

## Austin Technology Council Tech Talent Study:

### An Assessment of the Workforce Pipeline in Austin's Technology Sector



This product was developed by Civic Analytics for ATC and the city of Austin as part of the Austin Technology Partnership.

Austin Technology Council Tech Talent Study:  
An Assessment of the Workforce Pipeline in Austin's Technology Sector

Technology and talent are the foundation of Austin's economic development story. Thirty years ago the Austin economy was largely in start-up mode, moving aggressively—MCC, SEMATECH—to leverage the region's unique competitive advantages into a strategy for competing effectively in the global economy. Today, Austin's economic growth is still fueled by a combination of technology and talent, but the region is no longer a start-up. Austin's technology sector has grown from a few anchor employers, such as Dell and IBM, mostly in computer hardware and peripherals, into a leading technology center with a diverse portfolio of hardware, software, applications, and services. *Silicon Hills*, as Austin came to be known, is no longer defined primarily by silicon. Indeed, the *Silicon Hills* moniker should probably be retired for a variety of reasons. Austin's reputation as a center of innovation and tech-based entrepreneurship has outgrown any need to define the city according to another region's terms. While many of Austin's tech employers are based in California, the city has developed a unique tech identity of its own.

The challenge now is scale. Many companies in Austin are reporting difficulty filling job openings. Skilled workforce availability is not an issue that is unique to Austin, of course; tech centers across the country and much of the world are reporting shortages. This so-called "skills gap" is a controversial topic among labor market economists, recruiters, and corporate HR professionals. This report does not offer a verdict on the existence or non-existence of a skills gap in Austin. What we label it is beside the point. The more critical issue, and the focus of this report, is to evaluate the state of Austin's tech workforce pipeline—is the region well-positioned to meet current and future hiring needs of tech companies? Further, to what extent can supply and demand in the tech labor market be quantified, and, if gaps do in fact exist, what can be done to close them? Is there enough locally produced talent flowing through the pipeline?

Specifically, this report evaluates Austin's tech labor market with four primary goals in mind:

1. Quantify employer perceptions of the "skills gap" and create a baseline for future assessment.
2. Identify critical-skill (core) occupations in the tech workforce that are necessary for innovation, business growth, and competitiveness of the Austin market.
3. Provide input on employer needs to K-12 and postsecondary education and workforce training providers to achieve better alignment of programs.
4. Inform the Austin Technology Council's (ATC) tech talent work plan focused on strengthening public-private partnerships and improving Austin's tech talent pipeline.

Finally, this report will offer several recommendations for data related initiatives based on experience of conducting this research that would improve our understanding of the Austin labor market and allow for better measurement and evaluation of progress toward the goals listed above.

While tax incentives and ribbon cuttings tend to dominate headlines about economic development, it's availability of skilled labor that usually drives corporate location decisions, especially for tech companies relying on highly skilled workers to drive innovation and market share. Austin's strong economic growth and renowned quality of life are attracting people from around the U.S. and the world. But the future of Austin's tech industry also depends on the region's ability to prepare local residents for high-skill, high-demand job opportunities. This report is an initial step in encouraging a more data-driven conversation about the current and future state of Austin's tech talent pipeline.

### *How are we defining “tech”?*

Austin Technology Council (ATC) defines tech in a way that generally follows the definition developed by Technology Councils of North America (TECNA), Computing Technology Industry Association (CompTIA), and TechAmerica for their annual Cyberstates study of tech’s national footprint. ATC’s definition for tech includes 49 industries, which collectively account for 4,182 establishments, 108,310 jobs, and contribute \$22.3 billion to Austin’s gross domestic product (GDP).<sup>i</sup>

*Table 1 Tech Drivers in the Austin Economy (2014)*  
*Highest ranking tech industries by value-added contribution to GDP*

	Value-Added	Employment	Establishments
Computer & Peripheral Equipment	\$7,076,291,707	29,877	165
Internet & Telecommunications	\$3,452,682,902	12,149	505
IT Services & Applications	\$3,424,255,994	28,064	2,317
Semiconductors	\$3,076,214,827	10,702	54
Software	\$1,795,067,481	5,495	152

Collectively, the five primary drivers of Austin’s tech economy—Computer and Peripheral Equipment, Internet and Telecommunications, IT Services and Applications, Semiconductors, and Software—are approximately 76% of all tech establishments, 80% of all tech jobs, and 84% of total tech value-added contribution to Austin’s GDP. The tech sector as a whole (all 49 industries) represents about 9% of all establishments, 11% of all jobs, and 21% of total GDP in the Austin economy.

### *How is the tech economy in Austin performing?*

Job growth in Austin’s tech sector is outpacing Texas and the U.S., but trailing other key regional tech markets. Tech employment in Austin in 2014 increased by 5,411 jobs, a 5.3% annual growth rate that exceeded statewide tech growth (4.8%) and was more than double the U.S. tech growth rate (2.6%). Tech companies were responsible for approximately one out of seven new jobs in Austin in 2014.

Compared to other notable tech regions, Austin’s tech job growth rate of 5.3% in 2014 outpaced most other communities, but lagged Raleigh-Durham, San Jose, and San Francisco. Despite having only one-half the number of jobs, tech employment in Austin grew nearly 2.5x faster than it did in Dallas.

*Table 2 Tech Job Growth in Selected Regional Markets (2014)<sup>ii</sup>*

	Tech Jobs	% Tech	2013-14
Raleigh	57,838	9.5%	9.4%
Durham-Chapel Hill	32,920	10.4%	7.2%
San Jose	294,848	27.0%	6.4%
San Francisco	236,525	9.7%	5.7%
<b>Austin</b>	<b>108,310</b>	<b>11.1%</b>	<b>5.3%</b>
Boston	266,409	9.6%	4.0%
Seattle	175,670	8.6%	3.8%
Salt Lake City	43,686	6.1%	2.6%
Dallas	207,012	5.8%	2.2%
Washington DC	295,106	8.8%	-2.4%
Nation	6,736,083	4.4%	2.6%

IT Services and Applications was the key driver of tech job growth in Austin in 2014. The sector added an estimated 4,069 jobs, a 17% increase from 2013, and accounted for 75% of total tech job growth locally. With roughly 28,000 jobs and 26% of total tech employment in Austin, the IT Services and Applications industry still makes up a smaller share of total tech jobs in Austin compared to its share of the total tech market in leading regions such as Washington DC (54%) and San Francisco (37%), or even compared to Dallas (29%). But Austin is catching up quickly—the industry’s 17% job growth rate in 2014 far outpaced all other leading markets and the 4,069 net new jobs were comparable to San Jose and Boston.

*Table 3 IT Services and Applications Industry in Austin (2014)*

	Value-Added	Employment	Establishments
Custom Computer Programming Services	\$2,072,199,074	17,251	1,223
Computer Systems Design Services	\$1,145,331,855	9,252	993
Other Computer Related Services	\$140,235,236	1,073	51
Computer Facilities Management Services	\$36,519,544	265	18
Computer Training	\$29,970,286	223	33
Total	\$3,424,255,994	28,064	2,317

*Figure 1 Selected Companies in IT Services and Applications Industry in Austin<sup>iii</sup>*



For a complete list of the 49 industries included in ATC’s definition for tech, as well as examples of local firms in Austin for each industry category, please see the Appendix at the end of this report.

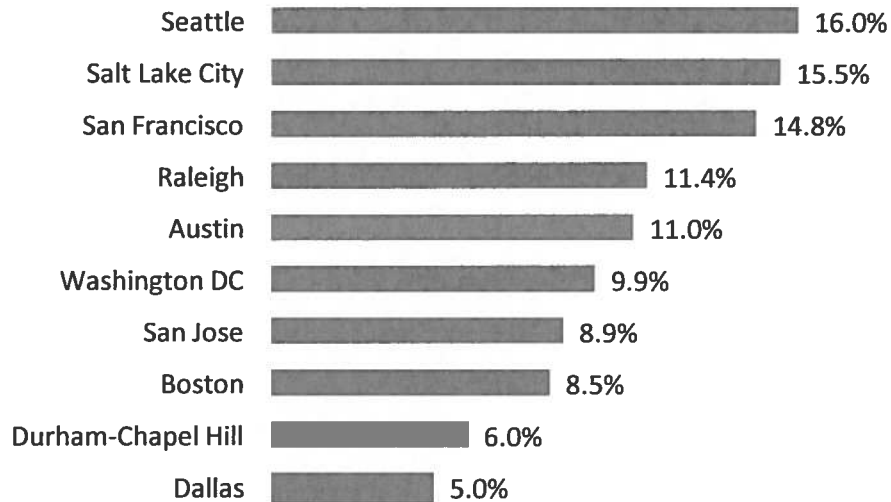
#### *How much is tech expected to grow in Austin?*

Tech employment in Austin is expected to grow by 11,947 jobs (11%) between 2014 and 2020, driven by strong gains projected in the following sectors: IT Services and Applications, Electronic Components, and Internet & Telecommunications. IT Services and Applications is expected to become Austin’s largest tech industry, surpassing Computer and Peripheral Equipment in employment by 2020.

*Table 4 Projected Growth of Austin’s Tech Drivers, 2014-2020*

	Jobs 2014	Jobs 2020	Growth
Computer & Peripheral Equipment	29,877	31,192	4%
Internet & Telecommunications	12,149	13,746	13%
IT Services & Applications	28,064	33,153	18%
Semiconductors	10,702	10,391	-3%
Software	5,495	5,887	7%

*Figure 2 Projected Tech Job Growth in Selected Regional Markets, 2014-2020*



*How do you measure a talent shortage or “skills gap”?*

Measuring supply and demand in the labor market overall—much less for one particular sector—is an enormously difficult task fraught with incomplete and sometimes misleading secondary data, varying and sometimes contradictory responses from employers depending on industry, stage of growth, and perspective (e.g., CEO vs. HR vs. supervisors), and many other challenges. But given the importance of the topic to the future of the U.S. economy, there has been an explosion in the academic literature on the skills gap in recent years, with hundreds of papers from universities, think tanks, consulting firms, trade associations, and even entire books devoted to the topic.<sup>iv</sup>

The goal of this report is not to offer a verdict on the existence of a tech talent shortage or “skills gap” in Austin. Rather, the goal here is to quantify, to the extent possible, supply and demand in the tech talent market in Austin in order to have more data-driven conversations about how to improve the pipeline of skilled workers that employers need to grow successfully in Austin.

This analysis relies primarily on three sources of data: (1) labor market information gleaned from payroll records and published by the U.S. Bureau of Labor Statistics; (2) job postings scraped, de-duplicated, and aggregated from corporate and job search sites; and (3) a survey of tech employers in Austin. The web-based survey was administered via email to ATC member companies in April 2015. Fifty-two companies completed the survey (8% response rate), and 87% of respondents were headquartered in Austin.

The employer survey plays two important roles. First, it serves as primary data to gauge perceptions of workforce needs and the quality of Austin’s labor market. In addition, employer input is used as a check for what can be observed in secondary data sources (i.e. payroll data and job postings). However, these survey findings should be interpreted with caution. For example, software firms are overrepresented in ATC’s membership compared to the tech sector overall in Austin. Consequently, the software industry is overrepresented in the survey respondents. Further, while the distribution of respondents by number of employees is generally reflective of the entire firm distribution in Austin, a larger sample and more data may reveal new observations that lead to different conclusions. It’s important to understand limitations of data—primary and secondary—but findings presented here are useful and instructive nonetheless.

### *What exactly is tech “talent”?*

The entire tech workforce of 108,310 jobs (2014) in Austin includes more than 250 different types of occupations, everything from administrative and office workers to sales representatives to customer service agents to computer programmers and software developers. The tech shortage or “skills gap” refers to a subset of this larger pool of workers because we assume that non-technical positions are easier for tech employers to fill—i.e. non-technical workers have more general skill sets that allow employers to draw them from a wider range of tech and non-tech industries. For example, a tech company may prefer to hire a sales representative with direct experience in tech to minimize time required for training, but prior work experience in tech is likely not essential for doing the job. This position may be more difficult to fill if the employer holds out for a candidate with enough direct experience to jump in and start immediately without training required, but that “gap” is not the overriding concern for tech employers concerned about talent availability.

Tech talent in this context refers to high-skill, high-demand occupations that are essential to the growth of the tech economy. We identified 19 “core” occupations within the staffing pattern for tech in Austin. These 19 core occupations were selected from the pool of 250+ occupations represented in tech based on technical knowledge, skills, and abilities needed for the job, generally higher than average wages for the sector and the economy as a whole, and projected employment growth in Austin.

It’s also important to realize that not all tech talent works in tech. Overall, approximately 66% of jobs in the 19 core occupations are found in tech in Austin, but tech’s share of tech talent ranges from a high of 93% of all Computer Hardware Engineers to a low of 39% of all Computer Occupations, All Other, which includes jobs such as Software Quality Assurance Engineers and Testers, Geographic Information System (GIS) Technicians, and Search Marketing Strategists.

Since the goal of this study is to evaluate tech talent availability to tech companies, the entire market for labor must be included in the scope because tech companies are competing with universities, non-tech industries, and state and federal government agencies for the same pool of workers. Accordingly, most of the workforce data presented here will be for the entire labor pool in Austin, not just tech.

*Table 5 Tech Talent Core Occupations in Austin*

	Jobs ‘14	Jobs ‘20	Change	Growth	% Tech
Software Developers, Applications	10,051	11,391	1,341	13%	75%
Computer Systems Analysts	9,255	10,606	1,351	15%	59%
Computer User Support Specialists	8,432	9,606	1,175	14%	55%
Software Developers, Systems Software	6,190	6,876	685	11%	81%
Electrical/Electronics Engineering Technician	4,394	4,586	192	4%	75%
Computer Programmers	3,701	4,037	337	9%	72%
Network & Computer Systems Administrator	3,651	4,074	423	12%	48%
Computer Hardware Engineers	3,579	3,669	90	3%	93%
Computer & Information Systems Manager	2,707	3,103	395	15%	57%
Computer Network Support Specialists	2,456	2,626	169	7%	59%
Electrical Engineers	2,344	2,557	214	9%	72%
Web Developers	2,061	2,486	425	21%	60%
Computer Network Architects	1,941	2,146	205	11%	65%
Database Administrators	1,697	1,893	196	12%	45%
Computer Occupations, All Other	1,664	1,854	191	11%	39%

Electronics Engineers, Except Computer	1,395	1,562	167	12%	78%
Industrial Engineers	1,062	1,177	115	11%	59%
Information Security Analysts	770	961	191	25%	59%
Computer & Information Research Scientist	196	224	28	14%	66%
<b>Total Core Occupations</b>	<b>67,546</b>	<b>75,436</b>	<b>7,890</b>	<b>12%</b>	<b>66%</b>





Tech talent, as defined by these 19 core occupations, accounts for 67,546 jobs (2014) in Austin. Roughly two-thirds of core occupation jobs are found in the tech sector in Austin.

### *How fast is demand growing for tech talent in Austin?*

Austin's tech talent workforce is expected to increase from 67,546 jobs in 2014 to 75,436 jobs in 2020, a net gain of 7,890 jobs or 12% growth rate. New jobs, of course, are not the only source of labor demand. Turnover, retirements, and workers leaving Austin for other markets also create job openings that must be filled. Regional estimates based on national data from the U.S. Bureau of Labor Statistics suggest that total demand for core workers in Austin could reach 15,239 job openings between 2014 and 2020. Ten-year projections suggest that core employment in Austin could increase by 13,290 jobs between 2014 and 2024, resulting in total demand for core workers of 25,948 job openings by 2024.

Job postings indicate that demand in Austin could be even greater. Job posting data is volatile, noisy, and can be misleading if not aware of its limitations as a source of labor market information.<sup>v</sup> But the volume and consistency of core occupation job postings suggest that using the ten-year (2014-2024) annual average of 2,595 core job openings may be understating true demand in Austin. From March 2014 to March 2015, there were an average of 6,075 unique, de-duplicated job postings online on a monthly basis for core occupation positions available at Austin companies. Given the limitations of online job postings as a reliable measure of demand, 6,075 likely overstates the true number of job openings available in Austin, but it is a useful signal that helps validate other data sources.

*Figure 3 Job Postings for Core Occupations in Austin (March 2015)*  
Top 12 Companies Ranked by Number of Postings

	422		124
	377		104
	171		94
	148		85
	133		80
	124		78

### *So how many tech talent jobs need to be filled in Austin every year—what is “true” demand?*

While a precise figure is impossible to calculate, we can use the 2014-24 labor market projections based on administrative data collected from employers as a lower bound and job postings as an upper bound and calculate a reasonable estimate of “true” demand for planning purposes. Using that methodology,

Austin's talent pipeline will need to fill somewhere in the range of approximately 2,500 to 6,000 core technical positions on average every year between 2014 and 2024. With many economists predicting slower growth in Austin and nationwide during the next few years, demand for tech talent is likely to settle at the lower end of that range, with perhaps 2,500 to 3,500 openings annually as a target.

*Is Austin graduating enough students to meet labor demand at local companies?*

Postsecondary institutions in Austin awarded 1,539 degrees (2013) in curriculum programs relevant to the 19 core occupations we are defining as tech talent, including approximately 450 bachelor's degrees in computer and information science and related fields.<sup>vi</sup> Twenty percent of degrees awarded in 2013 in core related programs in Austin were associate's degrees and certifications or credentials requiring less than two years to complete. The number of students graduating with degrees preparing them for core occupation careers in the tech sector is increasing, but slowly, at about 70 per year.

*Table 6 Degrees Awarded in Core Occupation Programs  
at Postsecondary Institutions in Austin (2013)*

Core Related Programs	Degrees Awarded
The University of Texas at Austin	836
Texas State University	269
ITT Technical Institute-Austin	126
Austin Community College District	123
The Art Institute of Austin	58
CyberTex Institute of Technology	56
Saint Edward's University	38
Huston-Tillotson University	10
Strayer University-Texas	10
Southwestern University	8
National American University-Austin	2
Southwest Institute of Technology	2
Concordia University-Texas	1
<b>Total</b>	<b>1,539</b>

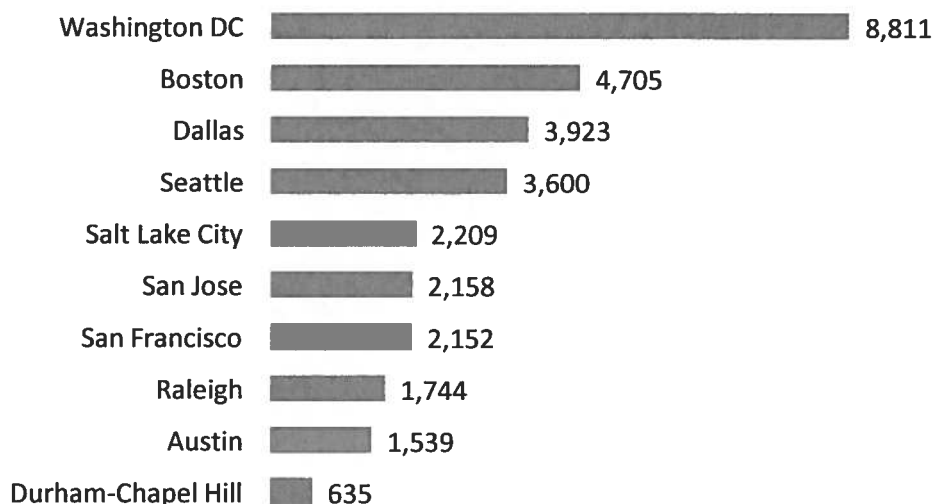
Core occupation employment in Austin is expected to grow, on average, by approximately 1,300 jobs per year between 2014 and 2024. So, if every one of the approximately 1,500 annual graduates from postsecondary institutions in Austin was qualified to fill one of the approximately 1,300 job openings, there would be no tech talent shortage in Austin. That is, of course, not the case. Job openings are for positions requiring a wide range of work experience recent graduates do not have yet. Moreover, the number of graduates annually is far short of what is needed to fill the 2,500-3,500 average annual job openings we have estimated for Austin between 2014 and 2024, much less the approximately 6,000 average monthly job postings at companies in Austin as of March 2015.

While it is notable from a capacity planning perspective that postsecondary institutions are graduating enough students in core related programs to fill, in theory at least, new tech talent jobs expected to be created on average per year between 2014 and 2024, it is an equilibrium in aggregate terms alone, and not a very realistic one even at that level. Even within the postsecondary curriculum programs relevant to the core tech occupations, there are likely mismatches in the types of degrees earned and employer needs. In addition, as the employer survey demonstrated, recent graduates will not be competitive for many job openings, even with a core related degree or certificate. This "alignment" of postsecondary



education to employer needs is a critical issue for Austin and every other leading tech market and will be revisited in the recommendations section of this report.

*Figure 4 Degrees Awarded in Core Occupation Programs (2013)*



While the number of students graduating from core occupation technical programs is increasing locally, Austin has a long way to go to catch up to tech talent throughput of other leading markets. Of the nine regional markets selected for comparison purposes, Austin ranks eight according to the number of core related postsecondary degrees awarded in 2013—if you combine the Raleigh-Durham-Chapel Hill area, Austin ranks last. It's unknown how Austin's ability to retain local graduates compares to the retention rates of these other leading (or emerging in the case of SLC) tech regions. If Seattle is producing twice the number of tech graduates as Austin but 75% of them leave Seattle after graduation, Seattle is not much better off than Austin when it comes to local supply. However, the gaps between Austin and the other markets are large enough to suggest that Austin is at a competitive disadvantage. This is an area where additional research would greatly improve our understanding of tech labor market dynamics in Austin and other markets, leading to more specific and actionable recommendations.

#### *What are the key takeaways from the secondary data?*

Austin's tech economy is one of the fastest growing markets in the country and projections for 2014-24 indicate that, even though growth rates for the economy overall are likely to slow, Austin is expected to remain one of the fastest growing tech markets nationally. Job postings have peaked recently at about 6,000 open positions advertised in core technical occupations in any given month in Austin. While that figure likely overstates true labor demand for a variety of reasons, it does suggest that local companies are stepping up efforts lately to recruit more key technical talent. Based on projections of job creation and the impact of turnover, retirements, and employees leaving Austin for other markets, a reasonable estimate for the number of core technical positions that will need to be filled in Austin is somewhere in the range of 2,500 to 3,500 openings per year between 2014 and 2024. Most of those job openings will have to be filled by recruiting workers from other markets. In 2013, postsecondary institutions in Austin awarded 1,539 degrees in programs that align to core technical occupations in the tech workforce, and that figure is growing at a rate of only 70 per year, on average. MakerSquare and other non-traditional education and training programs not included in the 1,539 total will enhance local supply, but not by a significant enough number to shift overall market conditions unless they can be dramatically scaled.

## *Employer Survey*

We surveyed employers in ATC's membership in April 2015 in order to gauge employer perspectives of tech talent availability in Austin and provide an important "reality-check" for the secondary data. Fifty-two companies completed the survey (8% response rate). The distribution of survey respondents was generally reflective of the overall firm distribution in Austin in terms of employee size, with a roughly similar breakdown in share of small businesses (< 500 employees) and large businesses (> 500). Mid-sized businesses with 51 to 500 employees were overrepresented in the sample, as was the software industry, which accounted for 40% of respondents. Neither of these factors was surprising, given the composition of ATC's membership. Nor do they detract from the usefulness of the responses for the purpose of this study. A copy of the survey questionnaire is found in the Appendix.

Since ATC's membership and therefore the survey sample is not representative of the overall tech firm population in Austin, it would be incorrect to state findings from the survey as "most tech companies." Accordingly, findings are reported below using the phrase "most survey respondents."

### Key Findings

*Most survey respondents are experiencing hiring difficulty, but are confident in the Austin market.*

Seventy percent of respondents reported that finding qualified people to fill job openings in Austin was difficult to extremely difficult. Yet, any tech talent shortage that may exist in Austin does not appear to be hurting the region's future growth prospects, or at least not yet. Fifty-seven percent of respondents reported that, despite the current hiring difficulty, they were confident to extremely confident that the Austin market will be able to meet future workforce demand. Interestingly, a roughly equal number of respondents reported that unfilled jobs were having a harmful to extremely harmful effect on business performance (31%) versus not harmful or they didn't know (33%). More data would be needed to draw reliable conclusions about the impact of talent availability on businesses in different stages of growth. However, survey findings did suggest that companies in earlier stages of development as measured by number of employees reported more hiring difficulty and were less confident in Austin compared to later-stage companies. On a scale of 1 (not difficult) to 5 (extremely difficult), respondents with 51 to 125 employees reported an average score of 3.6, compared to 2.3 for large (501+) companies.

Again, more data is needed here to draw meaningful conclusions. But one possible explanation is that smaller, growth-stage firms, sometimes referred to as second-stage companies, are experiencing tech talent availability in a different way than later-stage companies for a variety of potential reasons, such as the ability of larger companies to offer higher salaries, the presence of dedicated HR professionals and sufficient resources and infrastructure for national recruiting campaigns, differences in access to and/or experience with H-1B workers, etc. Given Austin's reliance on entrepreneurship and second-stage companies to fuel innovation and growth, this is an important issue warranting further study.

*Austin may be facing a tech talent shortage, but it's likely not at a critical stage yet.*

Survey respondents were asked to rank each of the 19 core occupations on a scale of 1 (not difficult) to 5 (extremely difficult) according to how difficult it was to find qualified people to fill job openings in the Austin market. Six occupations received average scores higher than a 3.0 (difficult):

Computer and Information Research Scientists (3.2)  
Information Security Analysts (3.2)

Software Developers – Applications (3.2)  
 Software Developers – Systems (3.2)  
 Computer Network Architects (3.1)  
 Electrical Engineers (3.1)

While some respondents awarded scores of 4s and 5s in this section of the survey, none of the 19 critical skill core occupations received an average score of greater than 3.2, indicating that some companies are certainly struggling to hire in these job categories, but the shortage is not at a critical level yet across the majority of companies participating in the survey.

*Table 7 Core Occupation Hiring Difficulty Scores<sup>vii</sup>*

*How difficult is it to find qualified people to fill job openings in Austin?  
 1 = not difficult ---- 5 = extremely difficult*

SOC	Occupation Title	Jobs	% Tech	Avg Score
15-1111	Computer and Information Research Scientists	196	66%	3.2
15-1122	Information Security Analysts	770	59%	3.2
15-1132	Software Developers, Applications	10,051	75%	3.2
15-1133	Software Developers, Systems Software	6,190	81%	3.2
15-1143	Computer Network Architects	1,941	65%	3.1
17-2071	Electrical Engineers	2,344	72%	3.1
15-1131	Computer Programmers	3,701	72%	2.9
15-1134	Web Developers	2,061	60%	2.8
15-1141	Database Administrators	1,697	45%	2.8
15-1121	Computer Systems Analysts	9,255	59%	2.7
15-1142	Network and Computer Systems Administrators	3,651	48%	2.7
17-2072	Electronics Engineers, Except Computer	1,395	78%	2.7
17-2061	Computer Hardware Engineers	3,579	93%	2.5
11-3021	Computer and Information Systems Managers	2,707	57%	2.4
15-1199	Computer Occupations, All Other (QA, testers)	1,664	39%	2.3
17-2112	Industrial Engineers	1,062	59%	2.3
15-1152	Computer Network Support Specialists	2,456	59%	2.0
17-3023	Electrical and Electronics Engineering Technicians	4,394	75%	2.0
15-1151	Computer User Support Specialists	8,432	55%	1.8
		67,546	66%	N/A

*High school students are earning tech certifications that are not well aligned with employer needs.*

School districts in the Austin area should be lauded for offering tech certifications as part of their career and technical education (CTE) programs. However, current offerings are not well aligned with employer needs in Austin. Survey respondents were asked to rate 10 certification programs currently offered in Austin area school districts, according to information provided by the [E3 Alliance](#), on a scale of 1 (not important) to 5 (extremely important), or not applicable (N/A). None of the 10 certifications currently offered achieved an average rating of 2 (somewhat important), and 60% of respondents reported that all of the certifications were not applicable or not important. Survey respondents were also asked to rate the importance of several programming languages on the same scale. Of the 12 programming languages polled, 7 received average scores of at least 3.0 (important). JavaScript was rated the most important programming language with an average score of 3.8.

*Table 8 Tech Talent Workforce Readiness: K-12 Program Alignment<sup>viii</sup>*  
*Employer Ranking of Tech Certifications Currently Offered in Austin Area School Districts*  
*vs. Selected Programming Languages*

ISD Certifications Offered	Avg Score	Programming Languages	Avg Score
Network+	1.9	JavaScript	3.8
Cisco Network Associate (CCNA)	1.8	Linux	3.5
A+ Certification	1.8	Java	3.4
Cisco Entry Network Tech (CCENT)	1.7	C++	3.1
Internet & Computer Core (IC3)	1.7	PHP	3.1
Sun Cert Java Associate (SCJA)	1.6	Python	3.1
Adobe Dreamweaver	1.5	Ruby	3.0
Cert Internet Webmaster (CIW)	1.5	C#	2.9
Strata IT Fundamentals	1.3	Perl	2.6
TestOut PC Pro	1.3	Haskell	2.0

Clearly, it is possible that, even though tech certifications currently offered in Austin area school districts were scored lower than most of the programming languages polled, they could provide accessible entry points for students to discover potential interest in tech careers, and hopefully lead to students electing to take more advanced courses in programming languages. Nonetheless, this is a definite mismatch that warrants follow-up discussion between employers, CTE program leaders, and administrators.

*Not all tech jobs require advanced degrees.*

Critics of economic and workforce development partnerships with tech usually offer two arguments: (1) tech jobs are only available to people with four-year or advanced degrees and thus exclude a significant portion of the workforce; and (2) tech companies fill most jobs with people from out-of-market. Public-private partnerships in Austin have a brighter future. Thirty-three percent of respondents reported that they had employees with completed postsecondary education (associate's degrees, certifications), but less than a four-year degree. More work needs to be done to fully understand that finding—are these living wage jobs with career ladders—but it's encouraging. Further, survey respondents reported that most new hires are local. Sixty-seven percent of respondents estimated that at least 50% of new hires were already living in Austin, and nearly one-half of respondents said at least 75% were local.

*Many respondents are already engaged in activities that are strengthening Austin's talent pipeline, but there is room for improvement.*

Survey findings were mixed in terms of evaluating Austin's readiness for a serious, strategic response to the perceived skills gap or tech talent shortage. On the one hand, many employers in Austin are already engaged in solutions. Seventy-one percent of respondents reported hiring student interns, and 27% of respondents reported being active in schools, including job shadowing or mentoring opportunities, and supporting non-profits working on STEM issues. Ninety-two percent of respondents reported that they support outside education and training for employees to improve their skills and advance careers, and 38% of respondents reported subsidizing tuition and training costs for workers. Many others reported offering paid time off and other means of facilitating education and training opportunities.

On the other hand, there are barriers that need to be more fully understood and addressed. Forty-two percent of respondents reported that job applicants for technical positions must have at least five years of work experience to be considered qualified. Twenty-five percent of respondents reported that they

do not hire recent college graduates at all, and 24% do not offer internships. Only 12% of respondents reported that they consider recent college graduates qualified, or don't require job applicants to have a minimum number of years of work experience. These are all barriers to growing and cultivating a local tech workforce. That's not to say that these workforce expectations and practices are somehow wrong or misguided, but they are barriers that need to be acknowledged in any serious discussion of how to better prepare tech's future workforce. If the barrier to entry to 42% of tech employers in Austin is at least five years of work experience, our challenge is to figure out how to get students more practical, hands-on experience while in school so they can get as close to that expectation as possible before entering the workforce and competing for local tech job openings.

It's really difficult for many start-up, early-stage companies focused on survival to invest scarce time and resources in providing structured and meaningful work experience for students (of all ages). But despite the work required to manage internship programs, 71% of respondents are reportedly doing it, which is an encouraging starting point for discussion of scalable talent strategies.

Finally, there appears to be a significant awareness gap among employers about resources available to support workforce training. Only one respondent could name any program in Austin that provides local employers with publicly funded job training assistance. Traditional workforce development programs funded by federal, state, or local government, may not be suitable for every tech company. However, employers should at least be aware of subsidized education and training that is available, which could perhaps be helpful for addressing the perceived tech talent shortage.

*Cost of living is (still) lower in Austin, but salary gaps are significant with other leading tech markets.*

Of the survey respondents who typically ask candidates living outside Austin why they decline job offers in Austin, traffic, housing, and inadequate public transportation were mentioned as contributing factors. Clearly, the growth management and infrastructure planning challenges in Austin that have dominated public discourse lately are likely having some effect on tech recruitment. But they were relatively minor factors compared to salaries. Of the respondents who ask out-of-market candidates why they decline offers, 47% of respondents reported that a low salary offer was a factor. Wage data from secondary sources suggests that salaries in Austin are in fact lower compared to other leading tech markets.

*Table 9 Core Occupation Wages in Selected Regional Markets (2013)*  
*Bottom 10% and Top 10% refer to the wage level signifying that 10%*  
*of all jobs pay below (or above). Wages do not include benefits.*

	Median Wage	Bottom 10%	Top 10%
San Jose	\$116,314	\$74,110	\$178,693
Seattle	\$102,066	\$66,706	\$148,824
Washington DC	\$101,712	\$62,899	\$154,565
San Francisco	\$100,547	\$63,398	\$155,480
Boston	\$96,616	\$61,797	\$148,387
Durham-Chapel Hill	\$88,691	\$56,992	\$135,886
Raleigh	\$83,054	\$53,955	\$123,386
Dallas	\$81,848	\$50,710	\$127,150
<b>Austin</b>	<b>\$80,454</b>	<b>\$49,150</b>	<b>\$127,442</b>
Salt Lake City	\$75,254	\$47,424	\$111,155
National	\$81,037	\$49,275	\$129,480

The median wage for the 19 core occupations in Austin was \$80,454 in 2013 (latest available, does not include benefits), which was in line with the national median of \$81,037 and not far behind the median wage in Dallas of \$81,848. There are large gaps in core occupation wages in Austin compared to other leading markets in more expensive areas of the country. Further research is needed to understand how lower salaries in Austin may be impacting talent availability. For example, it would be helpful to know where most job offer declines are occurring, early-career, mid-career, or senior positions? What could be learned from talking to an out-of-market candidate who was persuaded to move to Austin based on cost of living factors and a similar candidate at a similar wage offered who wasn't convinced? Survey respondents indicated that salary differences are clearly impacting talent availability in Austin, but considerable follow-up work to this report is needed to understand how and why.

#### *Employer Survey: Summary Observations*

- Tech talent shortage is likely not at a critical level yet overall, but may be there for second-stage firms, and that's a serious concern for Austin's growth model. Austin's competitive advantage is built on entrepreneurship and second-stage firm growth. While there are several very important anchor tenants employing 1,000+ employees, Austin's tech market is fueled by innovation and entrepreneurship. But young, growth-oriented firms need employees to grow. If they are not able to compete with salaries offered in other markets, or by larger firms in their own market, the tech talent shortage becomes a very serious threat to Austin's economic development.
- There is a significant mismatch in tech certifications currently offered at the high school level in Austin area school districts and skills demanded by tech firms in Austin. This is a key opportunity for ATC to work with employers and other regional stakeholders to achieve greater alignment of education and training capacity through public-private partnerships.
- Even facing a potential skills gap or tech talent shortage, the majority of respondents reported confidence in the Austin market.

#### Recommendations

- More data would yield more informed, better conclusions—ATC should consider repeating the employer survey to improve the response rate and secure a more representative sample of all tech companies in Austin.
- Collect and integrate completion data from MakerSquare and other non-traditional education and training providers to improve estimates of locally-produced tech talent supply.
- Explore the feasibility of partnering with a higher education institution, such as the Ray Marshall Center at UT-Austin, to create a Tech Talent Institute to improve access to data and sustain this research effort as a national best practice.
- Convene K-12 and postsecondary education and workforce development partners to review and validate this study's findings and develop a plan for achieving greater alignment with the hiring needs and skill requirements of local tech companies.
- Work through the ATC Foundation to identify and prioritize federal and state programs that can subsidize STEM education and training projects.

- Develop an employer-driven strategy and peer-to-peer tech marketing campaign to increase the number of employers in Austin who are able to invest in structured work-study experience for students—it's the only way to increase Austin's number of work-ready graduates.
- Engage in discussions about how the proposed Austin Innovation District, anchored by the Dell Medical School, could be leveraged as a testing ground for pilot tech talent initiatives. Models exist from other tech markets that could be instructive for planning the Innovation District.
- Most important, ATC should lead the development of and regional commitment to a tech talent strategic plan with specific, measurable, achievable, relevant, and time-based (SMART) goals for improving the pipeline and ensuring that Austin is as competitive as possible with other regions.

## Appendix

ATC's definition for tech includes 49 industries. Below are the federally defined industry categories listed according to their six-digit code in the North American Industry Classification System (NAICS). Assigning companies to the correct industry category is difficult and imprecise. NAICS are assigned to companies based on the markets they serve. Large companies can have multiple NAICS code assignments and thus employment can be distributed across multiple codes. Further, companies self-select NAICS industries, which are included on administrative forms such as quarterly unemployment insurance filings, and can be coded incorrectly by the employer. Accordingly, example companies listed here are for illustrative purposes only to give the reader context that may be more familiar than NAICS codes and titles. More information on how industries are classified to NAICS is found at the [U.S. Census Bureau](http://www.census.gov/naics/).

### *Computer & Peripheral Equipment*



### *IT Services and Applications*



### *Internet & Telecommunications*



### *Semiconductors*





*Software*



*Engineering Services*



*Electronic Components*



*R&D and Testing Labs*



*Communications Equipment*



*Measuring & Control Instruments*



### *ATC Tech Definition by NAICS Industry*

NAICS	Industry	Category
334511	Search, Detection, Nav, Guidance, Aeronautical, Nautical Sys & Instr Mfg	Aerospace & Defense
336414	Guided Missile and Space Vehicle Mfg	Aerospace & Defense
336415	Guided Missile & Space Vehicle Propulsion Unit and Parts Mfg	Aerospace & Defense
336419	Other Guided Missile & Space Vehicle Parts & Auxiliary Equipment Mfg	Aerospace & Defense
334310	Audio and Video Equipment Mfg	Audio and Video Equipment
334210	Telephone Apparatus Mfg	Communications Equipment
334220	Radio/Television Broadcasting & Wireless Comm Equipment Mfg	Communications Equipment
334290	Other Communications Equipment Mfg	Communications Equipment
335921	Fiber Optic Cable Mfg	Communications Equipment
334111	Electronic Computer Mfg	Computer & Peripheral Equipment
334112	Computer Storage Device Mfg	Computer & Peripheral Equipment
334118	Computer Terminal and Other Computer Peripheral Equipment Mfg	Computer & Peripheral Equipment
423430	Computer & Peripheral Equipment & Software Merch Wholesalers	Computer & Peripheral Equipment
334412	Bare Printed Circuit Board Mfg	Electronic Components
334416	Capacitor, Resistor, Coil, Transformer, and Other Inductor Mfg	Electronic Components
334417	Electronic Connector Mfg	Electronic Components
334418	Printed Circuit Assembly (Electronic Assembly) Mfg	Electronic Components
334419	Other Electronic Component Mfg	Electronic Components
335911	Storage Battery Mfg	Electronic Components
335999	All Other Miscellaneous Electrical Equipment and Component Mfg	Electronic Components
541330	Engineering Services	Engineering Services
517110	Wired Telecommunications Carriers	Internet & Telecommunications
517210	Wireless Telecommunications Carriers (except Satellite)	Internet & Telecommunications
517410	Satellite Telecommunications	Internet & Telecommunications
517911	Telecommunications Resellers	Internet & Telecommunications
517919	All Other Telecommunications	Internet & Telecommunications
518210	Data Processing, Hosting, and Related Services	Internet & Telecommunications
519130	Internet Publishing and Broadcasting and Web Search Portals	Internet & Telecommunications
541511	Custom Computer Programming Services	IT Services and Applications
541512	Computer Systems Design Services	IT Services and Applications
541513	Computer Facilities Management Services	IT Services and Applications
541519	Other Computer Related Services	IT Services and Applications
611420	Computer Training	IT Services and Applications
334512	Auto Environment Control Mfg for Residential, Commercial, Appliance Use	Measuring & Control Instruments
334513	Instruments Mfg for Measuring, Displaying, Controlling Industrial Process	Measuring & Control Instruments
334514	Totalizing Fluid Meter and Counting Device Mfg	Measuring & Control Instruments
334515	Instrument Mfg for Measuring and Testing Electricity and Electrical Signals	Measuring & Control Instruments
334516	Analytical Laboratory Instrument Mfg	Measuring & Control Instruments
334519	Other Measuring and Controlling Device Mfg	Measuring & Control Instruments
334510	Electromedical and Electrotherapeutic Apparatus Mfg	Medical Equipment
334517	Irradiation Apparatus Mfg	Medical Equipment
333314	Optical Instrument and Lens Mfg	Photonics
333316	Photographic and Photocopying Equipment Mfg	Photonics
541380	Testing Laboratories	R&D and Testing Labs
541711	Research and Development in Biotechnology	R&D and Testing Labs
541712	R&D in the Physical, Engineering, and Life Sciences (except Biotechnology)	R&D and Testing Labs
333242	Semiconductor Machinery Mfg	Semiconductors
334413	Semiconductor and Related Device Mfg	Semiconductors
511210	Software Publishers	Software

# ATC Workforce Survey

## General Background

1. What is your name?

2. What is your jobtitle?

3. What is your telephone number?

4. What is your email address?

5. What is the name of your company?

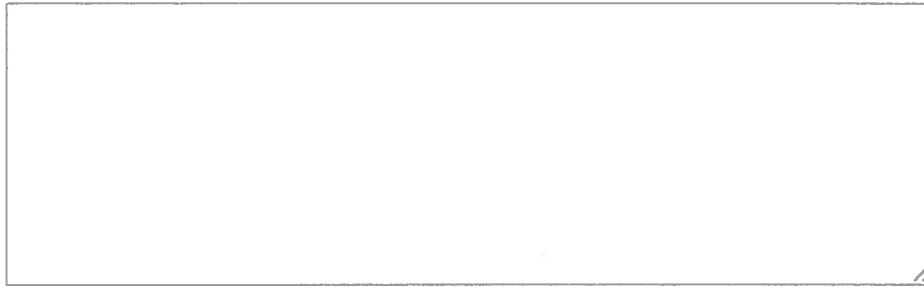
6. Is your company's headquarters in Austin?

☐ Yes

☐ No

7. If No, where is your company's headquarters?

8. What is your company's primary address in Austin?

**9. How many employees does your company have in Austin?**

- ☐ 1 to 10 employees
- ☐ 11 to 50 employees
- ☐ 51 to 125 employees
- ☐ 126 to 500 employees
- ☐ 501+ employees

**10. How many years has your company been operating in Austin?****11. Which category most closely describes your industry?**

- ☐ Computer & Peripheral Equipment
- ☐ IT Services and Applications
- ☐ Internet & Telecommunications
- ☐ Engineering Services
- ☐ Semiconductors
- ☐ Software
- ☐ Electronic Components
- ☐ R&D and Testing Labs
- ☐ Measuring & Control Instruments
- ☐ Communications Equipment
- ☐ Other:

  
20% completed

Powered by

This form was created inside of Civic Analytics LLC.

[Report Abuse](#) - [Terms of Service](#) - [Additional Terms](#)

# ATC Workforce Survey

## Specific Occupations

Questions in the following section address specific occupations. These job titles may differ from the way they are listed at your company. We are using job titles from the U.S. Bureau of Labor Statistics in order to maintain consistency between secondary data and survey responses. Clicking on the link below the job title will take you to a description of the occupation, typical education and skills required to perform the job, commonly performed tasks, etc. Please reference it as necessary.

12. How many job openings do you currently have available at your company in Austin for these occupations? Use text box beneath job title to add response.

### **Computer and Information Systems Managers**

<http://www.onetonline.org/link/summary/11-3021.00>

### **Computer and Information Research Scientists**

<http://www.onetonline.org/link/summary/15-1111.00>

### **Computer Systems Analysts**

<http://www.onetonline.org/link/summary/15-1121.00>

### **Information Security Analysts**

<http://www.onetonline.org/link/summary/15-1122.00>

### **Computer Occupations, All Other (includes quality assurance engineers/testers)**

<http://www.onetonline.org/link/summary/15-1199.00>

**Computer Programmers**

<http://www.onetonline.org/link/summary/15-1131.00>

**Software Developers, Applications**

<http://www.onetonline.org/link/summary/15-1132.00>

**Software Developers, Systems Software**

<http://www.onetonline.org/link/summary/15-1133.00>

**Web Developers**

<http://www.onetonline.org/link/summary/15-1134.00>

**Database Administrators**

<http://www.onetonline.org/link/summary/15-1141.00>

**Network and Computer Systems Administrators**

<http://www.onetonline.org/link/summary/15-1142.00>

**Computer Network Architects**

<http://www.onetonline.org/link/summary/15-1143.00>

**Computer User Support Specialists**

<http://www.onetonline.org/link/summary/15-1151.00>

**Computer Network Support Specialists**

<http://www.onetonline.org/link/summary/15-1152.00>

**Computer Hardware Engineers**

<http://www.onetonline.org/link/summary/17-2061.00>

**Electrical Engineers**

<http://www.onetonline.org/link/summary/17-2071.00>

**Electronics Engineers, Except Computer**<http://www.onetonline.org/link/summary/17-2072.00>  
**Industrial Engineers**<http://www.onetonline.org/link/summary/17-2112.00>  
**Electrical and Electronics Engineering Technicians**<http://www.onetonline.org/link/summary/17-3023.00>  
  
30% completed

Powered by

This form was created inside of Civic Analytics LLC.  
[Report Abuse](#) - [Terms of Service](#) - [Additional Terms](#)

# ATC Workforce Survey

## Specific Occupations

The following question deals with the same set of specific occupations as mentioned in the previous question.

Please answer using a scale of 1 to 5 where:

- 1 = Not difficult
- 2 = Somewhat difficult
- 3 = Difficult
- 4 = Very difficult
- 5 = Extremely difficult

Or select N/A if your company doesn't hire for that particular occupation.

**13. How difficult is it to find qualified people to fill job openings at your company in these occupations in Austin?**

	1 = Not difficult	2 = Somewhat difficult	3 = Difficult	4 = Very difficult	5 = Extremely difficult	N/A
Computer and Information Systems Managers	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Computer and Information Research Scientists	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Computer Systems Analysts	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Information Security Analysts	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Computer Occupations, All Other	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>



Computer Programmers	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Software Developers, Applications	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Software Developers, Systems Software	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Web Developers	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Database Administrators	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Network and Computer Systems Administrators	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Computer Network Architects	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Computer User Support Specialists	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Computer Network Support Specialists	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Computer Hardware Engineers	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Electrical Engineers	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Electronics Engineers, Except Computer	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Industrial Engineers	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Electrical and Electronics Engineering Technicians	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

14. Overall, how difficult is it to find qualified people to fill job openings at your company in Austin?

- ☒ 1 = Not difficult
- ☒ 2 = Somewhat difficult
- ☒ 3 = Difficult
- ☒ 4 = Very difficult
- ☒ 5 = Extremely difficult

[« Back](#)
[Continue »](#)

40% completed

Powered by

This form was created inside of Civic Analytics LLC.

[Report Abuse](#) - [Terms of Service](#) - [Additional Terms](#)

# ATC Workforce Survey

## Educational Attainment

15. Approximately how many employees does your company have in Austin with the following levels of educational attainment?

**No college degree**

**Certificate or similar**

**Associate's degree**

**Bachelor's degree**

**Advanced degree (MBA, JD, Master's degree, Ph.D.)**

« Back

Continue »

50% completed

Powered by

This form was created inside of Civic Analytics LLC.

[Report Abuse](#) - [Terms of Service](#) - [Additional Terms](#)



# ATC Workforce Survey

## Training and Hiring

**16. What type of support does your company offer to employees seeking outside training or education?**

- ☐ Tuition assistance
- ☐ Paid time off for attending classes or training
- ☐ Flexible work scheduling to accommodate classes or training
- ☐ We do not offer support
- ☐ Other:

**17. What is the typical number of years of work experience needed for candidates to be considered qualified for most technical job openings currently available at your company in Austin?**

- ☐ Recent college graduate (no experience)
- ☐ Minimal experience (up to two years)
- ☐ Between two years and five years
- ☐ More than five years
- ☐ We usually don't ask for a minimum number of years of work experience
- ☐ I don't know

**18. Of the recent college graduates your company hires (less than or equal to two years of work experience), what percentage do you estimate are graduates of Austin area schools?**

- ☐ 0% to 24%
- ☐ 25% to 49%
- ☐ 50% to 74%
- ☐ 75% to 100%
- ☐ We don't hire recent college graduates

☐ I don't know

**19. Do you want to hire more recent college graduates from Austin area schools?**

- ☐ Yes
- ☐ No
- ☐ Not sure
- ☐ No preference

**20. Do you perceive any barriers to hiring more recent college graduates from Austin area schools?**

If Yes, please select Other and explain.

☐ No

☐ Other:

**21. Approximately what percentage of new hires are people already living in Austin?**

- ☐ 0% to 24%
- ☐ 25% to 49%
- ☐ 50% to 74%
- ☐ 75% to 100%
- ☐ I don't know

**22. Why do candidates living outside Austin typically turn down job offers? Please check all that apply.**

- ☐ Salary offer was not high enough
- ☐ Don't want to move to Austin
- ☐ Cost of housing in Austin is too expensive
- ☐ Too much traffic in Austin
- ☐ Inadequate public transportation in Austin
- ☐ We don't ask people why they turn down job offers
- ☐ Other:

**23. What impact are unfilled jobs in Austin having on your company's ability to serve clients or customers?**

- ☐ Not harmful
- ☐ Somewhat harmful
- ☐ Harmful
- ☐ Very harmful
- ☐ Extremely harmful
- ☐ I don't know

**24. How is your company mitigating the impact of unfilled jobs? Please check all that apply.**

- ☐ Conducting in-house training for current employees to perform new tasks
- ☐ Supporting outside education or training for current employees
- ☐ Outsourcing work to firms outside Austin that would ordinarily be done by employees
- ☐ Outsourcing work to firms in Austin that would ordinarily be done by employees
- ☐ Hiring less qualified applicants for job openings
- ☐ Other:

**25. Does your company hire student interns?**

If No, please select Other and explain.

- ☐ Yes
- ☐ Other:

**26. How confident are you that Austin will be able to meet your future workforce demand?**

- ☐ Not confident
- ☐ Somewhat confident
- ☐ Confident
- ☐ Very confident
- ☐ Extremely confident
- ☐ I don't know

**27. Please name any publicly funded programs you are aware of in Austin that offer assistance with job training.** 60% completed

Powered by

This form was created inside of Civic Analytics LLC.  
Report Abuse - Terms of Service - Additional Terms

# ATC Workforce Survey

## Certifications

The following section addresses certifications offered in Austin area school districts. Survey results will be used to provide feedback to school districts about the relevance of these certifications to local employers.

**28. Please indicate the importance of the following certifications in terms of relevance to hiring needs at your company in Austin.**

	1 = Not important	2 = Somewhat important	3 = Important	4 = Very important	5 = Extremely important	N/A
A+ Certification	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Adobe Dreamweaver Certification (ACE or ACA)	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Certified Internet Webmaster (CIW) Associate	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Cisco Certified EntryNetworking Technician (CCENT)	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Cisco Certified Network Associate (CCNA)	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Internet and Computing Core Certification (IC3)	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Network+ Certification	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Sun Certified Java Associate (SCJA)	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Strata IT Fundamentals	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>



Certification  
TestOut PC Pro  
Certification



Other certifications school districts should consider:

« Back

Continue »

70% completed

Powered by

This form was created inside of Civic Analytics LLC.  
[Report Abuse](#) - [Terms of Service](#) - [Additional Terms](#)

# ATC Workforce Survey

## Programming Languages

The following section addresses programming languages typically required by many job postings in Austin. Survey results will be used to provide feedback to local educators about the relevance of these languages to local employers.

**29. Please indicate the importance of the following languages in terms of relevance to hiring needs at your company in Austin.**

	1 = Not important	2 = Somewhat important	3 = Important	4 = Very important	5 = Extremely important	N/A
Python	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
JavaScript	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Java	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
PHP	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Ruby	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
C++	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Haskell	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
C#	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Go	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Lisp	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Perl	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Linux	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

**Other programming languages schools should consider:**

[« Back](#)[Continue »](#)

**80% completed**

Powered by

This form was created inside of Civic Analytics LLC.

[Report Abuse](#) - [Terms of Service](#) - [Additional Terms](#)

# ATC Workforce Survey

## Other Career and Technical Education Activities

30. Please describe any career and technical education activities your company is currently engaged in with Austin area schools (K-12 through postsecondary).

Examples could include employees serving as instructors in schools, job shadowing or mentoring programs, donation or free use of equipment and company facilities for education/training programs).

[« Back](#)[Continue »](#)90% completed

Powered by

This form was created inside of Civic Analytics LLC.

[Report Abuse](#) - [Terms of Service](#) - [Additional Terms](#)

# ATC Workforce Survey

## Comments and Feedback

Is there anything else we need to know about workforce needs in Austin's technology sector?

## End of Survey.

You are all finished! Thank you for your time and participation. Your input is highly appreciated!

[« Back](#)[Submit](#)

100%: You made it.

*Never submit passwords through Google Forms.*

Powered by

This form was created inside of Civic Analytics LLC.

[Report Abuse](#) - [Terms of Service](#) - [Additional Terms](#)

---

<sup>i</sup> All data unless otherwise noted is from EMSI. Data for establishments and jobs is for 2014. Jobs include self-employment. GDP estimate is for 2013, the latest available. Establishments are unique business locations. One firm with multiple physical locations in Austin is counted as multiple establishments (i.e. number of establishments ≠ number of companies). Austin here is used as shorthand for the Austin-Round Rock Metropolitan Statistical Area (MSA), which includes Bastrop, Caldwell, Hays, Travis, and Williamson counties. All references to Austin are for the MSA unless otherwise noted.

<sup>ii</sup> Regions are MSAs. They were selected based on frequency of appearance in recent “best of” lists and anecdotal information on regional markets that are likely competing with Austin for tech talent. No statistical procedure was used to select the regional comparisons and there could be other appropriate choices.

<sup>iii</sup> Assigning companies to the correct industry category is difficult and imprecise. Companies are coded to federally defined industry categories using the North American Industry Classification System (NAICS). NAICS are assigned to companies based on the markets they serve. Large companies can have multiple NAICS code assignments and thus employment can be distributed across multiple codes. More information on how industries are classified to NAICS is found on the U.S. Census Bureau website: <http://www.census.gov/eos/www/naics>.

<sup>iv</sup> See, for example, Peter Cappelli’s *Why Good People Can’t Get Jobs: The Skills Gap and What Companies Can Do About It* <http://wdp.wharton.upenn.edu/book/why-good-people-cant-get-jobs>.

<sup>v</sup> For a technical discussion, see EMSI’s blog post: <http://www.economicmodeling.com/2015/04/08/why-some-occupations-are-underrepresented-or-overrepresented-in-job-postings/>.

<sup>vi</sup> Includes only data reported by credentialed postsecondary institutions to the National Center for Education Statistics and therefore may not be comprehensive of all education and training programs available (e.g., MakerSquare and other non-traditional education and training programs are not included in this data).

<sup>vii</sup> SOC is the federally-assigned Standard Occupational Classification (SOC) code for the job title. Description and example job titles, required skills, and other characteristics of the occupation can be found by searching for the occupation code on the [O\\*NET website](#). Scores were averaged from number of respondents providing a rating or answering N/A (i.e. blank responses were excluded).

<sup>viii</sup> List of certifications offered in Austin area school districts was provided by E3 Alliance (October 2014). Scores were averaged from number of respondents providing a rating or answering N/A (i.e. blank responses were excluded).