin, Raleigh, Charlotte, Phoenix, Detroit, Orlando, and more.
- As noted throughout this report, there are many nuances to assessing the tech landscape and a single figure rarely tells the whole story. For example, metro areas that may appear to be lagging based on overall tech job gains, typically also have pockets of growth. In the case of New Orleans, which had a slight decline in tech employment, the software category increased by 5 percent. Job growth is also relative, as in the case of Cincinnati, where tech industry employment gains outperformed many other sectors in the local economy, including health care services, retail, and construction.

METROPOLITAN AREA EMPLOYMENT CONCENTRATION

- Employment concentration provides a measure of tech employment relative to employment across all the other industry sectors in a local economy. Along with economic impact as a percentage of a local economy, these metrics help to put tech into context.
- At 33 percent, San Jose has the highest concentration of net tech employment as a percentage of its overall employment base. Similarly, San Jose is an outlier in the economic impact of tech to the local economy at nearly 60 percent, about twice the rate as the next highest metro area.
- Compared to the national tech employment concentration benchmark of 7.7 percent, 28 metro areas had a higher rate, confirming the importance of technology to a far-reaching set of cities across the country.

METROPOLITAN AREA TECH BUSINESS ESTABLISHMENTS

- A large, dynamic base of business establishments, also referred to as company locations, is another measure of a healthy tech sector. The New York City metro area is home to 24,263 tech business establishments.
- The vast majority of tech business establishments are categorized as small businesses under the Small Business Administration's definition of up to 500 employees.
- Outside of the top five, the next largest metropolitan areas for the number of tech sector business establishments include Boston, Dallas, Atlanta, Seattle, Denver, and Atlanta.

METROPOLITAN AREA TECH OCCUPATION CHARACTERISTICS

- The national average for the percent of women in the tech sector workforce was 32.7 percent in 2019. Among metropolitan areas, Buffalo had the most balanced gender ratio with women representing 38 percent of its tech sector workforce. When drilling-down to specific occupations, approximately 45 percent of assemblers, 38 percent of database administrators, 38 percent of computer systems analysts, and 34 percent of web developers in Buffalo are women.

TOP CYBERCITIES BY NET TECH EMPLOYMENT

| | | |
|-----|---------------|---------|
| 1. | New York City | 680,140 |
| 2. | Los Angeles | 520,022 |
| 3. | Washington DC | 448,413 |
| 4. | San Francisco | 410,635 |
| 5. | San Jose | 394,376 |
| 6. | Boston | 382,821 |
| 7. | Dallas | 361,849 |
| 8. | Chicago | 344,419 |
| 9. | Seattle | 312,913 |
| 10. | Atlanta | 271,039 |

TOP CYBERCITIES BY NET TECH EMPLOYMENT JOB GAINS

| | | |
|-----|---------------|---------|
| 1. | San Francisco | +21,046 |
| 2. | San Jose | +15,727 |
| 3. | New York City | +13,513 |
| 4. | Seattle | +12,605 |
| 5. | Boston | +10,704 |
| 6. | Dallas | +9,932 |
| 7. | Los Angeles | +8,735 |
| 8. | Atlanta | +7,903 |
| 9. | Denver | +7,342 |
| 10. | Austin | +7,131 |

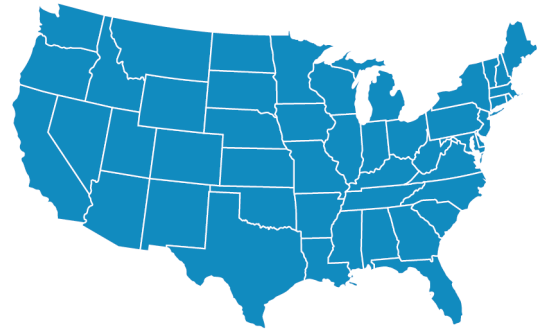
TOP CYBERCITIES BY TECH ECONOMIC IMPACT AS A PERCENT OF LOCAL ECONOMY

| | | |
|-----|---------------|-------|
| 1. | San Jose | 58.2% |
| 2. | San Francisco | 27.3% |
| 3. | Seattle | 26.3% |
| 4. | Austin | 23.8% |
| 5. | Raleigh | 23.1% |
| 6. | Boston | 19.6% |
| 7. | San Diego | 15.8% |
| 8. | Portland | 15.8% |
| 9. | Washington DC | 15.4% |
| 10. | Denver | 15.1% |

Source: EMSI | U.S. Bureau of Labor Statistics | CompTIA
Some numeric changes affected by rounding

NATIONAL SNAPSHOT

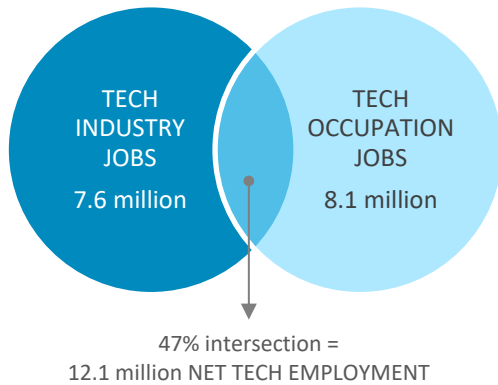
United States



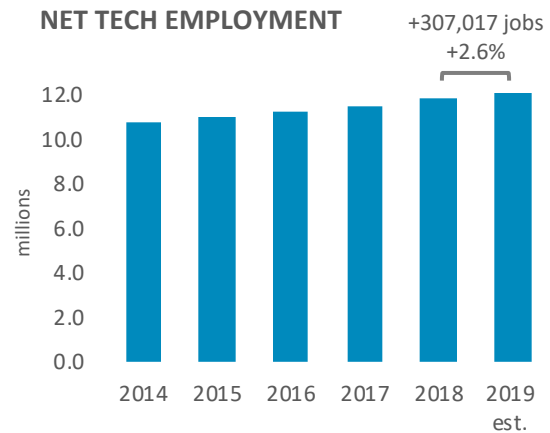
STATE OF TECHNOLOGY SUMMARY

- 12,103,103 NET TECH EMPLOYMENT¹
- 307,017 NET TECH JOB GAINS [2019 vs. 2018]
- 2,272,261 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 7.7% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 556,600 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 4,623,476 TECH OCCUPATION JOB POSTINGS [2019 total]
- 17.8% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

| | |
|--|------------------------|
| Software and Web Developers | 1,593,546 +4.3% YoY |
| Systems and Cybersecurity Analysts | 740,286 +2.6% YoY |
| Network Architects, Admins., and Support Specialists | 705,484 +0.0% YoY |
| IT Support Specialists | 664,577 +3.0% YoY |

LEADING TECH INDUSTRY SECTORS [by employment]

| | | YoY % 2019 Change |
|--|-----------|----------------------|
| IT Services + Custom Software Services | 2,721,023 | 3.2% |
| R&D, Testing, and Engineering Services | 1,863,151 | 2.0% |
| Telecommunications and Internet Services | 1,387,124 | 1.4% |
| Tech Manufacturing | 1,183,795 | 1.4% |
| Software [packaged] | 435,049 | 6.1% |

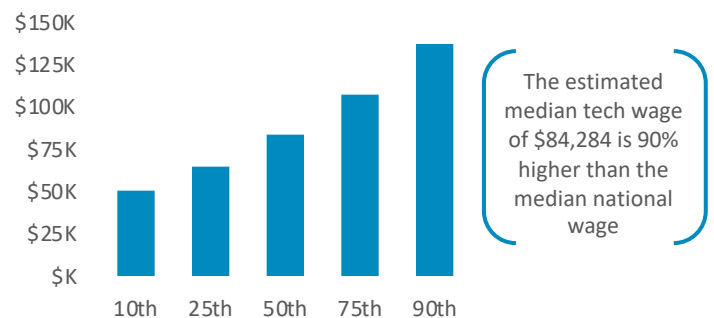
ECONOMIC IMPACT



10.0%

Estimated direct contribution of the tech sector to the U.S. economy: \$1.9 trillion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

STATE SNAPSHOTS

Alabama

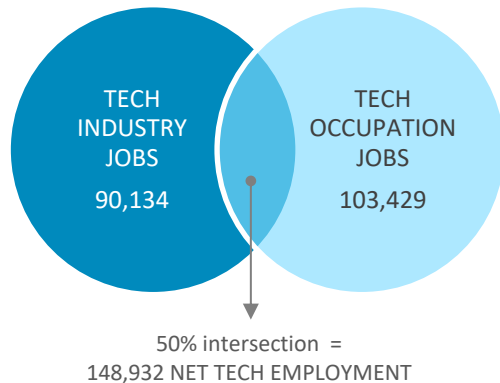


STATE OF TECHNOLOGY SUMMARY

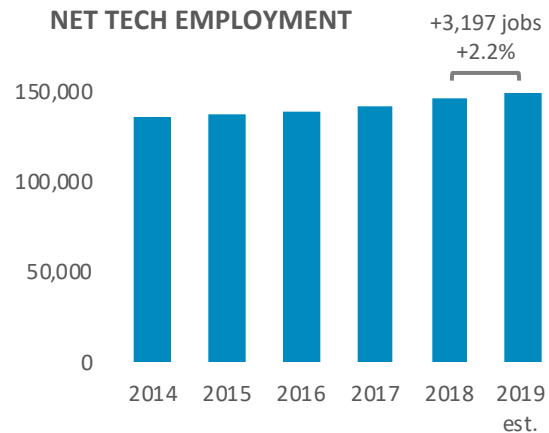
148,932 NET TECH EMPLOYMENT¹
 +3,197 NET TECH JOB GAINS [2019 vs. 2018]
 +12,683 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 7.1% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 6,704 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 51,946 TECH OCCUPATION JOB POSTINGS [2019 total]
 8.5% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

24th NET TECH EMPLOYMENT RANK
 26th NET TECH EMPLOYMENT JOBS ADDED RANK
 34th INNOVATION SCORE RANK

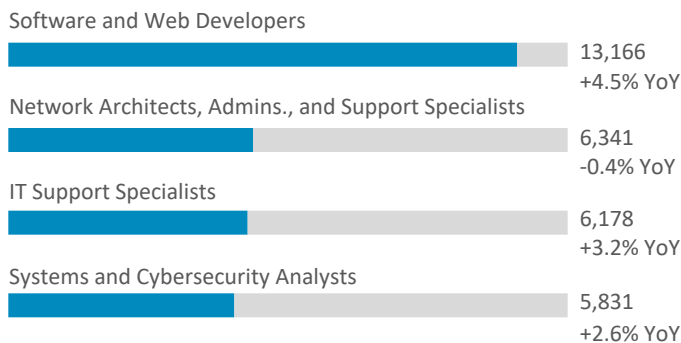
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| R&D, Testing, and Engineering Services | 32,377 | 3.5% |
| IT Services + Custom Software Services | 30,644 | 2.4% |
| Tech Manufacturing | 13,483 | 1.2% |
| Telecommunications and Internet Services | 12,020 | 0.4% |
| Software [packaged] | 1,610 | 11.8% |

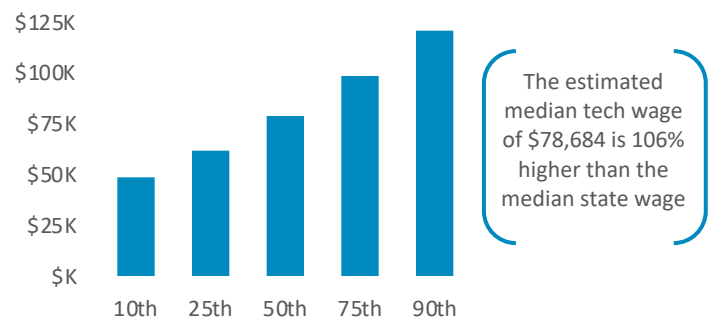
ECONOMIC IMPACT



6.8%

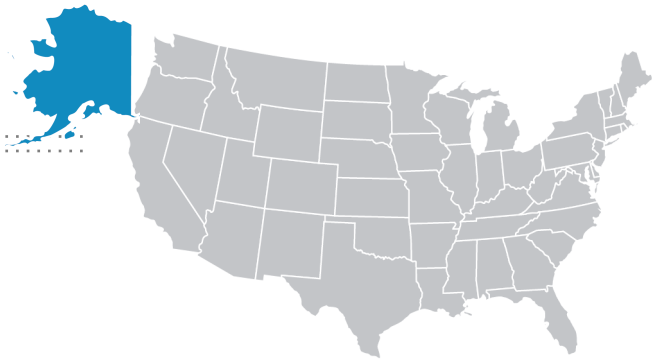
Estimated direct contribution of the tech sector to the Alabama economy: \$13.8 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Alaska

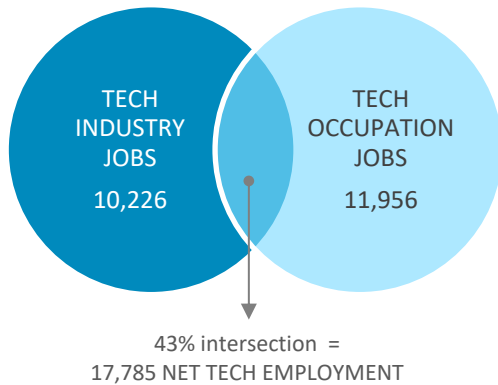


STATE OF TECHNOLOGY SUMMARY

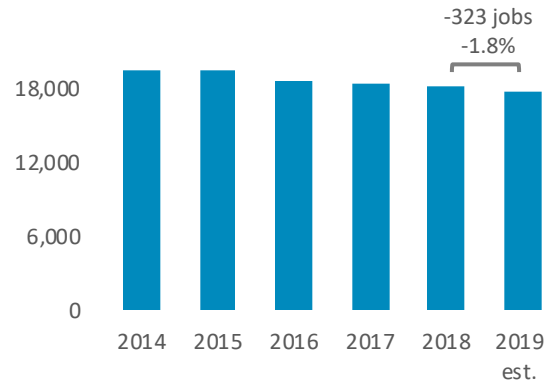
17,785 NET TECH EMPLOYMENT¹
 -323 NET TECH JOB GAINS [2019 vs. 2018]
 -1,006 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 5.1% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 969 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 6,032 TECH OCCUPATION JOB POSTINGS [2019 total]
 6.8% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

50th NET TECH EMPLOYMENT RANK
 50th NET TECH EMPLOYMENT JOBS ADDED RANK
 48th INNOVATION SCORE RANK

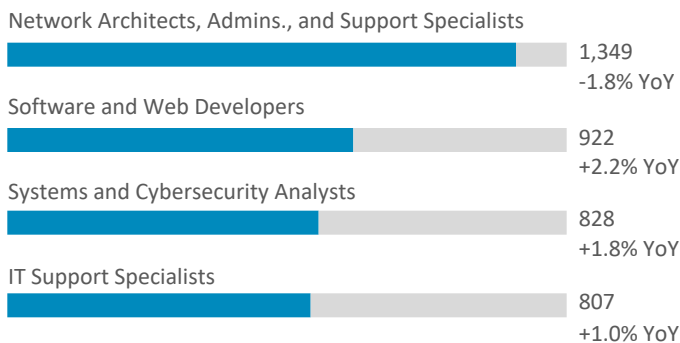
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



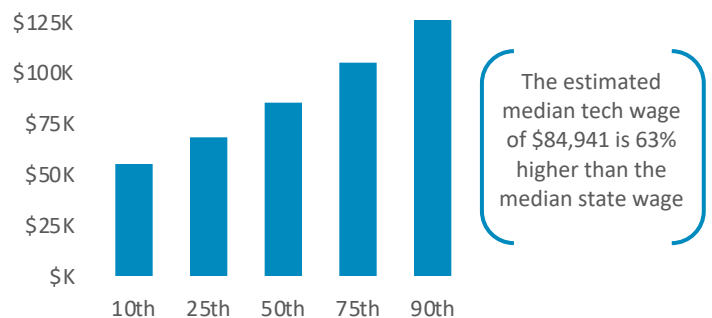
LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|-------|--------------|
| R&D, Testing, and Engineering Services | 4,290 | -3.6% |
| Telecommunications and Internet Services | 3,870 | -2.9% |
| IT Services + Custom Software Services | 1,894 | 1.6% |
| Tech Manufacturing | 146 | 13.8% |
| Software [packaged] | 26 | 2.7% |

ECONOMIC IMPACT

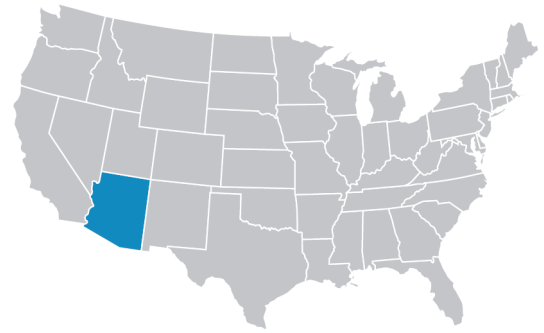


TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Arizona

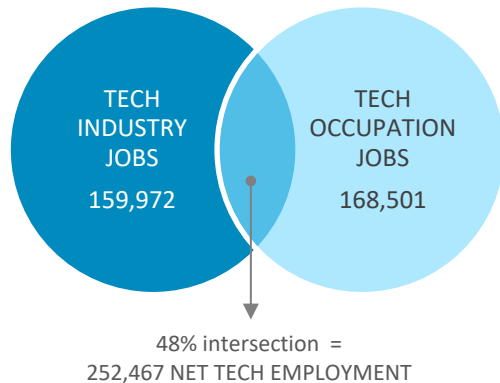


STATE OF TECHNOLOGY SUMMARY

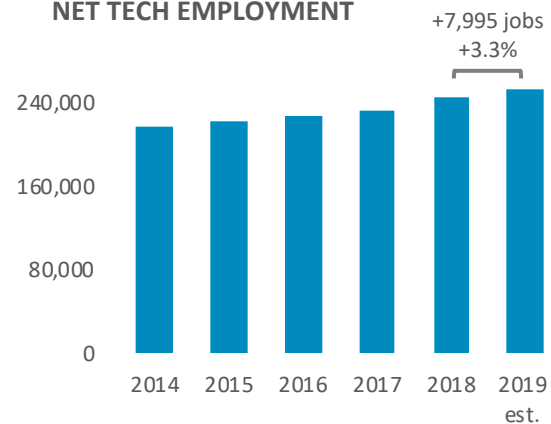
- 252,467 NET TECH EMPLOYMENT¹
- +7,995 NET TECH JOB GAINS [2019 vs. 2018]
- +52,409 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 8.2% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 12,163 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 107,066 TECH OCCUPATION JOB POSTINGS [2019 total]
- 16.3% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 17th NET TECH EMPLOYMENT RANK
- 14th NET TECH EMPLOYMENT JOBS ADDED RANK
- 18th INNOVATION SCORE RANK

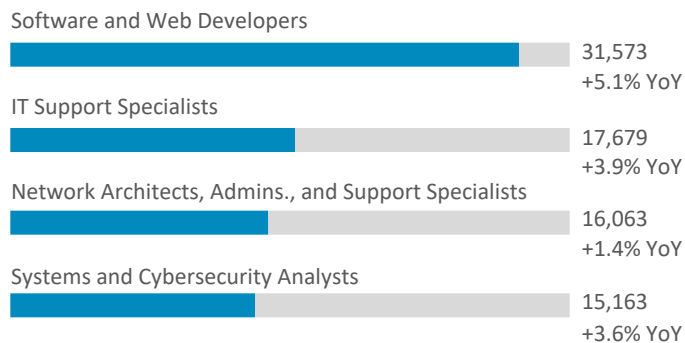
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 48,759 | 4.2% |
| Tech Manufacturing | 47,573 | 1.3% |
| Telecommunications and Internet Services | 30,808 | 4.0% |
| R&D, Testing, and Engineering Services | 27,749 | 2.8% |
| Software [packaged] | 5,082 | 8.6% |

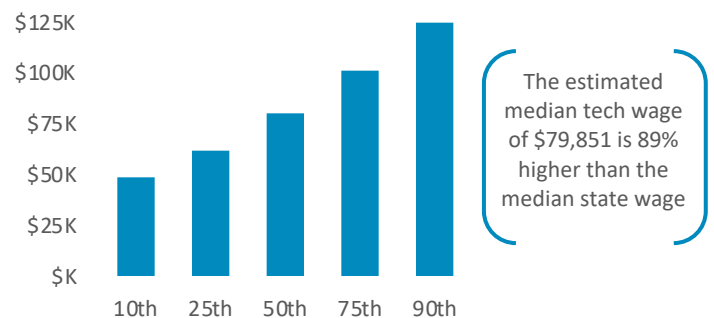
ECONOMIC IMPACT



10.1%

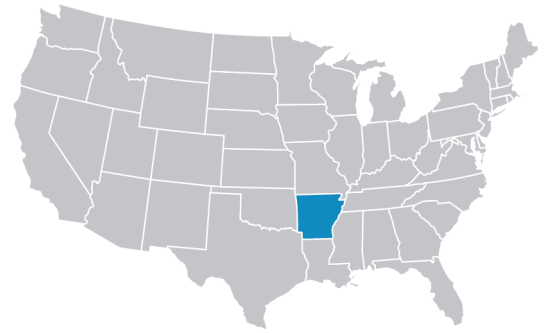
Estimated direct contribution of the tech sector to the Arizona economy: \$32.2 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Arkansas



STATE OF TECHNOLOGY SUMMARY

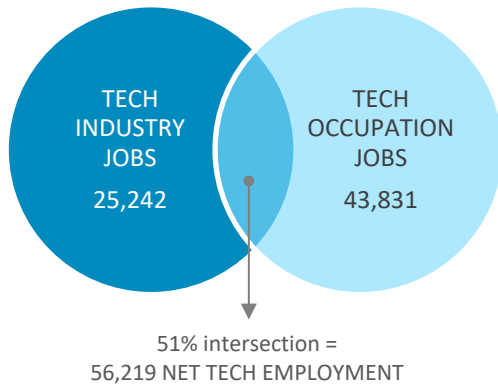
56,219 NET TECH EMPLOYMENT¹
 -548 NET TECH JOB GAINS [2019 vs. 2018]
 +1,470 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 4.3% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 3,776 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 13,472 TECH OCCUPATION JOB POSTINGS [2019 total]
 13.6% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

38th NET TECH EMPLOYMENT RANK

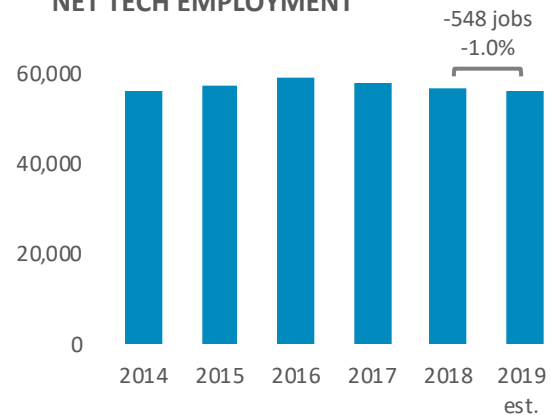
51st NET TECH EMPLOYMENT JOBS ADDED RANK

40th INNOVATION SCORE RANK

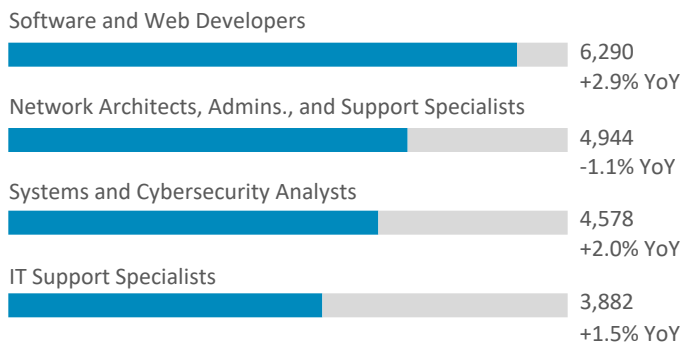
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 12,487 | 1.2% |
| R&D, Testing, and Engineering Services | 5,328 | 0.5% |
| Telecommunications and Internet Services | 4,658 | -11.4% |
| Tech Manufacturing | 2,350 | -0.8% |
| Software [packaged] | 419 | 4.2% |

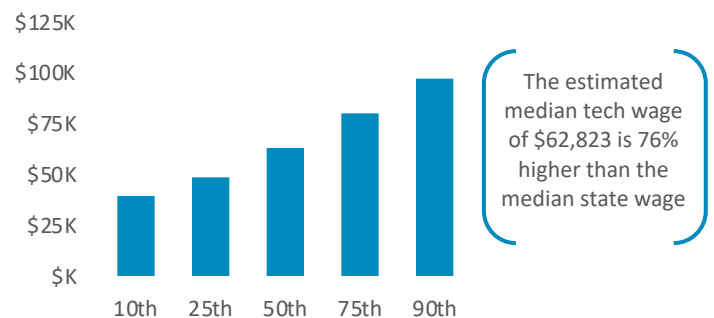
ECONOMIC IMPACT



3.4%

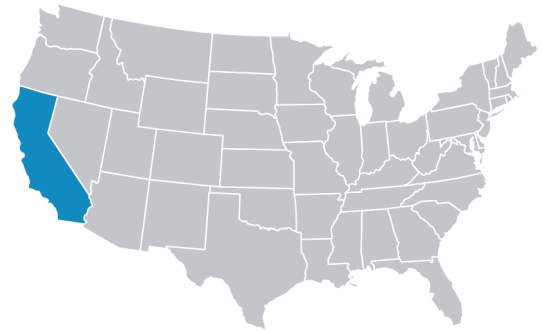
Estimated direct contribution of the tech sector to the Arkansas economy: \$3.9 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

California

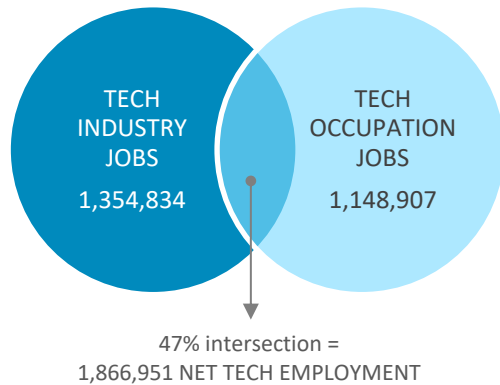


STATE OF TECHNOLOGY SUMMARY

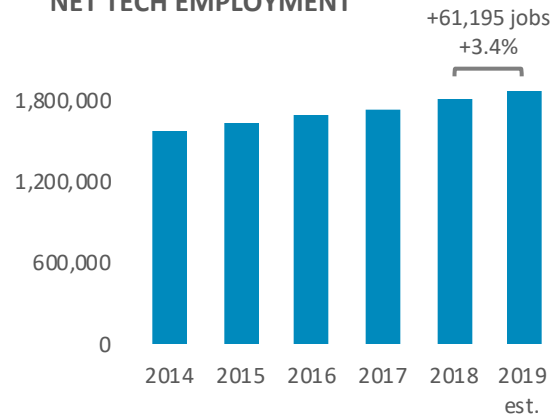
- 1,866,951 NET TECH EMPLOYMENT¹
- +61,195 NET TECH JOB GAINS [2019 vs. 2018]
- +438,605 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 9.7% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 66,084 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 842,009 TECH OCCUPATION JOB POSTINGS [2019 total]
- 21.1% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 1st NET TECH EMPLOYMENT RANK
- 1st NET TECH EMPLOYMENT JOBS ADDED RANK
- 1st INNOVATION SCORE RANK

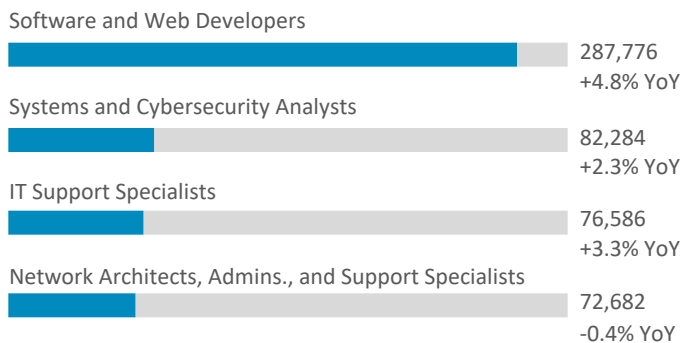
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|---------|--------------|
| IT Services + Custom Software Services | 413,818 | 3.6% |
| Tech Manufacturing | 321,800 | 1.8% |
| R&D, Testing, and Engineering Services | 286,526 | 2.4% |
| Telecommunications and Internet Services | 244,179 | 4.9% |
| Software [packaged] | 88,511 | 8.0% |

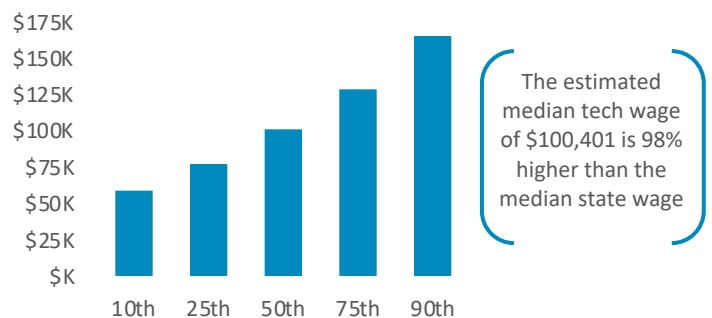
ECONOMIC IMPACT



18.1%

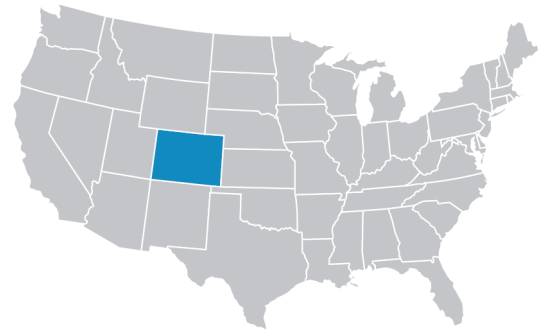
Estimated direct contribution of the tech sector to the California economy: \$492.8 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Colorado

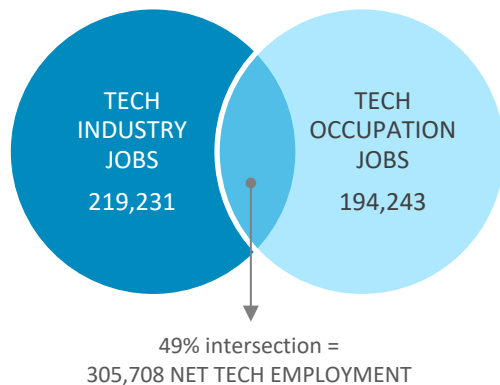


STATE OF TECHNOLOGY SUMMARY

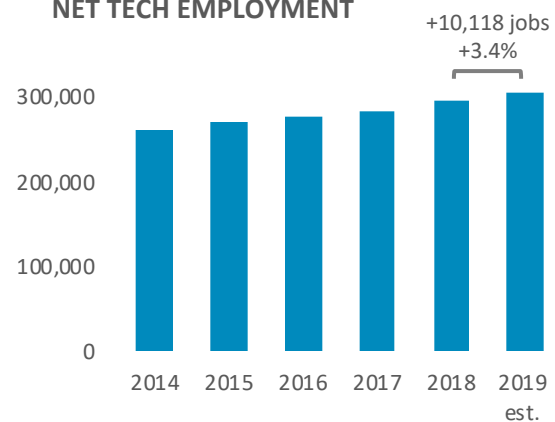
305,708 NET TECH EMPLOYMENT¹
 +10,118 NET TECH JOB GAINS [2019 vs. 2018]
 +66,858 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 10.5% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 17,852 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 133,842 TECH OCCUPATION JOB POSTINGS [2019 total]
 16.4% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

15th NET TECH EMPLOYMENT RANK
 9th NET TECH EMPLOYMENT JOBS ADDED RANK
 5th INNOVATION SCORE RANK

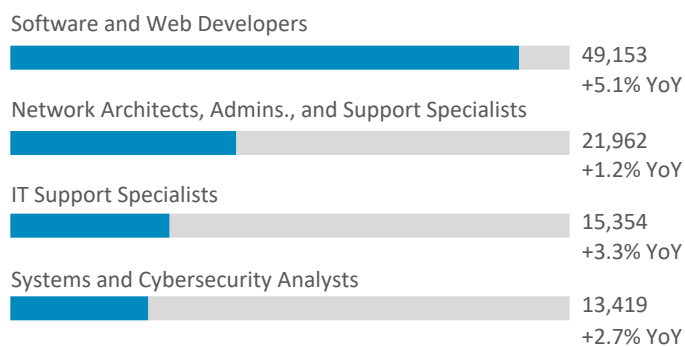
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 77,550 | 3.7% |
| R&D, Testing, and Engineering Services | 52,395 | 1.6% |
| Telecommunications and Internet Services | 43,920 | 2.5% |
| Tech Manufacturing | 29,896 | 1.7% |
| Software [packaged] | 15,471 | 5.1% |

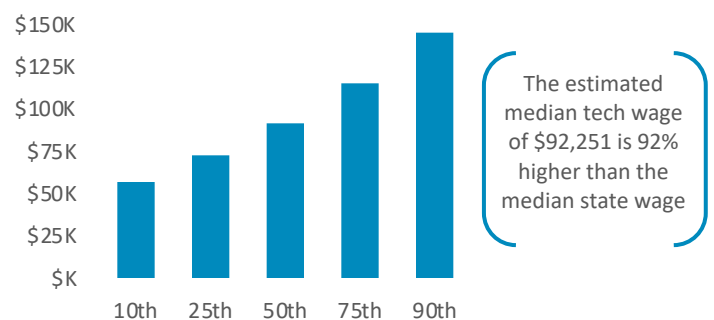
ECONOMIC IMPACT



14.3%

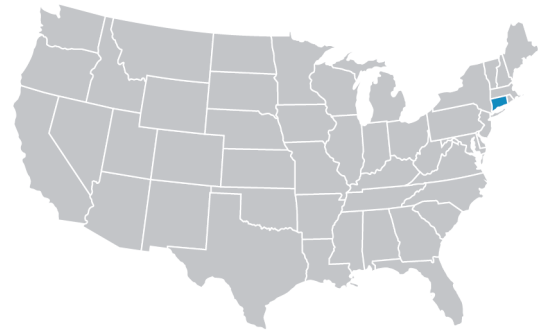
Estimated direct contribution of the tech sector to the Colorado economy: \$49.9 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Connecticut

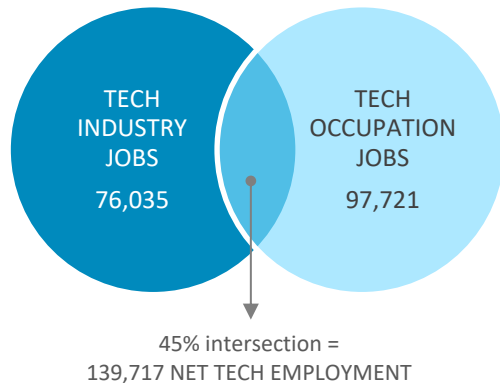


STATE OF TECHNOLOGY SUMMARY

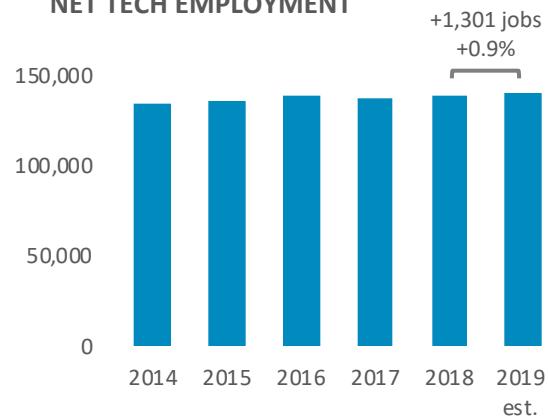
139,717 NET TECH EMPLOYMENT¹
 +1,301 NET TECH JOB GAINS [2019 vs. 2018]
 +8,429 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 7.8% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 7,557 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 44,210 TECH OCCUPATION JOB POSTINGS [2019 total]
 18.3% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

26th NET TECH EMPLOYMENT RANK
 33rd NET TECH EMPLOYMENT JOBS ADDED RANK
 22nd INNOVATION SCORE RANK

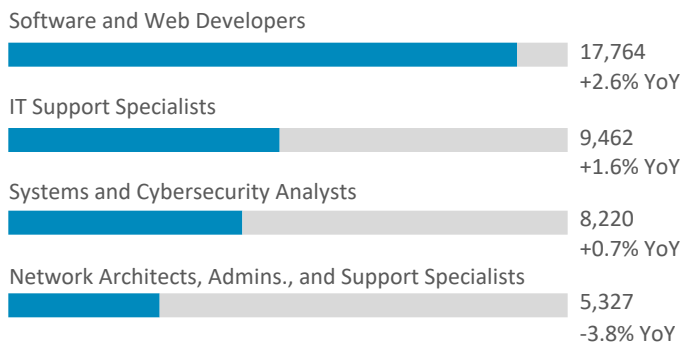
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 29,961 | -0.2% |
| R&D, Testing, and Engineering Services | 18,501 | 2.9% |
| Tech Manufacturing | 11,386 | -3.0% |
| Telecommunications and Internet Services | 11,220 | -1.9% |
| Software [packaged] | 4,967 | 5.9% |

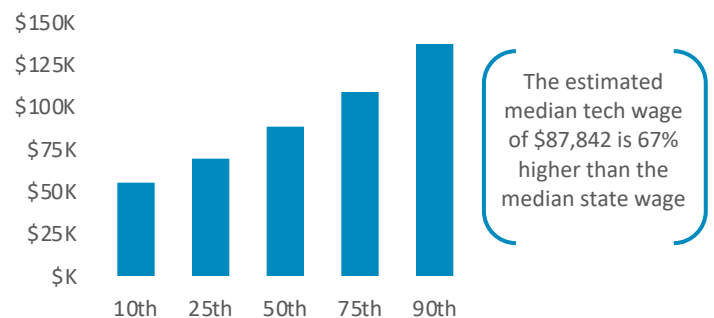
ECONOMIC IMPACT



6.9%

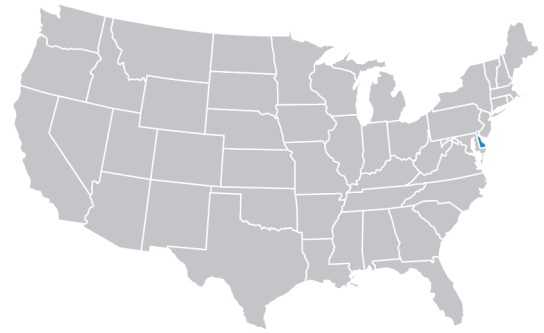
Estimated direct contribution of the tech sector to the Connecticut economy: \$17.9 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Delaware

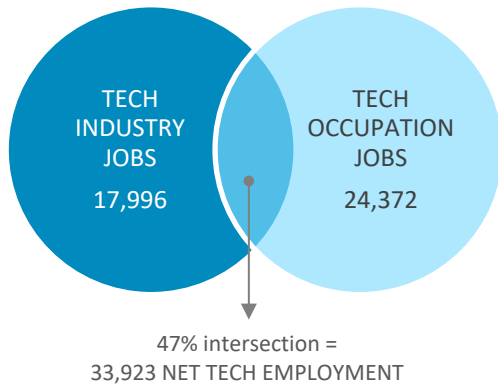


STATE OF TECHNOLOGY SUMMARY

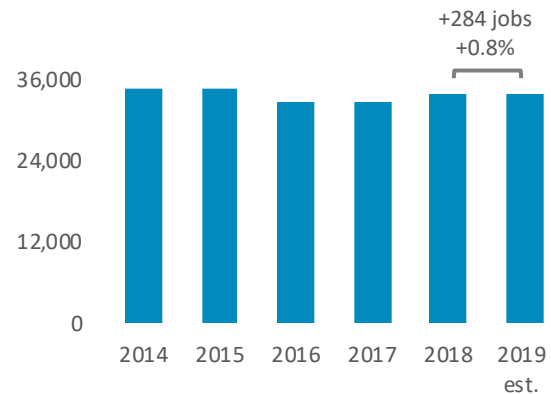
- 33,923 NET TECH EMPLOYMENT¹
- +284 NET TECH JOB GAINS [2019 vs. 2018]
- +2,852 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 7.2% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 2,948 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 12,396 TECH OCCUPATION JOB POSTINGS [2019 total]
- 26.3% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 43rd NET TECH EMPLOYMENT RANK
- 44th NET TECH EMPLOYMENT JOBS ADDED RANK
- 25th INNOVATION SCORE RANK

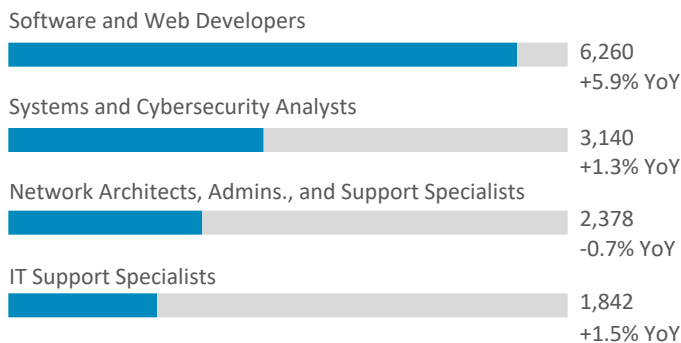
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 6,545 | 3.6% |
| R&D, Testing, and Engineering Services | 5,743 | -6.9% |
| Tech Manufacturing | 3,245 | 4.5% |
| Telecommunications and Internet Services | 2,211 | -9.7% |
| Software [packaged] | 252 | 11.2% |

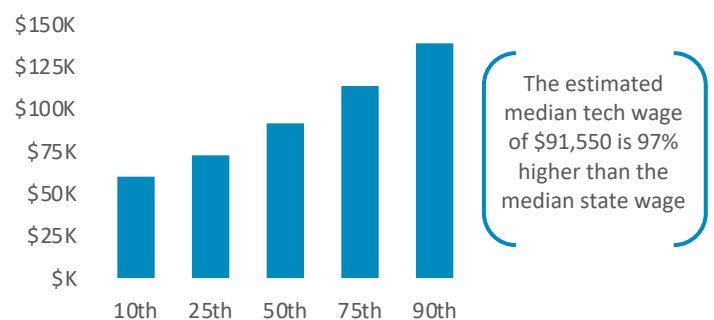
ECONOMIC IMPACT



7.5%

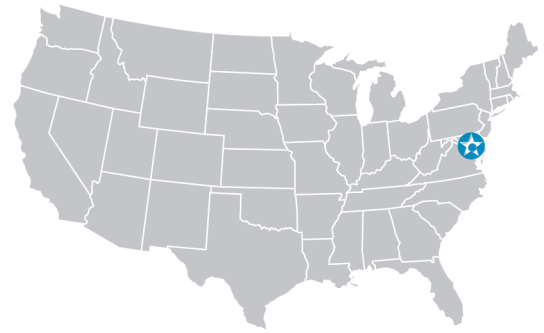
Estimated direct contribution of the tech sector to the Delaware economy: \$4.9 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

District of Columbia

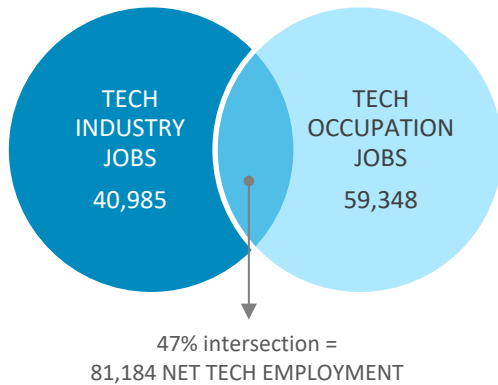


STATE OF TECHNOLOGY SUMMARY

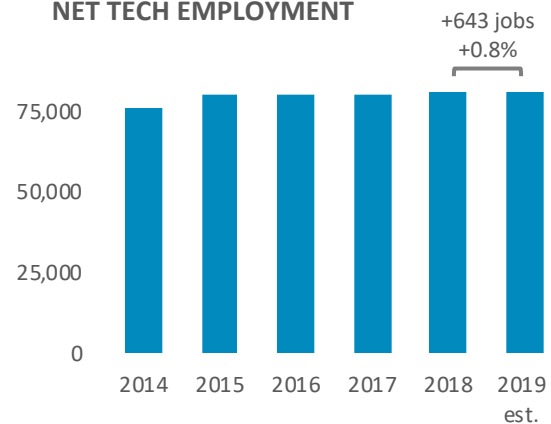
81,184 NET TECH EMPLOYMENT¹
 +643 NET TECH JOB GAINS [2019 vs. 2018]
 +12,334 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 10.2% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 4,196 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 65,511 TECH OCCUPATION JOB POSTINGS [2019 total]
 18.0% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

33rd NET TECH EMPLOYMENT RANK
 39th NET TECH EMPLOYMENT JOBS ADDED RANK
 29th INNOVATION SCORE RANK

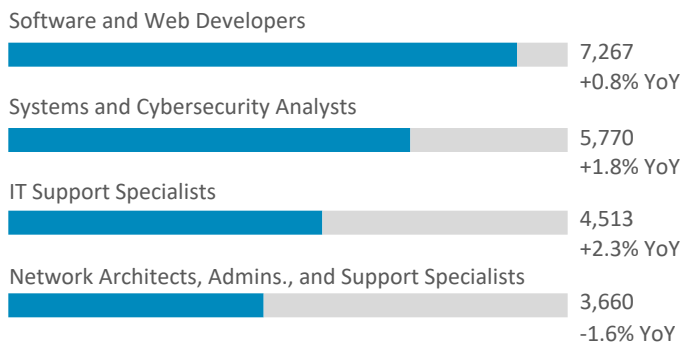
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 25,793 | 1.8% |
| R&D, Testing, and Engineering Services | 8,806 | -2.2% |
| Telecommunications and Internet Services | 4,911 | 8.5% |
| Software [packaged] | 1,384 | 15.6% |
| Tech Manufacturing | 90 | 9.2% |

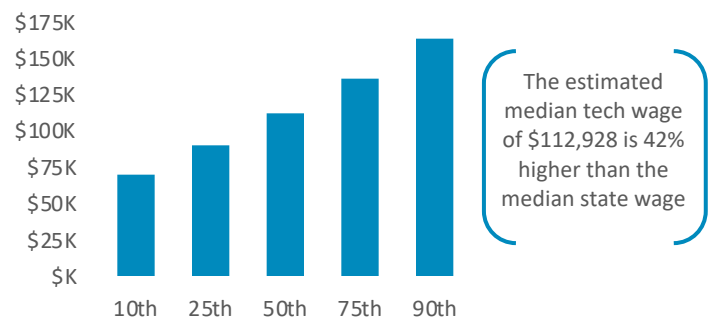
ECONOMIC IMPACT



6.3%

Estimated direct contribution of the tech sector to the District of Columbia economy: \$8.4 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Florida

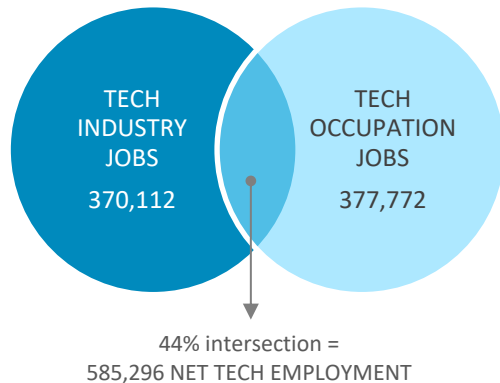


STATE OF TECHNOLOGY SUMMARY

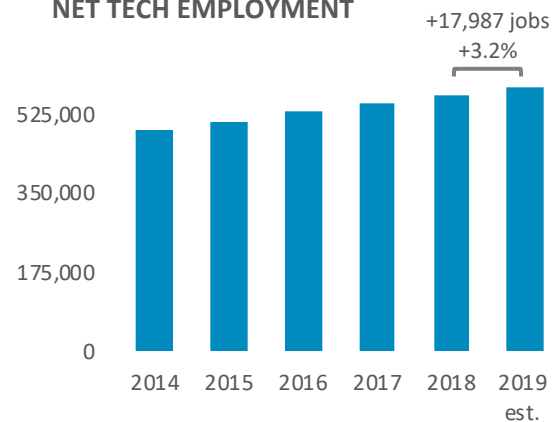
- 585,296 NET TECH EMPLOYMENT¹
- +17,987 NET TECH JOB GAINS [2019 vs. 2018]
- +120,394 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 6.2% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 34,525 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 234,933 TECH OCCUPATION JOB POSTINGS [2019 total]
- 13.7% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 4th NET TECH EMPLOYMENT RANK
- 3rd NET TECH EMPLOYMENT JOBS ADDED RANK
- 3rd INNOVATION SCORE RANK

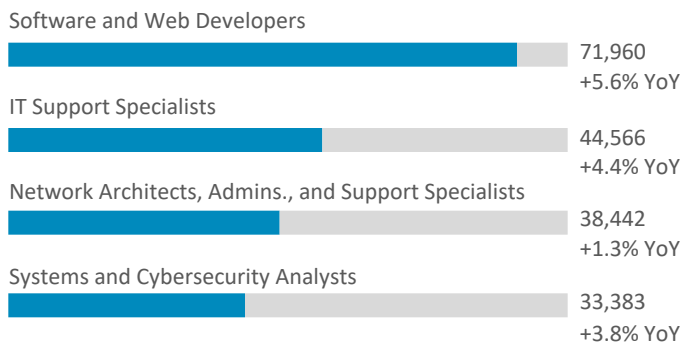
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|---------|--------------|
| IT Services + Custom Software Services | 138,666 | 4.4% |
| R&D, Testing, and Engineering Services | 84,249 | 2.5% |
| Telecommunications and Internet Services | 77,045 | 0.5% |
| Tech Manufacturing | 52,325 | 2.0% |
| Software [packaged] | 17,827 | 8.0% |

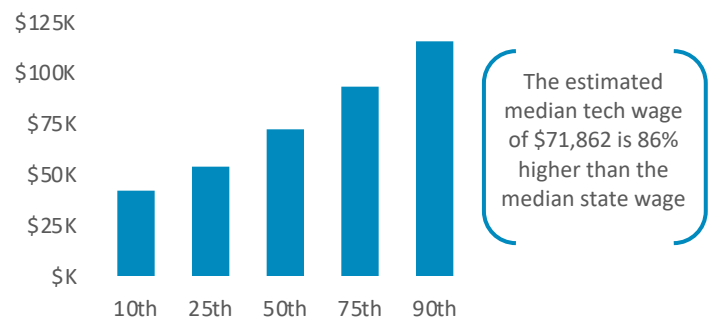
ECONOMIC IMPACT



7.8%

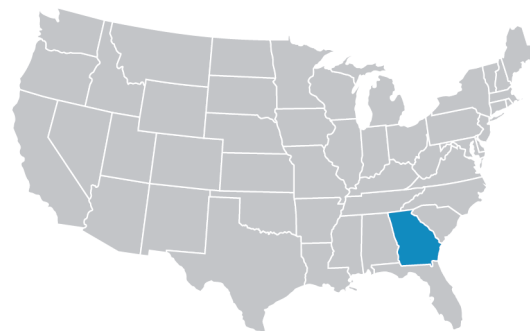
Estimated direct contribution of the tech sector to the Florida economy: \$73.8 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Georgia

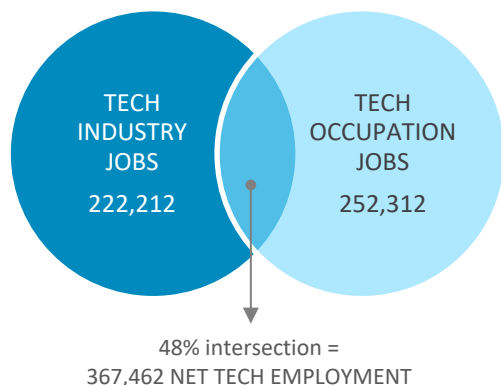


STATE OF TECHNOLOGY SUMMARY

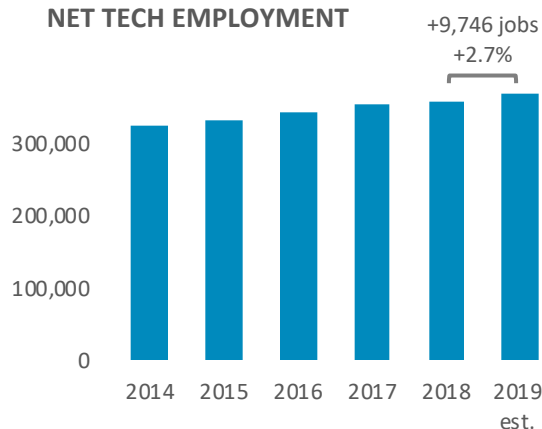
367,462 NET TECH EMPLOYMENT¹
 +9,746 NET TECH JOB GAINS [2019 vs. 2018]
 +74,492 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 7.7% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 17,080 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 168,390 TECH OCCUPATION JOB POSTINGS [2019 total]
 18.2% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

12th NET TECH EMPLOYMENT RANK
 10th NET TECH EMPLOYMENT JOBS ADDED RANK
 6th INNOVATION SCORE RANK

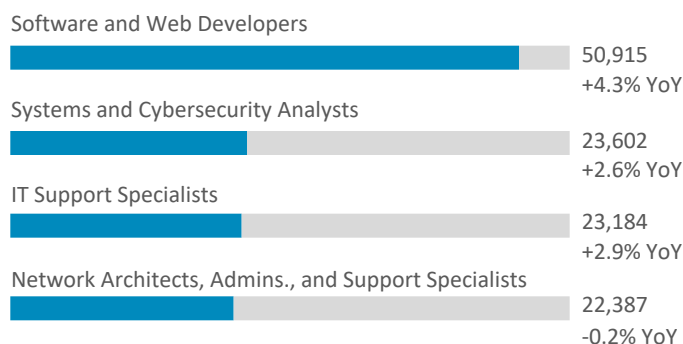
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 94,404 | 2.8% |
| Telecommunications and Internet Services | 58,917 | 0.2% |
| R&D, Testing, and Engineering Services | 39,727 | 1.4% |
| Software [packaged] | 17,732 | 3.9% |
| Tech Manufacturing | 11,433 | 3.6% |

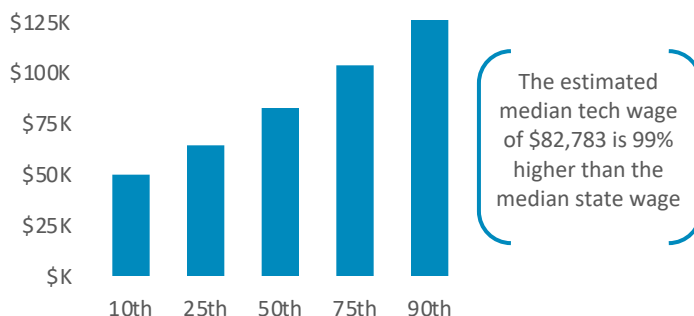
ECONOMIC IMPACT



9.9%

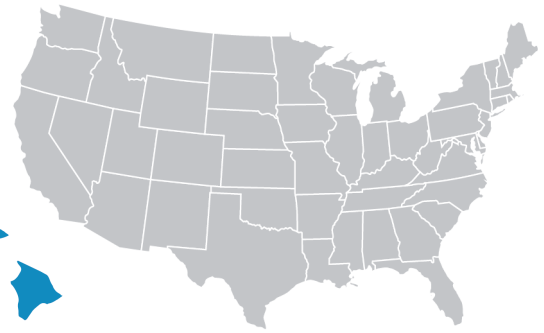
Estimated direct contribution of the tech sector to the Georgia economy: \$53.2 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Hawaii

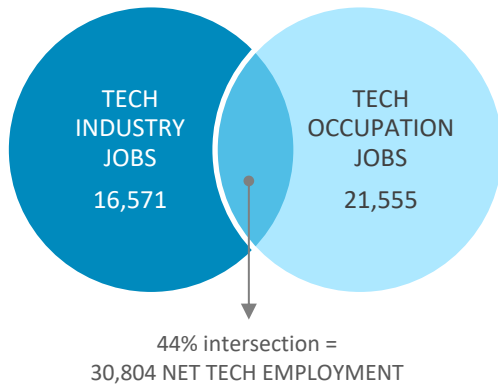


STATE OF TECHNOLOGY SUMMARY

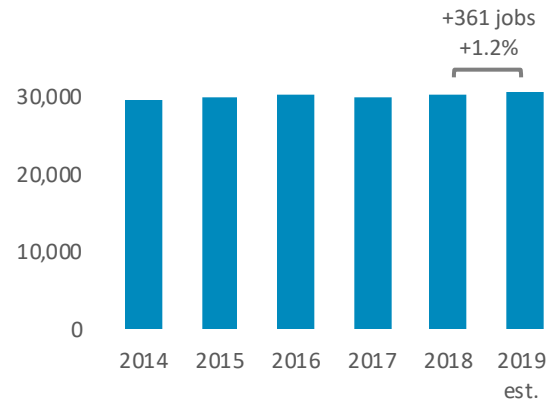
- 30,804 NET TECH EMPLOYMENT¹
- +361 NET TECH JOB GAINS [2019 vs. 2018]
- +2,203 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 4.3% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 2,194 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 9,473 TECH OCCUPATION JOB POSTINGS [2019 total]
- 7.9% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 44th NET TECH EMPLOYMENT RANK
- 43rd NET TECH EMPLOYMENT JOBS ADDED RANK
- 39th INNOVATION SCORE RANK

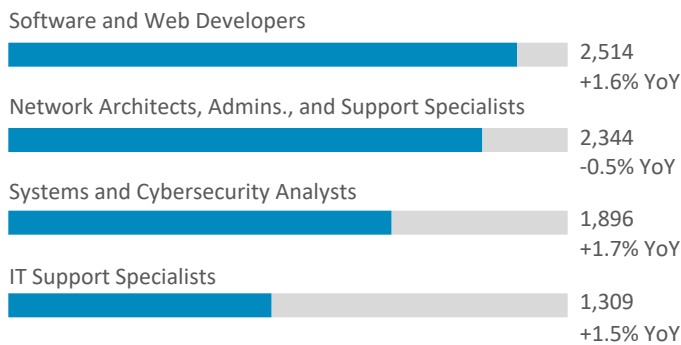
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 6,163 | 0.7% |
| R&D, Testing, and Engineering Services | 5,461 | 0.2% |
| Telecommunications and Internet Services | 4,544 | -1.1% |
| Tech Manufacturing | 237 | 6.9% |
| Software [packaged] | 166 | 12.5% |

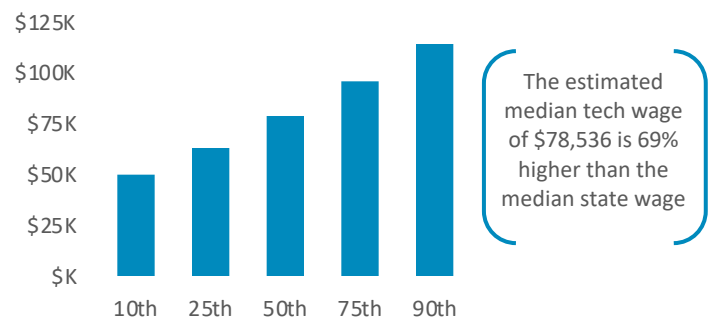
ECONOMIC IMPACT



3.8%

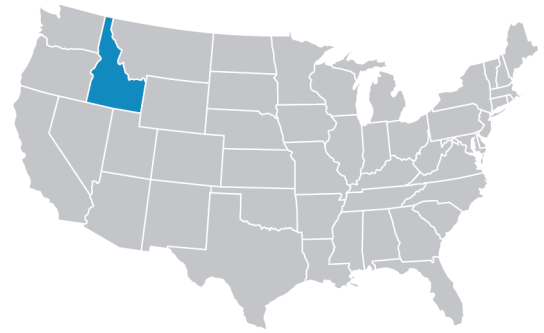
Estimated direct contribution of the tech sector to the Hawaii economy: \$3.2 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Idaho

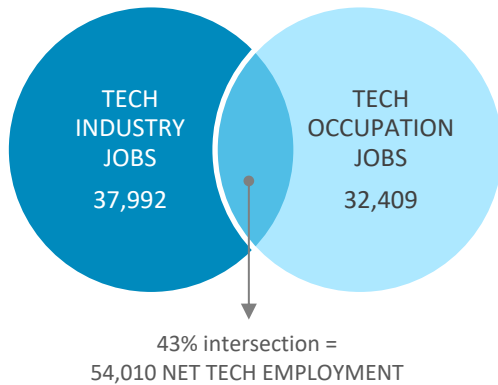


STATE OF TECHNOLOGY SUMMARY

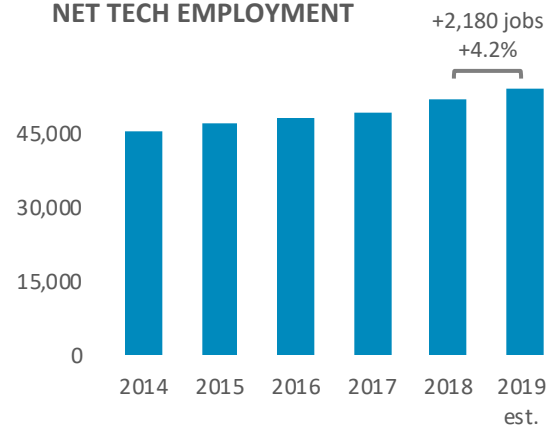
54,010 NET TECH EMPLOYMENT¹
 +2,180 NET TECH JOB GAINS [2019 vs. 2018]
 +10,159 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 6.7% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 3,865 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 11,433 TECH OCCUPATION JOB POSTINGS [2019 total]
 12.3% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

39th NET TECH EMPLOYMENT RANK
 29th NET TECH EMPLOYMENT JOBS ADDED RANK
 37th INNOVATION SCORE RANK

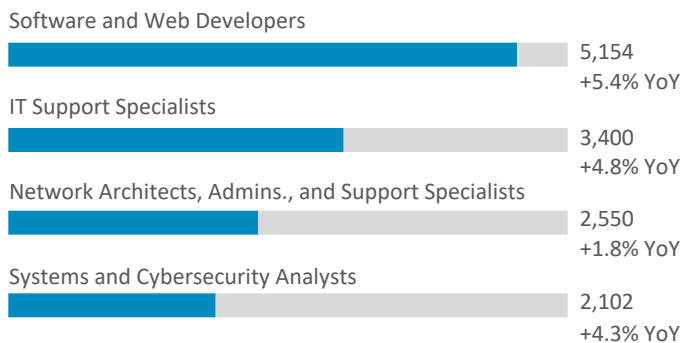
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| Tech Manufacturing | 13,491 | 4.7% |
| R&D, Testing, and Engineering Services | 11,969 | 2.2% |
| IT Services + Custom Software Services | 8,070 | 8.0% |
| Telecommunications and Internet Services | 4,151 | 1.2% |
| Software [packaged] | 311 | 1.4% |

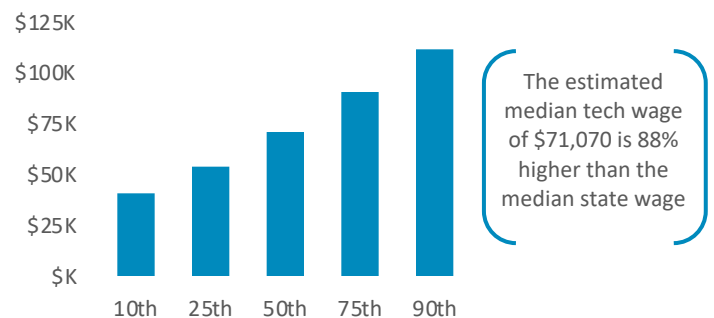
ECONOMIC IMPACT



9.8%

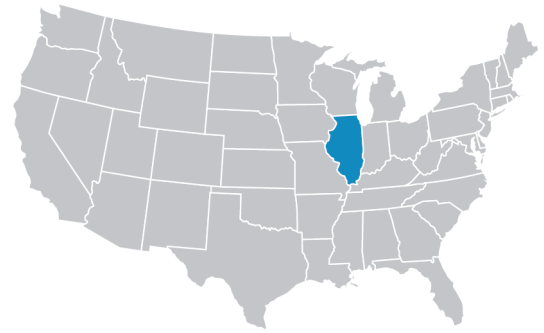
Estimated direct contribution of the tech sector to the Idaho economy: \$7.0 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Illinois



STATE OF TECHNOLOGY SUMMARY

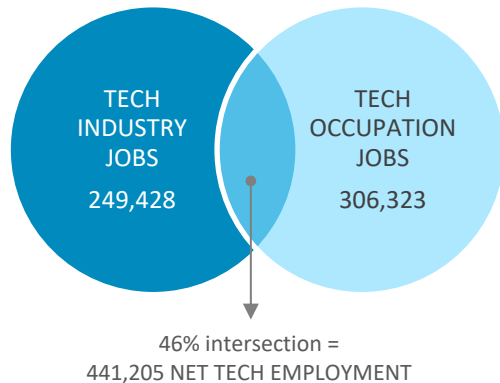
441,205 NET TECH EMPLOYMENT¹
 +5,436 NET TECH JOB GAINS [2019 vs. 2018]
 +59,416 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 7.0% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 22,180 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 170,546 TECH OCCUPATION JOB POSTINGS [2019 total]
 18.7% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

7th NET TECH EMPLOYMENT RANK

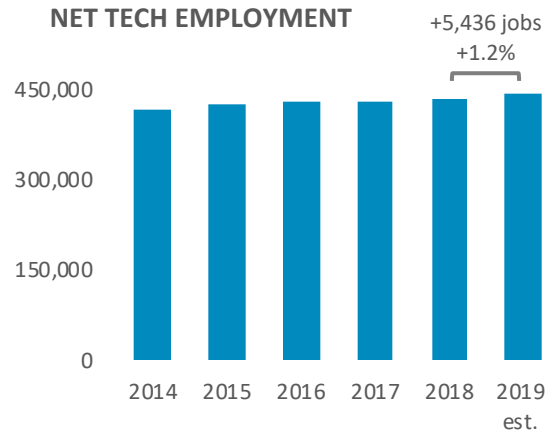
18th NET TECH EMPLOYMENT JOBS ADDED RANK

9th INNOVATION SCORE RANK

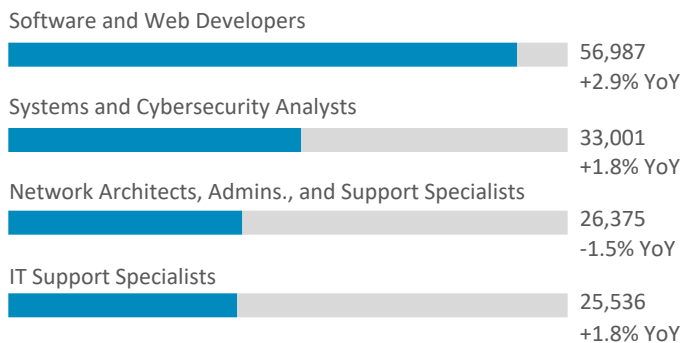
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|---------|--------------|
| IT Services + Custom Software Services | 108,295 | 2.5% |
| R&D, Testing, and Engineering Services | 52,601 | -1.4% |
| Telecommunications and Internet Services | 49,569 | -1.1% |
| Tech Manufacturing | 30,581 | -0.3% |
| Software [packaged] | 8,383 | 9.4% |

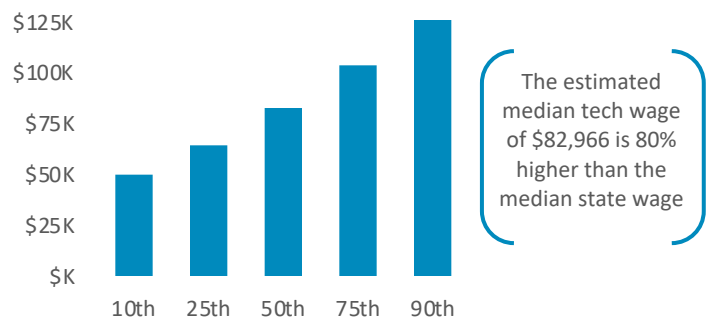
ECONOMIC IMPACT



7.1%

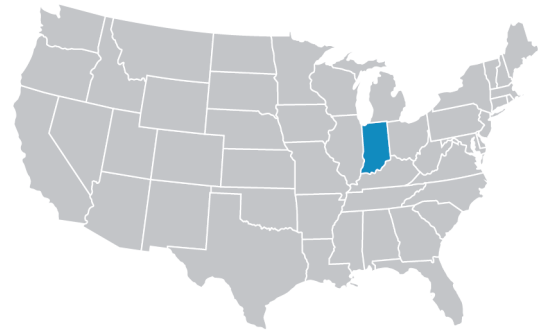
Estimated direct contribution of the tech sector to the Illinois economy: \$55.5 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Indiana

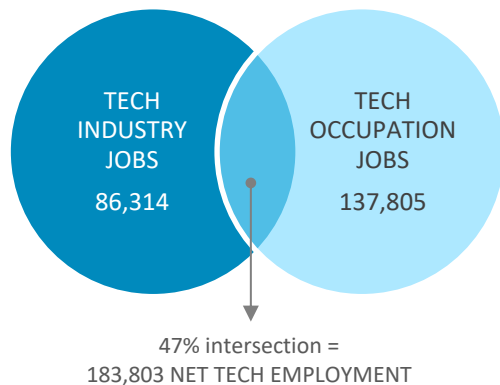


STATE OF TECHNOLOGY SUMMARY

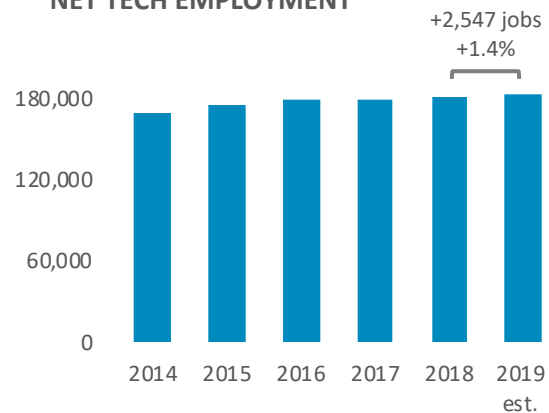
183,803 NET TECH EMPLOYMENT¹
 +2,547 NET TECH JOB GAINS [2019 vs. 2018]
 +31,534 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 5.7% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 8,753 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 55,301 TECH OCCUPATION JOB POSTINGS [2019 total]
 12.6% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

21st NET TECH EMPLOYMENT RANK
 27th NET TECH EMPLOYMENT JOBS ADDED RANK
 23rd INNOVATION SCORE RANK

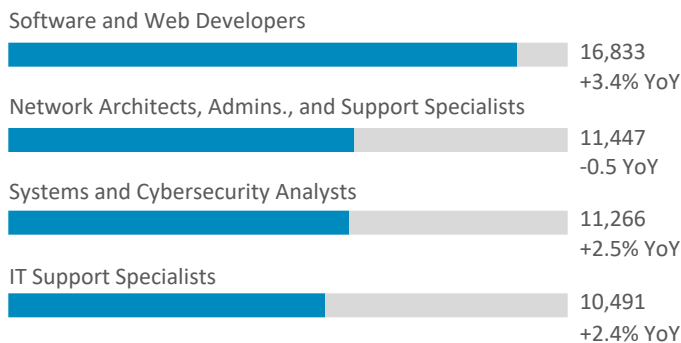
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



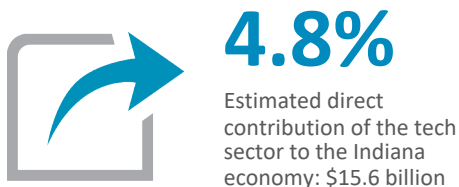
LEADING TECH OCCUPATION CATEGORIES



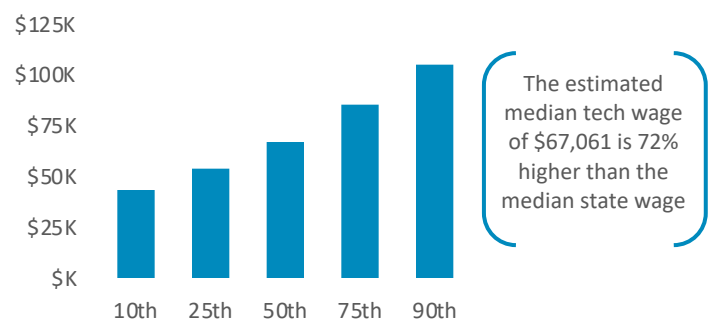
LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 36,279 | 4.0% |
| R&D, Testing, and Engineering Services | 20,976 | 1.7% |
| Telecommunications and Internet Services | 13,973 | -3.7% |
| Tech Manufacturing | 13,167 | -2.2% |
| Software [packaged] | 1,920 | -2.8% |

ECONOMIC IMPACT

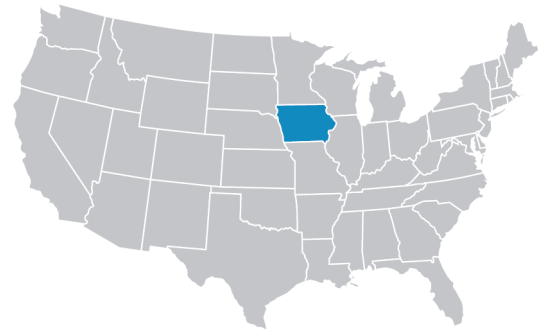


TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Iowa

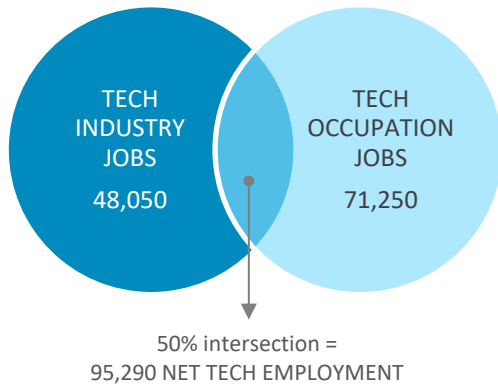


STATE OF TECHNOLOGY SUMMARY

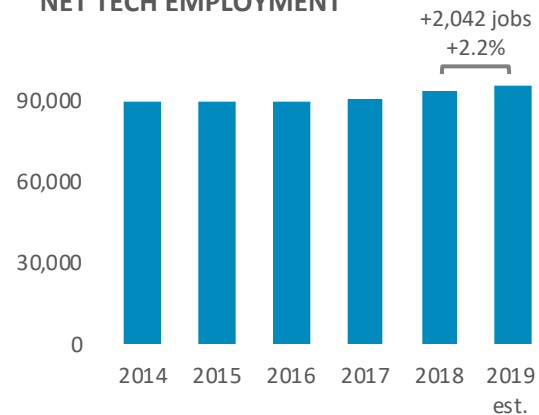
- 95,290 NET TECH EMPLOYMENT¹
- +2,042 NET TECH JOB GAINS [2019 vs. 2018]
- +15,563 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 5.7% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 4,702 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 32,990 TECH OCCUPATION JOB POSTINGS [2019 total]
- 11.4% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 29th NET TECH EMPLOYMENT RANK
- 30th NET TECH EMPLOYMENT JOBS ADDED RANK
- 38th INNOVATION SCORE RANK

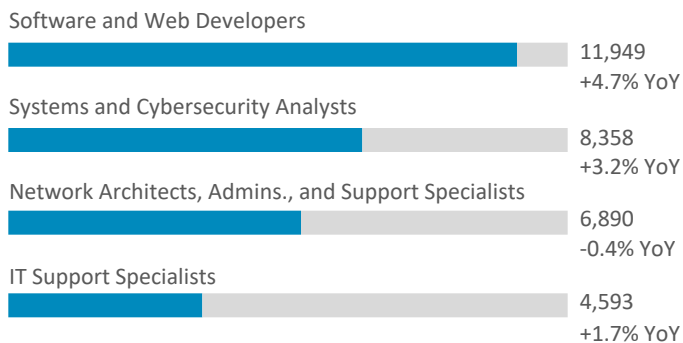
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 14,988 | 3.4% |
| Tech Manufacturing | 12,120 | 0.6% |
| Telecommunications and Internet Services | 10,848 | 0.2% |
| R&D, Testing, and Engineering Services | 8,844 | 2.3% |
| Software [packaged] | 1,250 | 9.2% |

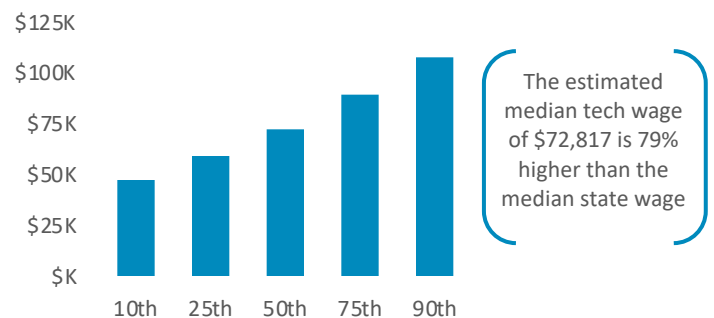
ECONOMIC IMPACT



5.9%

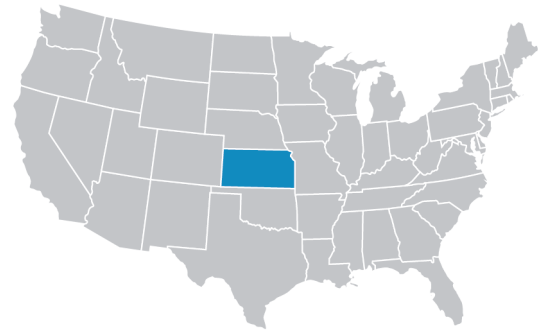
Estimated direct contribution of the tech sector to the Iowa economy: \$10.2 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Kansas

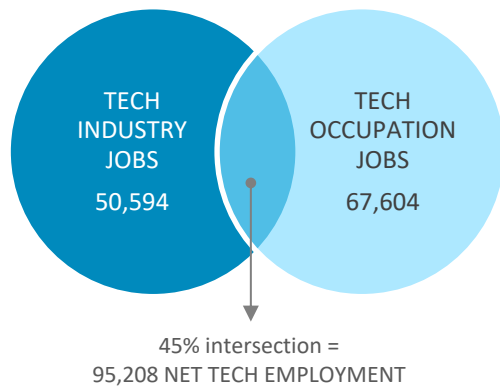


STATE OF TECHNOLOGY SUMMARY

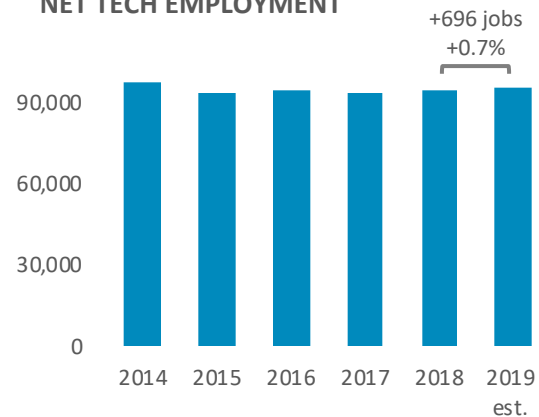
95,208 NET TECH EMPLOYMENT¹
 +696 NET TECH JOB GAINS [2019 vs. 2018]
 -837 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 6.4% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 5,022 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 27,046 TECH OCCUPATION JOB POSTINGS [2019 total]
 10.5% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

30th NET TECH EMPLOYMENT RANK
 38th NET TECH EMPLOYMENT JOBS ADDED RANK
 32nd INNOVATION SCORE RANK

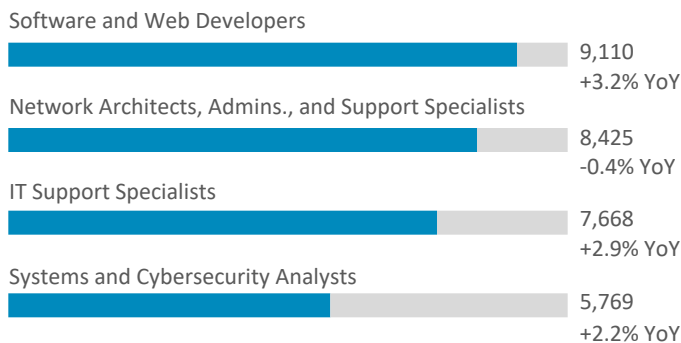
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | | YoY % 2019 Change |
|--|--------|----------------------|
| IT Services + Custom Software Services | 21,670 | 3.5% |
| R&D, Testing, and Engineering Services | 14,492 | 0.0% |
| Telecommunications and Internet Services | 9,707 | -7.3% |
| Tech Manufacturing | 3,566 | -7.1% |
| Software [packaged] | 1,158 | -2.4% |

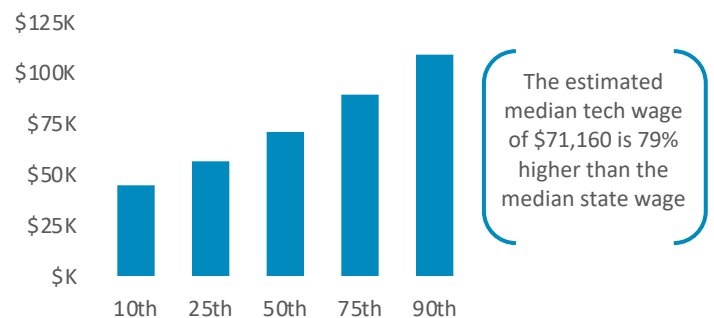
ECONOMIC IMPACT



5.7%

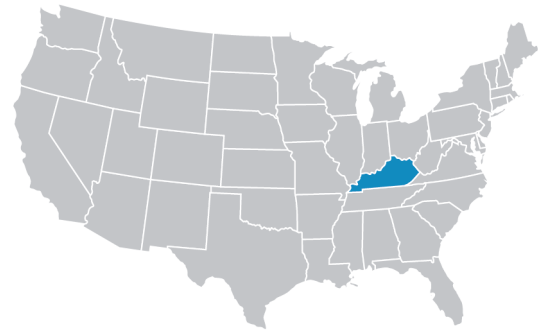
Estimated direct contribution of the tech sector to the Kansas economy: \$8.9 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Kentucky

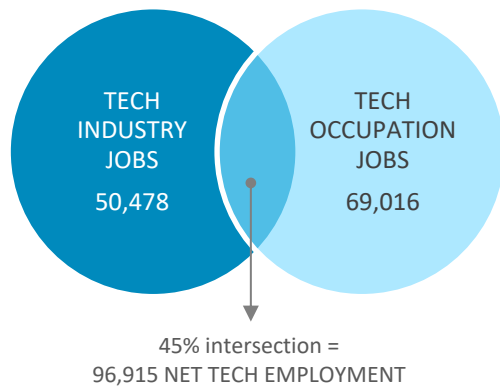


STATE OF TECHNOLOGY SUMMARY

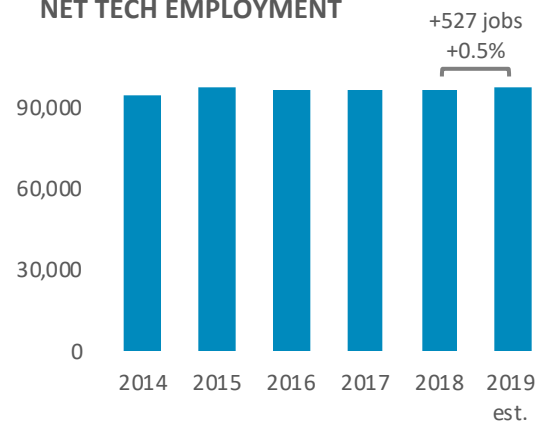
96,915 NET TECH EMPLOYMENT¹
 +527 NET TECH JOB GAINS [2019 vs. 2018]
 +9,936 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 4.8% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 5,959 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 28,613 TECH OCCUPATION JOB POSTINGS [2019 total]
 11.7% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

28th NET TECH EMPLOYMENT RANK
 41st NET TECH EMPLOYMENT JOBS ADDED RANK
 28th INNOVATION SCORE RANK

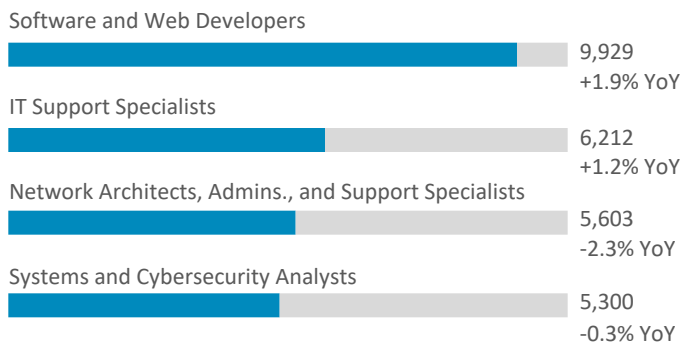
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



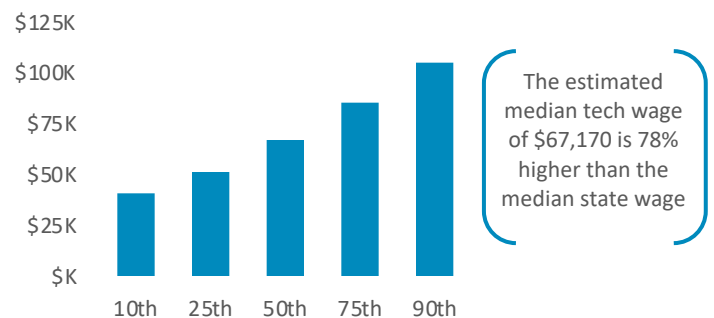
LEADING TECH INDUSTRY SECTORS [by employment]

| | | YoY % 2019 Change |
|--|--------|----------------------|
| IT Services + Custom Software Services | 20,879 | 2.5% |
| Telecommunications and Internet Services | 12,959 | -3.0% |
| R&D, Testing, and Engineering Services | 11,976 | 1.6% |
| Tech Manufacturing | 4,117 | -4.8% |
| Software [packaged] | 547 | 9.3% |

ECONOMIC IMPACT

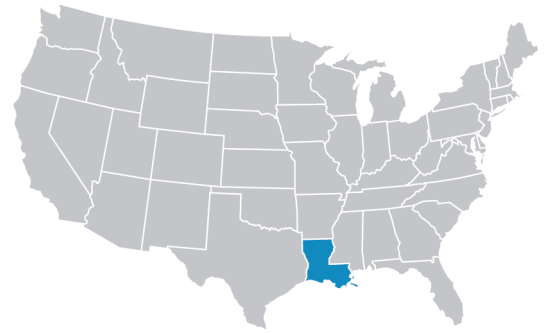


TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Louisiana

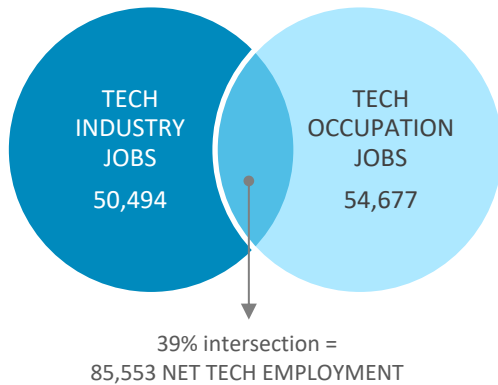


STATE OF TECHNOLOGY SUMMARY

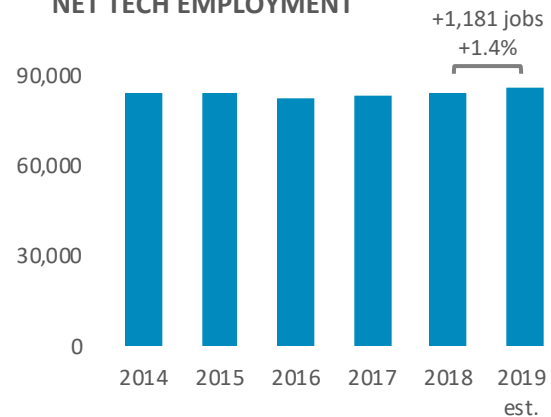
- 85,553 NET TECH EMPLOYMENT¹
- +1,181 NET TECH JOB GAINS [2019 vs. 2018]
- +2,723 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 4.2% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 5,597 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 24,566 TECH OCCUPATION JOB POSTINGS [2019 total]
- 10.0% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 32nd NET TECH EMPLOYMENT RANK
- 35th NET TECH EMPLOYMENT JOBS ADDED RANK
- 26th INNOVATION SCORE RANK

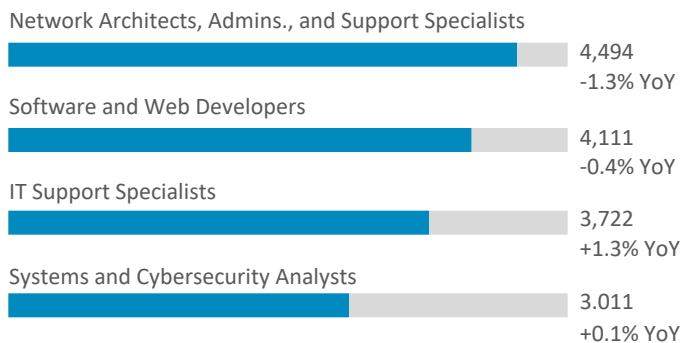
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| R&D, Testing, and Engineering Services | 20,862 | 0.4% |
| IT Services + Custom Software Services | 14,511 | 5.0% |
| Telecommunications and Internet Services | 11,290 | -0.1% |
| Tech Manufacturing | 2,628 | 4.7% |
| Software [packaged] | 1,203 | 19.0% |

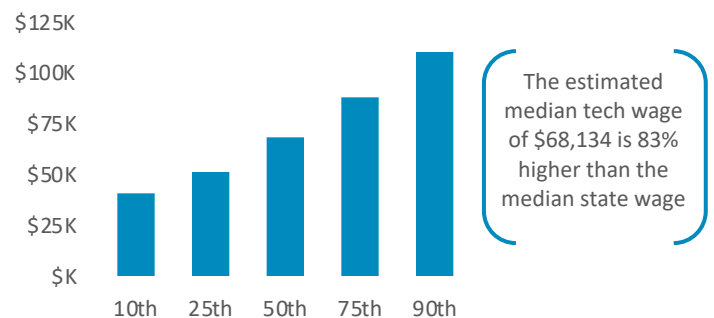
ECONOMIC IMPACT



3.3%

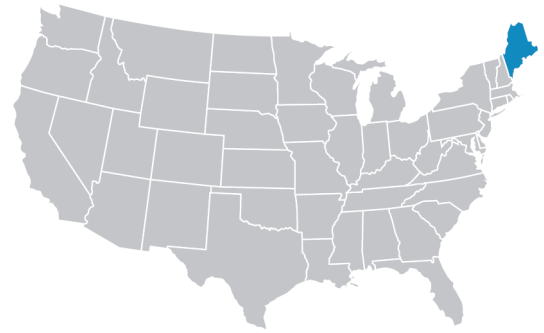
Estimated direct contribution of the tech sector to the Louisiana economy: \$7.6 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Maine

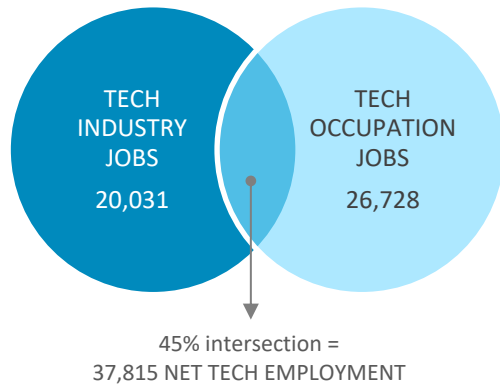


STATE OF TECHNOLOGY SUMMARY

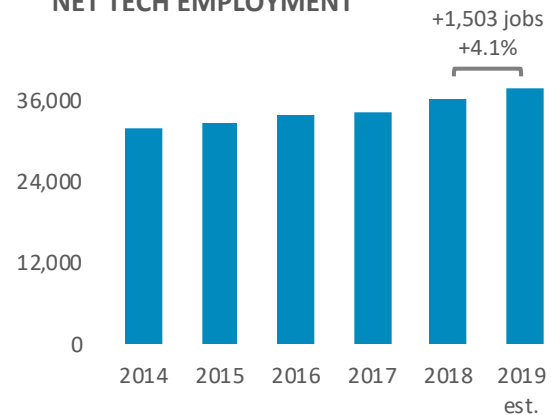
37,815 NET TECH EMPLOYMENT¹
 +1,503 NET TECH JOB GAINS [2019 vs. 2018]
 +7,309 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 5.5% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 2,802 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 6,967 TECH OCCUPATION JOB POSTINGS [2019 total]
 12.7% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

41st NET TECH EMPLOYMENT RANK
 31st NET TECH EMPLOYMENT JOBS ADDED RANK
 47th INNOVATION SCORE RANK

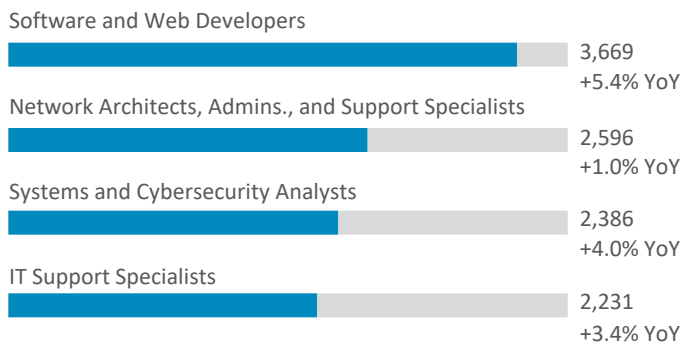
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 7,424 | 6.3% |
| R&D, Testing, and Engineering Services | 6,375 | 3.3% |
| Telecommunications and Internet Services | 3,376 | 4.4% |
| Tech Manufacturing | 2,661 | 4.2% |
| Software [packaged] | 195 | -5.9% |

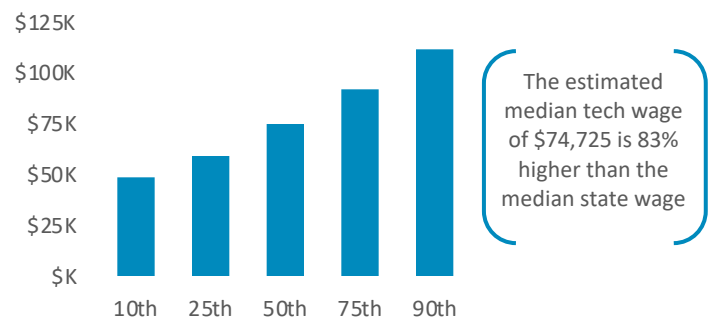
ECONOMIC IMPACT



5.1%

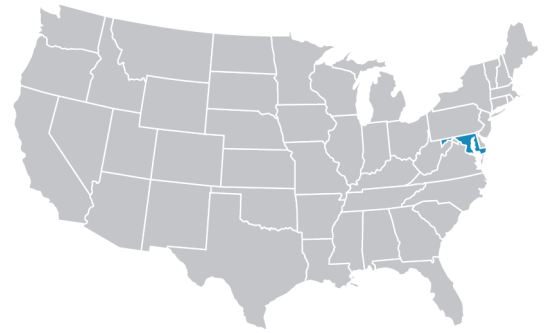
Estimated direct contribution of the tech sector to the Maine economy: \$3.1 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Maryland

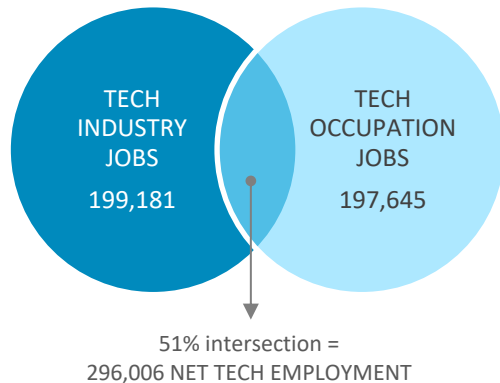


STATE OF TECHNOLOGY SUMMARY

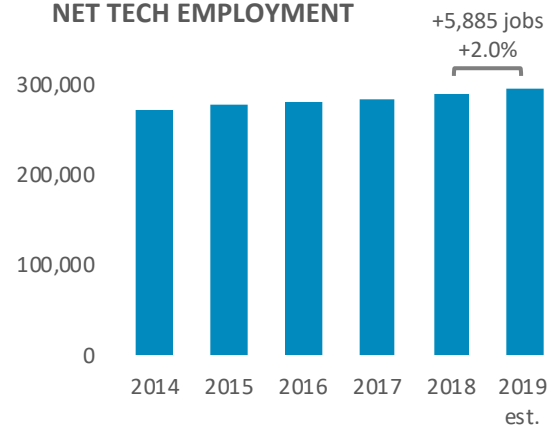
296,006 NET TECH EMPLOYMENT¹
 +5,885 NET TECH JOB GAINS [2019 vs. 2018]
 +31,781 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 10.3% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 15,763 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 112,431 TECH OCCUPATION JOB POSTINGS [2019 total]
 17.2% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

16th NET TECH EMPLOYMENT RANK
 15th NET TECH EMPLOYMENT JOBS ADDED RANK
 14th INNOVATION SCORE RANK

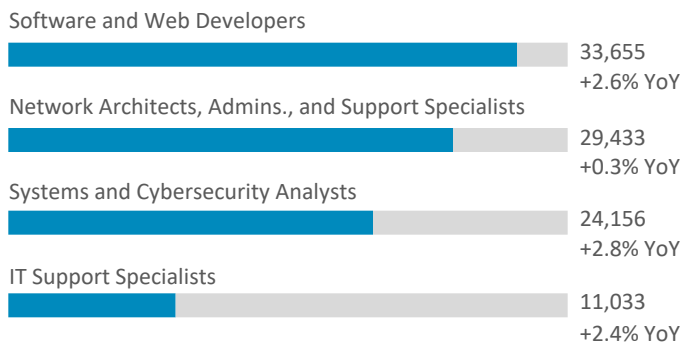
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 88,632 | 2.8% |
| R&D, Testing, and Engineering Services | 65,124 | 1.5% |
| Tech Manufacturing | 21,952 | 4.1% |
| Telecommunications and Internet Services | 18,225 | -3.3% |
| Software [packaged] | 5,249 | 6.8% |

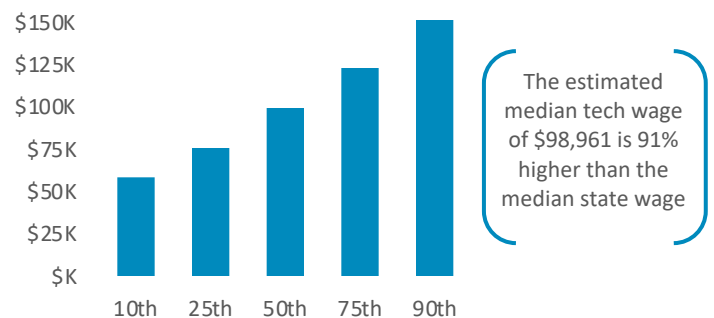
ECONOMIC IMPACT



11.8%

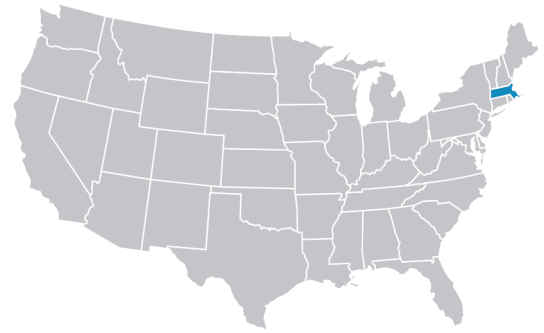
Estimated direct contribution of the tech sector to the Maryland economy: \$42.9 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Massachusetts



STATE OF TECHNOLOGY SUMMARY

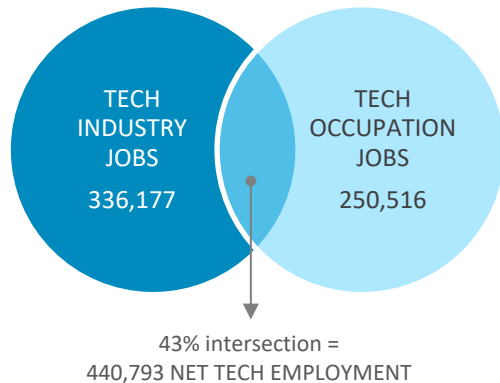
440,793 NET TECH EMPLOYMENT¹
 +11,544 NET TECH JOB GAINS [2019 vs. 2018]
 +86,176 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 11.5% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 17,957 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 144,901 TECH OCCUPATION JOB POSTINGS [2019 total]
 23.6% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

8th NET TECH EMPLOYMENT RANK

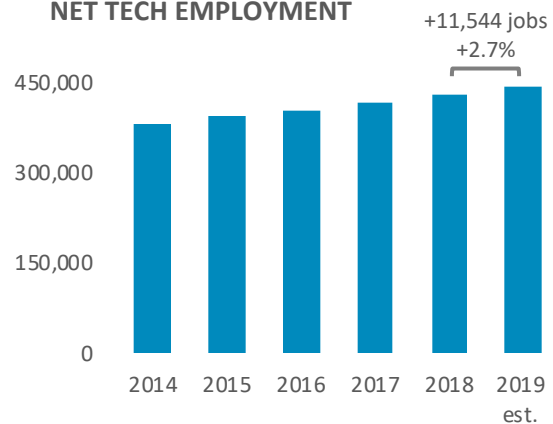
7th NET TECH EMPLOYMENT JOBS ADDED RANK

10th INNOVATION SCORE RANK

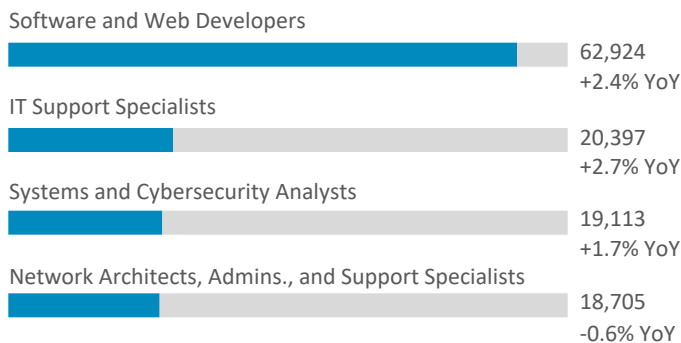
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|---------|--------------|
| R&D, Testing, and Engineering Services | 103,665 | 5.4% |
| IT Services + Custom Software Services | 101,006 | 2.7% |
| Tech Manufacturing | 62,752 | -0.7% |
| Telecommunications and Internet Services | 35,569 | 0.7% |
| Software [packaged] | 33,185 | 3.6% |

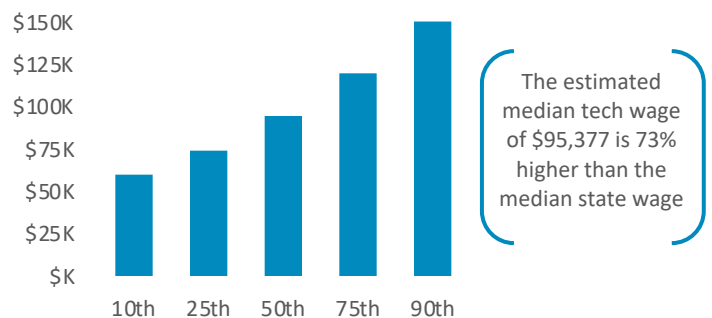
ECONOMIC IMPACT



17.2%

Estimated direct contribution of the tech sector to the Massachusetts economy: \$91.6 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Michigan

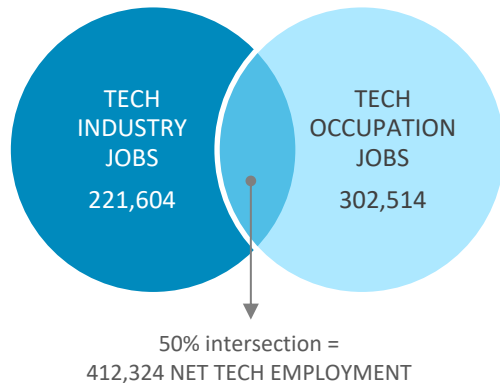


STATE OF TECHNOLOGY SUMMARY

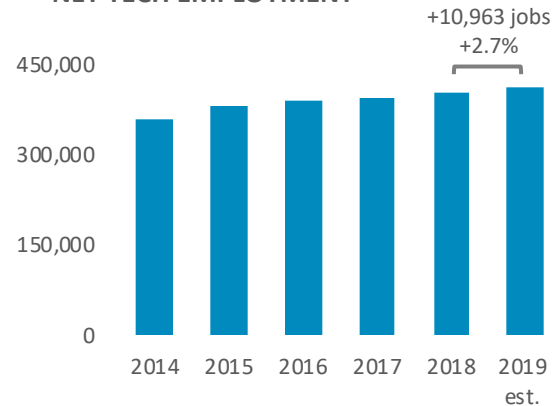
- 412,324 NET TECH EMPLOYMENT¹
- +10,963 NET TECH JOB GAINS [2019 vs. 2018]
- +125,124 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 8.9% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 12,037 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 121,967 TECH OCCUPATION JOB POSTINGS [2019 total]
- 15.3% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 9th NET TECH EMPLOYMENT RANK
- 8th NET TECH EMPLOYMENT JOBS ADDED RANK
- 17th INNOVATION SCORE RANK

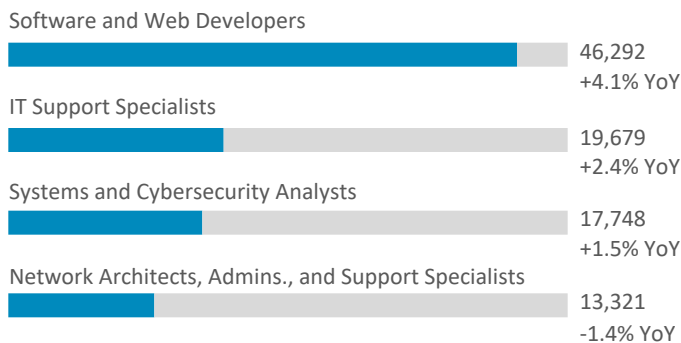
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|---------|--------------|
| R&D, Testing, and Engineering Services | 103,566 | 1.4% |
| IT Services + Custom Software Services | 62,174 | 1.2% |
| Telecommunications and Internet Services | 26,894 | 0.2% |
| Tech Manufacturing | 22,237 | 3.1% |
| Software [packaged] | 6,734 | 2.4% |

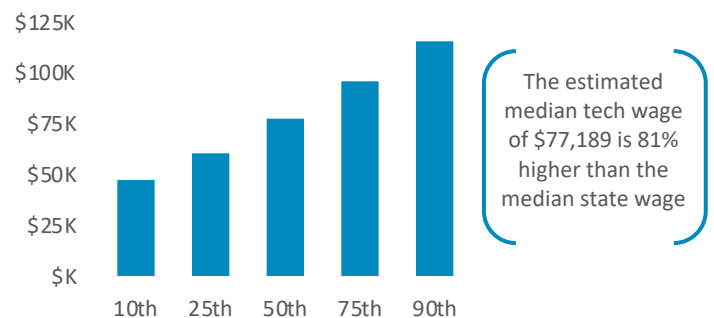
ECONOMIC IMPACT



7.6%

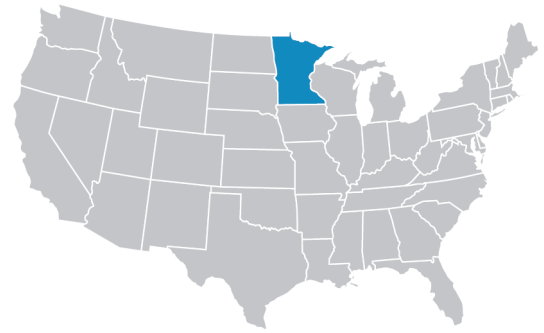
Estimated direct contribution of the tech sector to the Michigan economy: \$37.1 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Minnesota

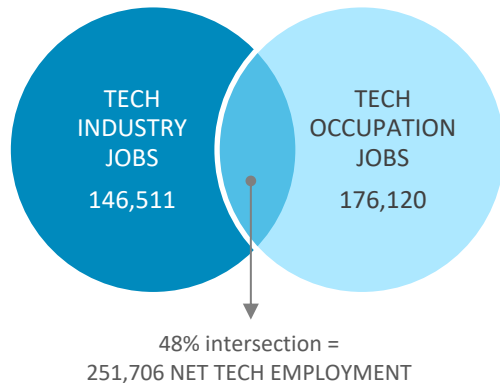


STATE OF TECHNOLOGY SUMMARY

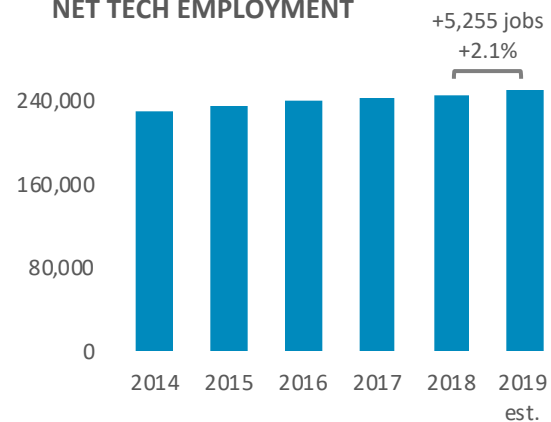
251,706 NET TECH EMPLOYMENT¹
 +5,255 NET TECH JOB GAINS [2019 vs. 2018]
 +41,623 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 8.2% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 11,313 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 90,524 TECH OCCUPATION JOB POSTINGS [2019 total]
 16.3% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

18th NET TECH EMPLOYMENT RANK
 19th NET TECH EMPLOYMENT JOBS ADDED RANK
 16th INNOVATION SCORE RANK

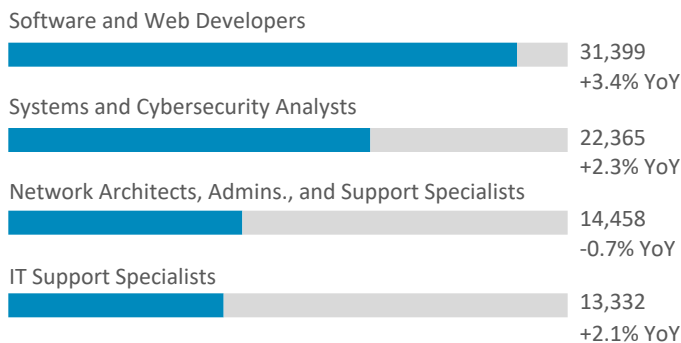
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| Tech Manufacturing | 45,900 | 0.3% |
| IT Services + Custom Software Services | 45,843 | 1.3% |
| R&D, Testing, and Engineering Services | 26,035 | 2.0% |
| Telecommunications and Internet Services | 21,188 | -0.1% |
| Software [packaged] | 7,545 | 3.8% |

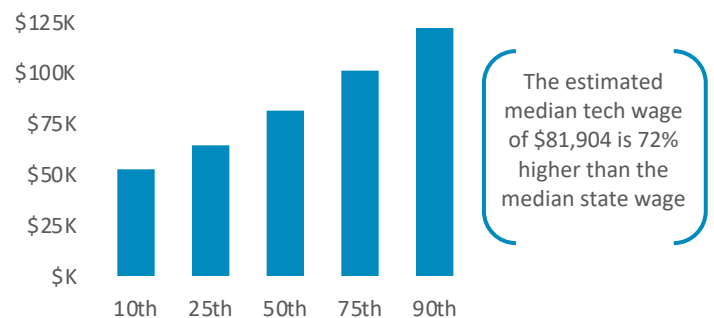
ECONOMIC IMPACT



9.0%

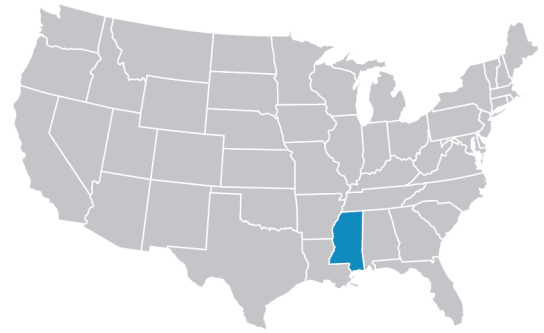
Estimated direct contribution of the tech sector to the Minnesota economy: \$30.9 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Mississippi

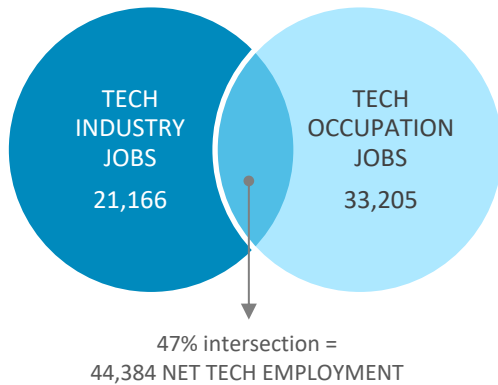


STATE OF TECHNOLOGY SUMMARY

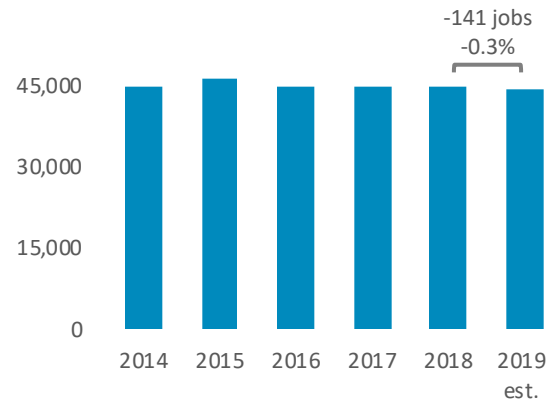
- 44,384 NET TECH EMPLOYMENT¹
- 141 NET TECH JOB GAINS [2019 vs. 2018]
- +1,056 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 3.7% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 3,195 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 10,271 TECH OCCUPATION JOB POSTINGS [2019 total]
- 10.3% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 40th NET TECH EMPLOYMENT RANK
- 49th NET TECH EMPLOYMENT JOBS ADDED RANK
- 46th INNOVATION SCORE RANK

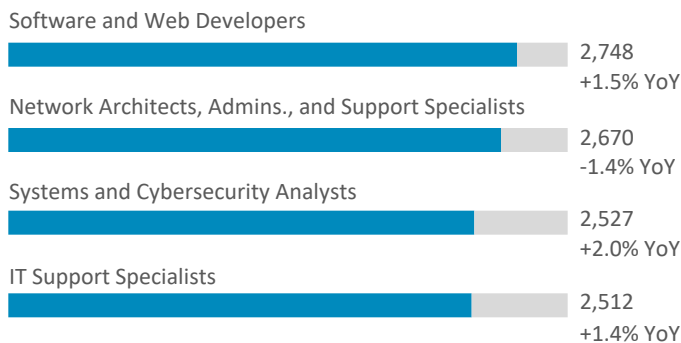
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 6,916 | 4.4% |
| Telecommunications and Internet Services | 6,335 | -4.8% |
| R&D, Testing, and Engineering Services | 5,531 | -1.7% |
| Tech Manufacturing | 2,194 | -0.5% |
| Software [packaged] | 190 | -8.0% |

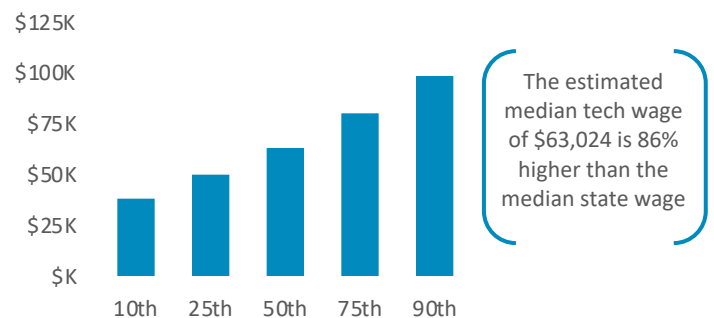
ECONOMIC IMPACT



3.5%

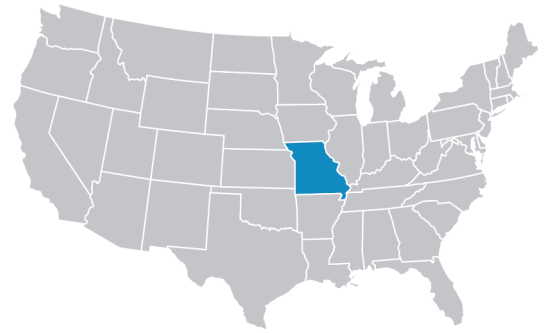
Estimated direct contribution of the tech sector to the Mississippi economy: \$3.7 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Missouri

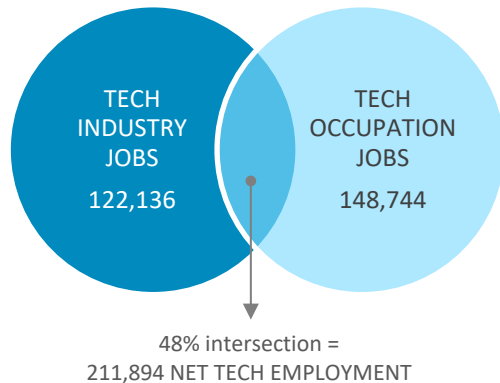


STATE OF TECHNOLOGY SUMMARY

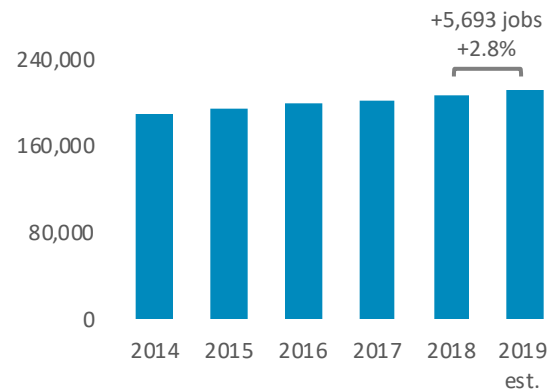
211,894 NET TECH EMPLOYMENT¹
 +5,693 NET TECH JOB GAINS [2019 vs. 2018]
 +38,787 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 7.1% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 9,315 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 71,007 TECH OCCUPATION JOB POSTINGS [2019 total]
 15.1% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

20th NET TECH EMPLOYMENT RANK
 17th NET TECH EMPLOYMENT JOBS ADDED RANK
 24th INNOVATION SCORE RANK

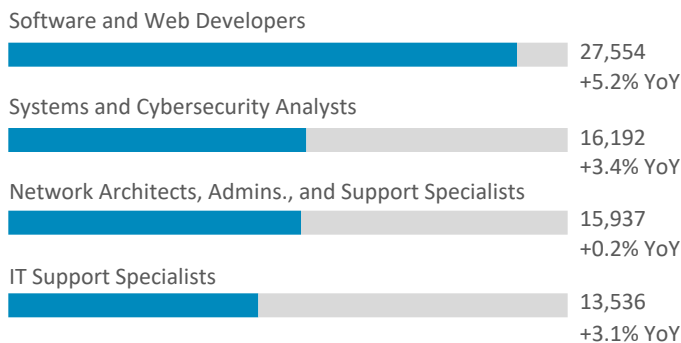
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 52,752 | 5.4% |
| Telecommunications and Internet Services | 28,178 | -2.2% |
| R&D, Testing, and Engineering Services | 25,157 | 0.0% |
| Tech Manufacturing | 13,018 | 6.0% |
| Software [packaged] | 3,030 | 6.3% |

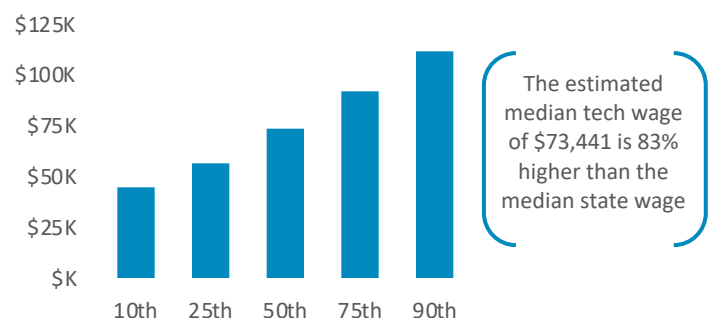
ECONOMIC IMPACT



7.4%

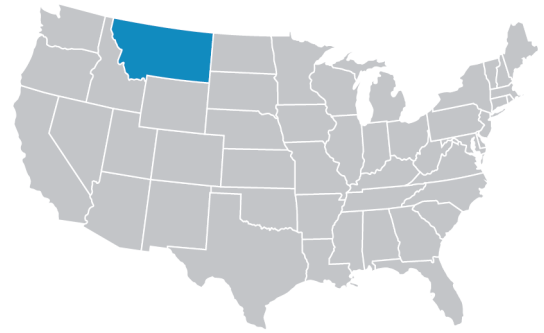
Estimated direct contribution of the tech sector to the Missouri economy: \$21.7 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Montana



STATE OF TECHNOLOGY SUMMARY

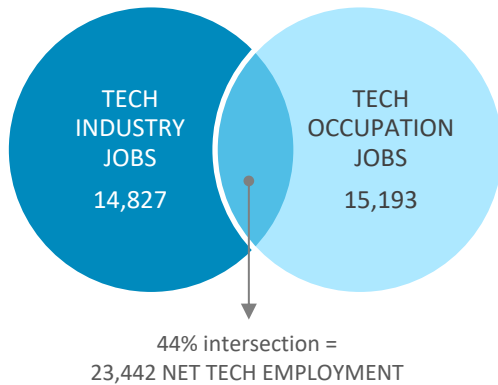
- 23,442 NET TECH EMPLOYMENT¹
- +734 NET TECH JOB GAINS [2019 vs. 2018]
- +3,770 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 4.5% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 2,460 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 4,473 TECH OCCUPATION JOB POSTINGS [2019 total]
- 9.8% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

46th NET TECH EMPLOYMENT RANK

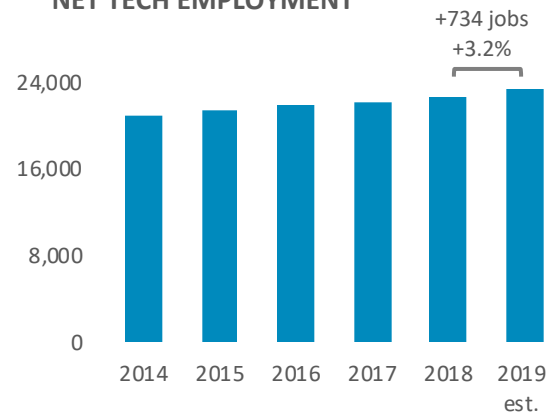
36th NET TECH EMPLOYMENT JOBS ADDED RANK

41st INNOVATION SCORE RANK

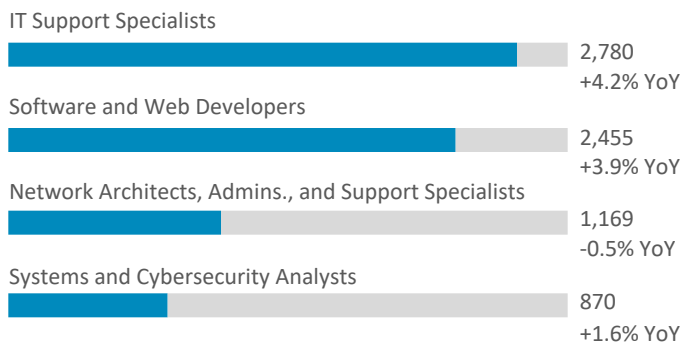
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 5,889 | 4.7% |
| R&D, Testing, and Engineering Services | 4,422 | 1.1% |
| Telecommunications and Internet Services | 2,890 | -1.4% |
| Tech Manufacturing | 1,228 | 5.6% |
| Software [packaged] | 398 | 13.9% |

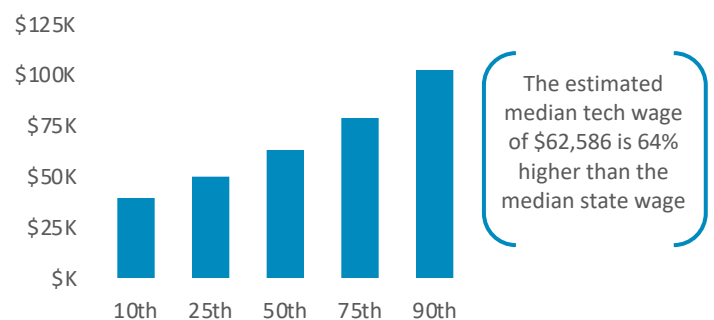
ECONOMIC IMPACT



4.4%

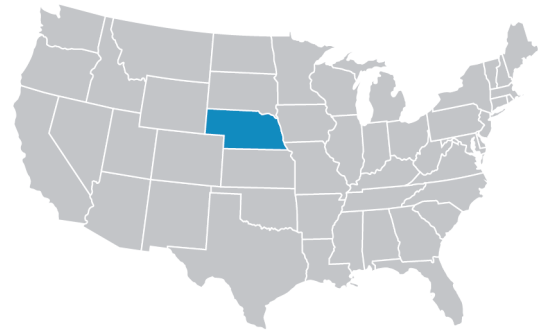
Estimated direct contribution of the tech sector to the Montana economy: \$2.1 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Nebraska

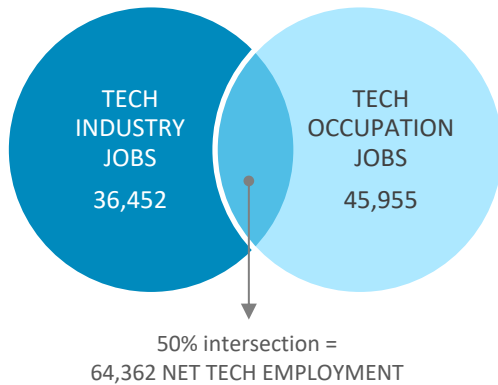


STATE OF TECHNOLOGY SUMMARY

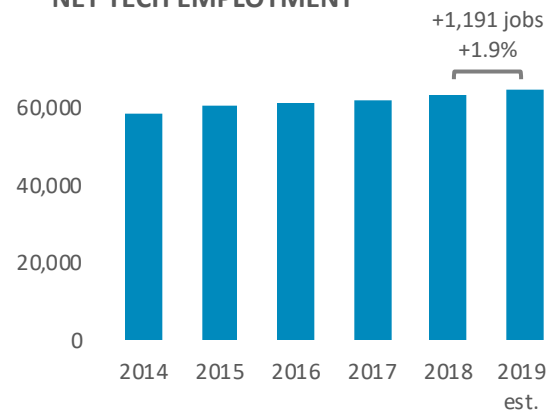
64,362 NET TECH EMPLOYMENT¹
 +1,191 NET TECH JOB GAINS [2019 vs. 2018]
 +9,801 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 6.1% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 3,471 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 23,257 TECH OCCUPATION JOB POSTINGS [2019 total]
 11.5% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

37th NET TECH EMPLOYMENT RANK
 34th NET TECH EMPLOYMENT JOBS ADDED RANK
 45th INNOVATION SCORE RANK

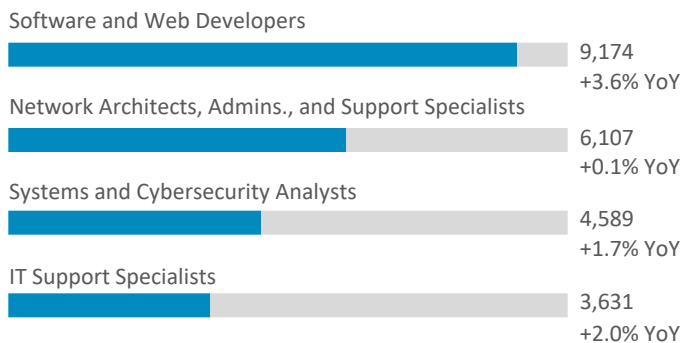
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 14,810 | 2.3% |
| Telecommunications and Internet Services | 9,220 | 0.9% |
| R&D, Testing, and Engineering Services | 6,566 | 2.1% |
| Tech Manufacturing | 4,306 | 1.4% |
| Software [packaged] | 1,548 | 9.6% |

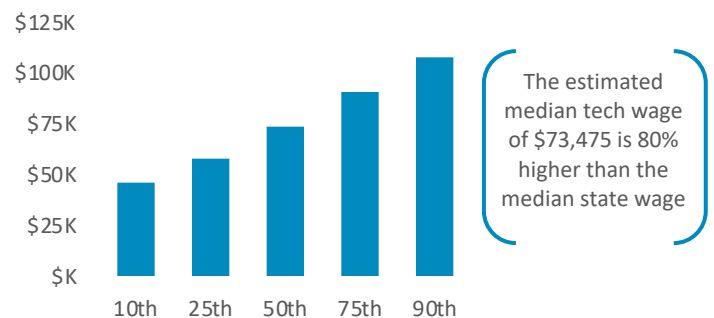
ECONOMIC IMPACT



6.0%

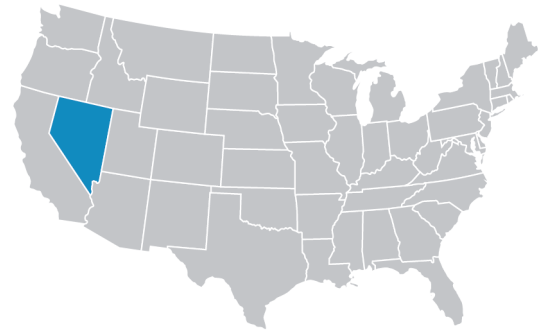
Estimated direct contribution of the tech sector to the Nebraska economy: \$6.6 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Nevada

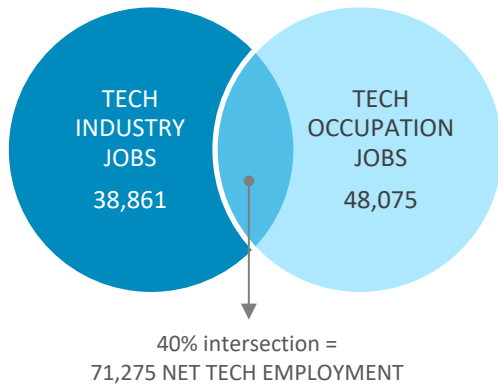


STATE OF TECHNOLOGY SUMMARY

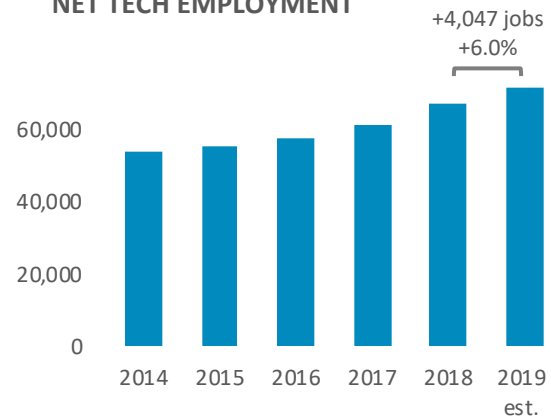
- 71,275 NET TECH EMPLOYMENT¹
- +4,047 NET TECH JOB GAINS [2019 vs. 2018]
- +21,168 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 4.8% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 5,183 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 29,108 TECH OCCUPATION JOB POSTINGS [2019 total]
- 9.5% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 35th NET TECH EMPLOYMENT RANK
- 24th NET TECH EMPLOYMENT JOBS ADDED RANK
- 31st INNOVATION SCORE RANK

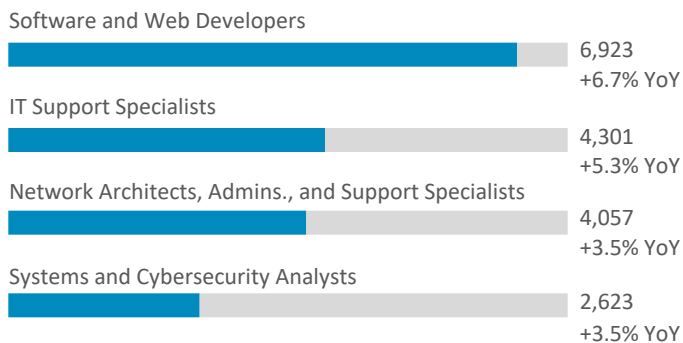
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| R&D, Testing, and Engineering Services | 13,071 | 2.0% |
| IT Services + Custom Software Services | 11,754 | 4.5% |
| Telecommunications and Internet Services | 8,822 | 6.7% |
| Tech Manufacturing | 3,661 | 6.2% |
| Software [packaged] | 1,553 | 10.9% |

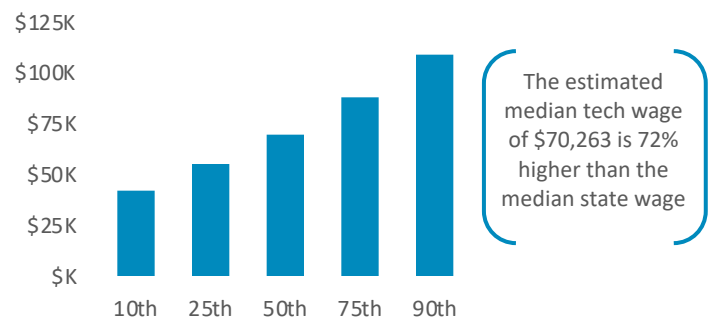
ECONOMIC IMPACT



4.8%

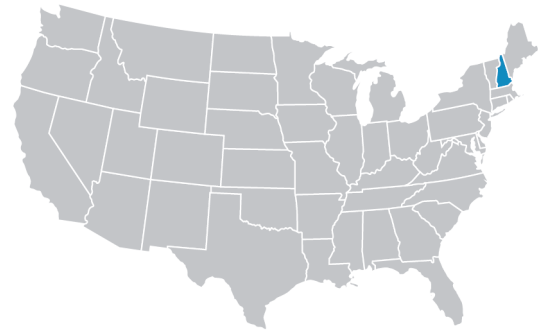
Estimated direct contribution of the tech sector to the Nevada economy: \$7.6 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

New Hampshire

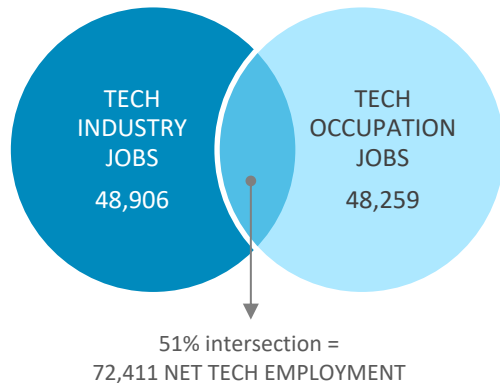


STATE OF TECHNOLOGY SUMMARY

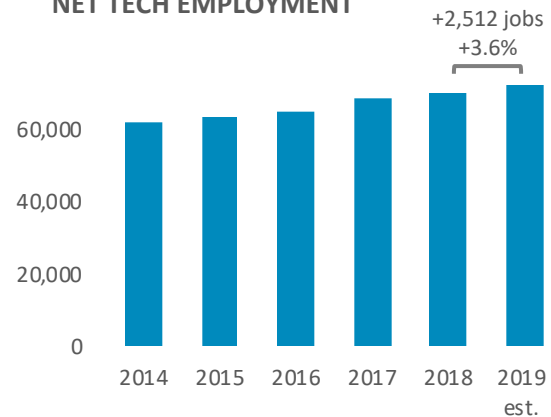
- 72,411 NET TECH EMPLOYMENT¹
- +2,512 NET TECH JOB GAINS [2019 vs. 2018]
- +14,265 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 10.1% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 4,611 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 13,482 TECH OCCUPATION JOB POSTINGS [2019 total]
- 12.5% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 34th NET TECH EMPLOYMENT RANK
- 28th NET TECH EMPLOYMENT JOBS ADDED RANK
- 35th INNOVATION SCORE RANK

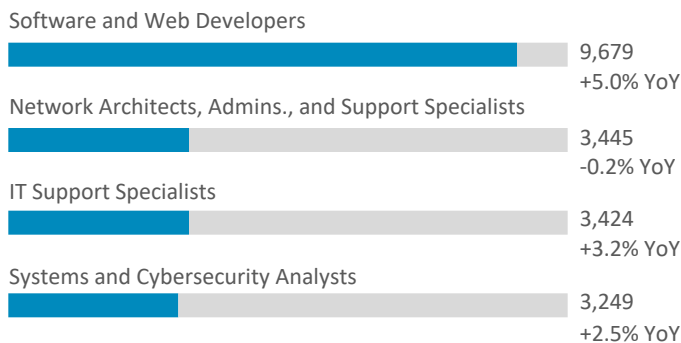
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| Tech Manufacturing | 16,724 | 3.0% |
| IT Services + Custom Software Services | 15,520 | 4.8% |
| R&D, Testing, and Engineering Services | 7,356 | 3.4% |
| Telecommunications and Internet Services | 5,797 | -0.4% |
| Software [packaged] | 3,510 | 2.4% |

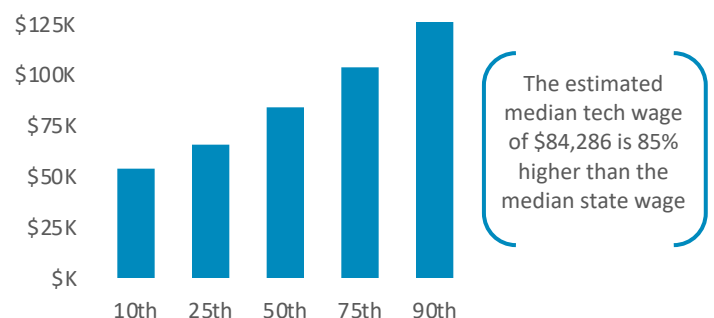
ECONOMIC IMPACT



13.7%

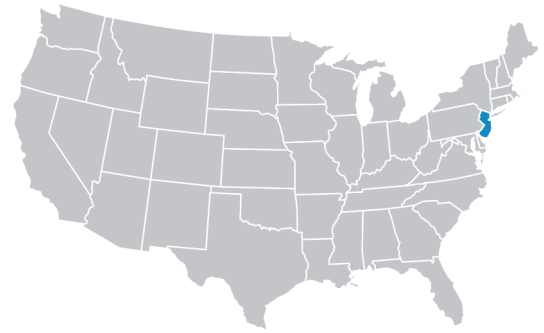
Estimated direct contribution of the tech sector to the New Hampshire economy: \$10.9 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

New Jersey

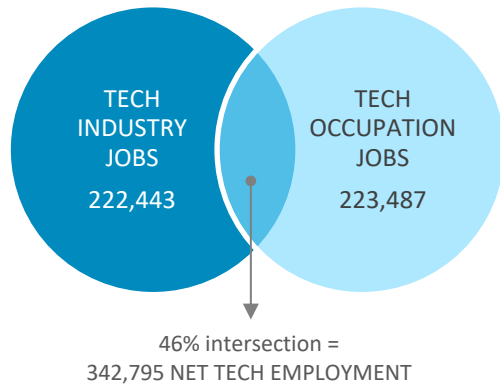


STATE OF TECHNOLOGY SUMMARY

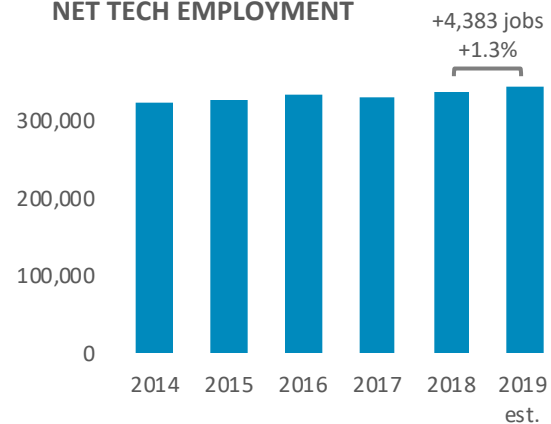
342,795 NET TECH EMPLOYMENT¹
 +4,383 NET TECH JOB GAINS [2019 vs. 2018]
 +22,553 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 8.0% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 15,919 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 120,168 TECH OCCUPATION JOB POSTINGS [2019 total]
 18.7% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

14th NET TECH EMPLOYMENT RANK
 23rd NET TECH EMPLOYMENT JOBS ADDED RANK
 13th INNOVATION SCORE RANK

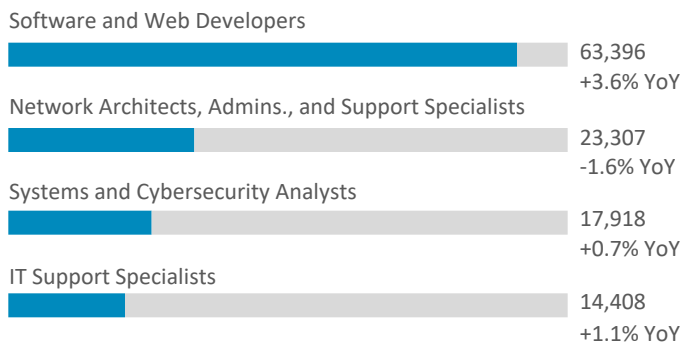
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 89,520 | 0.8% |
| R&D, Testing, and Engineering Services | 62,583 | 1.5% |
| Telecommunications and Internet Services | 38,389 | -2.1% |
| Tech Manufacturing | 24,728 | 2.2% |
| Software [packaged] | 7,223 | 5.5% |

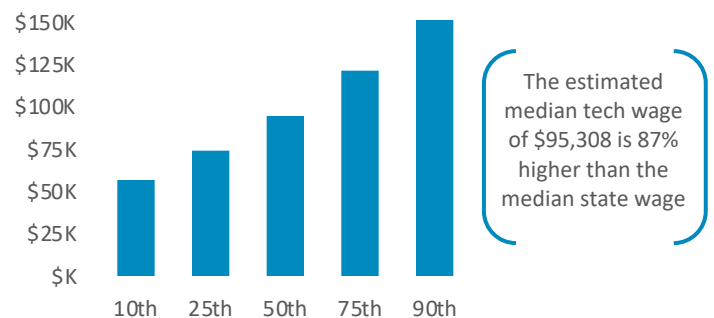
ECONOMIC IMPACT



9.6%

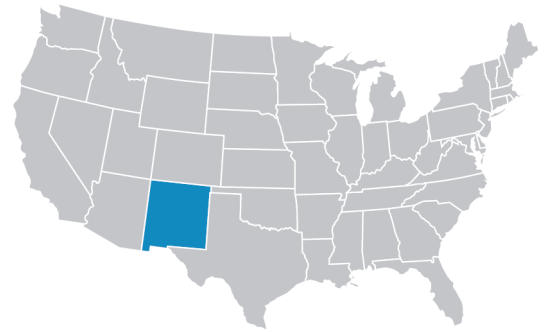
Estimated direct contribution of the tech sector to the New Jersey economy: \$56.0 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

New Mexico

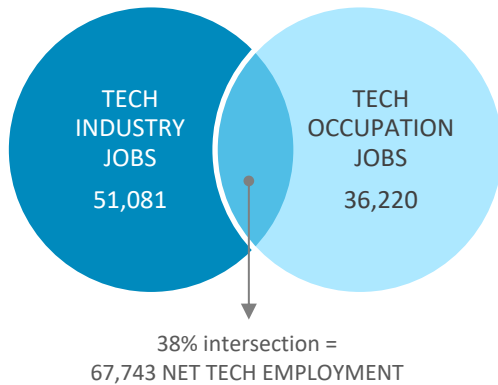


STATE OF TECHNOLOGY SUMMARY

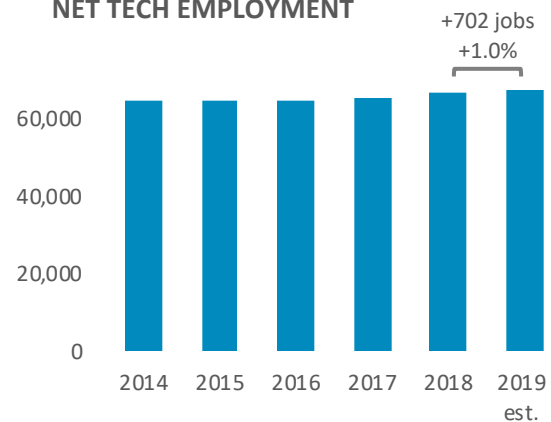
67,743 NET TECH EMPLOYMENT¹
 +702 NET TECH JOB GAINS [2019 vs. 2018]
 -699 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 7.6% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 3,360 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 17,346 TECH OCCUPATION JOB POSTINGS [2019 total]
 11.6% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

36th NET TECH EMPLOYMENT RANK
 37th NET TECH EMPLOYMENT JOBS ADDED RANK
 36th INNOVATION SCORE RANK

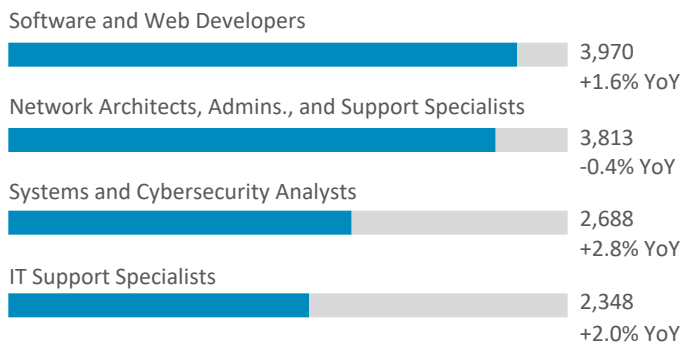
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | | YoY % 2019 Change |
|--|--------|----------------------|
| R&D, Testing, and Engineering Services | 32,402 | 2.3% |
| IT Services + Custom Software Services | 7,751 | 3.7% |
| Telecommunications and Internet Services | 5,958 | -1.9% |
| Tech Manufacturing | 4,646 | -4.8% |
| Software [packaged] | 324 | 8.1% |

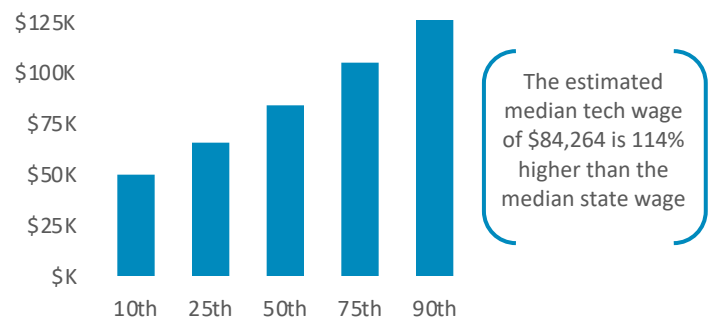
ECONOMIC IMPACT



9.7%

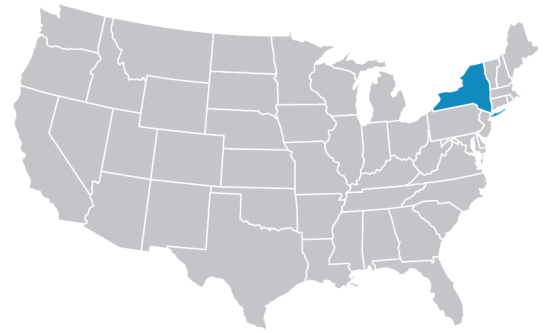
Estimated direct contribution of the tech sector to the New Mexico economy: \$8.6 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

New York

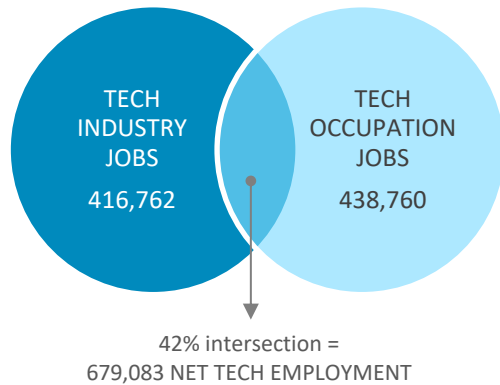


STATE OF TECHNOLOGY SUMMARY

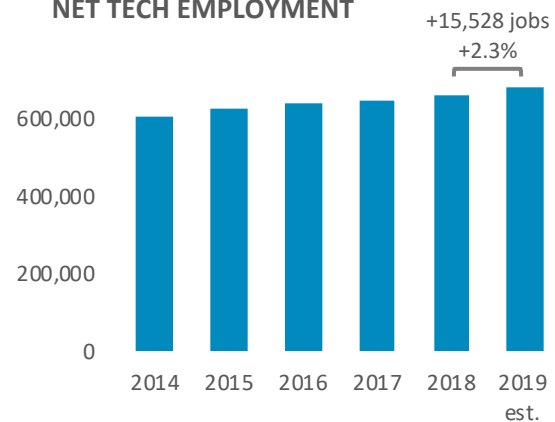
679,083 NET TECH EMPLOYMENT¹
 +15,528 NET TECH JOB GAINS [2019 vs. 2018]
 +125,100 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 6.7% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 26,454 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 269,334 TECH OCCUPATION JOB POSTINGS [2019 total]
 20.6% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

3rd NET TECH EMPLOYMENT RANK
 4th NET TECH EMPLOYMENT JOBS ADDED RANK
 2nd INNOVATION SCORE RANK

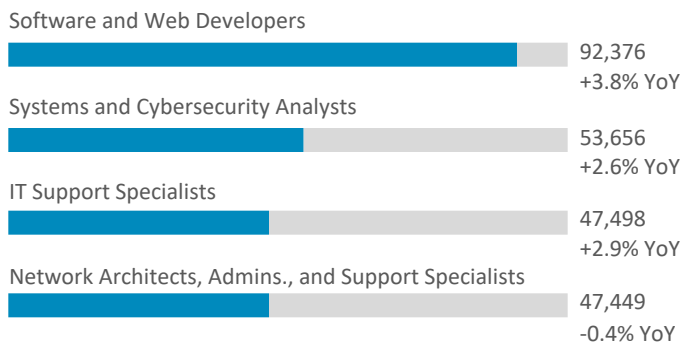
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|---------|--------------|
| IT Services + Custom Software Services | 140,993 | 1.8% |
| Telecommunications and Internet Services | 109,314 | 3.9% |
| R&D, Testing, and Engineering Services | 90,503 | 1.8% |
| Tech Manufacturing | 59,145 | 0.1% |
| Software [packaged] | 16,806 | 14.3% |

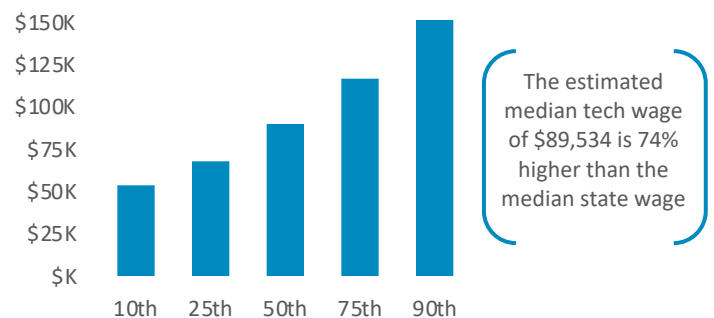
ECONOMIC IMPACT



8.0%

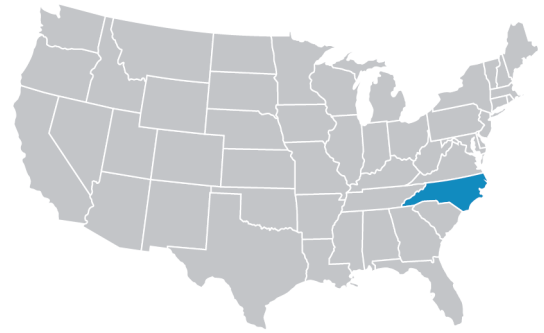
Estimated direct contribution of the tech sector to the New York economy: \$123.4 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

North Carolina

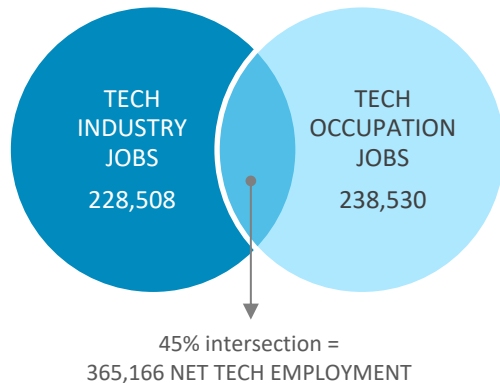


STATE OF TECHNOLOGY SUMMARY

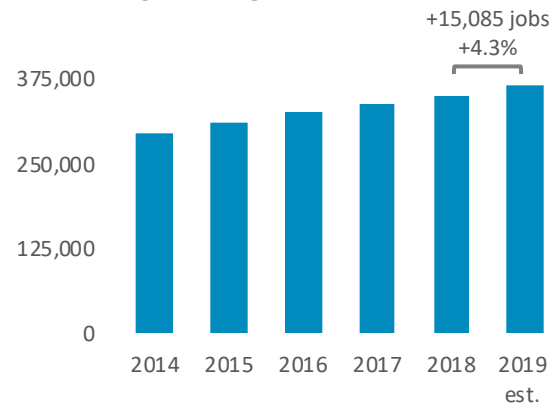
- 365,166 NET TECH EMPLOYMENT¹
- +15,085 NET TECH JOB GAINS [2019 vs. 2018]
- +105,309 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 7.6% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 18,328 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 174,987 TECH OCCUPATION JOB POSTINGS [2019 total]
- 20.3% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 13th NET TECH EMPLOYMENT RANK
- 5th NET TECH EMPLOYMENT JOBS ADDED RANK
- 11th INNOVATION SCORE RANK

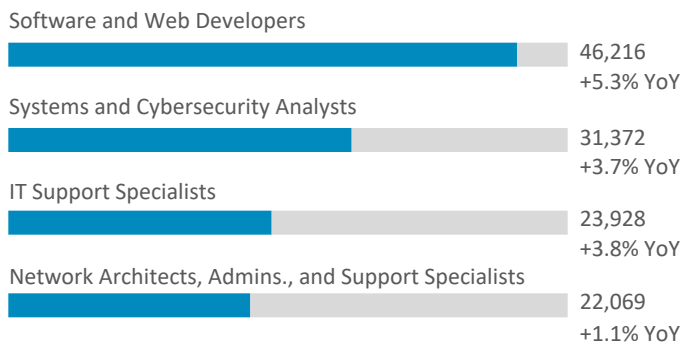
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 74,629 | 4.4% |
| R&D, Testing, and Engineering Services | 58,210 | 6.5% |
| Telecommunications and Internet Services | 44,442 | 1.7% |
| Tech Manufacturing | 33,048 | 1.1% |
| Software [packaged] | 18,180 | 7.4% |

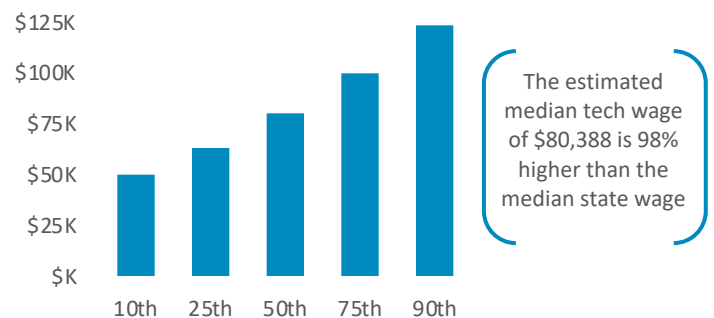
ECONOMIC IMPACT



9.4%

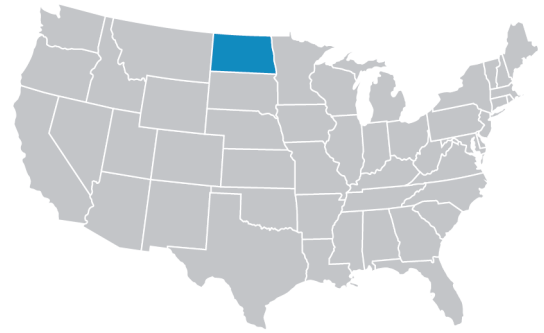
Estimated direct contribution of the tech sector to the North Carolina economy: \$48.1 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

North Dakota

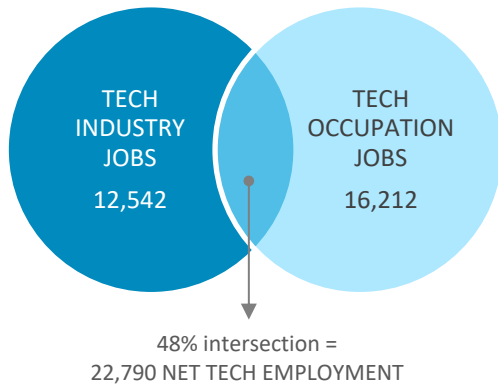


STATE OF TECHNOLOGY SUMMARY

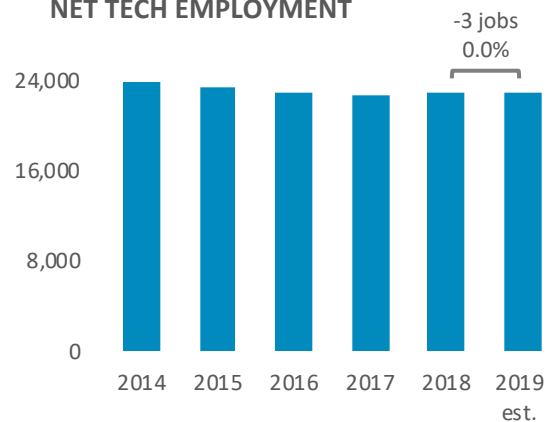
22,790 NET TECH EMPLOYMENT¹
 -3 NET TECH JOB GAINS [2019 vs. 2018]
 +2,606 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 5.0% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 1,322 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 5,188 TECH OCCUPATION JOB POSTINGS [2019 total]
 9.8% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

47th NET TECH EMPLOYMENT RANK
 47th NET TECH EMPLOYMENT JOBS ADDED RANK
 50th INNOVATION SCORE RANK

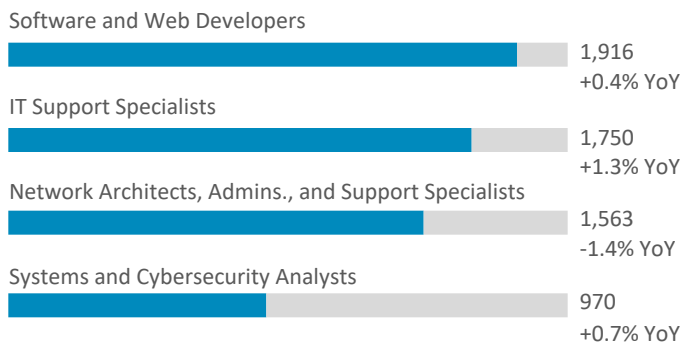
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|-------|--------------|
| R&D, Testing, and Engineering Services | 4,174 | -0.5% |
| IT Services + Custom Software Services | 3,360 | 1.5% |
| Telecommunications and Internet Services | 2,269 | -1.6% |
| Tech Manufacturing | 1,435 | 4.4% |
| Software [packaged] | 1,304 | -0.8% |

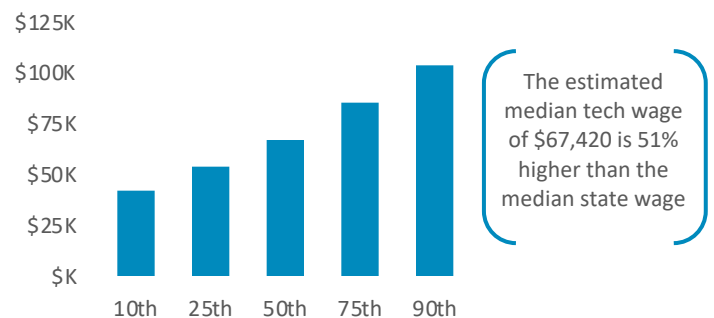
ECONOMIC IMPACT



3.9%

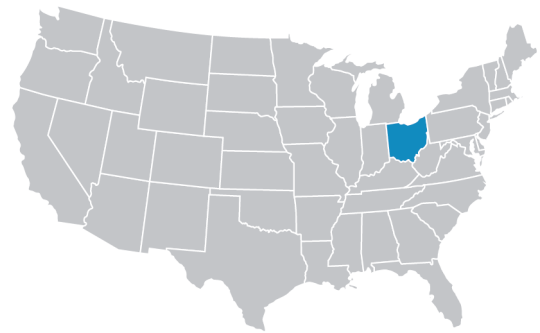
Estimated direct contribution of the tech sector to the North Dakota economy: \$2.1 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Ohio

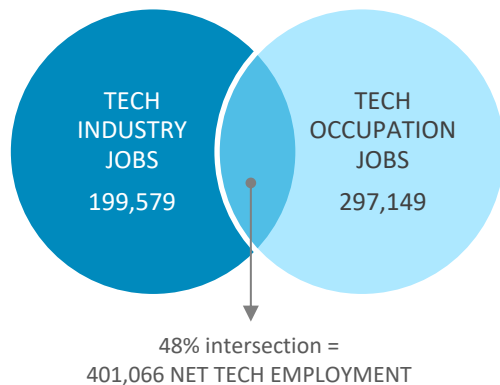


STATE OF TECHNOLOGY SUMMARY

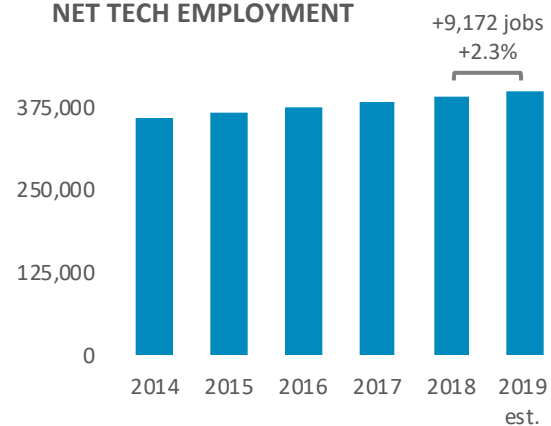
401,066 NET TECH EMPLOYMENT¹
 +9,172 NET TECH JOB GAINS [2019 vs. 2018]
 +73,329 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 7.0% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 17,030 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 166,702 TECH OCCUPATION JOB POSTINGS [2019 total]
 15.3% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

10th NET TECH EMPLOYMENT RANK
 11th NET TECH EMPLOYMENT JOBS ADDED RANK
 15th INNOVATION SCORE RANK

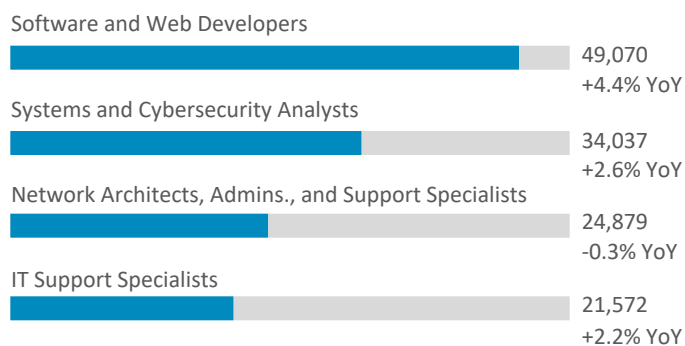
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 78,990 | 2.4% |
| R&D, Testing, and Engineering Services | 52,913 | 1.3% |
| Telecommunications and Internet Services | 38,271 | 0.9% |
| Tech Manufacturing | 21,998 | 4.1% |
| Software [packaged] | 7,406 | 4.9% |

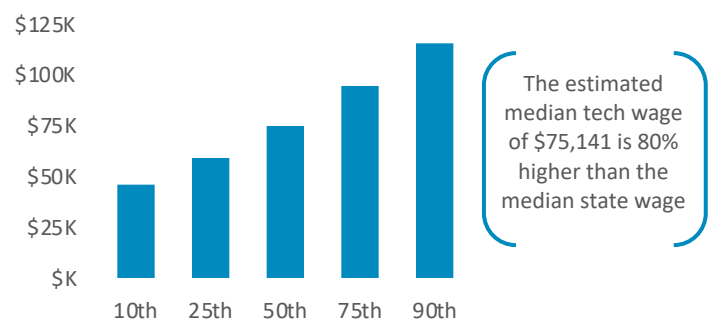
ECONOMIC IMPACT



5.6%

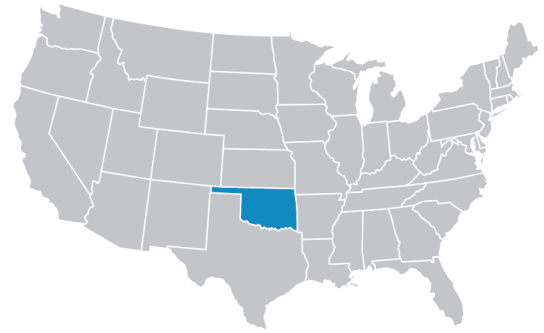
Estimated direct contribution of the tech sector to the Ohio economy: \$34.1 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Oklahoma

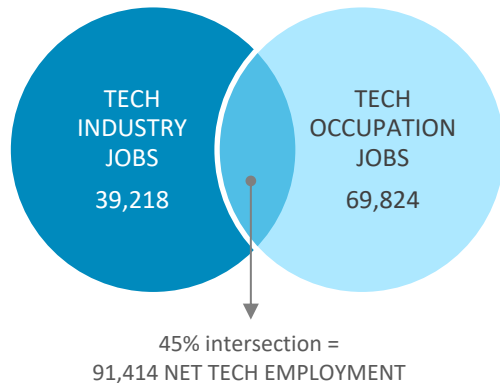


STATE OF TECHNOLOGY SUMMARY

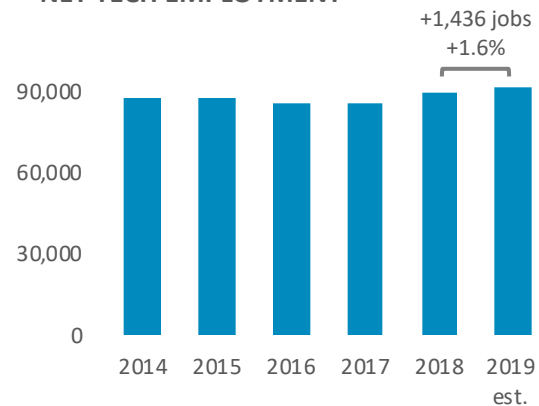
91,414 NET TECH EMPLOYMENT¹
 +1,436 NET TECH JOB GAINS [2019 vs. 2018]
 +5,854 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 5.2% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 4,363 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 30,587 TECH OCCUPATION JOB POSTINGS [2019 total]
 7.9% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

31st NET TECH EMPLOYMENT RANK
 32nd NET TECH EMPLOYMENT JOBS ADDED RANK
 33rd INNOVATION SCORE RANK

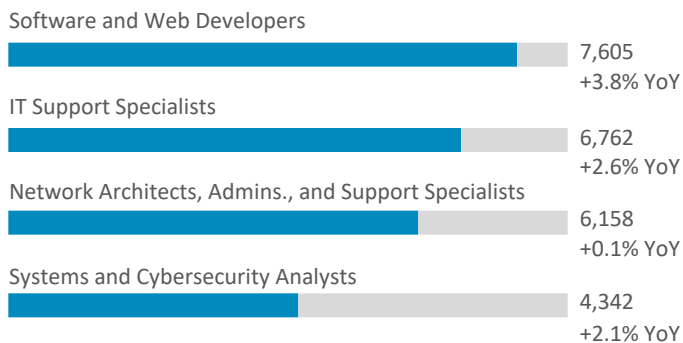
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 13,146 | 3.6% |
| Telecommunications and Internet Services | 10,553 | -2.2% |
| R&D, Testing, and Engineering Services | 10,302 | 0.7% |
| Tech Manufacturing | 4,292 | -0.4% |
| Software [packaged] | 926 | 6.0% |

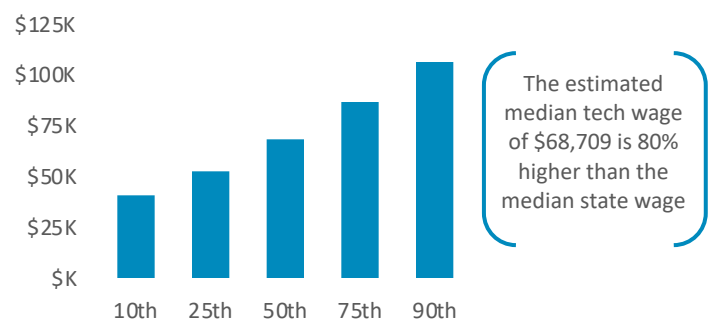
ECONOMIC IMPACT



3.5%

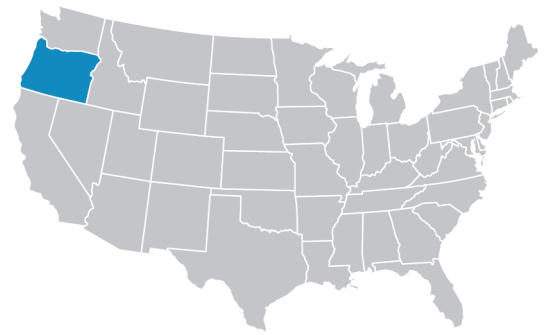
Estimated direct contribution of the tech sector to the Oklahoma economy: \$6.5 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Oregon

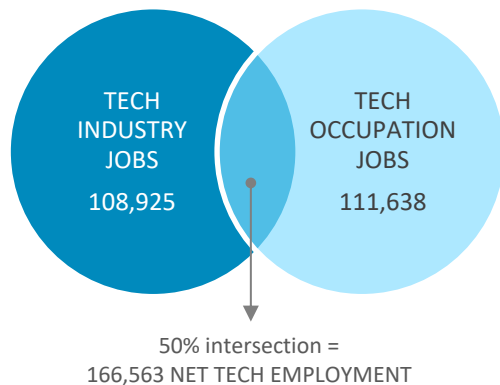


STATE OF TECHNOLOGY SUMMARY

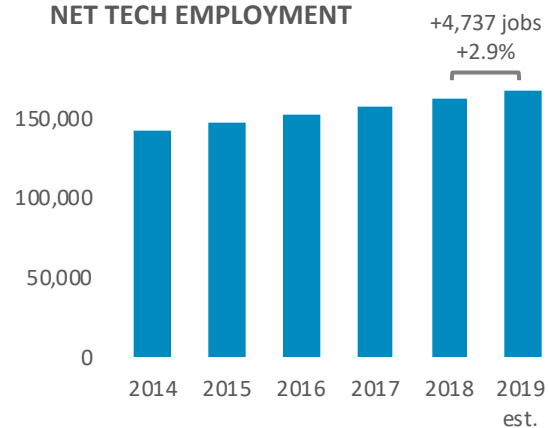
166,563 NET TECH EMPLOYMENT¹
 +4,737 NET TECH JOB GAINS [2019 vs. 2018]
 +40,267 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 7.9% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 8,015 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 52,830 TECH OCCUPATION JOB POSTINGS [2019 total]
 16.1% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

23rd NET TECH EMPLOYMENT RANK
 22nd NET TECH EMPLOYMENT JOBS ADDED RANK
 21st INNOVATION SCORE RANK

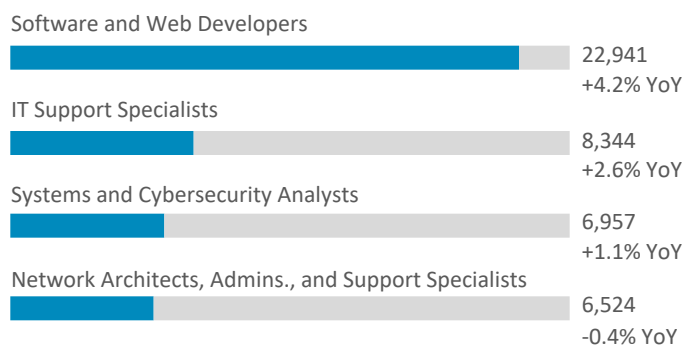
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| Tech Manufacturing | 42,317 | 2.0% |
| IT Services + Custom Software Services | 24,214 | 3.2% |
| R&D, Testing, and Engineering Services | 17,944 | 4.9% |
| Telecommunications and Internet Services | 12,620 | 1.9% |
| Software [packaged] | 11,830 | 3.1% |

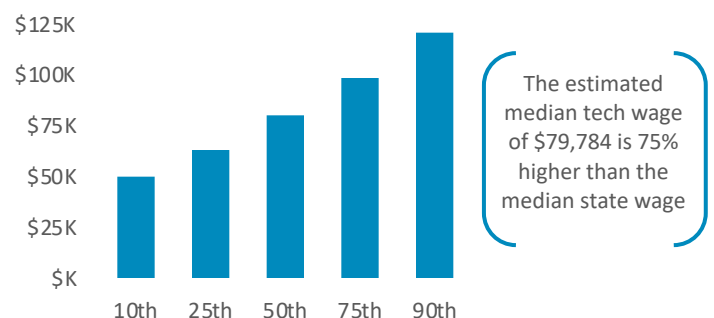
ECONOMIC IMPACT



14.1%

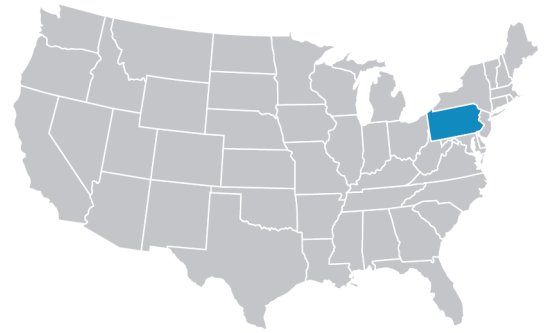
Estimated direct contribution of the tech sector to the Oregon economy: \$26.3 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Pennsylvania



STATE OF TECHNOLOGY SUMMARY

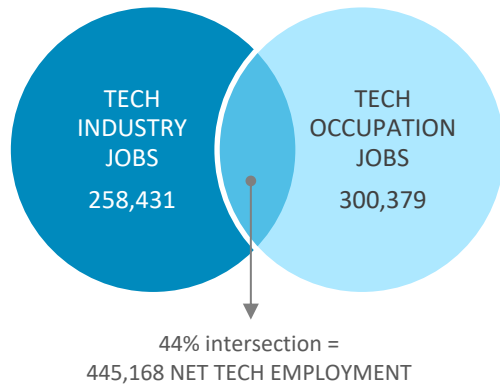
445,168 NET TECH EMPLOYMENT¹
 +8,707 NET TECH JOB GAINS [2019 vs. 2018]
 +60,919 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 7.1% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 17,835 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 140,796 TECH OCCUPATION JOB POSTINGS [2019 total]
 17.7% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

6th NET TECH EMPLOYMENT RANK

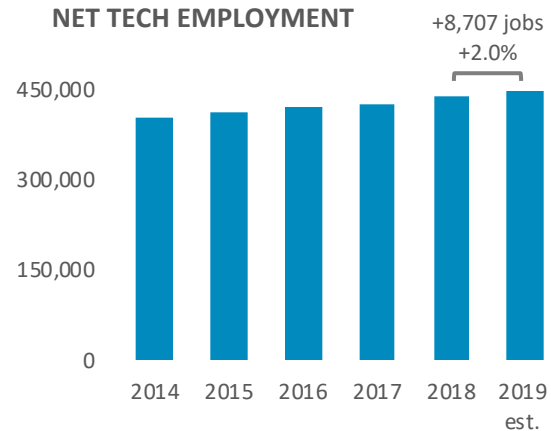
13th NET TECH EMPLOYMENT JOBS ADDED RANK

7th INNOVATION SCORE RANK

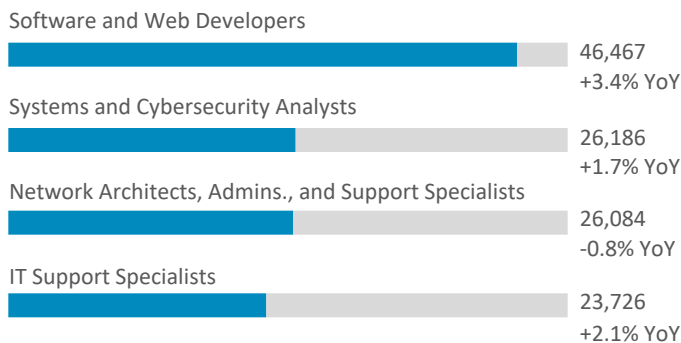
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 87,207 | 1.1% |
| R&D, Testing, and Engineering Services | 86,780 | 2.7% |
| Telecommunications and Internet Services | 41,741 | 0.8% |
| Tech Manufacturing | 31,895 | 1.1% |
| Software [packaged] | 10,808 | 14.5% |

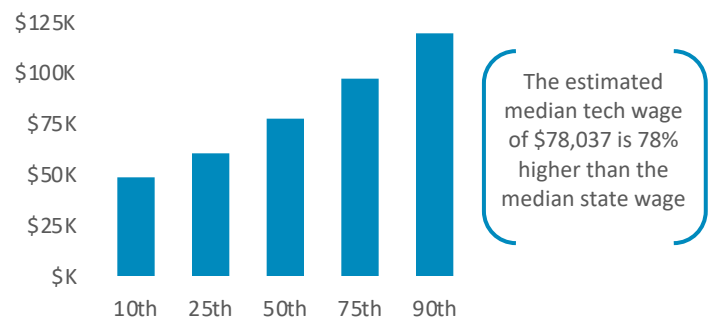
ECONOMIC IMPACT



7.9%

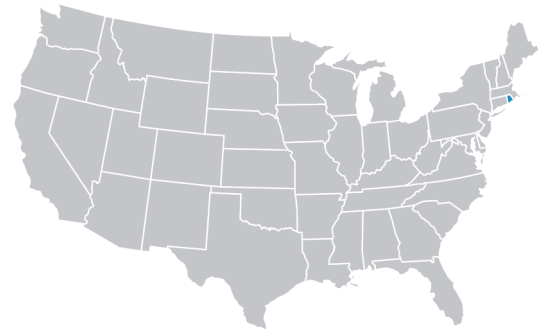
Estimated direct contribution of the tech sector to the Pennsylvania economy: \$56.1 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Rhode Island

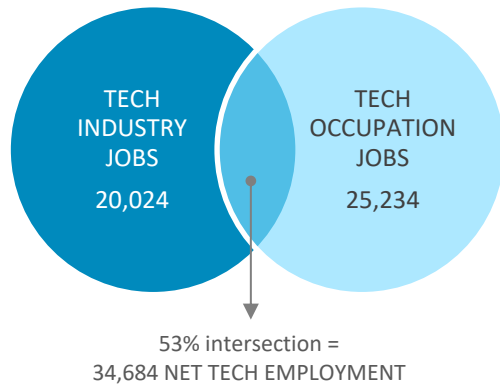


STATE OF TECHNOLOGY SUMMARY

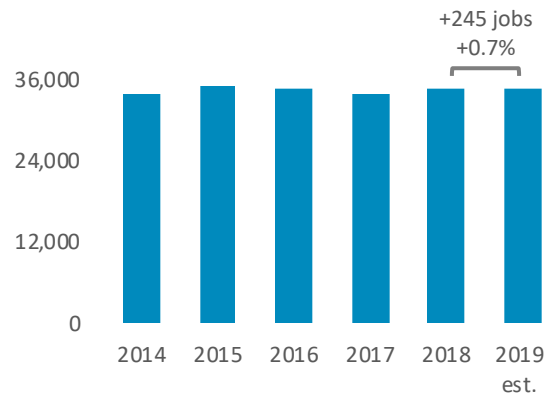
- 34,684 NET TECH EMPLOYMENT¹
- +245 NET TECH JOB GAINS [2019 vs. 2018]
- +2,036 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 6.7% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 2,866 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 11,829 TECH OCCUPATION JOB POSTINGS [2019 total]
- 15.0% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 42nd NET TECH EMPLOYMENT RANK
- 45th NET TECH EMPLOYMENT JOBS ADDED RANK
- 42nd INNOVATION SCORE RANK

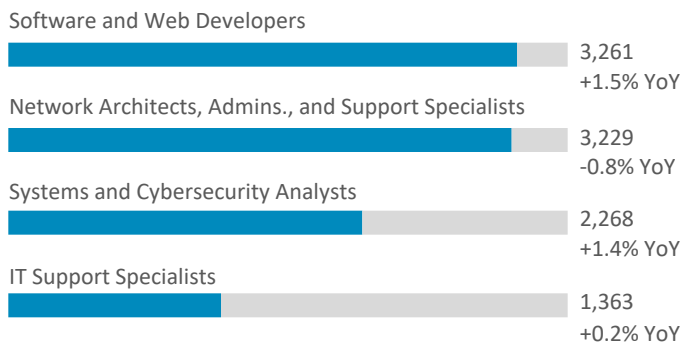
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 9,025 | 4.0% |
| R&D, Testing, and Engineering Services | 4,403 | 1.9% |
| Tech Manufacturing | 3,633 | 3.5% |
| Telecommunications and Internet Services | 2,243 | -16.2% |
| Software [packaged] | 719 | -4.8% |

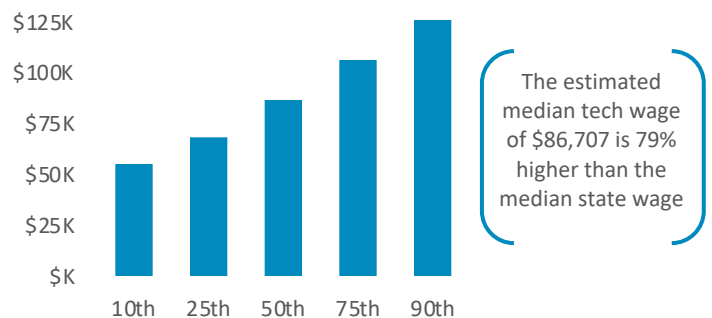
ECONOMIC IMPACT



6.7%

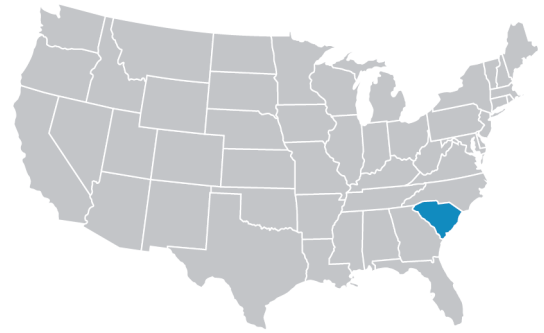
Estimated direct contribution of the tech sector to the Rhode Island economy: \$3.7 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

South Carolina

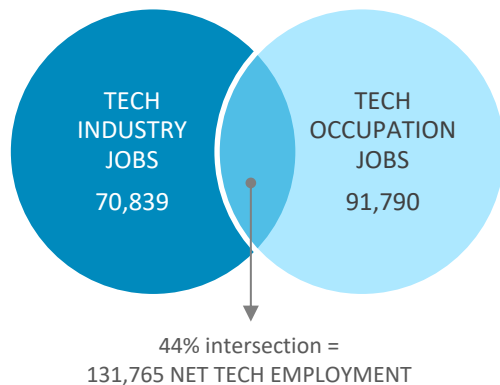


STATE OF TECHNOLOGY SUMMARY

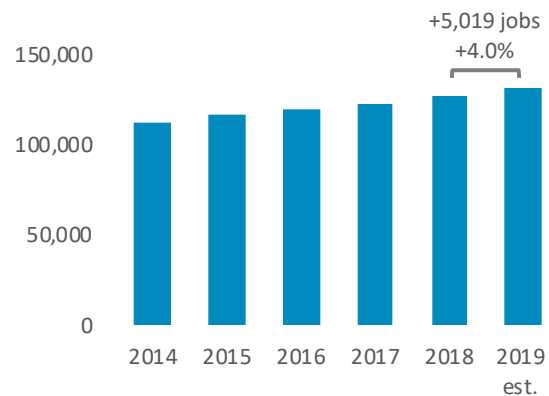
131,765 NET TECH EMPLOYMENT¹
 +5,019 NET TECH JOB GAINS [2019 vs. 2018]
 +34,408 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 5.8% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 7,900 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 33,478 TECH OCCUPATION JOB POSTINGS [2019 total]
 11.8% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

27th NET TECH EMPLOYMENT RANK
 20th NET TECH EMPLOYMENT JOBS ADDED RANK
 30th INNOVATION SCORE RANK

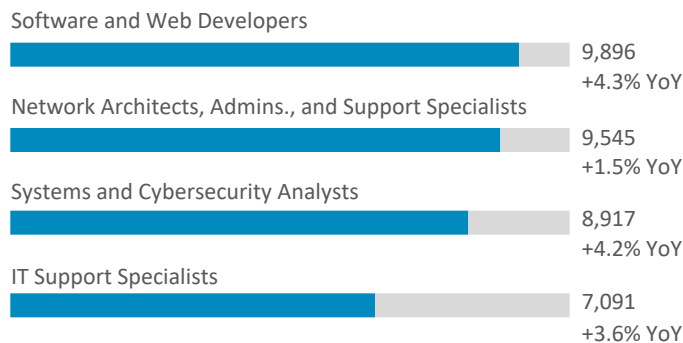
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 22,217 | 5.5% |
| R&D, Testing, and Engineering Services | 21,560 | 2.9% |
| Telecommunications and Internet Services | 17,394 | 2.3% |
| Tech Manufacturing | 6,979 | 6.0% |
| Software [packaged] | 2,690 | 2.9% |

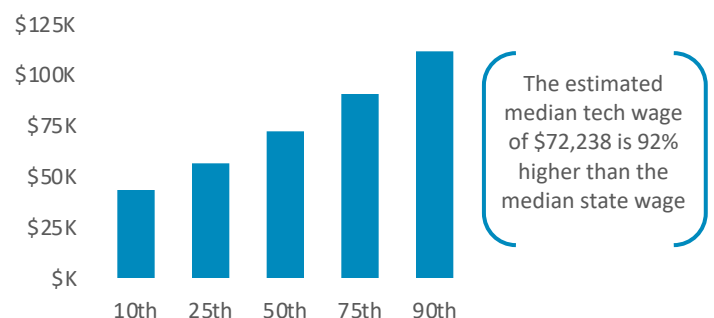
ECONOMIC IMPACT



6.0%

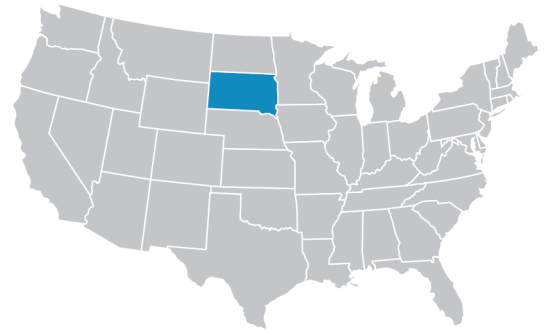
Estimated direct contribution of the tech sector to the South Carolina economy: \$12.7 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

South Dakota

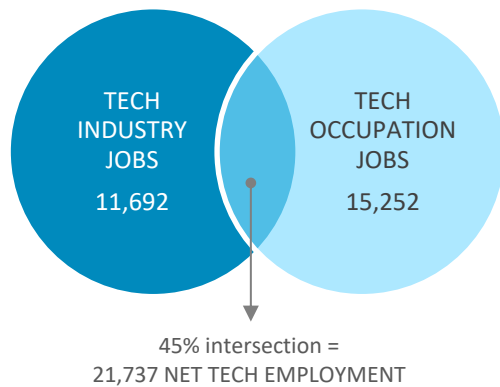


STATE OF TECHNOLOGY SUMMARY

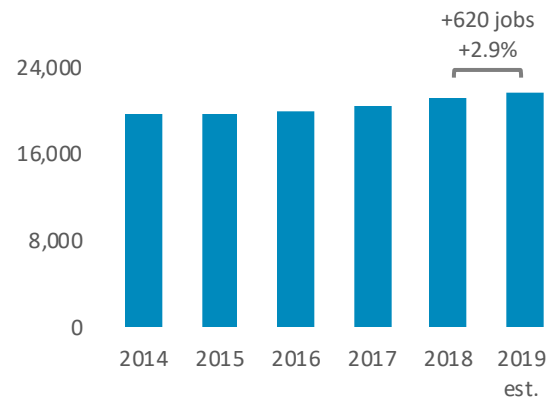
- 21,737 NET TECH EMPLOYMENT¹
- +620 NET TECH JOB GAINS [2019 vs. 2018]
- +4,082 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 4.6% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 1,509 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 4,505 TECH OCCUPATION JOB POSTINGS [2019 total]
- 9.0% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 49th NET TECH EMPLOYMENT RANK
- 40th NET TECH EMPLOYMENT JOBS ADDED RANK
- 51st INNOVATION SCORE RANK

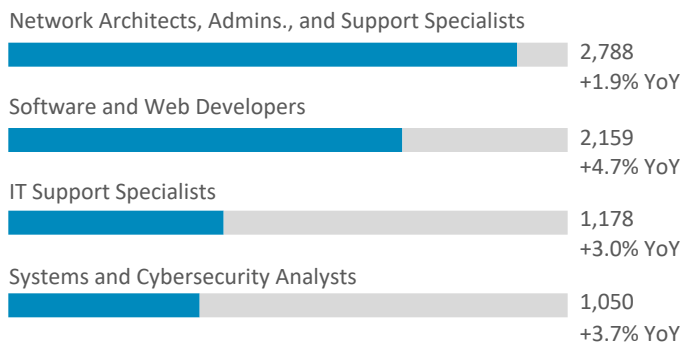
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



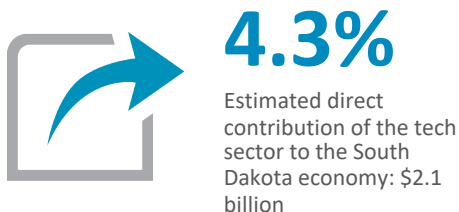
LEADING TECH OCCUPATION CATEGORIES



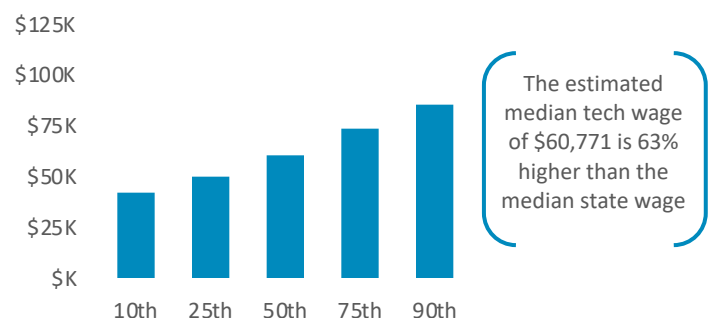
LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 3,304 | 6.0% |
| R&D, Testing, and Engineering Services | 3,291 | 3.7% |
| Telecommunications and Internet Services | 2,840 | 0.9% |
| Tech Manufacturing | 2,137 | 3.5% |
| Software [packaged] | 120 | -12.5% |

ECONOMIC IMPACT

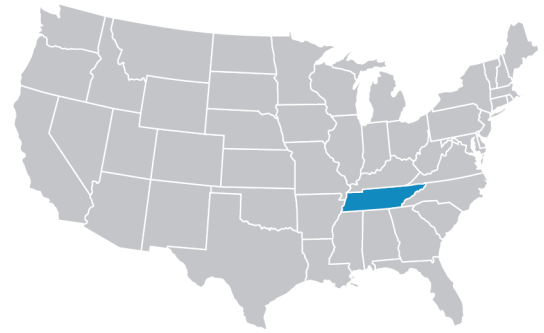


TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Tennessee

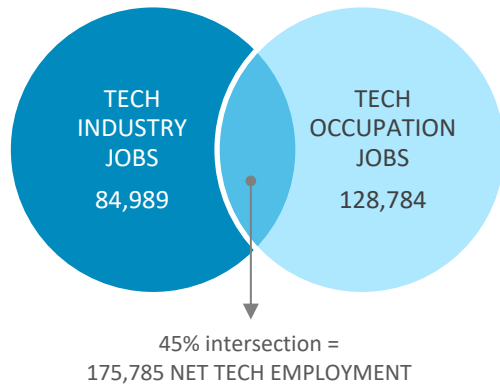


STATE OF TECHNOLOGY SUMMARY

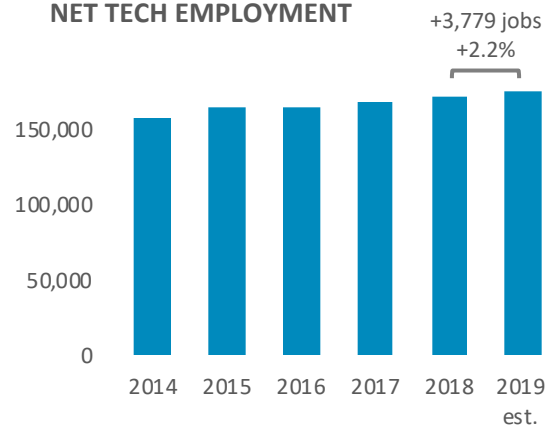
- 175,785 NET TECH EMPLOYMENT¹
- +3,779 NET TECH JOB GAINS [2019 vs. 2018]
- +34,522 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 5.4% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 9,514 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 61,316 TECH OCCUPATION JOB POSTINGS [2019 total]
- 14.2% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 22nd NET TECH EMPLOYMENT RANK
- 25th NET TECH EMPLOYMENT JOBS ADDED RANK
- 19th INNOVATION SCORE RANK

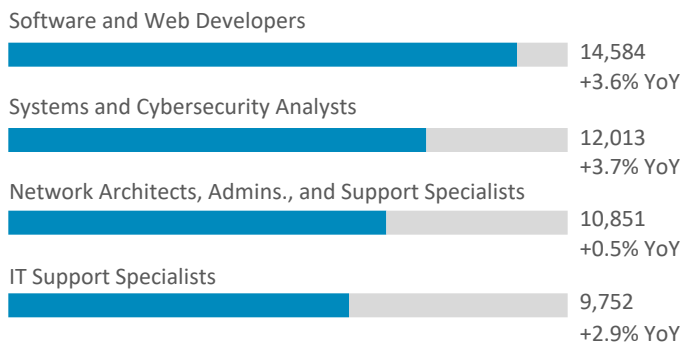
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 30,702 | 3.9% |
| R&D, Testing, and Engineering Services | 25,114 | -0.3% |
| Telecommunications and Internet Services | 19,668 | -0.2% |
| Tech Manufacturing | 5,853 | 7.2% |
| Software [packaged] | 3,652 | 8.7% |

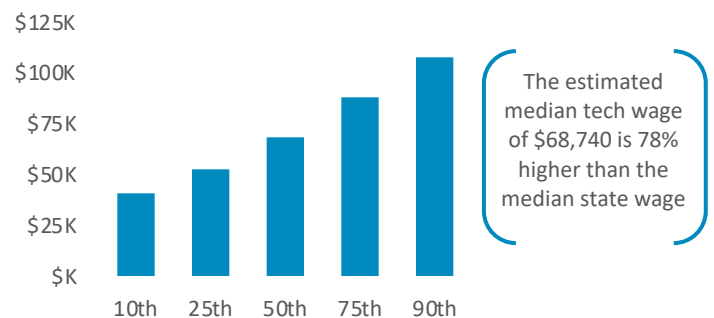
ECONOMIC IMPACT



5.1%

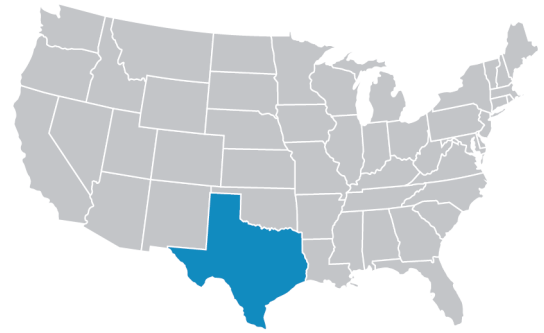
Estimated direct contribution of the tech sector to the Tennessee economy: \$17.2 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Texas

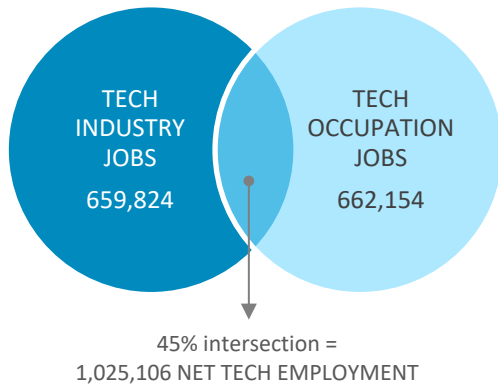


STATE OF TECHNOLOGY SUMMARY

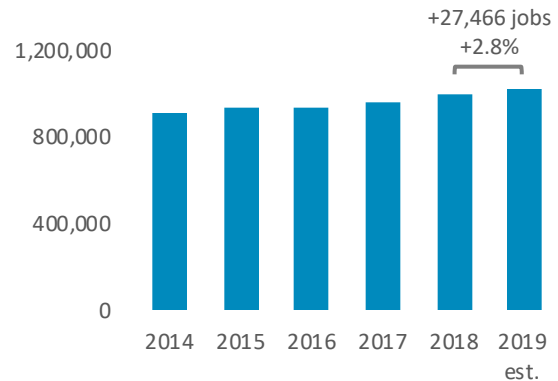
1,025,106 NET TECH EMPLOYMENT¹
 +27,466 NET TECH JOB GAINS [2019 vs. 2018]
 +226,337 YOYNET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 7.6% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 41,824 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 398,187 TECH OCCUPATION JOB POSTINGS [2019 total]
 17.8% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

2nd NET TECH EMPLOYMENT RANK
 2nd NET TECH EMPLOYMENT JOBS ADDED RANK
 4th INNOVATION SCORE RANK

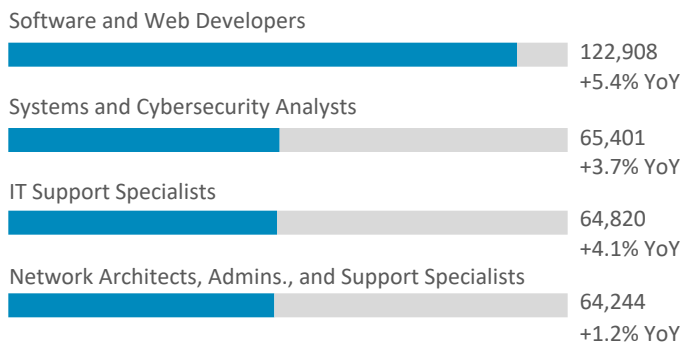
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|---------|--------------|
| IT Services + Custom Software Services | 272,440 | 5.0% |
| R&D, Testing, and Engineering Services | 145,479 | 1.5% |
| Telecommunications and Internet Services | 125,903 | 0.9% |
| Tech Manufacturing | 93,821 | 0.5% |
| Software [packaged] | 22,182 | 3.9% |

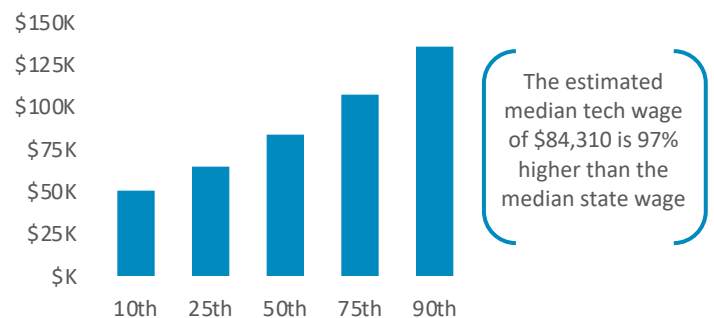
ECONOMIC IMPACT



8.3%

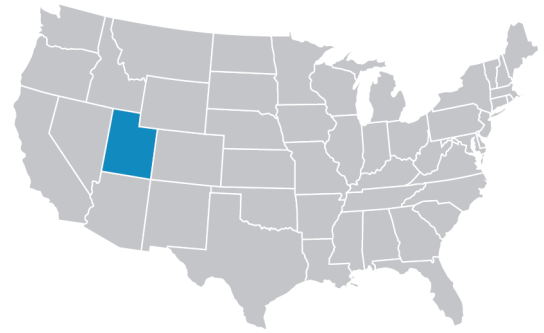
Estimated direct contribution of the tech sector to the Texas economy: \$141.7 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Utah

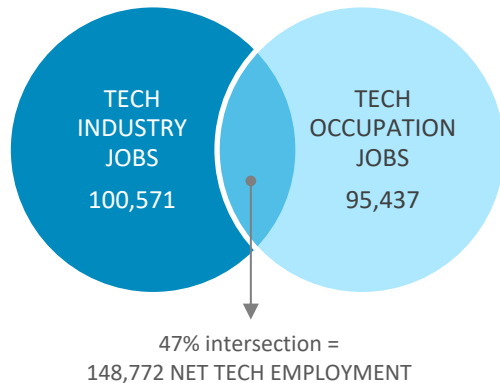


STATE OF TECHNOLOGY SUMMARY

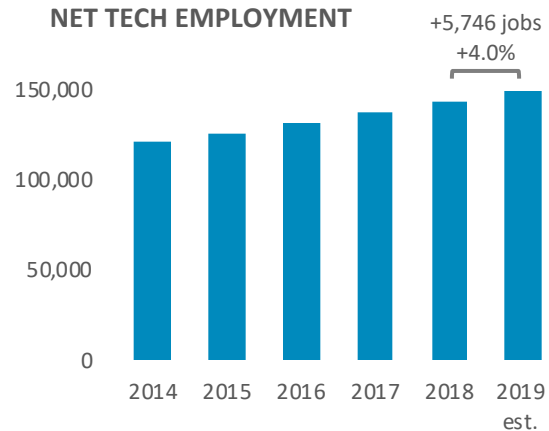
148,772 NET TECH EMPLOYMENT¹
 +5,746 NET TECH JOB GAINS [2019 vs. 2018]
 +47,275 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 9.4% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 7,599 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 34,854 TECH OCCUPATION JOB POSTINGS [2019 total]
 14.3% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

25th NET TECH EMPLOYMENT RANK
 16th NET TECH EMPLOYMENT JOBS ADDED RANK
 20th INNOVATION SCORE RANK

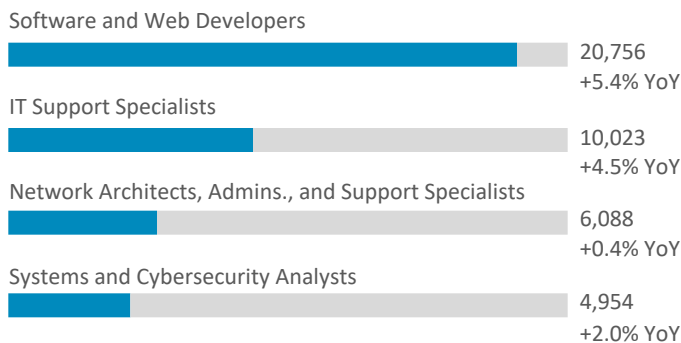
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 35,332 | 5.4% |
| R&D, Testing, and Engineering Services | 20,607 | 5.6% |
| Tech Manufacturing | 17,350 | 1.7% |
| Telecommunications and Internet Services | 15,844 | 0.2% |
| Software [packaged] | 11,438 | 6.2% |

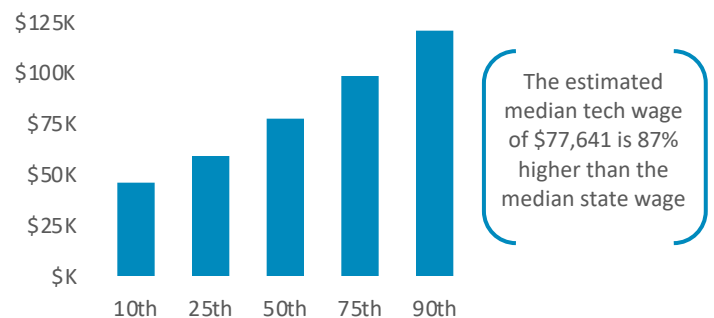
ECONOMIC IMPACT



11.2%

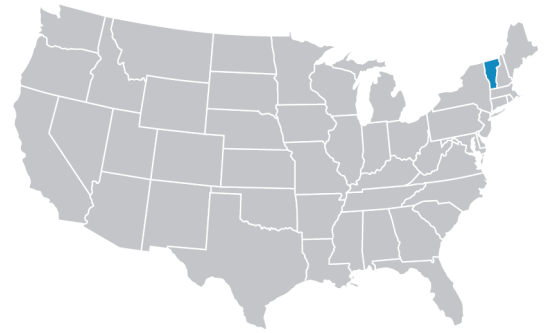
Estimated direct contribution of the tech sector to the Utah economy: \$18.5 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Vermont

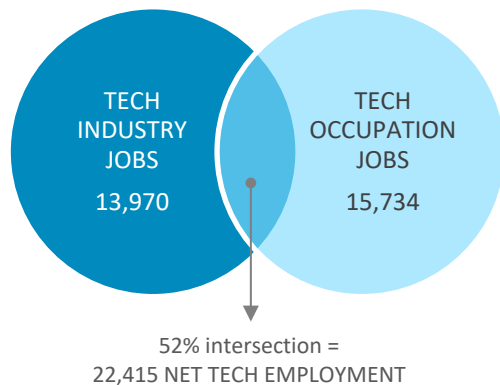


STATE OF TECHNOLOGY SUMMARY

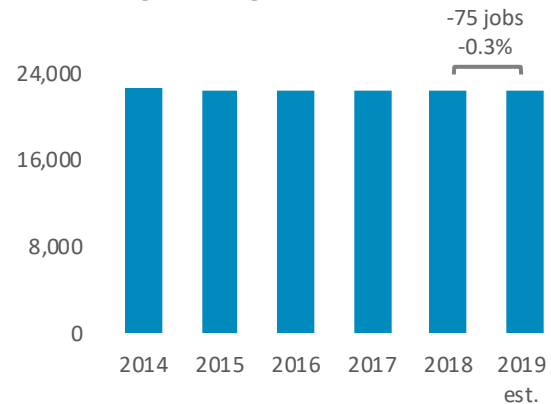
- 22,415 NET TECH EMPLOYMENT¹
- 75 NET TECH JOB GAINS [2019 vs. 2018]
- 196 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 6.5% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 1,855 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 4,104 TECH OCCUPATION JOB POSTINGS [2019 total]
- 11.7% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 48th NET TECH EMPLOYMENT RANK
- 48th NET TECH EMPLOYMENT JOBS ADDED RANK
- 43rd INNOVATION SCORE RANK

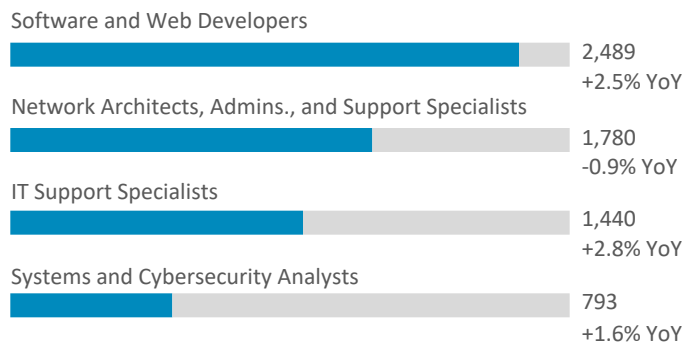
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 5,109 | 2.4% |
| Tech Manufacturing | 4,593 | -2.3% |
| R&D, Testing, and Engineering Services | 2,101 | 1.3% |
| Telecommunications and Internet Services | 1,363 | -4.1% |
| Software [packaged] | 804 | 4.0% |

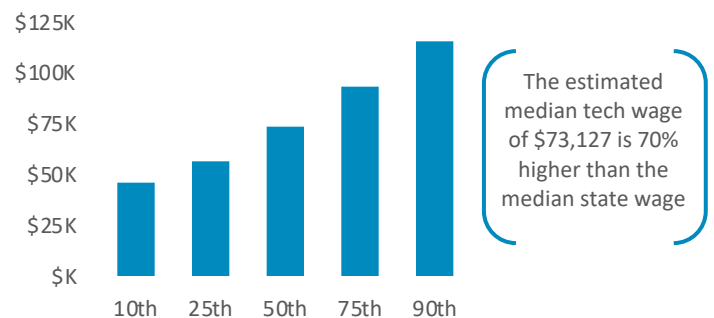
ECONOMIC IMPACT



8.0%

Estimated direct contribution of the tech sector to the Vermont economy: \$2.5 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Virginia

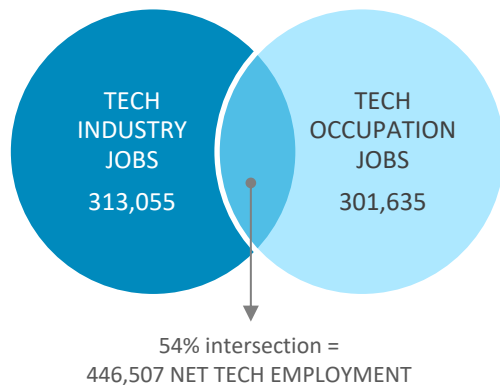


STATE OF TECHNOLOGY SUMMARY

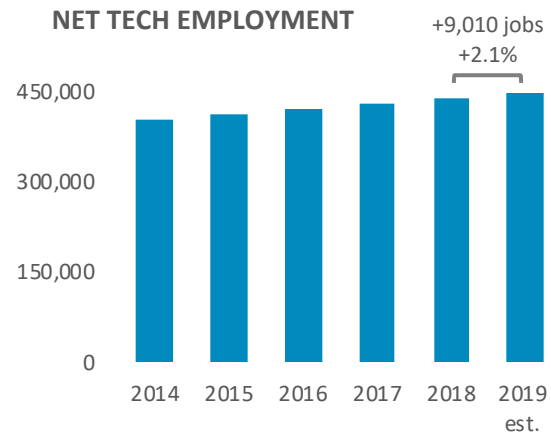
446,507 NET TECH EMPLOYMENT¹
 +9,010 NET TECH JOB GAINS [2019 vs. 2018]
 +42,929 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 10.7% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 22,986 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 221,043 TECH OCCUPATION JOB POSTINGS [2019 total]
 20.1% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

5th NET TECH EMPLOYMENT RANK
 12th NET TECH EMPLOYMENT JOBS ADDED RANK
 12th INNOVATION SCORE RANK

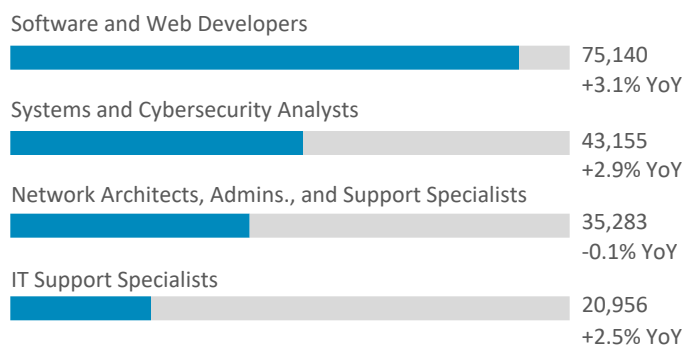
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|---------|--------------|
| IT Services + Custom Software Services | 186,705 | 2.4% |
| R&D, Testing, and Engineering Services | 69,476 | 0.5% |
| Telecommunications and Internet Services | 38,526 | -0.8% |
| Tech Manufacturing | 13,114 | 4.1% |
| Software [packaged] | 5,233 | 1.3% |

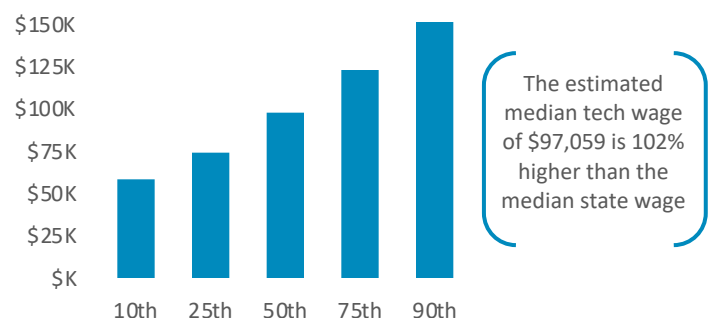
ECONOMIC IMPACT



13.3%

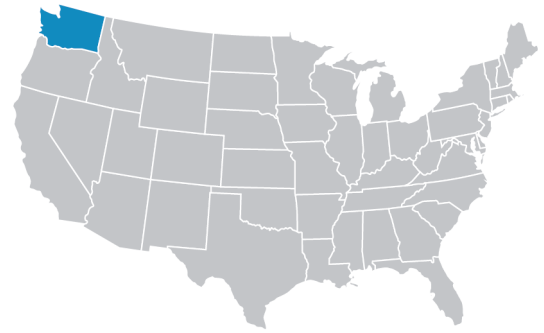
Estimated direct contribution of the tech sector to the Virginia economy: \$63.9 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Washington

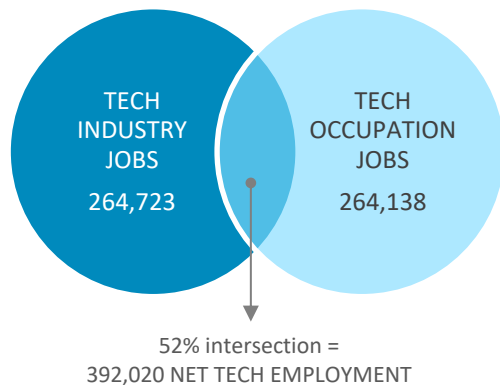


STATE OF TECHNOLOGY SUMMARY

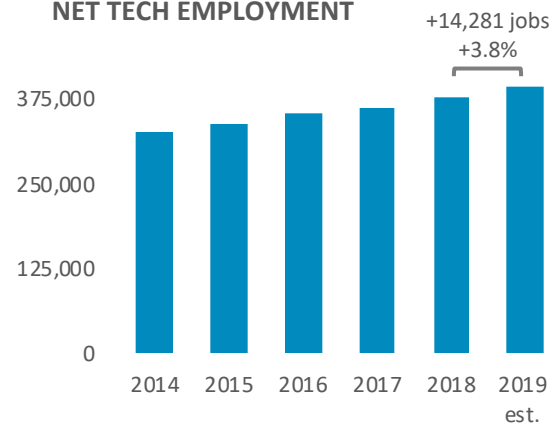
392,020 NET TECH EMPLOYMENT¹
 +14,281 NET TECH JOB GAINS [2019 vs. 2018]
 +99,247 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 10.7% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 15,661 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 122,955 TECH OCCUPATION JOB POSTINGS [2019 total]
 22.4% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

11th NET TECH EMPLOYMENT RANK
 6th NET TECH EMPLOYMENT JOBS ADDED RANK
 8th INNOVATION SCORE RANK

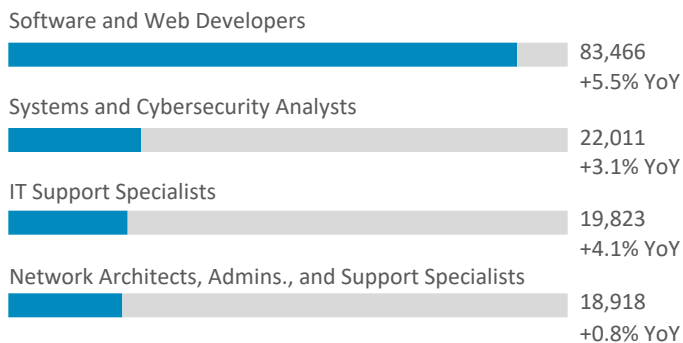
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 72,921 | 4.5% |
| Software [packaged] | 68,141 | 4.3% |
| Telecommunications and Internet Services | 57,669 | 7.2% |
| R&D, Testing, and Engineering Services | 45,055 | 0.4% |
| Tech Manufacturing | 20,936 | 1.2% |

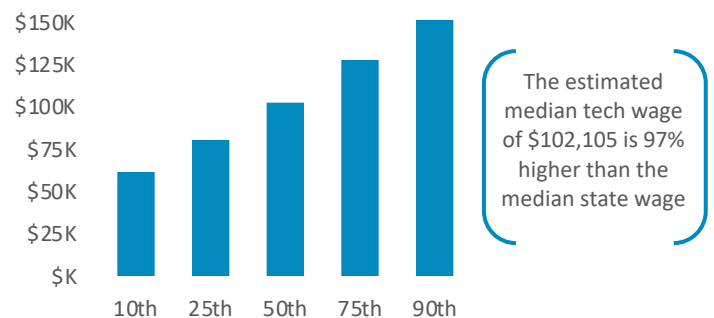
ECONOMIC IMPACT



20.2%

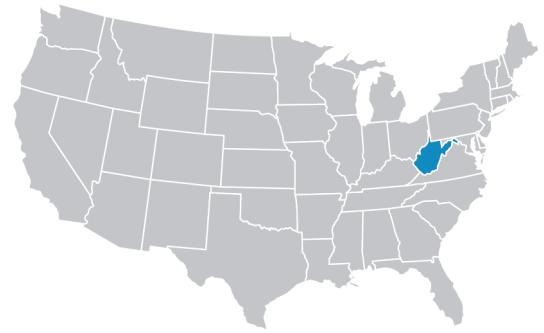
Estimated direct contribution of the tech sector to the Washington economy: \$103.5 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

West Virginia

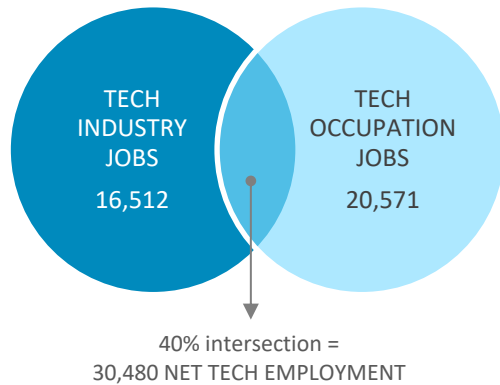


STATE OF TECHNOLOGY SUMMARY

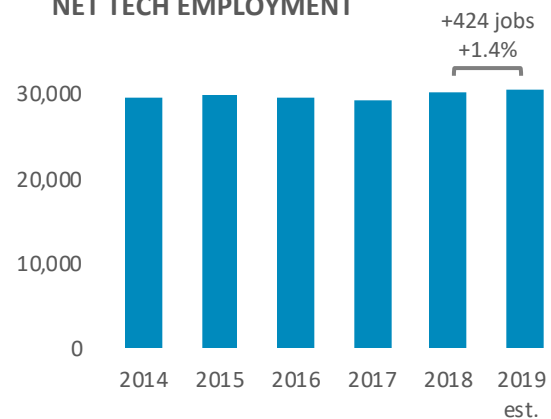
- 30,480 NET TECH EMPLOYMENT¹
- +424 NET TECH JOB GAINS [2019 vs. 2018]
- +1,181 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 4.2% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 2,306 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 6,643 TECH OCCUPATION JOB POSTINGS [2019 total]
- 13.7% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 45th NET TECH EMPLOYMENT RANK
- 42nd NET TECH EMPLOYMENT JOBS ADDED RANK
- 49th INNOVATION SCORE RANK

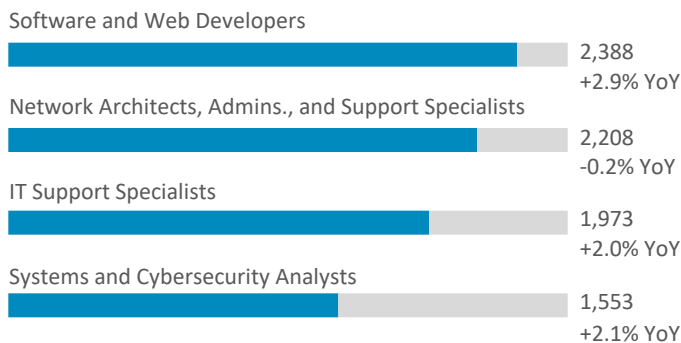
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 5,294 | 4.4% |
| R&D, Testing, and Engineering Services | 5,249 | 3.5% |
| Telecommunications and Internet Services | 3,682 | -5.0% |
| Tech Manufacturing | 2,115 | 2.2% |
| Software [packaged] | 172 | 18.9% |

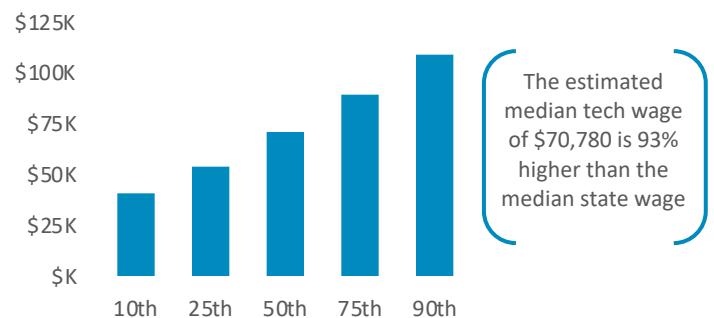
ECONOMIC IMPACT



3.3%

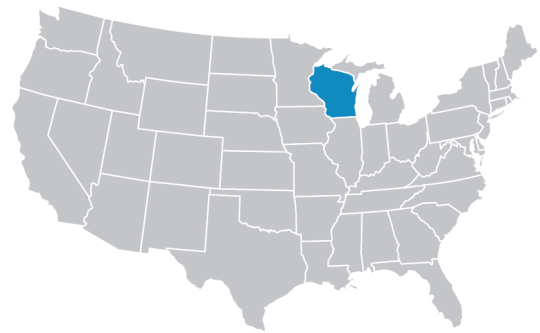
Estimated direct contribution of the tech sector to the West Virginia economy: \$2.4 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Wisconsin

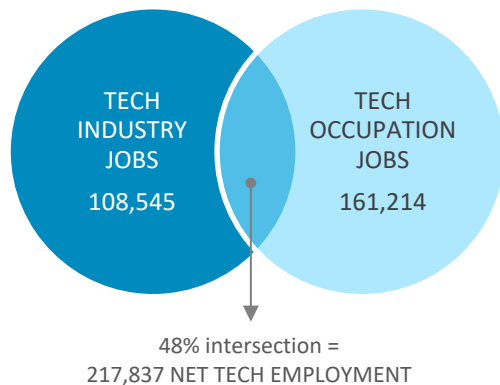


STATE OF TECHNOLOGY SUMMARY

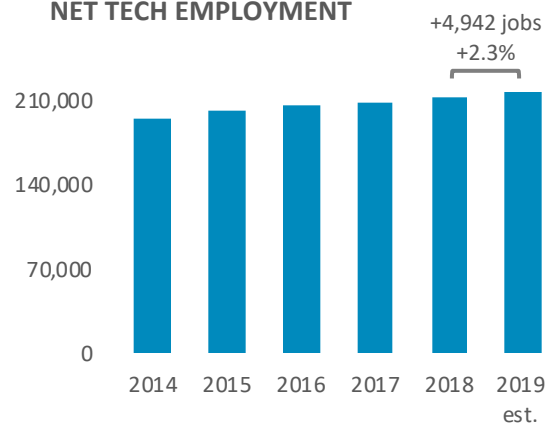
- 217,837 NET TECH EMPLOYMENT¹
- +4,942 NET TECH JOB GAINS [2019 vs. 2018]
- +44,389 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 7.1% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 8,635 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 71,388 TECH OCCUPATION JOB POSTINGS [2019 total]
- 12.5% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 19th NET TECH EMPLOYMENT RANK
- 21st NET TECH EMPLOYMENT JOBS ADDED RANK
- 27th INNOVATION SCORE RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

| | | |
|--|--------|-----------|
| Software and Web Developers | 25,803 | +4.0% YoY |
| Systems and Cybersecurity Analysts | 17,041 | +2.4% YoY |
| Network Architects, Admins., and Support Specialists | 12,175 | -0.7% YoY |
| IT Support Specialists | 11,310 | +2.2% YoY |

LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 32,937 | 3.8% |
| R&D, Testing, and Engineering Services | 23,410 | 3.2% |
| Telecommunications and Internet Services | 19,339 | -0.5% |
| Tech Manufacturing | 19,152 | 1.1% |
| Software [packaged] | 13,708 | 2.9% |

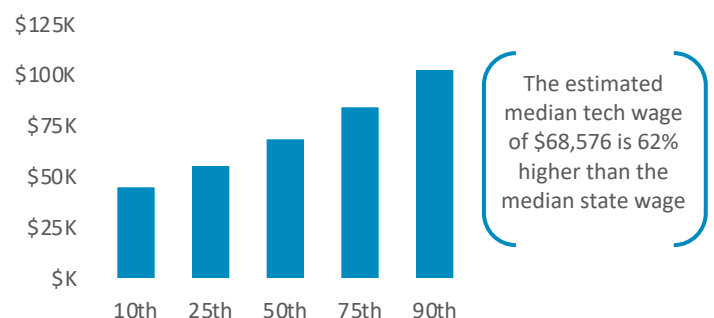
ECONOMIC IMPACT



7.0%

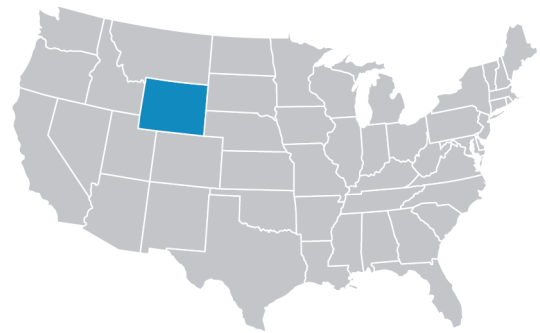
Estimated direct contribution of the tech sector to the Wisconsin economy: \$21.4 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Wyoming

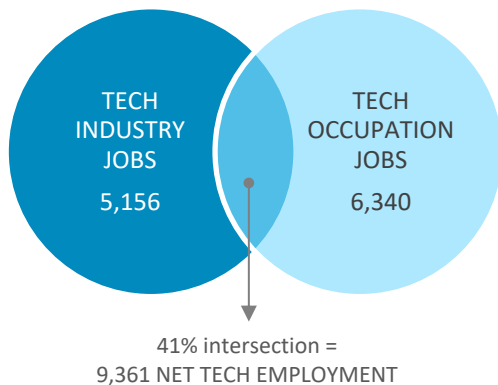


STATE OF TECHNOLOGY SUMMARY

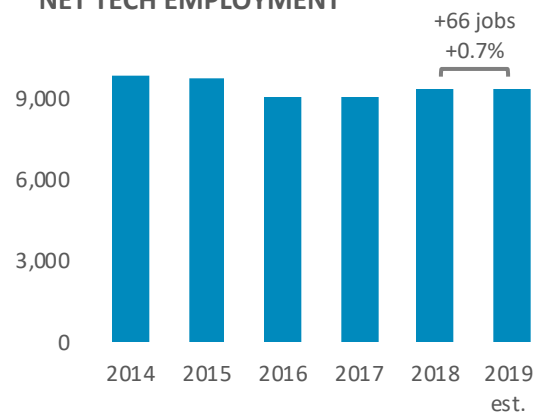
- 9,361 NET TECH EMPLOYMENT¹
- +66 NET TECH JOB GAINS [2019 vs. 2018]
- 264 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 3.2% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 1,093 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 2,867 TECH OCCUPATION JOB POSTINGS [2019 total]
- 10.4% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

- 51st NET TECH EMPLOYMENT RANK
- 46th NET TECH EMPLOYMENT JOBS ADDED RANK
- 44th INNOVATION SCORE RANK

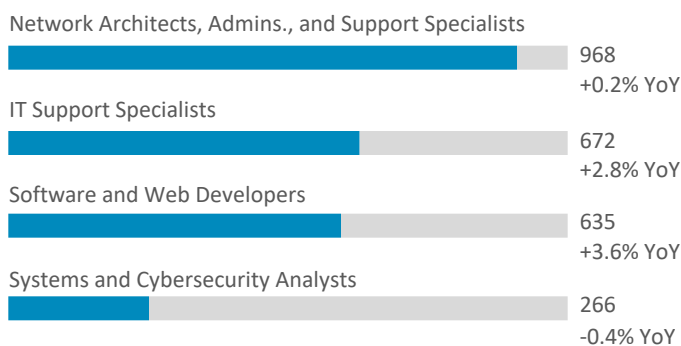
¹net of tech industry + tech occupation + self-employed [see methodology for details]



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES



LEADING TECH INDUSTRY SECTORS [by employment]

| | 2019 | YoY % Change |
|--|-------|--------------|
| R&D, Testing, and Engineering Services | 1,858 | -1.6% |
| Telecommunications and Internet Services | 1,799 | -0.2% |
| IT Services + Custom Software Services | 1,131 | 5.3% |
| Tech Manufacturing | 338 | 15.2% |
| Software [packaged] | 31 | 14.4% |

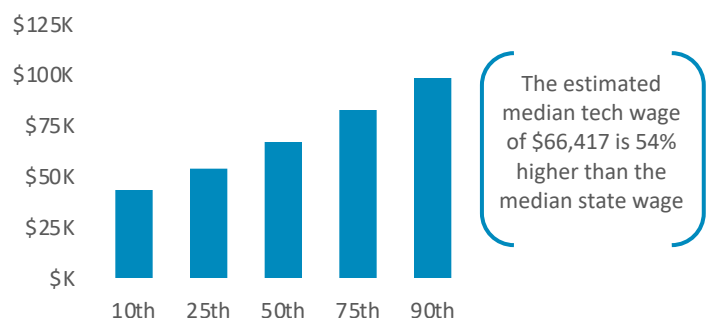
ECONOMIC IMPACT



2.8%

Estimated direct contribution of the tech sector to the Wyoming economy: \$1.0 billion

TECH OCCUPATION WAGES [by percentile]

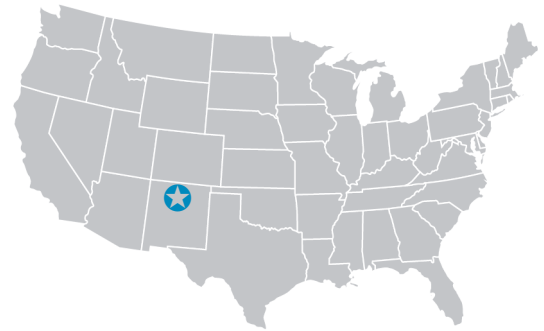


Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

METRO AREA SNAPSHOTS

Albuquerque

Full MSA name: Albuquerque, NM



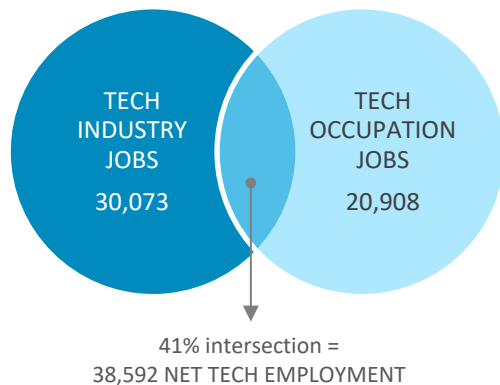
STATE OF TECHNOLOGY SUMMARY

38,592 NET TECH EMPLOYMENT¹
 +231 NET TECH JOB GAINS [2019 vs. 2018]
 -2,314 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 9.5% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 1,389 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 12,503 TECH OCCUPATION JOB POSTINGS [2019 total]
 11.4% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

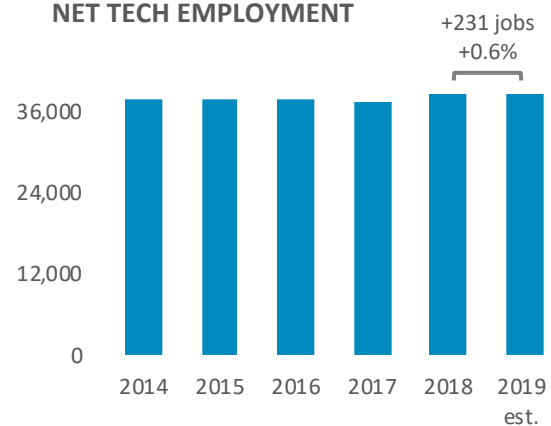
42nd NET TECH EMPLOYMENT RANK²
 46th NET TECH EMPLOYMENT JOBS ADDED RANK
 11th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

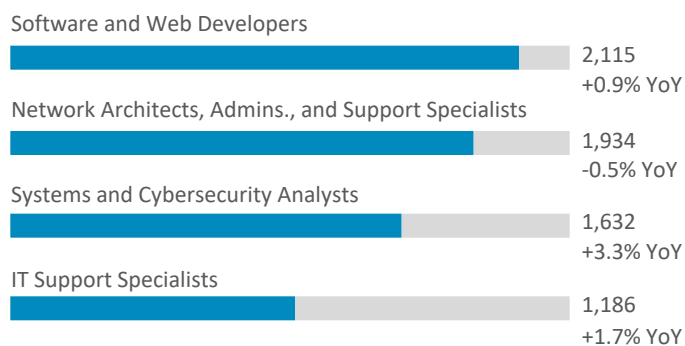
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| R&D, Testing, and Engineering Services | 17,236 | 2.5% |
| IT Services + Custom Software Services | 4,625 | 4.7% |
| Telecommunications and Internet Services | 4,291 | -2.0% |
| Tech Manufacturing | 3,791 | -8.1% |
| Software [packaged] | 129 | 2.2% |

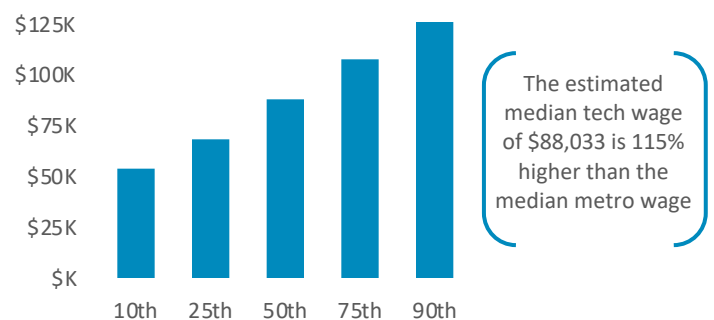
ECONOMIC IMPACT



14.4%

Estimated direct contribution of the tech sector to the Albuquerque economy: \$5.7 billion

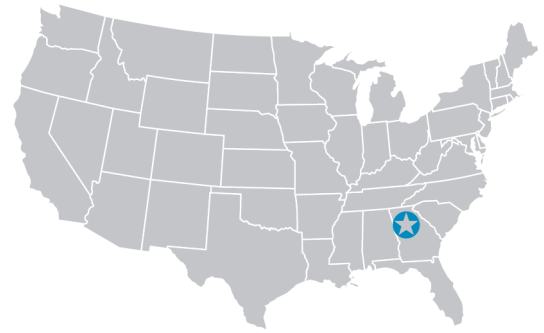
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Atlanta

Full MSA name: Atlanta-Sandy Springs-Roswell, GA



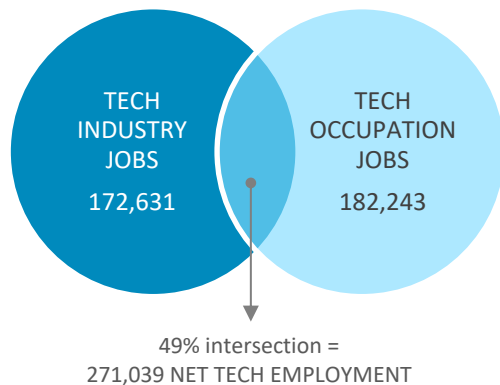
STATE OF TECHNOLOGY SUMMARY

271,039 NET TECH EMPLOYMENT¹
 +7,903 NET TECH JOB GAINS [2019 vs. 2018]
 +60,270 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 9.5% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 10,348 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 141,566 TECH OCCUPATION JOB POSTINGS [2019 total]
 19.4% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

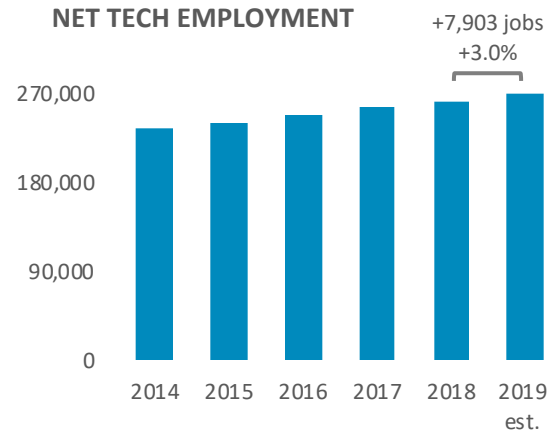
10th NET TECH EMPLOYMENT RANK²
 8th NET TECH EMPLOYMENT JOBS ADDED RANK
 13th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

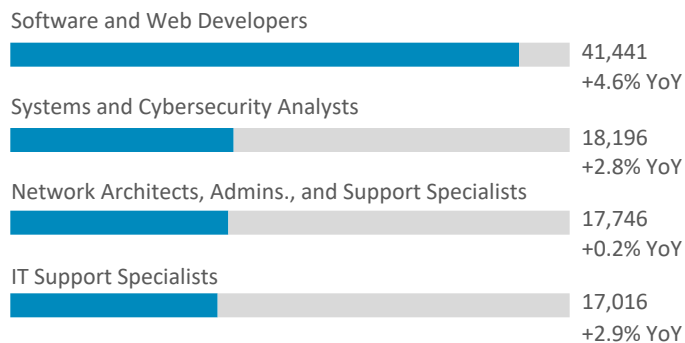
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 70,613 | 2.1% |
| Telecommunications and Internet Services | 48,113 | -0.2% |
| R&D, Testing, and Engineering Services | 29,116 | 3.7% |
| Software [packaged] | 15,281 | 4.6% |
| Tech Manufacturing | 9,508 | 3.1% |

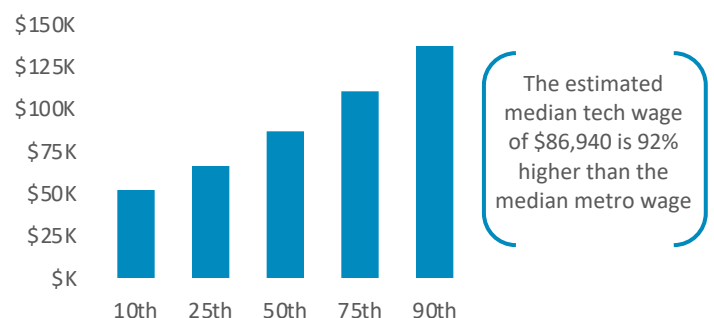
ECONOMIC IMPACT



13.3%

Estimated direct contribution of the tech sector to the Atlanta economy: \$48.4 billion

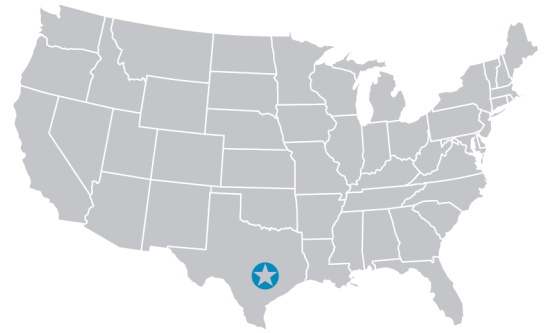
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Austin

Full MSA name: Austin-Round Rock, TX



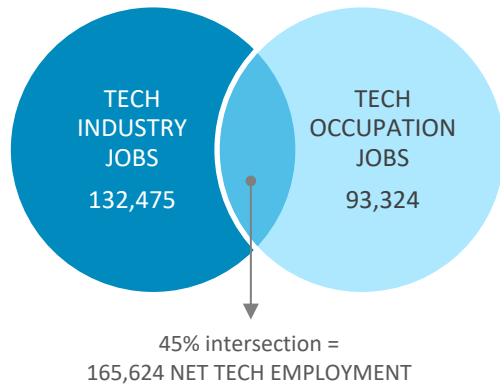
STATE OF TECHNOLOGY SUMMARY

165,624 NET TECH EMPLOYMENT¹
 +7,131 NET TECH JOB GAINS [2019 vs. 2018]
 +57,240 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 14.8% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 5,964 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 67,860 TECH OCCUPATION JOB POSTINGS [2019 total]
 21.1% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

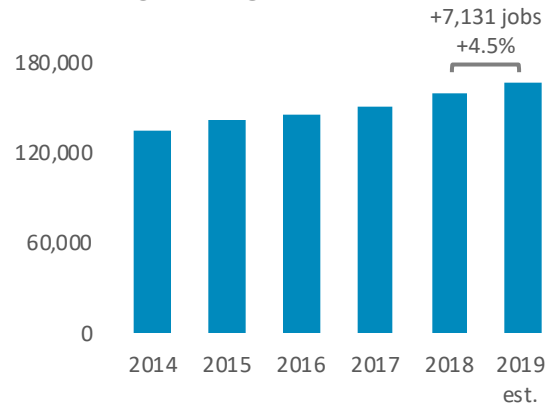
18th NET TECH EMPLOYMENT RANK²
 10th NET TECH EMPLOYMENT JOBS ADDED RANK
 4th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

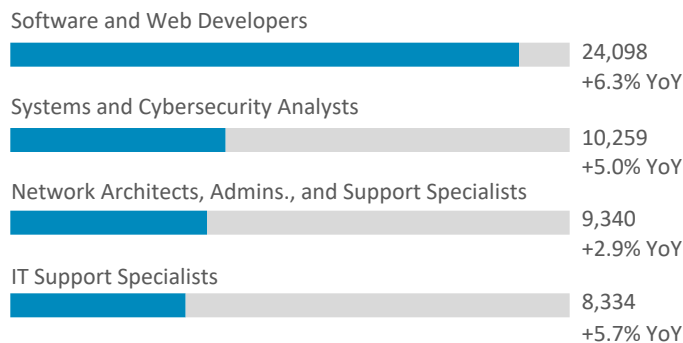
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 65,337 | 5.2% |
| Tech Manufacturing | 27,968 | 1.4% |
| Telecommunications and Internet Services | 18,705 | 7.5% |
| R&D, Testing, and Engineering Services | 14,216 | -0.3% |
| Software [packaged] | 6,249 | 4.4% |

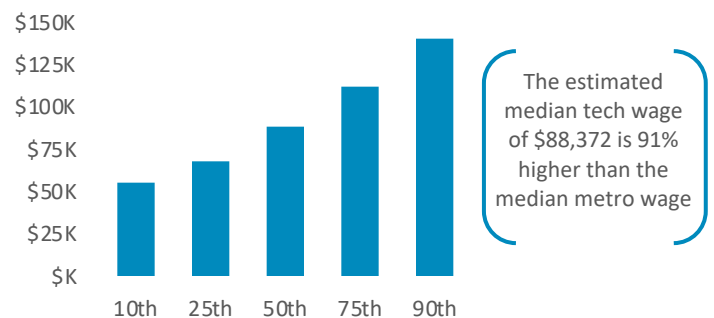
ECONOMIC IMPACT



23.8%

Estimated direct contribution of the tech sector to the Austin economy: \$33.5 billion

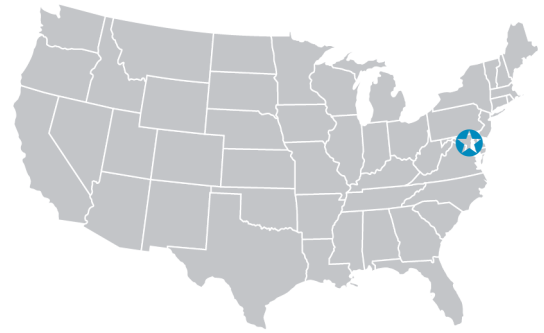
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Baltimore

Full MSA name: Baltimore-Columbia-Towson, MD



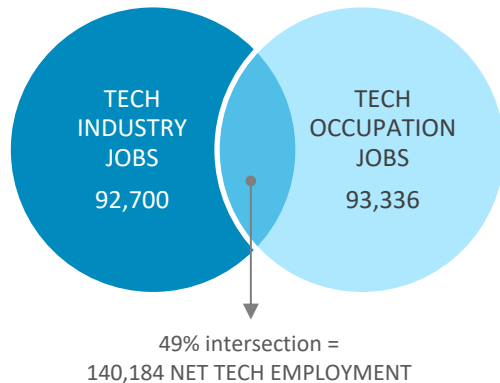
STATE OF TECHNOLOGY SUMMARY

140,184 NET TECH EMPLOYMENT¹
 +3,535 NET TECH JOB GAINS [2019 vs. 2018]
 +20,416 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 9.9% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 4,933 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 67,290 TECH OCCUPATION JOB POSTINGS [2019 total]
 16.6% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

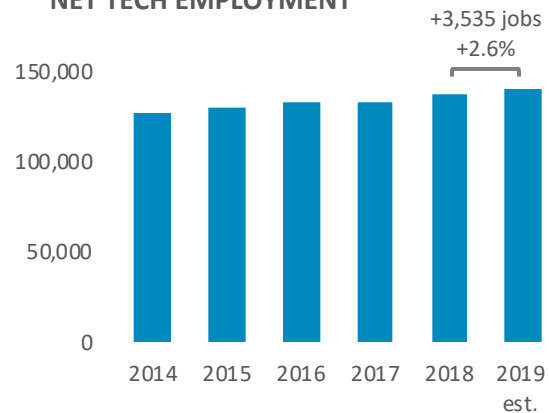
21st NET TECH EMPLOYMENT RANK²
 21st NET TECH EMPLOYMENT JOBS ADDED RANK
 15th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

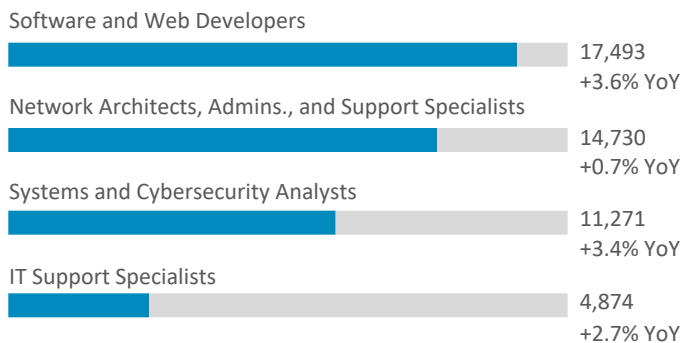
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 39,085 | 3.3% |
| R&D, Testing, and Engineering Services | 30,245 | 1.3% |
| Tech Manufacturing | 13,477 | 5.2% |
| Telecommunications and Internet Services | 7,067 | -5.9% |
| Software [packaged] | 2,826 | 13.7% |

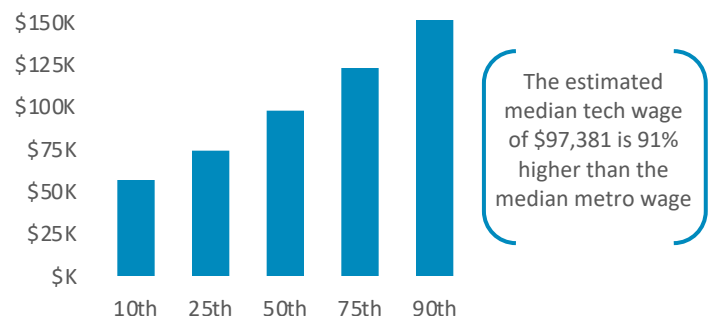
ECONOMIC IMPACT



12.2%

Estimated direct contribution of the tech sector to the Baltimore economy: \$22.7 billion

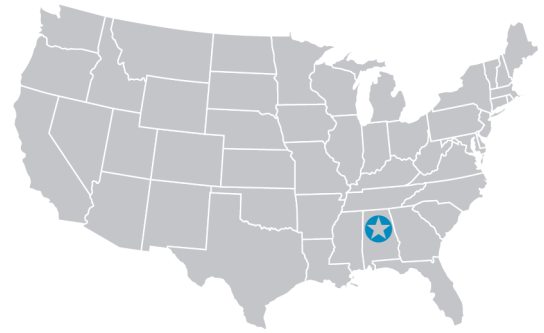
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Birmingham

Full MSA name: Birmingham-Hoover, AL



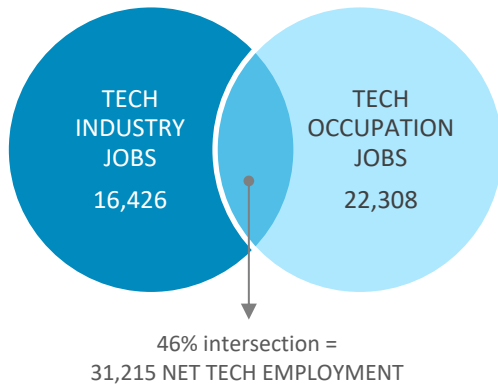
STATE OF TECHNOLOGY SUMMARY

- 31,215 NET TECH EMPLOYMENT¹
- +16 NET TECH JOB GAINS [2019 vs. 2018]
- +682 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 6.1% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 1,159 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 9,648 TECH OCCUPATION JOB POSTINGS [2019 total]
- 10.6% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

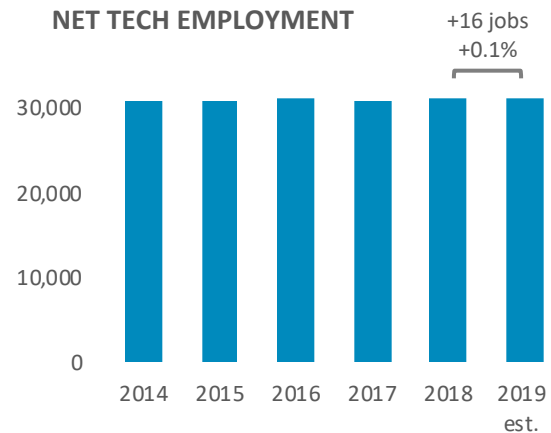
- 44th NET TECH EMPLOYMENT RANK²
- 49th NET TECH EMPLOYMENT JOBS ADDED RANK
- 45th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS

| | | |
|--|-------|-----------|
| Software and Web Developers | 2,606 | +3.6% YoY |
| Network Architects, Admins., and Support Specialists | 2,114 | -1.2% YoY |
| IT Support Specialists | 1,968 | +2.6% YoY |
| Systems and Cybersecurity Analysts | 1,835 | +2.3% YoY |

LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 7,218 | 0.3% |
| R&D, Testing, and Engineering Services | 4,194 | 2.6% |
| Telecommunications and Internet Services | 3,795 | -5.8% |
| Tech Manufacturing | 621 | 7.0% |
| Software [packaged] | 597 | 7.4% |

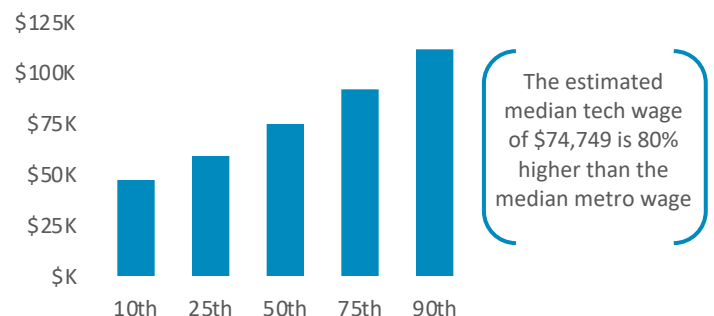
ECONOMIC IMPACT



5.4%

Estimated direct contribution of the tech sector to the Birmingham economy: \$3.3 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Boise

Full MSA name: Boise, ID



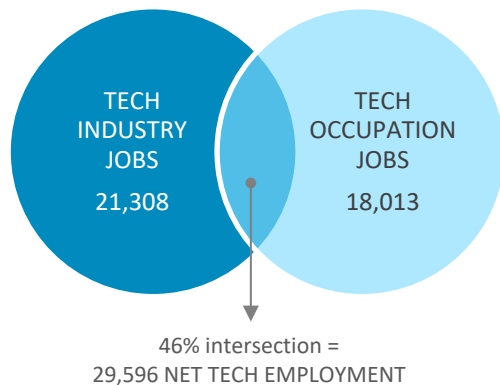
STATE OF TECHNOLOGY SUMMARY

29,596 NET TECH EMPLOYMENT¹
 +1,333 NET TECH JOB GAINS [2019 vs. 2018]
 +6,971 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 8.3% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 1,217 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 7,904 TECH OCCUPATION JOB POSTINGS [2019 total]
 13.2% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

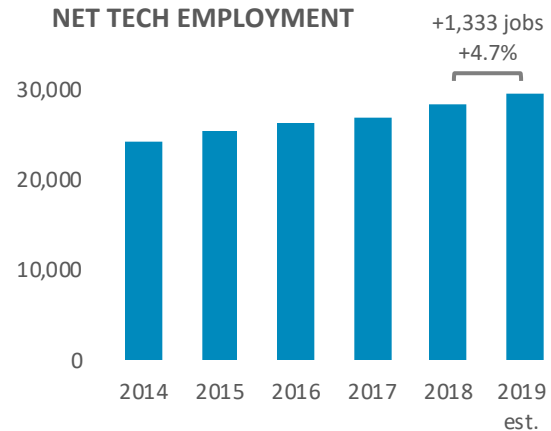
46th NET TECH EMPLOYMENT RANK²
 33rd NET TECH EMPLOYMENT JOBS ADDED RANK
 12th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

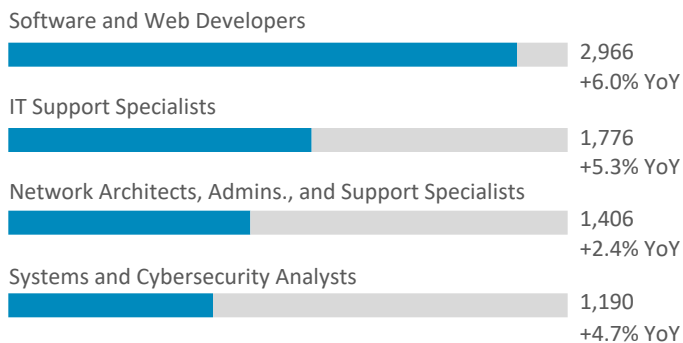
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| Tech Manufacturing | 11,217 | 3.9% |
| IT Services + Custom Software Services | 4,782 | 9.0% |
| R&D, Testing, and Engineering Services | 3,228 | 4.6% |
| Telecommunications and Internet Services | 1,964 | -1.6% |
| Software [packaged] | 116 | -0.2% |

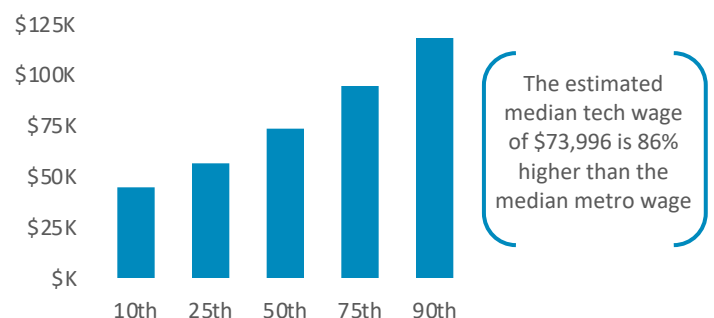
ECONOMIC IMPACT



14.1%

Estimated direct contribution of the tech sector to the Boise economy: \$4.8 billion

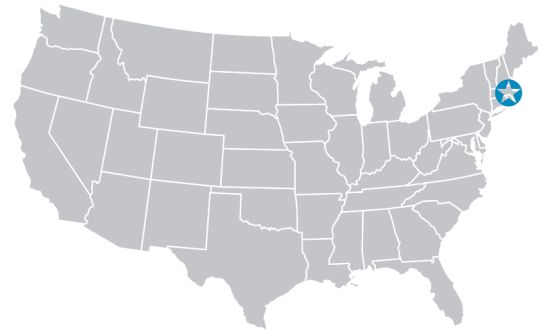
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Boston

Full MSA name: Boston-Cambridge-Newton, MA-NH



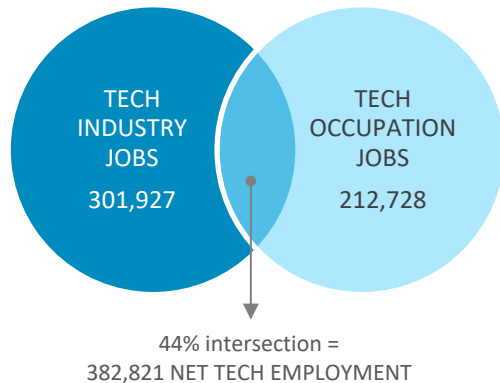
STATE OF TECHNOLOGY SUMMARY

382,821 NET TECH EMPLOYMENT¹
 +10,704 NET TECH JOB GAINS [2019 vs. 2018]
 +78,603 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 13.3% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 12,377 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 132,552 TECH OCCUPATION JOB POSTINGS [2019 total]
 23.9% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

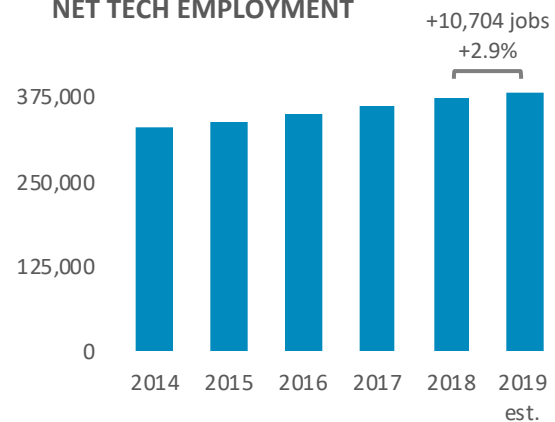
6th NET TECH EMPLOYMENT RANK²
 5th NET TECH EMPLOYMENT JOBS ADDED RANK
 6th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

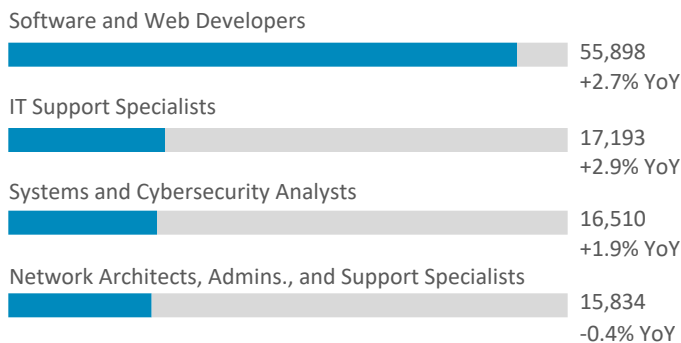
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| R&D, Testing, and Engineering Services | 93,151 | 5.7% |
| IT Services + Custom Software Services | 91,150 | 3.2% |
| Tech Manufacturing | 55,430 | -0.9% |
| Software [packaged] | 32,463 | 3.8% |
| Telecommunications and Internet Services | 29,734 | -0.4% |

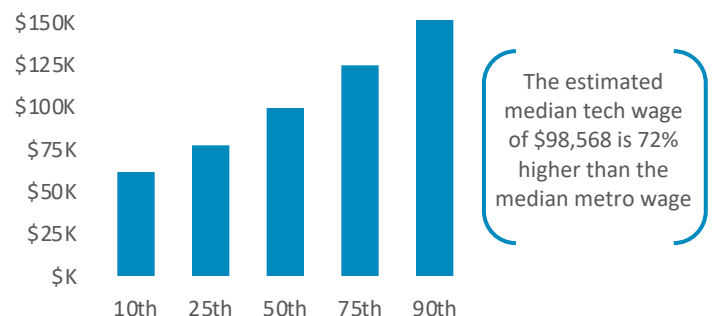
ECONOMIC IMPACT



19.6%

Estimated direct contribution of the tech sector to the Boston economy: \$86.1 billion

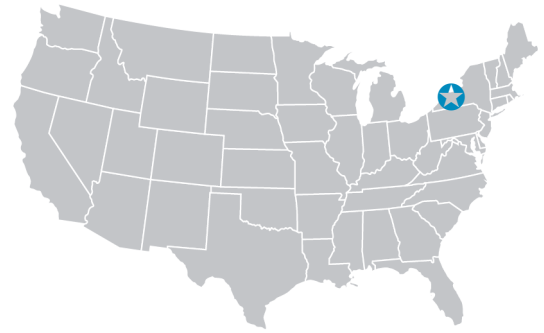
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Buffalo

Full MSA name: Buffalo-Niagara Falls, NY



STATE OF TECHNOLOGY SUMMARY

- 38,865 NET TECH EMPLOYMENT¹
- +1,030 NET TECH JOB GAINS [2019 vs. 2018]
- +5,024 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 6.9% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 940 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 14,076 TECH OCCUPATION JOB POSTINGS [2019 total]
- 11.5% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

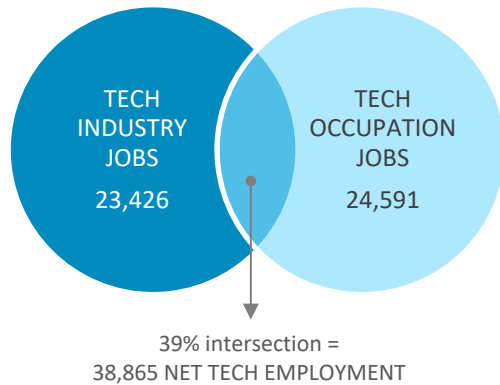
41st NET TECH EMPLOYMENT RANK²

37th NET TECH EMPLOYMENT JOBS ADDED RANK

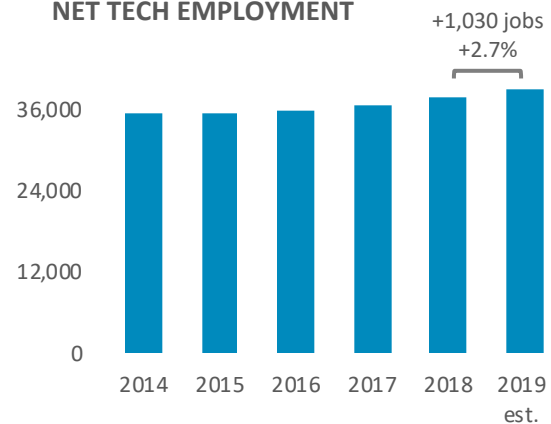
38th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS

| | | |
|--|-------|-----------|
| Software and Web Developers | 3,709 | +4.2% YoY |
| Systems and Cybersecurity Analysts | 3,032 | +3.0% YoY |
| IT Support Specialists | 2,940 | +3.1% YoY |
| Network Architects, Admins., and Support Specialists | 2,575 | +0.0% YoY |

LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 8,139 | 2.6% |
| R&D, Testing, and Engineering Services | 7,187 | 1.9% |
| Tech Manufacturing | 3,740 | 2.4% |
| Telecommunications and Internet Services | 3,557 | 1.8% |
| Software [packaged] | 803 | 10.9% |

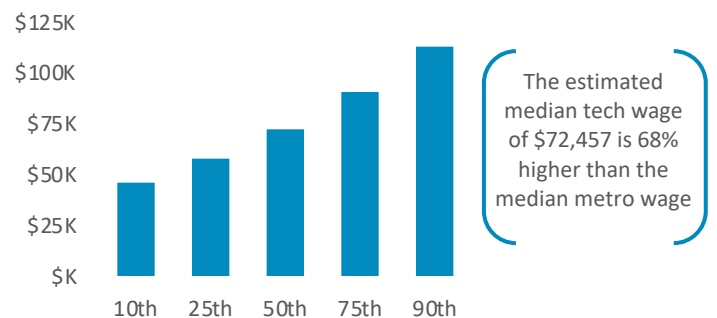
ECONOMIC IMPACT



6.1%

Estimated direct contribution of the tech sector to the Buffalo economy: \$3.7 billion

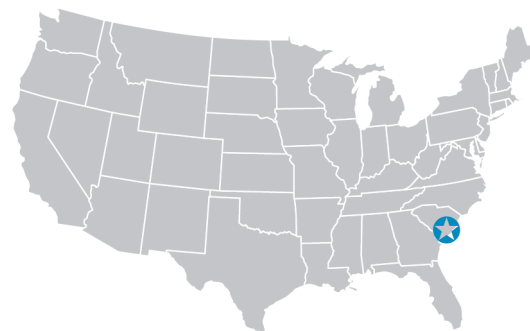
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Charleston

Full MSA name: Charleston-North Charleston, SC



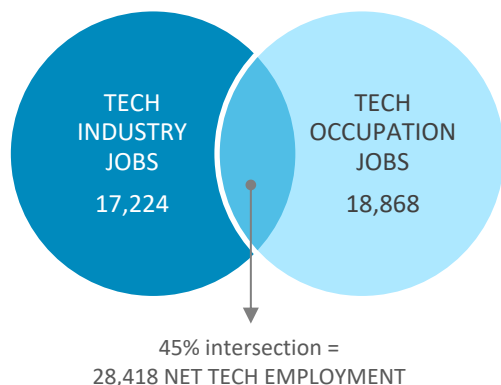
STATE OF TECHNOLOGY SUMMARY

- 28,418 NET TECH EMPLOYMENT¹
- +1,549 NET TECH JOB GAINS [2019 vs. 2018]
- +9,867 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 7.7% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 1,255 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 7,628 TECH OCCUPATION JOB POSTINGS [2019 total]
- 14.1% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

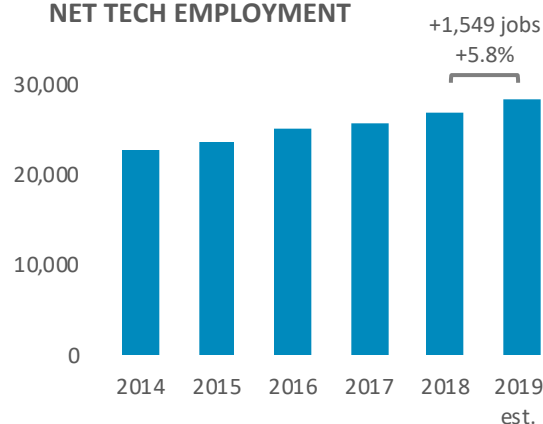
- 47th NET TECH EMPLOYMENT RANK²
- 31st NET TECH EMPLOYMENT JOBS ADDED RANK
- 32nd ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS

| | | |
|--|-------|-----------|
| Software and Web Developers | 2,572 | +5.6% YoY |
| Systems and Cybersecurity Analysts | 2,432 | +5.1% YoY |
| Network Architects, Admins., and Support Specialists | 1,708 | +2.3% YoY |
| IT Support Specialists | 1,398 | +5.0% YoY |

LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 7,606 | 6.8% |
| R&D, Testing, and Engineering Services | 5,226 | 1.8% |
| Telecommunications and Internet Services | 3,541 | 5.2% |
| Tech Manufacturing | 563 | 11.0% |
| Software [packaged] | 288 | 3.7% |

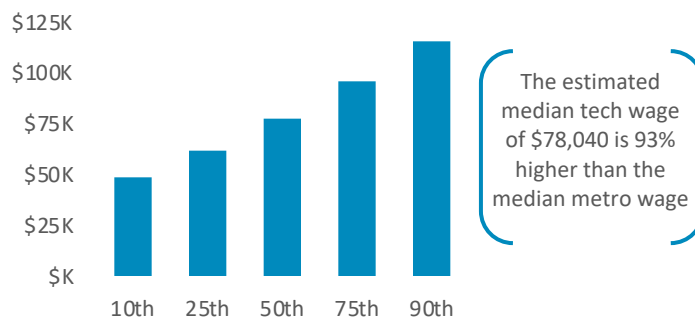
ECONOMIC IMPACT



7.7%

Estimated direct contribution of the tech sector to the Charleston economy: \$3.2 billion

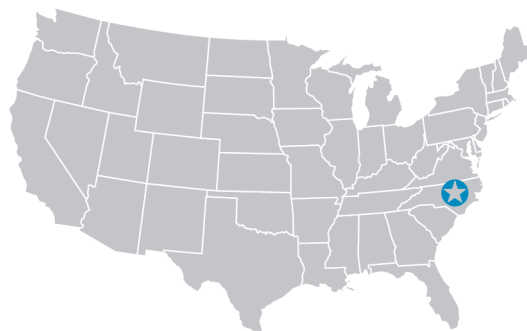
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Charlotte

Full MSA name: Charlotte-Concord-Gastonia, NC-SC



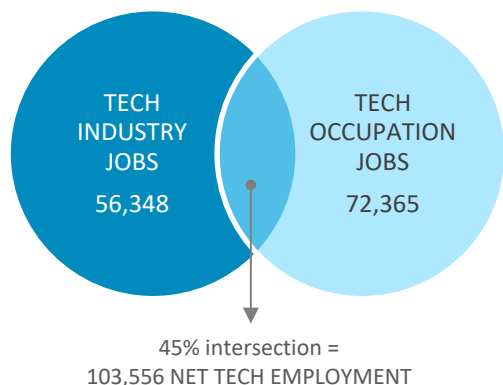
STATE OF TECHNOLOGY SUMMARY

- 103,556 NET TECH EMPLOYMENT¹
- +5,728 NET TECH JOB GAINS [2019 vs. 2018]
- +37,882 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 8.0% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 4,215 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 77,606 TECH OCCUPATION JOB POSTINGS [2019 total]
- 20.7% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

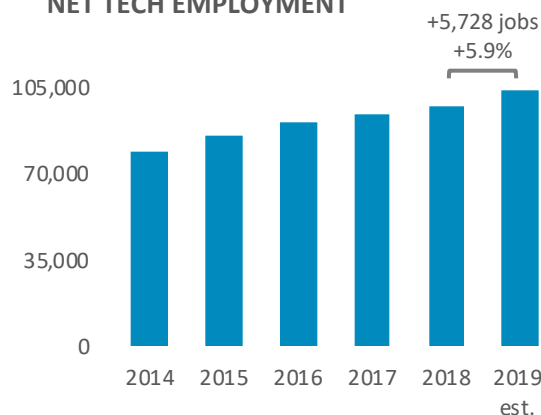
- 24th NET TECH EMPLOYMENT RANK²
- 13th NET TECH EMPLOYMENT JOBS ADDED RANK
- 31st ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS

| | | |
|--|--------|-----------|
| Software and Web Developers | 14,377 | +6.7% YoY |
| Systems and Cybersecurity Analysts | 12,656 | +4.3% YoY |
| Network Architects, Admins., and Support Specialists | 7,385 | +2.1% YoY |
| IT Support Specialists | 6,888 | +3.9% YoY |

LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 19,939 | 4.3% |
| Telecommunications and Internet Services | 18,468 | 3.1% |
| R&D, Testing, and Engineering Services | 10,425 | 5.9% |
| Software [packaged] | 4,485 | 12.0% |
| Tech Manufacturing | 3,031 | -2.5% |

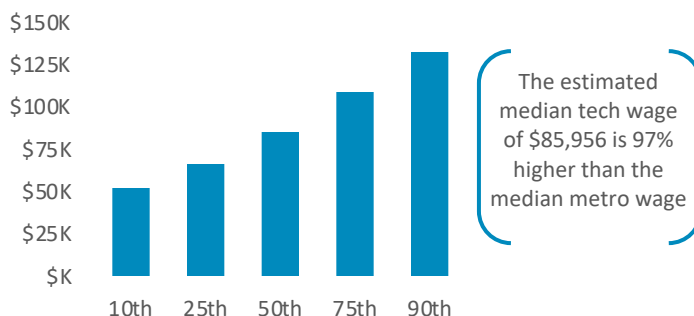
ECONOMIC IMPACT



7.8%

Estimated direct contribution of the tech sector to the Charlotte economy: \$12.4 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Chicago

Full MSA name: Chicago-Naperville-Elgin, IL-IN-WI



STATE OF TECHNOLOGY SUMMARY

344,419 NET TECH EMPLOYMENT¹
 +5,100 NET TECH JOB GAINS [2019 vs. 2018]
 +51,107 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 7.2% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 12,393 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 151,817 TECH OCCUPATION JOB POSTINGS [2019 total]
 19.4% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

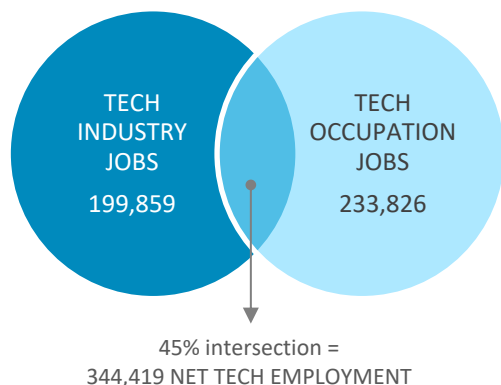
8th NET TECH EMPLOYMENT RANK²

17th NET TECH EMPLOYMENT JOBS ADDED RANK

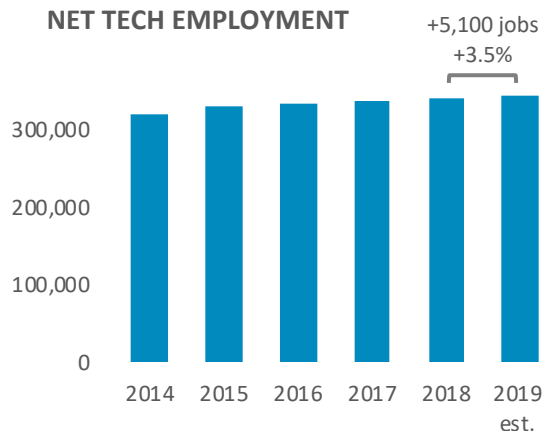
30th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

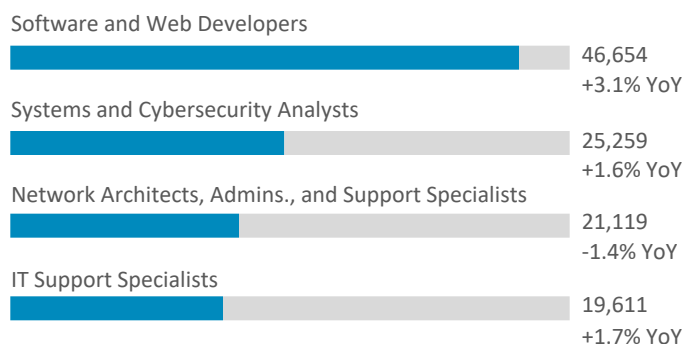
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 85,595 | 2.1% |
| R&D, Testing, and Engineering Services | 42,740 | -0.2% |
| Telecommunications and Internet Services | 41,080 | -0.9% |
| Tech Manufacturing | 25,057 | 0.0% |
| Software [packaged] | 5,387 | 10.6% |

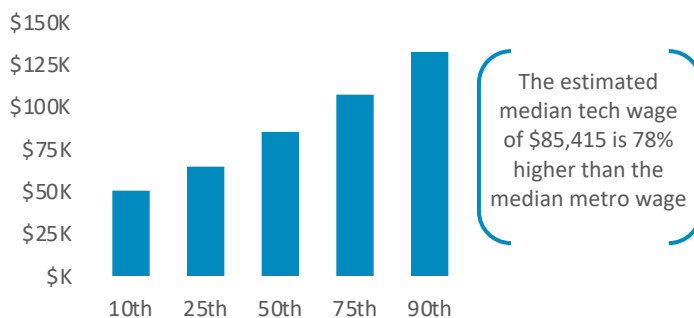
ECONOMIC IMPACT



7.8%

Estimated direct contribution of the tech sector to the Chicago economy: \$50.3 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Cincinnati

Full MSA name: Cincinnati, OH-KY-IN



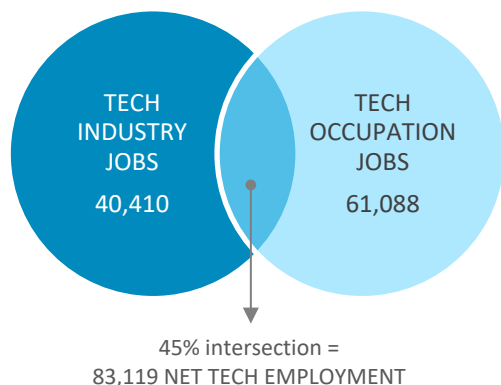
STATE OF TECHNOLOGY SUMMARY

- 83,119 NET TECH EMPLOYMENT¹
- +2,336 NET TECH JOB GAINS [2019 vs. 2018]
- +17,684 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 7.4% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 3,302 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 37,790 TECH OCCUPATION JOB POSTINGS [2019 total]
- 16.8% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

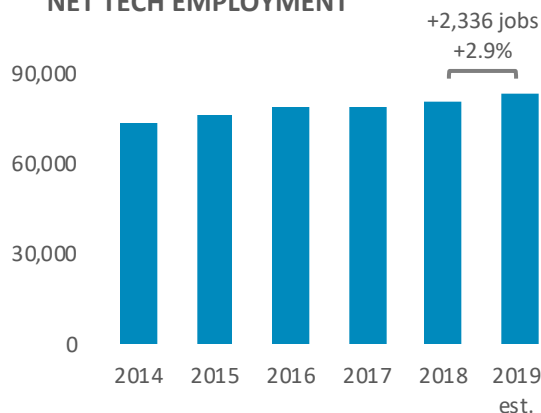
- 29th NET TECH EMPLOYMENT RANK²
- 25th NET TECH EMPLOYMENT JOBS ADDED RANK
- 42nd ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

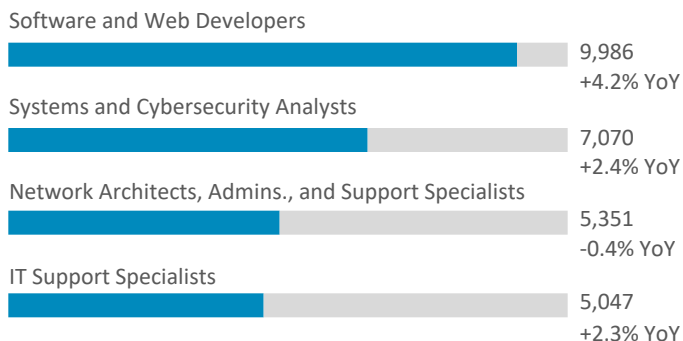
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 16,033 | 2.5% |
| R&D, Testing, and Engineering Services | 11,740 | 3.0% |
| Telecommunications and Internet Services | 6,967 | 3.4% |
| Tech Manufacturing | 3,717 | 2.8% |
| Software [packaged] | 1,953 | 1.9% |

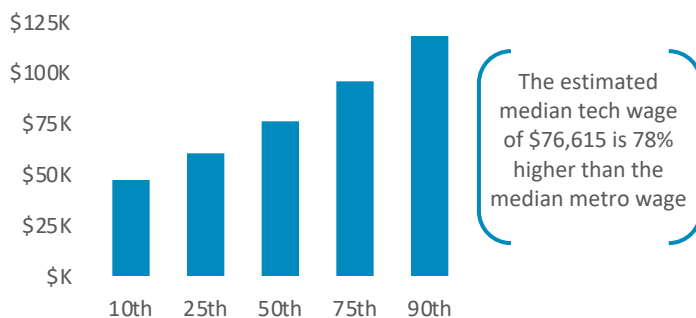
ECONOMIC IMPACT



5.7%

Estimated direct contribution of the tech sector to the Cincinnati economy: \$7.5 billion

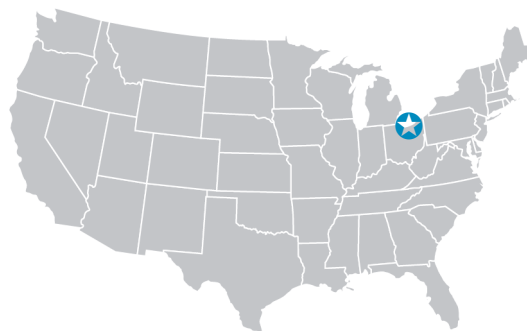
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Cleveland

Full MSA name: Cleveland-Elyria, OH



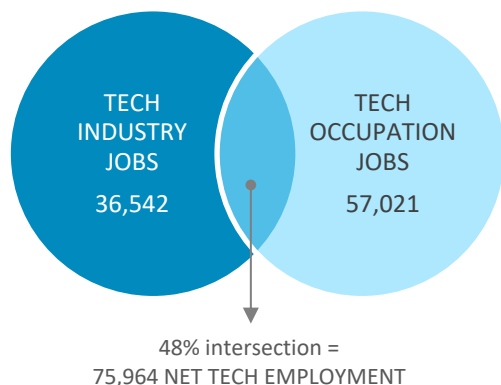
STATE OF TECHNOLOGY SUMMARY

- 75,964 NET TECH EMPLOYMENT¹
- +1,264 NET TECH JOB GAINS [2019 vs. 2018]
- +10,438 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 7.0% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 2,890 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 30,715 TECH OCCUPATION JOB POSTINGS [2019 total]
- 13.7% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

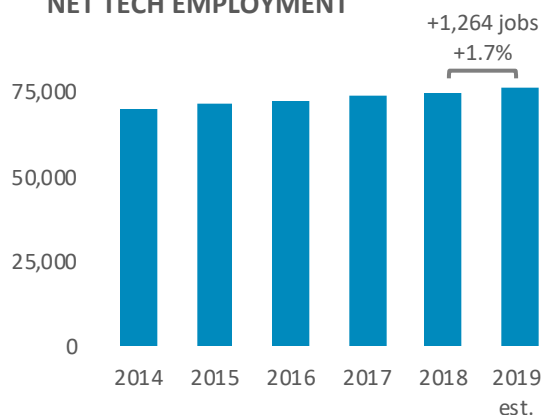
- 31st NET TECH EMPLOYMENT RANK²
- 35th NET TECH EMPLOYMENT JOBS ADDED RANK
- 43rd ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS

| | | |
|--|-------|-----------|
| Software and Web Developers | 9,252 | +4.5% YoY |
| Systems and Cybersecurity Analysts | 7,865 | +2.8% YoY |
| Network Architects, Admins., and Support Specialists | 4,584 | -0.5% YoY |
| IT Support Specialists | 4,304 | +2.4% YoY |

LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 16,100 | 2.2% |
| R&D, Testing, and Engineering Services | 7,913 | -2.0% |
| Tech Manufacturing | 5,925 | 2.3% |
| Telecommunications and Internet Services | 5,174 | -2.7% |
| Software [packaged] | 1,430 | 8.9% |

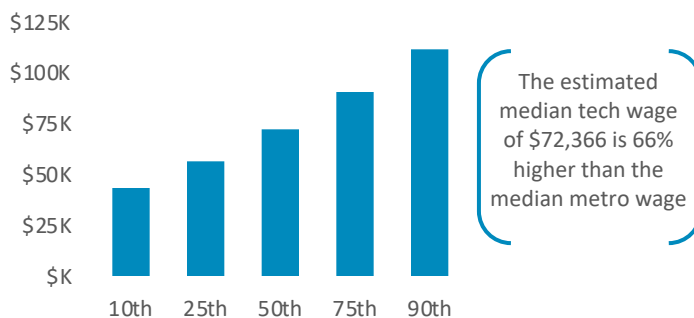
ECONOMIC IMPACT



5.7%

Estimated direct contribution of the tech sector to the Cleveland economy: \$6.9 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Dallas

Full MSA name: Dallas-Fort Worth-Arlington, TX



STATE OF TECHNOLOGY SUMMARY

361,849 NET TECH EMPLOYMENT¹
 +9,932 NET TECH JOB GAINS [2019 vs. 2018]
 +77,607 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 9.5% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 12,209 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 187,465 TECH OCCUPATION JOB POSTINGS [2019 total]
 20.0% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

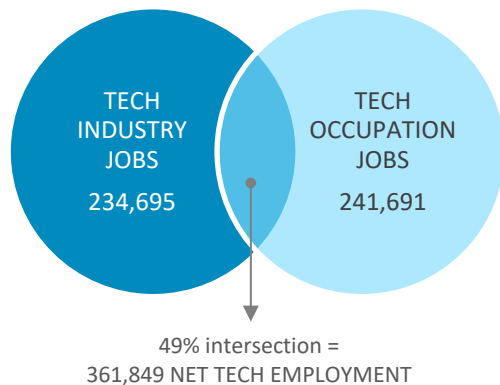
7th NET TECH EMPLOYMENT RANK²

6th NET TECH EMPLOYMENT JOBS ADDED RANK

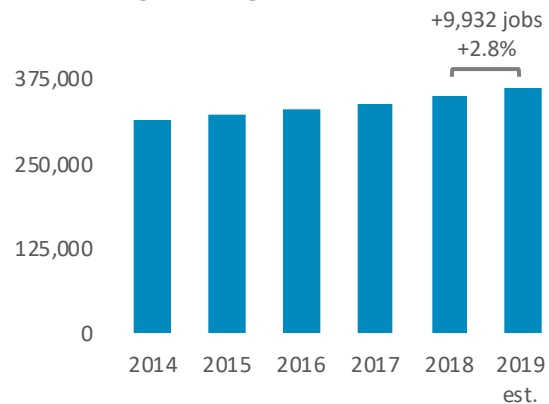
14th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

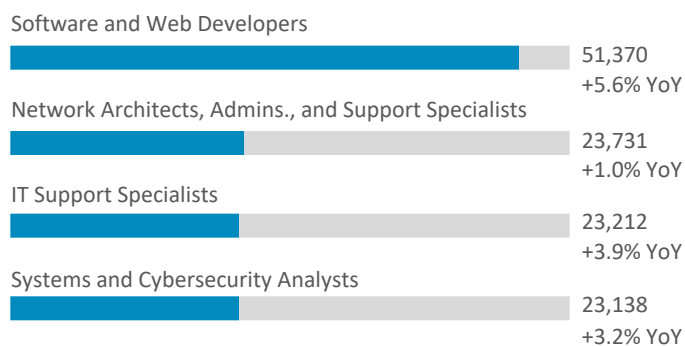
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|---------|--------------|
| IT Services + Custom Software Services | 100,008 | 4.2% |
| Telecommunications and Internet Services | 53,238 | 0.3% |
| Tech Manufacturing | 43,338 | 1.6% |
| R&D, Testing, and Engineering Services | 28,804 | 2.0% |
| Software [packaged] | 9,307 | 0.5% |

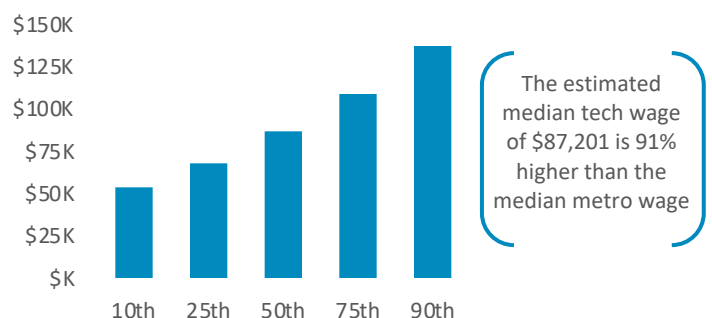
ECONOMIC IMPACT



12.4%

Estimated direct contribution of the tech sector to the Dallas economy: \$62.1 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Denver

Full MSA name: Denver-Aurora-Lakewood, CO



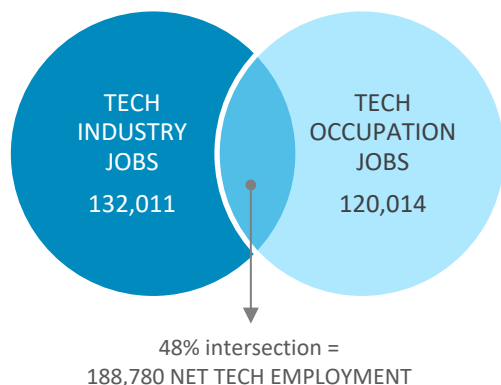
STATE OF TECHNOLOGY SUMMARY

188,780 NET TECH EMPLOYMENT¹
 +7,342 NET TECH JOB GAINS [2019 vs. 2018]
 +48,874 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 11.8% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 10,437 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 89,148 TECH OCCUPATION JOB POSTINGS [2019 total]
 17.1% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

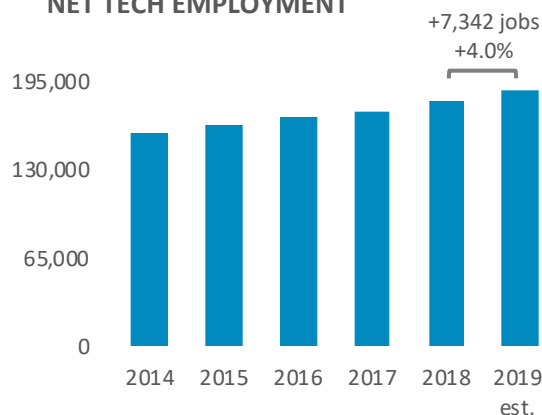
16th NET TECH EMPLOYMENT RANK²
 9th NET TECH EMPLOYMENT JOBS ADDED RANK
 10th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

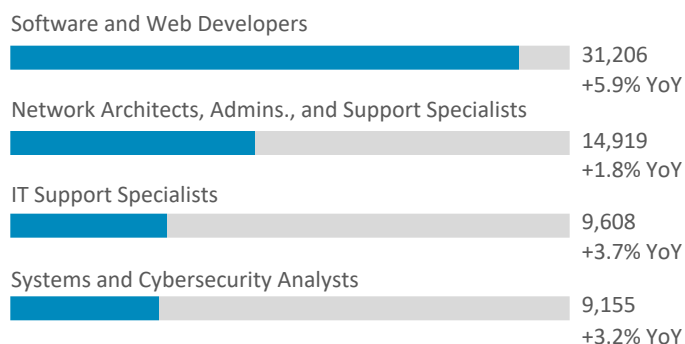
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 47,945 | 4.2% |
| Telecommunications and Internet Services | 32,462 | 3.2% |
| R&D, Testing, and Engineering Services | 29,430 | 1.0% |
| Tech Manufacturing | 12,949 | 1.8% |
| Software [packaged] | 9,224 | 7.1% |

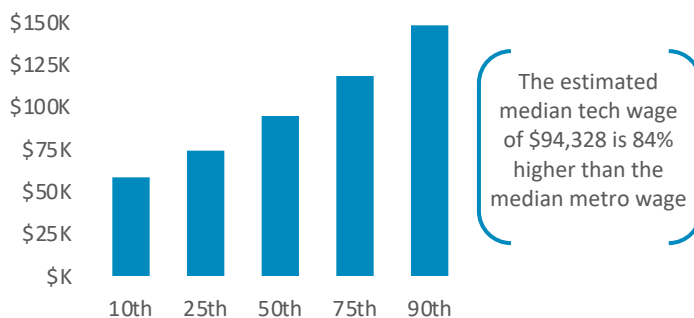
ECONOMIC IMPACT



15.1%

Estimated direct contribution of the tech sector to the Denver economy: \$32.1 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Des Moines

Full MSA name: Des Moines, IA



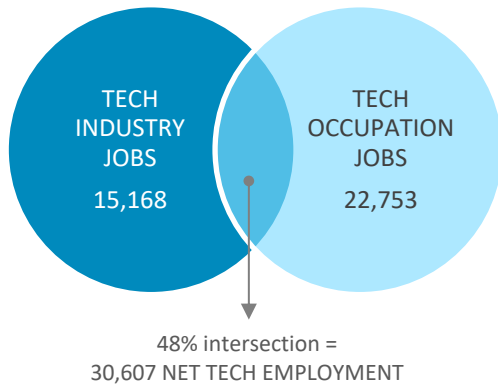
STATE OF TECHNOLOGY SUMMARY

- 30,607 NET TECH EMPLOYMENT¹
- +1,084 NET TECH JOB GAINS [2019 vs. 2018]
- +7,527 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 7.6% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 1,762 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 15,321 TECH OCCUPATION JOB POSTINGS [2019 total]
- 12.5% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

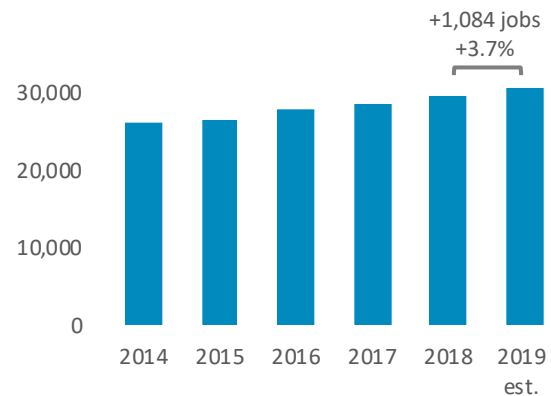
- 45th NET TECH EMPLOYMENT RANK²
- 36th NET TECH EMPLOYMENT JOBS ADDED RANK
- 41st ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

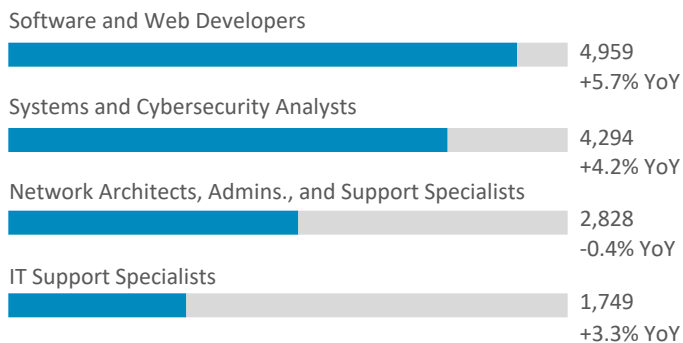
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 6,329 | 3.6% |
| R&D, Testing, and Engineering Services | 3,892 | 3.9% |
| Telecommunications and Internet Services | 3,716 | -1.3% |
| Tech Manufacturing | 916 | 1.6% |
| Software [packaged] | 315 | 17.4% |

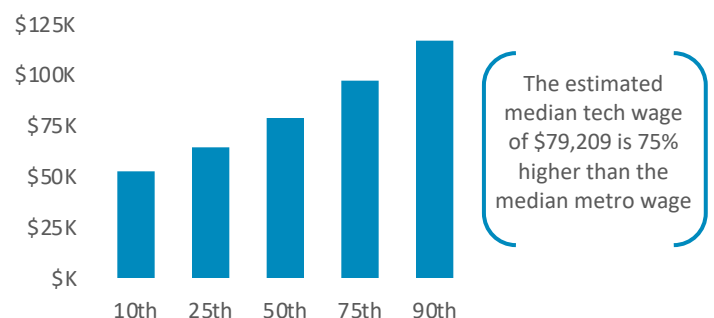
ECONOMIC IMPACT



5.8%

Estimated direct contribution of the tech sector to the Des Moines economy: \$2.7 billion

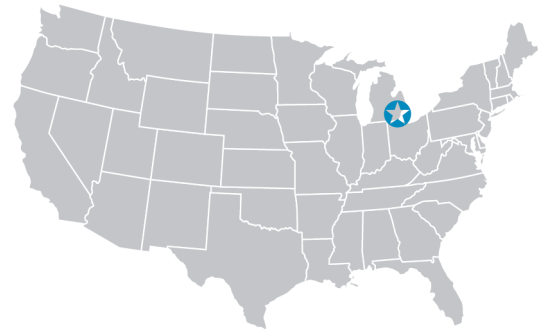
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Detroit

Full MSA name: Detroit-Warren-Dearborn, MI



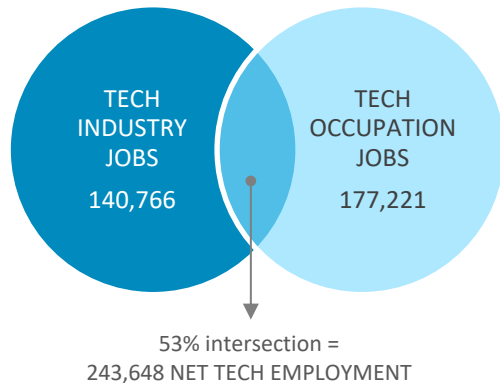
STATE OF TECHNOLOGY SUMMARY

- 243,648 NET TECH EMPLOYMENT¹
- +5,235 NET TECH JOB GAINS [2019 vs. 2018]
- +74,821 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 11.9% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 4,186 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 81,788 TECH OCCUPATION JOB POSTINGS [2019 total]
- 16.4% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

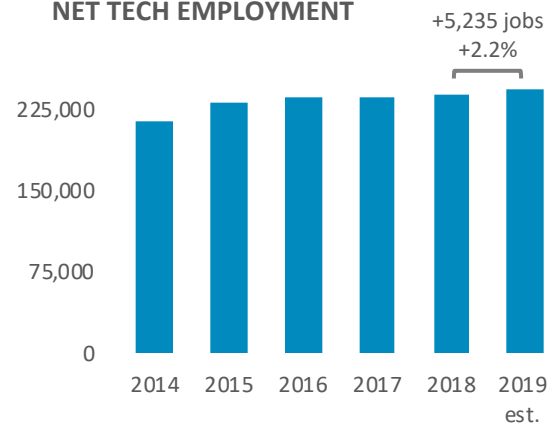
- 11th NET TECH EMPLOYMENT RANK²
- 16th NET TECH EMPLOYMENT JOBS ADDED RANK
- 22nd ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

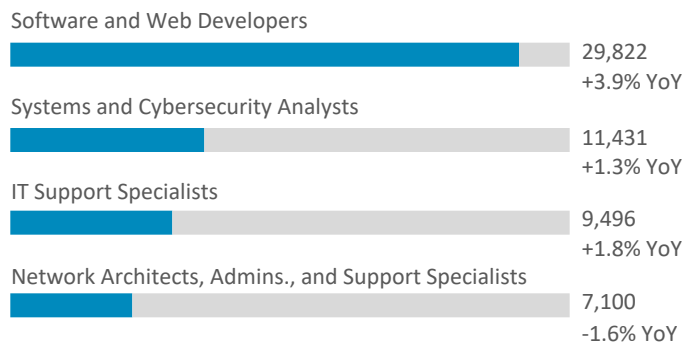
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| R&D, Testing, and Engineering Services | 79,015 | 0.6% |
| IT Services + Custom Software Services | 40,634 | 0.6% |
| Telecommunications and Internet Services | 11,057 | -2.4% |
| Tech Manufacturing | 6,459 | 1.4% |
| Software [packaged] | 3,601 | 3.7% |

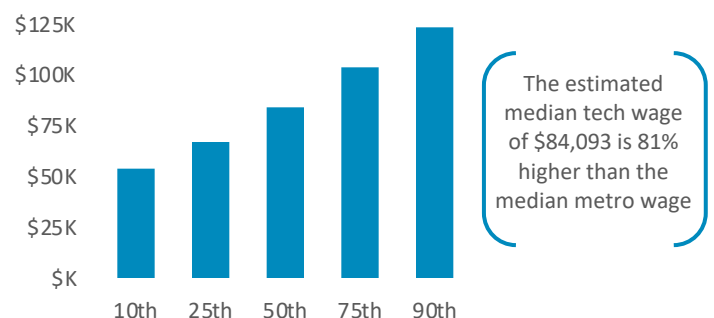
ECONOMIC IMPACT



9.9%

Estimated direct contribution of the tech sector to the Detroit economy: \$24.2 billion

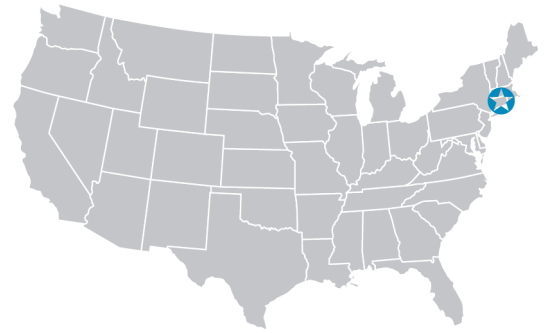
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Hartford

Full MSA name: Hartford-West Hartford-East Hartford, CT



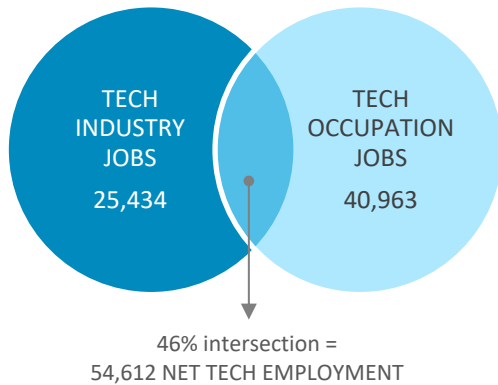
STATE OF TECHNOLOGY SUMMARY

- 54,612 NET TECH EMPLOYMENT¹
- +535 NET TECH JOB GAINS [2019 vs. 2018]
- +6,202 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 8.3% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 2,212 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 22,514 TECH OCCUPATION JOB POSTINGS [2019 total]
- 20.8% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

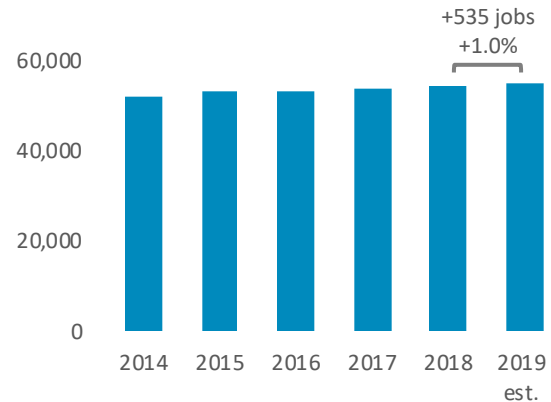
- 37th NET TECH EMPLOYMENT RANK²
- 42nd NET TECH EMPLOYMENT JOBS ADDED RANK
- 44th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

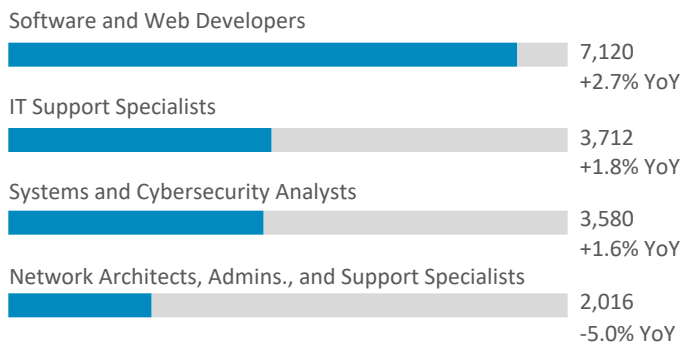
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 11,306 | -0.3% |
| R&D, Testing, and Engineering Services | 6,872 | 2.2% |
| Tech Manufacturing | 3,293 | -1.1% |
| Telecommunications and Internet Services | 2,532 | -7.0% |
| Software [packaged] | 1,431 | -0.8% |

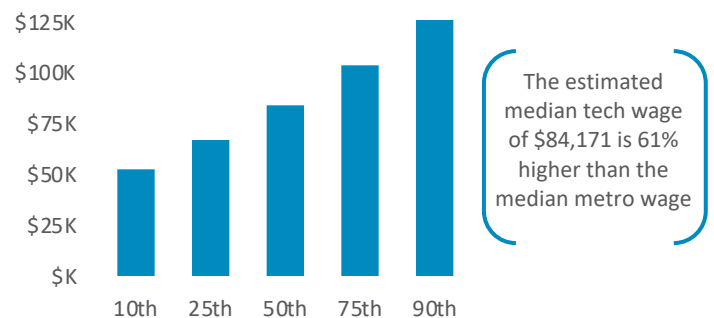
ECONOMIC IMPACT



5.6%

Estimated direct contribution of the tech sector to the Hartford economy: \$5.4 billion

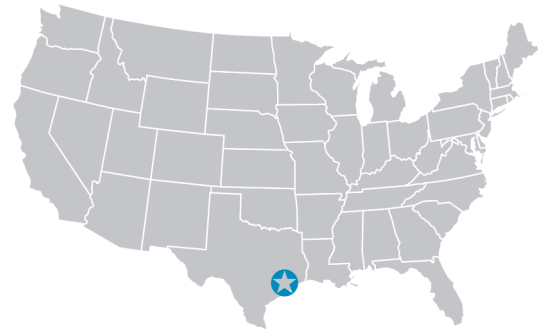
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Houston

Full MSA name: Houston-The Woodlands-Sugar Land, TX



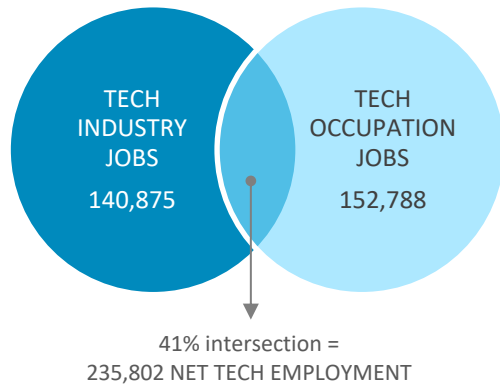
STATE OF TECHNOLOGY SUMMARY

235,802 NET TECH EMPLOYMENT¹
 +826 NET TECH JOB GAINS [2019 vs. 2018]
 +25,904 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 7.2% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 8,798 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 78,588 TECH OCCUPATION JOB POSTINGS [2019 total]
 14.7% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

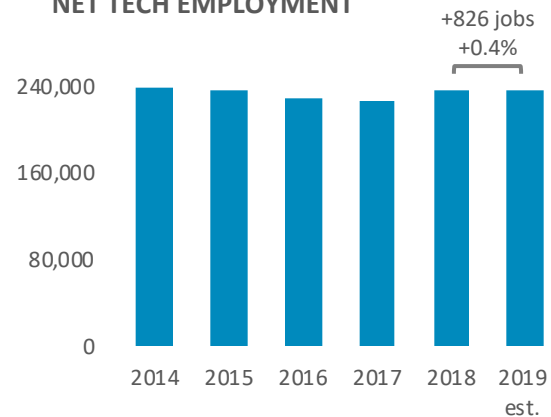
12th NET TECH EMPLOYMENT RANK²
 38th NET TECH EMPLOYMENT JOBS ADDED RANK
 46th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

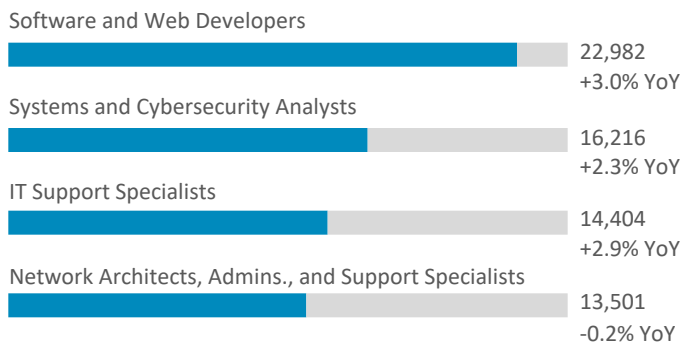
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| R&D, Testing, and Engineering Services | 65,527 | 1.2% |
| IT Services + Custom Software Services | 41,610 | 1.9% |
| Telecommunications and Internet Services | 17,085 | -2.7% |
| Tech Manufacturing | 13,701 | -6.0% |
| Software [packaged] | 2,953 | 6.7% |

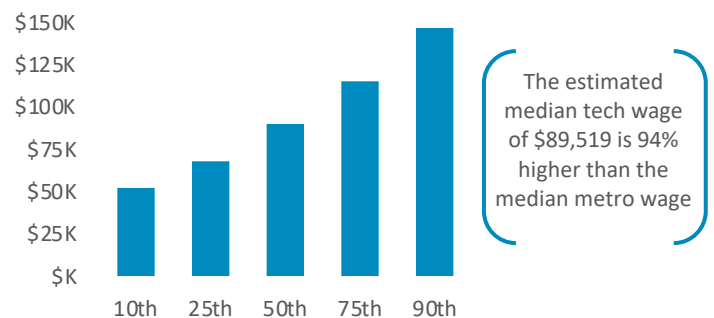
ECONOMIC IMPACT



5.4%

Estimated direct contribution of the tech sector to the Houston economy: \$28.4 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Indianapolis

Full MSA name: Indianapolis-Carmel-Anderson, IN



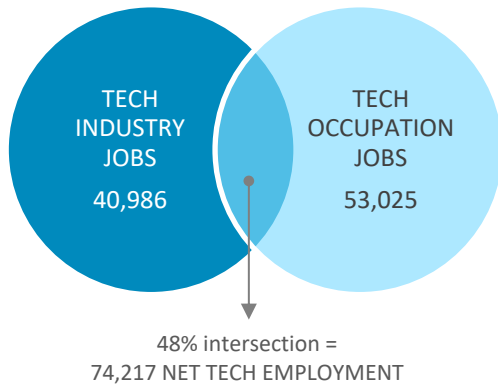
STATE OF TECHNOLOGY SUMMARY

- 74,217 NET TECH EMPLOYMENT¹
- +701 NET TECH JOB GAINS [2019 vs. 2018]
- 14,263 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 6.9% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 2,700 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 31,804 TECH OCCUPATION JOB POSTINGS [2019 total]
- 13.0% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

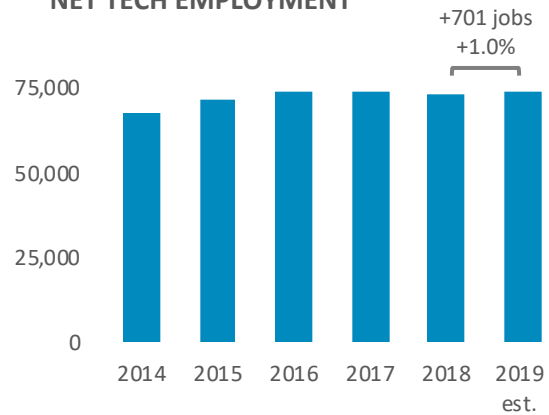
- 32nd NET TECH EMPLOYMENT RANK²
- 39th NET TECH EMPLOYMENT JOBS ADDED RANK
- 33rd ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS

| | | |
|--|-------|-----------|
| Software and Web Developers | 9,309 | +3.1% YoY |
| Systems and Cybersecurity Analysts | 6,466 | +2.5% YoY |
| Network Architects, Admins., and Support Specialists | 5,423 | -0.6% YoY |
| IT Support Specialists | 4,718 | +2.3% YoY |

LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 20,212 | 4.3% |
| R&D, Testing, and Engineering Services | 9,504 | 1.3% |
| Telecommunications and Internet Services | 6,514 | -5.9% |
| Tech Manufacturing | 3,472 | -2.5% |
| Software [packaged] | 1,284 | -7.1% |

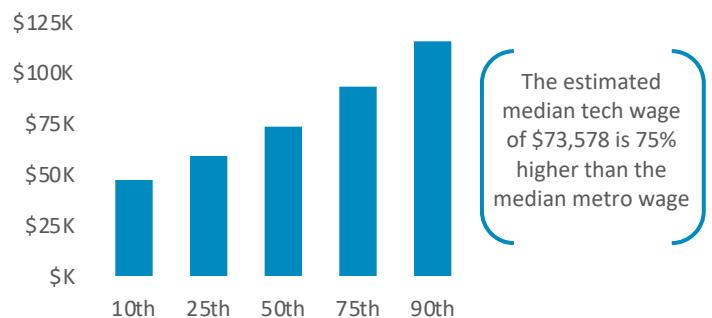
ECONOMIC IMPACT



7.3%

Estimated direct contribution of the tech sector to the Indianapolis economy: \$8.9 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Kansas City

Full MSA name: Kansas City, MO-KS



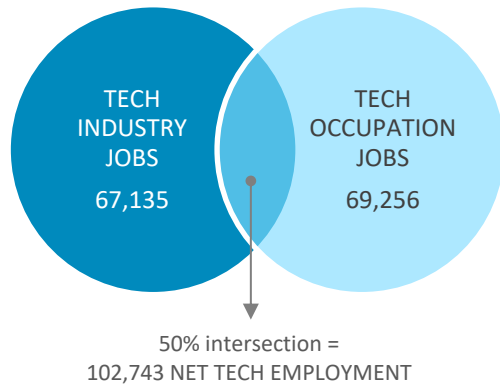
STATE OF TECHNOLOGY SUMMARY

- 102,743 NET TECH EMPLOYMENT¹
- +2,291 NET TECH JOB GAINS [2019 vs. 2018]
- +10,691 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 9.3% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 4,079 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 32,994 TECH OCCUPATION JOB POSTINGS [2019 total]
- 12.2% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

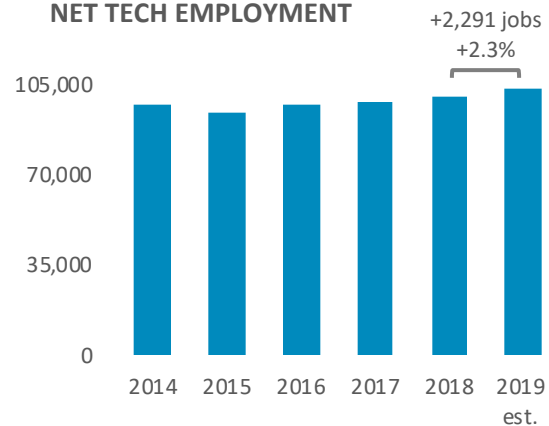
- 25th NET TECH EMPLOYMENT RANK²
- 27th NET TECH EMPLOYMENT JOBS ADDED RANK
- 25th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS

| | | |
|--|--------|-----------|
| Software and Web Developers | 14,976 | +5.4% YoY |
| Systems and Cybersecurity Analysts | 8,537 | +3.7% YoY |
| Network Architects, Admins., and Support Specialists | 8,092 | -0.1% YoY |
| IT Support Specialists | 6,635 | +3.4% YoY |

LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 32,693 | 5.7% |
| R&D, Testing, and Engineering Services | 18,586 | 0.8% |
| Telecommunications and Internet Services | 8,856 | -11.4% |
| Tech Manufacturing | 5,883 | 2.4% |
| Software [packaged] | 1,117 | -4.0% |

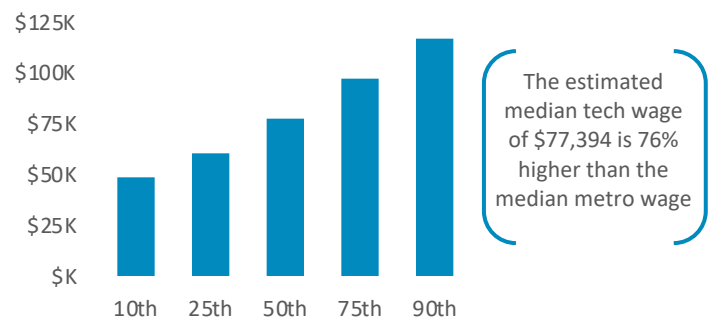
ECONOMIC IMPACT



9.6%

Estimated direct contribution of the tech sector to the Kansas City economy: \$11.7 billion

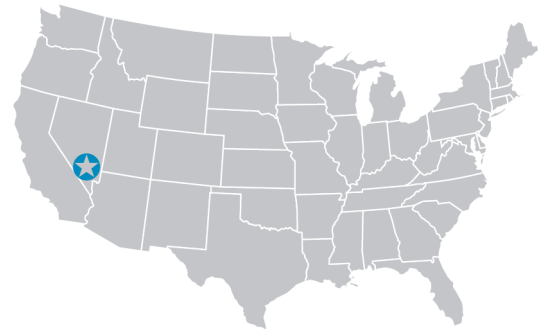
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Las Vegas

Full MSA name: Las Vegas-Henderson-Paradise, NV



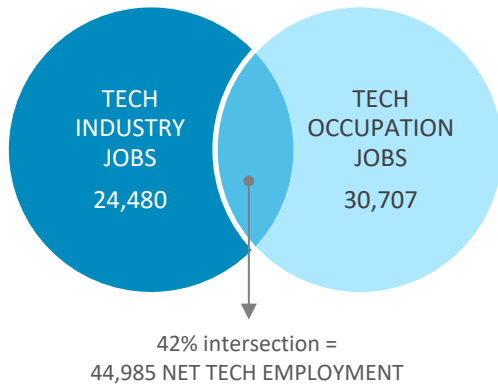
STATE OF TECHNOLOGY SUMMARY

- 44,985 NET TECH EMPLOYMENT¹
- +1,947 NET TECH JOB GAINS [2019 vs. 2018]
- +12,122 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 4.2% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 3,492 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 22,319 TECH OCCUPATION JOB POSTINGS [2019 total]
- 9.9% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

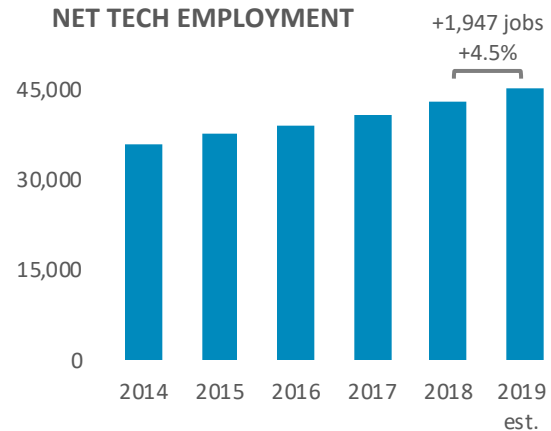
- 39th NET TECH EMPLOYMENT RANK²
- 28th NET TECH EMPLOYMENT JOBS ADDED RANK
- 47th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS

| | | |
|--|-------|-----------|
| Software and Web Developers | 5,288 | +6.7% YoY |
| Network Architects, Admins., and Support Specialists | 3,145 | +3.6% YoY |
| IT Support Specialists | 2,780 | +5.1% YoY |
| Systems and Cybersecurity Analysts | 2,051 | +4.0% YoY |

LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 8,334 | 5.2% |
| R&D, Testing, and Engineering Services | 8,092 | 1.5% |
| Telecommunications and Internet Services | 6,153 | 4.4% |
| Software [packaged] | 1,130 | 9.7% |
| Tech Manufacturing | 771 | 6.3% |

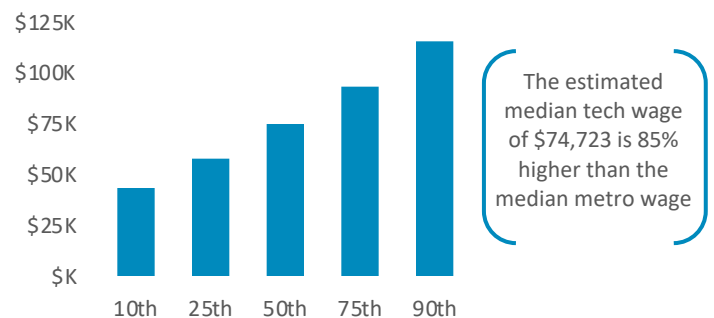
ECONOMIC IMPACT



4.5%

Estimated direct contribution of the tech sector to the Las Vegas economy: \$4.9 billion

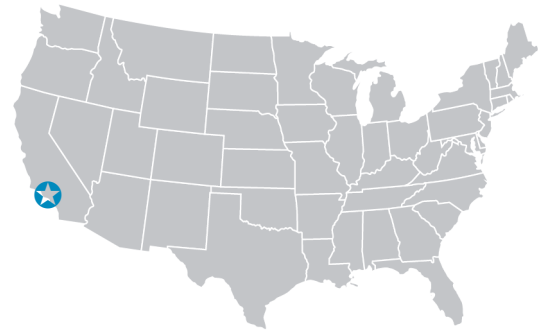
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Los Angeles

Full MSA name: Los Angeles-Long Beach-Anaheim, CA



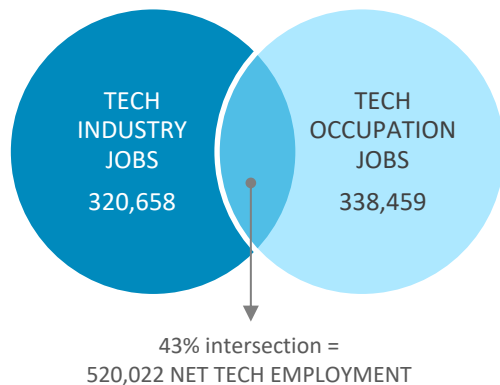
STATE OF TECHNOLOGY SUMMARY

520,022 NET TECH EMPLOYMENT¹
 +8,735 NET TECH JOB GAINS [2019 vs. 2018]
 +57,395 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 7.6% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 17,980 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 249,345 TECH OCCUPATION JOB POSTINGS [2019 total]
 15.6% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

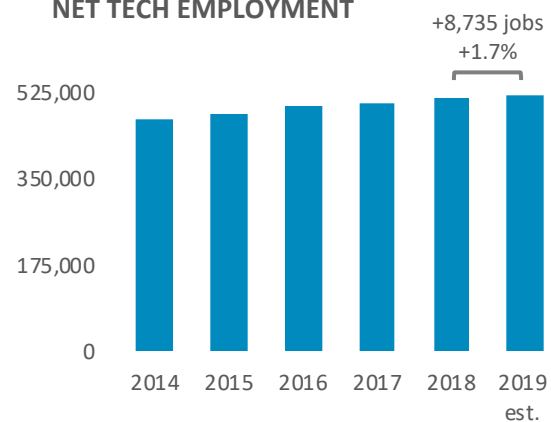
2nd NET TECH EMPLOYMENT RANK²
 7th NET TECH EMPLOYMENT JOBS ADDED RANK
 24th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

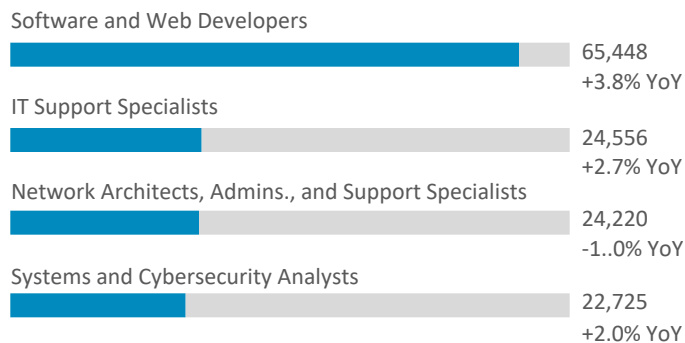
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| Tech Manufacturing | 91,899 | 0.5% |
| IT Services + Custom Software Services | 85,986 | 2.8% |
| R&D, Testing, and Engineering Services | 68,996 | 0.2% |
| Telecommunications and Internet Services | 53,353 | -0.4% |
| Software [packaged] | 20,425 | 9.4% |

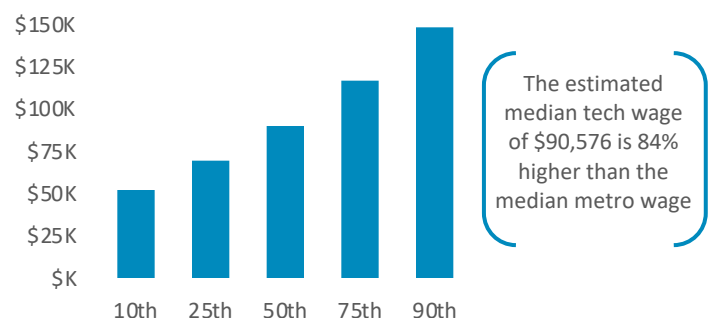
ECONOMIC IMPACT



9.7%

Estimated direct contribution of the tech sector to the Los Angeles economy: \$92.1 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Memphis

Full MSA name: Memphis, TN-MS-AR



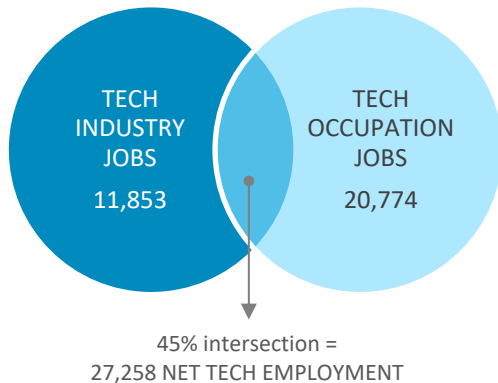
STATE OF TECHNOLOGY SUMMARY

- 27,258 NET TECH EMPLOYMENT¹
- +158 NET TECH JOB GAINS [2019 vs. 2018]
- +2,147 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 4.1% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 1,097 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 15,431 TECH OCCUPATION JOB POSTINGS [2019 total]
- 12.6% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

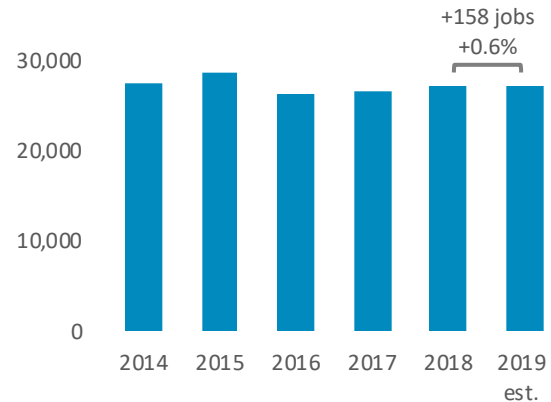
- 48th NET TECH EMPLOYMENT RANK²
- 48th NET TECH EMPLOYMENT JOBS ADDED RANK
- 48th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

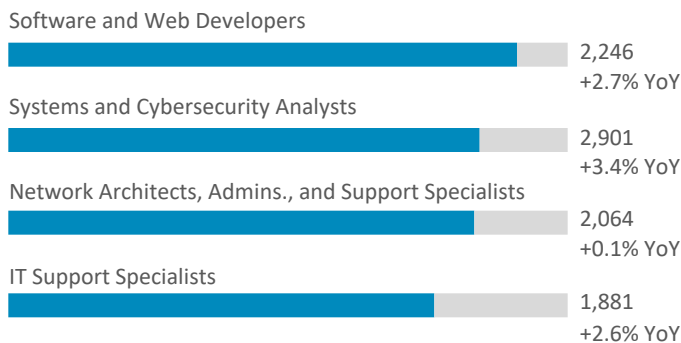
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 5,309 | 2.8% |
| Telecommunications and Internet Services | 2,663 | -3.0% |
| R&D, Testing, and Engineering Services | 2,635 | -8.0% |
| Tech Manufacturing | 829 | 4.0% |
| Software [packaged] | 417 | 5.9% |

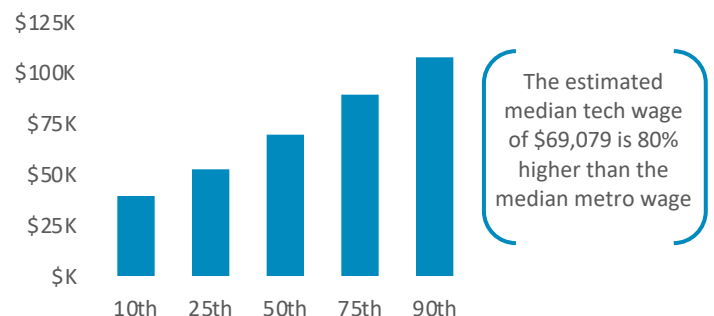
ECONOMIC IMPACT



3.5%

Estimated direct contribution of the tech sector to the Memphis economy: \$2.5 billion

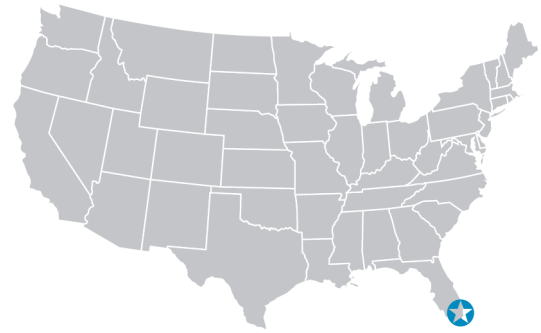
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Miami

Full MSA name: Miami-Fort Lauderdale-West Palm Beach, FL



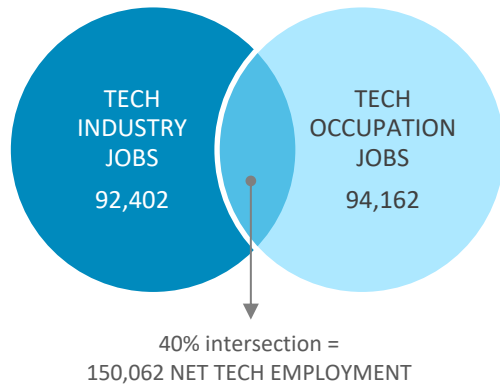
STATE OF TECHNOLOGY SUMMARY

150,062 NET TECH EMPLOYMENT¹
 +3,487 NET TECH JOB GAINS [2019 vs. 2018]
 +26,879 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 5.2% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 9,117 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 64,195 TECH OCCUPATION JOB POSTINGS [2019 total]
 14.2% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

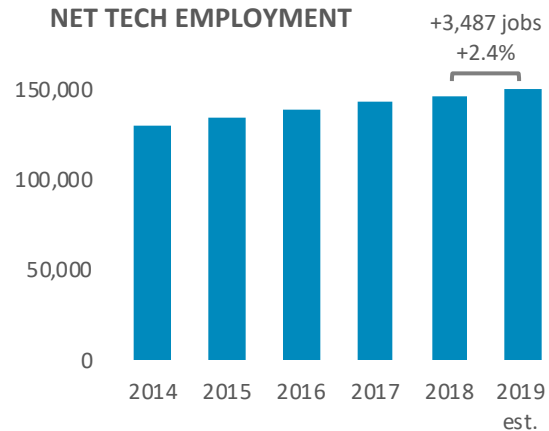
19th NET TECH EMPLOYMENT RANK²
 22nd NET TECH EMPLOYMENT JOBS ADDED RANK
 35th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

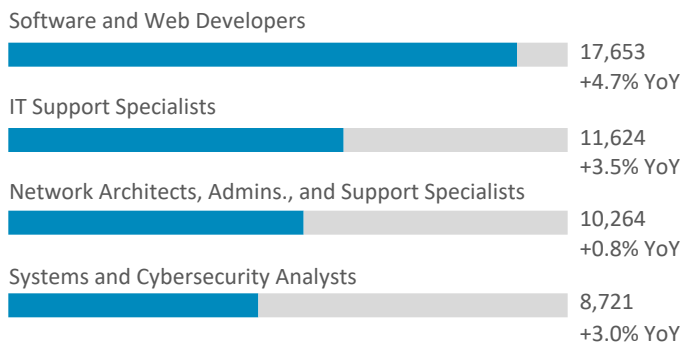
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 34,414 | 2.8% |
| Telecommunications and Internet Services | 24,807 | 1.6% |
| R&D, Testing, and Engineering Services | 21,427 | 3.8% |
| Tech Manufacturing | 6,237 | -6.2% |
| Software [packaged] | 5,517 | 7.1% |

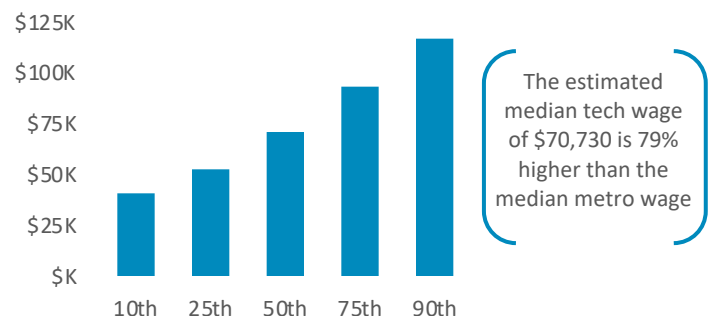
ECONOMIC IMPACT



6.8%

Estimated direct contribution of the tech sector to the Miami economy: \$22.4 billion

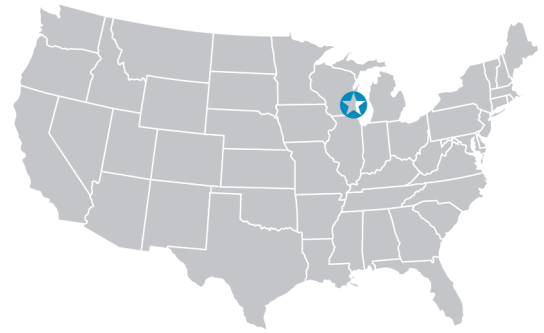
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Milwaukee

Full MSA name: Milwaukee-Waukesha-West Allis, WI



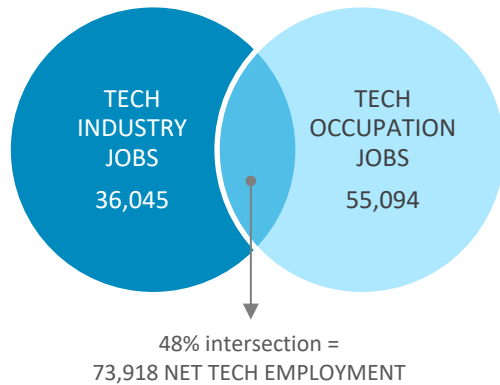
STATE OF TECHNOLOGY SUMMARY

- 73,918 NET TECH EMPLOYMENT¹
- +662 NET TECH JOB GAINS [2019 vs. 2018]
- +7,283 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 8.5% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 1,994 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 34,259 TECH OCCUPATION JOB POSTINGS [2019 total]
- 14.3% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

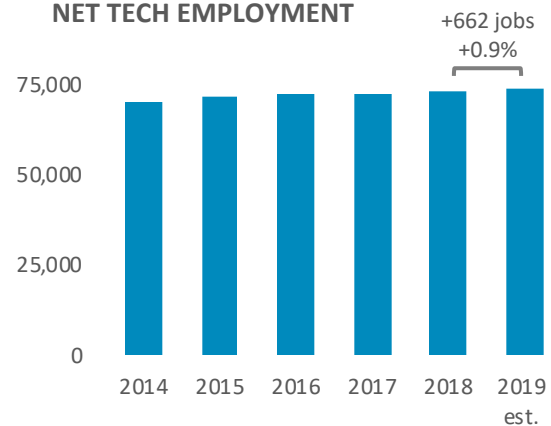
- 33rd NET TECH EMPLOYMENT RANK²
- 40th NET TECH EMPLOYMENT JOBS ADDED RANK
- 27th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

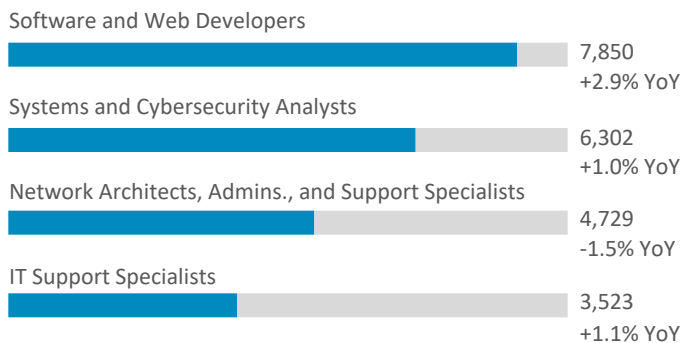
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 12,010 | 1.4% |
| Tech Manufacturing | 8,920 | -1.1% |
| Telecommunications and Internet Services | 7,456 | -2.1% |
| R&D, Testing, and Engineering Services | 6,420 | 5.6% |
| Software [packaged] | 1,240 | -0.2% |

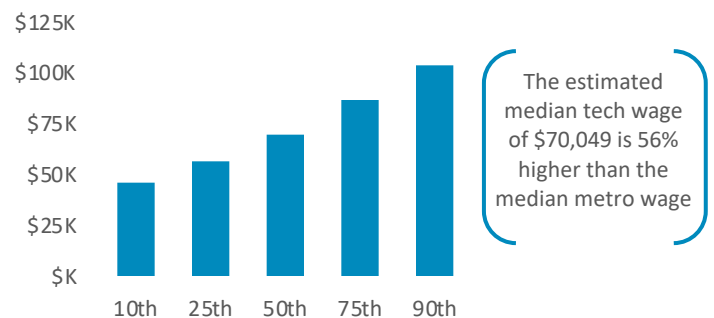
ECONOMIC IMPACT



9.4%

Estimated direct contribution of the tech sector to the Milwaukee economy: \$9.0 billion

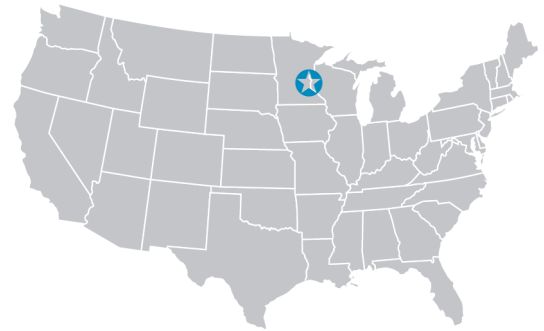
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Minneapolis

Full MSA name: Minneapolis-St. Paul-Bloomington, MN-WI



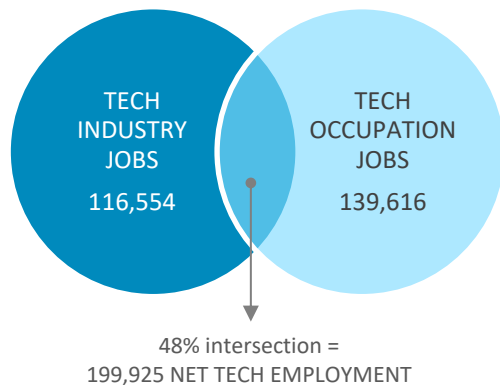
STATE OF TECHNOLOGY SUMMARY

199,925 NET TECH EMPLOYMENT¹
 +4,209 NET TECH JOB GAINS [2019 vs. 2018]
 +33,848 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 9.8% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 5,206 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 79,476 TECH OCCUPATION JOB POSTINGS [2019 total]
 17.1% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

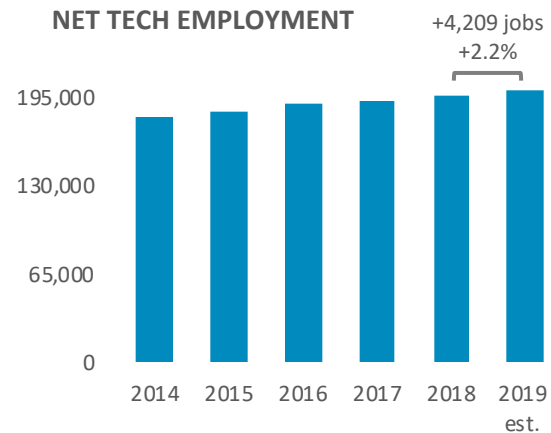
14th NET TECH EMPLOYMENT RANK²
 20th NET TECH EMPLOYMENT JOBS ADDED RANK
 17th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

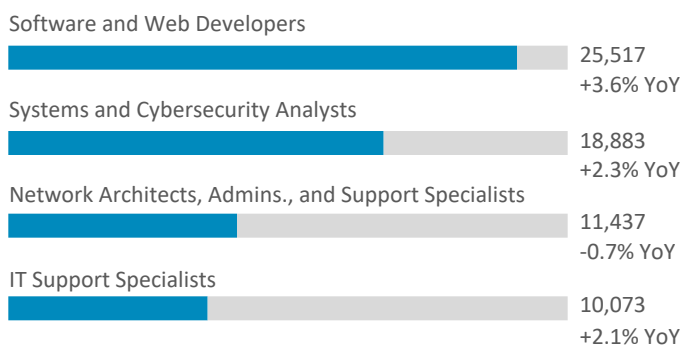
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| Tech Manufacturing | 37,882 | 0.8% |
| IT Services + Custom Software Services | 36,024 | 0.4% |
| R&D, Testing, and Engineering Services | 21,078 | 1.9% |
| Telecommunications and Internet Services | 15,093 | -1.6% |
| Software [packaged] | 6,476 | 4.9% |

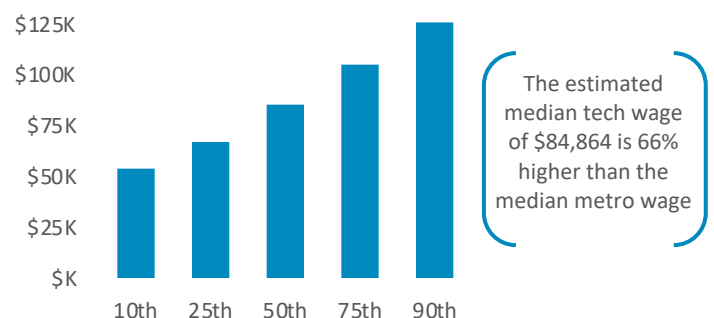
ECONOMIC IMPACT



10.7%

Estimated direct contribution of the tech sector to the Minneapolis economy: \$27.3 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Nashville

Full MSA name: Nashville-Davidson--Murfreesboro--Franklin, TN



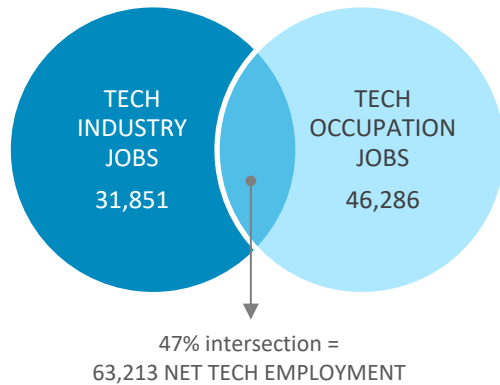
STATE OF TECHNOLOGY SUMMARY

63,213 NET TECH EMPLOYMENT¹
 +1,770 NET TECH JOB GAINS [2019 vs. 2018]
 +17,920 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 6.0% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 3,456 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 31,840 TECH OCCUPATION JOB POSTINGS [2019 total]
 14.2% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

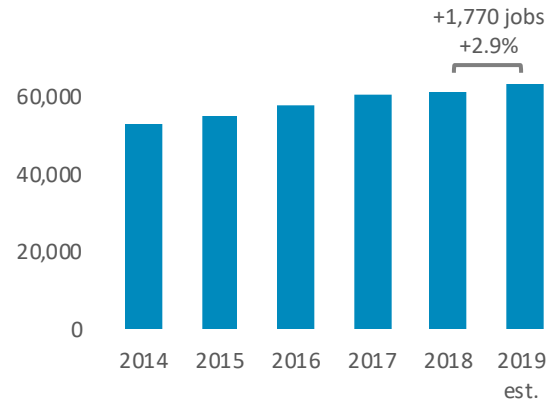
36th NET TECH EMPLOYMENT RANK²
 30th NET TECH EMPLOYMENT JOBS ADDED RANK
 40th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

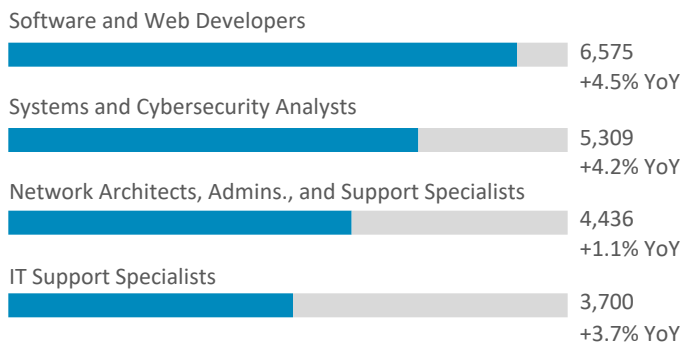
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 13,433 | 4.0% |
| Telecommunications and Internet Services | 8,235 | -0.5% |
| R&D, Testing, and Engineering Services | 6,445 | 3.2% |
| Software [packaged] | 2,039 | 7.3% |
| Tech Manufacturing | 1,700 | 9.1% |

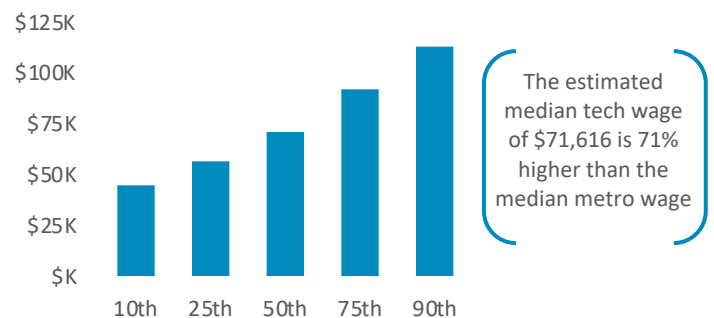
ECONOMIC IMPACT



6.0%

Estimated direct contribution of the tech sector to the Nashville economy: \$7.7 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

New Orleans

Full MSA name: New Orleans-Metairie, LA



STATE OF TECHNOLOGY SUMMARY

25,216 NET TECH EMPLOYMENT¹
 -470 NET TECH JOB GAINS [2019 vs. 2018]
 -2,018 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 4.3% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 2,011 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 10,868 TECH OCCUPATION JOB POSTINGS [2019 total]
 9.5% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

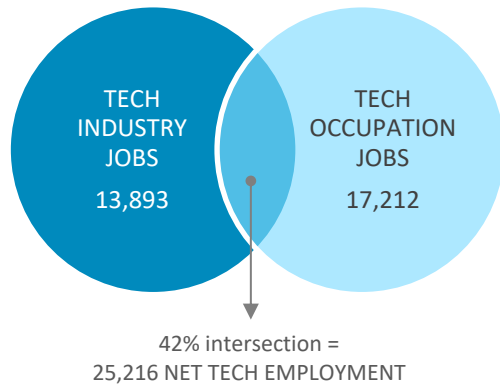
50th NET TECH EMPLOYMENT RANK²

50th NET TECH EMPLOYMENT JOBS ADDED RANK

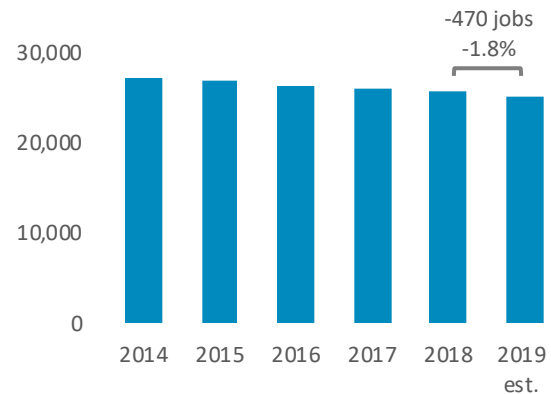
50th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

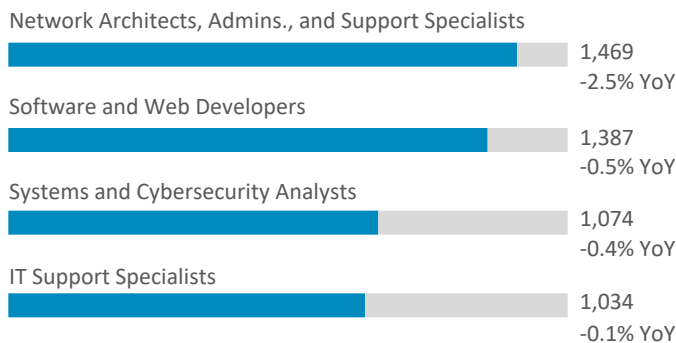
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|-------|--------------|
| R&D, Testing, and Engineering Services | 5,614 | -5.2% |
| IT Services + Custom Software Services | 4,341 | -1.0% |
| Telecommunications and Internet Services | 2,502 | -0.8% |
| Tech Manufacturing | 1,238 | 4.6% |
| Software [packaged] | 198 | 4.5% |

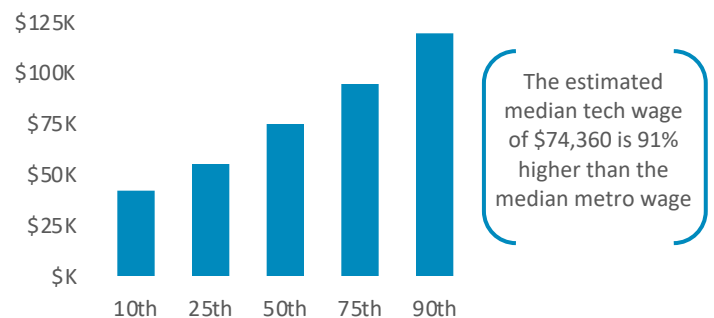
ECONOMIC IMPACT



3.4%

Estimated direct contribution of the tech sector to the New Orleans economy: \$2.5 billion

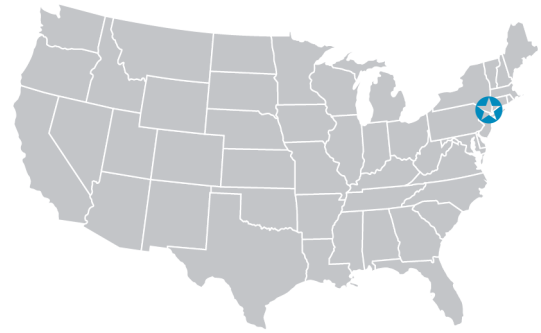
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

New York City

Full MSA name: New York-Newark-Jersey City, NY-NJ-PA



STATE OF TECHNOLOGY SUMMARY

- 680,140 NET TECH EMPLOYMENT¹
- +13,513 NET TECH JOB GAINS [2019 vs. 2018]
- +111,802 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 6.9% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 24,263 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 303,009 TECH OCCUPATION JOB POSTINGS [2019 total]
- 22.1% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

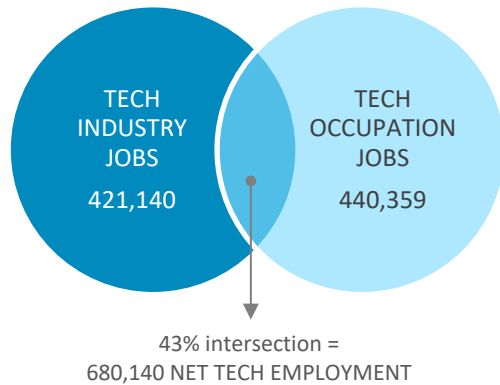
1st NET TECH EMPLOYMENT RANK²

3rd NET TECH EMPLOYMENT GROWTH RANK

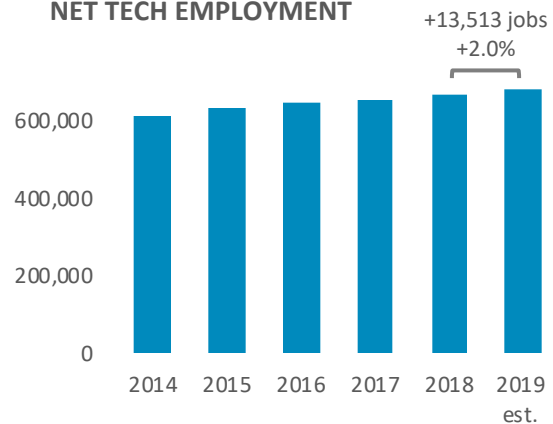
28th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS

| | |
|--|----------------------|
| Software and Web Developers | 112,846 +3.8% YoY |
| Systems and Cybersecurity Analysts | 50,409 +2.1% YoY |
| Network Architects, Admins., and Support Specialists | 49,496 -1.0% YoY |
| IT Support Specialists | 41,476 +2.5% YoY |

LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|---------|--------------|
| IT Services + Custom Software Services | 160,977 | 1.1% |
| Telecommunications and Internet Services | 112,431 | 2.9% |
| R&D, Testing, and Engineering Services | 95,285 | 1.5% |
| Tech Manufacturing | 34,852 | 0.4% |
| Software [packaged] | 17,594 | 13.0% |

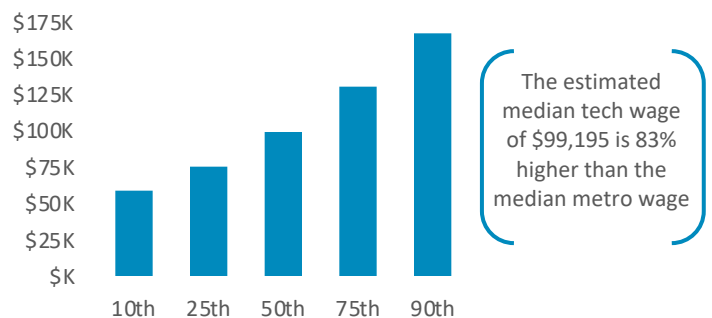
ECONOMIC IMPACT



8.6%

Estimated direct contribution of the tech sector to the New York City economy: \$140.5 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Oklahoma City

Full MSA name: Oklahoma City, OK



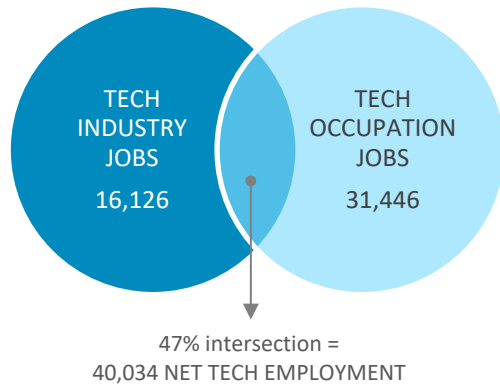
STATE OF TECHNOLOGY SUMMARY

- 40,034 NET TECH EMPLOYMENT¹
- +587 NET TECH JOB GAINS [2019 vs. 2018]
- +1,980 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 6.0% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 1,829 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 16,528 TECH OCCUPATION JOB POSTINGS [2019 total]
- 8.4% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

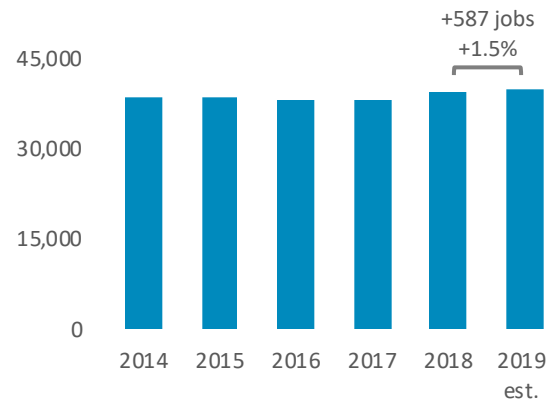
- 40th NET TECH EMPLOYMENT RANK²
- 41st NET TECH EMPLOYMENT JOBS ADDED RANK
- 49th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

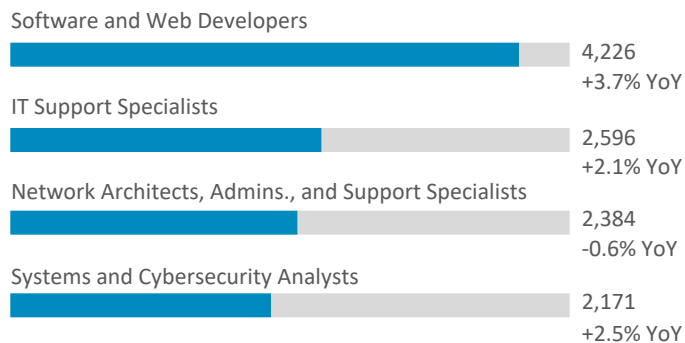
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 6,039 | 1.2% |
| R&D, Testing, and Engineering Services | 4,527 | 3.0% |
| Telecommunications and Internet Services | 3,284 | -7.2% |
| Tech Manufacturing | 1,646 | -3.7% |
| Software [packaged] | 629 | 11.9% |

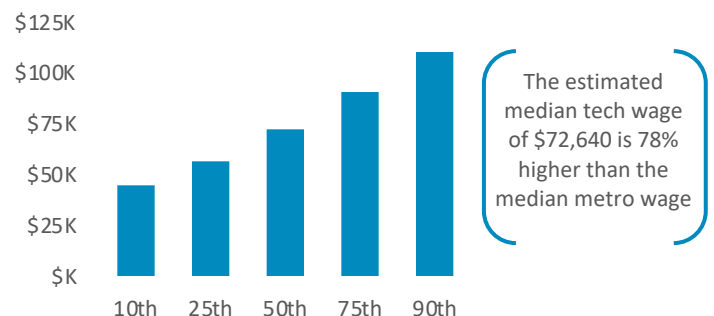
ECONOMIC IMPACT



3.4%

Estimated direct contribution of the tech sector to the Oklahoma City economy: \$2.5 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Omaha

Full MSA name: Omaha-Council Bluffs, NE-IA



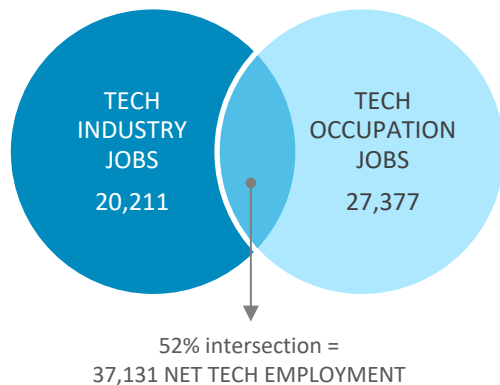
STATE OF TECHNOLOGY SUMMARY

- 37,131 NET TECH EMPLOYMENT¹
- +174 NET TECH JOB GAINS [2019 vs. 2018]
- +3,278 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 7.3% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 1,337 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 16,704 TECH OCCUPATION JOB POSTINGS [2019 total]
- 12.1% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

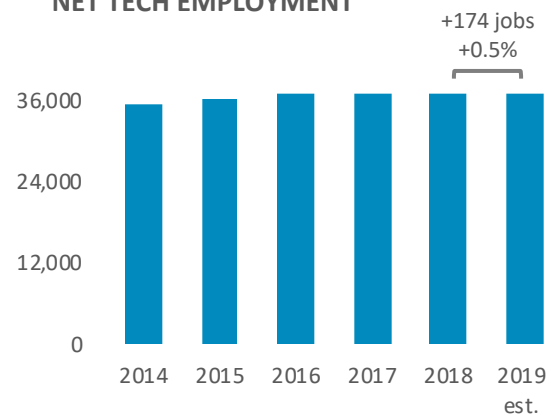
- 43rd NET TECH EMPLOYMENT RANK²
- 47th NET TECH EMPLOYMENT JOBS ADDED RANK
- 34th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

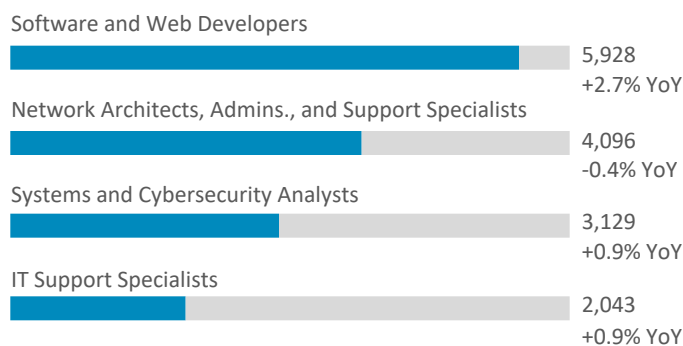
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



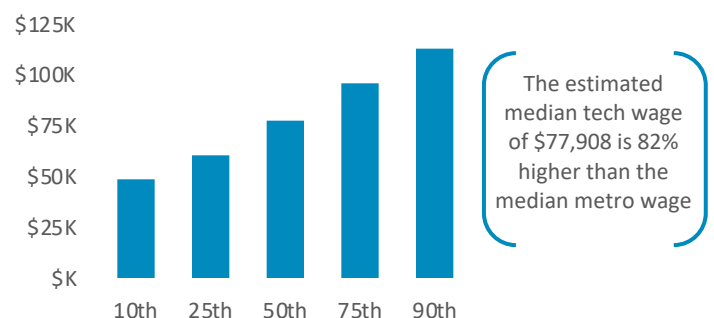
LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 9,018 | -0.4% |
| Telecommunications and Internet Services | 6,482 | -0.1% |
| R&D, Testing, and Engineering Services | 3,690 | 0.0% |
| Tech Manufacturing | 752 | 4.1% |
| Software [packaged] | 269 | 5.6% |

ECONOMIC IMPACT



TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Orlando

Full MSA name: Orlando-Kissimmee-Sanford, FL



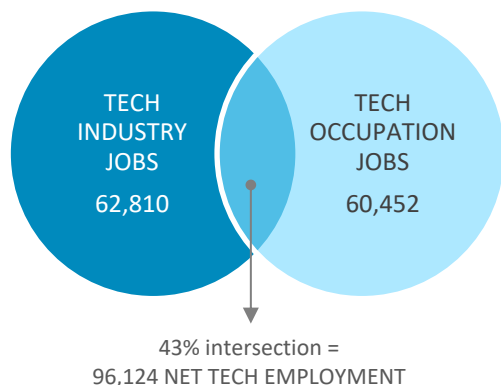
STATE OF TECHNOLOGY SUMMARY

96,124 NET TECH EMPLOYMENT¹
 +4,309 NET TECH JOB GAINS [2019 vs. 2018]
 +22,373 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 7.2% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 3,676 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 36,120 TECH OCCUPATION JOB POSTINGS [2019 total]
 14.4% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

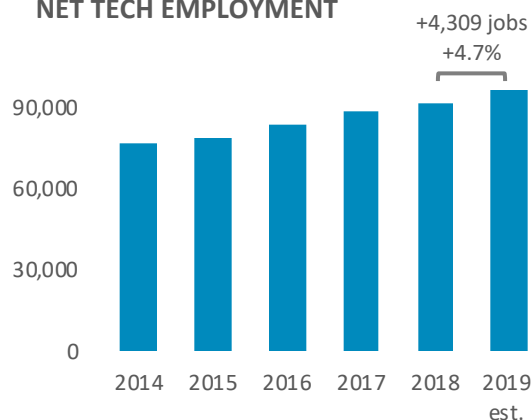
28th NET TECH EMPLOYMENT RANK²
 19th NET TECH EMPLOYMENT JOBS ADDED RANK
 21st ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

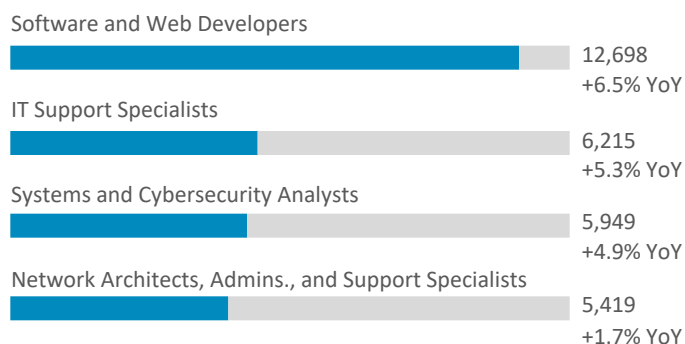
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 20,634 | 5.4% |
| R&D, Testing, and Engineering Services | 15,736 | 2.5% |
| Telecommunications and Internet Services | 12,845 | 0.2% |
| Tech Manufacturing | 9,898 | 5.1% |
| Software [packaged] | 3,698 | 7.9% |

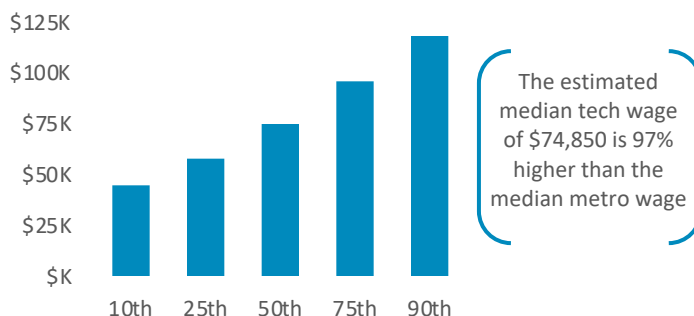
ECONOMIC IMPACT



10.2%

Estimated direct contribution of the tech sector to the Orlando economy: \$13.2 billion

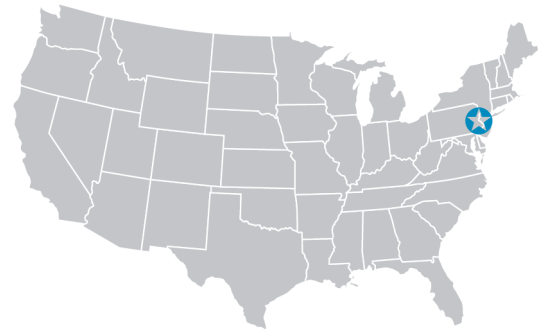
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Philadelphia

Full MSA name: Philadelphia-Camden-Wilmington, PA-NJ-DE-MD



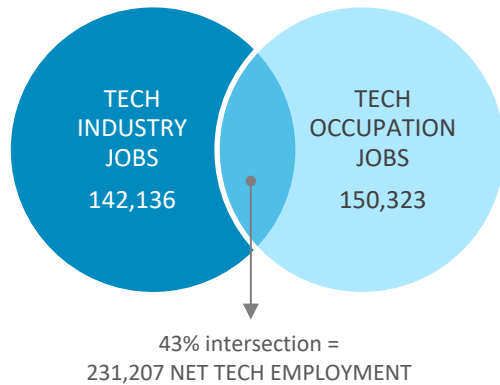
STATE OF TECHNOLOGY SUMMARY

- 231,207 NET TECH EMPLOYMENT¹
- +2,323 NET TECH JOB GAINS [2019 vs. 2018]
- +9,598 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 7.8% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 8,619 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 95,469 TECH OCCUPATION JOB POSTINGS [2019 total]
- 19.1% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

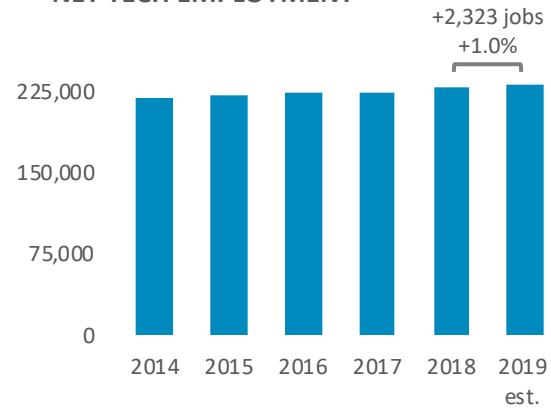
- 13th NET TECH EMPLOYMENT RANK²
- 26th NET TECH EMPLOYMENT JOBS ADDED RANK
- 23rd ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS

| | | |
|--|--------|-----------|
| Software and Web Developers | 29,598 | +3.3% YoY |
| Network Architects, Admins., and Support Specialists | 14,174 | -1.5% YoY |
| Systems and Cybersecurity Analysts | 14,113 | +0.6% YoY |
| IT Support Specialists | 12,388 | +1.3% YoY |

LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| R&D, Testing, and Engineering Services | 50,517 | 2.5% |
| IT Services + Custom Software Services | 41,752 | -2.1% |
| Telecommunications and Internet Services | 23,511 | -0.9% |
| Tech Manufacturing | 19,861 | 0.3% |
| Software [packaged] | 6,496 | 17.0% |

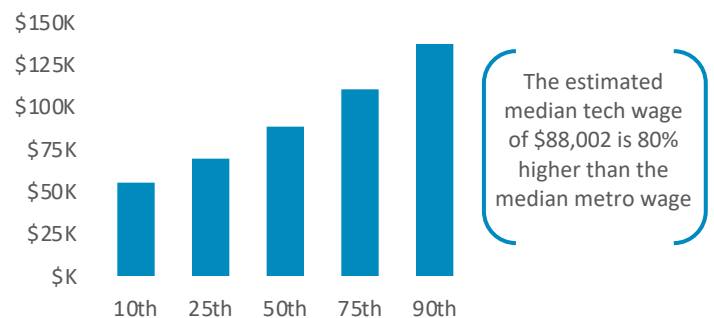
ECONOMIC IMPACT



9.7%

Estimated direct contribution of the tech sector to the Philadelphia economy: \$39.5 billion

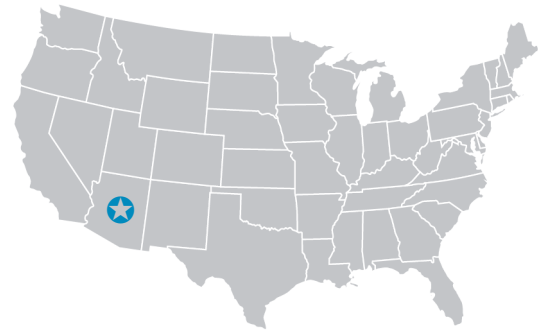
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Phoenix

Full MSA name: Phoenix-Mesa-Scottsdale, AZ



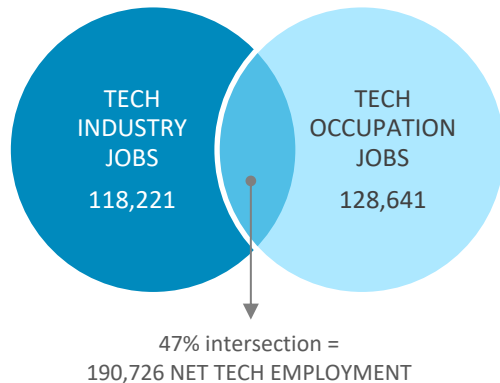
STATE OF TECHNOLOGY SUMMARY

190,726 NET TECH EMPLOYMENT¹
 +5,551 NET TECH JOB GAINS [2019 vs. 2018]
 +42,677 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 8.5% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 7,260 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 89,582 TECH OCCUPATION JOB POSTINGS [2019 total]
 17.2% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

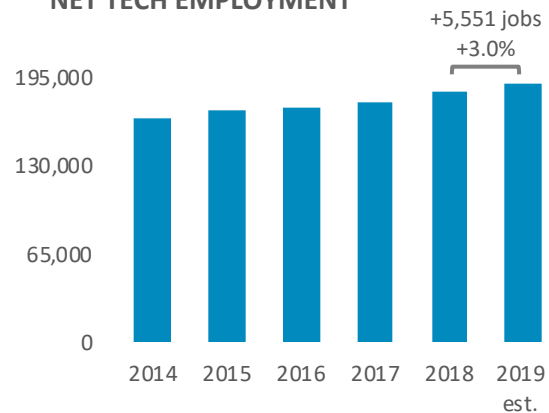
15th NET TECH EMPLOYMENT RANK²
 14th NET TECH EMPLOYMENT JOBS ADDED RANK
 18th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

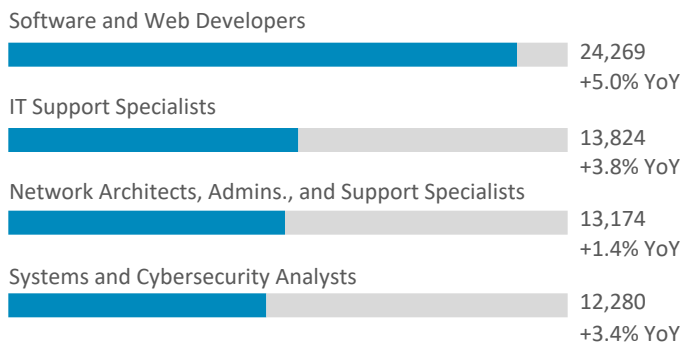
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 38,089 | 3.4% |
| Tech Manufacturing | 31,653 | -0.1% |
| Telecommunications and Internet Services | 26,779 | 4.1% |
| R&D, Testing, and Engineering Services | 18,953 | 2.7% |
| Software [packaged] | 2,747 | 7.5% |

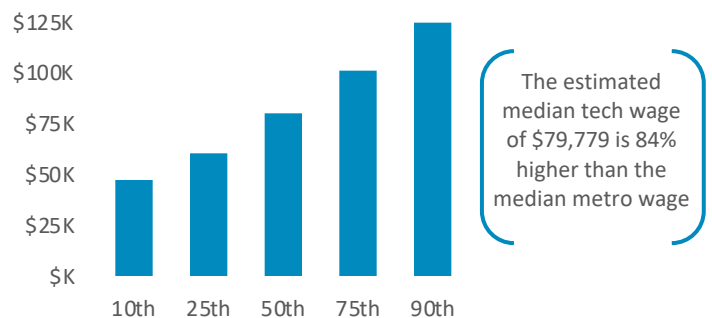
ECONOMIC IMPACT



10.6%

Estimated direct contribution of the tech sector to the Phoenix economy: \$25.8 billion

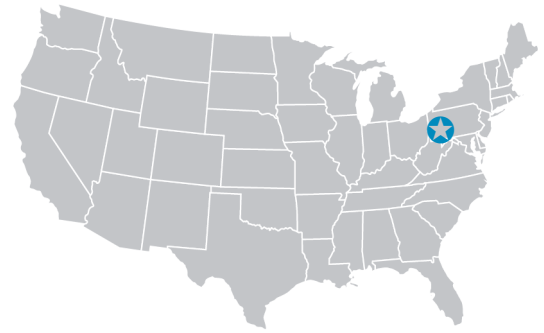
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Pittsburgh

Full MSA name: Pittsburgh, PA



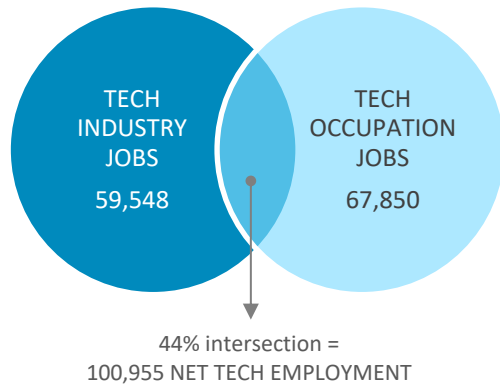
STATE OF TECHNOLOGY SUMMARY

100,955 NET TECH EMPLOYMENT¹
 +1,934 NET TECH JOB GAINS [2019 vs. 2018]
 +16,167 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 8.5% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 2,465 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 36,483 TECH OCCUPATION JOB POSTINGS [2019 total]
 20.9% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

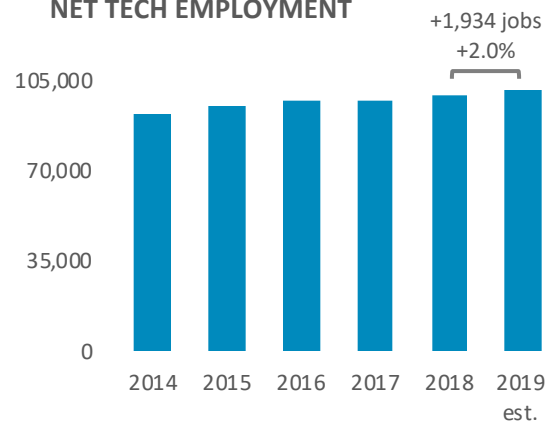
26th NET TECH EMPLOYMENT RANK²
 29th NET TECH EMPLOYMENT JOBS ADDED RANK
 26th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

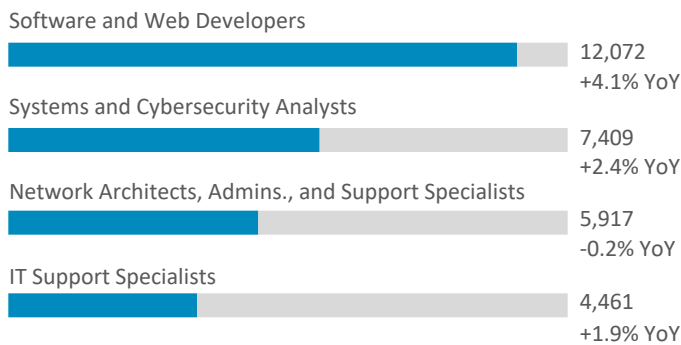
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| R&D, Testing, and Engineering Services | 22,025 | -0.5% |
| IT Services + Custom Software Services | 17,344 | 2.2% |
| Tech Manufacturing | 8,991 | 3.3% |
| Telecommunications and Internet Services | 8,654 | 2.3% |
| Software [packaged] | 2,534 | 8.5% |

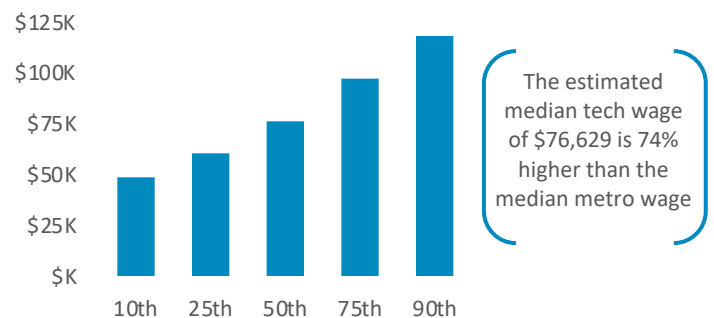
ECONOMIC IMPACT



9.6%

Estimated direct contribution of the tech sector to the Pittsburgh economy: \$13.6 billion

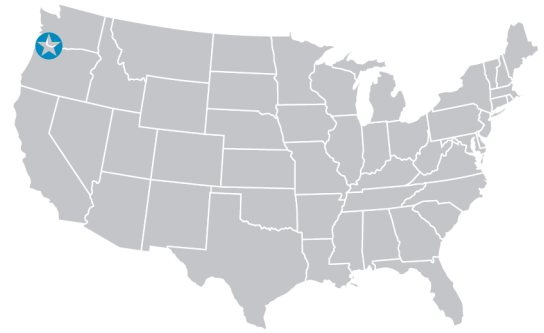
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Portland

Full MSA name: Portland-Vancouver-Hillsboro, OR-WA



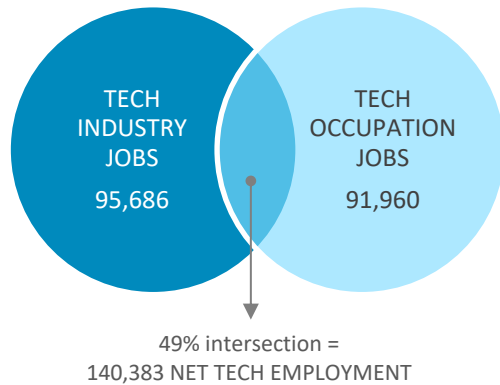
STATE OF TECHNOLOGY SUMMARY

140,383 NET TECH EMPLOYMENT¹
 +4,320 NET TECH JOB GAINS [2019 vs. 2018]
 +35,515 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 10.8% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 5,927 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 47,302 TECH OCCUPATION JOB POSTINGS [2019 total]
 16.7% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

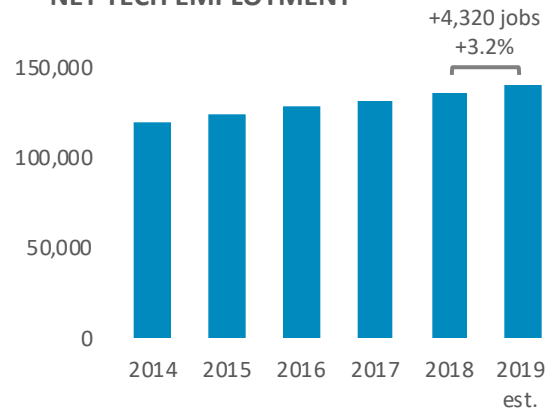
20th NET TECH EMPLOYMENT RANK²
 18th NET TECH EMPLOYMENT JOBS ADDED RANK
 8th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

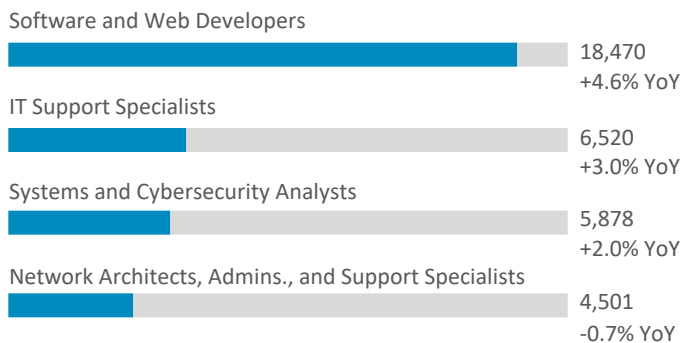
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| Tech Manufacturing | 41,083 | 2.1% |
| IT Services + Custom Software Services | 21,312 | 3.7% |
| R&D, Testing, and Engineering Services | 14,244 | 3.9% |
| Telecommunications and Internet Services | 10,206 | 1.3% |
| Software [packaged] | 8,841 | 3.9% |

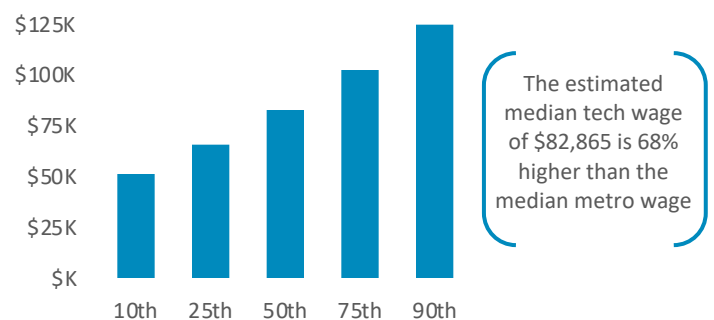
ECONOMIC IMPACT



15.8%

Estimated direct contribution of the tech sector to the Portland economy: \$24.1 billion

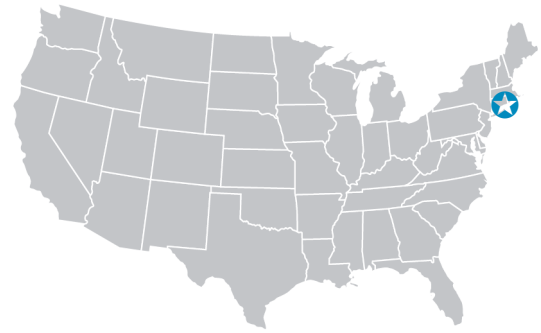
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Providence

Full MSA name: Providence-Warwick, RI



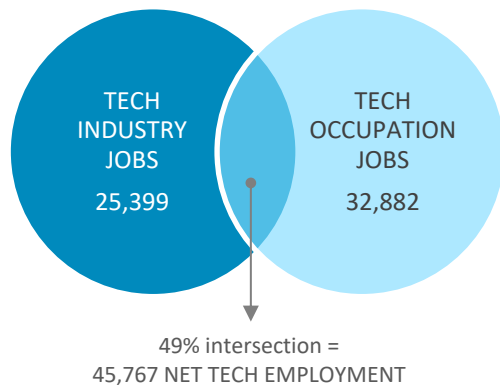
STATE OF TECHNOLOGY SUMMARY

- 45,767 NET TECH EMPLOYMENT¹
- +313 NET TECH JOB GAINS [2019 vs. 2018]
- +1,585 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 6.1% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 2,439 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 11,741 TECH OCCUPATION JOB POSTINGS [2019 total]
- 14.9% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

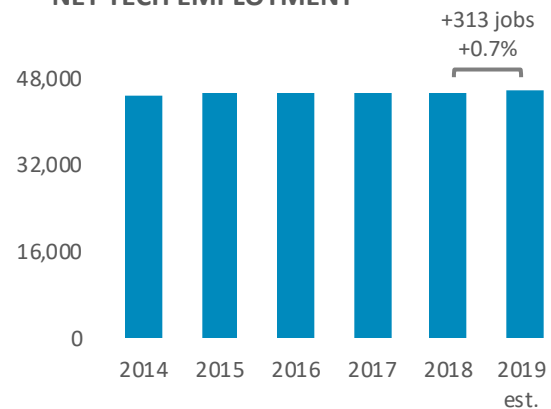
- 38th NET TECH EMPLOYMENT RANK²
- 44th NET TECH EMPLOYMENT JOBS ADDED RANK
- 36th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS

| | | |
|--|-------|-----------|
| Software and Web Developers | 4,396 | +1.6% YoY |
| Network Architects, Admins., and Support Specialists | 3,659 | -1.1% YoY |
| Systems and Cybersecurity Analysts | 2,583 | +1.0% YoY |
| IT Support Specialists | 1,939 | +0.5% YoY |

LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|-------|--------------|
| IT Services + Custom Software Services | 8,776 | 3.2% |
| R&D, Testing, and Engineering Services | 6,547 | 2.7% |
| Tech Manufacturing | 5,378 | 1.9% |
| Telecommunications and Internet Services | 3,625 | -10.6% |
| Software [packaged] | 1,073 | -4.9% |

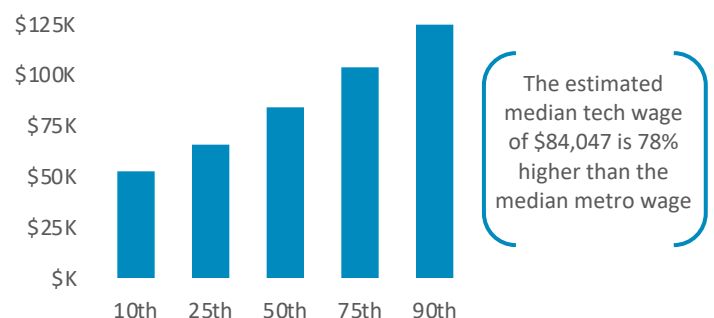
ECONOMIC IMPACT



6.5%

Estimated direct contribution of the tech sector to the Providence economy: \$5.2 billion

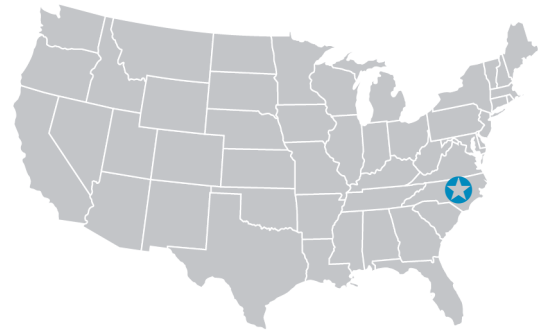
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Raleigh

Full MSA name: Raleigh, NC



STATE OF TECHNOLOGY SUMMARY

- 96,565 NET TECH EMPLOYMENT¹
- +5,248 NET TECH JOB GAINS [2019 vs. 2018]
- +40,686 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 14.4% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 4,125 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 46,753 TECH OCCUPATION JOB POSTINGS [2019 total]
- 21.2% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

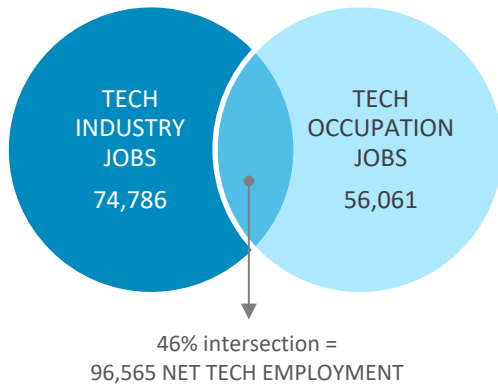
27th NET TECH EMPLOYMENT RANK²

15th NET TECH EMPLOYMENT JOBS ADDED RANK

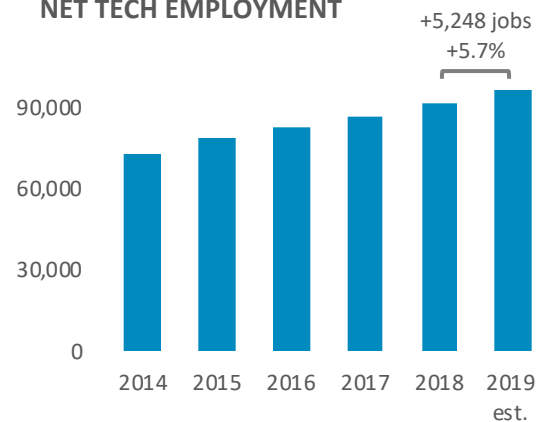
5th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS

| | | |
|--|--------|-----------|
| Software and Web Developers | 13,854 | +5.3% YoY |
| Systems and Cybersecurity Analysts | 7,658 | +3.7% YoY |
| Network Architects, Admins., and Support Specialists | 5,455 | +1.5% YoY |
| IT Support Specialists | 4,614 | +4.0% YoY |

LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 23,133 | 3.6% |
| R&D, Testing, and Engineering Services | 18,523 | 10.3% |
| Tech Manufacturing | 12,988 | 4.3% |
| Software [packaged] | 10,202 | 5.1% |
| Telecommunications and Internet Services | 9,939 | 2.1% |

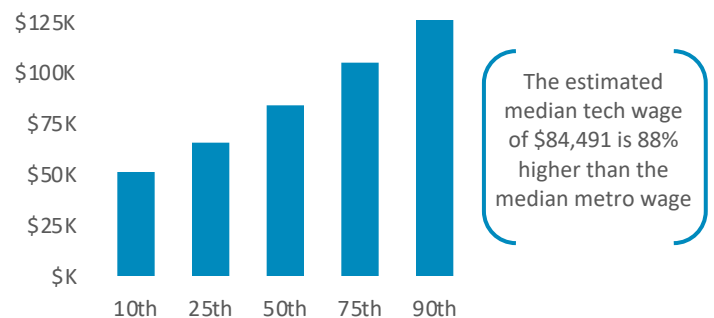
ECONOMIC IMPACT



23.1%

Estimated direct contribution of the tech sector to the Raleigh economy: \$18.8 billion

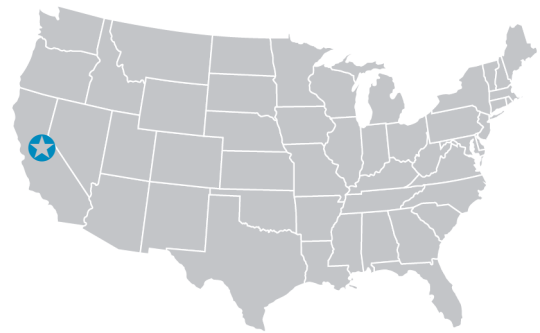
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Sacramento

Full MSA name: Sacramento-Roseville-Folsom, CA



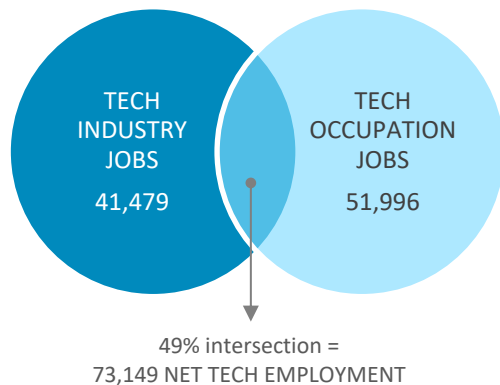
STATE OF TECHNOLOGY SUMMARY

- 73,149 NET TECH EMPLOYMENT¹
- +263 NET TECH JOB GAINS [2019 vs. 2018]
- +750 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 6.7% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 2,399 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 32,804 TECH OCCUPATION JOB POSTINGS [2019 total]
- 11.4% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

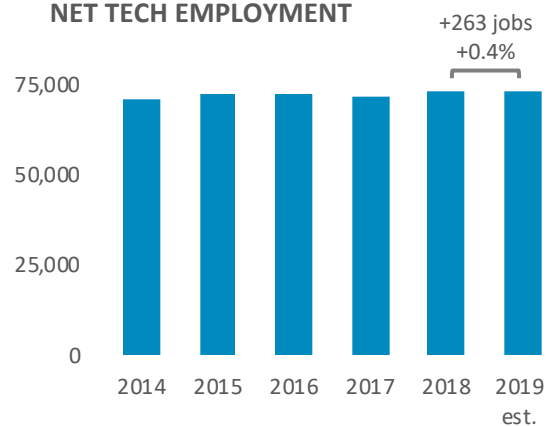
- 34th NET TECH EMPLOYMENT RANK²
- 45th NET TECH EMPLOYMENT JOBS ADDED RANK
- 37th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS

| | | |
|--|--------|-----------|
| Software and Web Developers | 11,210 | +2.3% YoY |
| Systems and Cybersecurity Analysts | 8,129 | +2.1% YoY |
| Network Architects, Admins., and Support Specialists | 3,156 | -1.9% YoY |
| IT Support Specialists | 2,944 | +1.9% YoY |

LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 15,356 | 1.8% |
| R&D, Testing, and Engineering Services | 14,097 | 1.3% |
| Telecommunications and Internet Services | 5,509 | -4.2% |
| Tech Manufacturing | 5,479 | -2.4% |
| Software [packaged] | 1,037 | 1.2% |

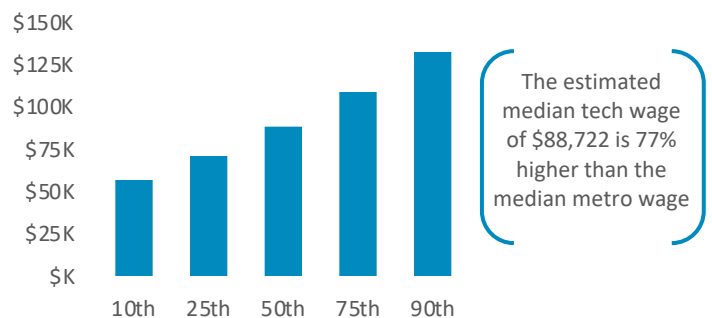
ECONOMIC IMPACT



6.5%

Estimated direct contribution of the tech sector to the Sacramento economy: \$8.5 billion

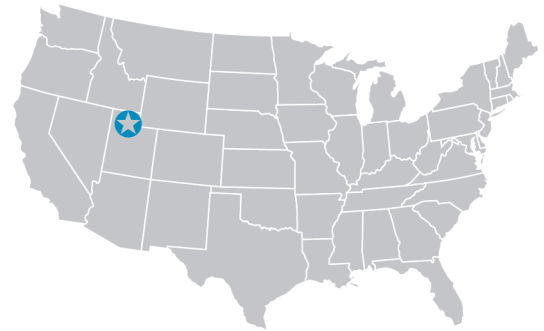
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Salt Lake City

Full MSA name: Salt Lake City, UT



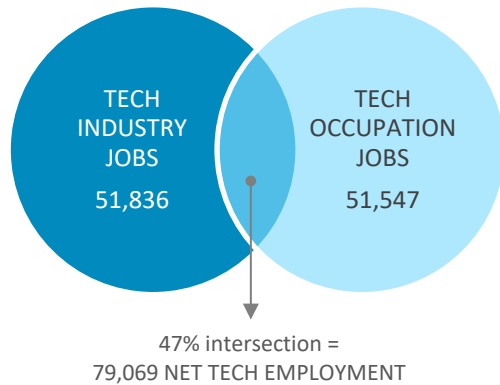
STATE OF TECHNOLOGY SUMMARY

- 79,069 NET TECH EMPLOYMENT¹
- +2,530 NET TECH JOB GAINS [2019 vs. 2018]
- +22,259 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 10.4% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 4,617 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 20,534 TECH OCCUPATION JOB POSTINGS [2019 total]
- 14.5% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

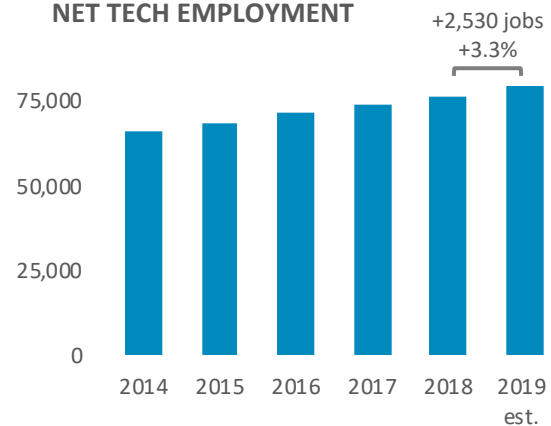
- 30th NET TECH EMPLOYMENT RANK²
- 24th NET TECH EMPLOYMENT JOBS ADDED RANK
- 16th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS

| | | |
|--|--------|-----------|
| Software and Web Developers | 11,475 | +5.0% YoY |
| IT Support Specialists | 5,801 | +4.0% YoY |
| Network Architects, Admins., and Support Specialists | 3,675 | +0.3% YoY |
| Systems and Cybersecurity Analysts | 2,927 | +1.6% YoY |

LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 18,750 | 4.6% |
| R&D, Testing, and Engineering Services | 11,548 | 4.5% |
| Tech Manufacturing | 8,209 | -0.5% |
| Telecommunications and Internet Services | 8,125 | 0.5% |
| Software [packaged] | 5,203 | 5.8% |

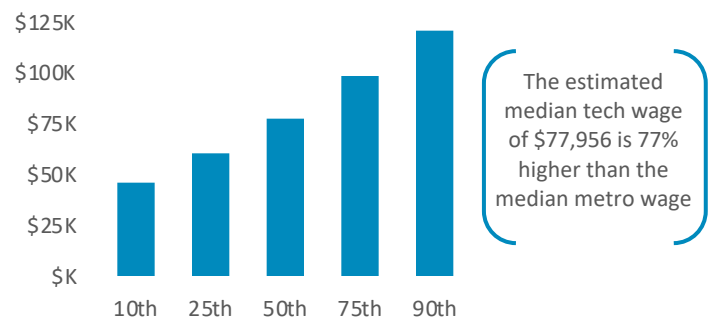
ECONOMIC IMPACT



11.6%

Estimated direct contribution of the tech sector to the Salt Lake City economy: \$10.1 billion

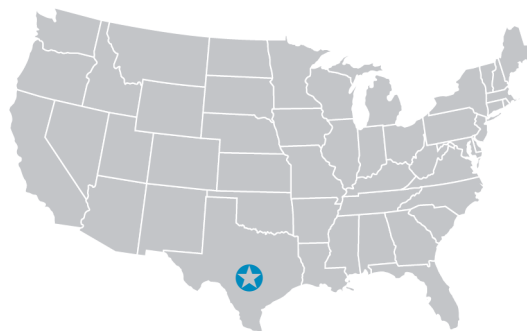
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

San Antonio

Full MSA name: San Antonio-New Braunfels, TX



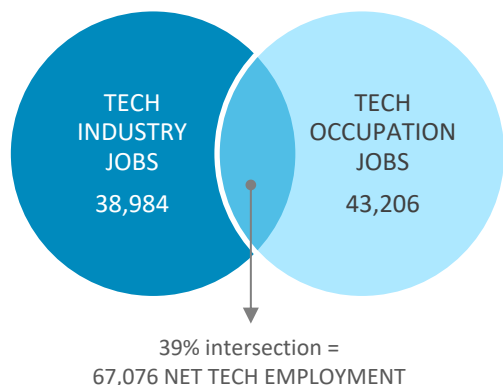
STATE OF TECHNOLOGY SUMMARY

- 67,076 NET TECH EMPLOYMENT¹
- +1,346 NET TECH JOB GAINS [2019 vs. 2018]
- +14,222 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 6.1% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 2,210 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 32,964 TECH OCCUPATION JOB POSTINGS [2019 total]
- 14.5% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

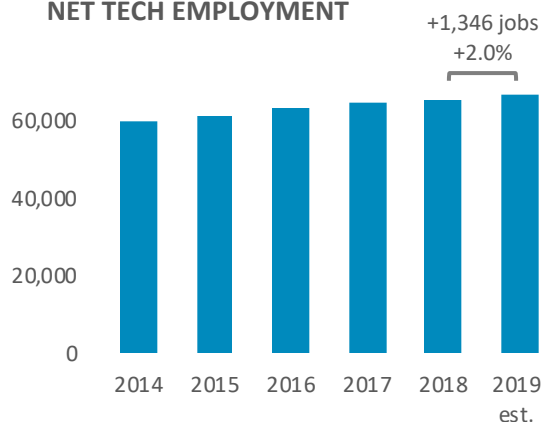
- 35th NET TECH EMPLOYMENT RANK²
- 32nd NET TECH EMPLOYMENT JOBS ADDED RANK
- 39th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

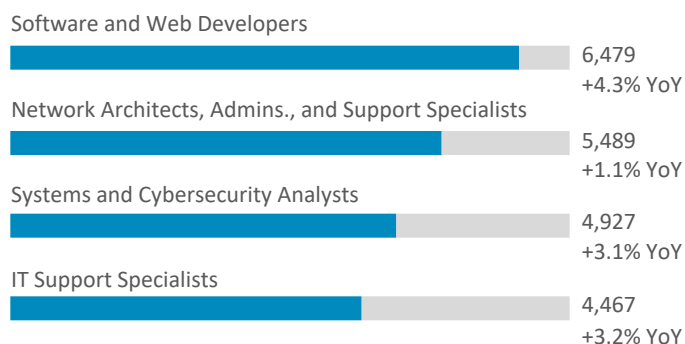
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| Telecommunications and Internet Services | 14,144 | 1.3% |
| R&D, Testing, and Engineering Services | 11,185 | -0.4% |
| IT Services + Custom Software Services | 10,937 | 4.6% |
| Tech Manufacturing | 2,014 | 0.2% |
| Software [packaged] | 704 | 2.4% |

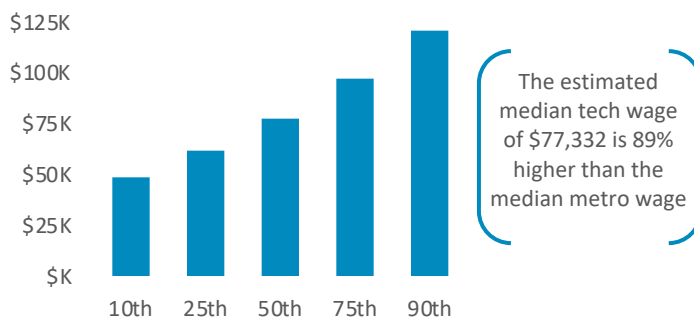
ECONOMIC IMPACT



6.0%

Estimated direct contribution of the tech sector to the San Antonio economy: \$7.2 billion

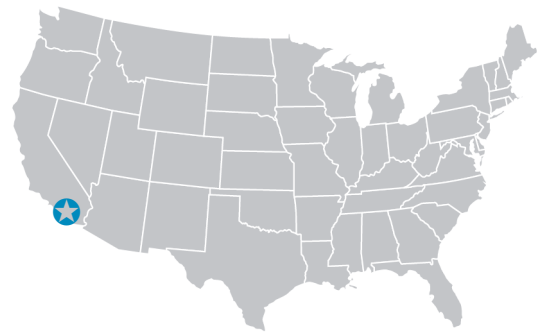
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

San Diego

Full MSA name: San Diego-Carlsbad, CA



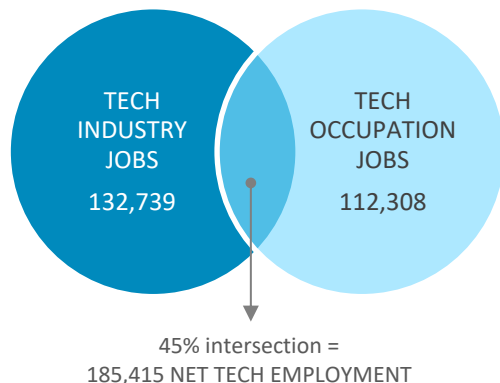
STATE OF TECHNOLOGY SUMMARY

- 185,415 NET TECH EMPLOYMENT¹
- +6,185 NET TECH JOB GAINS [2019 vs. 2018]
- +30,482 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 11.4% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 6,152 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 88,988 TECH OCCUPATION JOB POSTINGS [2019 total]
- 16.3% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

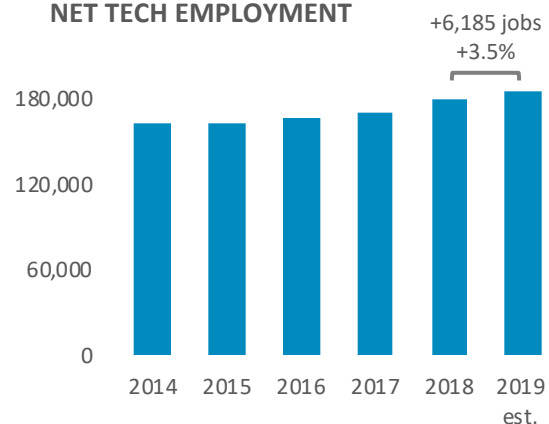
- 17th NET TECH EMPLOYMENT RANK²
- 11th NET TECH EMPLOYMENT JOBS ADDED RANK
- 7th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

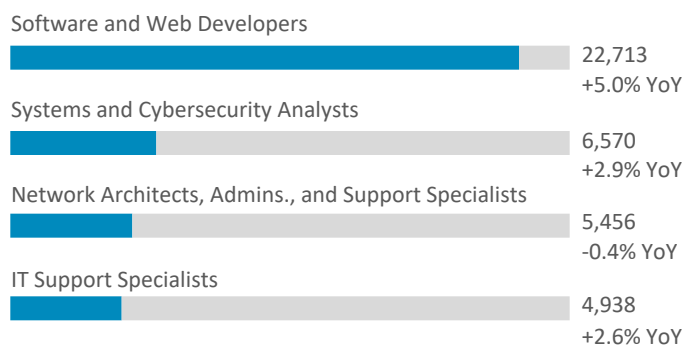
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| R&D, Testing, and Engineering Services | 55,215 | 2.4% |
| Tech Manufacturing | 30,189 | 3.5% |
| IT Services + Custom Software Services | 29,781 | 4.9% |
| Telecommunications and Internet Services | 12,752 | 1.3% |
| Software [packaged] | 4,803 | 3.0% |

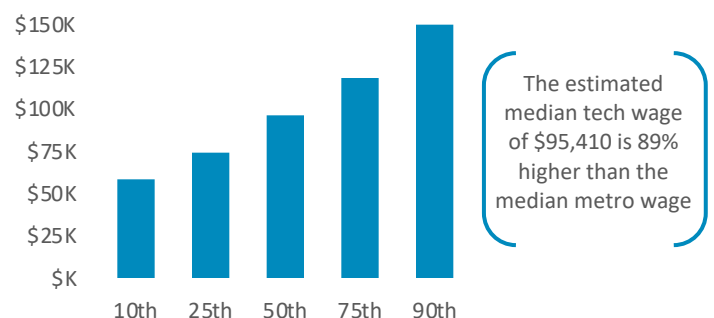
ECONOMIC IMPACT



15.8%

Estimated direct contribution of the tech sector to the San Diego economy: \$35.7 billion

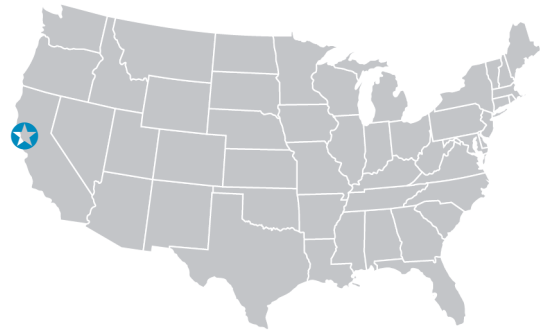
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

San Francisco

Full MSA name: San Francisco-Oakland-Hayward, CA



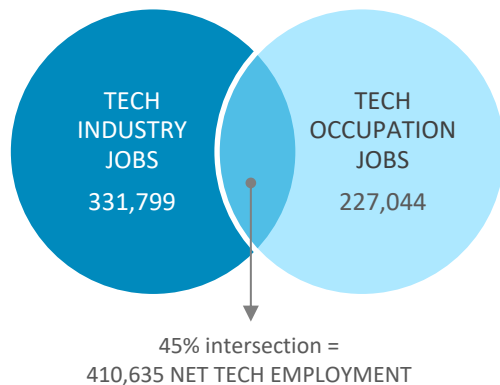
STATE OF TECHNOLOGY SUMMARY

- 410,635 NET TECH EMPLOYMENT¹
- +21,046 NET TECH JOB GAINS [2019 vs. 2018]
- +171,195 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 15.4% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 12,697 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 212,586 TECH OCCUPATION JOB POSTINGS [2019 total]
- 27.2% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

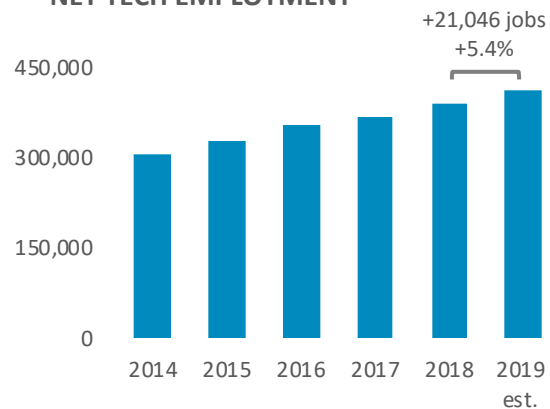
- 4th NET TECH EMPLOYMENT RANK²
- 1st NET TECH EMPLOYMENT JOBS ADDED RANK
- 2nd ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

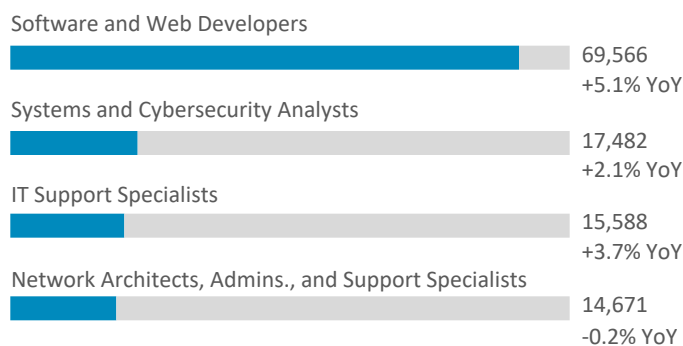
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|---------|--------------|
| IT Services + Custom Software Services | 116,951 | 3.0% |
| Telecommunications and Internet Services | 78,137 | 10.1% |
| R&D, Testing, and Engineering Services | 72,883 | 5.4% |
| Tech Manufacturing | 34,887 | 3.5% |
| Software [packaged] | 28,941 | 7.7% |

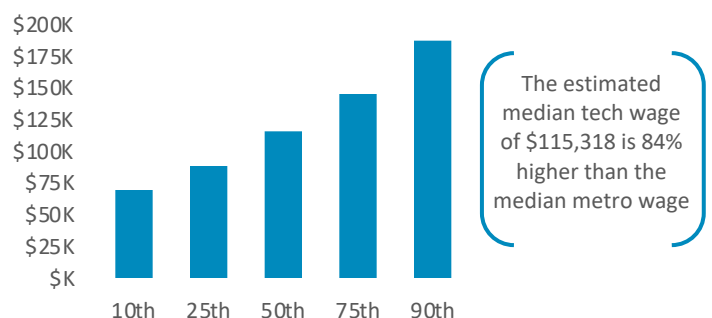
ECONOMIC IMPACT



27.3%

Estimated direct contribution of the tech sector to the San Francisco economy: \$149.0 billion

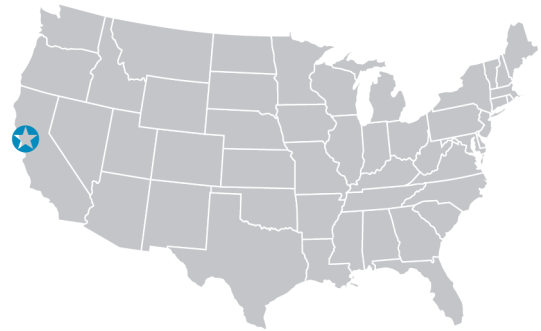
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

San Jose

Full MSA name: San Jose-Sunnyvale-Santa Clara, CA



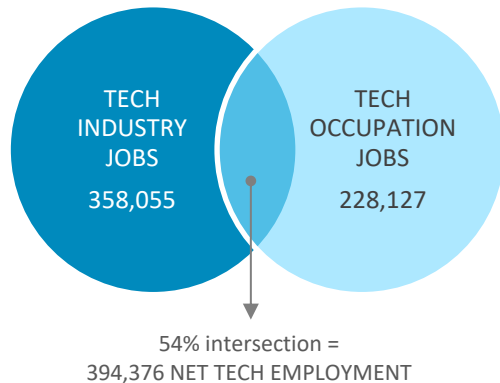
STATE OF TECHNOLOGY SUMMARY

- 394,376 NET TECH EMPLOYMENT¹
- +15,727 NET TECH JOB GAINS [2019 vs. 2018]
- +125,970 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 32.8% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 7,855 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 182,733 TECH OCCUPATION JOB POSTINGS [2019 total]
- 30.0% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

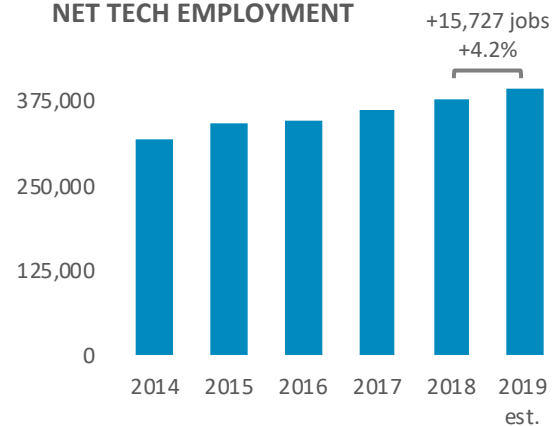
- 5th NET TECH EMPLOYMENT RANK²
- 2nd NET TECH EMPLOYMENT JOBS ADDED RANK
- 1st ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS

| | | |
|--|--------|-----------|
| Software and Web Developers | 85,397 | +5.6% YoY |
| Systems and Cybersecurity Analysts | 13,896 | +2.8% YoY |
| IT Support Specialists | 13,276 | +4.7% YoY |
| Network Architects, Admins., and Support Specialists | 11,706 | +0.9% YoY |

LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|---------|--------------|
| Tech Manufacturing | 131,771 | 2.0% |
| IT Services + Custom Software Services | 97,275 | 4.1% |
| Telecommunications and Internet Services | 67,304 | 7.0% |
| R&D, Testing, and Engineering Services | 35,662 | 0.3% |
| Software [packaged] | 26,043 | 9.0% |

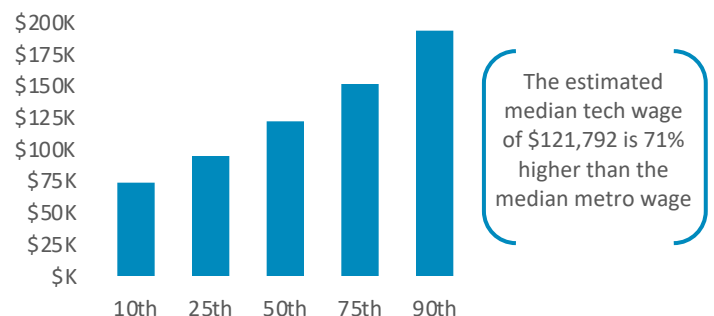
ECONOMIC IMPACT



58.2%

Estimated direct contribution of the tech sector to the San Jose economy: \$184.7 billion

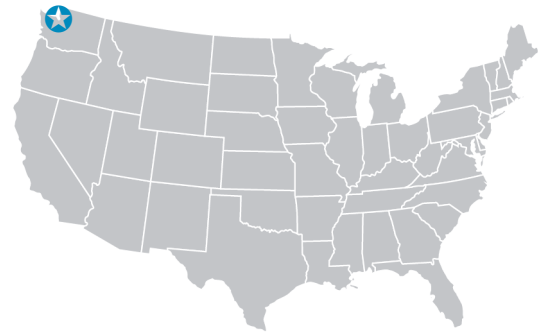
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Seattle

Full MSA name: Seattle-Tacoma-Bellevue, WA



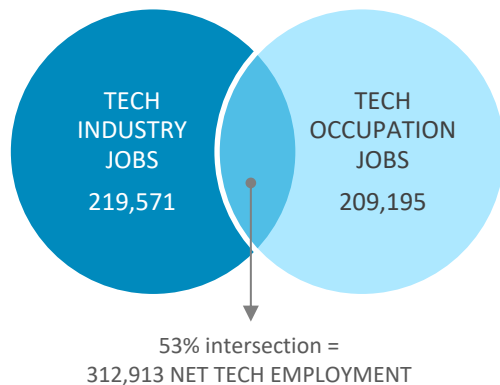
STATE OF TECHNOLOGY SUMMARY

312,913 NET TECH EMPLOYMENT¹
 +12,605 NET TECH JOB GAINS [2019 vs. 2018]
 +87,998 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 14.5% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 10,745 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 106,817 TECH OCCUPATION JOB POSTINGS [2019 total]
 24.4% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

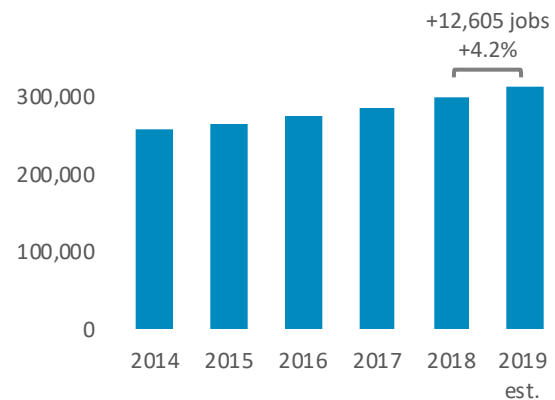
9th NET TECH EMPLOYMENT RANK²
 4th NET TECH EMPLOYMENT JOBS ADDED RANK
 3rd ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

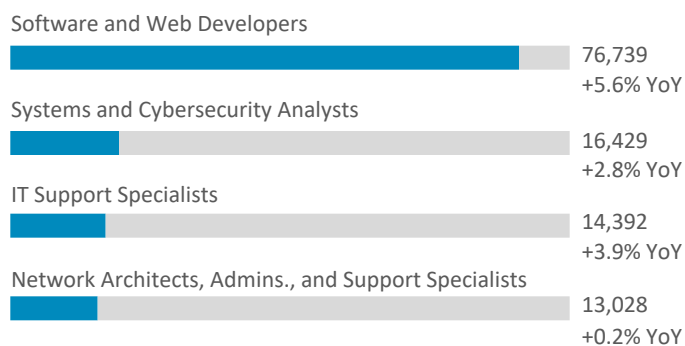
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



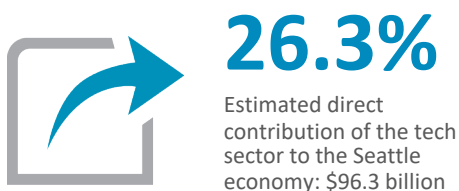
LEADING TECH OCCUPATIONS



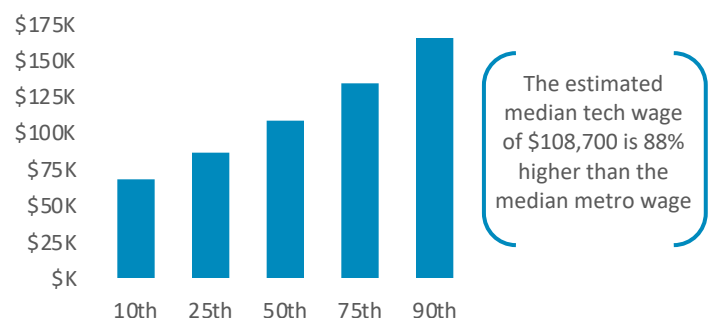
LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| Software [packaged] | 65,940 | 4.2% |
| IT Services + Custom Software Services | 58,904 | 4.6% |
| Telecommunications and Internet Services | 50,184 | 7.9% |
| R&D, Testing, and Engineering Services | 29,806 | 1.8% |
| Tech Manufacturing | 14,737 | 0.9% |

ECONOMIC IMPACT



TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

St. Louis

Full MSA name: St. Louis, MO-IL



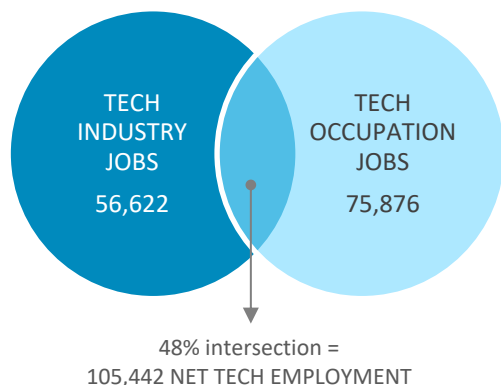
STATE OF TECHNOLOGY SUMMARY

105,442 NET TECH EMPLOYMENT¹
 +1,283 NET TECH JOB GAINS [2019 vs. 2018]
 +9,809 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 7.5% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 3,163 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 50,247 TECH OCCUPATION JOB POSTINGS [2019 total]
 16.5% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

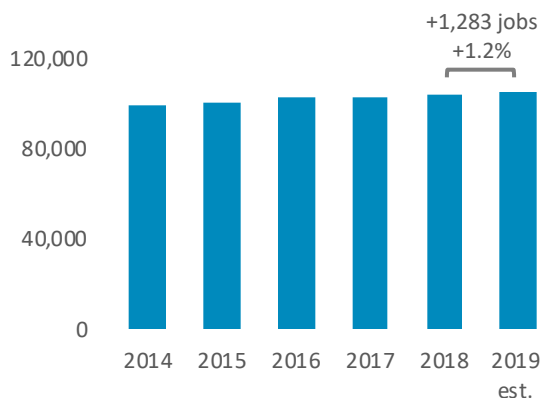
23rd NET TECH EMPLOYMENT RANK²
 34th NET TECH EMPLOYMENT JOBS ADDED RANK
 29th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

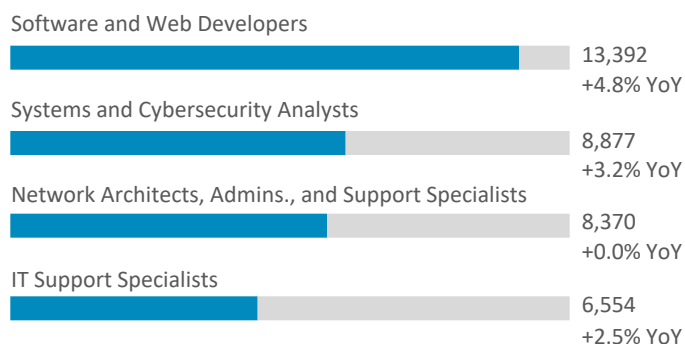
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 21,616 | 3.5% |
| Telecommunications and Internet Services | 15,731 | -2.9% |
| R&D, Testing, and Engineering Services | 12,744 | -1.6% |
| Tech Manufacturing | 4,717 | 1.3% |
| Software [packaged] | 1,813 | 7.0% |

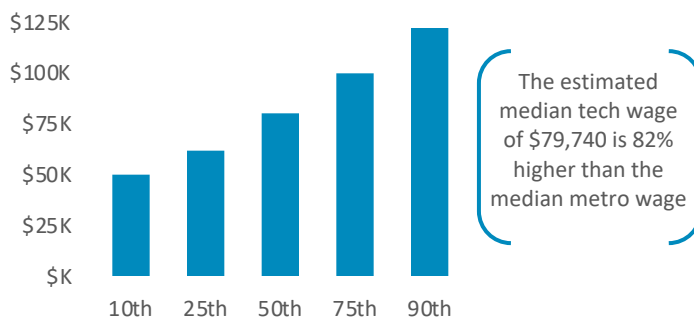
ECONOMIC IMPACT



8.4%

Estimated direct contribution of the tech sector to the St. Louis economy: \$13.5 billion

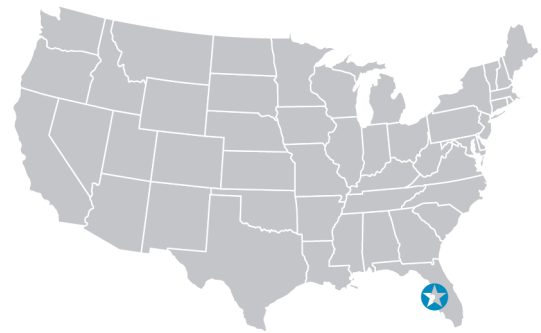
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Tampa

Full MSA name: Tampa-St. Petersburg-Clearwater, FL



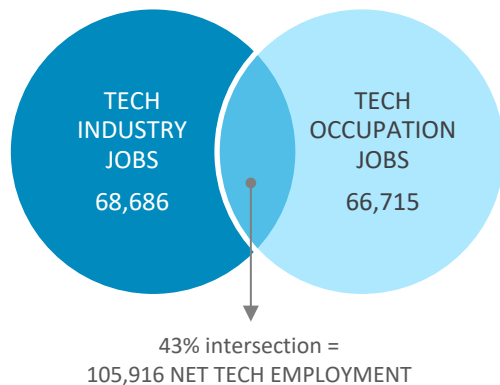
STATE OF TECHNOLOGY SUMMARY

105,916 NET TECH EMPLOYMENT¹
 +2,796 NET TECH JOB GAINS [2019 vs. 2018]
 +19,662 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 7.7% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 4,646 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 56,880 TECH OCCUPATION JOB POSTINGS [2019 total]
 16.2% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

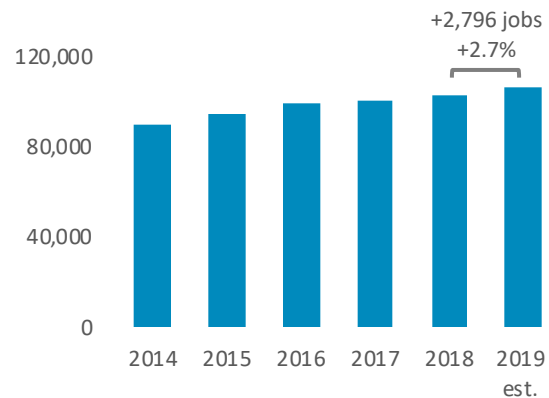
22nd NET TECH EMPLOYMENT RANK²
 23rd NET TECH EMPLOYMENT JOBS ADDED RANK
 20th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

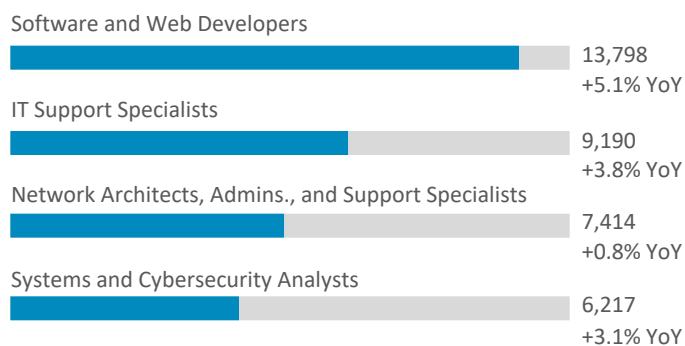
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|--------|--------------|
| IT Services + Custom Software Services | 25,394 | 3.6% |
| Telecommunications and Internet Services | 15,063 | -0.8% |
| R&D, Testing, and Engineering Services | 14,661 | 2.6% |
| Tech Manufacturing | 10,168 | 0.8% |
| Software [packaged] | 3,400 | 8.9% |

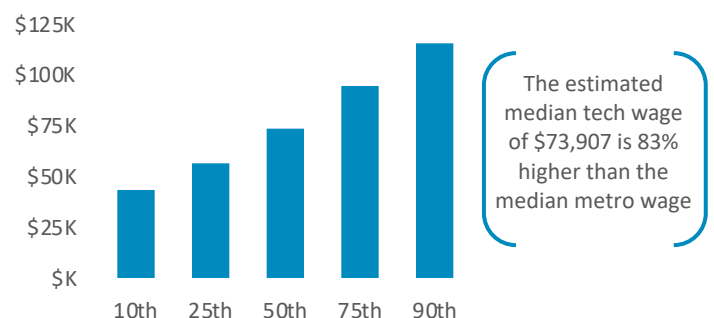
ECONOMIC IMPACT



10.3%

Estimated direct contribution of the tech sector to the Tampa economy: \$15.5 billion

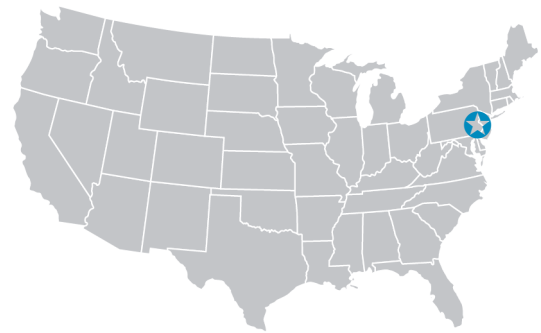
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Trenton

Full MSA name: Trenton, NJ



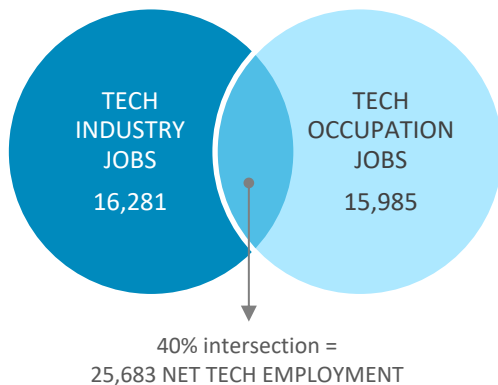
STATE OF TECHNOLOGY SUMMARY

- 25,683 NET TECH EMPLOYMENT¹
- +430 NET TECH JOB GAINS [2019 vs. 2018]
- +3,448 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
- 9.7% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
- 897 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
- 11,708 TECH OCCUPATION JOB POSTINGS [2019 total]
- 17.6% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

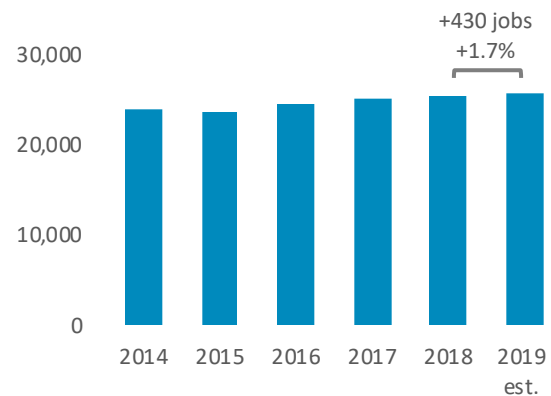
- 49th NET TECH EMPLOYMENT RANK²
- 43rd NET TECH EMPLOYMENT JOBS ADDED RANK
- 19th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

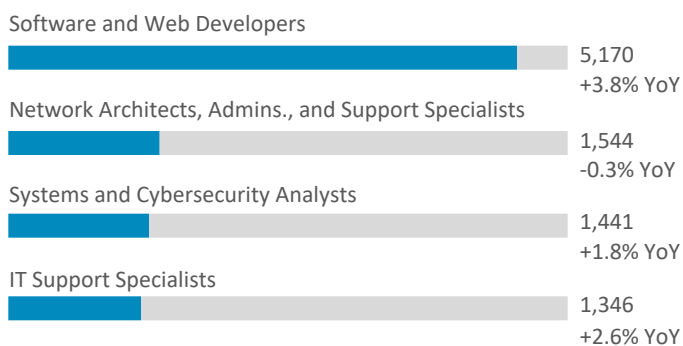
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|-------|--------------|
| R&D, Testing, and Engineering Services | 7,782 | 0.7% |
| IT Services + Custom Software Services | 5,046 | 1.9% |
| Telecommunications and Internet Services | 1,823 | -1.1% |
| Tech Manufacturing | 889 | -0.2% |
| Software [packaged] | 741 | -2.7% |

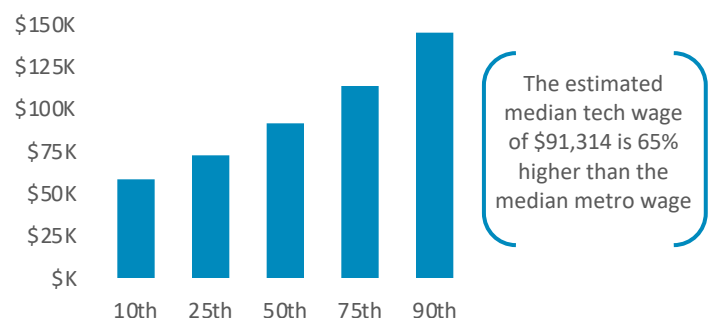
ECONOMIC IMPACT



10.6%

Estimated direct contribution of the tech sector to the Trenton economy: \$4.0 billion

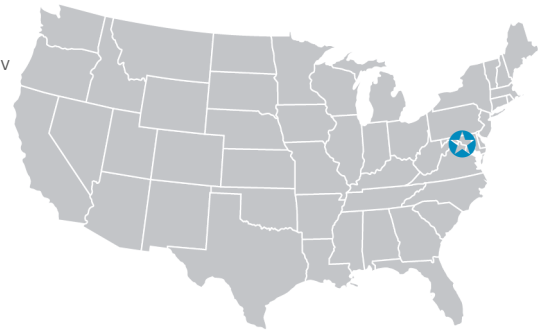
TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

Washington D.C.

Full MSA name:
Washington-Arlington-
Alexandria, DC-VA-MD-WV



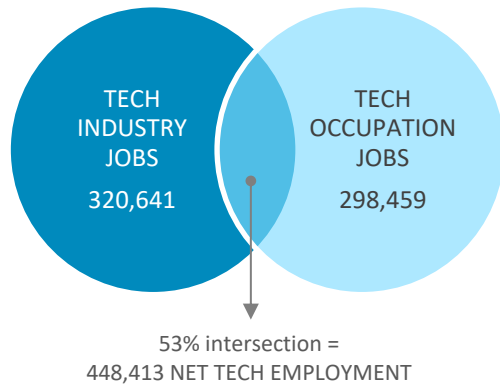
STATE OF TECHNOLOGY SUMMARY

448,413 NET TECH EMPLOYMENT¹
 +6,181 NET TECH JOB GAINS [2019 vs. 2018]
 +27,751 NET TECH JOB GAINS DECADE IN REVIEW [2010-2019]
 13.3% NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
 21,162 TECH BUSINESS ESTABLISHMENTS [firms with payroll]
 256,116 TECH OCCUPATION JOB POSTINGS [2019 total]
 21.6% EMERGING TECH JOB POSTINGS % OF TECH OCCUPATIONS

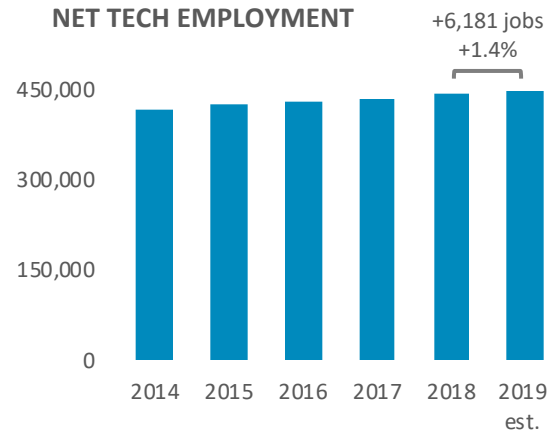
3rd NET TECH EMPLOYMENT RANK²
 12th NET TECH EMPLOYMENT JOBS ADDED RANK
 9th ECONOMIC IMPACT RANK

¹net of tech industry + tech occupation + self-employed [see methodology for details]

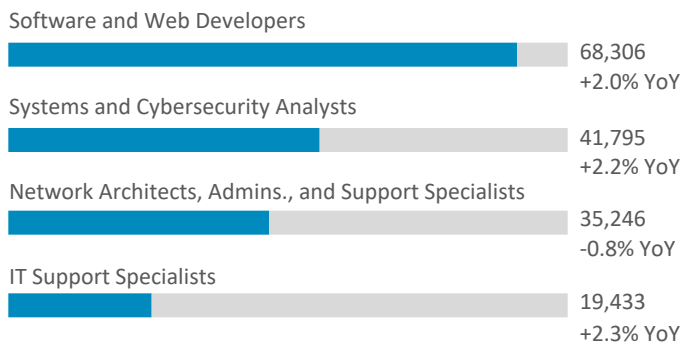
²among subset of MSAs covered in this report



NET TECH EMPLOYMENT



LEADING TECH OCCUPATIONS



LEADING TECH INDUSTRY SECTORS

| | 2019 | YoY % Change |
|--|---------|--------------|
| IT Services + Custom Software Services | 190,455 | 2.1% |
| R&D, Testing, and Engineering Services | 71,871 | 0.3% |
| Telecommunications and Internet Services | 37,793 | -0.5% |
| Tech Manufacturing | 14,244 | 1.9% |
| Software [packaged] | 6,278 | 0.9% |

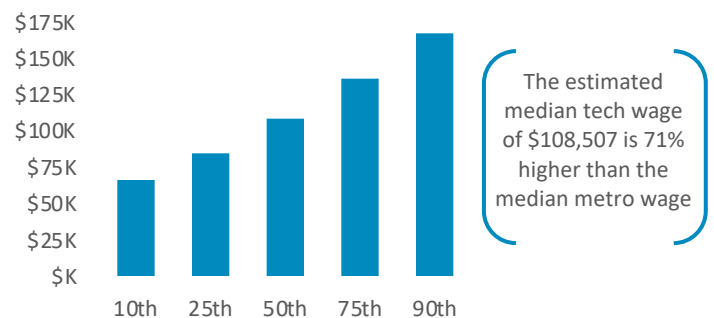
ECONOMIC IMPACT



15.4%

Estimated direct contribution of the tech sector to the Washington D.C. economy: \$77.3 billion

TECH OCCUPATION WAGES [by percentile]



Sources: CompTIA analysis of EMSI, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Burning Glass Technologies Labor Insights, and related data | See Appendix for methodology details | All data are estimates covering the 2019 time period, unless otherwise specified; such as wages, where 2018 is the most recently available data | Because of backward revisions to underlying data, direct comparisons to prior year *Cyberstates* reports is not always possible

APPENDIX TABLES – A NET TECH EMPLOYMENT

NET TECH EMPLOYMENT DECADE IN REVIEW: 2010-2019

APPENDIX A.1

For an explanation of the net tech employment calculation, see page 6

| | <u>2010</u> | <u>2011</u> | <u>2012</u> | <u>2013</u> | <u>2014</u> | <u>2015</u> | <u>2016</u> | <u>2017</u> | <u>2018</u> | <u>2019 est.</u> |
|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------------|
| United States | 9,813,322 | 10,066,847 | 10,326,866 | 10,467,285 | 10,700,340 | 11,015,764 | 11,253,977 | 11,462,542 | 11,796,086 | 12,103,103 |
| Alabama | 134,133 | 133,145 | 133,907 | 134,297 | 135,068 | 136,704 | 139,256 | 141,909 | 145,735 | 148,932 |
| Alaska | 18,968 | 19,103 | 19,789 | 19,602 | 19,568 | 19,485 | 18,685 | 18,389 | 18,109 | 17,785 |
| Arizona | 199,215 | 203,526 | 208,493 | 213,712 | 216,675 | 222,807 | 227,603 | 233,889 | 244,472 | 252,467 |
| Arkansas | 54,855 | 56,023 | 56,163 | 56,052 | 56,120 | 57,420 | 58,943 | 58,115 | 56,767 | 56,219 |
| California | 1,417,048 | 1,450,921 | 1,496,107 | 1,527,173 | 1,574,524 | 1,641,779 | 1,691,864 | 1,734,501 | 1,805,756 | 1,866,951 |
| Colorado | 235,244 | 241,956 | 247,317 | 253,501 | 260,914 | 270,261 | 278,066 | 283,595 | 295,591 | 305,708 |
| Connecticut | 129,005 | 130,720 | 131,506 | 131,146 | 134,763 | 136,256 | 138,149 | 137,466 | 138,416 | 139,717 |
| Delaware | 30,759 | 33,310 | 34,200 | 34,723 | 34,734 | 34,729 | 32,586 | 32,773 | 33,639 | 33,923 |
| District of Columbia | 72,238 | 74,229 | 74,109 | 74,708 | 76,197 | 80,011 | 80,297 | 80,151 | 80,541 | 81,184 |
| Florida | 459,952 | 466,833 | 472,975 | 478,276 | 490,346 | 508,121 | 529,114 | 549,404 | 567,309 | 585,296 |
| Georgia | 293,154 | 296,857 | 306,584 | 313,781 | 325,057 | 333,630 | 344,551 | 353,631 | 357,716 | 367,462 |
| Hawaii | 28,619 | 28,677 | 29,334 | 29,647 | 29,592 | 30,084 | 30,222 | 30,101 | 30,442 | 30,804 |
| Idaho | 43,383 | 44,432 | 44,399 | 44,100 | 45,246 | 47,210 | 47,964 | 49,197 | 51,831 | 54,010 |
| Illinois | 379,315 | 389,350 | 401,358 | 405,837 | 414,596 | 426,612 | 429,355 | 430,895 | 435,770 | 441,205 |
| Indiana | 155,229 | 158,643 | 163,561 | 165,182 | 168,889 | 174,509 | 178,023 | 179,515 | 181,256 | 183,803 |
| Iowa | 81,019 | 83,895 | 86,227 | 87,175 | 89,338 | 89,767 | 89,463 | 90,352 | 93,248 | 95,290 |
| Kansas | 90,553 | 90,583 | 91,661 | 94,780 | 97,178 | 93,851 | 94,211 | 93,299 | 94,512 | 95,208 |
| Kentucky | 87,726 | 89,531 | 92,137 | 92,705 | 94,525 | 97,189 | 96,583 | 96,601 | 96,389 | 96,915 |
| Louisiana | 80,839 | 80,107 | 81,565 | 82,454 | 83,890 | 84,482 | 82,309 | 82,951 | 84,372 | 85,553 |
| Maine | 30,761 | 30,350 | 31,259 | 31,453 | 32,027 | 32,835 | 33,687 | 34,340 | 36,312 | 37,815 |
| Maryland | 265,776 | 269,909 | 271,682 | 270,985 | 272,407 | 276,035 | 280,307 | 282,760 | 290,121 | 296,006 |
| Massachusetts | 355,145 | 362,715 | 370,993 | 375,937 | 382,739 | 393,324 | 404,458 | 415,999 | 429,248 | 440,793 |
| Michigan | 296,649 | 314,374 | 332,835 | 343,376 | 356,821 | 379,390 | 391,350 | 392,916 | 401,362 | 412,324 |
| Minnesota | 210,206 | 216,539 | 221,355 | 225,264 | 229,279 | 234,507 | 239,419 | 242,797 | 246,451 | 251,706 |
| Mississippi | 43,218 | 43,557 | 44,271 | 44,092 | 44,869 | 46,065 | 44,881 | 44,923 | 44,525 | 44,384 |
| Missouri | 168,675 | 171,571 | 179,352 | 182,428 | 188,638 | 193,281 | 198,139 | 202,280 | 206,201 | 211,894 |
| Montana | 20,125 | 20,345 | 20,787 | 20,915 | 20,976 | 21,440 | 21,994 | 22,211 | 22,708 | 23,442 |
| Nebraska | 54,849 | 55,311 | 56,542 | 57,657 | 58,533 | 60,328 | 61,333 | 62,282 | 63,172 | 64,362 |
| Nevada | 48,741 | 49,031 | 50,905 | 51,563 | 53,524 | 55,598 | 57,710 | 61,278 | 67,229 | 71,275 |
| New Hampshire | 57,602 | 59,161 | 59,846 | 60,433 | 61,689 | 63,413 | 64,743 | 68,413 | 69,899 | 72,411 |
| New Jersey | 314,649 | 315,829 | 318,453 | 318,909 | 322,152 | 327,798 | 333,085 | 331,782 | 338,412 | 342,795 |
| New Mexico | 68,305 | 67,997 | 66,577 | 65,297 | 64,483 | 65,023 | 65,012 | 65,376 | 67,041 | 67,743 |
| New York | 553,674 | 570,370 | 586,220 | 589,451 | 606,903 | 626,453 | 638,775 | 647,993 | 663,554 | 679,083 |
| North Carolina | 259,489 | 274,346 | 283,037 | 286,915 | 296,657 | 311,599 | 325,790 | 336,529 | 350,082 | 365,166 |
| North Dakota | 20,444 | 20,761 | 22,301 | 22,878 | 23,808 | 23,399 | 22,803 | 22,700 | 22,794 | 22,790 |
| Ohio | 329,496 | 340,959 | 344,494 | 349,627 | 357,712 | 367,331 | 376,921 | 384,200 | 391,894 | 401,066 |
| Oklahoma | 83,892 | 85,344 | 87,575 | 86,196 | 88,012 | 87,954 | 85,884 | 86,009 | 89,977 | 91,414 |
| Oregon | 126,265 | 131,261 | 135,414 | 138,779 | 141,957 | 147,567 | 152,528 | 156,953 | 161,826 | 166,563 |
| Pennsylvania | 384,349 | 391,809 | 401,273 | 401,805 | 403,172 | 412,151 | 420,887 | 425,961 | 436,462 | 445,168 |
| Rhode Island | 32,472 | 33,271 | 33,465 | 33,226 | 34,017 | 34,831 | 34,763 | 33,846 | 34,440 | 34,684 |
| South Carolina | 98,879 | 104,929 | 106,560 | 109,090 | 112,375 | 116,468 | 119,285 | 122,876 | 126,746 | 131,765 |
| South Dakota | 17,574 | 18,172 | 18,833 | 19,067 | 19,736 | 19,742 | 19,824 | 20,353 | 21,117 | 21,737 |
| Tennessee | 140,616 | 144,186 | 147,973 | 152,800 | 157,998 | 163,850 | 164,728 | 168,908 | 172,006 | 175,785 |
| Texas | 800,628 | 833,005 | 870,861 | 891,792 | 913,392 | 931,090 | 937,656 | 956,475 | 997,640 | 1,025,106 |
| Utah | 101,813 | 105,703 | 111,945 | 116,751 | 120,253 | 125,560 | 131,665 | 136,893 | 143,026 | 148,772 |
| Vermont | 23,142 | 23,246 | 23,495 | 23,090 | 22,608 | 22,421 | 22,437 | 22,423 | 22,490 | 22,415 |
| Virginia | 405,461 | 412,224 | 414,337 | 408,912 | 403,680 | 413,167 | 420,665 | 428,312 | 437,497 | 446,507 |
| Washington | 293,710 | 304,662 | 313,518 | 320,075 | 328,352 | 338,221 | 352,457 | 362,324 | 377,739 | 392,020 |
| West Virginia | 29,897 | 30,413 | 29,752 | 29,731 | 29,716 | 29,837 | 29,504 | 29,163 | 30,056 | 30,480 |
| Wisconsin | 175,995 | 184,057 | 189,688 | 190,193 | 194,795 | 200,470 | 204,964 | 207,490 | 212,896 | 217,837 |
| Wyoming | 9,572 | 9,599 | 9,881 | 9,749 | 9,842 | 9,706 | 9,076 | 9,046 | 9,294 | 9,361 |

Sources: EMSI | U.S. Bureau of Labor Statistics | CompTIA

NET TECH EMPLOYMENT DECADE IN REVIEW CONTINUED

APPENDIX A.2

For an explanation of the net tech employment calculation, see page 6 | Decade change calculation uses yearend 2009 as starting point

| | Numeric Change 2018-19 | Percent Change 2018-19 | Numeric Change 2010-19 | Percent Change 2010-19 |
|----------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| United States | 307,017 | 2.6% | 2,272,261 | 23.1% |
| Alabama | 3,197 | 2.2% | 12,683 | 9.3% |
| Alaska | -323 | -1.8% | -1,006 | -5.4% |
| Arizona | 7,995 | 3.3% | 52,409 | 26.2% |
| Arkansas | -548 | -1.0% | 1,470 | 2.7% |
| California | 61,195 | 3.4% | 438,605 | 30.7% |
| Colorado | 10,118 | 3.4% | 66,858 | 28.0% |
| Connecticut | 1,301 | 0.9% | 8,429 | 6.4% |
| Delaware | 284 | 0.8% | 2,852 | 9.2% |
| District of Columbia | 643 | 0.8% | 12,334 | 17.9% |
| Florida | 17,987 | 3.2% | 120,394 | 25.9% |
| Georgia | 9,746 | 2.7% | 74,492 | 25.4% |
| Hawaii | 361 | 1.2% | 2,203 | 7.7% |
| Idaho | 2,180 | 4.2% | 10,159 | 23.2% |
| Illinois | 5,436 | 1.2% | 59,416 | 15.6% |
| Indiana | 2,547 | 1.4% | 31,534 | 20.7% |
| Iowa | 2,042 | 2.2% | 15,563 | 19.5% |
| Kansas | 696 | 0.7% | -837 | -0.9% |
| Kentucky | 527 | 0.5% | 9,936 | 11.4% |
| Louisiana | 1,181 | 1.4% | 2,723 | 3.3% |
| Maine | 1,503 | 4.1% | 7,309 | 24.0% |
| Maryland | 5,885 | 2.0% | 31,781 | 12.0% |
| Massachusetts | 11,544 | 2.7% | 86,176 | 24.3% |
| Michigan | 10,963 | 2.7% | 125,124 | 43.6% |
| Minnesota | 5,255 | 2.1% | 41,623 | 19.8% |
| Mississippi | -141 | -0.3% | 1,056 | 2.4% |
| Missouri | 5,693 | 2.8% | 38,787 | 22.4% |
| Montana | 734 | 3.2% | 3,770 | 19.2% |
| Nebraska | 1,191 | 1.9% | 9,801 | 18.0% |
| Nevada | 4,047 | 6.0% | 21,168 | 42.2% |
| New Hampshire | 2,512 | 3.6% | 14,265 | 24.5% |
| New Jersey | 4,383 | 1.3% | 22,553 | 7.0% |
| New Mexico | 702 | 1.0% | -699 | -1.0% |
| New York | 15,528 | 2.3% | 125,100 | 22.6% |
| North Carolina | 15,085 | 4.3% | 105,309 | 40.5% |
| North Dakota | -3 | 0.0% | 2,606 | 12.9% |
| Ohio | 9,172 | 2.3% | 73,329 | 22.4% |
| Oklahoma | 1,436 | 1.6% | 5,854 | 6.8% |
| Oregon | 4,737 | 2.9% | 40,267 | 31.9% |
| Pennsylvania | 8,707 | 2.0% | 60,919 | 15.9% |
| Rhode Island | 245 | 0.7% | 2,036 | 6.2% |
| South Carolina | 5,019 | 4.0% | 34,408 | 35.3% |
| South Dakota | 620 | 2.9% | 4,082 | 23.1% |
| Tennessee | 3,779 | 2.2% | 34,522 | 24.4% |
| Texas | 27,466 | 2.8% | 226,337 | 28.3% |
| Utah | 5,746 | 4.0% | 47,275 | 46.6% |
| Vermont | -75 | -0.3% | -196 | -0.9% |
| Virginia | 9,010 | 2.1% | 42,929 | 10.6% |
| Washington | 14,281 | 3.8% | 99,247 | 33.9% |
| West Virginia | 424 | 1.4% | 1,181 | 4.0% |
| Wisconsin | 4,942 | 2.3% | 44,389 | 25.6% |
| Wyoming | 66 | 0.7% | -264 | -2.7% |

Sources: EMSI | U.S. Bureau of Labor Statistics | CompTIA

NET TECH EMPLOYMENT 2019 est.

| Rank | State | Employment |
|------|----------------------|------------|
| | United States | 12,103,103 |
| 1. | California | 1,866,951 |
| 2. | Texas | 1,025,106 |
| 3. | New York | 679,083 |
| 4. | Florida | 585,296 |
| 5. | Virginia | 446,507 |
| 6. | Pennsylvania | 445,168 |
| 7. | Illinois | 441,205 |
| 8. | Massachusetts | 440,793 |
| 9. | Michigan | 412,324 |
| 10. | Ohio | 401,066 |
| 11. | Washington | 392,020 |
| 12. | Georgia | 367,462 |
| 13. | North Carolina | 365,166 |
| 14. | New Jersey | 342,795 |
| 15. | Colorado | 305,708 |
| 16. | Maryland | 296,006 |
| 17. | Arizona | 252,467 |
| 18. | Minnesota | 251,706 |
| 19. | Wisconsin | 217,837 |
| 20. | Missouri | 211,894 |
| 21. | Indiana | 183,803 |
| 22. | Tennessee | 175,785 |
| 23. | Oregon | 166,563 |
| 24. | Alabama | 148,932 |
| 25. | Utah | 148,772 |
| 26. | Connecticut | 139,717 |
| 27. | South Carolina | 131,765 |
| 28. | Kentucky | 96,915 |
| 29. | Iowa | 95,290 |
| 30. | Kansas | 95,208 |
| 31. | Oklahoma | 91,414 |
| 32. | Louisiana | 85,553 |
| 33. | District of Columbia | 81,184 |
| 34. | New Hampshire | 72,411 |
| 35. | Nevada | 71,275 |
| 36. | New Mexico | 67,743 |
| 37. | Nebraska | 64,362 |
| 38. | Arkansas | 56,219 |
| 39. | Idaho | 54,010 |
| 40. | Mississippi | 44,384 |
| 41. | Maine | 37,815 |
| 42. | Rhode Island | 34,684 |
| 43. | Delaware | 33,923 |
| 44. | Hawaii | 30,804 |
| 45. | West Virginia | 30,480 |
| 46. | Montana | 23,442 |
| 47. | North Dakota | 22,790 |
| 48. | Vermont | 22,415 |
| 49. | South Dakota | 21,737 |
| 50. | Alaska | 17,785 |
| 51. | Wyoming | 9,361 |

NET TECH EMPLOYMENT JOBS ADDED 2019

| Rank | State | Jobs Added |
|------|----------------------|------------|
| | United States | 307,017 |
| 1. | California | 61,195 |
| 2. | Texas | 27,466 |
| 3. | Florida | 17,987 |
| 4. | New York | 15,528 |
| 5. | North Carolina | 15,085 |
| 6. | Washington | 14,281 |
| 7. | Massachusetts | 11,544 |
| 8. | Michigan | 10,963 |
| 9. | Colorado | 10,118 |
| 10. | Georgia | 9,746 |
| 11. | Ohio | 9,172 |
| 12. | Virginia | 9,010 |
| 13. | Pennsylvania | 8,707 |
| 14. | Arizona | 7,995 |
| 15. | Maryland | 5,885 |
| 16. | Utah | 5,746 |
| 17. | Missouri | 5,693 |
| 18. | Illinois | 5,436 |
| 19. | Minnesota | 5,255 |
| 20. | South Carolina | 5,019 |
| 21. | Wisconsin | 4,942 |
| 22. | Oregon | 4,737 |
| 23. | New Jersey | 4,383 |
| 24. | Nevada | 4,047 |
| 25. | Tennessee | 3,779 |
| 26. | Alabama | 3,197 |
| 27. | Indiana | 2,547 |
| 28. | New Hampshire | 2,512 |
| 29. | Idaho | 2,180 |
| 30. | Iowa | 2,042 |
| 31. | Maine | 1,503 |
| 32. | Oklahoma | 1,436 |
| 33. | Connecticut | 1,301 |
| 34. | Nebraska | 1,191 |
| 35. | Louisiana | 1,181 |
| 36. | Montana | 734 |
| 37. | New Mexico | 702 |
| 38. | Kansas | 696 |
| 39. | District of Columbia | 643 |
| 40. | South Dakota | 620 |
| 41. | Kentucky | 527 |
| 42. | West Virginia | 424 |
| 43. | Hawaii | 361 |
| 44. | Delaware | 284 |
| 45. | Rhode Island | 245 |
| 46. | Wyoming | 66 |
| 47. | North Dakota | -3 |
| 48. | Vermont | -75 |
| 49. | Mississippi | -141 |
| 50. | Alaska | -323 |
| 51. | Arkansas | -548 |

NET TECH EMPLOYMENT YOY % CHANGE 2019

| Rank | State | YoY % Change |
|------|----------------------|--------------|
| | United States | 2.6% |
| 1. | Nevada | 6.0% |
| 2. | North Carolina | 4.3% |
| 3. | Idaho | 4.2% |
| 4. | Maine | 4.1% |
| 5. | Utah | 4.0% |
| 6. | South Carolina | 4.0% |
| 7. | Washington | 3.8% |
| 8. | New Hampshire | 3.6% |
| 9. | Colorado | 3.4% |
| 10. | California | 3.4% |
| 11. | Arizona | 3.3% |
| 12. | Montana | 3.2% |
| 13. | Florida | 3.2% |
| 14. | South Dakota | 2.9% |
| 15. | Oregon | 2.9% |
| 16. | Missouri | 2.8% |
| 17. | Texas | 2.8% |
| 18. | Michigan | 2.7% |
| 19. | Georgia | 2.7% |
| 20. | Massachusetts | 2.7% |
| 21. | Ohio | 2.3% |
| 22. | New York | 2.3% |
| 23. | Wisconsin | 2.3% |
| 24. | Tennessee | 2.2% |
| 25. | Alabama | 2.2% |
| 26. | Iowa | 2.2% |
| 27. | Minnesota | 2.1% |
| 28. | Virginia | 2.1% |
| 29. | Maryland | 2.0% |
| 30. | Pennsylvania | 2.0% |
| 31. | Nebraska | 1.9% |
| 32. | Oklahoma | 1.6% |
| 33. | West Virginia | 1.4% |
| 34. | Indiana | 1.4% |
| 35. | Louisiana | 1.4% |
| 36. | New Jersey | 1.3% |
| 37. | Illinois | 1.2% |
| 38. | Hawaii | 1.2% |
| 39. | New Mexico | 1.0% |
| 40. | Connecticut | 0.9% |
| 41. | Delaware | 0.8% |
| 42. | District of Columbia | 0.8% |
| 43. | Kansas | 0.7% |
| 44. | Wyoming | 0.7% |
| 45. | Rhode Island | 0.7% |
| 46. | Kentucky | 0.5% |
| 47. | North Dakota | 0.0% |
| 48. | Mississippi | -0.3% |
| 49. | Vermont | -0.3% |
| 50. | Arkansas | -1.0% |
| 51. | Alaska | -1.8% |

Sources: EMSI | U.S. Bureau of Labor Statistics

RANKINGS: HISTORICAL STATE NET TECH EMPLOYMENT

APPENDIX A.4

Annual ranking by net tech employment

| | <u>2010</u> | <u>2011</u> | <u>2012</u> | <u>2013</u> | <u>2014</u> | <u>2015</u> | <u>2016</u> | <u>2017</u> | <u>2018</u> | <u>2019</u> |
|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| California | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Texas | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| New York | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Florida | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Virginia | 5 | 5 | 5 | 5 | 6 | 6 | 7 | 6 | 5 | 5 |
| Pennsylvania | 6 | 6 | 7 | 7 | 7 | 7 | 6 | 7 | 6 | 6 |
| Illinois | 7 | 7 | 6 | 6 | 5 | 5 | 5 | 5 | 7 | 7 |
| Massachusetts | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Michigan | 11 | 11 | 10 | 10 | 10 | 9 | 9 | 9 | 9 | 9 |
| Ohio | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 |
| Washington | 12 | 12 | 12 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| Georgia | 13 | 13 | 13 | 13 | 12 | 12 | 12 | 12 | 12 | 12 |
| North Carolina | 15 | 14 | 14 | 14 | 14 | 14 | 14 | 13 | 13 | 13 |
| New Jersey | 10 | 10 | 11 | 12 | 13 | 13 | 13 | 14 | 14 | 14 |
| Colorado | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 15 | 15 | 15 |
| Maryland | 14 | 15 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 |
| Arizona | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 17 |
| Minnesota | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 18 |
| Wisconsin | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| Missouri | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Indiana | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| Tennessee | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| Oregon | 25 | 24 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Alabama | 23 | 23 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Utah | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 25 | 25 |
| Connecticut | 24 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 26 | 26 |
| South Carolina | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| Kentucky | 29 | 29 | 28 | 29 | 29 | 28 | 28 | 28 | 28 | 28 |
| Iowa | 31 | 31 | 31 | 30 | 30 | 30 | 30 | 30 | 30 | 29 |
| Kansas | 28 | 28 | 29 | 28 | 28 | 29 | 29 | 29 | 29 | 30 |
| Oklahoma | 30 | 30 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 |
| Louisiana | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| District of Columbia | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 |
| New Hampshire | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 34 | 34 | 34 |
| Nevada | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 37 | 35 | 35 |
| New Mexico | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 35 | 36 | 36 |
| Nebraska | 37 | 37 | 36 | 36 | 36 | 36 | 36 | 36 | 37 | 37 |
| Arkansas | 36 | 36 | 37 | 37 | 37 | 37 | 37 | 38 | 38 | 38 |
| Idaho | 39 | 39 | 39 | 39 | 39 | 39 | 39 | 39 | 39 | 39 |
| Mississippi | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| Maine | 42 | 44 | 43 | 43 | 43 | 43 | 42 | 41 | 41 | 41 |
| Rhode Island | 41 | 42 | 42 | 42 | 42 | 41 | 41 | 42 | 42 | 42 |
| Delaware | 43 | 41 | 41 | 41 | 41 | 42 | 43 | 43 | 43 | 43 |
| Hawaii | 45 | 45 | 45 | 45 | 45 | 44 | 44 | 44 | 44 | 44 |
| West Virginia | 44 | 43 | 44 | 44 | 44 | 45 | 45 | 45 | 45 | 45 |
| Montana | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 47 | 46 |
| North Dakota | 47 | 47 | 47 | 47 | 46 | 46 | 46 | 46 | 46 | 47 |
| Vermont | 46 | 46 | 46 | 46 | 47 | 47 | 47 | 47 | 48 | 48 |
| South Dakota | 50 | 50 | 50 | 50 | 49 | 49 | 49 | 49 | 49 | 49 |
| Alaska | 49 | 49 | 49 | 49 | 50 | 50 | 50 | 50 | 50 | 50 |
| Wyoming | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 |

Sources: EMSI | U.S. Bureau of Labor Statistics | CompTIA

NET TECH EMPLOYMENT BY METRO AREA (MSA)

APPENDIX A.5

For an explanation of the net tech employment calculation, see page 6 | Decade change calculation uses yearend 2009 as starting point

| | Numeric Change 2018-19 | Percent Change 2018-19 | Numeric Change 2010-19 | Percent Change 2010-19 |
|----------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| United States | 307,017 | 2.6% | 2,272,261 | 23.1% |
| Albuquerque | 231 | 0.6% | -2,314 | -5.7% |
| Atlanta | 7,903 | 3.0% | 60,270 | 28.6% |
| Austin | 7,131 | 4.5% | 57,240 | 52.8% |
| Baltimore | 3,535 | 2.6% | 20,416 | 17.0% |
| Birmingham | 16 | 0.1% | 682 | 2.2% |
| Boise | 1,333 | 4.7% | 6,971 | 30.8% |
| Boston | 10,704 | 2.9% | 78,603 | 25.8% |
| Buffalo | 1,030 | 2.7% | 5,024 | 14.8% |
| Charleston | 1,549 | 5.8% | 9,867 | 53.2% |
| Charlotte | 5,728 | 5.9% | 37,882 | 57.7% |
| Chicago | 5,100 | 1.5% | 51,107 | 17.4% |
| Cincinnati | 2,336 | 2.9% | 17,684 | 27.0% |
| Cleveland | 1,264 | 1.7% | 10,438 | 15.9% |
| Dallas | 9,932 | 2.8% | 77,607 | 27.3% |
| Denver | 7,342 | 4.0% | 48,874 | 34.9% |
| Des Moines | 1,084 | 3.7% | 7,527 | 32.6% |
| Detroit | 5,235 | 2.2% | 74,821 | 44.3% |
| Hartford | 535 | 1.0% | 6,202 | 12.8% |
| Houston | 826 | 0.4% | 25,904 | 12.3% |
| Indianapolis | 701 | 1.0% | 14,263 | 23.8% |
| Kansas City | 2,291 | 2.3% | 10,691 | 11.6% |
| Las Vegas | 1,947 | 4.5% | 12,122 | 36.9% |
| Los Angeles | 8,735 | 1.7% | 57,395 | 12.4% |
| Memphis | 158 | 0.6% | 2,147 | 8.6% |
| Miami | 3,487 | 2.4% | 26,879 | 21.8% |
| Milwaukee | 662 | 0.9% | 7,283 | 10.9% |
| Minneapolis | 4,209 | 2.2% | 33,848 | 20.4% |
| Nashville | 1,770 | 2.9% | 17,920 | 39.6% |
| New Orleans | -470 | -1.8% | -2,018 | -7.4% |
| New York City | 13,513 | 2.0% | 111,802 | 19.7% |
| Oklahoma City | 587 | 1.5% | 1,980 | 5.2% |
| Omaha | 174 | 0.5% | 3,278 | 9.7% |
| Orlando | 4,309 | 4.7% | 22,373 | 30.3% |
| Philadelphia | 2,323 | 1.0% | 9,598 | 4.3% |
| Phoenix | 5,551 | 3.0% | 42,677 | 28.8% |
| Pittsburgh | 1,934 | 2.0% | 16,167 | 19.1% |
| Portland | 4,320 | 3.2% | 35,515 | 33.9% |
| Providence | 313 | 0.7% | 1,585 | 3.6% |
| Raleigh | 5,248 | 5.7% | 40,686 | 72.8% |
| Sacramento | 263 | 0.4% | 750 | 1.0% |
| Salt Lake City | 2,530 | 3.3% | 22,259 | 39.2% |
| San Antonio | 1,346 | 2.0% | 14,222 | 26.9% |
| San Diego | 6,185 | 3.5% | 30,482 | 19.7% |
| San Francisco | 21,046 | 5.4% | 171,195 | 71.5% |
| San Jose | 15,727 | 4.2% | 125,970 | 46.9% |
| Seattle | 12,605 | 4.2% | 87,998 | 39.1% |
| St. Louis | 1,283 | 1.2% | 9,809 | 10.3% |
| Tampa | 2,796 | 2.7% | 19,662 | 22.8% |
| Trenton | 430 | 1.7% | 3,448 | 15.5% |
| Washington DC | 6,181 | 1.4% | 27,751 | 6.6% |

Sources: EMSI | U.S. Bureau of Labor Statistics | CompTIA

NET TECH EMPLOYMENT 2019 est.

| Rank | State | Employment |
|------|----------------|------------|
| | United States | 12,103,103 |
| 1. | New York City | 680,140 |
| 2. | Los Angeles | 520,022 |
| 3. | Washington DC | 448,413 |
| 4. | San Francisco | 410,635 |
| 5. | San Jose | 394,376 |
| 6. | Boston | 382,821 |
| 7. | Dallas | 361,849 |
| 8. | Chicago | 344,419 |
| 9. | Seattle | 312,913 |
| 10. | Atlanta | 271,039 |
| 11. | Detroit | 243,648 |
| 12. | Houston | 235,802 |
| 13. | Philadelphia | 231,207 |
| 14. | Minneapolis | 199,925 |
| 15. | Phoenix | 190,726 |
| 16. | Denver | 188,780 |
| 17. | San Diego | 185,415 |
| 18. | Austin | 165,624 |
| 19. | Miami | 150,062 |
| 20. | Portland | 140,383 |
| 21. | Baltimore | 140,184 |
| 22. | Tampa | 105,916 |
| 23. | St. Louis | 105,442 |
| 24. | Charlotte | 103,556 |
| 25. | Kansas City | 102,743 |
| 26. | Pittsburgh | 100,955 |
| 27. | Raleigh | 96,565 |
| 28. | Orlando | 96,124 |
| 29. | Cincinnati | 83,119 |
| 30. | Salt Lake City | 79,069 |
| 31. | Cleveland | 75,964 |
| 32. | Indianapolis | 74,217 |
| 33. | Milwaukee | 73,918 |
| 34. | Sacramento | 73,149 |
| 35. | San Antonio | 67,076 |
| 36. | Nashville | 63,213 |
| 37. | Hartford | 54,612 |
| 38. | Providence | 45,767 |
| 39. | Las Vegas | 44,985 |
| 40. | Oklahoma City | 40,034 |
| 41. | Buffalo | 38,865 |
| 42. | Albuquerque | 38,592 |
| 43. | Omaha | 37,131 |
| 44. | Birmingham | 31,215 |
| 45. | Des Moines | 30,607 |
| 46. | Boise City | 29,596 |
| 47. | Charleston | 28,418 |
| 48. | Memphis | 27,258 |
| 49. | Trenton | 25,683 |
| 50. | New Orleans | 25,216 |

NET TECH EMPLOYMENT JOBS ADDED 2019

| Rank | State | Jobs Added |
|------|----------------|------------|
| | United States | 307,017 |
| 1. | San Francisco | 21,046 |
| 2. | San Jose | 15,727 |
| 3. | New York City | 13,513 |
| 4. | Seattle | 12,605 |
| 5. | Boston | 10,704 |
| 6. | Dallas | 9,932 |
| 7. | Los Angeles | 8,735 |
| 8. | Atlanta | 7,903 |
| 9. | Denver | 7,342 |
| 10. | Austin | 7,131 |
| 11. | San Diego | 6,185 |
| 12. | Washington DC | 6,181 |
| 13. | Charlotte | 5,728 |
| 14. | Phoenix | 5,551 |
| 15. | Raleigh | 5,248 |
| 16. | Detroit | 5,235 |
| 17. | Chicago | 5,100 |
| 18. | Portland | 4,320 |
| 19. | Orlando | 4,309 |
| 20. | Minneapolis | 4,209 |
| 21. | Baltimore | 3,535 |
| 22. | Miami | 3,487 |
| 23. | Tampa | 2,796 |
| 24. | Salt Lake City | 2,530 |
| 25. | Cincinnati | 2,336 |
| 26. | Philadelphia | 2,323 |
| 27. | Kansas City | 2,291 |
| 28. | Las Vegas | 1,947 |
| 29. | Pittsburgh | 1,934 |
| 30. | Nashville | 1,770 |
| 31. | Charleston | 1,549 |
| 32. | San Antonio | 1,346 |
| 33. | Boise City | 1,333 |
| 34. | St. Louis | 1,283 |
| 35. | Cleveland | 1,264 |
| 36. | Des Moines | 1,084 |
| 37. | Buffalo | 1,030 |
| 38. | Houston | 826 |
| 39. | Indianapolis | 701 |
| 40. | Milwaukee | 662 |
| 41. | Oklahoma City | 587 |
| 42. | Hartford | 535 |
| 43. | Trenton | 430 |
| 44. | Providence | 313 |
| 45. | Sacramento | 263 |
| 46. | Albuquerque | 231 |
| 47. | Omaha | 174 |
| 48. | Memphis | 158 |
| 49. | Birmingham | 16 |
| 50. | New Orleans | -470 |

NET TECH EMPLOYMENT YOY % CHANGE 2019

| Rank | State | YoY % Change |
|------|----------------|--------------|
| | United States | 2.6% |
| 1. | Charlotte | 5.9% |
| 2. | Charleston | 5.8% |
| 3. | Raleigh | 5.7% |
| 4. | San Francisco | 5.4% |
| 5. | Boise City | 4.7% |
| 6. | Orlando | 4.7% |
| 7. | Las Vegas | 4.5% |
| 8. | Austin | 4.5% |
| 9. | Seattle | 4.2% |
| 10. | San Jose | 4.2% |
| 11. | Denver | 4.0% |
| 12. | Des Moines | 3.7% |
| 13. | San Diego | 3.5% |
| 14. | Salt Lake City | 3.3% |
| 15. | Portland | 3.2% |
| 16. | Atlanta | 3.0% |
| 17. | Phoenix | 3.0% |
| 18. | Cincinnati | 2.9% |
| 19. | Nashville | 2.9% |
| 20. | Boston | 2.9% |
| 21. | Dallas | 2.8% |
| 22. | Buffalo | 2.7% |
| 23. | Tampa | 2.7% |
| 24. | Baltimore | 2.6% |
| 25. | Miami | 2.4% |
| 26. | Kansas City | 2.3% |
| 27. | Detroit | 2.2% |
| 28. | Minneapolis | 2.2% |
| 29. | San Antonio | 2.0% |
| 30. | New York City | 2.0% |
| 31. | Pittsburgh | 2.0% |
| 32. | Los Angeles | 1.7% |
| 33. | Trenton | 1.7% |
| 34. | Cleveland | 1.7% |
| 35. | Chicago | 1.5% |
| 36. | Oklahoma City | 1.5% |
| 37. | Washington DC | 1.4% |
| 38. | St. Louis | 1.2% |
| 39. | Philadelphia | 1.0% |
| 40. | Hartford | 1.0% |
| 41. | Indianapolis | 1.0% |
| 42. | Milwaukee | 0.9% |
| 43. | Providence | 0.7% |
| 44. | Albuquerque | 0.6% |
| 45. | Memphis | 0.6% |
| 46. | Omaha | 0.5% |
| 47. | Sacramento | 0.4% |
| 48. | Houston | 0.4% |
| 49. | Birmingham | 0.1% |
| 50. | New Orleans | -1.8% |

APPENDIX TABLES – B

TECH OCCUPATION CHARACTERISTICS

U.S. TECH OCCUPATION EMPLOYMENT

APPENDIX B.1

Decade change calculation uses yearend 2009 as the starting point

| | <u>2010</u> | <u>2018</u> | <u>2019 est.</u> | <u>Numeric Change 2018-19</u> | <u>Percent Change 2018-19</u> | <u>Numeric Change 2010-19</u> | <u>Percent Change 2010-19</u> |
|---|-------------|-------------|------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| CIOs, IT directors, and managers | 291,350 | 402,568 | 421,053 | 18,485 | 4.6% | 136,946 | 48.2% |
| Information and data research scientists | 26,503 | 32,775 | 34,549 | 1,774 | 5.4% | 7,612 | 28.3% |
| Systems engineers and analysts | 516,653 | 611,774 | 624,287 | 12,513 | 2.0% | 100,518 | 19.2% |
| Cybersecurity analysts | 54,892 | 109,715 | 115,998 | 6,283 | 5.7% | 66,369 | 133.7% |
| Computer programmers | 357,925 | 249,647 | 233,162 | -16,486 | -6.6% | -151,060 | -39.3% |
| Software developers, applications | 511,625 | 942,182 | 998,321 | 56,139 | 6.0% | 504,374 | 102.1% |
| Software developers, systems | 396,346 | 424,333 | 429,754 | 5,421 | 1.3% | 38,265 | 9.8% |
| Web developers | 97,244 | 161,973 | 165,471 | 3,499 | 2.2% | 77,261 | 87.6% |
| Database administrators | 102,917 | 110,879 | 110,035 | -844 | -0.8% | 5,425 | 5.2% |
| Network and systems administrators | 332,309 | 366,824 | 365,473 | -1,351 | -0.4% | 31,479 | 9.4% |
| Network architects | 109,451 | 155,863 | 156,870 | 1,007 | 0.6% | 55,018 | 54.0% |
| IT user support specialists | 438,002 | 645,088 | 664,577 | 19,489 | 3.0% | 265,382 | 66.5% |
| Network support specialists | 139,822 | 183,037 | 183,141 | 104 | 0.1% | 56,168 | 44.2% |
| Computer occupations, other | 194,625 | 407,044 | 446,518 | 39,475 | 9.7% | 243,528 | 120.0% |
| Computer hardware engineers | 71,169 | 63,878 | 60,173 | -3,705 | -5.8% | -5,725 | -8.7% |
| Computer, ATM, and office machine repairers | 136,012 | 119,504 | 117,006 | -2,498 | -2.1% | -17,237 | -12.8% |
| SUBTOTAL | 3,776,844 | 4,987,084 | 5,126,388 | 139,304 | 2.8% | 1,414,322 | 38.1% |
| Other engineering, technician, repair, and assembly | 2,546,806 | 2,882,355 | 2,930,075 | 47,720 | 1.7% | 394,515 | 15.6% |
| SUBTOTAL | 2,546,806 | 2,882,355 | 2,930,075 | 47,720 | 1.7% | 394,515 | 15.6% |
| TOTAL | 6,323,650 | 7,869,439 | 8,056,463 | 187,024 | 2.4% | 1,808,837 | 29.0% |

Sources: EMSI | U.S. Bureau of Labor Statistics | CompTIA

Decade projection calculation uses yearend 2017 as the starting point

| | <u>2018</u> | <u>Proj. 2028</u> | <u>Proj. Numeric Change 2018-28</u> | <u>Proj. Percent Change 2018-28</u> | <u>Proj. Annual Replacement Count 2018-28</u> | <u>Proj. Annual Replacement Percent 2018-28</u> |
|---|-------------|-------------------|---|---|---|---|
| CIOs, IT directors, and managers | 402,568 | 463,350 | 87,808 | 23.4% | 33,876 | 7.8% |
| Information and data research scientists | 32,775 | 39,222 | 9,303 | 31.1% | 2,780 | 7.7% |
| Systems engineers and analysts | 611,774 | 688,891 | 84,020 | 13.9% | 46,945 | 7.2% |
| Cybersecurity analysts | 109,715 | 145,643 | 39,505 | 37.2% | 9,062 | 7.1% |
| Computer programmers | 249,647 | 247,432 | -17,687 | -6.7% | 17,494 | 7.0% |
| Software developers, applications | 942,182 | 1,210,779 | 326,462 | 36.9% | 75,560 | 7.0% |
| Software developers, systems | 424,333 | 485,500 | 73,527 | 17.8% | 32,020 | 7.0% |
| Web developers | 161,973 | 193,186 | 34,406 | 21.7% | 13,533 | 7.6% |
| Database administrators | 110,879 | 125,191 | 11,231 | 9.9% | 8,392 | 7.1% |
| Network and systems administrators | 366,824 | 400,296 | 24,788 | 6.6% | 26,919 | 7.0% |
| Network architects | 155,863 | 169,533 | 8,756 | 5.4% | 11,403 | 7.0% |
| IT user support specialists | 645,088 | 740,929 | 114,913 | 18.4% | 56,946 | 8.2% |
| Network support specialists | 183,037 | 200,689 | 12,941 | 6.9% | 15,750 | 8.2% |
| Emerging tech, proj. mgt., data, and other | 407,044 | 465,553 | 106,613 | 29.7% | 31,924 | 7.3% |
| Computer hardware engineers | 63,878 | 70,956 | 2,880 | 4.2% | 4,887 | 7.2% |
| Computer, ATM, and office machine repairers | 119,504 | 118,432 | -2,110 | -1.8% | 12,659 | 10.6% |
| SUBTOTAL | 4,987,084 | 5,765,582 | 917,357 | 18.9% | 400,150 | 7.5% |
| Other engineering, technician, repair, and assembly | 2,882,355 | 3,052,276 | 235,847 | 8.4% | 260,324 | 9.2% |
| SUBTOTAL | 2,882,355 | 3,052,276 | 235,847 | 8.4% | 260,324 | 9.2% |
| TOTAL | 7,869,439 | 8,817,858 | 1,153,204 | 15.0% | 660,474 | 8.1% |

STATE TECH OCCUPATION EMPLOYMENT 2028 OUTLOOK

APPENDIX B.3

Decade projection calculation uses yearend 2017 as the starting point

| | <u>2018</u> | <u>Proj. 2028</u> | <u>Proj. Numeric Change 2018-28</u> | <u>Proj. Percent Change 2018-28</u> | <u>Proj. Annual Replacement Count 2018-28</u> | <u>Proj. Annual Replacement Percent 2018-28</u> |
|----------------------|-------------|-------------------|---|---|---|---|
| Alabama | 101,610 | 112,137 | 12,725 | 12.8% | 8,532 | 8.3% |
| Alaska | 12,008 | 12,142 | 136 | 1.1% | 971 | 8.3% |
| Arizona | 163,403 | 191,164 | 34,064 | 21.7% | 14,027 | 8.1% |
| Arkansas | 43,801 | 47,959 | 3,546 | 8.0% | 3,741 | 8.5% |
| California | 1,116,606 | 1,258,617 | 178,671 | 16.5% | 93,281 | 8.0% |
| Colorado | 187,740 | 224,773 | 45,101 | 25.1% | 15,897 | 7.9% |
| Connecticut | 97,019 | 97,735 | 1,604 | 1.7% | 7,646 | 8.1% |
| Delaware | 23,843 | 24,905 | 1,836 | 8.0% | 1,848 | 7.8% |
| District of Columbia | 59,106 | 64,095 | 4,691 | 7.9% | 4,634 | 7.6% |
| Florida | 365,486 | 423,052 | 69,680 | 19.7% | 31,807 | 8.3% |
| Georgia | 245,516 | 280,469 | 40,526 | 16.9% | 20,675 | 8.1% |
| Hawaii | 21,357 | 21,865 | 730 | 3.5% | 1,720 | 8.3% |
| Idaho | 31,297 | 37,162 | 7,371 | 24.7% | 2,729 | 8.2% |
| Illinois | 302,055 | 321,156 | 22,724 | 7.6% | 24,547 | 8.1% |
| Indiana | 135,342 | 150,511 | 17,103 | 12.8% | 11,592 | 8.4% |
| Iowa | 69,651 | 77,388 | 10,150 | 15.1% | 5,962 | 8.4% |
| Kansas | 66,973 | 71,217 | 5,127 | 7.8% | 5,475 | 8.2% |
| Kentucky | 68,561 | 75,507 | 6,679 | 9.7% | 5,812 | 8.4% |
| Louisiana | 54,294 | 60,527 | 6,870 | 12.8% | 4,692 | 8.5% |
| Maine | 25,953 | 28,323 | 3,541 | 14.3% | 2,190 | 8.3% |
| Maryland | 194,139 | 213,701 | 24,347 | 12.9% | 15,601 | 7.8% |
| Massachusetts | 245,242 | 267,650 | 27,924 | 11.6% | 19,947 | 8.0% |
| Michigan | 293,978 | 321,159 | 34,517 | 12.0% | 23,963 | 8.0% |
| Minnesota | 172,699 | 181,909 | 12,404 | 7.3% | 14,102 | 8.2% |
| Mississippi | 33,107 | 35,654 | 2,311 | 6.9% | 2,930 | 8.8% |
| Missouri | 145,187 | 163,318 | 21,378 | 15.1% | 12,328 | 8.3% |
| Montana | 14,888 | 16,621 | 2,083 | 14.3% | 1,265 | 8.3% |
| Nebraska | 45,254 | 49,667 | 4,940 | 11.0% | 3,752 | 8.1% |
| Nevada | 45,229 | 58,414 | 17,547 | 42.9% | 4,464 | 8.9% |
| New Hampshire | 46,929 | 51,579 | 5,633 | 12.3% | 4,003 | 8.4% |
| New Jersey | 220,601 | 235,418 | 18,314 | 8.4% | 17,686 | 8.0% |
| New Mexico | 35,876 | 38,399 | 3,414 | 9.8% | 2,951 | 8.1% |
| New York | 431,776 | 478,648 | 53,565 | 12.6% | 36,134 | 8.2% |
| North Carolina | 231,176 | 264,401 | 40,204 | 17.9% | 19,757 | 8.2% |
| North Dakota | 16,154 | 17,648 | 1,631 | 10.2% | 1,397 | 8.5% |
| Ohio | 290,506 | 312,165 | 27,599 | 9.7% | 24,049 | 8.2% |
| Oklahoma | 68,418 | 75,559 | 10,462 | 16.1% | 5,936 | 8.5% |
| Oregon | 108,736 | 121,028 | 14,679 | 13.8% | 9,120 | 8.2% |
| Pennsylvania | 294,876 | 317,240 | 28,757 | 10.0% | 24,488 | 8.2% |
| Rhode Island | 24,974 | 26,932 | 2,406 | 9.8% | 2,030 | 8.1% |
| South Carolina | 89,242 | 105,553 | 18,537 | 21.3% | 7,828 | 8.3% |
| South Dakota | 14,908 | 16,776 | 2,291 | 15.8% | 1,314 | 8.6% |
| Tennessee | 125,931 | 143,575 | 19,711 | 15.9% | 11,159 | 8.6% |
| Texas | 643,555 | 765,675 | 148,748 | 24.1% | 56,179 | 8.2% |
| Utah | 91,966 | 118,445 | 30,050 | 34.0% | 8,280 | 8.1% |
| Vermont | 15,708 | 16,147 | 504 | 3.2% | 1,297 | 8.3% |
| Virginia | 295,795 | 334,745 | 45,747 | 15.8% | 24,154 | 7.8% |
| Washington | 256,303 | 289,162 | 41,378 | 16.7% | 20,937 | 7.8% |
| West Virginia | 20,370 | 22,760 | 2,724 | 13.6% | 1,722 | 8.2% |
| Wisconsin | 157,978 | 169,983 | 15,443 | 10.0% | 13,364 | 8.4% |
| Wyoming | 6,318 | 7,219 | 1,078 | 17.5% | 558 | 8.5% |

Sources: EMSI | U.S. Bureau of Labor Statistics | CompTIA

METRO AREA TECH OCCUPATION 2028 OUTLOOK

APPENDIX B.4

Decade projection calculation uses yearend 2017 as the starting point

| | <u>2018</u> | <u>Proj. 2028</u> | <u>Proj. Numeric Change 2018-28</u> | <u>Proj. Percent Change 2018-28</u> | <u>Proj. Annual Replacement Count 2018-28</u> | <u>Proj. Annual Replacement Percent 2018-28</u> |
|----------------|-------------|-------------------|-------------------------------------|-------------------------------------|---|---|
| Albuquerque | 20,760 | 21,261 | 878 | 4.3% | 1,651 | 8.1% |
| Atlanta | 176,606 | 200,252 | 28,730 | 16.7% | 14,672 | 7.9% |
| Austin | 89,316 | 114,868 | 30,735 | 36.5% | 7,897 | 7.9% |
| Baltimore | 91,300 | 102,019 | 13,582 | 15.4% | 7,437 | 7.9% |
| Birmingham | 22,173 | 22,730 | 715 | 3.2% | 1,810 | 8.3% |
| Boise | 17,354 | 20,481 | 4,008 | 24.3% | 1,492 | 8.1% |
| Boston | 207,849 | 229,774 | 26,671 | 13.1% | 16,957 | 7.9% |
| Buffalo | 24,138 | 26,532 | 3,058 | 13.0% | 2,047 | 8.4% |
| Charleston | 18,174 | 22,139 | 4,637 | 26.5% | 1,597 | 8.2% |
| Charlotte | 69,597 | 79,647 | 12,309 | 18.3% | 5,817 | 8.0% |
| Chicago | 230,349 | 240,310 | 11,924 | 5.2% | 18,424 | 8.0% |
| Cincinnati | 59,651 | 64,371 | 5,943 | 10.2% | 4,942 | 8.2% |
| Cleveland | 55,890 | 57,863 | 3,021 | 5.5% | 4,562 | 8.3% |
| Dallas | 234,193 | 273,905 | 48,683 | 21.6% | 20,174 | 8.2% |
| Denver | 115,388 | 139,681 | 29,836 | 27.2% | 9,748 | 7.8% |
| Des Moines | 22,044 | 24,530 | 3,215 | 15.1% | 1,808 | 8.0% |
| Detroit | 172,620 | 183,733 | 14,635 | 8.7% | 13,499 | 7.8% |
| Hartford | 40,410 | 41,581 | 1,698 | 4.3% | 3,212 | 8.0% |
| Houston | 150,939 | 163,792 | 17,784 | 12.2% | 12,576 | 8.2% |
| Indianapolis | 52,288 | 58,342 | 6,338 | 12.2% | 4,335 | 8.1% |
| Kansas City | 67,646 | 75,840 | 9,589 | 14.5% | 5,507 | 7.9% |
| Las Vegas | 29,407 | 36,691 | 8,839 | 31.7% | 2,737 | 8.6% |
| Los Angeles | 332,460 | 345,501 | 19,141 | 5.9% | 27,258 | 8.3% |
| Memphis | 20,515 | 21,669 | 1,520 | 7.5% | 1,713 | 8.4% |
| Miami | 91,783 | 103,307 | 13,596 | 15.2% | 7,878 | 8.3% |
| Milwaukee | 54,583 | 54,405 | 349 | 0.6% | 4,485 | 8.5% |
| Minneapolis | 136,636 | 142,808 | 9,356 | 7.0% | 11,059 | 8.1% |
| Nashville | 44,945 | 53,723 | 9,494 | 21.5% | 4,039 | 8.4% |
| New Orleans | 17,204 | 17,954 | 658 | 3.8% | 1,428 | 8.4% |
| New York City | 433,463 | 476,354 | 49,852 | 11.7% | 35,641 | 8.1% |
| Oklahoma City | 30,879 | 33,019 | 3,261 | 11.0% | 2,577 | 8.3% |
| Omaha | 27,132 | 28,602 | 1,527 | 5.6% | 2,172 | 8.0% |
| Orlando | 57,926 | 67,580 | 12,109 | 21.8% | 5,060 | 8.3% |
| Philadelphia | 148,320 | 152,780 | 7,069 | 4.9% | 11,712 | 8.0% |
| Phoenix | 124,749 | 145,392 | 25,198 | 21.0% | 10,726 | 8.2% |
| Pittsburgh | 66,530 | 70,623 | 5,734 | 8.8% | 5,473 | 8.2% |
| Portland | 89,353 | 99,396 | 12,351 | 14.2% | 7,466 | 8.1% |
| Providence | 32,594 | 33,455 | 1,183 | 3.7% | 2,616 | 8.2% |
| Raleigh | 53,922 | 63,157 | 11,182 | 21.5% | 4,635 | 8.1% |
| Sacramento | 51,392 | 55,236 | 4,897 | 9.7% | 4,170 | 8.0% |
| Salt Lake City | 49,797 | 62,758 | 14,766 | 30.8% | 4,437 | 8.1% |
| San Antonio | 42,168 | 49,433 | 8,241 | 20.0% | 3,668 | 8.3% |
| San Diego | 108,862 | 121,326 | 17,102 | 16.4% | 9,001 | 8.0% |
| San Francisco | 218,369 | 268,200 | 58,418 | 27.8% | 18,621 | 7.8% |
| San Jose | 219,569 | 255,191 | 46,117 | 22.1% | 18,092 | 7.7% |
| Seattle | 202,715 | 229,027 | 33,412 | 17.1% | 16,409 | 7.7% |
| St. Louis | 74,425 | 79,385 | 6,701 | 9.2% | 6,100 | 8.2% |
| Tampa | 64,725 | 72,914 | 10,276 | 16.4% | 5,547 | 8.3% |
| Trenton | 15,713 | 17,530 | 1,992 | 12.8% | 1,267 | 7.8% |
| Washington DC | 294,909 | 319,587 | 28,376 | 9.7% | 23,056 | 7.6% |

Sources: EMSI | U.S. Bureau of Labor Statistics | CompTIA

| | Count of Tech Sector Male Workers | Count of Tech Sector Female Workers | % of Tech Sector Male Workers | % of Tech Sector Female Workers |
|--|---|---|----------------------------------|------------------------------------|
| TECHNOLOGY MANUFACTURING | | | | |
| Computer and Peripheral Equipment Manufacturing | 112,255 | 48,718 | 70% | 30% |
| Communications Equipment Consumer Electronics Manufacturing | 74,842 | 31,059 | 71% | 29% |
| Electronic Components Manufacturing | 117,904 | 73,856 | 61% | 39% |
| Semiconductor Manufacturing | 149,722 | 59,480 | 72% | 28% |
| Measuring and Control Instruments Manufacturing | 280,398 | 137,216 | 67% | 33% |
| Reproducing Magnetic and Optical Media Manufacturing | 8,973 | 4,176 | 68% | 32% |
| Space and Defense Systems Manufacturing | 63,409 | 19,609 | 76% | 24% |
| SUBTOTAL | 807,504 | 374,115 | 68% | 32% |
| TELECOMMUNICATIONS AND INTERNET SERVICES | | | | |
| Telecommunications | | | | |
| Wired Telecommunication Carriers | 371,689 | 167,894 | 69% | 31% |
| Wireless Telecomm. Carriers (except Satellite) | 76,949 | 38,350 | 67% | 33% |
| Satellite Telecommunications | 6,197 | 2,416 | 72% | 28% |
| Telecommunication Resellers | 33,943 | 17,839 | 66% | 34% |
| All Other Telecommunications | 22,963 | 10,652 | 68% | 32% |
| SUBTOTAL | 511,741 | 237,151 | 68% | 32% |
| Internet Hosting, Web Search, and Related Services | | | | |
| Data Processing, Hosting, and Related Services | 200,736 | 143,405 | 58% | 42% |
| Internet Publishing and Web Search Portals | 165,073 | 110,986 | 60% | 40% |
| SUBTOTAL | 365,809 | 254,391 | 59% | 41% |
| SOFTWARE | | | | |
| Software Publishers | 290,226 | 142,906 | 67% | 33% |
| SUBTOTAL | 290,226 | 142,906 | 67% | 33% |
| IT SERVICES | | | | |
| Computer Systems Design and Related Services | | | | |
| Custom Computer Programming Services | 708,234 | 315,929 | 69% | 31% |
| Computer Systems Design Services | 741,313 | 335,740 | 69% | 31% |
| Computer Facilities Management Services | 54,554 | 26,794 | 67% | 33% |
| Other Computer Related Services | 89,236 | 39,345 | 69% | 31% |
| SUBTOTAL | 1,593,336 | 717,808 | 69% | 31% |
| Computer and Electronic Repair and Maintenance | | | | |
| Consumer Electronics Repair and Maintenance | 13,063 | 3,825 | 77% | 23% |
| Computer and Office Machine Repair and Maintenance | 38,554 | 10,022 | 79% | 21% |
| Communication Equipment Repair and Maintenance | 13,623 | 3,917 | 78% | 22% |
| Other Electronic and Precision Equipment | 32,447 | 9,157 | 78% | 22% |
| SUBTOTAL | 97,687 | 26,921 | 78% | 22% |
| Other | | | | |
| Computer Training | 8,616 | 9,866 | 47% | 53% |
| Computer & Peripheral Equip. & Software Wholesalers | 145,276 | 76,717 | 65% | 35% |
| SUBTOTAL | 153,892 | 86,583 | 64% | 36% |
| ENGINEERING SERVICES, R&D, AND TESTING SERVICES | | | | |
| Engineering Services | 744,862 | 286,151 | 72% | 28% |
| SUBTOTAL | 744,862 | 286,151 | 72% | 28% |
| R&D and Testing Labs | | | | |
| Testing Laboratories | 126,454 | 48,351 | 72% | 28% |
| | 10,974 | 8,830 | 55% | 45% |
| R&D in Biotechnology | 107,935 | 98,648 | 52% | 48% |
| R&D in the Physical, Eng., and Life Sciences | 252,549 | 178,156 | 59% | 41% |
| SUBTOTAL | 497,911 | 333,985 | 60% | 40% |
| TOTAL TECH MANUFACTURING | 807,504 | 374,115 | 68% | 32% |
| TOTAL TELECOMMUNICATIONS & INTERNET SERVICES | 877,549 | 491,542 | 64% | 36% |
| TOTAL SOFTWARE | 290,226 | 142,906 | 67% | 33% |
| TOTAL IT SERVICES | 1,844,915 | 831,313 | 69% | 31% |
| TOTAL ENGINEERING SERVICES, R&D, AND TESTING SERVICES | 1,242,773 | 620,135 | 67% | 33% |
| TOTAL TECH EMPLOYMENT BY GENDER | 5,062,968 | 2,460,011 | 67% | 33% |

Sources: EMSI | U.S. Bureau of Labor Statistics | CompTIA

Minor differences may exist between the totals on this page and industry totals presented throughout this report

TECH INDUSTRY GENDER DISTRIBUTION, 2019

TECH INDUSTRY GENDER RATIOS, 2019

| <u>Rank</u> | <u>State</u> | <u>Number of Tech Sector Male Workers</u> | <u>Number of Tech Sector Female Workers</u> |
|-------------|----------------------|---|---|
| | United States | 5,062,968 | 2,460,011 |
| 1. | California | 900,359 | 438,873 |
| 2. | Texas | 454,733 | 204,516 |
| 3. | New York | 264,969 | 145,093 |
| 4. | Florida | 248,572 | 119,894 |
| 5. | Massachusetts | 219,266 | 115,127 |
| 6. | Virginia | 209,791 | 101,205 |
| 7. | Pennsylvania | 170,921 | 86,661 |
| 8. | Washington | 178,862 | 83,171 |
| 9. | Illinois | 168,247 | 80,752 |
| 10. | North Carolina | 143,906 | 77,933 |
| 11. | Georgia | 144,318 | 75,670 |
| 12. | New Jersey | 145,680 | 74,941 |
| 13. | Colorado | 150,830 | 66,801 |
| 14. | Maryland | 130,934 | 66,787 |
| 15. | Michigan | 154,200 | 65,424 |
| 16. | Ohio | 135,513 | 62,472 |
| 17. | Minnesota | 95,856 | 48,274 |
| 18. | Arizona | 110,075 | 48,206 |
| 19. | Missouri | 77,854 | 42,388 |
| 20. | Wisconsin | 69,729 | 37,666 |
| 21. | Oregon | 76,204 | 31,961 |
| 22. | Alabama | 60,768 | 28,322 |
| 23. | Utah | 71,798 | 28,017 |
| 24. | Indiana | 58,243 | 27,854 |
| 25. | Tennessee | 57,904 | 26,914 |
| 26. | Connecticut | 49,848 | 25,325 |
| 27. | South Carolina | 44,060 | 24,025 |
| 28. | Iowa | 31,260 | 16,661 |
| 29. | Kansas | 33,524 | 16,606 |
| 30. | Kentucky | 33,742 | 16,478 |
| 31. | District of Columbia | 24,723 | 16,263 |
| 32. | New Mexico | 34,717 | 16,262 |
| 33. | New Hampshire | 32,279 | 15,781 |
| 34. | Louisiana | 34,933 | 14,942 |
| 35. | Oklahoma | 27,318 | 12,030 |
| 36. | Nevada | 26,218 | 11,965 |
| 37. | Nebraska | 24,142 | 11,956 |
| 38. | Idaho | 26,875 | 10,455 |
| 39. | Arkansas | 17,801 | 8,148 |
| 40. | Mississippi | 14,211 | 7,118 |
| 41. | Maine | 12,644 | 6,827 |
| 42. | Rhode Island | 13,890 | 6,203 |
| 43. | Delaware | 12,317 | 5,970 |
| 44. | Hawaii | 10,812 | 5,493 |
| 45. | Montana | 9,679 | 4,725 |
| 46. | West Virginia | 11,581 | 4,721 |
| 47. | South Dakota | 7,314 | 4,238 |
| 48. | Vermont | 10,049 | 4,087 |
| 49. | North Dakota | 8,661 | 4,000 |
| 50. | Alaska | 7,158 | 3,340 |
| 51. | Wyoming | 3,678 | 1,470 |

| <u>Rank</u> | <u>State</u> | <u>Percent of Tech Sector Male Workers</u> | <u>Percent of Tech Sector Female Workers</u> |
|-------------|----------------------|--|--|
| | United States | 67.3% | 32.7% |
| 1. | District of Columbia | 60.3% | 39.7% |
| 2. | South Dakota | 63.3% | 36.7% |
| 3. | New York | 64.6% | 35.4% |
| 4. | South Carolina | 64.7% | 35.3% |
| 5. | Missouri | 64.7% | 35.3% |
| 6. | North Carolina | 64.9% | 35.1% |
| 7. | Wisconsin | 64.9% | 35.1% |
| 8. | Maine | 64.9% | 35.1% |
| 9. | Iowa | 65.2% | 34.8% |
| 10. | Massachusetts | 65.6% | 34.4% |
| 11. | Georgia | 65.6% | 34.4% |
| 12. | New Jersey | 66.0% | 34.0% |
| 13. | Maryland | 66.2% | 33.8% |
| 14. | Hawaii | 66.3% | 33.7% |
| 15. | Connecticut | 66.3% | 33.7% |
| 16. | Pennsylvania | 66.4% | 33.6% |
| 17. | Minnesota | 66.5% | 33.5% |
| 18. | Mississippi | 66.6% | 33.4% |
| 19. | Kansas | 66.9% | 33.1% |
| 20. | Nebraska | 66.9% | 33.1% |
| 21. | New Hampshire | 67.2% | 32.8% |
| 22. | Kentucky | 67.2% | 32.8% |
| 23. | Montana | 67.2% | 32.8% |
| 24. | California | 67.2% | 32.8% |
| 25. | Delaware | 67.4% | 32.6% |
| 26. | Virginia | 67.5% | 32.5% |
| 27. | Florida | 67.5% | 32.5% |
| 28. | Illinois | 67.6% | 32.4% |
| 29. | Indiana | 67.6% | 32.4% |
| 30. | New Mexico | 68.1% | 31.9% |
| 31. | Alaska | 68.2% | 31.8% |
| 32. | Alabama | 68.2% | 31.8% |
| 33. | Washington | 68.3% | 31.7% |
| 34. | Tennessee | 68.3% | 31.7% |
| 35. | North Dakota | 68.4% | 31.6% |
| 36. | Ohio | 68.4% | 31.6% |
| 37. | Arkansas | 68.6% | 31.4% |
| 38. | Nevada | 68.7% | 31.3% |
| 39. | Texas | 69.0% | 31.0% |
| 40. | Rhode Island | 69.1% | 30.9% |
| 41. | Colorado | 69.3% | 30.7% |
| 42. | Oklahoma | 69.4% | 30.6% |
| 43. | Arizona | 69.5% | 30.5% |
| 44. | Louisiana | 70.0% | 30.0% |
| 45. | Michigan | 70.2% | 29.8% |
| 46. | Oregon | 70.5% | 29.5% |
| 47. | West Virginia | 71.0% | 29.0% |
| 48. | Vermont | 71.1% | 28.9% |
| 49. | Wyoming | 71.4% | 28.6% |
| 50. | Utah | 71.9% | 28.1% |
| 51. | Idaho | 72.0% | 28.0% |

Source: EMSI | U.S. Bureau of Labor Statistics | CompTIA

Minor differences may exist between the totals on this page and industry totals presented throughout this report

TECH OCCUPATION GENDER DISTRIBUTION, 2019

TECH OCCUPATION GENDER RATIOS, 2019

| Rank | State | Count of Tech Occupation Male Workers | Count of Tech Occupation Female Workers |
|------|----------------------|---|---|
| | United States | 6,239,446 | 1,738,924 |
| 1. | California | 891,999 | 243,785 |
| 2. | Texas | 521,327 | 136,887 |
| 3. | New York | 340,504 | 95,134 |
| 4. | Florida | 292,548 | 80,814 |
| 5. | Virginia | 230,697 | 68,410 |
| 6. | Illinois | 236,618 | 66,845 |
| 7. | Ohio | 229,738 | 63,466 |
| 8. | Pennsylvania | 235,435 | 62,545 |
| 9. | Michigan | 236,028 | 60,095 |
| 10. | Georgia | 189,681 | 59,665 |
| 11. | North Carolina | 179,634 | 54,776 |
| 12. | Washington | 207,322 | 54,765 |
| 13. | Massachusetts | 194,063 | 54,451 |
| 14. | New Jersey | 173,285 | 48,653 |
| 15. | Maryland | 148,820 | 47,214 |
| 16. | Colorado | 150,772 | 40,514 |
| 17. | Minnesota | 134,149 | 39,489 |
| 18. | Wisconsin | 121,307 | 38,016 |
| 19. | Arizona | 132,313 | 34,697 |
| 20. | Missouri | 111,974 | 34,668 |
| 21. | Indiana | 106,428 | 30,747 |
| 22. | Tennessee | 99,164 | 28,741 |
| 23. | Oregon | 87,786 | 22,741 |
| 24. | Alabama | 81,019 | 22,160 |
| 25. | South Carolina | 69,825 | 20,943 |
| 26. | Connecticut | 76,009 | 20,872 |
| 27. | Utah | 77,167 | 17,339 |
| 28. | District of Columbia | 42,568 | 16,991 |
| 29. | Iowa | 54,080 | 16,300 |
| 30. | Kentucky | 54,458 | 14,511 |
| 31. | Oklahoma | 55,974 | 13,306 |
| 32. | Kansas | 54,274 | 13,098 |
| 33. | Nebraska | 34,830 | 10,813 |
| 34. | New Hampshire | 36,785 | 10,656 |
| 35. | Louisiana | 44,352 | 10,632 |
| 36. | Nevada | 36,769 | 10,136 |
| 37. | Arkansas | 34,133 | 10,116 |
| 38. | Mississippi | 25,683 | 7,875 |
| 39. | New Mexico | 29,657 | 6,785 |
| 40. | Idaho | 25,714 | 6,256 |
| 41. | Maine | 20,480 | 5,842 |
| 42. | Rhode Island | 19,446 | 5,639 |
| 43. | Delaware | 18,505 | 5,334 |
| 44. | Hawaii | 16,665 | 4,465 |
| 45. | West Virginia | 16,436 | 4,114 |
| 46. | South Dakota | 11,376 | 3,732 |
| 47. | North Dakota | 12,799 | 3,446 |
| 48. | Montana | 11,503 | 3,440 |
| 49. | Vermont | 12,571 | 3,293 |
| 50. | Alaska | 9,559 | 2,477 |
| 51. | Wyoming | 5,219 | 1,237 |

| Rank | State | % of Tech Occupation Male Workers | % of Tech Occupation Female Workers |
|------|----------------------|---|---|
| | United States | 78.2% | 21.8% |
| 1. | District of Columbia | 71.5% | 28.5% |
| 2. | South Dakota | 75.3% | 24.7% |
| 3. | Maryland | 75.9% | 24.1% |
| 4. | Georgia | 76.1% | 23.9% |
| 5. | Wisconsin | 76.1% | 23.9% |
| 6. | Nebraska | 76.3% | 23.7% |
| 7. | Missouri | 76.4% | 23.6% |
| 8. | Mississippi | 76.5% | 23.5% |
| 9. | North Carolina | 76.6% | 23.4% |
| 10. | Iowa | 76.8% | 23.2% |
| 11. | South Carolina | 76.9% | 23.1% |
| 12. | Montana | 77.0% | 23.0% |
| 13. | Virginia | 77.1% | 22.9% |
| 14. | Arkansas | 77.1% | 22.9% |
| 15. | Minnesota | 77.3% | 22.7% |
| 16. | Rhode Island | 77.5% | 22.5% |
| 17. | Tennessee | 77.5% | 22.5% |
| 18. | New Hampshire | 77.5% | 22.5% |
| 19. | Indiana | 77.6% | 22.4% |
| 20. | Delaware | 77.6% | 22.4% |
| 21. | Maine | 77.8% | 22.2% |
| 22. | Illinois | 78.0% | 22.0% |
| 23. | New Jersey | 78.1% | 21.9% |
| 24. | Massachusetts | 78.1% | 21.9% |
| 25. | New York | 78.2% | 21.8% |
| 26. | Ohio | 78.4% | 21.6% |
| 27. | Florida | 78.4% | 21.6% |
| 28. | Nevada | 78.4% | 21.6% |
| 29. | Connecticut | 78.5% | 21.5% |
| 30. | Alabama | 78.5% | 21.5% |
| 31. | California | 78.5% | 21.5% |
| 32. | North Dakota | 78.8% | 21.2% |
| 33. | Colorado | 78.8% | 21.2% |
| 34. | Hawaii | 78.9% | 21.1% |
| 35. | Kentucky | 79.0% | 21.0% |
| 36. | Pennsylvania | 79.0% | 21.0% |
| 37. | Washington | 79.1% | 20.9% |
| 38. | Texas | 79.2% | 20.8% |
| 39. | Arizona | 79.2% | 20.8% |
| 40. | Vermont | 79.2% | 20.8% |
| 41. | Alaska | 79.4% | 20.6% |
| 42. | Oregon | 79.4% | 20.6% |
| 43. | Michigan | 79.7% | 20.3% |
| 44. | West Virginia | 80.0% | 20.0% |
| 45. | Idaho | 80.4% | 19.6% |
| 46. | Kansas | 80.6% | 19.4% |
| 47. | Louisiana | 80.7% | 19.3% |
| 48. | Oklahoma | 80.8% | 19.2% |
| 49. | Wyoming | 80.8% | 19.2% |
| 50. | New Mexico | 81.4% | 18.6% |
| 51. | Utah | 81.7% | 18.3% |

Source: EMSI | U.S. Bureau of Labor Statistics | CompTIA

Minor differences may exist between the totals on this page and industry totals presented throughout this report

APPENDIX TABLES – C

WAGES & ECONOMIC IMPACT

STATE TECH OCCUPATION WAGE PERCENTILES

APPENDIX C.1

2018 estimates (most current data available)

| | <u>10th Percentile</u> | <u>25th Percentile</u> | <u>50th (median) Percentile</u> | <u>75th Percentile</u> | <u>90th Percentile</u> | <u>Percent Greater Than Median Wage</u> |
|----------------------|---------------------------------------|---------------------------------------|--|---------------------------------------|---------------------------------------|---|
| United States | \$50,189 | \$64,519 | \$84,284 | \$107,676 | \$137,716 | 90% |
| Alabama | \$48,259 | \$61,415 | \$78,684 | \$99,060 | \$120,453 | 106% |
| Alaska | \$54,866 | \$67,909 | \$84,941 | \$105,086 | \$126,007 | 63% |
| Arizona | \$48,132 | \$61,259 | \$79,851 | \$101,275 | \$124,765 | 89% |
| Arkansas | \$39,361 | \$49,208 | \$62,823 | \$79,595 | \$97,567 | 76% |
| California | \$58,948 | \$76,784 | \$100,401 | \$128,078 | \$165,886 | 98% |
| Colorado | \$56,432 | \$71,962 | \$92,251 | \$115,788 | \$144,771 | 92% |
| Connecticut | \$55,225 | \$69,390 | \$87,842 | \$108,928 | \$136,843 | 67% |
| Delaware | \$60,407 | \$73,071 | \$91,550 | \$113,410 | \$138,786 | 97% |
| District of Columbia | \$70,502 | \$89,547 | \$112,928 | \$135,439 | \$164,291 | 42% |
| Florida | \$42,100 | \$54,322 | \$71,862 | \$92,996 | \$115,457 | 86% |
| Georgia | \$49,649 | \$63,911 | \$82,783 | \$103,802 | \$127,503 | 99% |
| Hawaii | \$50,545 | \$63,288 | \$78,536 | \$95,849 | \$114,172 | 69% |
| Idaho | \$41,174 | \$53,689 | \$71,070 | \$91,273 | \$112,030 | 88% |
| Illinois | \$49,798 | \$63,976 | \$82,966 | \$103,943 | \$126,128 | 80% |
| Indiana | \$43,249 | \$53,372 | \$67,061 | \$85,473 | \$105,473 | 72% |
| Iowa | \$46,809 | \$58,557 | \$72,817 | \$89,069 | \$107,288 | 79% |
| Kansas | \$45,091 | \$56,300 | \$71,160 | \$89,520 | \$108,595 | 79% |
| Kentucky | \$40,528 | \$51,906 | \$67,170 | \$85,330 | \$104,510 | 78% |
| Louisiana | \$40,365 | \$51,800 | \$68,134 | \$88,422 | \$110,756 | 83% |
| Maine | \$48,915 | \$59,850 | \$74,725 | \$91,545 | \$111,213 | 83% |
| Maryland | \$58,295 | \$76,434 | \$98,961 | \$122,556 | \$154,136 | 91% |
| Massachusetts | \$59,617 | \$74,789 | \$95,377 | \$119,354 | \$150,323 | 73% |
| Michigan | \$48,047 | \$60,738 | \$77,189 | \$96,299 | \$115,690 | 81% |
| Minnesota | \$52,448 | \$64,941 | \$81,904 | \$101,417 | \$121,789 | 72% |
| Mississippi | \$38,800 | \$49,393 | \$63,024 | \$80,763 | \$98,562 | 86% |
| Missouri | \$45,241 | \$57,132 | \$73,441 | \$92,370 | \$112,044 | 83% |
| Montana | \$39,867 | \$50,208 | \$62,586 | \$78,666 | \$102,939 | 64% |
| Nebraska | \$45,811 | \$57,716 | \$73,475 | \$90,983 | \$107,923 | 80% |
| Nevada | \$41,891 | \$54,670 | \$70,263 | \$87,819 | \$109,398 | 72% |
| New Hampshire | \$53,927 | \$66,300 | \$84,286 | \$104,197 | \$128,760 | 85% |
| New Jersey | \$57,474 | \$73,455 | \$95,308 | \$121,973 | \$156,799 | 87% |
| New Mexico | \$49,917 | \$65,685 | \$84,264 | \$105,557 | \$128,222 | 114% |
| New York | \$53,401 | \$68,360 | \$89,534 | \$117,105 | \$151,302 | 74% |
| North Carolina | \$49,550 | \$62,727 | \$80,388 | \$100,470 | \$123,223 | 98% |
| North Dakota | \$42,783 | \$53,661 | \$67,420 | \$85,503 | \$103,953 | 51% |
| Ohio | \$46,478 | \$58,948 | \$75,141 | \$94,211 | \$115,204 | 80% |
| Oklahoma | \$41,498 | \$53,129 | \$68,709 | \$86,172 | \$106,049 | 80% |
| Oregon | \$49,852 | \$62,749 | \$79,784 | \$98,939 | \$120,171 | 75% |
| Pennsylvania | \$48,776 | \$60,932 | \$78,037 | \$97,822 | \$119,727 | 78% |
| Rhode Island | \$54,999 | \$68,981 | \$86,707 | \$106,176 | \$126,010 | 79% |
| South Carolina | \$43,986 | \$56,266 | \$72,238 | \$91,230 | \$111,812 | 92% |
| South Dakota | \$42,803 | \$50,487 | \$60,771 | \$73,157 | \$85,481 | 63% |
| Tennessee | \$40,976 | \$52,676 | \$68,740 | \$87,804 | \$108,112 | 78% |
| Texas | \$50,793 | \$64,866 | \$84,310 | \$106,526 | \$134,916 | 97% |
| Utah | \$45,560 | \$59,477 | \$77,641 | \$97,880 | \$121,038 | 87% |
| Vermont | \$46,113 | \$56,702 | \$73,127 | \$93,648 | \$115,431 | 70% |
| Virginia | \$59,247 | \$74,547 | \$97,059 | \$123,327 | \$154,071 | 102% |
| Washington | \$62,357 | \$81,023 | \$102,105 | \$127,029 | \$155,127 | 97% |
| West Virginia | \$41,362 | \$53,837 | \$70,780 | \$89,926 | \$108,520 | 93% |
| Wisconsin | \$44,953 | \$55,043 | \$68,576 | \$84,731 | \$102,256 | 62% |
| Wyoming | \$44,068 | \$53,928 | \$66,417 | \$82,259 | \$98,392 | 54% |

Sources: EMSI | U.S. Bureau of Labor Statistics | CompTIA

METRO AREA TECH OCCUPATION WAGE PERCENTILES

APPENDIX C.2

2018 estimates (most current data available)

| | <u>10th Percentile</u> | <u>25th Percentile</u> | <u>50th (median) Percentile</u> | <u>75th Percentile</u> | <u>90th Percentile</u> | <u>Percent Greater Than Median Wage</u> |
|----------------|---------------------------------------|---------------------------------------|--|---------------------------------------|---------------------------------------|---|
| United States | \$50,189 | \$64,519 | \$84,284 | \$107,676 | \$137,716 | 90% |
| Albuquerque | \$53,729 | \$68,371 | \$88,033 | \$108,127 | \$130,898 | 115% |
| Atlanta | \$52,260 | \$66,631 | \$86,940 | \$110,112 | \$136,889 | 92% |
| Austin | \$54,700 | \$68,428 | \$88,372 | \$111,420 | \$140,853 | 91% |
| Baltimore | \$56,968 | \$74,540 | \$97,381 | \$122,605 | \$155,348 | 91% |
| Birmingham | \$47,612 | \$58,879 | \$74,749 | \$92,366 | \$112,069 | 80% |
| Boise | \$44,876 | \$57,210 | \$73,996 | \$94,643 | \$117,894 | 86% |
| Boston | \$61,562 | \$77,027 | \$98,568 | \$123,798 | \$155,531 | 72% |
| Buffalo | \$46,127 | \$57,236 | \$72,457 | \$90,951 | \$112,465 | 68% |
| Charleston | \$48,376 | \$61,951 | \$78,040 | \$95,860 | \$115,103 | 93% |
| Charlotte | \$52,911 | \$66,748 | \$85,956 | \$108,354 | \$133,089 | 97% |
| Chicago | \$51,247 | \$65,527 | \$85,415 | \$107,576 | \$132,803 | 78% |
| Cincinnati | \$47,832 | \$60,048 | \$76,615 | \$96,478 | \$118,029 | 78% |
| Cleveland | \$44,056 | \$56,581 | \$72,366 | \$91,252 | \$111,525 | 66% |
| Dallas | \$53,538 | \$67,874 | \$87,201 | \$108,993 | \$136,316 | 91% |
| Denver | \$59,192 | \$74,168 | \$94,328 | \$118,005 | \$148,234 | 84% |
| Des Moines | \$52,546 | \$64,198 | \$79,209 | \$96,825 | \$116,914 | 75% |
| Detroit | \$53,810 | \$66,683 | \$84,093 | \$104,085 | \$122,787 | 81% |
| Hartford | \$53,243 | \$66,698 | \$84,171 | \$104,206 | \$130,399 | 61% |
| Houston | \$52,428 | \$68,636 | \$89,519 | \$114,347 | \$147,213 | 94% |
| Indianapolis | \$47,794 | \$58,760 | \$73,578 | \$93,732 | \$115,393 | 75% |
| Kansas City | \$48,841 | \$60,871 | \$77,394 | \$96,806 | \$116,881 | 76% |
| Las Vegas | \$44,070 | \$57,912 | \$74,723 | \$92,929 | \$115,881 | 85% |
| Los Angeles | \$52,798 | \$68,697 | \$90,576 | \$116,489 | \$148,852 | 84% |
| Memphis | \$40,006 | \$52,466 | \$69,079 | \$88,811 | \$108,025 | 80% |
| Miami | \$41,117 | \$52,867 | \$70,730 | \$92,704 | \$116,900 | 79% |
| Milwaukee | \$45,761 | \$56,065 | \$70,049 | \$86,785 | \$103,672 | 56% |
| Minneapolis | \$54,375 | \$67,076 | \$84,864 | \$105,056 | \$125,809 | 66% |
| Nashville | \$44,839 | \$56,064 | \$71,616 | \$91,401 | \$113,132 | 71% |
| New Orleans | \$42,735 | \$54,941 | \$74,360 | \$94,228 | \$118,950 | 91% |
| New York City | \$58,462 | \$74,734 | \$99,195 | \$130,204 | \$167,600 | 83% |
| Oklahoma City | \$44,684 | \$56,847 | \$72,640 | \$90,437 | \$109,966 | 78% |
| Omaha | \$48,714 | \$60,953 | \$77,908 | \$95,680 | \$112,481 | 82% |
| Orlando | \$45,169 | \$57,709 | \$74,850 | \$95,964 | \$118,733 | 97% |
| Philadelphia | \$55,350 | \$68,760 | \$88,002 | \$110,617 | \$137,000 | 80% |
| Phoenix | \$47,699 | \$60,983 | \$79,779 | \$100,719 | \$124,314 | 84% |
| Pittsburgh | \$49,181 | \$59,974 | \$76,629 | \$96,664 | \$118,664 | 74% |
| Portland | \$51,892 | \$65,300 | \$82,865 | \$102,525 | \$124,096 | 68% |
| Providence | \$53,125 | \$66,361 | \$84,047 | \$103,743 | \$124,302 | 78% |
| Raleigh | \$51,840 | \$65,842 | \$84,491 | \$105,464 | \$128,868 | 88% |
| Sacramento | \$56,285 | \$70,893 | \$88,722 | \$108,127 | \$133,019 | 77% |
| Salt Lake City | \$46,503 | \$60,302 | \$77,956 | \$98,617 | \$120,671 | 77% |
| San Antonio | \$48,933 | \$61,236 | \$77,332 | \$97,547 | \$120,522 | 89% |
| San Diego | \$58,483 | \$74,610 | \$95,410 | \$118,722 | \$149,198 | 89% |
| San Francisco | \$70,170 | \$89,382 | \$115,318 | \$145,207 | \$186,094 | 84% |
| San Jose | \$74,321 | \$94,533 | \$121,792 | \$152,259 | \$194,048 | 71% |
| Seattle | \$67,846 | \$86,957 | \$108,700 | \$134,252 | \$165,181 | 88% |
| St. Louis | \$49,492 | \$62,010 | \$79,740 | \$100,467 | \$121,652 | 82% |
| Tampa | \$43,875 | \$56,354 | \$73,907 | \$93,987 | \$115,917 | 83% |
| Trenton | \$58,871 | \$71,832 | \$91,314 | \$113,676 | \$144,511 | 65% |
| Washington DC | \$66,384 | \$84,057 | \$108,507 | \$135,970 | \$167,725 | 71% |

Sources: EMSI | U.S. Bureau of Labor Statistics | CompTIA

STATE TECH OCCUPATION WAGE PERCENTILES DETAIL

APPENDIX C.3

2018 estimates (most current data available)

IT SUPPORT SPECIALISTS

CYBERSECURITY ANALYSTS

| | 10 th Percentile | 25 th Percentile | 50 th (median) Percentile | 75 th Percentile | 90 th Percentile | 10 th Percentile | 25 th Percentile | 50 th (median) Percentile | 75 th Percentile | 90 th Percentile |
|----------------------|--------------------------------|--------------------------------|--|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--|--------------------------------|--------------------------------|
| United States | \$31,016 | \$39,160 | \$50,964 | \$65,926 | \$85,238 | \$56,742 | \$73,882 | \$98,342 | \$126,859 | \$156,582 |
| Alabama | \$29,293 | \$36,000 | \$45,921 | \$59,388 | \$75,761 | \$55,078 | \$68,370 | \$89,419 | \$115,773 | \$134,181 |
| Alaska | \$37,394 | \$45,043 | \$55,243 | \$67,627 | \$82,295 | \$65,062 | \$79,726 | \$98,218 | \$127,858 | \$161,262 |
| Arizona | \$29,480 | \$36,270 | \$47,365 | \$62,570 | \$84,126 | \$54,600 | \$69,493 | \$93,371 | \$117,125 | \$135,242 |
| Arkansas | \$24,717 | \$32,074 | \$40,494 | \$50,995 | \$61,870 | \$43,202 | \$58,614 | \$77,230 | \$102,690 | \$128,419 |
| California | \$37,045 | \$47,346 | \$61,455 | \$80,485 | \$103,849 | \$58,677 | \$83,408 | \$109,200 | \$136,115 | \$163,114 |
| Colorado | \$35,008 | \$43,918 | \$56,647 | \$73,865 | \$95,516 | \$57,491 | \$74,984 | \$98,093 | \$125,216 | \$156,395 |
| Connecticut | \$36,453 | \$45,661 | \$58,149 | \$72,757 | \$86,721 | \$67,288 | \$85,987 | \$107,661 | \$133,515 | \$177,549 |
| Delaware | \$36,146 | \$43,763 | \$55,853 | \$69,600 | \$84,015 | \$67,122 | \$79,851 | \$104,541 | \$129,126 | \$156,582 |
| District of Columbia | \$45,094 | \$53,987 | \$66,391 | \$83,980 | \$103,958 | \$63,336 | \$83,470 | \$117,853 | \$149,739 | \$178,506 |
| Florida | \$27,743 | \$34,846 | \$44,914 | \$59,566 | \$77,904 | \$52,478 | \$66,726 | \$89,149 | \$114,400 | \$139,006 |
| Georgia | \$30,716 | \$37,970 | \$49,784 | \$63,849 | \$82,375 | \$55,848 | \$68,744 | \$90,605 | \$118,061 | \$139,464 |
| Hawaii | \$30,689 | \$36,631 | \$45,786 | \$57,362 | \$70,205 | \$53,373 | \$59,800 | \$86,715 | \$115,918 | \$128,877 |
| Idaho | \$23,180 | \$32,643 | \$44,612 | \$60,647 | \$79,139 | \$46,509 | \$58,677 | \$80,600 | \$110,989 | \$133,453 |
| Illinois | \$27,633 | \$37,033 | \$50,507 | \$65,849 | \$82,135 | \$58,115 | \$73,154 | \$95,950 | \$121,784 | \$148,096 |
| Indiana | \$28,442 | \$35,125 | \$44,377 | \$56,821 | \$71,322 | \$47,299 | \$61,963 | \$76,502 | \$94,640 | \$116,251 |
| Iowa | \$32,038 | \$39,171 | \$46,789 | \$57,422 | \$70,451 | \$50,232 | \$60,133 | \$78,499 | \$103,002 | \$124,883 |
| Kansas | \$26,958 | \$33,668 | \$43,745 | \$54,140 | \$65,172 | \$52,021 | \$64,438 | \$85,821 | \$105,539 | \$125,674 |
| Kentucky | \$27,609 | \$34,458 | \$45,130 | \$60,711 | \$76,247 | \$38,688 | \$53,934 | \$76,565 | \$107,453 | \$140,962 |
| Louisiana | \$28,458 | \$35,428 | \$45,611 | \$58,064 | \$69,825 | \$45,802 | \$57,845 | \$72,509 | \$88,754 | \$104,936 |
| Maine | \$34,414 | \$41,095 | \$49,646 | \$59,947 | \$72,562 | \$51,334 | \$60,882 | \$79,518 | \$102,211 | \$122,595 |
| Maryland | \$30,695 | \$40,795 | \$52,775 | \$64,973 | \$83,790 | \$57,866 | \$80,059 | \$109,762 | \$134,784 | \$159,848 |
| Massachusetts | \$39,451 | \$48,391 | \$60,202 | \$76,749 | \$96,464 | \$61,526 | \$77,896 | \$103,730 | \$132,746 | \$162,427 |
| Michigan | \$27,865 | \$35,586 | \$46,995 | \$61,172 | \$78,035 | \$59,405 | \$71,074 | \$90,563 | \$116,563 | \$134,597 |
| Minnesota | \$34,831 | \$42,731 | \$53,758 | \$65,517 | \$80,429 | \$60,798 | \$75,130 | \$95,368 | \$118,206 | \$132,392 |
| Mississippi | \$26,763 | \$34,787 | \$44,193 | \$56,145 | \$71,346 | \$41,683 | \$49,275 | \$63,045 | \$84,240 | \$113,422 |
| Missouri | \$27,590 | \$34,781 | \$44,856 | \$57,585 | \$72,879 | \$51,043 | \$63,981 | \$86,466 | \$111,051 | \$140,046 |
| Montana | \$25,401 | \$34,205 | \$44,129 | \$56,223 | \$70,708 | \$29,099 | \$34,944 | \$60,923 | \$79,976 | \$117,125 |
| Nebraska | \$30,885 | \$37,177 | \$46,979 | \$59,530 | \$73,849 | \$54,766 | \$68,058 | \$82,618 | \$100,859 | \$121,098 |
| Nevada | \$31,659 | \$39,126 | \$48,596 | \$61,968 | \$79,587 | \$55,099 | \$66,872 | \$85,862 | \$107,016 | \$139,464 |
| New Hampshire | \$32,257 | \$39,836 | \$50,301 | \$62,612 | \$77,830 | \$66,373 | \$75,837 | \$96,283 | \$122,304 | \$148,574 |
| New Jersey | \$35,220 | \$45,797 | \$60,370 | \$78,242 | \$103,713 | \$66,040 | \$90,459 | \$118,768 | \$149,427 | \$173,139 |
| New Mexico | \$24,981 | \$29,983 | \$40,101 | \$52,837 | \$68,802 | \$67,267 | \$78,645 | \$103,126 | \$128,794 | \$159,182 |
| New York | \$34,139 | \$43,124 | \$55,928 | \$73,515 | \$95,338 | \$64,438 | \$82,139 | \$113,651 | \$151,757 | \$191,547 |
| North Carolina | \$29,894 | \$37,880 | \$48,275 | \$62,174 | \$82,670 | \$61,464 | \$81,245 | \$103,459 | \$126,672 | \$151,507 |
| North Dakota | \$31,875 | \$39,750 | \$48,767 | \$62,454 | \$82,121 | \$45,594 | \$63,606 | \$79,331 | \$95,514 | \$109,408 |
| Ohio | \$29,304 | \$37,049 | \$47,167 | \$59,580 | \$75,463 | \$50,690 | \$67,995 | \$89,378 | \$114,608 | \$140,234 |
| Oklahoma | \$27,698 | \$34,912 | \$44,023 | \$55,848 | \$71,970 | \$52,998 | \$61,776 | \$78,021 | \$97,656 | \$120,162 |
| Oregon | \$32,917 | \$40,392 | \$50,595 | \$63,997 | \$78,529 | \$52,603 | \$69,389 | \$94,515 | \$116,147 | \$130,853 |
| Pennsylvania | \$32,427 | \$39,873 | \$49,764 | \$62,448 | \$77,772 | \$60,008 | \$75,109 | \$95,576 | \$118,851 | \$142,106 |
| Rhode Island | \$32,431 | \$41,643 | \$53,419 | \$71,217 | \$82,183 | \$67,059 | \$81,224 | \$107,661 | \$141,606 | \$159,910 |
| South Carolina | \$25,996 | \$34,018 | \$44,955 | \$57,959 | \$72,702 | \$45,573 | \$55,099 | \$70,554 | \$95,306 | \$116,979 |
| South Dakota | \$27,643 | \$32,290 | \$37,337 | \$44,812 | \$51,955 | \$66,518 | \$78,894 | \$91,042 | \$102,045 | \$123,448 |
| Tennessee | \$29,219 | \$36,217 | \$45,743 | \$58,994 | \$77,155 | \$44,491 | \$57,658 | \$79,768 | \$99,466 | \$124,821 |
| Texas | \$28,119 | \$36,734 | \$47,960 | \$62,494 | \$80,594 | \$59,176 | \$75,795 | \$100,485 | \$128,086 | \$156,686 |
| Utah | \$28,260 | \$35,392 | \$45,945 | \$60,652 | \$79,531 | \$47,882 | \$59,883 | \$84,094 | \$107,702 | \$139,006 |
| Vermont | \$34,658 | \$41,189 | \$48,821 | \$59,838 | \$73,636 | \$51,293 | \$61,235 | \$80,413 | \$107,536 | \$125,070 |
| Virginia | \$32,926 | \$42,744 | \$55,087 | \$70,686 | \$90,953 | \$68,245 | \$84,490 | \$108,576 | \$141,170 | \$162,822 |
| Washington | \$34,883 | \$44,889 | \$56,578 | \$69,520 | \$92,305 | \$64,813 | \$79,123 | \$105,082 | \$128,960 | \$156,541 |
| West Virginia | \$25,055 | \$32,366 | \$43,162 | \$54,907 | \$65,120 | \$52,749 | \$65,270 | \$81,598 | \$103,064 | \$121,992 |
| Wisconsin | \$30,724 | \$38,895 | \$48,905 | \$62,365 | \$79,234 | \$43,888 | \$56,077 | \$79,123 | \$103,022 | \$125,341 |
| Wyoming | \$30,451 | \$39,920 | \$48,301 | \$60,007 | \$75,703 | \$52,187 | \$60,278 | \$71,406 | \$81,931 | \$101,546 |

Sources: EMSI | U.S. Bureau of Labor Statistics | CompTIA

STATE TECH OCCUPATION WAGE PERCENTILES DETAIL CONT.

APPENDIX C.4

2018 estimates (most current data available)

SOFTWARE DEVELOPERS, APPLICATIONS

NETWORK ARCHITECTS

| | 10 th Percentile | 25 th Percentile | 50 th (median) Percentile | 75 th Percentile | 90 th Percentile | 10 th Percentile | 25 th Percentile | 50 th (median) Percentile | 75 th Percentile | 90 th Percentile |
|----------------------|--------------------------------|--------------------------------|--|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--|--------------------------------|--------------------------------|
| United States | \$60,949 | \$78,762 | \$103,380 | \$130,584 | \$162,059 | \$59,675 | \$81,426 | \$108,773 | \$137,748 | \$164,322 |
| Alabama | \$53,083 | \$68,845 | \$92,804 | \$120,282 | \$148,842 | \$66,276 | \$82,577 | \$102,284 | \$125,763 | \$150,445 |
| Alaska | \$64,755 | \$78,958 | \$98,411 | \$140,959 | \$162,702 | \$35,662 | \$75,394 | \$98,682 | \$119,501 | \$134,709 |
| Arizona | \$56,186 | \$72,704 | \$98,074 | \$122,353 | \$145,859 | \$60,129 | \$77,320 | \$100,113 | \$124,349 | \$149,501 |
| Arkansas | \$52,118 | \$66,150 | \$84,313 | \$107,327 | \$129,232 | \$53,202 | \$64,316 | \$82,158 | \$113,639 | \$135,649 |
| California | \$71,407 | \$95,164 | \$123,237 | \$154,772 | \$189,333 | \$63,200 | \$91,311 | \$123,208 | \$157,492 | \$194,019 |
| Colorado | \$62,286 | \$82,197 | \$104,824 | \$129,792 | \$158,545 | \$69,878 | \$88,972 | \$113,825 | \$141,451 | \$163,030 |
| Connecticut | \$64,001 | \$78,684 | \$99,878 | \$126,402 | \$157,380 | \$66,372 | \$99,053 | \$121,172 | \$145,584 | \$178,305 |
| Delaware | \$68,113 | \$82,746 | \$101,592 | \$128,783 | \$155,580 | \$74,380 | \$96,830 | \$133,515 | \$155,054 | \$168,550 |
| District of Columbia | \$73,159 | \$91,793 | \$113,718 | \$132,050 | \$156,588 | \$78,870 | \$96,767 | \$123,528 | \$150,992 | \$168,264 |
| Florida | \$55,065 | \$70,599 | \$92,267 | \$116,268 | \$138,393 | \$46,162 | \$61,864 | \$86,598 | \$115,294 | \$145,214 |
| Georgia | \$54,526 | \$74,920 | \$100,504 | \$124,575 | \$155,231 | \$72,321 | \$93,181 | \$114,124 | \$133,656 | \$160,091 |
| Hawaii | \$52,916 | \$62,147 | \$79,072 | \$102,484 | \$127,563 | \$60,413 | \$74,013 | \$93,052 | \$115,496 | \$151,890 |
| Idaho | \$51,806 | \$63,998 | \$83,027 | \$107,682 | \$129,442 | \$44,201 | \$51,938 | \$62,093 | \$83,072 | \$119,862 |
| Illinois | \$59,338 | \$74,381 | \$95,369 | \$118,581 | \$137,886 | \$67,686 | \$89,214 | \$116,417 | \$141,728 | \$162,260 |
| Indiana | \$55,115 | \$67,718 | \$81,418 | \$106,504 | \$128,595 | \$53,796 | \$64,984 | \$82,569 | \$107,081 | \$130,835 |
| Iowa | \$57,392 | \$71,364 | \$88,395 | \$105,838 | \$124,457 | \$65,777 | \$81,306 | \$100,477 | \$127,483 | \$207,326 |
| Kansas | \$48,166 | \$63,054 | \$83,417 | \$107,244 | \$129,733 | \$57,574 | \$70,236 | \$89,824 | \$115,924 | \$135,979 |
| Kentucky | \$42,722 | \$60,995 | \$80,513 | \$102,149 | \$127,397 | \$44,669 | \$55,042 | \$72,661 | \$95,353 | \$121,692 |
| Louisiana | \$44,897 | \$57,076 | \$78,978 | \$101,148 | \$124,060 | \$38,153 | \$52,175 | \$72,908 | \$105,609 | \$127,575 |
| Maine | \$58,325 | \$70,079 | \$86,809 | \$103,555 | \$129,096 | \$62,885 | \$74,343 | \$93,472 | \$118,948 | \$145,845 |
| Maryland | \$52,125 | \$74,152 | \$100,420 | \$132,334 | \$175,732 | \$58,402 | \$91,025 | \$126,385 | \$154,204 | \$172,497 |
| Massachusetts | \$65,092 | \$82,494 | \$105,497 | \$132,608 | \$159,962 | \$75,754 | \$97,001 | \$120,888 | \$147,101 | \$169,204 |
| Michigan | \$54,596 | \$69,444 | \$87,652 | \$109,970 | \$129,784 | \$47,084 | \$70,247 | \$103,998 | \$128,308 | \$153,436 |
| Minnesota | \$58,635 | \$73,941 | \$95,165 | \$118,768 | \$139,113 | \$74,614 | \$89,853 | \$108,547 | \$130,626 | \$155,816 |
| Mississippi | \$48,594 | \$59,962 | \$79,652 | \$103,473 | \$127,602 | \$40,860 | \$59,988 | \$87,860 | \$120,125 | \$147,440 |
| Missouri | \$58,915 | \$72,914 | \$91,713 | \$113,721 | \$131,728 | \$60,619 | \$77,191 | \$97,992 | \$120,914 | \$143,568 |
| Montana | \$50,371 | \$67,011 | \$80,419 | \$102,751 | \$130,986 | \$50,857 | \$61,807 | \$72,661 | \$99,326 | \$138,508 |
| Nebraska | \$54,818 | \$68,658 | \$86,908 | \$106,480 | \$125,304 | \$52,972 | \$78,448 | \$101,744 | \$121,670 | \$136,280 |
| Nevada | \$44,683 | \$73,291 | \$102,201 | \$131,185 | \$183,134 | \$68,852 | \$84,464 | \$103,842 | \$125,665 | \$148,936 |
| New Hampshire | \$66,410 | \$82,960 | \$108,385 | \$130,833 | \$157,212 | \$73,014 | \$89,332 | \$124,057 | \$153,056 | \$178,963 |
| New Jersey | \$65,851 | \$79,915 | \$101,470 | \$130,825 | \$161,934 | \$41,910 | \$90,692 | \$124,831 | \$158,040 | \$191,918 |
| New Mexico | \$23,420 | \$55,242 | \$77,446 | \$102,947 | \$131,199 | \$70,983 | \$88,709 | \$109,919 | \$131,747 | \$157,551 |
| New York | \$65,764 | \$85,414 | \$111,570 | \$143,018 | \$173,277 | \$52,212 | \$76,821 | \$110,954 | \$145,130 | \$176,014 |
| North Carolina | \$61,787 | \$77,966 | \$100,376 | \$125,006 | \$152,524 | \$61,121 | \$78,421 | \$105,950 | \$132,828 | \$159,515 |
| North Dakota | \$47,308 | \$60,045 | \$77,148 | \$104,155 | \$121,917 | \$65,895 | \$77,956 | \$92,427 | \$108,578 | \$131,523 |
| Ohio | \$53,574 | \$69,892 | \$91,233 | \$114,578 | \$134,566 | \$55,982 | \$75,115 | \$96,394 | \$119,491 | \$141,375 |
| Oklahoma | \$50,826 | \$63,596 | \$84,615 | \$104,234 | \$131,548 | \$46,240 | \$62,280 | \$84,480 | \$109,093 | \$129,088 |
| Oregon | \$60,127 | \$78,391 | \$99,547 | \$124,178 | \$149,738 | \$69,451 | \$86,933 | \$106,997 | \$126,618 | \$153,330 |
| Pennsylvania | \$58,689 | \$72,474 | \$93,455 | \$117,805 | \$140,695 | \$59,996 | \$76,851 | \$99,713 | \$123,802 | \$149,003 |
| Rhode Island | \$62,123 | \$75,772 | \$96,528 | \$117,422 | \$129,800 | \$62,182 | \$96,256 | \$120,477 | \$143,248 | \$159,607 |
| South Carolina | \$53,175 | \$68,259 | \$87,166 | \$110,295 | \$133,924 | \$46,733 | \$60,395 | \$83,342 | \$106,673 | \$130,752 |
| South Dakota | \$51,881 | \$60,010 | \$72,685 | \$87,869 | \$104,022 | \$67,687 | \$83,475 | \$100,516 | \$118,999 | \$133,005 |
| Tennessee | \$44,777 | \$65,932 | \$88,709 | \$108,162 | \$128,028 | \$57,217 | \$77,471 | \$98,560 | \$123,394 | \$155,464 |
| Texas | \$66,317 | \$83,887 | \$108,197 | \$130,110 | \$157,017 | \$67,702 | \$90,243 | \$120,516 | \$147,499 | \$165,094 |
| Utah | \$54,719 | \$72,272 | \$97,171 | \$122,654 | \$150,619 | \$64,891 | \$80,613 | \$104,087 | \$125,790 | \$165,246 |
| Vermont | \$59,746 | \$73,482 | \$95,002 | \$120,076 | \$137,274 | \$54,608 | \$63,196 | \$78,958 | \$107,813 | \$129,412 |
| Virginia | \$66,365 | \$81,339 | \$109,710 | \$142,824 | \$169,368 | \$70,502 | \$91,878 | \$121,297 | \$152,400 | \$179,121 |
| Washington | \$80,185 | \$105,293 | \$127,985 | \$157,134 | \$189,800 | \$77,377 | \$85,440 | \$99,269 | \$135,543 | \$162,907 |
| West Virginia | \$39,660 | \$57,841 | \$77,255 | \$107,600 | \$144,872 | \$45,531 | \$59,528 | \$88,749 | \$122,774 | \$150,059 |
| Wisconsin | \$54,445 | \$67,652 | \$84,358 | \$103,334 | \$126,011 | \$58,375 | \$76,390 | \$98,621 | \$119,151 | \$133,035 |
| Wyoming | \$43,662 | \$56,116 | \$65,937 | \$88,637 | \$109,844 | \$75,041 | \$87,180 | \$94,285 | \$101,106 | \$120,566 |

Sources: EMSI | U.S. Bureau of Labor Statistics | CompTIA

METRO AREA TECH OCCUPATION WAGE PERCENTILES DETAIL

APPENDIX C.5

2018 estimates (most current data available)

IT SUPPORT SPECIALISTS

CYBERSECURITY ANALYSTS

| | 10 th Percentile | 25 th Percentile | 50 th (median) Percentile | 75 th Percentile | 90 th Percentile | 10 th Percentile | 25 th Percentile | 50 th (median) Percentile | 75 th Percentile | 90 th Percentile |
|----------------|--------------------------------|--------------------------------|--|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--|--------------------------------|--------------------------------|
| United States | \$31,016 | \$39,160 | \$50,964 | \$65,926 | \$85,238 | \$56,742 | \$73,882 | \$98,342 | \$126,859 | \$156,582 |
| Albuquerque | \$26,339 | \$30,147 | \$40,565 | \$53,827 | \$68,107 | \$68,342 | \$81,838 | \$104,899 | \$128,433 | \$154,169 |
| Atlanta | \$31,825 | \$39,589 | \$51,856 | \$66,661 | \$85,391 | \$57,043 | \$69,928 | \$92,673 | \$120,375 | \$144,551 |
| Austin | \$31,675 | \$36,593 | \$46,896 | \$60,985 | \$79,325 | \$66,209 | \$83,555 | \$109,849 | \$135,210 | \$164,899 |
| Baltimore | \$32,775 | \$42,249 | \$52,970 | \$65,387 | \$85,520 | \$59,343 | \$80,923 | \$113,364 | \$138,925 | \$161,709 |
| Birmingham | \$33,308 | \$39,040 | \$48,393 | \$61,978 | \$81,040 | \$56,061 | \$67,379 | \$89,294 | \$112,843 | \$131,225 |
| Boise | \$22,196 | \$31,932 | \$42,937 | \$61,263 | \$103,032 | \$52,273 | \$61,957 | \$84,782 | \$112,062 | \$130,181 |
| Boston | \$40,198 | \$49,042 | \$61,592 | \$78,784 | \$99,030 | \$64,017 | \$80,258 | \$106,798 | \$137,389 | \$168,108 |
| Buffalo | \$32,509 | \$38,039 | \$48,641 | \$62,661 | \$78,236 | \$57,816 | \$69,823 | \$87,179 | \$107,177 | \$129,082 |
| Charleston | \$26,419 | \$38,787 | \$48,282 | \$62,082 | \$79,651 | \$54,696 | \$70,047 | \$90,125 | \$107,717 | \$122,915 |
| Charlotte | \$31,279 | \$39,421 | \$50,091 | \$65,739 | \$91,724 | \$57,908 | \$78,240 | \$106,711 | \$133,417 | \$158,959 |
| Chicago | \$28,495 | \$38,148 | \$51,975 | \$68,058 | \$84,178 | \$59,768 | \$75,116 | \$99,064 | \$126,597 | \$154,032 |
| Cincinnati | \$31,293 | \$38,565 | \$48,806 | \$61,697 | \$77,166 | \$50,377 | \$67,321 | \$90,849 | \$118,036 | \$145,539 |
| Cleveland | \$26,954 | \$34,260 | \$45,393 | \$58,053 | \$74,887 | \$52,957 | \$70,358 | \$91,063 | \$114,423 | \$142,848 |
| Dallas | \$30,329 | \$38,172 | \$48,647 | \$62,443 | \$78,634 | \$64,625 | \$80,280 | \$105,125 | \$134,940 | \$164,106 |
| Denver | \$36,857 | \$45,233 | \$58,492 | \$76,858 | \$99,009 | \$54,381 | \$70,392 | \$94,597 | \$123,124 | \$153,817 |
| Des Moines | \$33,704 | \$41,353 | \$48,643 | \$59,618 | \$77,177 | \$51,585 | \$63,993 | \$85,848 | \$108,869 | \$127,930 |
| Detroit | \$28,259 | \$35,427 | \$47,508 | \$62,019 | \$79,783 | \$61,782 | \$72,518 | \$92,398 | \$117,935 | \$135,987 |
| Hartford | \$34,526 | \$43,200 | \$54,968 | \$68,724 | \$81,865 | \$64,172 | \$81,904 | \$102,634 | \$127,239 | \$169,068 |
| Houston | \$23,633 | \$39,932 | \$54,731 | \$73,531 | \$102,239 | \$55,862 | \$74,138 | \$101,857 | \$126,046 | \$148,606 |
| Indianapolis | \$31,788 | \$37,046 | \$47,178 | \$60,607 | \$76,955 | \$51,111 | \$65,728 | \$79,739 | \$99,725 | \$124,285 |
| Kansas City | \$29,163 | \$36,971 | \$46,956 | \$58,955 | \$72,593 | \$53,397 | \$65,711 | \$86,287 | \$108,371 | \$131,470 |
| Las Vegas | \$30,607 | \$38,154 | \$47,224 | \$58,718 | \$73,618 | \$54,496 | \$66,581 | \$87,714 | \$112,445 | \$142,043 |
| Los Angeles | \$34,604 | \$43,810 | \$56,115 | \$72,267 | \$92,786 | \$54,942 | \$74,439 | \$100,372 | \$125,447 | \$150,708 |
| Memphis | \$26,922 | \$35,461 | \$45,859 | \$58,514 | \$73,909 | \$48,984 | \$67,435 | \$79,862 | \$101,680 | \$148,913 |
| Miami | \$27,369 | \$34,946 | \$45,094 | \$59,991 | \$81,257 | \$52,437 | \$62,941 | \$82,451 | \$105,602 | \$130,104 |
| Milwaukee | \$28,111 | \$39,000 | \$49,373 | \$62,152 | \$78,287 | \$44,237 | \$59,875 | \$86,248 | \$110,596 | \$131,411 |
| Minneapolis | \$35,632 | \$43,683 | \$54,984 | \$67,526 | \$82,105 | \$60,979 | \$75,563 | \$96,504 | \$119,306 | \$134,540 |
| Nashville | \$32,735 | \$38,943 | \$47,149 | \$59,895 | \$76,543 | \$42,656 | \$54,257 | \$73,515 | \$97,702 | \$118,324 |
| New Orleans | \$31,099 | \$36,320 | \$45,478 | \$56,477 | \$65,888 | \$54,907 | \$63,410 | \$76,413 | \$93,974 | \$111,695 |
| New York City | \$36,436 | \$46,065 | \$60,776 | \$80,373 | \$104,302 | \$70,490 | \$92,685 | \$126,048 | \$164,214 | \$202,089 |
| Oklahoma City | \$31,519 | \$36,821 | \$45,571 | \$56,703 | \$69,701 | \$52,498 | \$60,217 | \$74,534 | \$94,526 | \$115,430 |
| Omaha | \$32,955 | \$39,773 | \$49,300 | \$61,299 | \$75,146 | \$55,803 | \$69,450 | \$87,721 | \$103,821 | \$122,573 |
| Orlando | \$27,099 | \$34,417 | \$43,846 | \$58,580 | \$79,881 | \$59,704 | \$74,615 | \$96,048 | \$121,008 | \$145,791 |
| Philadelphia | \$34,914 | \$42,727 | \$53,896 | \$67,533 | \$82,961 | \$63,378 | \$78,905 | \$101,078 | \$126,101 | \$150,906 |
| Phoenix | \$29,450 | \$36,140 | \$47,412 | \$63,402 | \$86,707 | \$55,674 | \$73,066 | \$97,195 | \$119,847 | \$139,462 |
| Pittsburgh | \$32,832 | \$39,546 | \$47,610 | \$58,802 | \$72,822 | \$62,291 | \$77,178 | \$97,991 | \$122,736 | \$147,989 |
| Portland | \$34,208 | \$41,577 | \$52,028 | \$65,851 | \$80,766 | \$54,934 | \$71,474 | \$98,111 | \$120,377 | \$137,341 |
| Providence | \$33,320 | \$41,887 | \$53,316 | \$69,822 | \$82,772 | \$64,287 | \$78,268 | \$103,538 | \$136,224 | \$157,551 |
| Raleigh | \$27,489 | \$36,791 | \$50,425 | \$64,769 | \$89,311 | \$69,201 | \$84,337 | \$104,515 | \$124,139 | \$142,282 |
| Sacramento | \$32,755 | \$43,070 | \$55,197 | \$69,361 | \$92,650 | \$60,124 | \$85,286 | \$114,182 | \$138,038 | \$158,182 |
| Salt Lake City | \$30,538 | \$36,508 | \$46,303 | \$59,609 | \$75,648 | \$42,586 | \$59,439 | \$82,482 | \$108,295 | \$141,879 |
| San Antonio | \$30,674 | \$36,299 | \$45,831 | \$58,584 | \$75,817 | \$59,434 | \$71,714 | \$89,392 | \$119,266 | \$150,106 |
| San Diego | \$38,141 | \$48,044 | \$58,627 | \$72,171 | \$90,260 | \$62,754 | \$79,373 | \$97,427 | \$119,267 | \$138,112 |
| San Francisco | \$42,957 | \$55,564 | \$71,424 | \$90,469 | \$110,963 | \$64,894 | \$90,940 | \$118,621 | \$149,380 | \$178,701 |
| San Jose | \$45,801 | \$58,227 | \$76,455 | \$101,365 | \$140,310 | \$57,857 | \$86,341 | \$118,228 | \$153,901 | \$187,136 |
| Seattle | \$36,687 | \$47,263 | \$58,452 | \$72,587 | \$98,147 | \$65,397 | \$81,765 | \$106,354 | \$129,956 | \$155,509 |
| St. Louis | \$28,684 | \$35,837 | \$46,870 | \$61,325 | \$78,002 | \$53,884 | \$68,983 | \$93,291 | \$120,966 | \$151,572 |
| Tampa | \$30,150 | \$35,992 | \$46,604 | \$61,054 | \$77,646 | \$46,853 | \$64,720 | \$91,595 | \$115,151 | \$132,292 |
| Trenton | \$42,304 | \$52,993 | \$64,708 | \$76,072 | \$85,541 | \$60,736 | \$77,064 | \$102,024 | \$135,429 | \$164,174 |
| Washington DC | \$38,112 | \$47,864 | \$61,217 | \$78,774 | \$99,852 | \$69,796 | \$87,669 | \$114,786 | \$147,167 | \$171,275 |

Sources: EMSI | U.S. Bureau of Labor Statistics | CompTIA

METRO AREA TECH OCCUPATION WAGE PERCENTILES DETAIL

APPENDIX C.6

2018 estimates (most current data available)

SOFTWARE DEVELOPERS, APPLICATIONS

NETWORK ARCHITECTS

| | 10 th Percentile | 25 th Percentile | 50 th (median) Percentile | 75 th Percentile | 90 th Percentile | | 10 th Percentile | 25 th Percentile | 50 th (median) Percentile | 75 th Percentile | 90 th Percentile |
|----------------|--------------------------------|--------------------------------|--|--------------------------------|--------------------------------|--|--------------------------------|--------------------------------|--|--------------------------------|--------------------------------|
| United States | \$60,949 | \$78,762 | \$103,380 | \$130,584 | \$162,059 | | \$59,675 | \$81,426 | \$108,773 | \$137,748 | \$164,322 |
| Albuquerque | \$33,348 | \$38,030 | \$80,451 | \$101,632 | \$130,864 | | \$78,970 | \$90,181 | \$107,322 | \$128,496 | \$152,594 |
| Atlanta | \$56,392 | \$76,151 | \$102,224 | \$128,877 | \$157,791 | | \$77,936 | \$94,866 | \$115,930 | \$139,197 | \$163,107 |
| Austin | \$68,215 | \$83,840 | \$106,822 | \$130,494 | \$156,590 | | \$69,592 | \$88,130 | \$123,483 | \$152,672 | \$171,965 |
| Baltimore | \$43,297 | \$69,064 | \$98,047 | \$133,282 | \$186,711 | | \$82,409 | \$106,128 | \$133,938 | \$159,418 | \$181,993 |
| Birmingham | \$51,332 | \$63,984 | \$85,140 | \$105,657 | \$127,889 | | \$67,262 | \$82,654 | \$103,054 | \$126,148 | \$150,536 |
| Boise | \$52,184 | \$64,708 | \$83,287 | \$104,835 | \$126,869 | | \$38,925 | \$46,708 | \$58,456 | \$72,942 | \$98,378 |
| Boston | \$66,939 | \$84,367 | \$108,368 | \$136,211 | \$164,361 | | \$78,468 | \$100,146 | \$125,524 | \$153,032 | \$176,561 |
| Buffalo | \$54,022 | \$68,014 | \$89,280 | \$110,100 | \$130,473 | | \$59,388 | \$73,825 | \$92,184 | \$112,631 | \$131,213 |
| Charleston | \$53,415 | \$71,435 | \$96,413 | \$120,401 | \$137,823 | | \$49,424 | \$65,006 | \$85,990 | \$111,225 | \$143,589 |
| Charlotte | \$64,731 | \$82,215 | \$105,557 | \$130,587 | \$157,982 | | \$65,393 | \$82,497 | \$111,134 | \$140,276 | \$164,794 |
| Chicago | \$61,129 | \$75,870 | \$97,472 | \$121,381 | \$142,082 | | \$69,388 | \$91,944 | \$119,830 | \$146,437 | \$168,160 |
| Cincinnati | \$55,068 | \$70,236 | \$90,888 | \$113,792 | \$133,603 | | \$51,382 | \$71,584 | \$95,203 | \$121,405 | \$146,644 |
| Cleveland | \$41,589 | \$58,099 | \$78,479 | \$100,889 | \$122,667 | | \$53,325 | \$67,599 | \$88,757 | \$111,035 | \$128,952 |
| Dallas | \$69,556 | \$87,374 | \$110,970 | \$133,097 | \$159,171 | | \$75,796 | \$101,407 | \$129,696 | \$153,021 | \$169,656 |
| Denver | \$63,819 | \$82,264 | \$104,357 | \$129,024 | \$156,405 | | \$74,154 | \$92,891 | \$117,801 | \$144,583 | \$164,875 |
| Des Moines | \$65,400 | \$76,682 | \$91,492 | \$107,985 | \$124,735 | | \$71,181 | \$92,072 | \$114,863 | \$138,220 | \$158,074 |
| Detroit | \$58,831 | \$72,052 | \$90,828 | \$113,117 | \$130,779 | | \$62,712 | \$88,060 | \$114,243 | \$136,189 | \$158,977 |
| Hartford | \$59,888 | \$73,555 | \$93,277 | \$117,960 | \$146,582 | | \$61,446 | \$91,871 | \$111,867 | \$134,405 | \$164,600 |
| Houston | \$62,725 | \$81,951 | \$108,128 | \$131,615 | \$159,696 | | \$61,189 | \$84,864 | \$114,274 | \$137,129 | \$161,447 |
| Indianapolis | \$57,692 | \$68,796 | \$81,860 | \$107,033 | \$129,108 | | \$58,322 | \$70,984 | \$92,239 | \$117,244 | \$140,001 |
| Kansas City | \$54,182 | \$67,778 | \$86,432 | \$106,823 | \$126,119 | | \$59,095 | \$72,460 | \$93,211 | \$118,551 | \$140,973 |
| Las Vegas | \$43,801 | \$78,250 | \$106,761 | \$131,704 | \$184,067 | | \$70,609 | \$85,582 | \$103,829 | \$122,791 | \$140,240 |
| Los Angeles | \$61,795 | \$84,898 | \$113,122 | \$141,350 | \$166,258 | | \$61,668 | \$85,728 | \$115,066 | \$145,019 | \$167,273 |
| Memphis | \$31,923 | \$52,576 | \$77,127 | \$96,914 | \$116,738 | | \$59,938 | \$82,188 | \$109,469 | \$155,264 | \$188,367 |
| Miami | \$55,648 | \$70,191 | \$92,385 | \$117,796 | \$138,728 | | \$45,720 | \$62,550 | \$86,011 | \$112,910 | \$140,209 |
| Milwaukee | \$54,489 | \$65,239 | \$85,304 | \$110,914 | \$135,354 | | \$58,066 | \$79,993 | \$102,536 | \$122,158 | \$140,236 |
| Minneapolis | \$59,359 | \$74,803 | \$96,717 | \$120,388 | \$141,785 | | \$77,496 | \$91,881 | \$112,041 | \$135,171 | \$160,591 |
| Nashville | \$59,458 | \$74,714 | \$93,565 | \$113,502 | \$131,171 | | \$63,038 | \$84,091 | \$101,843 | \$125,366 | \$151,876 |
| New Orleans | \$45,681 | \$57,085 | \$76,856 | \$98,254 | \$118,418 | | \$34,990 | \$43,186 | \$63,376 | \$93,007 | \$121,968 |
| New York City | \$69,563 | \$86,577 | \$113,787 | \$147,703 | \$180,167 | | \$47,124 | \$86,147 | \$123,706 | \$160,234 | \$194,985 |
| Oklahoma City | \$52,951 | \$65,714 | \$86,672 | \$106,426 | \$134,718 | | \$58,423 | \$69,925 | \$86,640 | \$108,778 | \$127,121 |
| Omaha | \$54,988 | \$69,392 | \$89,414 | \$111,102 | \$127,598 | | \$55,798 | \$81,787 | \$105,469 | \$125,468 | \$141,764 |
| Orlando | \$57,244 | \$73,250 | \$93,272 | \$116,066 | \$137,082 | | \$46,989 | \$64,016 | \$91,127 | \$124,484 | \$156,212 |
| Philadelphia | \$64,301 | \$78,983 | \$100,624 | \$126,335 | \$152,260 | | \$65,618 | \$84,843 | \$110,657 | \$138,188 | \$163,437 |
| Phoenix | \$56,658 | \$73,888 | \$100,226 | \$123,645 | \$147,379 | | \$62,246 | \$80,801 | \$102,449 | \$126,092 | \$151,506 |
| Pittsburgh | \$55,589 | \$65,918 | \$86,491 | \$107,493 | \$130,338 | | \$64,969 | \$77,491 | \$96,719 | \$119,257 | \$135,799 |
| Portland | \$63,848 | \$82,628 | \$104,456 | \$128,853 | \$154,712 | | \$75,756 | \$90,967 | \$113,230 | \$135,826 | \$161,603 |
| Providence | \$60,493 | \$74,381 | \$95,028 | \$116,337 | \$131,973 | | \$64,464 | \$91,430 | \$115,347 | \$138,677 | \$156,715 |
| Raleigh | \$64,125 | \$77,752 | \$99,951 | \$125,565 | \$154,192 | | \$53,497 | \$73,377 | \$96,813 | \$120,197 | \$138,734 |
| Sacramento | \$66,587 | \$80,279 | \$100,165 | \$125,436 | \$159,798 | | \$65,513 | \$88,963 | \$118,282 | \$140,392 | \$165,040 |
| Salt Lake City | \$57,817 | \$76,799 | \$100,695 | \$123,742 | \$151,660 | | \$66,182 | \$81,721 | \$103,923 | \$125,283 | \$160,894 |
| San Antonio | \$61,342 | \$79,130 | \$102,945 | \$125,012 | \$149,057 | | \$64,419 | \$85,790 | \$107,383 | \$138,090 | \$161,108 |
| San Diego | \$69,868 | \$88,203 | \$110,670 | \$131,741 | \$160,481 | | \$69,079 | \$95,099 | \$123,937 | \$167,085 | \$209,784 |
| San Francisco | \$82,789 | \$108,620 | \$137,302 | \$167,248 | \$206,979 | | \$69,581 | \$98,929 | \$127,579 | \$159,242 | \$189,291 |
| San Jose | \$81,566 | \$99,858 | \$127,299 | \$159,744 | \$193,646 | | \$64,192 | \$107,774 | \$146,385 | \$184,893 | \$212,649 |
| Seattle | \$84,013 | \$107,598 | \$130,284 | \$159,350 | \$192,242 | | \$79,144 | \$101,695 | \$126,227 | \$154,159 | \$179,114 |
| St. Louis | \$63,169 | \$77,008 | \$97,799 | \$122,192 | \$144,203 | | \$66,575 | \$84,192 | \$106,646 | \$129,310 | \$153,647 |
| Tampa | \$56,157 | \$74,025 | \$94,874 | \$118,642 | \$145,311 | | \$50,866 | \$71,947 | \$97,794 | \$124,676 | \$151,450 |
| Trenton | \$61,435 | \$76,776 | \$97,836 | \$122,760 | \$153,716 | | \$81,153 | \$90,964 | \$111,949 | \$143,734 | \$172,852 |
| Washington DC | \$69,220 | \$85,910 | \$114,746 | \$147,640 | \$175,812 | | \$71,946 | \$95,660 | \$126,556 | \$157,605 | \$184,544 |

Sources: EMSI | U.S. Bureau of Labor Statistics | CompTIA

TECH GROSS STATE PRODUCT
(in billions)

| <u>Rank</u> | <u>State</u> | <u>2019 est.</u> |
|-------------|----------------------|------------------|
| | United States | \$1,878.9 |
| 1. | California | \$492.8 |
| 2. | Texas | \$141.7 |
| 3. | New York | \$123.4 |
| 4. | Washington | \$103.5 |
| 5. | Massachusetts | \$91.6 |
| 6. | Florida | \$73.8 |
| 7. | Virginia | \$63.9 |
| 8. | Pennsylvania | \$56.1 |
| 9. | New Jersey | \$56.0 |
| 10. | Illinois | \$55.5 |
| 11. | Georgia | \$53.2 |
| 12. | Colorado | \$49.9 |
| 13. | North Carolina | \$48.1 |
| 14. | Maryland | \$42.9 |
| 15. | Michigan | \$37.1 |
| 16. | Ohio | \$34.1 |
| 17. | Arizona | \$32.2 |
| 18. | Minnesota | \$30.9 |
| 19. | Oregon | \$26.3 |
| 20. | Missouri | \$21.7 |
| 21. | Wisconsin | \$21.4 |
| 22. | Utah | \$18.5 |
| 23. | Connecticut | \$17.9 |
| 24. | Tennessee | \$17.2 |
| 25. | Indiana | \$15.6 |
| 26. | Alabama | \$13.8 |
| 27. | South Carolina | \$12.7 |
| 28. | New Hampshire | \$10.9 |
| 29. | Iowa | \$10.2 |
| 30. | Kansas | \$8.9 |
| 31. | New Mexico | \$8.6 |
| 32. | District of Columbia | \$8.4 |
| 33. | Kentucky | \$7.8 |
| 34. | Louisiana | \$7.6 |
| 35. | Nevada | \$7.6 |
| 36. | Idaho | \$7.0 |
| 37. | Nebraska | \$6.6 |
| 38. | Oklahoma | \$6.5 |
| 39. | Delaware | \$4.9 |
| 40. | Arkansas | \$3.9 |
| 41. | Mississippi | \$3.7 |
| 42. | Rhode Island | \$3.7 |
| 43. | Hawaii | \$3.2 |
| 44. | Maine | \$3.1 |
| 45. | Vermont | \$2.5 |
| 46. | West Virginia | \$2.4 |
| 47. | Montana | \$2.1 |
| 48. | Alaska | \$2.1 |
| 49. | South Dakota | \$2.1 |
| 50. | North Dakota | \$2.1 |
| 51. | Wyoming | \$1.0 |

TECH GSP AS A PERCENT OF TOTAL STATE PRODUCT
(in billions)

| <u>Rank</u> | <u>State</u> | <u>Total Tech GSP est.</u> | <u>Total GDP/GSP</u> | <u>Tech as a Percent</u> |
|-------------|----------------------|--------------------------------|--------------------------|------------------------------|
| | United States | \$1,878.9 | \$18,788.3 | 10.0% |
| 1. | Washington | \$103.5 | \$513.7 | 20.2% |
| 2. | California | \$492.8 | \$2,725.8 | 18.1% |
| 3. | Massachusetts | \$91.6 | \$533.1 | 17.2% |
| 4. | Colorado | \$49.9 | \$349.4 | 14.3% |
| 5. | Oregon | \$26.3 | \$187.5 | 14.1% |
| 6. | New Hampshire | \$10.9 | \$79.7 | 13.7% |
| 7. | Virginia | \$63.9 | \$479.5 | 13.3% |
| 8. | Maryland | \$42.9 | \$363.0 | 11.8% |
| 9. | Utah | \$18.5 | \$164.8 | 11.2% |
| 10. | Arizona | \$32.2 | \$318.9 | 10.1% |
| 11. | Georgia | \$53.2 | \$536.6 | 9.9% |
| 12. | Idaho | \$7.0 | \$71.9 | 9.8% |
| 13. | New Mexico | \$8.6 | \$88.7 | 9.7% |
| 14. | New Jersey | \$56.0 | \$581.5 | 9.6% |
| 15. | North Carolina | \$48.1 | \$513.6 | 9.4% |
| 16. | Minnesota | \$30.9 | \$343.9 | 9.0% |
| 17. | Texas | \$141.7 | \$1,706.2 | 8.3% |
| 18. | New York | \$123.4 | \$1,544.6 | 8.0% |
| 19. | Vermont | \$2.5 | \$31.8 | 8.0% |
| 20. | Pennsylvania | \$56.1 | \$713.7 | 7.9% |
| 21. | Florida | \$73.8 | \$952.0 | 7.8% |
| 22. | Michigan | \$37.1 | \$488.2 | 7.6% |
| 23. | Delaware | \$4.9 | \$65.2 | 7.5% |
| 24. | Missouri | \$21.7 | \$295.5 | 7.4% |
| 25. | Illinois | \$55.5 | \$780.9 | 7.1% |
| 26. | Wisconsin | \$21.4 | \$304.7 | 7.0% |
| 27. | Connecticut | \$17.9 | \$259.3 | 6.9% |
| 28. | Alabama | \$13.8 | \$203.8 | 6.8% |
| 29. | Rhode Island | \$3.7 | \$54.6 | 6.7% |
| 30. | District of Columbia | \$8.4 | \$134.0 | 6.3% |
| 31. | South Carolina | \$12.7 | \$210.5 | 6.0% |
| 32. | Nebraska | \$6.6 | \$110.7 | 6.0% |
| 33. | Iowa | \$10.2 | \$173.2 | 5.9% |
| 34. | Kansas | \$8.9 | \$155.6 | 5.7% |
| 35. | Ohio | \$34.1 | \$606.7 | 5.6% |
| 36. | Maine | \$3.1 | \$60.3 | 5.1% |
| 37. | Tennessee | \$17.2 | \$340.1 | 5.1% |
| 38. | Nevada | \$7.6 | \$157.0 | 4.8% |
| 39. | Indiana | \$15.6 | \$329.1 | 4.8% |
| 40. | Montana | \$2.1 | \$47.8 | 4.4% |
| 41. | South Dakota | \$2.1 | \$47.7 | 4.3% |
| 42. | Alaska | \$2.1 | \$47.9 | 4.3% |
| 43. | Kentucky | \$7.8 | \$195.3 | 4.0% |
| 44. | North Dakota | \$2.1 | \$53.2 | 3.9% |
| 45. | Hawaii | \$3.2 | \$84.7 | 3.8% |
| 46. | Mississippi | \$3.7 | \$105.4 | 3.5% |
| 47. | Oklahoma | \$6.5 | \$187.5 | 3.5% |
| 48. | Arkansas | \$3.9 | \$116.9 | 3.4% |
| 49. | West Virginia | \$2.4 | \$71.3 | 3.3% |
| 50. | Louisiana | \$7.6 | \$232.7 | 3.3% |
| 51. | Wyoming | \$1.0 | \$36.9 | 2.8% |

TECH GROSS REGIONAL PRODUCT
(in billions)

| <u>Rank</u> | <u>Metro Area</u> | <u>2019 est.</u> |
|-------------|-------------------|------------------|
| | United States | \$1,878.9 |
| 1. | San Jose | \$184.7 |
| 2. | San Francisco | \$149.0 |
| 3. | New York City | \$140.5 |
| 4. | Seattle | \$96.3 |
| 5. | Los Angeles | \$92.1 |
| 6. | Boston | \$86.1 |
| 7. | Washington DC | \$77.3 |
| 8. | Dallas | \$62.1 |
| 9. | Chicago | \$50.3 |
| 10. | Atlanta | \$48.4 |
| 11. | Philadelphia | \$39.5 |
| 12. | San Diego | \$35.7 |
| 13. | Austin | \$33.5 |
| 14. | Denver | \$32.1 |
| 15. | Houston | \$28.4 |
| 16. | Minneapolis | \$27.3 |
| 17. | Phoenix | \$25.8 |
| 18. | Detroit | \$24.2 |
| 19. | Portland | \$24.1 |
| 20. | Baltimore | \$22.7 |
| 21. | Miami | \$22.4 |
| 22. | Raleigh | \$18.8 |
| 23. | Tampa | \$15.5 |
| 24. | Pittsburgh | \$13.6 |
| 25. | St. Louis | \$13.5 |
| 26. | Orlando | \$13.2 |
| 27. | Charlotte | \$12.4 |
| 28. | Kansas City | \$11.7 |
| 29. | Salt Lake City | \$10.1 |
| 30. | Milwaukee | \$9.0 |
| 31. | Indianapolis | \$8.9 |
| 32. | Sacramento | \$8.5 |
| 33. | Nashville | \$7.7 |
| 34. | Cincinnati | \$7.5 |
| 35. | San Antonio | \$7.2 |
| 36. | Cleveland | \$6.9 |
| 37. | Albuquerque | \$5.7 |
| 38. | Hartford | \$5.4 |
| 39. | Providence | \$5.2 |
| 40. | Las Vegas | \$4.9 |
| 41. | Boise City | \$4.8 |
| 42. | Omaha | \$4.2 |
| 43. | Trenton | \$4.0 |
| 44. | Buffalo | \$3.7 |
| 45. | Birmingham | \$3.3 |
| 46. | Charleston | \$3.2 |
| 47. | Des Moines | \$2.7 |
| 48. | Oklahoma City | \$2.5 |
| 49. | Memphis | \$2.5 |
| 50. | New Orleans | \$2.5 |

TECH GRP AS A PERCENT OF TOTAL MSA PRODUCT
(in billions)

| <u>Rank</u> | <u>Metro Area</u> | <u>Total Tech GSP</u> | <u>Total GDP/GSP</u> | <u>Tech as a Percent</u> |
|-------------|-------------------|-----------------------|----------------------|--------------------------|
| | United States | \$1,878.9 | \$18,788.3 | 10.0% |
| 1. | San Jose | \$184.7 | \$317.1 | 58.2% |
| 2. | San Francisco | \$149.0 | \$545.3 | 27.3% |
| 3. | Seattle | \$96.3 | \$366.2 | 26.3% |
| 4. | Austin | \$33.5 | \$140.7 | 23.8% |
| 5. | Raleigh | \$18.8 | \$81.4 | 23.1% |
| 6. | Boston | \$86.1 | \$439.6 | 19.6% |
| 7. | San Diego | \$35.7 | \$225.8 | 15.8% |
| 8. | Portland | \$24.1 | \$152.4 | 15.8% |
| 9. | Washington DC | \$77.3 | \$500.9 | 15.4% |
| 10. | Denver | \$32.1 | \$212.9 | 15.1% |
| 11. | Albuquerque | \$5.7 | \$39.4 | 14.4% |
| 12. | Boise City | \$4.8 | \$33.9 | 14.1% |
| 13. | Atlanta | \$48.4 | \$363.7 | 13.3% |
| 14. | Dallas | \$62.1 | \$500.1 | 12.4% |
| 15. | Baltimore | \$22.7 | \$185.6 | 12.2% |
| 16. | Salt Lake City | \$10.1 | \$86.7 | 11.6% |
| 17. | Minneapolis | \$27.3 | \$254.7 | 10.7% |
| 18. | Phoenix | \$25.8 | \$243.2 | 10.6% |
| 19. | Trenton | \$4.0 | \$37.8 | 10.6% |
| 20. | Tampa | \$15.5 | \$149.8 | 10.3% |
| 21. | Orlando | \$13.2 | \$129.2 | 10.2% |
| 22. | Detroit | \$24.2 | \$243.9 | 9.9% |
| 23. | Philadelphia | \$39.5 | \$407.2 | 9.7% |
| 24. | Los Angeles | \$92.1 | \$951.1 | 9.7% |
| 25. | Kansas City | \$11.7 | \$122.5 | 9.6% |
| 26. | Pittsburgh | \$13.6 | \$142.5 | 9.6% |
| 27. | Milwaukee | \$9.0 | \$95.3 | 9.4% |
| 28. | New York City | \$140.5 | \$1,641.0 | 8.6% |
| 29. | St. Louis | \$13.5 | \$160.1 | 8.4% |
| 30. | Chicago | \$50.3 | \$642.3 | 7.8% |
| 31. | Charlotte | \$12.4 | \$157.7 | 7.8% |
| 32. | Charleston | \$3.2 | \$41.0 | 7.7% |
| 33. | Indianapolis | \$8.9 | \$121.2 | 7.3% |
| 34. | Omaha | \$4.2 | \$59.0 | 7.2% |
| 35. | Miami | \$22.4 | \$328.1 | 6.8% |
| 36. | Providence | \$5.2 | \$79.4 | 6.5% |
| 37. | Sacramento | \$8.5 | \$131.0 | 6.5% |
| 38. | Buffalo | \$3.7 | \$61.4 | 6.1% |
| 39. | San Antonio | \$7.2 | \$120.3 | 6.0% |
| 40. | Nashville | \$7.7 | \$128.1 | 6.0% |
| 41. | Des Moines | \$2.7 | \$46.9 | 5.8% |
| 42. | Cincinnati | \$7.5 | \$132.2 | 5.7% |
| 43. | Cleveland | \$6.9 | \$121.9 | 5.7% |
| 44. | Hartford | \$5.4 | \$95.4 | 5.6% |
| 45. | Birmingham | \$3.3 | \$60.0 | 5.4% |
| 46. | Houston | \$28.4 | \$524.2 | 5.4% |
| 47. | Las Vegas | \$4.9 | \$109.6 | 4.5% |
| 48. | Memphis | \$2.5 | \$72.2 | 3.5% |
| 49. | Oklahoma City | \$2.5 | \$73.9 | 3.4% |
| 50. | New Orleans | \$2.5 | \$74.4 | 3.4% |

APPENDIX TABLES – D

COMPARISONS TO OTHER INDUSTRIES

COMPARISONS OF TECH TO OTHER INDUSTRY SECTORS

APPENDIX D.1

Comparison of tech sector, tech occupations, and tech economic impact vs. 21 other top-level industry sectors; or, in the case of occupations, 19 top-level occupation categories. For example, a tech sector ranking of 10 means tech ranked 10th among the state's industries in job gains during the 2010-2019 or 2018-2019 periods.

| <u>State</u> | <u>Tech Sector Jobs Change Rank 2010-19</u> | <u>Tech Sector Jobs Change YoY Rank 2018-19</u> | <u>Tech Sector Economic Impact Rank 2019</u> | <u>Metro Area</u> | <u>Tech Sector Jobs Change Rank 2010-19</u> | <u>Tech Sector Jobs Change YoY Rank 2018-19</u> | <u>Tech Sector Economic Impact Rank 2019</u> |
|----------------------|---|---|--|-------------------|---|---|--|
| United States | 6 | 2 | 3 | United States | 6 | 2 | 3 |
| Alabama | 8 | 2 | 6 | Albuquerque | 21 | 6 | 2 |
| Alaska | 18 | 22 | 7 | Atlanta | 7 | 4 | 1 |
| Arizona | 8 | 3 | 3 | Austin | 2 | 1 | 1 |
| Arkansas | 18 | 20 | 11 | Baltimore | 6 | 1 | 2 |
| California | 4 | 1 | 1 | Birmingham | 18 | 17 | 9 |
| Colorado | 6 | 2 | 1 | Boise | 7 | 3 | 2 |
| Connecticut | 10 | 8 | 6 | Boston | 3 | 1 | 1 |
| Delaware | 19 | 21 | 6 | Buffalo | 5 | 1 | 8 |
| District of Columbia | 6 | 2 | 4 | Charleston | 8 | 2 | 4 |
| Florida | 9 | 6 | 6 | Charlotte | 6 | 2 | 5 |
| Georgia | 8 | 5 | 3 | Chicago | 6 | 5 | 6 |
| Hawaii | 19 | 13 | 11 | Cincinnati | 7 | 4 | 7 |
| Idaho | 10 | 4 | 3 | Cleveland | 10 | 9 | 7 |
| Illinois | 6 | 6 | 7 | Dallas | 9 | 2 | 1 |
| Indiana | 10 | 9 | 7 | Denver | 5 | 1 | 1 |
| Iowa | 10 | 3 | 7 | Des Moines | 8 | 3 | 7 |
| Kansas | 21 | 19 | 6 | Detroit | 3 | 7 | 3 |
| Kentucky | 16 | 11 | 10 | Hartford | 8 | 17 | 6 |
| Louisiana | 10 | 5 | 13 | Houston | 17 | 15 | 9 |
| Maine | 6 | 1 | 9 | Indianapolis | 8 | 12 | 7 |
| Maryland | 7 | 1 | 2 | Kansas City | 14 | 4 | 5 |
| Massachusetts | 3 | 1 | 1 | Las Vegas | 11 | 8 | 11 |
| Michigan | 6 | 2 | 5 | Los Angeles | 9 | 5 | 3 |
| Minnesota | 10 | 6 | 5 | Memphis | 17 | 18 | 12 |
| Mississippi | 14 | 21 | 11 | Miami | 11 | 6 | 7 |
| Missouri | 4 | 3 | 5 | Milwaukee | 13 | 7 | 4 |
| Montana | 8 | 4 | 10 | Minneapolis | 10 | 6 | 3 |
| Nebraska | 6 | 1 | 7 | Nashville | 11 | 8 | 9 |
| Nevada | 12 | 5 | 10 | New Orleans | 17 | 19 | 13 |
| New Hampshire | 4 | 1 | 2 | New York City | 8 | 4 | 5 |
| New Jersey | 14 | 7 | 5 | Oklahoma City | 21 | 19 | 11 |
| New Mexico | 15 | 4 | 3 | Omaha | 16 | 13 | 5 |
| New York | 5 | 2 | 6 | Orlando | 11 | 4 | 1 |
| North Carolina | 4 | 1 | 4 | Philadelphia | 18 | 8 | 5 |
| North Dakota | 17 | 13 | 10 | Phoenix | 9 | 5 | 2 |
| Ohio | 10 | 4 | 8 | Pittsburgh | 4 | 3 | 4 |
| Oklahoma | 21 | 13 | 11 | Portland | 5 | 1 | 1 |
| Oregon | 7 | 1 | 3 | Providence | 19 | 8 | 8 |
| Pennsylvania | 6 | 3 | 6 | Raleigh | 1 | 1 | 1 |
| Rhode Island | 19 | 8 | 6 | Sacramento | 19 | 14 | 5 |
| South Carolina | 8 | 2 | 7 | Salt Lake City | 4 | 2 | 3 |
| South Dakota | 10 | 3 | 9 | San Antonio | 12 | 7 | 6 |
| Tennessee | 13 | 9 | 8 | San Diego | 6 | 2 | 2 |
| Texas | 8 | 4 | 5 | San Francisco | 1 | 1 | 1 |
| Utah | 6 | 1 | 3 | San Jose | 1 | 1 | 1 |
| Vermont | 20 | 12 | 5 | Seattle | 1 | 1 | 1 |
| Virginia | 10 | 2 | 3 | St. Louis | 12 | 11 | 5 |
| Washington | 3 | 1 | 1 | Tampa | 9 | 6 | 2 |
| West Virginia | 9 | 4 | 12 | Trenton | 11 | 10 | 4 |
| Wisconsin | 7 | 2 | 6 | Washington DC | 12 | 2 | 3 |
| Wyoming | 14 | 9 | 14 | | | | |

The comparisons for industry and economic impact are made to the 21 top-level industry sectors based on 2-digit NAICS: Agriculture, Forestry, Fishing | Mining, oil and gas Extraction | Utilities | Construction | Manufacturing | Wholesale | Retail | Transportation | Information | Finance and Insurance | Real Estate and Rental and Leasing | Professional, Scientific, and Technical Services | Management of Companies | Administrative and Support and Waste Mgt. and Remediation Services | Educational Services | Health Care and Social Assistance | Arts, Entertainment, and Recreation | Accommodation and Food | Other Services | Government | Unclassified Industry

TOP INDUSTRY SECTORS FOR JOB GAINS, 2018-2019

APPENDIX D.2

Note: for purposes of spacing, industry labels were abbreviated. See caveats and limitations in comparing industries to one another using data at the 2-digit NAICS level.

| <u>State</u> | <u>Rank #1</u> | <u>Rank #2</u> | <u>Rank #3</u> | <u>Rank #4</u> |
|----------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| United States | Healthcare services | Tech | Transportation / related services | Professional services |
| Alabama | Construction | Tech | Temporary / admin services | Healthcare services |
| Alaska | Construction | Mining, oil and gas | Hotels / restaurants / food services | Transportation / related services |
| Arizona | Healthcare services | Construction | Tech | Transportation / related services |
| Arkansas | Manufacturing | Transportation / related services | Hotels / restaurants / food services | Healthcare services |
| California | Tech | Healthcare services | Professional services | Transportation / related services |
| Colorado | Professional services | Tech | Government | Transportation / related services |
| Connecticut | Manufacturing | Healthcare services | Construction | Transportation / related services |
| Delaware | Healthcare services | Transportation / related services | Construction | Hotels / restaurants / food services |
| District of Columbia | Professional services | Tech | Hotels / restaurants / food services | Information |
| Florida | Transportation / related services | Healthcare services | Construction | Professional services |
| Georgia | Healthcare services | Management consulting | Hotels / restaurants / food services | Construction |
| Hawaii | Hotels / restaurants / food services | Healthcare services | Unclassified / other | Construction |
| Idaho | Healthcare services | Construction | Professional services | Tech |
| Illinois | Transportation / related services | Healthcare services | Finance and Insurance | Professional services |
| Indiana | Construction | Healthcare services | Transportation / related services | Hotels / restaurants / food services |
| Iowa | Manufacturing | Transportation / related services | Tech | Construction |
| Kansas | Manufacturing | Construction | Transportation / related services | Healthcare services |
| Kentucky | Transportation / related services | Healthcare services | Hotels / restaurants / food services | Construction |
| Louisiana | Transportation / related services | Healthcare services | Manufacturing | Professional services |
| Maine | Tech | Unclassified / other | Manufacturing | Finance and Insurance |
| Maryland | Tech | Professional services | Transportation / related services | Healthcare services |
| Massachusetts | Tech | Professional services | Healthcare services | Construction |
| Michigan | Transportation / related services | Tech | Manufacturing | Professional services |
| Minnesota | Management consulting | Construction | Finance and Insurance | Manufacturing |
| Mississippi | Transportation / related services | Healthcare services | Manufacturing | Hotels / restaurants / food services |
| Missouri | Healthcare services | Manufacturing | Tech | Transportation / related services |
| Montana | Construction | Finance and Insurance | Hotels / restaurants / food services | Tech |
| Nebraska | Tech | Transportation / related services | Construction | Finance and Insurance |
| Nevada | Construction | Manufacturing | Healthcare services | Transportation / related services |
| New Hampshire | Tech | Manufacturing | Healthcare services | Hotels / restaurants / food services |
| New Jersey | Unclassified / other | Transportation / related services | Hotels / restaurants / food services | Healthcare services |
| New Mexico | Professional services | Temporary / admin services | Mining, oil and gas | Tech |
| New York | Healthcare services | Tech | Temporary / admin services | Unclassified / other |
| North Carolina | Tech | Construction | Professional services | Healthcare services |
| North Dakota | Healthcare services | Construction | Mining, oil and gas | Transportation / related services |
| Ohio | Government | Healthcare services | Transportation / related services | Tech |
| Oklahoma | Manufacturing | Government | Construction | Transportation / related services |
| Oregon | Tech | Healthcare services | Transportation / related services | Manufacturing |
| Pennsylvania | Healthcare services | Transportation / related services | Tech | Manufacturing |
| Rhode Island | Hotels / restaurants / food services | Government | Healthcare services | Construction |
| South Carolina | Manufacturing | Tech | Healthcare services | Hotels / restaurants / food services |
| South Dakota | Manufacturing | Healthcare services | Tech | Professional services |
| Tennessee | Transportation / related services | Hotels / restaurants / food services | Construction | Manufacturing |
| Texas | Professional services | Construction | Healthcare services | Tech |
| Utah | Tech | Professional services | Government | Manufacturing |
| Vermont | Professional services | Healthcare services | Manufacturing | Transportation / related services |
| Virginia | Healthcare services | Tech | Professional services | Transportation / related services |
| Washington | Tech | Healthcare services | Information | Manufacturing |
| West Virginia | Hotels / restaurants / food services | Healthcare services | Mining, oil and gas | Tech |
| Wisconsin | Manufacturing | Tech | Healthcare services | Professional services |
| Wyoming | Construction | Professional services | Manufacturing | Mining, oil and gas |

Sources: EMSI | U.S. Bureau of Economic Analysis | CompTIA

TOP INDUSTRY SECTORS FOR JOB GAINS, 2018-2019

APPENDIX D.3

Note: for purposes of spacing, industry labels were abbreviated. See caveats and limitations in comparing industries to one another using data at the 2-digit NAICS level.

| <u>Metro Area</u> | <u>Rank #1</u> | <u>Rank #2</u> | <u>Rank #3</u> | <u>Rank #4</u> |
|--------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| United States | Healthcare services | Tech | Transportation / related services | Professional services |
| Albuquerque | Healthcare services | Professional services | Temporary / admin services | Government |
| Atlanta | Management consulting | Healthcare services | Temporary / admin services | Tech |
| Austin | Tech | Professional services | Information | Hotels / restaurants / food services |
| Baltimore | Tech | Hotels / restaurants / food services | Temporary / admin services | Professional services |
| Birmingham | Construction | Healthcare services | Government | Manufacturing |
| Boise | Healthcare services | Construction | Tech | Professional services |
| Boston | Tech | Professional services | Healthcare services | Construction |
| Buffalo | Tech | Transportation / related services | Manufacturing | Unclassified / other |
| Charleston | Manufacturing | Tech | Professional services | Retail Trade |
| Charlotte | Finance and Insurance | Tech | Healthcare services | Transportation / related services |
| Chicago | Transportation / related services | Healthcare services | Finance and Insurance | Hotels / restaurants / food services |
| Cincinnati | Healthcare services | Transportation / related services | Manufacturing | Tech |
| Cleveland | Transportation / related services | Temporary / admin services | Healthcare services | Professional services |
| Dallas | Professional services | Tech | Manufacturing | Healthcare services |
| Denver | Tech | Professional services | Transportation / related services | Government |
| Des Moines | Healthcare services | Transportation / related services | Tech | Manufacturing |
| Detroit | Transportation / related services | Finance and Insurance | Hotels / restaurants / food services | Manufacturing |
| Hartford | Manufacturing | Government | Transportation / related services | Healthcare services |
| Houston | Construction | Professional services | Manufacturing | Healthcare services |
| Indianapolis | Construction | Manufacturing | Transportation / related services | Healthcare services |
| Kansas City | Transportation / related services | Healthcare services | Construction | Tech |
| Las Vegas | Construction | Healthcare services | Temporary / admin services | Transportation / related services |
| Los Angeles | Healthcare services | Temporary / admin services | Transportation / related services | Professional services |
| Memphis | Transportation / related services | Healthcare services | Temporary / admin services | Educational Services |
| Miami | Transportation / related services | Healthcare services | Construction | Professional services |
| Milwaukee | Manufacturing | Transportation / related services | Arts, Entertainment, and Recreation | Healthcare services |
| Minneapolis | Management consulting | Finance and Insurance | Healthcare services | Construction |
| Nashville | Transportation / related services | Professional services | Hotels / restaurants / food services | Construction |
| New Orleans | Healthcare services | Hotels / restaurants / food services | Professional services | Transportation / related services |
| New York City | Healthcare services | Temporary / admin services | Transportation / related services | Tech |
| Oklahoma City | Healthcare services | Transportation / related services | Construction | Temporary / admin services |
| Omaha | Construction | Transportation / related services | Hotels / restaurants / food services | Professional services |
| Orlando | Hotels / restaurants / food services | Temporary / admin services | Construction | Tech |
| Philadelphia | Healthcare services | Transportation / related services | Professional services | Arts, Entertainment, and Recreation |
| Phoenix | Healthcare services | Construction | Professional services | Temporary / admin services |
| Pittsburgh | Construction | Healthcare services | Tech | Mining, oil and gas |
| Portland | Tech | Transportation / related services | Construction | Healthcare services |
| Providence | Hotels / restaurants / food services | Healthcare services | Government | Construction |
| Raleigh | Tech | Professional services | Healthcare services | Construction |
| Sacramento | Healthcare services | Construction | Transportation / related services | Professional services |
| Salt Lake City | Professional services | Tech | Transportation / related services | Construction |
| San Antonio | Construction | Healthcare services | Hotels / restaurants / food services | Professional services |
| San Diego | Professional services | Tech | Healthcare services | Hotels / restaurants / food services |
| San Francisco | Tech | Professional services | Information | Transportation / related services |
| San Jose | Tech | Information | Professional services | Manufacturing |
| Seattle | Tech | Information | Manufacturing | Professional services |
| St. Louis | Healthcare services | Manufacturing | Construction | Professional services |
| Tampa | Transportation / related services | Healthcare services | Hotels / restaurants / food services | Professional services |
| Trenton | Temporary / admin services | Manufacturing | Government | Healthcare services |
| Washington DC | Transportation / related services | Tech | Professional services | Healthcare services |

Sources: EMSI | U.S. Bureau of Economic Analysis | CompTIA

TOP INDUSTRIES BY ECONOMIC IMPACT, 2019

APPENDIX D.4

Note: for purposes of spacing, industry labels were abbreviated. See caveats and limitations in comparing industries to one another using data at the 2-digit NAICS level.

| <u>State</u> | <u>Rank #1</u> | <u>Rank #2</u> | <u>Rank #3</u> | <u>Rank #4</u> |
|----------------------|--------------------------------------|--------------------------------------|-----------------------|-----------------------------------|
| United States | Manufacturing | Government | Tech | Finance and insurance |
| Alabama | Manufacturing | Government | Healthcare services | Finance and insurance |
| Alaska | Government | Mining, oil and gas | Healthcare services | Transportation / related services |
| Arizona | Government | Finance and insurance | Tech | Healthcare services |
| Arkansas | Manufacturing | Government | Healthcare services | Wholesale trade |
| California | Tech | Manufacturing | Government | Information |
| Colorado | Tech | Government | Professional services | Finance and insurance |
| Connecticut | Finance and insurance | Manufacturing | Government | Healthcare services |
| Delaware | Finance and insurance | Manufacturing | Government | Healthcare services |
| District of Columbia | Government | Professional services | Unclassified / other | Tech |
| Florida | Government | Finance and insurance | Healthcare services | Professional services |
| Georgia | Government | Manufacturing | Tech | Finance and insurance |
| Hawaii | Government | Hotels / restaurants / food services | Healthcare services | Retail trade |
| Idaho | Manufacturing | Government | Tech | Healthcare services |
| Illinois | Manufacturing | Finance and insurance | Government | Professional services |
| Indiana | Manufacturing | Healthcare services | Government | Wholesale trade |
| Iowa | Manufacturing | Finance and insurance | Government | Healthcare services |
| Kansas | Manufacturing | Government | Finance and insurance | Healthcare services |
| Kentucky | Manufacturing | Government | Healthcare services | Finance and insurance |
| Louisiana | Manufacturing | Government | Healthcare services | Mining, oil and gas |
| Maine | Government | Healthcare services | Manufacturing | Retail trade |
| Maryland | Government | Tech | Professional services | Healthcare services |
| Massachusetts | Tech | Professional services | Finance and insurance | Healthcare services |
| Michigan | Manufacturing | Government | Healthcare services | Professional services |
| Minnesota | Manufacturing | Finance and insurance | Healthcare services | Government |
| Mississippi | Manufacturing | Government | Healthcare services | Retail trade |
| Missouri | Manufacturing | Government | Finance and insurance | Healthcare services |
| Montana | Government | Healthcare services | Manufacturing | Retail trade |
| Nebraska | Manufacturing | Government | Finance and insurance | Healthcare services |
| Nevada | Hotels / restaurants / food services | Government | Finance and insurance | Healthcare services |
| New Hampshire | Manufacturing | Tech | Healthcare services | Government |
| New Jersey | Finance and insurance | Government | Manufacturing | Professional services |
| New Mexico | Government | Mining, oil and gas | Tech | Healthcare services |
| New York | Finance and insurance | Government | Professional services | Healthcare services |
| North Carolina | Manufacturing | Government | Finance and insurance | Tech |
| North Dakota | Government | Mining, oil and gas | Wholesale trade | Healthcare services |
| Ohio | Manufacturing | Government | Healthcare services | Finance and insurance |
| Oklahoma | Mining, oil and gas | Government | Manufacturing | Healthcare services |
| Oregon | Mining, oil and gas | Government | Tech | Manufacturing |
| Pennsylvania | Manufacturing | Healthcare services | Government | Finance and insurance |
| Rhode Island | Government | Finance and insurance | Healthcare services | Manufacturing |
| South Carolina | Manufacturing | Government | Retail trade | Healthcare services |
| South Dakota | Government | Manufacturing | Finance and insurance | Healthcare services |
| Tennessee | Manufacturing | Government | Healthcare services | Finance and insurance |
| Texas | Manufacturing | Government | Mining, oil and gas | Wholesale trade |
| Utah | Manufacturing | Government | Tech | Finance and insurance |
| Vermont | Government | Manufacturing | Healthcare services | Retail trade |
| Virginia | Government | Professional services | Tech | Manufacturing |
| Washington | Tech | Information | Government | Manufacturing |
| West Virginia | Government | Manufacturing | Healthcare services | Mining, oil and gas |
| Wisconsin | Manufacturing | Government | Healthcare services | Finance and insurance |
| Wyoming | Mining, oil and gas | Government | Manufacturing | Construction |

Sources: EMSI | U.S. Bureau of Economic Analysis | CompTIA

TOP INDUSTRIES BY ECONOMIC IMPACT, 2019

APPENDIX D.5

Note: for purposes of spacing, industry labels were abbreviated. See caveats and limitations in comparing industries to one another using data at the 2-digit NAICS level.

| <u>State</u> | <u>Rank #1</u> | <u>Rank #2</u> | <u>Rank #3</u> | <u>Rank #4</u> |
|----------------|--------------------------------------|-----------------------------------|-----------------------|-----------------------|
| United States | Manufacturing | Government | Tech | Finance and Insurance |
| Albuquerque | Government | Tech | Professional services | Healthcare services |
| Atlanta | Tech | Information | Professional services | Finance and insurance |
| Austin | Tech | Professional services | Government | Manufacturing |
| Baltimore | Government | Tech | Professional services | Healthcare services |
| Birmingham | Finance and insurance | Government | Healthcare services | Manufacturing |
| Boise | Manufacturing | Tech | Government | Healthcare services |
| Boston | Tech | Professional services | Finance and insurance | Manufacturing |
| Buffalo | Government | Manufacturing | Finance and insurance | Healthcare services |
| Charleston | Government | Manufacturing | Professional services | Tech |
| Charlotte | Finance and insurance | Manufacturing | Government | Wholesale trade |
| Chicago | Manufacturing | Finance and insurance | Professional services | Wholesale trade |
| Cincinnati | Manufacturing | Finance and insurance | Wholesale trade | Healthcare services |
| Cleveland | Manufacturing | Healthcare services | Finance and insurance | Government |
| Dallas | Tech | Finance and insurance | Manufacturing | Professional services |
| Denver | Tech | Professional services | Finance and insurance | Government |
| Des Moines | Finance and insurance | Government | Wholesale trade | Healthcare services |
| Detroit | Manufacturing | Professional services | Tech | Healthcare services |
| Hartford | Finance and insurance | Manufacturing | Government | Healthcare services |
| Houston | Manufacturing | Wholesale trade | Mining, oil and gas | Professional services |
| Indianapolis | Manufacturing | Finance and insurance | Healthcare services | Government |
| Kansas City | Manufacturing | Government | Finance and insurance | Professional services |
| Las Vegas | Hotels / restaurants / food services | Government | Retail trade | Healthcare services |
| Los Angeles | Manufacturing | Information | Tech | Government |
| Memphis | Manufacturing | Transportation / related services | Government | Healthcare services |
| Miami | Finance and insurance | Wholesale trade | Professional services | Government |
| Milwaukee | Manufacturing | Finance and insurance | Healthcare services | Tech |
| Minneapolis | Manufacturing | Finance and insurance | Tech | Professional services |
| Nashville | Manufacturing | Finance and insurance | Healthcare services | Professional services |
| New Orleans | Manufacturing | Government | Healthcare services | Professional services |
| New York City | Finance and insurance | Professional services | Government | Information |
| Oklahoma City | Mining, oil and gas | Government | Healthcare services | Finance and insurance |
| Omaha | Finance and insurance | Government | Healthcare services | Manufacturing |
| Orlando | Tech | Professional services | Healthcare services | Finance and insurance |
| Philadelphia | Finance and insurance | Manufacturing | Professional services | Healthcare services |
| Phoenix | Finance and insurance | Tech | Manufacturing | Healthcare services |
| Pittsburgh | Finance and insurance | Healthcare services | Manufacturing | Tech |
| Portland | Tech | Manufacturing | Government | Healthcare services |
| Providence | Government | Manufacturing | Healthcare services | Finance and insurance |
| Raleigh | Tech | Professional services | Manufacturing | Government |
| Sacramento | Government | Healthcare services | Finance and insurance | Professional services |
| Salt Lake City | Finance and insurance | Manufacturing | Tech | Government |
| San Antonio | Government | Finance and insurance | Healthcare services | Retail trade |
| San Diego | Government | Tech | Manufacturing | Professional services |
| San Francisco | Tech | Information | Professional services | Manufacturing |
| San Jose | Tech | Information | Manufacturing | Professional services |
| Seattle | Tech | Information | Retail trade | Manufacturing |
| St. Louis | Manufacturing | Finance and insurance | Healthcare services | Government |
| Tampa | Finance and insurance | Tech | Professional services | Healthcare services |
| Trenton | Government | Professional services | Finance and insurance | Tech |
| Washington DC | Government | Professional services | Tech | Finance and insurance |

Sources: EMSI | U.S. Bureau of Economic Analysis | CompTIA

METHODOLOGY

CLASSIFICATION SYSTEMS

Cyberstates utilizes the North American Industrial Classification System (NAICS) to define the tech industry. The NAICS is a hierarchical system, with six-digit numbers assigned to the most specific industries. The NAICS is constructed around the concept of production and is able to reflect advances in technology, including many new service-oriented businesses. Economic units with similar production processes are classified in the same industry.

The original *Cyberstates* definition of technology was based on the Standard Industrial Classification (SIC) system. It has evolved as the U.S. government officially converted to the NAICS in 1997. NAICS was devised by the United States, Canada, and Mexico to allow industry analysis across all three nations. NAICS codes are revised periodically to reflect the emergence of new industry sectors or sub-sectors. Accordingly, the *Cyberstates*' NAICS definition of the tech industry has evolved over the years to reflect these changes. Consequently, the data in this report may not be entirely comparable with previous reports.

For occupation-level analysis, *Cyberstates* utilizes the Standard Occupational Classification (SOC) System, which is a standard used by federal agencies to classify workers into occupational categories.

NET TECH EMPLOYMENT

The tech workforce consists of two primary components. Introduced to *Cyberstates* for 2018, net tech employment is a single metric that encompasses both components, making it easier to describe the tech workforce. The foundation is the set of technology occupation professionals working in technical positions, such as IT support, network engineering, software development and related roles. Many of these professionals work for technology companies (47 percent), but many others are employed by organizations across every industry sector or government entity in the U.S. economy (53 percent).

The second component of the discussion consists of the business professionals employed by technology companies. These professionals play an important role in supporting the development and delivery of the technology products and services used throughout the economy. Thirty-four percent of the net tech employment total consists of tech industry business professionals.

See page 6 of this report for more details on the concept of Net Tech Employment.

TECH INDUSTRY DEFINITION

There are a number of considerations when developing a definition of the technology industry. In some cases, NAICS codes do not perfectly reflect industry dynamics. This can be especially challenging in times of rapid innovation, when new tech sectors emerge in a short period of time. More recently, the degree to which technology has become core to so many industry sectors poses new questions. For example, a technology platform designed to facilitate the online sale of goods may have traditionally been viewed as a retailer, although given the intense use of technology, an argument could be made to classify it as a technology firm.

Conceptually, *Cyberstates* focuses on the sectors involved in making, creating, enabling, integrating, or supporting technology, whether as a product or service. At this time, *Cyberstates* does not include industry sectors categorized primarily as users of technology.

Cyberstates includes 50 NAICS codes in its definition of the tech industry. Broadly these can be thought of in two broad categories: tech manufacturing and tech services. These industries sufficiently represent the technology industry within the framework provided under the NAICS system.

TECH OCCUPATION DEFINITION

The occupations covered by *Cyberstates* are broadly categorized into core information technology (IT) positions and then engineering, repair, technician, and assembly positions. In total, 50 distinct SOC codes are used to define the tech occupations found across every industry sector of the economy.

CompTIA is responsible for all content contained in this report. Any questions regarding *Cyberstates* should be directed to CompTIA Research & Market Intelligence staff at research@comptia.org.

TECH MANUFACTURING**Computer and Peripheral Equipment**

- 334111 Electronic Computers
- 334112 Computer Storage Devices
- 334118 Computer Peripheral Equipment

Communications Equipment

- 334210 Telephone Apparatus
- 334220 Radio and TV Broadcasting and Wireless Communications Equipment
- 334290 Other Communications Equipment

Consumer Electronics

- 334310 Audio and Video Equipment

Electronic Components

- 334412 Bare Printed Circuit Boards
- 334416 Capacitor, Resistor, Coil, Transformer, and Other Inductors
- 334417 Electronic Connectors
- 334418 Printed Circuit Assembly
- 334419 Other Electronic Components

Semiconductors

- 333242 Semiconductor Machinery
- 334413 Semiconductor and Related Devices

Measuring and Control Instruments

- 334510 Electromedical and Electrotherapeutic Apparatus
- 334511 Search, Detection, Navigation, Guidance, Aeronautical, and Nautical Systems and Instruments
- 334512 Automatic Environmental Controls
- 334513 Industrial Process Control Instruments
- 334514 Totalizing Fluid Meter and Counting Devices
- 334515 Electricity Measuring and Testing Equipment
- 334516 Analytical Laboratory Instruments
- 334517 Irradiation Apparatus
- 334519 Other Measuring and Controlling Instruments

Reproducing Magnetic and Optical Media

- 334613 Manufacturing and Reproducing Magnetic and Optical Media
- 334614 Software and Other Prerecorded Content Reproducing

Space and Defense Systems

- 336414 Guided Missile and Space Vehicles
- 336415 Guided Missile and Space Vehicle Propulsion Units and Parts
- 336419 Other Guided Missile, Space Vehicle Parts, and Auxiliary Equipment

TECH SERVICES**TELECOMMUNICATIONS AND INTERNET SERVICES****Telecommunications**

- 517311 Wired Telecommunication Carriers
- 517312 Wireless Telecommunication Carriers (except Satellite)
- 517410 Satellite Telecommunications
- 517911 Telecommunication Resellers
- 517919 All Other Telecommunications

Internet Services

- 518210 Data Processing, Hosting, and Related Services
- 519130 Internet Publishing and Broadcasting, and Web Search Portals

SOFTWARE**Software Publishers**

- 511210 Software Publishers

IT SERVICES**Computer, Peripheral, and Software Wholesalers**

- 423430 Computer and Computer Peripheral Equipment and Software Merchant Wholesalers

Computer Systems Design and Related Services

- 541511 Custom Computer Programming
- 541512 Computer Systems Design
- 541513 Computer Facilities Management
- 541519 Other Computer Related Services

Computer Training

- 611420 Computer Training

Computer and Electronic Repair and Maintenance

- 811211 Consumer Electronics Repair and Maintenance
- 811212 Computer and Office Machine Repair and Maintenance
- 811213 Communication Equipment Repair and Maintenance
- 811219 Other Electronic and Precision Equipment Repair and Maintenance

ENGINEERING SERVICES, R&D, AND TESTING LABS**Engineering Services**

- 541330 Engineering Services

R&D and Testing Labs

- 541380 Testing Laboratories
- 541713 Research and Development in Nanotechnology
- 541714 R&D in Biotechnology
- 541715 R&D in the Physical, Engineering, and Life Sciences

STANDARD OCCUPATIONAL CODES INCLUDED IN COMPTIA'S DEFINITION OF TECH OCCUPATIONS

IT OCCUPATIONS

| | |
|---------|--|
| 11-3021 | Computer and Information Systems Managers |
| 15-1111 | Computer and Information Research Scientists |
| 15-1121 | Computer Systems Analysts |
| 15-1122 | Information Security Analysts |
| 15-1131 | Computer Programmers |
| 15-1132 | Software Developers, Applications |
| 15-1133 | Software Developers, Systems Software |
| 15-1134 | Web Developers |
| 15-1141 | Database Administrators |
| 15-1142 | Network and Computer Systems Administrators |
| 15-1143 | Computer Network Architects |
| 15-1151 | Computer Support Specialists |
| 15-1152 | Computer Network Support Specialists |
| 15-1199 | Computer Occupations, All Other (includes videogame designer, business intelligence analyst, and others) |

ENGINEERING OCCUPATIONS

| | |
|---------|--|
| 11-9041 | Engineering Managers |
| 17-2011 | Aerospace Engineers |
| 17-2031 | Biomedical Engineers |
| 17-2061 | Computer Hardware Engineers |
| 17-2071 | Electrical Engineers |
| 17-2072 | Electronics Engineers, Except Computer |
| 17-2112 | Industrial Engineers |
| 17-2131 | Materials Engineers |
| 17-2141 | Mechanical Engineers |
| 17-2199 | Engineers, All Other |

ENGINEERING AND AUDIO/VIDEO TECHNICIANS

| | |
|---------|---|
| 17-3021 | Aerospace Engineering and Operations Technicians |
| 17-3023 | Electrical and Electronics Engineering Technicians |
| 17-3024 | Electro-Mechanical Technicians |
| 17-3026 | Industrial Engineering Technicians |
| 17-3027 | Mechanical Engineering Technicians |
| 17-3029 | Engineering Technicians, Except Drafters, All Other |
| 27-4011 | Audio and Video Equipment Technicians |
| 27-4012 | Broadcast Technicians |
| 27-4014 | Sound Engineering Technicians |

COMPUTER OPERATORS

| | |
|---------|--------------------|
| 43-9011 | Computer Operators |
|---------|--------------------|

ELECTRICAL, ELECTRONIC, AND COMPUTER INSTALLERS AND REPAIRERS

| | |
|---------|---|
| 49-2011 | Computer, Automated Teller, and Office Machine Repairers |
| 49-2021 | Radio, Cellular, and Tower Equipment Installers and Repairs |
| 49-2022 | Telecommunications Equipment Installers and Repairers, Except Line Installers |
| 49-2091 | Avionics Technicians |
| 49-2092 | Electric Motor, Power Tool, and Related Repairers |
| 49-2093 | Electrical and Electronics Installers and Repairers, Transportation Equipment |
| 49-2094 | Electrical and Electronics Repairers, Commercial and Industrial Equipment |
| 49-2095 | Electrical and Electronics Repairers, Powerhouse, Substation, and Relay |
| 49-2096 | Electronic Equipment Installers and Repairers, Motor Vehicles |
| 49-2097 | Electronic Home Entertainment Equipment Installers and Repairers |
| 49-2098 | Security and Fire Alarm Systems Installers |

ELECTRICAL, ELECTRONICS, AND ELECTROMECHANICAL ASSEMBLERS

| | |
|---------|--|
| 51-2021 | Coil Winders, Tapers, and Finishers |
| 51-2028 | Electrical and Electronic Equipment Assemblers |

COMPUTER-CONTROLLED MACHINE PROGRAMMERS AND OPERATORS

| | |
|---------|---|
| 51-4011 | Computer-Controlled Machine Tool Operators, Metal and Plastic |
| 51-4012 | Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic |



CompTIA.org

Copyright (c) 2020 CompTIA Properties, LLC. All Rights Reserved. CompTIA.org

CompTIA is responsible for all content and analysis. Any questions regarding the report should be directed to CompTIA Research and Market Intelligence staff at research@comptia.org.