

Driving Tech Talent Growth in PHL: An Update

Introduction

In 2017, the Economy League of Greater Philadelphia detailed the state of Greater Philadelphia's Information Technology (IT) occupations and the "tech workforce" in the *Driving Tech Talent Growth in PHL* report. This previous report assessed the economic capacity of tech talent within the region and provided insights on attracting talent and fostering the growth of the region's tech workforce. This current research brief is a targeted update to the general findings of the previous report. It details the size and composition of Greater Philadelphia's tech workforce and how it compares with other metropolitan regions across the country. It also compares how these new findings relate to the previous report's insights.

The Take-Aways

- Greater Philadelphia's tech workforce accounted for 3.5 percent of the region's total jobs in 2017
- Tech occupations in the region are expanding with 8,060 net tech jobs added since 2013
- Tech accounted for 5 percent of Greater Philadelphia's net job growth since 2013
- Demographic trends show that Greater Philadelphia's tech workforce still lacks diversity

Comparing IT Jobs Across Metros

We first compared the count of tech occupations among the top eleven metropolitan regions (outlined by the Bureau of Labor Statistics' Occupational Employment Statistics (OES) survey [see [Appendix](#) for more detail on the data and methods]). Table 2 details the size of the tech industry within each metropolitan region as a percentage of each region's total number of jobs (the raw number of tech jobs within the metropolitan region are listed within the bar chart as well). At 8.0 percent, Washington D.C. outpaces all other metropolitan regions' percentage of tech jobs. This is likely a result of the large concentration of government, security, defense, and research firms in the area. Seattle follows Washington D.C. with 7.6 percent – most likely anchored by Microsoft and auxiliary firms – while San Francisco follows Seattle at 6.8 percent. Philadelphia is third from the last with tech accounting for 3.5 percent of the region's total jobs in 2017; it falls slightly behind Chicago (3.6%) and above Los Angeles (3.3%). Greater Philadelphia also remains third from last by the raw count of tech jobs in 2017 (99,620) with 25,400 less jobs than Boston and 24,580 more jobs than Detroit (two metropolitan regions with much smaller total populations).

Table 2: Comparing the Size of Tech Across Metros

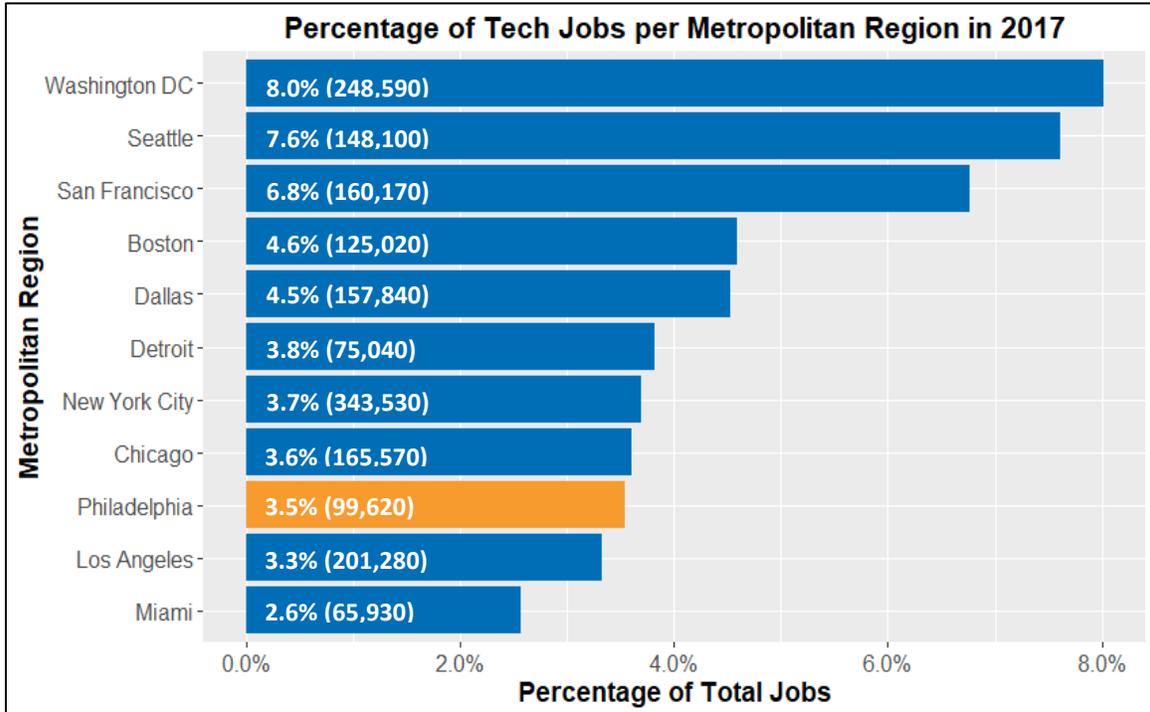
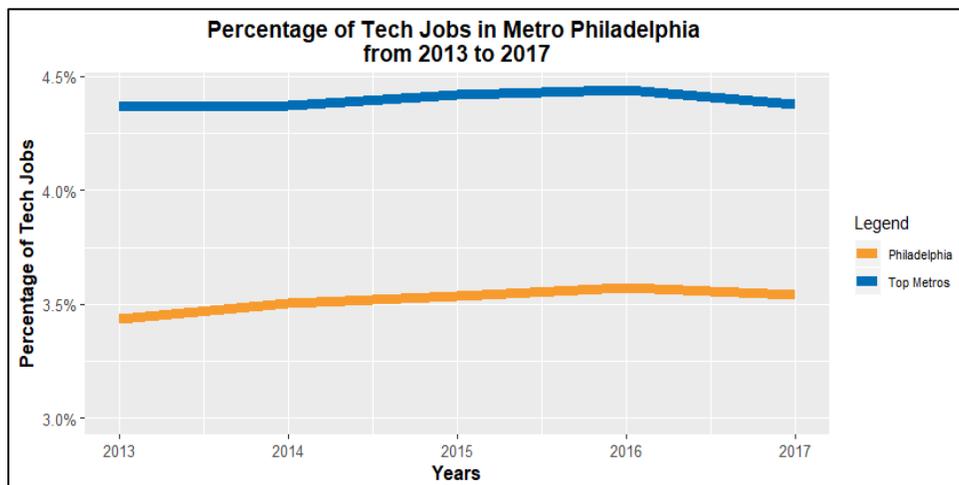


Table 3 illustrates the growth of Greater Philadelphia’s tech occupations from 2013 to 2017. It details the percentage of tech jobs within the metro area and compares it with the average percentage of tech jobs found among the top eleven metropolitan regions (listed in Table 2). Like Table 2, it shows how Greater Philadelphia’s growth and retention of tech jobs trails behind the top performing U.S. metropolitan regions. It does reveal, however, that Greater Philadelphia is expanding its tech occupations: adding 8,060 tech jobs since 2013 and accounting for 5 percent of Greater Philadelphia’s net job growth since 2013.

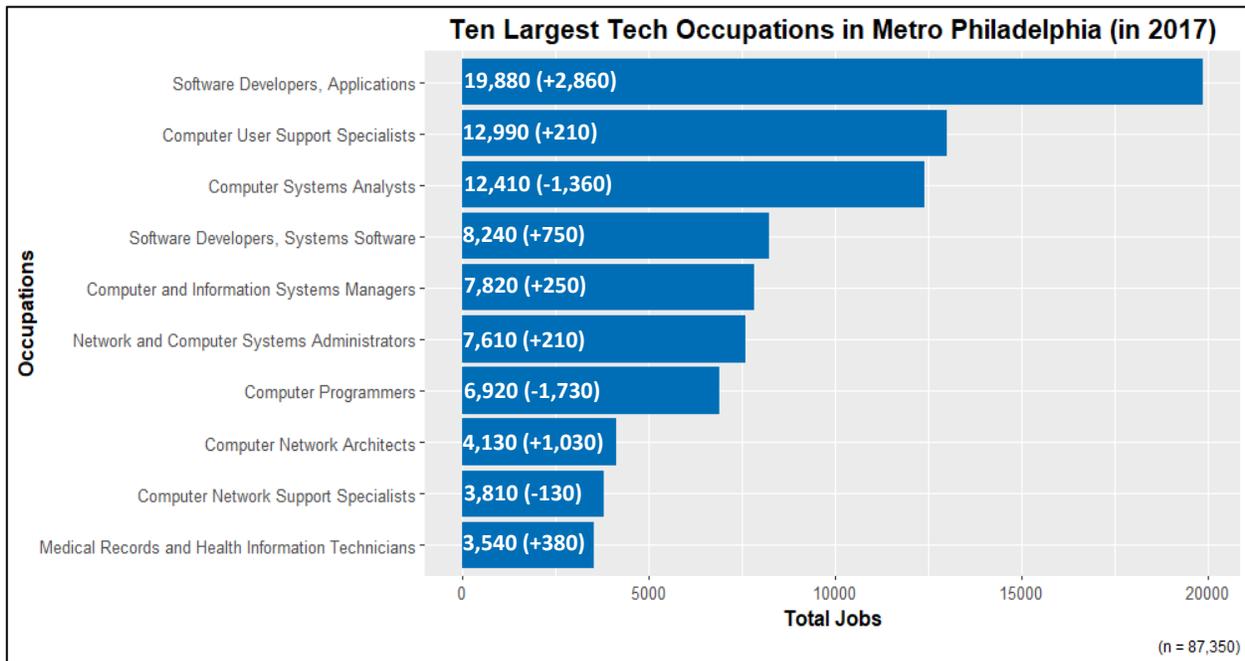
Table 3: Tracking the Growth of Tech Occupations in Philadelphia



A Closer Look at Greater Philadelphia’s Tech Workforce

After comparing Greater Philadelphia with the OES’s top eleven metropolitan regions, we took a closer look at the composition of the region’s tech workforce. Table 4 details the raw count of jobs among the top ten largest tech occupations within Greater Philadelphia. We compared these 2017 results with our previous report’s 2015 findings (page 8 in the [previous full report](#)) and listed the differences since 2015 in parentheses after the 2017 raw counts. The only occupation to drop from the top ten 2015 occupations was the “Computer Occupations, All Other” category; it was replaced by the “Computer Network Architects” occupation (the twelfth occupation in 2015) which saw a net increase of 1,030 jobs since 2015. The “Software Developers, Applications” occupation tops both the 2015 and 2017 lists and has seen exponential growth since 2015 (+2,860 jobs). The largest decline in jobs came from the “Computer Programmers” occupation which dropped from fourth place in 2015 to seventh in 2017 (-1,730). It was followed by the “Computer Systems Analyst” occupation with the second greatest decline in jobs since 2015 at -1,360.

Table 4: The Ten Largest Tech Occupations in Greater Philadelphia



Note: Table 4 compares 2017 occupational counts with the previous 2015 counts found on page 8 of the original *Driving Tech Talent Growth in PHL* [report](#). The differences are in parentheses.

The last four figures of this brief detail the demographic makeup of a sample of Greater Philadelphia’s tech workforce. As discussed in the Appendix, this sample of persons (n=86,371) is not statistically representative of the entirety of Greater Philadelphia’s tech workforce, but it reveals certain prevailing trends about the makeup of the region’s tech workforce. Figure 1 illustrates the educational attainment of the sample of Greater Philadelphia’s tech workforce. In 2017, we provided a similar table detailing the educational attainment of a nationally representative sample (page 9 of the previous full report). Remarkably, the breakdown is similar to the 2015 national estimate. The majority of Greater

Philadelphia’s tech workforce have a four-year degree or higher; this is unsurprising considering the extensive training involved for many of the occupations in IT.

Figure 1: Educational Attainment

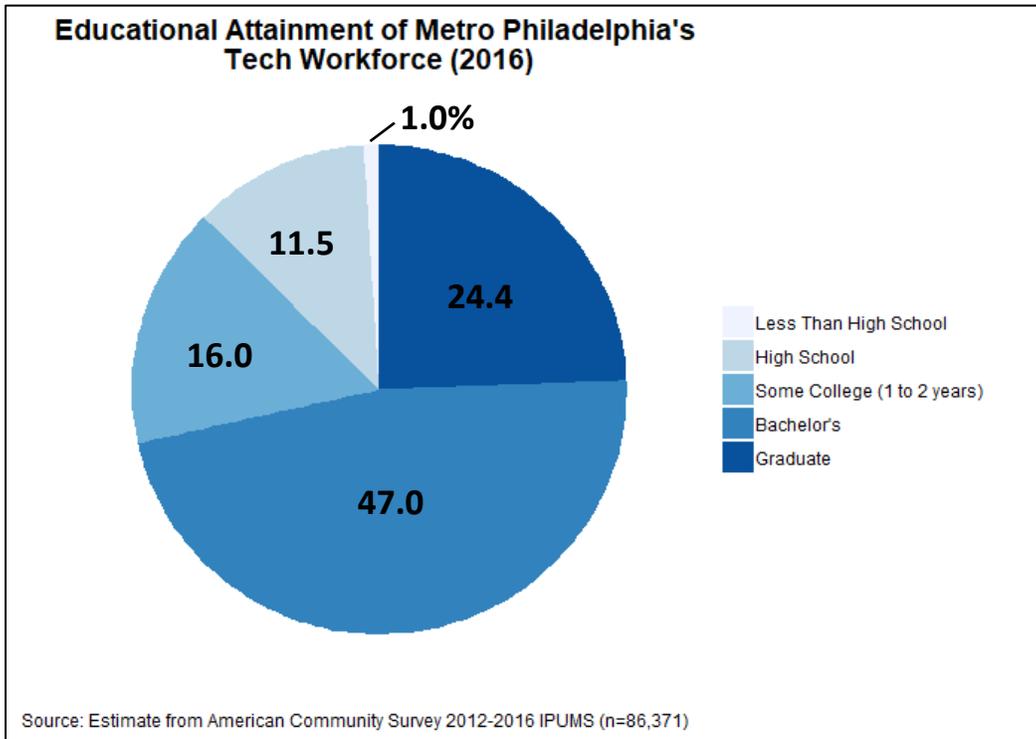


Figure 2 shows the gender division of the sample of Greater Philadelphia’s tech workforce. While Figures 3 and 4 show the ethnic and racial makeup of the same sample. Diversity in tech remains a salient issue since many organizations and groups have devoted their time and resources to including the insights and perspectives of women and persons of color in the tech workforce. We detailed a similar diversity breakdown in our previous report (page 17) and discussed the need for greater inclusion of a diverse workforce. Figure 2 shows how roughly one in four members of the tech workforce are female; while Figures 3 and 4 show that persons of color will still have a difficult time seeing themselves in Greater Philadelphia’s tech workforce. Almost three fourths of the region’s tech workforce identify as white while 97 percent are Non-Hispanic/Latino.



Figure 2: Gender Division

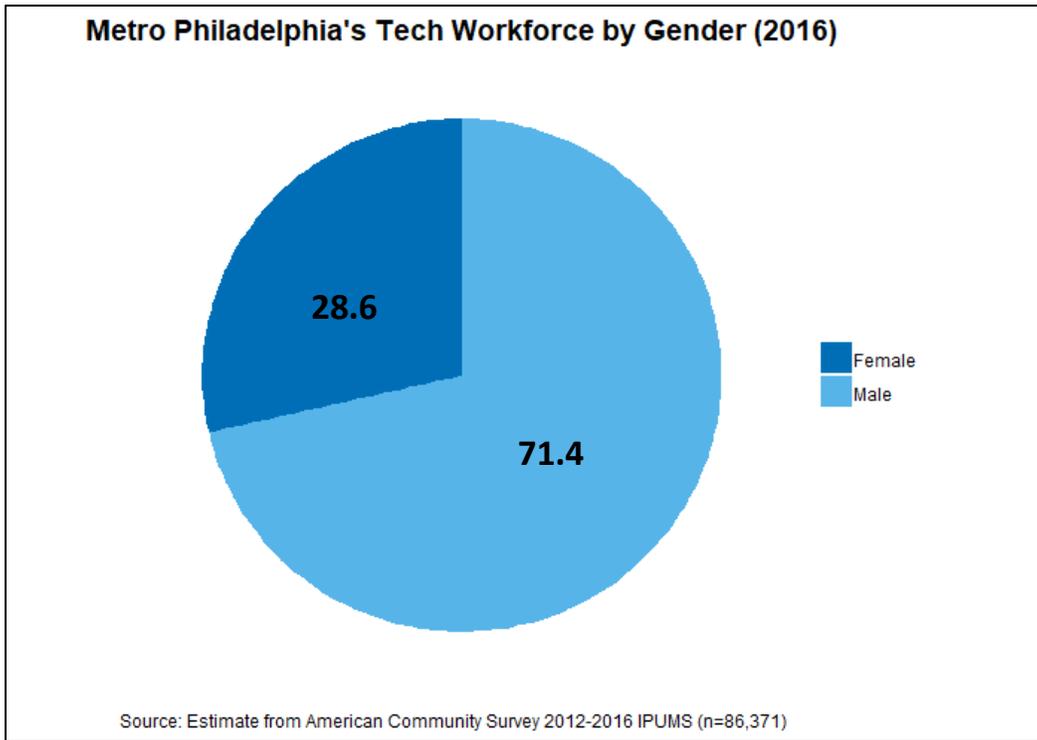


Figure 3: Ethnic Breakdown

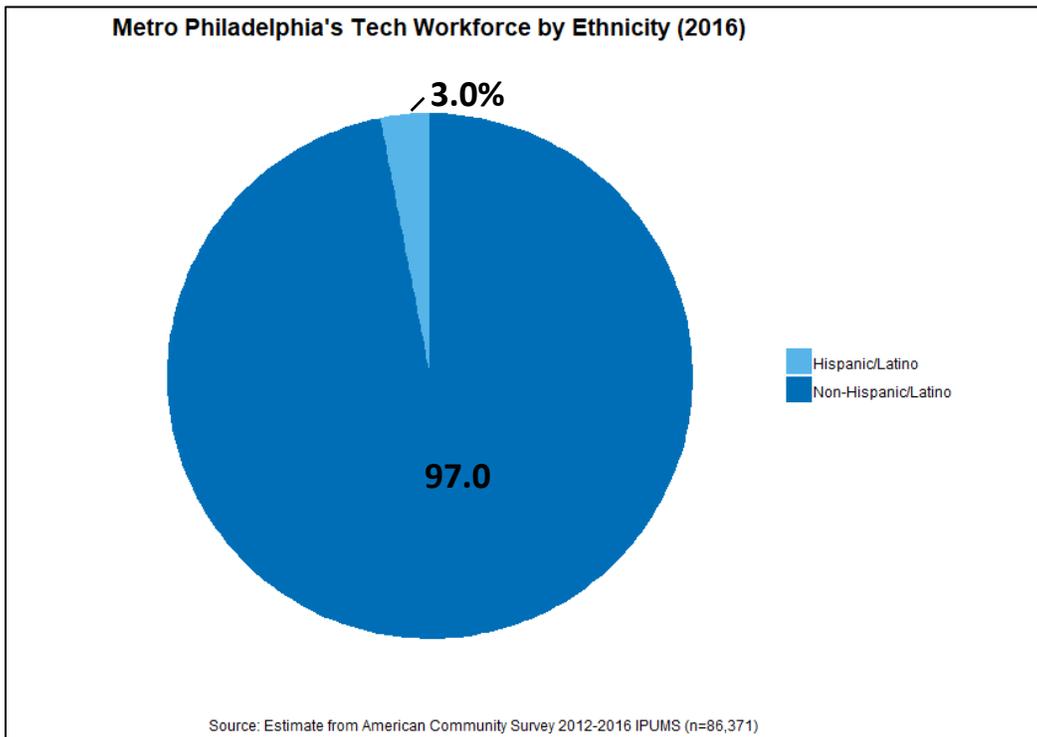
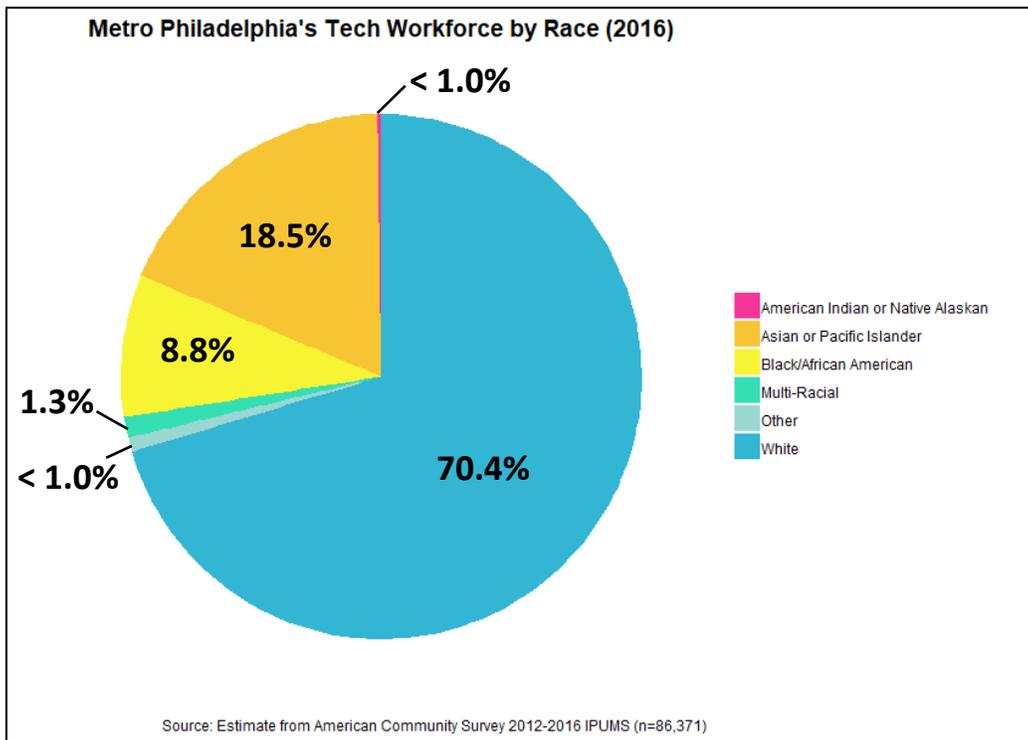


Figure 4: Racial Makeup



Conclusions and Considerations

From this update and our previous report, we found that Greater Philadelphia’s tech workforce continues to expand but still lacks diversity. It remains in need of public and private action to leverage its continued growth and retention in the region. We previously outlined a four-pronged framework for firms, government agencies, research institutions, and nonprofits to drive regional growth and opportunity in IT:

- Increasing incumbent worker training and employer-led solutions
- Aligning and scaling educational and tech training programs
- Raising awareness of tech career and training opportunities among underrepresented groups
- Improving access to data on tech talent in the region

The Economy League and its partners remain committed to this framework and increasing the economic capacity and competitiveness of Greater Philadelphia’s tech workforce. As the U.S. economy continues to decline in manufacturing and expand in services, tech will be a key economic area to subsidize. In only a few decades, its ideas and products have had a profound effect on the way we conduct business and socially interact. Greater Philadelphia must continue to foster its growing tech workforce and pursue actions and policy that attract and retain tech jobs and talent. A homegrown and sustainable tech workforce will only serve as an asset in the future’s tech-driven economy.

APPENDIX

Data and Methodology

Data for this brief came from publicly available federal data sources curated by the U.S. Department of Labor’s Bureau of Labor Statistic and the U.S. Census Bureau. The Bureau of Labor Statistics’ 2013 through 2017 Occupational Employment Statistics (OES) surveys were used for comparing Greater Philadelphia’s tech occupations with other metropolitan areas (NOTE: “Greater Philadelphia” is synonymous with “Metropolitan Philadelphia” or the “Philadelphia Metropolitan Region”). The OES is a semiannual data collection effort that details various industry and occupational measures gathered from a survey of sampled establishments across the country. It captures data across national, state, metropolitan and nonmetropolitan, and county levels. The OES also compares occupations and corresponding industry sectors across eleven U.S. metropolitan regions. These eleven metros are the largest metropolitan regions within the country that have metropolitan divisions for measurement; they do not exactly align with the eleven largest metropolitan regions by population count. Based on previous research and our initial [2017 report](#), we have identified 21 formal IT occupations.* Table 1 lists these occupational titles as defined by the Bureau of Labor Statistics.

Computer and Information Research Scientists	Computer User Support Specialists
Computer and Information Systems Managers	Database Administrators
Computer Hardware Engineers	Information Security Analysts
Computer Network Architects	Medical Records and Health Information Technicians
Computer Network Support Specialists	Multimedia Artists and Animators
Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	Network and Computer Systems Administrators
Computer Occupations, All Other	Operations Research Analysts
Computer Operators	Software Developers, Applications
Computer Programmers	Software Developers, Systems Software
Computer Science Teachers, Postsecondary	Web Developers
Computer Systems Analysts	

* Two occupations were added to our previous 2017 information technology occupations list: Computer Hardware Engineers and Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic

Following the comparison of IT occupations among metropolitan regions, the U.S. Census Bureau’s 2012-2016 American Community Survey (ACS) was used to identify the demographic composition of Greater Philadelphia’s tech workforce. The ACS is an annual survey that details various demographic and economic measures during the nine years without an official census count. It uses a sample of U.S. households and records information for various geographic regions across the country. One smaller geographic region is the PUMA, or Public Use Microdata Area, which is a census-designated geography used for the dissemination of a detailed version of the ACS questionnaire. A PUMA is usually smaller than a county but larger than a census tract or neighborhood. A sample from a series of PUMAs within the counties of the Philadelphia Metropolitan Region was used to detail the demographics of the region’s tech workforce. While this sample is not statistically representative of the entire tech workforce of Greater Philadelphia, its demographic makeup is more revealing of local trends rather than a statistically significant national sample.