Right in the middle: Skills at the center of the St. Louis economy
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FOREWORD

St. Louis Community College is pleased to present the 2017 State of St. Louis Workforce Report. Each year since 2009, the College and its research partners have tracked the recovery and growth of our region’s workforce, as well as its continuing challenges, through the research and production of this report. It has provided timely and critical workforce intelligence that has helped St. Louis Community College respond to the needs of our students and employer partners. We also believe that it has provided valuable information to the region’s many public, private and community-based organizations who are preparing the next generation of skilled workers.

The State of St. Louis Workforce Report alternates annually between a look at a composite of the region’s employment and, in the alternating year, a focus on particular sectors or disciplines. For 2017 the College and its partners surveyed nearly 1,100 employers from fifteen industry sectors representing a composite of the St. Louis regional economy to produce this report. The theme of the 2017 report is “Right in the middle: Skills at the center of the St. Louis economy.” It focuses particular attention on middle-skill jobs, those that require education or training beyond high school but not a four-year degree. Individuals can prepare for these jobs in a variety of ways including community college degrees and certificates, industry recognized credentials, and formal and informal apprenticeships.

As of May 2017 the national unemployment rate is 4.3%. According to the Bureau of Labor Statistics’ May 2017 Job Openings and Labor Turnover (JOLT) Survey there were 6 million job openings but only enough hiring to fill 5.1 million of those openings. That same report indicated that there were only 1.2 unemployed persons per opening. Between July 1, 2011,
and June 30, 2016, the U.S. economy created more than 12 million jobs. In the past year an additional 2.2 million jobs have been added. The debate now is whether we have achieved and perhaps surpassed a full employment economy.

However, a broader measure of unemployment level – the U-6 unemployment rate – now stands at 8.9%. It includes the unemployed but also those marginally attached to the labor force or working part time for economic reasons. In addition, the Labor Force Participation (LFP) rate continues to be stubborn and stands at 62.8% in June 2017, little changed from the 62.7% in June 2016. The broader unemployment measure and the labor force participation rate represent headwinds that are both preventing employers from finding enough applicants for open positions and keeping the unemployed and underemployed from benefitting from a growing job market.

The unemployment rate for the St. Louis MSA continues to drop in line with the national trend and as of May 2017 was 4.2%, down from the 4.6% rate of May 2016. The number of unemployed in the St. Louis MSA also continues to decrease and now stands at 54,227 as of May 2017. This is a drop of nearly 3,400 or 5.5% from the same period in 2016.

This report addresses the importance of middle-skill jobs, those that require education and training beyond high school but not a four year degree. According to the National Skills Coalition, Missouri’s middle-skill jobs represent 53% of all jobs in 2015 and will comprise 48% of job openings between 2014 and 2024. They are the only classification of jobs by skill level (low, middle, and high) where the jobs (53%) exceed the supply of workers trained to that level (46%). Middle-skill jobs are critical to health care, information technology, and manufacturing among others.

For the first time in 2017 the State of St. Louis Workforce Report is co-sponsored by the Federal Reserve Bank. We appreciate their support and interest in the important topic of preparing our future workforce and addressing the challenges of the skill shortage. Along with the help of our partners at the Missouri Economic Research and Information Center, we compiled labor market information from public sources, such as the Bureau of Labor Statistics and the Census Bureau. To provide deeper insights, we used analytical tools such as Burning Glass Labor Insight, a real-time labor market analytics tool. The information gathered reflects strength and opportunity for our region’s economy, but with ever-present challenges in matching workers with jobs.
We would like to thank and acknowledge our employer, research, and media partners without whom we would not be able to bring this informative workforce report to the region. We hope you will find this report valuable and use its findings for the benefit of your organization and our community.

Sincerely,

Jeff Pittman, Ph.D.
Chancellor

Stephen Long, M.P.A.
Associate Vice Chancellor
Workforce Solutions
# TABLE OF CONTENTS

- Foreword ................................................................................................................................. iii
- Executive Summary .................................................................................................................. 1
- Methodology ............................................................................................................................. 7
- St. Louis Economy ..................................................................................................................... 9
- Employer Survey ....................................................................................................................... 23
- Regional Initiatives for Middle-Skill Jobs ............................................................................... 51
- LaunchCode ............................................................................................................................. 51
- Apprenticeship Initiatives ......................................................................................................... 55
- St. Louis’ Life Science Industry: Growing Jobs and Building Diversity ............................... 61
- Acknowledgements .................................................................................................................. 67
- Sources ..................................................................................................................................... 69
- Appendix I: State of St. Louis Workforce Employer Survey 2017 ............................................ 71
EXECUTIVE SUMMARY

This year represents the ninth year that St. Louis Community College has produced the State of St. Louis Workforce Report. Since 2009 these reports have reflected the transition from a damaged, recovering, and now nearly fully functioning economy and labor market by most measures. In December 2007, when the recession began the national unemployment rate was 5%. By October 2009 it had peaked at 10%. As of May 2017 the national unemployment rate is 4.3%. The debate now is whether we have achieved and perhaps surpassed a full employment economy.

The gap between the unemployment rate and the number of job openings, used as a measure of labor demand, declined from a high of 8.2 in October 2009 to 0.4 in April of 2017, the lowest in a decade. According to the Bureau of Labor Statistics’ May 2017 Job Openings and Labor Turnover (JOLT) Survey there were 6 million job openings but only enough hiring to fill 5.1 million of those openings. In December 2007, there were 1.9 unemployed workers for each job opening. By July 2009 that number had grown to 6.6 unemployed workers for each job opening. As of May 2017, there were only 1.2 unemployed persons per opening. Between July 1, 2011 and June 30, 2016 the U.S. economy created more than 12 million jobs. In the past year an additional 2.2 million jobs have been added.

A broader measure of unemployment level is the U-6 unemployment rate. It includes the unemployed but also those marginally attached to the labor force or working part time for economic reasons. The U-6 rate for June 2017 was 8.9%, down significantly from the June 2016 level of 9.9% and almost half of the peak rate of 17.1% in April 2010. Although it is receding, the U-6 rate is not receding as rapidly as the more commonly cited U-3 rate. The Labor Force Participation (LFP) rate was 62.8% in June 2017, little changed from the 62.7% in June 2016. The Department of Labor notes that there is no clear trend in this measure but it would appear that there are barely enough new entrants to the labor market to make up for those aging out. Nevertheless, the broader unemployment measure and the labor force participation rate represent headwinds that are both preventing employers from finding enough applicants for open positions and keeping the unemployed and underemployed from benefiting from a growing job market.
Gross Domestic Product (GDP) growth continues to be slow, averaging 2.1% over the last four quarters, about the same as the preceding year. GDP growth has been the subject of much of the political discussion in the U.S. with many believing that regulatory and tax policy is holding GDP growth back from a more “normal” level. At the same time GDP growth in a mature economy is different than in an emerging economy. Despite lackluster GDP growth, stock indices are at record levels and the U.S. is still attracting global economic investment because of our stability.

The unemployment rate for the St. Louis MSA continues to drop in line with the national trend. As of May 2017 the St. Louis unemployment rate stood at 4.2%, down from the 4.6% rate of May 2016 and lower than the national average of 4.3% for that same period. However, the St. Louis MSA unemployment rate still lags behind the state rate of 3.9%. The number of unemployed in the St. Louis MSA also continues to decrease and now stands at 54,227 as of May 2017. This is a drop of nearly 3,400 or 5.5% from the same period in 2016 and nearly half of the 2013 level of 104,000 unemployed.

The GDP for our region increased from $145 billion in 2013 to $155 billion in 2015, an increase of 6.9%. Economic output was dominated by private sector service providers (72%), private sector goods producers (18%) and government (10%). The industries with the largest employment gains in the last year were Health Care and Social Assistance, Professional and Business Services, and Financial Activities. The industries with the largest declines were Government, Retail Trade and Mining, Logging and Construction. Unemployment by industry is led by Construction at 14.5%, Leisure and Hospitality at 11.7% and Wholesale and Retail Trade at 7.7%.

The St. Louis workforce is aging with workers 55 and older now representing over 22% of the workforce, an increase from that proportion a decade ago of 15.7%. At the same time, the age cohorts of 35-44 and 45-54 both decreased by 2% over that same period. Nearly half of the region’s population 25 and older have a high school diploma but no post-secondary degree, lower than the state rate of 53%, while 41% have an associate degree or greater, higher than both the state rate (36%) and the national rate (39%).

The theme of the 2017 report is “Right in the middle: Skills at the center of the St. Louis economy.” The report addresses the importance of middle-skill jobs, those that require education and training beyond high school but not a four year degree. According to the
National Skills Coalition, Missouri’s middle-skill jobs represent 53% of all jobs in 2015 and will comprise 48% of job openings between 2014 and 2024. They are the only classification of jobs by skill level (low, middle, and high) where the jobs (53%) exceed the supply of workers trained to that level (46%). Individuals can also prepare for middle-skill jobs in a variety of ways including formal degrees and certificates, apprenticeships, earning and stacking industry credentials and attending skill boot camps (e.g. coding academies). Middle-skill jobs are critical to health care, information technology, and manufacturing among others.

The State of St. Louis Workforce Report is divided into three sections. The St. Louis Economy compiles labor market information, which is publically available, as well as data that is gathered through proprietary analytical tools. The Employer Survey is based on a telephone survey of 1,079 employers across fifteen industry classifications representing a composite of the region’s economy. Finally, we have included a section on Regional Initiatives for Middle-Skill Jobs representing groups engaged in collaborative efforts to educate and train individuals for these opportunities.

The 2017 Employer Survey attempts to get a picture of employers’ expectations and challenges across the range of industries classifications that make up our regional economy and job market. This is much the same as the 2013 and 2015 surveys from which we draw our comparisons and trends.

Our local economy is driven largely by personal consumption and personal services, which account for about 70% of the economic activity, and is dominated by small business establishments. The 2017 survey included a larger number of small establishments, those with 5 to 24 employees, than in previous surveys. Of the employers surveyed in 2017, 78% were small business and only 4% represented firms employing more than 100 employees. This compares to 65% small establishments and 12% large establishments for the 2015 survey. We believe that some of the responses to the 2017 survey may be impacted by the larger representation of small firms but don’t believe they change the direction of trends we have seen.

When we analyze the responses of employers to questions about their hiring over the past twelve months and their anticipated hiring over the next twelve months it appears that the regional economy has reached a kind of stasis in the expansion and contraction of hiring.
Somewhat more than half of all employers reported that their workforce had remained the same over the last year. Between three in ten and four in ten employers reported increases and about one in ten reported decreases. When employers look forward to hiring over the next twelve months, about the same percentage anticipate that their workforce will remain the same (56%). More employers anticipate increases going forward (41.7%) while few (2.2%) anticipate decreases. These ratios of expansion and contraction have remained remarkably stable over the last several years except for the steadily dropping number of employers that anticipate decreases in employment.

The 2017 survey continues to find employers reporting that the *shortage of workers with knowledge and skills* is their most significant barrier to expanding employment. The response rate to this choice for 2017, 52%, was less than the 57% of employers making this choice in 2015. This may be due to the larger number of small establishments in the survey. However, the second most frequently-cited barrier to expansion, *economic conditions*, decreased even more for 2017 (27%) as compared to the 2015 response rate (35%). The gap between the *shortage of workers with knowledge or skills* and any other survey choice for this question continues to widen with the fewest employers citing *economic conditions* or *government policies or regulations* since the survey began. *Lack of transportation access* as a barrier continues to increase as an employer response to this question.

For the 2017 survey, employers were again asked about their perceptions of the shortcomings of applicants for their positions across several different descriptors (*e.g.* poor work ethic, lack of communication or interpersonal skills, lack of critical thinking and problem solving ability, lack of teamwork or collaboration). Between 50% and 60% of employers reported these shortcomings. Responses were similar to 2015 and have remained relatively consistent over time. Employers also rated the importance or criticality of these shortcomings. The highest combination of frequency and criticality of responses was for *poor work ethic* and *lack of communications or interpersonal skills*.

The 2017 survey found a smaller proportion of employers reporting a shortage of skilled applicants (31%) than the 2015 survey (55%). Again we believe that this could be the result of a larger number of smaller establishments in the survey rather than a real shift in the job market. However, over 8 in 10 employers responded that they *were forced to hire less experienced workers and train them* and 4 in 10 responded that they *were offering increased*
wages due to skill shortages in order to address this skill shortage. For the first time, the survey asked employers about the skill level (low, middle, or high) of jobs needed to address their skill shortage. The most frequent response was middle, chosen by 46% of employers. A new choice of invest in automation was offered to employers participating in the survey as a means of addressing their skill shortage with 20% of employers responding that they employed this method.

When employers were asked about skill shortages in functional areas the top responses were customer service and skilled trades, both with 23% of employers reporting shortages. Customer service was heavily represented in the survey with nearly 70% of the businesses surveyed employing customer service workers. Skilled trades represented a more acute shortage with almost 60% of the employers who hired skilled trade workers experiencing a shortage. Likewise of the surveyed employers who hired patient care employees, 36% reported shortages. Employers were also asked about the importance of middle-skill jobs to their shortages. Skilled trades received the highest importance rating followed by business management. Although middle skill was not the most frequent response by employers hiring patient care employees, they did rate the importance of middle skills at a high 4.71 level on a five point scale.

After seeing a drop in experience requirements in 2015 as compared to 2013, the 2017 survey reflected a trend back to an increase in requirements with more employers reporting positions at the four or more years of experience and the one to three years of experience levels. A possible explanation for this reversal of trend is that employers are trying to gauge the level at which they can ask for the desired experience while also securing an adequate pool of candidates.

For the 2017 survey, the question around education was rephrased to capture skill requirements by low, middle, and high education where low skill is defined as high school or less, middle skill as training or education beyond high school but less than a four year degree, and high skill requiring a four year degree or higher. Of the employers responding, 62% indicated that they had jobs at the middle-skill level and of all the jobs reported by employers in the survey 28% were middle-skill jobs.

In the 2015 survey, we began asking questions that attempted to focus on the opportunities that existed for the unemployed to secure jobs at the entry level and advance in a career. For
2017 we continued with questions in that same vein. When asked whether they had *jobs that required only short-term training*, defined as six months or less of relevant training past high school, 70% of employers responded that they had positions with that requirement, almost identical to the response rate in 2015. We also saw a slight increase in the number of employers who reported that one-half or more of their positions had that requirement. When employers were asked to rank four factors that influenced advancement, the most frequent responses were for *length of job experience* and *demonstrated job performance* outpacing *completing an industry recognized credential* and *receiving an education degree*.

As part of this year’s report we feature three *Regional Initiatives for Middle-Skill Jobs* highlighting groups engaged in collaborative efforts to educate and train a diverse workforce for these in-demand opportunities. These include:

- *LaunchCode*, a locally and nationally recognized coding apprenticeship program serving many of the most prominent information technology firms in the region and creating opportunities for hundreds of individuals to be trained or retrained for employment in this industry. LaunchCode also has a sharp focus on diversity through its programs like *CoderGirl*.
- *Apprenticeship Initiatives including Building Union Diversity (BUD)*, a partnership between joint apprenticeship programs in the construction industry and local workforce and education institutions to help guide and prepare the unemployed and underemployed to high wage opportunities in construction as well as promote the apprenticeship model across other industries and occupations.
- *Bio-STL and St. Louis Community College at BRDG Park*, promoting in-demand jobs in the growing life science industry in St. Louis through education and work-based learning with a goal of not only increasing employment but building diversity within the industry.

We hope that the 2017 *State of St. Louis Workforce* Report provides information that will prove valuable to the St. Louis region as it continues to evolve and grow as a dynamic economy and job market while offering opportunities to improve the lives of all of our citizens.
METHODOLOGY

The 2017 State of St. Louis Workforce Report is the ninth in a series of reports dating back to 2009. These reports have provided valuable information and insights into the economic conditions and workforce issues challenging employers and job seekers and impacting the regional labor market. This year’s report is made up of three distinct parts: the St. Louis Economy, a compilation of labor market information using public and proprietary sources and tools; the Employer Survey; and Regional Initiatives for Middle-Skill Jobs highlighting groups engaged in collaborative efforts to educate and train a diverse workforce for these in-demand opportunities.

St. Louis Economy

As in previous reports, this year’s report includes an analysis of available data from public sources, such as the Bureau of Labor Statistics and the United States Census Bureau, which describes the characteristics of the labor force and correlates unemployment with various labor force demographics. Also included is an analysis of real time labor market demand aggregated through the proprietary Burning Glass Labor Insight tool which searches web-based job boards to discern the level of demand for certain occupations and the skills and certifications which employers are requesting.

Employer Survey

As always, the State of St. Louis Workforce report relies heavily on first person interviews of regional employers. For the 2017 employer survey, 1,079 local companies were surveyed by telephone during the summer of 2017, representing the fifteen NAICS (North American Industry Classification System) industries that represent a composite of the St. Louis MSA economy. They were asked a series of twelve questions, some with multiple parts, related to hiring trends and skill needs. Companies interviewed for the survey were selected from the Reference USA employer database provided by the Missouri Economic Research and Information Center (MERIC).
**Regional Initiatives for Middle-Skill Jobs**

Because of the importance of middle-skill jobs to the regional economy, the report highlights the work of local programs which are the result of collaborations between industry, education, government, and community-based organizations. These programs are focused on providing the local employers with a diverse pool of candidates that are well equipped to take advantage of these growing opportunities in middle-skill jobs.

**Summary**

We believe the methodology followed for the 2017 report is sound and well established. Its results tracked well with previous years’ reports and yields valid and important information for the region.
The bi-state St. Louis Missouri-Illinois Metropolitan Statistical Area (MSA) includes 16 counties that straddle the Mississippi River with an estimated population of over 2.8 million. According to the U.S. Bureau of Economic Analysis, the area had a Gross Domestic Product (GDP) of over $155 billion in 2015. This represents a 6.9% increase from 2013. The industry with the highest GDP was Financial Activities, with $30 billion. Private Sector Service Providers accounted for 72 percent of the region’s output, followed by Goods-Producers (18%), and Government (10%).
**Employment**

The St. Louis MSA has a diverse economy with a labor force of over 1.4 million that work in a wide range of industries. This represents growth in the labor force of about 100,000 from the May 2015 level. The industries with the largest employment gains over the past year, from May 2016 to May 2017, were in *Health Care & Social Assistance, Professional & Business Services*, and *Financial Activities*, according to the Bureau of Labor Statistics. *Government, Retail Trade*, and *Mining, Logging & Construction* sectors had the largest declines over the past year.

**St. Louis Industry Employment**

![St. Louis Industry Employment Chart](chart.png)


Nearly four in ten workers were employed in *Health Care and Social Assistance, Professional and Business Services*, or *Manufacturing*. St. Louis is home to several industry clusters. Large employment concentrations in a mix of sectors highlight areas of regional economic strength. Plant and medical science research and production represent important area clusters with a range of companies and research institutions engaged in these activities. Advanced manufacturing in transportation equipment, food and related products, and industrial
machinery are also strong in St. Louis. St. Louis is home to nine Fortune 500 companies including Express Scripts, Centene, Emerson Electric, and Monsanto.

**Unemployment**

Preliminary estimates show the St. Louis MSA seasonally-adjusted unemployment rate was 4.2 percent in May 2017, down from last year’s rate of 4.6 in May 2016. This is lower than the national rate of 4.3 percent and higher than the state rate of 3.9 percent.

![National Unemployment Rate vs. Job Openings Rate](image)

Nationally and regionally, the unemployment rate has declined. The chart above shows how the job market has changed over the past decade. Job openings and unemployment rates provide a measure of labor demand based on the gap between the two measures. In good times the gap is small (generally less than 2) but during a recession the gap widens as the October 2009 peak of 8.2 illustrates. In 2016 the gap returned to pre-recession levels and by April 2017 was down to 0.4, the lowest point in over a decade.

**Unemployment Demographics**

Unemployment rates vary greatly with age and sex. As the chart on the next page indicates, younger workers, particularly those under age 25, had unemployment rates at or above 7.8 percent in the St. Louis metro during 2015. Men in the 16-19 age range had the highest rate at 23.2 percent. While there is a large disparity in unemployment rates between males
and females in younger and older groups, rates were similar in the 25-54 age groups.
St. Louis mirrors the state and national trend of higher unemployment rates in workers less than 25 years of age. Nationally, rates were also similar for males and females in the 25-54 age groups, while the state showed a larger difference between males and females in the 25-29 age group, at 5.5% and 6.7% respectively.

**St. Louis MSA Unemployment Rates by Age and Sex**

![Unemployment Rates by Age and Sex](image)


The old saying, “education pays,” is still true as it relates to income and risk of unemployment. For example, 2015 St. Louis MSA data show that having some college or an associate degree, versus only a high school diploma, reduces the unemployment rate by 1.8 points and provides $6,638 annually in average extra earnings. Although this gap in the

**St. Louis MSA Unemployment Rates and Earnings by Education**

<table>
<thead>
<tr>
<th>Unemployment Rates</th>
<th>Educational Attainment</th>
<th>Median Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.1%</td>
<td>Less than high school graduate</td>
<td>$21,334</td>
</tr>
<tr>
<td>6.4%</td>
<td>High school graduate / GED</td>
<td>$28,665</td>
</tr>
<tr>
<td>4.6%</td>
<td>Some college or Associate degree</td>
<td>$35,303</td>
</tr>
<tr>
<td>2.6%</td>
<td>Bachelor's degree or higher*</td>
<td>$50,762/$64,245</td>
</tr>
</tbody>
</table>

* Bachelor’s ($50,762) and Graduate ($64,245) degree medians.
unemployment rate between these education levels is significant, it is less than the 3.5 point gap from the 2014 survey. This may reflect a tightening labor market with employers having to compromise on educational levels in order to fill vacant positions. At the same time the difference in annual earnings between those levels increased from the 2014 survey to 2015 indicating that employers were not willing to pay more for those with less educational attainment. A bachelor’s degree or higher further reduces the unemployment rate by two points and increases median earnings.

The highest unemployment rates and lowest wages belong to those workers with less than a high school education. Unemployment rates for workers who do not have a high school diploma or GED are over twice as high as those for high school graduates, and nearly 6 times the rate of a worker with a bachelor’s degree or higher. Young and/or less educated job seekers have had a more difficult time finding employment.

**Education Attainment**

Nearly one-half (49%) of the region’s 25 years and older population have a high school diploma but have no post-secondary degree, lower than the state rate of 53 percent. Forty-one percent of the population have an associate degree or greater, which is higher than both
the state (36%) and national (39%) rates. Ten percent of the St. Louis MSA population has no high school diploma or equivalent measure.

**Workforce Characteristics**

In 2016 the majority of job holders were ages 25-34, representing nearly 22 percent of the workforce. They were closely followed by the 45-54 age group, which represented 21.6 percent of the workforce; and the 35-44 age group, which made up nearly 21 percent of the workforce. Workers age 14-21 made up only 7.3 percent of the workforce.

**St. Louis MSA Age of the Workforce**

![Chart showing the age distribution of the workforce in St. Louis MSA]

Source: U.S. Census Bureau, QWI Explorer.

The St. Louis age profile has changed over time with the 55+ age groups having increased as a share of the workforce, while the 35-54 age groups have decreased. The 55-64 age group has grown from 12.5 percent in 2006 to 17.1 percent in 2016, while the 65+ group has increased from 3.5 percent to 5.2 percent over the last decade. The 35-44 and 45-54 age groups both decreased over 2 percent during the last 10 years. St. Louis mirrors the national trend of an aging workforce which is helping drive the demand for healthcare employment as well as the need to replace workers who are retiring.

**Current Job Demand**

Whether through new job growth or companies needing to fill positions vacated through turnover or retiring workers, there are always job openings.
One way to measure current employment demand is to track job postings. Over the past year there were over 207,000 online job postings in the St. Louis MSA. The table lists jobs, grouped by typical education or training needed, with the most advertisements from July 1, 2016 through June 30, 2017 in the St. Louis MSA.

**Top St. Louis MSA Job Advertisements in the Past Year**

<table>
<thead>
<tr>
<th>Short to Moderate-Term Training</th>
<th>Online Job Ads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales Representatives, Wholesale and Manufacturing</td>
<td>7,719</td>
</tr>
<tr>
<td>Retail Salespersons</td>
<td>7,250</td>
</tr>
<tr>
<td>Customer Service Representatives</td>
<td>5,639</td>
</tr>
<tr>
<td>Secretaries and Administrative Assistants</td>
<td>2,568</td>
</tr>
<tr>
<td>Combined Food Preparation and Serving Workers, Including Fast Food</td>
<td>2,478</td>
</tr>
<tr>
<td>Laborers and Freight, Stock, and Material Movers, Hand</td>
<td>2,260</td>
</tr>
<tr>
<td>Stock Clerks and Order Fillers</td>
<td>2,027</td>
</tr>
<tr>
<td>Security Guards</td>
<td>1,486</td>
</tr>
<tr>
<td>Cashiers</td>
<td>1,422</td>
</tr>
<tr>
<td>Merchandise Displayers and Window Trimmers</td>
<td>1,248</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Long-Term Training to Associate Degree</th>
<th>Online Job Ads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered Nurses</td>
<td>10,886</td>
</tr>
<tr>
<td>Heavy and Tractor-Trailer Truck Drivers</td>
<td>4,819</td>
</tr>
<tr>
<td>First-Line Supervisors of Retail Sales Workers</td>
<td>4,068</td>
</tr>
<tr>
<td>First-Line Supervisors of Food Preparation and Serving Workers</td>
<td>2,780</td>
</tr>
<tr>
<td>Maintenance and Repair Workers, General</td>
<td>2,332</td>
</tr>
<tr>
<td>Bookkeeping, Accounting, and Auditing Clerks</td>
<td>2,200</td>
</tr>
<tr>
<td>Nursing Assistants</td>
<td>1,872</td>
</tr>
<tr>
<td>Cooks, Restaurant</td>
<td>1,593</td>
</tr>
<tr>
<td>Computer User Support Specialists</td>
<td>1,589</td>
</tr>
<tr>
<td>Licensed Practical and Licensed Vocational Nurses</td>
<td>1,489</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bachelor's Degree or Higher</th>
<th>Online Job Ads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Occupations, All Other</td>
<td>6,676</td>
</tr>
<tr>
<td>Software Developers, Applications</td>
<td>6,122</td>
</tr>
<tr>
<td>Managers, All Other</td>
<td>3,996</td>
</tr>
<tr>
<td>Accountants and Auditors</td>
<td>3,188</td>
</tr>
<tr>
<td>Management Analysts</td>
<td>2,563</td>
</tr>
<tr>
<td>Medical and Health Services Managers</td>
<td>2,363</td>
</tr>
<tr>
<td>Human Resources Specialists</td>
<td>2,279</td>
</tr>
<tr>
<td>Computer Systems Analysts</td>
<td>1,952</td>
</tr>
<tr>
<td>Sales Managers</td>
<td>1,919</td>
</tr>
</tbody>
</table>

Source: Online Job Ads from July 1, 2016 to June 30, 2017. Burning Glass Technologies. St. Louis MSA.
The top posted job overall was Registered Nurses (10,886) followed by Wholesale and Manufacturing Sales Reps (7,719) and Retail Salespersons (7,250).

<table>
<thead>
<tr>
<th>Top Certificates</th>
<th>Online Job Ads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered Nurse</td>
<td>10,025</td>
</tr>
<tr>
<td>Commercial Driver's License</td>
<td>4,315</td>
</tr>
<tr>
<td>Security Clearance</td>
<td>2,877</td>
</tr>
<tr>
<td>First Aid CPR AED</td>
<td>2,567</td>
</tr>
<tr>
<td>Certified Public Accountant (CPA)</td>
<td>2,382</td>
</tr>
<tr>
<td>Real Estate Certification</td>
<td>2,048</td>
</tr>
<tr>
<td>Project Management Certification (e.g. PMP)</td>
<td>1,841</td>
</tr>
<tr>
<td>Certified Nursing Assistant</td>
<td>1,348</td>
</tr>
<tr>
<td>Basic Cardiac Life Support Certification</td>
<td>1,055</td>
</tr>
<tr>
<td>Certified Information Systems Security Professional (CISSP)</td>
<td>909</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Top Basic Skills</th>
<th>Online Job Ads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Skills</td>
<td>54,292</td>
</tr>
<tr>
<td>Writing</td>
<td>36,457</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>25,115</td>
</tr>
<tr>
<td>Organizational Skills</td>
<td>23,829</td>
</tr>
<tr>
<td>Planning</td>
<td>20,886</td>
</tr>
<tr>
<td>Team Work/Collaboration</td>
<td>20,606</td>
</tr>
<tr>
<td>Detail-Oriented</td>
<td>19,288</td>
</tr>
<tr>
<td>Computer Skills</td>
<td>18,647</td>
</tr>
<tr>
<td>Physical Demand</td>
<td>18,149</td>
</tr>
<tr>
<td>Research</td>
<td>17,443</td>
</tr>
</tbody>
</table>

Source: Online Job Ads from July 1, 2016 to June 30, 2017. Burning Glass Technologies. St. Louis MSA.

Top requested certificates are often associated with certain occupations or group of related jobs, such as Registered Nurse or Certified Public Accountant. Four of the top 10 certificates are health care related, corresponding with the increasing demand for workers in this sector. Many of the top requested certificates may be obtained through short-term training or through courses offered at a community college.

<table>
<thead>
<tr>
<th>Top Specialized Skills</th>
<th>Online Job Ads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Service</td>
<td>30,473</td>
</tr>
<tr>
<td>Sales</td>
<td>19,862</td>
</tr>
<tr>
<td>Scheduling</td>
<td>18,482</td>
</tr>
<tr>
<td>Budgeting</td>
<td>14,190</td>
</tr>
<tr>
<td>Project Management</td>
<td>13,686</td>
</tr>
<tr>
<td>Supervisory Skills</td>
<td>12,610</td>
</tr>
<tr>
<td>Customer Contact</td>
<td>12,557</td>
</tr>
<tr>
<td>Retail Setting</td>
<td>10,465</td>
</tr>
<tr>
<td>Repair</td>
<td>9,499</td>
</tr>
<tr>
<td>Patient Care</td>
<td>9,003</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Top Software and Programming Skills</th>
<th>Online Job Ads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Excel</td>
<td>24,506</td>
</tr>
<tr>
<td>Microsoft Office</td>
<td>20,429</td>
</tr>
<tr>
<td>Microsoft Word</td>
<td>11,037</td>
</tr>
<tr>
<td>Microsoft PowerPoint</td>
<td>9,035</td>
</tr>
<tr>
<td>SQL</td>
<td>7,369</td>
</tr>
<tr>
<td>Oracle</td>
<td>4,755</td>
</tr>
<tr>
<td>JAVA</td>
<td>4,434</td>
</tr>
<tr>
<td>SAP</td>
<td>3,828</td>
</tr>
<tr>
<td>JavaScript</td>
<td>3,229</td>
</tr>
<tr>
<td>Microsoft Access</td>
<td>3,111</td>
</tr>
</tbody>
</table>

Source: Online Job Ads from July 1, 2016 to June 30, 2017. Burning Glass Technologies. St. Louis MSA.
Basic skills are requested in the majority of job advertisements, with *Communication Skills* being the top demand of employers, requested in over one-fourth of total job postings. The number one specialized skill was *Customer Service*, followed by *Sales* and *Scheduling*. Several *Microsoft Office* programs were in the top requested software and programming skills.

**Middle-Skill Occupations**

The National Skills Coalition found that “middle-skill jobs, which require education beyond high school but not a four-year degree, make up the largest part of America’s and Missouri’s labor market. Key industries in Missouri are unable to find enough sufficiently trained workers to fill these jobs.”

**Demand for Missouri Middle-Skill Jobs is Strong**

“Fifty-three percent of all Missouri jobs in 2015 were middle-skill.”

**Demand for Middle-Skill Jobs Will Remain Strong**

“Between 2014-2024, 48 percent of Missouri job openings will be middle-skill.”

Middle-skill jobs are critical to healthcare, manufacturing, transportation, and other industries in Missouri. They are the only skill category where the demand for jobs exceeds the supply of workers. NSC’s analysis determined that “middle-skill jobs account for 53 percent of Missouri’s labor market, but only 46 percent of the state’s workers are trained to the middle-skill level.”
Middle-Skill Job Growth & Demand in St. Louis

Middle-skill jobs are an essential part of the workforce in the St. Louis MSA. Meeting the continued demand for middle-skill occupations is important for a strong economy. Middle-skill jobs can also offer good pay and career pathways with industry-recognized training and credentials that can be as short as a few months. Over one-half of the St. Louis population does not have a bachelor’s degree, so middle-skill jobs offer an opportunity for better pay and advancement.

Middle-Skill Job Growth

It is also important to look at what jobs will be in demand in the future to ensure the workforce is prepared, especially when training after high school is needed. Employment projections out to the year 2024, developed by the Missouri Economic Research and Information Center (MERIC) in partnership with the U.S. Department of Labor, are used to estimate the jobs expected to have the highest growth over a ten year period.
The table shows jobs that offer long-term opportunities in the St. Louis area for middle-skill careers, based on projections and online job posting analysis.

**Middle-Skill Jobs by 2024 with Most Projected Growth Openings**

<table>
<thead>
<tr>
<th>Occupations</th>
<th>Growth Openings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered Nurses</td>
<td>3,284</td>
</tr>
<tr>
<td>Nursing Assistants</td>
<td>1,533</td>
</tr>
<tr>
<td>Restaurant Cooks</td>
<td>1,258</td>
</tr>
<tr>
<td>General and Operations Managers</td>
<td>1,243</td>
</tr>
<tr>
<td>First-Line Supervisors of Food Preparation and Serving Workers</td>
<td>760</td>
</tr>
<tr>
<td>Computer User Support Specialists</td>
<td>696</td>
</tr>
<tr>
<td>Electricians</td>
<td>587</td>
</tr>
<tr>
<td>First-Line Supervisors of Office and Administrative Support Workers</td>
<td>561</td>
</tr>
<tr>
<td>Carpenters</td>
<td>478</td>
</tr>
<tr>
<td>Medical Secretaries</td>
<td>475</td>
</tr>
</tbody>
</table>

Source: Long-Term Occupational Projections 2014-2024, St. Louis Workforce Development Area (the five Missouri counties including Franklin, Jefferson, St. Charles, St. Louis City, and St. Louis County).

The top middle-skill opportunities are seen in Registered Nurses, Nursing Assistants, and Restaurant Cooks. Several occupations, such as Registered Nurses, General and Operations Manager, and Computer User Support Specialists are also among the top in job advertisements over the past year. Those occupations are in demand now and are expected to be well into the future.

**Middle-Skill Current Demand**

Current demand for middle-skill occupations is also high, with over 90,000 online job ads posted over the last year in the St. Louis MSA for middle-skill occupations. The top middle-skill occupations with the most online job ads were Registered Nurse, Wholesale and Manufacturing Sales Reps, followed by Truck Drivers, and Retail Sales Supervisors.

Employers in the St. Louis metro area requested a variety of skills from job applicants of middle-skill occupations. Following the area trend in all occupations, basic skills were the most numerous requested in the majority of job advertisements, with Communication Skills
being the top demand of employers. Top requested specialized skills included *Customer Service, Sales, and Scheduling*.

### Top Middle Skill Job Advertisements in the Past Year

<table>
<thead>
<tr>
<th>Middle-Skill Occupations</th>
<th>Online Job Ads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered Nurses</td>
<td>10,886</td>
</tr>
<tr>
<td>Sales Representatives, Wholesale and Manufacturing</td>
<td>7,719</td>
</tr>
<tr>
<td>Heavy and Tractor-Trailer Truck Drivers</td>
<td>4,819</td>
</tr>
<tr>
<td>First-Line Supervisors of Retail Sales Workers</td>
<td>4,068</td>
</tr>
<tr>
<td>First-Line Supervisors of Food Preparation and Serving Workers</td>
<td>2,780</td>
</tr>
<tr>
<td>Secretaries and Administrative Assistants</td>
<td>2,569</td>
</tr>
<tr>
<td>Maintenance and Repair Workers, General</td>
<td>2,336</td>
</tr>
<tr>
<td>Bookkeeping, Accounting, and Auditing Clerks</td>
<td>2,200</td>
</tr>
<tr>
<td>Nursing Assistants</td>
<td>1,872</td>
</tr>
<tr>
<td>Cooks, Restaurant</td>
<td>1,593</td>
</tr>
<tr>
<td>Computer User Support Specialists</td>
<td>1,589</td>
</tr>
</tbody>
</table>

Source: Online Job Ads from July 1, 2016 to June 30, 2017. Burning Glass Technologies. St. Louis MSA.

### Top Certificates

<table>
<thead>
<tr>
<th>Top Certificates Middle-Skill Occupations</th>
<th>Online Job Ads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered Nurse</td>
<td>10,025</td>
</tr>
<tr>
<td>Commercial Driver's License</td>
<td>3,823</td>
</tr>
<tr>
<td>Certified Nursing Assistant</td>
<td>1,286</td>
</tr>
<tr>
<td>Real Estate Certification</td>
<td>1,187</td>
</tr>
<tr>
<td>First Aid CPR AED</td>
<td>1,168</td>
</tr>
<tr>
<td>ServSafe Food Safety</td>
<td>475</td>
</tr>
<tr>
<td>Security Clearance</td>
<td>470</td>
</tr>
<tr>
<td>Emergency Medical Technician (EMT)</td>
<td>466</td>
</tr>
<tr>
<td>American Registry Of Radiologic Technologists (ARRT)</td>
<td>444</td>
</tr>
<tr>
<td>Certified Medical Assistant</td>
<td>440</td>
</tr>
</tbody>
</table>

Source: Online Job Ads from July 1, 2016 to June 30, 2017. Burning Glass Technologies. St. Louis MSA.
Microsoft Office programs made up the majority of top requested software and programming skills.

<table>
<thead>
<tr>
<th>Top Specialized Skills Middle-Skill Occupations</th>
<th>Online Job Ads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Service</td>
<td>9,838</td>
</tr>
<tr>
<td>Sales</td>
<td>7,955</td>
</tr>
<tr>
<td>Scheduling</td>
<td>7,809</td>
</tr>
<tr>
<td>Repair</td>
<td>5,613</td>
</tr>
<tr>
<td>Supervisory Skills</td>
<td>5,453</td>
</tr>
<tr>
<td>Retail Setting</td>
<td>4,436</td>
</tr>
<tr>
<td>Customer Contact</td>
<td>4,225</td>
</tr>
<tr>
<td>Inspection</td>
<td>3,816</td>
</tr>
<tr>
<td>Budgeting</td>
<td>3,206</td>
</tr>
<tr>
<td>Cleaning</td>
<td>3,041</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Top Software and Programming Skills Middle-Skill Occupations</th>
<th>Online Job Ads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Excel</td>
<td>8,347</td>
</tr>
<tr>
<td>Microsoft Office</td>
<td>7,414</td>
</tr>
<tr>
<td>Microsoft Word</td>
<td>4,055</td>
</tr>
<tr>
<td>Microsoft PowerPoint</td>
<td>2,884</td>
</tr>
<tr>
<td>Microsoft Outlook</td>
<td>1,350</td>
</tr>
<tr>
<td>SAP</td>
<td>994</td>
</tr>
<tr>
<td>Word Processing</td>
<td>925</td>
</tr>
<tr>
<td>Microsoft Access</td>
<td>886</td>
</tr>
<tr>
<td>Microsoft Windows</td>
<td>787</td>
</tr>
<tr>
<td>Customer Relationship Management (CRM)</td>
<td>770</td>
</tr>
</tbody>
</table>

Source: Online Job Ads from July 1, 2016 to June 30, 2017. Burning Glass Technologies. St. Louis MSA.

The top requested certificates were Registered Nurse and Commercial Driver’s License, corresponding with the high number of job postings for truck drivers. Six of the top 10 certificates are health care related, indicating demand and numerous middle-skill job opportunities for workers in this sector. Many of the top requested certificates may be obtained through short-term training or through courses offered at a community college.
EMPLOYER SURVEY

The 2017 employer survey is the ninth annual telephone survey of local companies in the St. Louis metropolitan area. The intent of this survey is to understand the business climate, hiring trends and occupational skills and demands from businesses in the St. Louis region. The 2017 survey targeted nearly 1,100 employers in 18 industries as defined by the North American Industry Classification System (NAICS). These industries were selected because they represent a composite picture of the regional economy. A statistically significant sample was surveyed from each of the industry classifications. Companies employing fewer than five employees were not interviewed. Although the companies interviewed reflect a wide range of size as measured by number of employees this year’s survey included a slightly larger segment of small businesses, those employing between 5 and 24 employees, (78%) as compared to the

Firms Participating in the 2017 Employer Survey
previous survey (65% for 2015). This may have impacted the survey responses to some questions as compared to prior years. Geographically, the firms interviewed also represented the entire St. Louis MSA (see participation map on the previous page).

Each employer surveyed was asked a series of twelve questions, several with multiple parts, which attempted to not only gauge the hiring outlook and challenges of individual employers but also practices that either created barriers to – or opportunities for – employment and advancement.

### NAICS of Firms Participating in the 2017 Employer Survey

<table>
<thead>
<tr>
<th>NAICS</th>
<th>Description</th>
<th>Number of Firms Surveyed</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>Construction</td>
<td>96</td>
<td>8.90%</td>
</tr>
<tr>
<td>31-33</td>
<td>Manufacturing</td>
<td>57</td>
<td>5.28%</td>
</tr>
<tr>
<td>42</td>
<td>Wholesale trade</td>
<td>42</td>
<td>3.89%</td>
</tr>
<tr>
<td>44-45</td>
<td>Retail trade</td>
<td>152</td>
<td>14.09%</td>
</tr>
<tr>
<td>48-49</td>
<td>Transportation and warehousing</td>
<td>25</td>
<td>2.32%</td>
</tr>
<tr>
<td>51</td>
<td>Information</td>
<td>22</td>
<td>2.04%</td>
</tr>
<tr>
<td>52</td>
<td>Finance and insurance</td>
<td>78</td>
<td>7.23%</td>
</tr>
<tr>
<td>53</td>
<td>Real estate and rental and leasing</td>
<td>54</td>
<td>5.00%</td>
</tr>
<tr>
<td>54</td>
<td>Professional and technical services</td>
<td>118</td>
<td>10.94%</td>
</tr>
<tr>
<td>56</td>
<td>Administrative and waste services</td>
<td>46</td>
<td>4.26%</td>
</tr>
<tr>
<td>61</td>
<td>Educational services</td>
<td>12</td>
<td>1.11%</td>
</tr>
<tr>
<td>62</td>
<td>Health care and social assistance</td>
<td>172</td>
<td>15.94%</td>
</tr>
<tr>
<td>71</td>
<td>Arts, entertainment, and recreation</td>
<td>21</td>
<td>1.95%</td>
</tr>
<tr>
<td>72</td>
<td>Accommodation and food services</td>
<td>74</td>
<td>6.86%</td>
</tr>
<tr>
<td>81</td>
<td>Other services</td>
<td>100</td>
<td>9.27%</td>
</tr>
<tr>
<td>11, 21, 22, 55</td>
<td>Other small sectors</td>
<td>10</td>
<td>0.93%</td>
</tr>
</tbody>
</table>
Hiring Trends - Past Year

When asked if their employment levels changed over the past 12 months, well over half (55.6%) of survey respondents indicated that it had remained the same. This response rate has been relatively stable over the last three survey cycles in which the sample was drawn from the composite regional employer base (2013, 2015, and 2017) ranging from 51.9% in 2015 to 55.6% in 2017. The number reporting that hiring has decreased was relatively unchanged between 2015 and 2017 (11.3% vs 11.7%). The response for this selection continues to trend downward, from nearly 18% in 2012 to the 11.7% cited above. The number of employers responding that they had increased hiring fell slightly from 2015 to 2017 (36.8% to 32.7%). This decrease may be the result of the slightly larger representation of small businesses in the survey responses.

The regional economy appears to have reached a kind of stasis in terms of expansion and contraction in hiring over the last few years with the majority of responses reflecting a remain the same employment level and over three in ten employers reporting increases in employment. The one exception is the shrinking response rate of employers who reported decreasing employment.

![Change in Employment Levels in the Last 12 Months](image)
**Hiring Trends - Future Plans**

When asked about anticipated employment levels over the next 12 months, most employers (56.1%) indicated that they expected levels to remain the same. This is a slight increase from the 2015 level of 54.3% and close to the 2013 response of 57.0%. This response has been remarkably consistent with less than a 3% variance over the last five years of the survey.

Survey responses for 2017 indicated that fewer employers anticipated decreasing employment as compared to 2015 (3.8% to 2.2%). This was a 50% reduction from the 2013 rate of 4.4% and a 67% reduction from the 2012 response level of 6.8%.

The number of employers expecting to increase employment remained nearly unchanged in 2017 as compared to 2015 (41.7% vs 41.9%). The percentage of employers anticipating an increase has risen steadily and is up sharply from 33% in 2012.

Although the survey is not designed to query individual employers about their anticipated versus actual hiring experience from one survey to the next it is notable that, in total, anticipated hiring runs significantly ahead of the past year’s hiring levels perhaps reflecting the natural optimism of employers, particularly small employers.

**Future Plans to Change Employment Levels in the Next 12 Months**

<table>
<thead>
<tr>
<th>Change Type</th>
<th>2017</th>
<th>2015</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase Significantly</td>
<td>6.7%</td>
<td>5.6%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Increase Slightly</td>
<td>35.0%</td>
<td>36.3%</td>
<td>32.6%</td>
</tr>
<tr>
<td>Remain the Same as Before</td>
<td>56.1%</td>
<td>54.3%</td>
<td>57.0%</td>
</tr>
<tr>
<td>Decrease Slightly</td>
<td>1.6%</td>
<td>3.4%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Decrease Significantly</td>
<td>0.6%</td>
<td>0.4%</td>
<td>1.5%</td>
</tr>
</tbody>
</table>
Barriers to Expanding Employment

Since the inception of the State of St. Louis Workforce Report, employers have been surveyed about their perceived barriers to expanding employment. Each year the top three reasons cited have been economic conditions, shortage of workers with knowledge or skills, and government policies or regulations. Survey responses for 2017 continue a trend away from economic conditions as a primary barrier to expanding employment to the shortage of workers with knowledge or skills as the primary barrier. We first saw this shift in the responses to this question in 2015 when 57% of employers cited the shortage of workers with knowledge or skills as compared to 35% who cited economic conditions as a barrier. This is again true for 2017 with an even larger gap in the responses to these two choices.

Potential Barriers to Expanding Employment
For 2017, 52% of employers responding cited the shortage of workers with knowledge or skills as the primary barrier to expanding employment, a reduction from the 2015 response rate of 57%. At the same time, the response rate for economic conditions as a barrier to employment dropped even more in 2017 as compared to 2015, (35% to 27%), a gap of 25 points between those responses. This is also the lowest response rate to this choice since the survey began in 2009.

Likewise the response of government policies or regulations as a barrier to expanding employment fell to 21% of employers responding, consistent with the 2015 rate of 22% but nevertheless the lowest response rate to this question since the State of St. Louis workforce survey began.

All other response choices remained consistent with past surveys with one exception. Lack of transportation access was cited by 23% of employers as a barrier. This response rate was up slightly from the 2015 rate of 20% but up significantly from the 2013 rate of 13% of employers responding with this choice. This puts lack of access to transportation nearly on par with economic conditions and surpassing government policies or regulations as a barrier to employment in 2017. The increased response rate to this question may reflect the fact that more individuals are emerging from the sidelines of the economy to take advantage of the tighter labor market and slightly increasing wages. At the same time, many of those individuals come to the job market with supportive service needs, the most common of which is transportation.

### Importance of Barriers

<table>
<thead>
<tr>
<th>Weighted Average Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government Policies</td>
</tr>
<tr>
<td>Shortage of Knowledge or Skills</td>
</tr>
<tr>
<td>Economic Conditions</td>
</tr>
<tr>
<td>Shortage of Training Programs</td>
</tr>
<tr>
<td>Lack of Childcare Access</td>
</tr>
<tr>
<td>Lack of Transportation Access</td>
</tr>
<tr>
<td>Lack of Information Regarding Occupation</td>
</tr>
</tbody>
</table>
The survey also asks employers to rate the criticality of the barriers they cite using a five point scale with five being the most critical. The highest weighted average response for any barrier cited (excluding an all other category) was a 4.02 score for government policies and regulations. This was also the case in 2015 where government policies or regulations received a 3.81 criticality score. Even though fewer employers cited government policies or regulations as a barrier in 2017, for those who did it was a very critical barrier. The next highest weighted response was 3.85 for shortage of workers with knowledge or skills also attesting to the critical nature of that barrier followed by a score of 3.77 for economic conditions. This order for criticality of barriers in 2017 – government policies or regulations, shortage of workers with knowledge or skills followed by economic conditions – was exactly the same as the 2015 survey but the scores themselves increased anywhere from 2%-7% for these three choices in 2017.

Even though the lack of transportation access was cited by more employers as a barrier in the 2017 survey it ranked relatively low in criticality, 3.12, as compared to the other choices.

**Importance of Barriers to Expanding Employment**

The 2017 survey responses to this question continue the trend of a tightening labor market, at least for workers with requisite knowledge and skills. Economic conditions as a significant barrier to expanding employment continue to recede as do government policies or regulations.
As we reach and possibly exceed a full employment economy, the shortage of workers with knowledge or skills remains the dominant barrier to expanding employment. As labor force participation and wages increase, more potential workers who have remained on the sidelines will re-enter the job market bringing with them needs such as access to transportation.

**Adding Employees**

For the 2017 survey when employers were asked how they would add workers during the next 12 months, 69% responded that they would hire full-time workers. This is the same response rate as in 2015 and similar to the 71% providing that response in 2013. It would appear that the “normal” level of employers who use full-time hires as a method of adding employees is somewhere around seven in ten. The number of employers indicating that they would be hiring part-time workers increased slightly in 2017 to 66% but the response to this choice has remained in a tight range from 63% to 66% since the 2011 survey.

The only trend that appears to be occurring for this question is that of hiring contract workers, with the number of employers responding that they used that method of adding employees decreasing to 13% in 2017 from a high of 21% in 2011.
An analysis of responses from 2011-2017 lead to the conclusion that the methods of adding employees have stabilized to a more normal level with the majority of employers (69%) choosing to add employees full time.

**Shortcomings of Job Applicants**

Half or more of the employers responding to the 2017 survey reported experiencing shortcomings in the applicants to their open positions in key areas including: *poor work ethic* (59%), *lack of communication or interpersonal skills* (55%), *lack of critical thinking and problem solving* (51%), and *lack of teamwork or collaboration* (50%). Although these response rates were nominally lower than the 2015 levels, the survey question for 2015 was modified which we believe caused the rate of response for each choice to be somewhat higher than the preceding years’ surveys. For 2017 the survey question reverted to the format used
prior to 2015 resulting in more appropriate comparisons to 2013 and prior surveys. In fact the results for three of the choices are consistent between 2013 and 2017 including poor work ethic (56% to 59%), lack of critical thinking and problem solving (55% to 51%), and lack of communication or interpersonal skills (59% to 55%).

One new shortcoming was added to the 2015 survey. Inability to interact with different cultures or socio-economic backgrounds. For the 2017 survey 40% of employers found that this skill was lacking in their applicants, only slightly fewer than the 44% of employers reporting this as a shortcoming in 2015.

Again in 2017, we asked employers to rate the criticality of the shortcomings they cited on a scale of 1 to 5 with 5 being the most critical. The ranking of shortcomings by criticality differed somewhat from the rankings by largest number of employers responding. Poor work ethic received the highest weighted average score of 4.38, a slight decrease from the 2015 score of 4.50. It was followed by a criticality score of 4.20 for unwillingness or inability to learn, again a slight decrease from the 2015 score of 4.25 for that same choice. These choices were followed by lack of communication or interpersonal skills (4.15), and lack of teamwork or collaboration (4.07). It may be noteworthy that the order of criticality of these choices for applicant shortcomings is exactly the same in 2017 as it was in 2015.
Although poor work ethic and lack of communication or interpersonal skills continue to be most significant combination of frequency and criticality of response, the unwillingness or inability to learn earns a criticality score out of proportion to the frequency that employers report this shortcoming suggesting that when this shortcoming is present it could be very problematic.

As more job seekers enter the labor market as openings increase and wages rise, employers may see even more applicants who do not meet their expectations. To what extent employers are actually hiring individuals with these shortcomings is an open question.

### Importance of Applicant Shortcomings

<table>
<thead>
<tr>
<th>Shortcoming</th>
<th>1 - Not at all important</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5 - Very important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor Work Ethic</td>
<td>5%</td>
<td>6%</td>
<td>9%</td>
<td>13%</td>
<td>69%</td>
</tr>
<tr>
<td>Unwillingness or Inability to Learn</td>
<td>6%</td>
<td>6%</td>
<td>12%</td>
<td>18%</td>
<td>59%</td>
</tr>
<tr>
<td>Lack of Communication or Interpersonal Skills</td>
<td>4%</td>
<td>5%</td>
<td>19%</td>
<td>20%</td>
<td>54%</td>
</tr>
<tr>
<td>Lack of Teamwork or Collaboration</td>
<td>5%</td>
<td>7%</td>
<td>16%</td>
<td>21%</td>
<td>52%</td>
</tr>
<tr>
<td>Lack of Critical Thinking and Problem Solving</td>
<td>5%</td>
<td>10%</td>
<td>21%</td>
<td>24%</td>
<td>40%</td>
</tr>
<tr>
<td>Lack of Technical Skills Specific to the Job</td>
<td>7%</td>
<td>11%</td>
<td>20%</td>
<td>22%</td>
<td>41%</td>
</tr>
<tr>
<td>Inability to Interact with Different Cultures or Backgrounds</td>
<td>10%</td>
<td>9%</td>
<td>19%</td>
<td>19%</td>
<td>45%</td>
</tr>
<tr>
<td>Inability to Understand Written and Graphical Information</td>
<td>6%</td>
<td>13%</td>
<td>20%</td>
<td>21%</td>
<td>37%</td>
</tr>
<tr>
<td>Inability to Think Creatively</td>
<td>7%</td>
<td>13%</td>
<td>20%</td>
<td>21%</td>
<td>37%</td>
</tr>
<tr>
<td>Lack of Basic Math Skills</td>
<td>9%</td>
<td>16%</td>
<td>24%</td>
<td>27%</td>
<td>34%</td>
</tr>
<tr>
<td>Lack of General Business or Industry Knowledge</td>
<td>7%</td>
<td>15%</td>
<td>23%</td>
<td>21%</td>
<td>28%</td>
</tr>
<tr>
<td>Lack of Writing Skills</td>
<td>10%</td>
<td>17%</td>
<td>26%</td>
<td>19%</td>
<td>28%</td>
</tr>
<tr>
<td>Lack of General Computer Skills</td>
<td>13%</td>
<td>17%</td>
<td>26%</td>
<td>17%</td>
<td>28%</td>
</tr>
</tbody>
</table>

### Methods of Skill Acquisition

Since the inception of this survey, the method of skill acquisition which has been consistently preferred by employers is on-the-job training. Again for 2017, 90% of employers cite that method of skill acquisition as their preferred method. That response has been the most consistent choice for this question since the survey began, never having fallen below 90%. Until this year the second most cited method was in-house classroom training.
The response rate for that choice has been consistently at or above 60%. In 2017 the response rate for in-house classroom training fell to 56%. That placed it behind a new choice selection, *flexible schedule for continuing education* which garnered a response rate of 62%.

The responses to most of the other methods of skill acquisition have been remarkably consistent over the survey period. *Vendor training* was selected as a skill acquisition method by 42% of employers in 2017, within the range of 42%-47% over the last five surveys. *Community college provided customized training or education* (21%), *apprenticeship programs* (26%), *tuition reimbursement* (30%), and *vocational training* (19%), were all consistent within a few percentage points from past surveys.

**Methods to Address Need for New or Increased Skills**

It appears that, to a significant extent, the majority of workers with skill currency in the marketplace are employed and employers are increasingly faced with varying degrees of upskilling to acquire an appropriately-trained workforce.
Addressing Company Skill Shortages

When employers were asked whether they were experiencing a shortage of skilled applicants for their positions, 31% reported that they were experiencing a shortage. This was a reduction from the 2015 level of 55%. To an extent we believe that this reduction may be due to the larger sample size of small employers. During the course of the survey, interviewers heard several comments indicating that employers could find skilled applicants but it took longer and required more effort.

Measures Taken to Address Applicant Skill Shortages

For the first time in 2017 employers were asked about the skill level required to address the skill shortage. Employers were given a choice of high skill – requiring a four year degree or higher, middle skill – requiring training or education beyond high school but less than a four year degree, or low skill – requiring high school or less. The most frequent response to this choice was middle skill chosen by 46.4% of employers followed by low skill cited by 39.4% of employers. The least frequent response was high skill with only 14.2% of employers.
responding that this was the skill level required to meet their skill shortage. This comports with other reporting about middle skills as having the largest gap between the demand for and supply of labor.

While fewer employers reported an absolute shortage of skilled applicants, the measures taken to address skill shortages were very similar to those reported in 2015 both in the order and frequency of response. The most frequent response by employers was that of forced to hire less experienced workers and train them cited by 81% of the respondents. This was nearly identical to the 2015 response rate of 83%. The second most frequent response was to the choice of offering increased wages due to the shortage of experienced workers which was reported by 40% of employers in 2017. Again this was nearly identical to the 41% responding to that choice in 2015. Employers’ choices of other responses were similar to those from past years with the possible exception of hiring from outside the St. Louis Missouri-Illinois region where the response rate dropped from 25% in 2015 to 19% in 2017.

For the first time in 2017, employers were offered the choice of invest in automation as a means of addressing company skill shortages. Of the employers responding, 20% indicated that this was a method they employed to address the skill shortage. This was on par with the response rate to hiring contractors and hiring outside the St. Louis Missouri-Illinois region. Future surveys will determine whether this is an increasing trend but the first year response to this choice appears significant.

The consistent responses to this question would seem to provide a clear indication that employers are having difficulty finding skilled workers and are having to settle for less experienced workers and absorb more internal training costs, pay more for experienced workers or even invest in automation. In any case it means that the skill shortage is directly affecting the employers’ bottom line.

Skills Shortages in Functional Areas

When employers were asked whether they were experiencing skill shortages in certain functional areas, 23% reported skill shortages in customer service, identical to the response rate in 2015. This is due in part to the fact that 69% of the employers surveyed employed
Businesses Employing Staff in Functional Areas

- **Customer Service**: 69%
- **Business Management**: 49%
- **Accounting/Finance**: 41%
- **Skilled Trades**: 40%
- **Information Technology**: 20%
- **Manufacturing Maintenance**: 16%
- **Patient Care**: 13%

People in customer service. Again this utilization level was nearly the same for customer service as the 70% reported in 2015.

### Businesses Experiencing Shortages in Functional Areas

**Skilled trades** was reported as a functional skill shortage by 23% of all employers surveyed in 2017, about the same level as the 2015 level of 22%. Given that only 40% of the respondents reported employing people in skilled trades the effective rate of response for skill
shortages for that function is nearly 60%. It is also notable that 5% of all the respondents reported a skill shortage in the patient care function while the percentage of employers who reported employing people in patient care was only 13%. The result is that nearly 36% of the employers responding that they employed people in a patient care function were experiencing a skill shortage.

**Businesses Experiencing Shortages in Functional Areas**

- Customer Service: 23%
- Skilled Trades: 23%
- Manufacturing/Maintenance: 8%
- Business Management: 7%
- Accounting/Finance: 5%
- Patient Care: 5%
- Information Technology: 4%

**Effective Rate of Skill Shortages by Functional Area**

- Skilled Trades: 57%
- Manufacturing/Maintenance: 48%
- Patient Care: 36%
- Customer Service: 33%
- Information Technology: 22%
- Business Management: 14%
- Accounting/Finance: 13%

New for the 2017 survey was a choice of the functional area *manufacturing/maintenance* with 8% of all employers reporting a skills shortage in this area. This represents about half of the 16% of employers who reported employing individuals in the manufacturing/maintenance area indicating a significant skill shortage in that area. Skill shortages in other functional
areas including business management, information technology, and accounting/finance were nearly unchanged from the previous survey.

In order to gauge the skill level required to meet the shortages in each of the functional areas, employers were given a choice of high skill – requiring a four year degree or higher, middle skill – requiring training or education beyond high school but less than a four year degree, or low skill – requiring high school or less. Middle skill was the most cited skill level for four of the seven functional areas (accounting/finance, information technology, business management and skilled trades), while almost tied with low skill for manufacturing/maintenance (45% middle skill, 49% low skill). The largest response of middle skill as the required level to address a shortage was for skilled trades at 58%. Only patient care reflected a high skill choice by the majority of respondents (67%). Finally, only customer service garnered a majority response (55%) of low skill as the required level to meet that skill shortage.

Employers responding to this question were asked to rate the importance of middle-skill shortages to their business. The rating was on a five point scale with 5 as most important.

To an extent, the importance rating for middle-skill shortages followed the frequency in which employers cited middle skill as the level required to meet their skill shortage. Skilled
trades received the highest average importance rating at 4.88 followed by business management at 4.81 and accounting/finance at 4.72. Even though only 21% of employers in patient care responded that middle skill was the required skill level to address their shortage, they rated it a high 4.71 in level of importance. Likewise only 39% of employers in customer service reported middle skill as the level to meet their skill shortage but they rated the importance of middle skill at a relatively high score of 4.6.

**Importance of Middle-Skilled Applicant Shortage**

Both the frequency in which the employers surveyed utilized the functional skill areas and experienced skill shortages in those areas were similar to the previous (2015) survey. Comparing the frequency of skill shortages by functional area with the employment by functional area results in significant skill shortages reported in skilled trades (57%), manufacturing/maintenance (48%) and patient care (36%). When asked about the skill level required to meet their shortages the most frequent response was middle skill with the majority of employers in four of the seven functional areas reporting that level as the required level. Finally, the level of importance reported for middle skill was high even for the functional areas where middle skill was not the most frequent required skill level reported.
Experience and Education

Responses from past surveys have seen experience and education requirements wax and wane as employers try to gauge the level necessary to attain the highest skill level and still maintain a pipeline of candidates for open positions. After requiring relatively high education and experience levels when candidates were abundant, we saw a decrease in the percentage of jobs at higher levels of education and experience and an increase in the percentage of jobs at lower levels of education and experience from 2013 to 2015 when the job market began to tighten. This year’s survey results reveal a slight reversion of this trend perhaps as employers try to find the right mix of education and experience and candidate availability.

Experience

As in past surveys, the 2017 survey asked employers if they had positions requiring various levels of experience. Approximately 56% of employers reported having positions requiring four or more years of experience, an increase from the 52% reported in 2015. Likewise 68% of employers responding to this year’s survey reported having positions that required a minimum of one to three years of experience, also an increase from the 2015 response of 65% of employers. Conversely the percentage of employers reporting that they had positions requiring some experience but less than one year decreased from 60% in 2015 to 55% in this year.
year’s survey. The exception to this trend of reversal from the previous survey is for jobs requiring no experience; this response actually increased from 54% in 2015 to 62% in 2017. As with other survey responses, this response may be impacted by the larger proportion of small employers in the survey respondents.

In 2015, 27% of employers with “no experience required” positions indicated that half or more of their positions required no experience. For the 2017 survey this had increased to 32% of employers. Conversely for employers reporting that they had positions requiring four or more years of experience, the 2015 survey reflected that only 24% had more than half of their positions with this required experience level. In the responses to the 2017 survey this had increased to 32% of employers.

For employers who reported having positions with various experience level requirements, the tables below break out the percentage of their workforce at each level.
One possible explanation for this general increase in experience requirements for 2017 as compared to 2015 is that employers are trying to gauge the level at which they can ask for the desired experience but also secure an adequate pool of candidates.

**Education**

For the 2017 survey the question around education was rephrased to capture the relatively recent model of skills by *low*, *middle* and *high* education requirements. These levels are defined in this model as *high skill* – requiring a four year degree or higher, *middle skill* – requiring training or education beyond high school but less than a four year degree, or *low skill* – requiring high school or less.

Employers were asked if they had positions at each of the skill levels as described. Although the highest response by employers was to positions requiring *low skills* with 85% of employers indicating that they had such positions, there was still a large response to *middle-skill* positions, cited by 62% of employers. This strong emphasis on *middle skills* is supported by state-level job demand data compiled by the National Skills Coalition for 2015 that indicated over half of all job demand in Missouri was for jobs requiring *middle skills*. The lowest response rate by employers was for positions at the *high skill* level with 42% indicating they had these positions in their organizations. As with some other responses we believe that the relatively large proportion of small employers in the survey may have impacted the responses to education requirements.

Employers were also asked about the percentage of positions they had at each of these levels. Of the employers who indicated that they had positions requiring *a low skill level*, 72%
indicated that more than half of their positions had this requirement. Of the employers reporting that they had *middle-skill* positions, 26% indicated that over half their positions were *middle skill*. The lowest percentage of positions was cited by employers who reported *high skill* positions. Of the employers reporting positions with *high skill* requirements only 10% reported having more than half their positions at this level.

When analyzing the overall percentage of all jobs reported by employers at these various skill levels the survey found that 28% of all jobs fell in the *middle-skill* level while 60% fell into the *low skill* level and only 12% reported at the *high skill* level. This ratio may also have been impacted by the relatively larger proportion of smaller firms in the survey.

Although direct comparisons with previous years cannot be made because of the changes in the survey question, it would appear that middle skills is analogous between 2015 and 2017 where 68% of employers in 2015 had positions requiring either a post-secondary credential or an associate degree and 62% of employers in 2017 reporting that they had *middle-skill* positions.

For employers who reported having positions with these skill/education level requirements, the tables on the next page break out the percentage of their workforce at each level.

The response by employers to this newly constructed question for 2017 would indicate more *low-skill* positions and fewer *high-skill* positions than either past surveys or other statewide indicators of job demand have reflected. However, *middle-skill* positions are generally in line with those other indicators.
Opportunity and Advancement

Increasingly educational institutions and community-based organizations are, individually or in partnership, offering accelerated programs to quickly teach skills and reattach potential employees to the workforce. Many of these programs are six months or less in length and often result in industry certifications. Most teach “soft” skills along with technical skills. Some of these programs can create skills for a lifetime such as welding or truck driving. Others, such as information technology help desk training, can create the foundations for a career and entry to educational pathways. Some are designed in close partnership with a specific employer and provide direct entry to employment for those who complete.

For the first time in 2015 we asked employers about the percentage of jobs in their organizations that would be available to applicants who had completed short-term training, defined as no more than six months past high school and relevant to their industry. We
asked that same question for the 2017 survey and got very similar responses. For 2017 70% of employers reported that they had jobs requiring only short-term training, almost identical to the 69% of employers responding this way in 2015. An increased number of employers for 2017 (42%) responded that half or more of their positions were available with short-term training as compared to 2015 (39%).

In most cases accelerated short-term programs help individuals get that first entry-level job with an employer. Moving forward is a factor of job experience, demonstrated performance and continuous learning. For the 2017 survey, we asked employers to rank four factors they consider in advancing a worker on a career ladder: length of job experience; demonstrated job performance; completing an industry recognized credential and receiving an educational degree.

The length of job experience was ranked as the most important factor for advancement by 32% of employers responded using a weighted average. This was followed closely by demonstrated job performance with 31% of employers choosing that factor as most important. This is consistent with similar questions in past surveys where experience and performance trumps education in most cases. The other factors fell significantly behind experience and performance in ranking of importance with completing an industry credential selected as most important by 20% of employers and receiving an educational degree chosen as most important by 17% of employers.
Clearly there are bridges to economic opportunity that are available. The challenge is to make employers, job applicants and employees aware and taking advantage of them. Employers and job seekers should be more aware of some of the accelerated training opportunities available to them. Job applicants and employees should be more aware of career advancement pathways and supports.
Summary

The 2017 State of St. Louis Workforce employer survey reflects a job market that has reached a kind of stasis in terms of hiring expansion or contraction. Over the last few years about half of all employers surveyed anticipated their workforce to remain the same each year with four in ten anticipating increases and one in ten anticipating decreases. When employers reflect on the past twelve months, hiring levels are only slightly lower than the anticipation for the coming year with somewhat less expansion and somewhat increased reductions but with the majority reporting workforce levels remaining the same. This has been essentially the case over the last four years.

For the third straight survey (2013, 2015, and 2017) employers have cited the shortage of workers with knowledge or skills as the most significant barrier to expanding employment. The other barriers that had been reported in the past, economic conditions and government policies or regulations, have receded to their lowest response rates since the survey began in 2009 making the shortage of workers with knowledge or skills the predominant barrier to expansion. Also noteworthy is the increase in the response to lack of access to transportation which may be related to more workers with supportive service needs emerging from the sidelines of the job market to seek employment.

Employers are still seeing significant numbers of job applicants with a variety of shortcomings including more than half reporting shortcomings in poor work ethic, lack of critical thinking and problem solving and lack of communications or interpersonal skills. When analyzing both the frequency and criticality of responses to this question, the unwillingness or inability to learn also rises to the top tier. Employers are still choosing forced to hire less experienced workers and train them and offering increased wages due to the shortage of experienced workers as the primary methods to address company skill shortages but for the first time in 2017, 20% of employers responded to the choice of invest in automation to address skill shortages.

Skill shortages in functional areas persist, reported by 57% of employers utilizing skilled trades function, 48% utilizing manufacturing/maintenance functions and 36% utilizing patient care functions. Employers reporting experience and education requirements reflected slight decreases in those requirements as compared to the last survey indicating they may be
searching for the requisite combination of experience and education while still maintaining an adequate pipeline of candidates.

The majority of employers (70%) continue to report that they have jobs available with only short-term training, requiring high school and six months or less of relevant training. In terms of factors that impact advancement on the job employers ranked *length of job experience* and *demonstrated job performance* significantly above *completing an industry credential* and *receiving an educational degree* as most important.

Finally, the 2017 survey included several questions that addressed the construct of skill levels by *high skill* – requiring a four year degree or higher, *middle skill* – requiring training or education beyond high school but less than a four year degree, or *low skill* – requiring high school or less. When employers were asked about the skill level to address their company’s skill shortages the most frequent response was *middle skill* cited by 46% of employers followed by *low skill* with 39% of employers responding and finally high skill cited by 14% of employers. When analyzing skill shortages by functional areas, four of the seven functional area choices: *accounting/finance, information technology, business management,* and *skilled trades* were cited by employers as requiring middle skills to address their shortages. Middle skills also received the highest importance rating among the functional areas.

In terms of education requirements, the highest response to those requirements by skill level was to *low skill* with 85% of employers indicating that had *low skill* jobs in their organizations but *middle skill* followed with 62% of employers reporting having those positions. Of all the jobs reported by employers as a response to the question of education requirements 28% were middle-skill jobs.

The 2017 survey holds promise for expansion but challenges to finding enough skilled workers to fuel continued growth. As we try to match workers with appropriate skills, the rising importance of middle-skill jobs comes into focus for meeting employer needs as well as providing strong opportunities for lower-skilled job seekers to advance with a moderate amount of education and training.
REGIONAL INITIATIVES FOR MIDDLE-SKILL JOBS

LAUNCHCODE

Unemployment in the United States is declining, as demand for new jobs picks up across the country, and nowhere is the need more acutely felt than in the tech industry. The U.S. Department of Labor projects that one million jobs in programming alone will go unfilled by 2020.

Created by Square cofounder and St. Louis native Jim McKelvey, LaunchCode offers skills-building classes and workshops for would-be software engineers and coders in a growing number of U.S. cities including St. Louis. LaunchCode’s primary aim is to close the pipeline gap between training and employment by placing qualified job candidates — with or without college credentials — in paid apprenticeships at its nearly 500 partner companies.

Unlike the for-profit training programs that are making their own push for businesses to view their graduates as viable candidates for employment, LaunchCode is entirely non-profit.
In the first thirteen months of the program’s existence it managed to place 115 candidates in companies with the possibility of full-time employment. Since 2013 they’ve launched 860 careers in tech. In St. Louis alone, over 1,000 people have used the program for career advancement and 28 million dollars was put back into the St. Louis economy.

LaunchCode candidates come from all walks of life: veterans, mothers re-entering the workforce, college graduates unable to find jobs with their four-year degrees, persons with disabilities and many others. The organization works to fill many different employer needs, including noncoding jobs such as business analysts and database administrators. LaunchCode also supports candidates in developing their interview skills, professional demeanor and ability to be successful in the workplace. Surprisingly, 99% of the LaunchCode students do not have a degree in IT or Computer Science.

**CoderGirl** is a LaunchCode education program that was designed to engage and educate women in the technology community in St. Louis. It is a year-long tech training program consisting of two 6-month cycles: a learning cycle and a project cycle. CoderGirl addresses the gender gap in tech by providing a space for women of all skill levels to learn to code in a supportive community of like-minded individuals. Through CoderGirl’s year-long program, participants of all ages, backgrounds and income levels learn essential coding skills while working on projects in a non-toxic, collaborative, woman-friendly environment.

**LaunchCode Successes**

More than 4,400 students have been educated through LaunchCode since they started offering courses in 2014. More than four out of five LaunchCode apprentices are hired on as permanent employees with 86% of them still working in comparable tech positions six months later. Even greater, LaunchCode graduates earn more than double their previous salaries on average. Essentially, LaunchCode is connecting the dots between STEM education and STEM employment and making a huge difference by creating a win-win for both employers and job seekers. LaunchCode provides an opportunity for people to learn the right skills, get better jobs, and create better lives for themselves and their families, while providing opportunities for businesses by creating a pipeline of skilled workers.

Participants, partners and graduates share their perspectives on LaunchCode’s impact on the following page.
Steve Long, Associate Vice Chancellor for Workforce Solutions, St. Louis Community College

“LaunchCode has created an innovative strategy to quickly move motivated individuals into high paying careers by establishing connections with our region’s leading IT firms. St. Louis Community College is pleased to support LaunchCode in this initiative in ways that maximize our students’ ability to take advantage of the opportunity they are providing. We believe that St. Louis Community College is the perfect complement to the LaunchCode model.”

April Wright, CoderGirl Graduate

“I can’t imagine making my career change into tech without the guidance and welcoming community I found with CoderGirl. With the help of knowledgeable and friendly mentors, I learned fundamental web development skills and the lifecycle of a project. Pivotal, I made valuable professional connections, one of which directly lead to my first tech job. Above all, I love how CoderGirl is filled with positivity: people that are motivated to learn, share knowledge, and encourage each other.”

Amy Wallhermfechtel, CoderGirl Participant

“CoderGirl has provided the structure, motivation, and sense of community that have helped me realize my goal of transitioning from a career in academia to software development. In 2016, I enrolled in LaunchCode’s CS50x and began learning to code. At the end of the course, my next goal was to learn about front-end web development, so I applied for CoderGirl’s web development track. The experience has been amazing! All of the mentors are outstanding. I appreciate their combination of technical help, career advice, and encouragement to pursue what interests me. They have excelled at teaching me how to find answers to my own questions, putting me in charge of my own learning. Equally important has been the friendship and support of an amazing group of women in my learning cohort. They have been a tremendous source of inspiration and have pushed me to be my best self. Getting to know them, not just as learners and coders, but as friends, has been a privilege.”
Shane, Former Student and Teaching Fellow, LaunchCode

“With the traditional school pressures of grades and tests lessened, the environment in the class just feels so much more comfortable. That, coupled with the fact that collaboration is encouraged instead of frowned upon, makes the class feel more like a place of learning than most traditional classrooms I’ve been in. It really drove it home that I could actually walk away from the course with something real.”
APPRENTICESHIP INITIATIVES

The apprenticeship model, the world’s oldest form of occupational skills training, is seeing a re-birth in the United States. Although historically strong in some industries, e.g., construction, and in some geographic areas, e.g. the Northeast and many metropolitan areas, apprenticeships have not been used across all industries and occupations in the United States to the same extent as in Europe and other areas around the world. That is beginning to change. With the growing awareness of the importance of middle-skill jobs to the economy and the burden of high student debt that accompanies many four-year college programs, apprenticeships are emerging as one of the most effective means of connecting people to good jobs and helping meet labor market needs for skilled workers. Apprenticeships are
becoming a long-term talent investment that can produce sustainable dividends for the future workforce.

St. Louis Community College is designated as a Registered Apprenticeship College Consortium (RACC) member by the U.S. Department of Labor and is one of many educational and workforce organizations which has committed to growing and supporting apprenticeship programs in our region.

The following are examples of innovative partnerships to grow apprenticeships and build diversity in our workforce.

**Building Union Diversity (BUD)**

The St. Louis Building and Construction Trades Council (BCTC) is committed to enhancing workforce diversity for the construction industry as well as supporting the growth of the apprenticeship model across other industries such as manufacturing. The BCTC assembled a team of more than eight cooperating joint labor-management construction training programs (known as JATCs) to implement and manage a construction skills pre-apprenticeship training program. This effort, known as the BUD program, is launching careers in construction for previously unemployed and under-employed individuals from across the St. Louis region, with a particular focus on women and minorities. Once identified, assessed and assisted in obtaining basic job readiness and basic skills competencies required by the trades, candidates are enrolled in pre-apprenticeship training offered by BUD program partners for an intensive five-week skills training program.

The goals of BUD are three-fold:

- First, to ensure there are enough qualified, trained union minority and women workers available to meet contractor needs.
- Second, to ensure that women and minority workers see construction as a long-term career, creating an ample supply of skilled minorities and women in the unions to meet current and future contractor needs.
- Third, to create cultural change within the industry such that diversity is not simply making sure minorities and women are “on a job” to fill a quota, but rather adopts inclusion as the normal course of doing business.
BUD offers enrollees a comprehensive introduction to construction careers and provides relevant national skills certification training, with a particular focus on job safety. Once participants have successfully completed training, they are enrolled in the BCTC employer/contractor database. The database serves as a pool of pre-qualified workers at various skill levels and proficiencies and is used by construction business owners and others in supporting the workforce inclusion goals that they are expected to meet and/or exceed, particularly in publicly-supported construction projects.

The BCTC team includes core construction trades and their experienced JATCs with long histories of successful training and employment in middle-skills jobs in construction that offer excellent wages and benefits and career advancement. The BCTC oversees the management, training, data collection, assessment, and certified skill training and evaluation components of the program.

The program team is committed to working with partnering owners and offers training only when entry-level jobs are available. Through its collaboration with community partners and stakeholders including the St. Louis Agency on Training and Employment, St. Louis Community College and the Missouri AFL-CIO, BUD is able to provide job placement and personal support services that offer participants and newly-hired graduates the best possible chance for success.

**Students Succeed**

The BCTC tracks graduate success, and has achieved an 80% placement rate during the first three years of the program. The following is a successful graduate’s story.

*Marcella J. Vamboi, IBEW Local 1*

“After graduating from Riverview Gardens in 2012, I studied at Missouri State University for a year but the financial costs became a burden I wasn’t prepared for. I worked at the Science Center for three years as a science teacher and demonstrator, including some minor demonstrations in electricity. I loved it. Then as luck would have it, I see an ad on the internet for the BUD program sponsored by the St. Louis Building Trades Council and the St. Louis Community College District. BUD stands for Building Union Diversity, an effort
by the building trades unions to gain more inclusion in their apprenticeship programs by attracting more women and minorities into the trades.

It was a great fit for me. I’m a first year apprentice with the IBEW and it’s been a terrific opportunity for me to learn the electrical trade. The apprenticeship is a four year program with periodic pay increases as I learn the trade. And the best part – I’m paid to attend classes at the Electrical Industry Apprenticeship Training Center, plus I get college credit! I went from paying a high college tuition which I couldn’t afford, to attending college classes at a trade school that pays me to go to school and to learn a skilled trade that will bring me a living wage and the security of job benefits included health care and a pension. I feel like I won the lottery.”

**Employers Benefit**

The BUD program gives employers access to a well-trained, diverse pool of candidates. The following is a training coordinator’s perspective on how participants are prepared for employment.

*Henry Johnson, St. Louis–Kansas City Carpenter’s District Council*

“From the very beginning, the Building Union Diversity (BUD) program has had support from several local contractors, community based organizations, and various local and state government entities which have helped the program have remarkable success. What is noteworthy about the program is the high percentage of BUD completers who have gone on to successfully enter into apprenticeships and gain employment in the construction industry.

The pre-apprenticeship program provides skills training for minorities, women, dislocated workers, and the long-term unemployed who are interested in a career in construction. BUD participants are exposed to multiple trades to give them a chance to see where their desires and aptitudes lie. This pre-apprenticeship program provided both classroom and hands-on skill training as participants progressed through the program. My role is to provide an overview of the industry including the challenges, and an introduction to the common skills required by all the trades such as personal safety, productivity, soft skills for the trade, employability skills, punctuality, and work site expectations, along with an overview of the benefits that a union-based apprenticeship in the construction trades has to offer. I believe
the BUD program model has been a valuable bridge for minorities and women interested in
the construction trades for those willing to work for it.”

**Skilled Trades Associate in Applied Science (AAS) Degree Program**

The most effective apprenticeships are those which embed college coursework and industry-
recognized credentials within the apprenticeship program. St. Louis Community College has
partnered with several Joint Apprenticeship Programs in the St. Louis area to offer the
Associate of Applied Science (AAS) degree in conjunction with the Registered Apprenticeship
Program (RAP). The Skilled Trades Industrial Occupations Technology Apprenticeship
program, or Skilled Trades AAS program is a joint effort to recognize apprenticeship training
as postsecondary education to prepare the current and future workforce. An associate degree
is awarded to journey workers who successfully complete the approved U.S. Department of
Labor apprentice program and 15 credit hours of general education courses at STLCC.

Steve Long, STLCC’s Associate Vice Chancellor for the College’s Workforce Solutions
Group says, “The goal of these educational partnerships is to improve the skills and
education of workers … and will equip them with the knowledge, skills and certifications
they need to seek employment and promotion in the construction industry, and to pursue
further postsecondary educational opportunities.”

In February 2017, the St. Louis Regional Chamber announced an initiative to make the
St. Louis metropolitan region among the 10 most educated in the nation. Among the goals is
to increase associate degrees by 10 percent, an 18,000-person increase by 2025.

**Doug Martin, CEO, St. Louis Chapter, National Electrical Contractors
Association (NECA)**

“Our plan to partner with St. Louis Community College has been in the works well before
the chamber’s new education initiative, but we applaud the effort. We have decades of
investment in developing pacesetting skills and safety in the electrical industry to meet an
ever more complex array of construction projects. The St. Louis Community College
education partnership allows us to more fully leverage our incredible talented workforce by
opening new avenues for careers.”
Electrician, carpenter and skilled laborer apprentices take part in training funded by local joint labor and management training councils. They earn a wage while they learn, and take advantage of a comprehensive curriculum at a state-of-the-art training center.

St. Louis Community College provides the fifteen-hour general education core through classroom- or web-based courses that allow the student to receive the associate degree by the time they complete their apprenticeship.

**Medical Assistant Apprenticeship Program**

St. Luke’s Hospital and St. Louis Community College have partnered to provide participants with a healthcare apprenticeship opportunity. St. Luke’s Hospital is a U.S. Department of Labor registered apprenticeship sponsor and will host a two-year Medical Assistant Apprenticeship Program. Participants that successfully complete the 20-week Medical Assistant training program with St. Louis Community College and receive their CCMA certification will be selected for the on-the-job training apprenticeship opportunity by St. Luke’s.

With its innovative apprenticeship program, St. Luke’s is helping to meet a community need by providing careers in healthcare. It will also serve to provide St. Luke’s physician practices with additional qualified medical assistants.

*Janette Taaffe, Vice President, Human Resources, St. Luke’s Hospital*

“We are excited to launch our Medical Assistant Training and Apprenticeship program. We see this as a way to provide community members with a great career opportunity and to support our mission of improving the health of our patients.”
ST. LOUIS’ LIFE SCIENCE INDUSTRY: GROWING JOBS AND BUILDING DIVERSITY

St. Louis has undergone a fundamental change in the composition of industries that drive its economy. Among the most significant changes is the evolution of the STEM economy in general and the Life Science industry in particular. Industry, government and education have collaborated to grow and nurture this industry in our region through a number of organizations and initiatives such as the Cortex innovation district, the Donald Danforth Plant Science Center as well as industry organizations such as MOBIO, the Missouri Biotechnology Industry Organization and its regional affiliate BioSTL. Educational institutions have also responded by creating new programs to serve the workforce needs of the life science industry. St. Louis Community College developed the first biotechnology program in the state of Missouri and established the Center for Plant and Life Science at BRDG Park, one of the region’s new plant science incubators. Since that time, the College
has been providing biotechnology bench technicians for industry needs through an innovative combination of formal education and work-based learning.

**BioSTL – Building the Environment for a Diverse Life Science Workforce**

Since its beginning in 2001, BioSTL has worked to bring together partners from across the region to transform St. Louis’ economy through bioscience and innovation. From helping launch Cortex in 2002, to supporting science policy through Missouri Cures, to working toward diversity and inclusion through the St. Louis Equity in Entrepreneurship Collective, BioSTL has been committed to collaborative action to improve the community and provide opportunity for all St. Louis citizens. As momentum in the region’s bioscience economy has grown, so has the need for a talented workforce, at all skill levels. While some positions in the sciences do require degrees or significant technical experience, such jobs are only a small portion of career opportunities. Many more jobs exist at entry- to middle-skill level positions. Career paths exist for those with only a high school diploma or equivalent to secure a support level position and then, with training and continued education, to progress through increasingly well-paying jobs.

In 2011, BioSTL (and its subsidiary, BioGenerator) partnered with St. Louis Agency on Training and Employment (SLATE), the Center for Emerging Technologies incubator, St. Louis County Economic Council (now known as St. Louis Economic Development Partnership), and the St. Louis Minority Business Council to secure a $2.5 million Jobs and Innovation Accelerator Challenge grant from the U.S. Department of Commerce, the U.S. Department of Labor, and the U.S. Small Business Administration. Through the grant, BioSTL partnered closely with SLATE to provide on-the-job training resources to emerging science-based startups as they hired their initial employees. Many of these jobs were middle-skill jobs for lab technicians to support research within the companies. Through the program, the St. Louis region learned a significant amount about the employment and workforce needs of science companies and how to engage a workforce of all backgrounds and skill levels.

For St. Louis to continue its growth as a thriving bioscience cluster, local companies need ready access to talent. In addition, individuals from all backgrounds and neighborhoods need
to be able to access job opportunities. Ben Johnson, Vice President, Programs at BioSTL, states “Since 2008, BioSTL has worked through our Bioscience Inclusion Initiative to ensure that new jobs and entrepreneurial opportunities are available to underrepresented and underserved segments of our community. Further, we have been pleased to partner with St. Louis Community College, especially through its Center for Plant and Life Science programs, to grow bioscience education/training and career opportunities in St. Louis.”

In 2017, to further expand St. Louis’ pool of Science, Technology, Engineering, and Math (STEM) talent and ensure equitable access to STEM careers, BioSTL helped launch the St. Louis Regional STEM Ecosystem, “STEMSTL,” initiative – a collaborative consortium committed to equitable access to high-quality STEM learning for all students in the St. Louis metro region. Over the next two years, an intentional effort will be made to engage a wide-ranging, diverse set of stakeholders in shaping St. Louis’ STEM future through a set of key priorities around focus areas that include: 1) Building a Regional Culture of STEM Learning, 2) Enhancing In-Class STEM Education, 3) Ensuring In-Class Learning is Aligned with Quality and Accessible Out-of-Class STEM experiences, and 4) Linking STEM Learning with College and Career Opportunities.

St. Louis’ ability to cultivate talent to fill middle-skill occupations – those requiring postsecondary training and certifications, like an associate degree, but not requiring a bachelor’s degree – will be key to our next decade of growth in the bioscience and innovation economy. Regional partnerships to ensure these career pathways are well-documented and accessible are necessary to link individuals from across the region to a robust network of existing and developing training programs. With improved understanding of employer demand for such talent, and continued development of an ecosystem of connections and collaborations that provide access to these jobs, St. Louis will excel as a leading region for new economy job growth.

**STLCC’s Center for Plant and Life Sciences at BRDG Park**

St. Louis Community College developed the Center for Plant and Life Sciences in response to plant and life sciences industry demands, the Greater Regional Opportunities for Workforce Training and Higher Education (GROWTH) Initiative, and the College’s strategic plan. Drawing on the strength of relevant programming across the district, the
Center interfaces with business and industry to bring STLCC students a cutting-edge education and to provide workforce training in this growing industry.

The Center’s programs currently include biotechnology, clinical lab technology and horticulture. A center director coordinates the ongoing development and expansion of these programs within the context of this emerging high-demand industry in St. Louis. Promoting educational opportunities within the regional corridor of businesses and industries engaged in plant and life sciences initiatives, the Center focuses on building relationships with industry partners and on providing leadership in the development of high-demand programs.

In the last decade, St. Louis Community College at Florissant Valley has developed degree and certificate programs in response to the need for technician-level workers in biotechnology and biopharmaceutical manufacturing.

STLCC actively participates in the continued development of the St. Louis Regional Chamber and Growth Association’s BioBelt branding initiative. Planning activities emerging from the Plant and Life Sciences Advisory Committee include exploring alternatives to campus-based instruction, expanding internships for students in area labs and businesses, and developing partnerships with other groups such as the Donald Danforth Plant Science Center and the Missouri Biotechnology Association, of which STLCC is a founding member.

STLCC’s partnership with NewLeaf Symbiotics is just one example of the innovative relationships being developed with industry. NewLeaf took up residence in the BRDG Park space in 2012, using three STLCC biotechnology student interns who worked on the research needed to get NewLeaf’s product into the ground by the following spring. They were successful and, as a result, were able to get data in the fall that allowed NewLeaf to obtain $7 million in initial funding. “The founders of NewLeaf … decided to stay in St. Louis, build out space in BRDG Park, and hire the three interns who had done the initial research as their first full-time employees.” said Richard Norris, director of the Center for Plant and Life Sciences. Since that time, NewLeaf has exhibited steady growth, now employing more than 30 people in BRDG Park. Seven of their current employees have come from the STLCC’s Biotechnology program. Seven others have completed paid internships with NewLeaf, including one currently interning for the company.
STLCC’s Chancellor, the Center’s director, and a Biotechnology graduate share thoughts on the success of the Center for Plant and Life Sciences, below.

**Dr. Jeff Pittman, Ph. D., Chancellor, St. Louis Community College**

“The facilities and lab equipment that we have in our biotech program is second to none. It’s one of the best in the nation, so we’re very, very proud of that. One really outstanding component of the biotech program here at BRDG Park is students get into paid internship opportunities, so as they’re learning, they’re earning. It gives the companies the opportunity to look the students over and in many cases, they hire our students.”

**Richard Norris, Director, Center for Plant and Life Sciences**

“Embedding workforce development in a real-world scientific environment has created a national model for addressing workforce needs within the plant and life sciences. It also assists growing companies to navigate the critical first five years of their existence and keep them in the St. Louis region as a means for growing the industry locally.”

**Elyse Holder, Biotechnology graduate, St. Louis Community College**

“I chose biotech because there is a lot of diversity within the field. There’s tons of different career paths, whether it’s in medicine or research or helping the environment. So I really like that aspect of it and it’s such a big industry in the area that it would be a really secure path for me to take.”
ACKNOWLEDGEMENTS

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APPENDIX I: STATE OF ST. LOUIS
WORKFORCE EMPLOYER SURVEY 2017

The employer survey was conducted starting May 8, 2017 and finished on July 5, 2017.

Initial Question Employees
First, including yourself, how many employees does your company CURRENTLY employ in the St. Louis area?

- Less than 5 (Thank & Terminate) 01
- 5 to 24 02
- 25 to 49 03
- 50 to 99 04
- 100 or more 05
- (Do not read) Refuse - Thank & Terminate 97
- (Do not read) Don’t know/Not sure - Thank & Terminate 98

1. Over the past 12 months, would you say your employment levels have increased significantly (by 15% or more), increased slightly (by less than 15%), remained the same as before, decreased slightly (by less than 15%), or decreased significantly (by 15% or more)?

- Increased significantly, by 15% or more 01
- Increased slightly, by less than 15% 02
- Remained the same as before 03
- Decreased slightly, by less than 15% 04
- Decreased significantly, by 15% or more 05
- (Do not read) Refuse 97
- (Do not read) Don’t know/Not sure 98

3a. Please tell me if you have encountered the following barriers to expanding your employment level.

(Rotate barriers; ask "Any other barrier?" last)
- Shortage of workers with knowledge or skills 01
- Shortage of available training programs 02
- Economic conditions 03
- Government policies or regulations 04
- Lack of information regarding the occupation 05
- Lack of access to transportation to get to work 06
- Lack of access to child care 07
- Any other barrier? (If "Yes" - Record on next screen) 08
- (Do not read) Have not encountered any barriers to expanding employment level 95
- (Do not read) Not applicable - Not expanding employment level 96
- (Do not read) Refuse 97
- (Do not read) Don’t know/Not sure 98
- (Do not read) Terminate 99

3b. (Re: each barrier named on Q.3a)
Please tell how large a barrier each is to your business using a 1-to-5 scale where 1 is "insignificant" and 5 is a "critical barrier." You may also use any number between 1 and 5. And, if an item is not applicable to your business, please tell me so.

- 1 - Insignificant
- 2
- 3
- 4
- 5 - Critical barrier
- 96 - Not applicable
- 97 - Refuse
- 98 - Don’t know/Not sure
Shortage of workers with knowledge or skills
Shortage of available training programs
Economic conditions
Government policies or regulations
Lack of information regarding the occupation
Lack of access to transportation to get to work
Lack of access to child care
Other barrier

4. If you were to add employees in the next 12 months, which of the following methods would you use?

Read list; enter code for each method would use; enter all that apply.
(Rotate methods)
- Recalling workers from a lay-off list 01
- Hiring new full-time employees 02
- Hiring new part-time employees 03
- Hiring contract workers 04
- Using a temporary agency 05
- (Do not read) Not applicable - Not wanting to expand 95
- (Do not read) Would not use any listed method 96
- (Do not read) Refuse 97
- (Do not read) Don’t know/Not sure 98

5a. Next, I am going to read some possible shortcomings of job applicants and ask if you have or have not seen these characteristics in a significant number of applicants.

(Rotate Q.5a-A thru Q.5a-M)

5a-A. Please tell me if, over the last 12 months, you have or have not noticed a significant number of applicants with a Poor work ethic.

- Have seen this characteristic in job applicants 01
- Have not seen this characteristic in job applicants 02
- (Do not read) Refuse 97
- (Do not read) Don’t know/Not sure 98

5a-B. Please tell me if, over the last 12 months, you have or have not noticed a significant number of applicants with a Lack of general knowledge about business or industry.

- Have seen this characteristic in job applicants 01
- Have not seen this characteristic in job applicants 02
- (Do not read) Refuse 97
- (Do not read) Don’t know/Not sure 98

5a-C. Please tell me if, over the last 12 months, you have or have not noticed a significant number of applicants with a Lack of ability to interact effectively with people of different cultures and socio-economic backgrounds.

- Have seen this characteristic in job applicants 01
- Have not seen this characteristic in job applicants 02
- (Do not read) Refuse 97
- (Do not read) Don’t know/Not sure 98

5a-D. Please tell me if, over the last 12 months, you have or have not noticed a significant number of applicants with a Lack of communication or interpersonal skills.

- Have seen this characteristic in job applicants 01
- Have not seen this characteristic in job applicants 02
- (Do not read) Refuse 97
- (Do not read) Don’t know/Not sure 98

5a-E. Please tell me if, over the last 12 months, you have or have not noticed a significant number of applicants with a Lack of willingness to learn or inability to learn.

- Have seen this characteristic in job applicants 01
- Have not seen this characteristic in job applicants 02
- (Do not read) Refuse 97
- (Do not read) Don’t know/Not sure 98

5a-F. Please tell me if, over the last 12 months, you have or have not noticed a significant number of applicants with a Lack of teamwork or collaboration.

- Have seen this characteristic in job applicants 01
- Have not seen this characteristic in job applicants 02
- (Do not read) Refuse 97
- (Do not read) Don’t know/Not sure 98

5a-G. Please tell me if, over the last 12 months, you have or have not noticed a significant number of applicants with a Lack of general computer skills.

- Have seen this characteristic in job applicants 01
- Have not seen this characteristic in job applicants 02
- (Do not read) Refuse 97
- (Do not read) Don’t know/Not sure 98

5a-H. Please tell me if, over the last 12 months, you have or have not noticed a significant number of applicants with a Lack of critical thinking and problem solving.

- Have seen this characteristic in job applicants 01
5a-I. Please tell me if, over the last 12 months, you have or have not noticed a significant number of applicants with an Inability to think creatively or “out of the box.”

Have seen this characteristic in job applicants 01
Have not seen this characteristic in job applicants 02
(Do not read) Refuse 97
(Do not read) Don’t know/Not sure 98

5a-J. Please tell me if, over the last 12 months, you have or have not noticed a significant number of applicants with a Lack of writing skills.

Have seen this characteristic in job applicants 01
Have not seen this characteristic in job applicants 02
(Do not read) Refuse 97
(Do not read) Don’t know/Not sure 98

5a-K. Please tell me if, over the last 12 months, you have or have not noticed a significant number of applicants with a Lack of basic math skills.

Have seen this characteristic in job applicants 01
Have not seen this characteristic in job applicants 02
(Do not read) Refuse 97
(Do not read) Don’t know/Not sure 98

5a-L. Please tell me if, over the last 12 months, you have or have not noticed a significant number of applicants with a Lack of technical skills specific to the job.

Have seen this characteristic in job applicants 01
Have not seen this characteristic in job applicants 02
(Do not read) Refuse 97
(Do not read) Don’t know/Not sure 98

5a-M. Please tell me if, over the last 12 months, you have or have not noticed a significant number of applicants with an Inability to understand written and graphical information.

Have seen this characteristic in job applicants 01
Have not seen this characteristic in job applicants 02
(Do not read) Refuse 97
(Do not read) Don’t know/Not sure 98

5b. Now, on a scale of 1 to 5 where 1 is "not at all important" and 5 is "very important," how would you rate the importance of applicant shortcomings in the following areas to your business? Again, you may use any number between 1 and 5.

1 - Not at all important
2
3
4
5 - Very important
96 - Not applicable
97 - Refuse
98 - Don’t know/Not sure

(Rotate shortcomings)

Poor work ethic...
Lack of general knowledge about business or industry...
Lack of ability to interact effectively with people of different cultures and socio-economic backgrounds...
Lack of communication or interpersonal skills...
Lack of willingness to learn or inability to learn...
Lack of teamwork and collaboration...
Lack of general computer skills...
Lack of critical thinking and problem solving...
Inability to think creatively or "out of the box"...
Lack of writing skills...
Lack of basic math skills...
Lack of technical skills specific to the job...
Inability to understand written and graphical information...

6a. Are you experiencing a shortage of skilled applicants for your organization?

Yes 01
No 02
(Do not read) Refuse 97
(Do not read) Don’t know/Not sure 98

6b. (If experiencing shortage of skilled applicants per Q.6a) Please tell me the skill level required to meet your skill shortages. Approximately what percentage of the SHORTAGES you are experiencing require high-skill applicants (those with a 4-year degree or higher); middle-skill applicants (training or education beyond high school, but less than a 4-year degree); and low-skill applicants (high school or less).

What percent of positions require...

Answers MUST total 100%
Refuse = 97
Don’t know/Not sure = 98
6c. (If experiencing shortage of skilled applicants per Q.6a) Please tell me if you are taking any of the following measures to meet the skill shortages of applicants.

(Rotate measures)
- Hiring from outside the St. Louis, Missouri/Illinois region
- Hiring from outside the United States
- Hiring contractors
- Forced to hire less experienced workers and then train them
- Invest in automation instead of hiring
- Offering increased wages due to shortage of experienced workers
- (Do not read) Not taking any of listed measures
- (Do not read) Refuse
- (Do not read) Don’t know/Not sure

7. Which of the following methods do you use to assist current workers to address your company’s need for new or increased skills?

Read list; enter all that apply.

(Rotate methods)
- In-house classroom training
- On-the-job training
- Vendor training
- Apprenticeship programs
- Community college provided customized training or education
- Vocational training
- Tuition reimbursement
- Online courses
- Provide flexible schedule for outside continuing education
- (Do not read) Not applicable - Do not need new or increased skills
- (Do not read) Refuse
- (Do not read) Don’t know/Not sure

8. Now we have some questions about your company’s workforce by job function.

8a. Do you employ staff in the Accounting or Finance function?

8aa. (If employ staff in Accounting or Finance function per Q.8a) Are you seeing a shortage of skilled applicants in the Accounting or Finance function?

8aaa. (If seeing shortage of skilled applicants in the Accounting or Finance function per Q.8aa) Please tell me the skill level of applicants required to meet your Accounting or Finance skill shortages. Approximately what percentage of the shortages you are experiencing require high-skill applicants (those with a 4-year degree or higher); middle-skill applicants (training or education beyond high school, but less than a 4-year degree); and low-skill applicants (high school or less).

What percent of positions require ...

Answers MUST total 100%
Refuse = 97
Don’t know/Not sure = 98

8aaaa. (If seeing shortage of skilled applicants in the Accounting or Finance function per Q.8aa) On a scale of 1 to 5 where 1 means “not at all important” and 5 means “very important,” how important to your business is the shortage of middle-skill applicants, those with less than a 4-year degree but more than high school, in the Accounting or Finance function?

1 - Not at all important
2
3
4
5 - Very important
(Do not read) Refuse
(Do not read) Don’t know/Not sure
8b. Do you employ staff in the Information Technology function?

   Yes   01
   No    02
   (Do not read) Refuse 97
   (Do not read) Don’t know/Not sure 98

8bb. (If employ staff in Information Technology function per Q.8b)
Are you seeing a shortage of skilled applicants in the Information Technology function?

   Yes   01
   No    02
   (Do not read) Refuse 97
   (Do not read) Don’t know/Not sure 98

8bbb. (If seeing shortage of skilled applicants in the Information Technology function per Q.8bb)
Please tell me the skill level of applicants required to meet your Information Technology skill shortages. Approximately what percentage of the shortages you are experiencing require high-skill applicants (those with a 4-year degree or higher); middle-skill applicants (training or education beyond high school, but less than a 4-year degree); and low-skill applicants (high school or less).

What percent of positions require ... 

Answers MUST total 100%
Refuse = 97
Don’t know/Not sure = 98

     High-skill, requiring a 4-year degree or higher ___
     Middle-skill, training or education beyond high school, but less than a 4-year degree ___
     Low-skill, requiring high school or less ___

8bbbb. (If seeing shortage of skilled applicants in the Information Technology function per Q.8bbb)
On a scale of 1 to 5 where 1 means “not at all important” and 5 means “very important,” how important to your business is the shortage of middle-skill applicants, those with less than a 4-year degree but more than high school, in the Information Technology function?

   1 - Not at all important  01
   2                        02
   3                        03
   4                        04

8cc. Do you employ staff in the Customer Service function?

   Yes   01
   No    02
   (Do not read) Refuse 97
   (Do not read) Don’t know/Not sure 98

8cc. (If employ staff in Customer Service function per Q.8cc)
Are you seeing a shortage of skilled applicants in the Customer Service function?

   Yes   01
   No    02
   (Do not read) Refuse 97
   (Do not read) Don’t know/Not sure 98

8ccc. (If seeing shortage of skilled applicants in the Customer Service function per Q.8cc)
Please tell me the skill level of applicants required to meet your Customer Service skill shortages. Approximately what percentage of the shortages you are experiencing require high-skill applicants (those with a 4-year degree or higher); middle-skill applicants (training or education beyond high school, but less than a 4-year degree); and low-skill applicants (high school or less).

What percent of positions require ... 

Answers MUST total 100%
Refuse = 97
Don’t know/Not sure = 98

     High-skill, requiring a 4-year degree or higher ___
     Middle-skill, training or education beyond high school, but less than a 4-year degree ___
     Low-skill, requiring high school or less ___

8cccc. (If seeing shortage of skilled applicants in the Customer Service function per Q.8ccc)
On a scale of 1 to 5 where 1 means “not at all important” and 5 means “very important,” how important to your business is the shortage of middle-skill applicants, those with less than a 4-year degree but more than high school, in the Customer Service function?

   1 - Not at all important  01
   2                        02
8d. Do you employ staff in the Business Management function?

Yes 01
No 02
(Do not read) Refuse 97
(Do not read) Don’t know/Not sure 98

8dd. (If employ staff in Business Management function per Q.8d)
Are you seeing a shortage of skilled applicants in the Business Management function?

Yes 01
No 02
(Do not read) Refuse 97
(Do not read) Don’t know/Not sure 98

8ddd. (If seeing shortage of skilled applicants in the Business Management function per Q.8dd)
Please tell me the skill level of applicants required to meet your Business Management skill shortages. Approximately what percentage of the shortages you are experiencing require high-skill applicants (those with a 4-year degree or higher); middle-skill applicants (training or education beyond high school, but less than a 4-year degree); and low-skill applicants (high school or less).

What percent of positions require ...

Answers MUST total 100%
Refuse = 97
Don’t know/Not sure = 98

High-skill, requiring a 4-year degree or higher ___
Middle-skill, training or education beyond high school, but less than a 4-year degree ___
Low-skill, requiring high school or less ___

8dddd. (If seeing shortage of skilled applicants in the Business Management function per Q.8ddd)
On a scale of 1 to 5 where 1 means “not at all important” and 5 means “very important,” how important to your business is the shortage of middle-skill applicants, those with less than a 4-year degree but more than high school, in the Business Management function?

1 - Not at all important 01
2 02
3 03
4 04
5 - Very important 05
(Do not read) Refuse 97
(Do not read) Don’t know/Not sure 98

8e. Do you employ staff in the Skilled Trades function?

Yes 01
No 02
(Do not read) Refuse 97
(Do not read) Don’t know/Not sure 98

8ee. (If employ staff in Skilled Trades function per Q.8e)
Are you seeing a shortage of skilled applicants in the Skilled Trades function?

Yes 01
No 02
(Do not read) Refuse 97
(Do not read) Don’t know/Not sure 98

8eee. (If seeing shortage of skilled applicants in the Skilled Trades function per Q.8ee)
Please tell me the skill level of applicants required to meet your Skilled Trades skill shortages. Approximately what percentage of the shortages you are experiencing require high-skill applicants (those with a 4-year degree or higher); middle-skill applicants (training or education beyond high school, but less than a 4-year degree); and low-skill applicants (high school or less).

What percent of positions require ...

Answers MUST total 100%
Refuse = 97
Don’t know/Not sure = 98

High-skill, requiring a 4-year degree or higher ___
Middle-skill, training or education beyond high school, but less than a 4-year degree ___
Low-skill, requiring high school or less ___

8eeee. (If seeing shortage of skilled applicants in the Skilled Trades function per Q.8eee)
On a scale of 1 to 5 where 1 means "not at all important" and 5 means "very important," how important to your business is the shortage of middle-skill applicants, those with less than a 4-year degree but more than high school, in the Skilled Trades function?

1 - Not at all important 01
2 02
3 03
4 04
5 - Very important 05
(Do not read) Refuse 97
(Do not read) Don’t know/Not sure 98

8f. Do you employ staff in the Manufacturing, Production & Maintenance function?

Yes 01
No 02
(Do not read) Refuse 97
(Do not read) Don’t know/Not sure 98

8ff. (If employ staff in Manufacturing, Production & Maintenance function per Q.8f)
Are you seeing a shortage of skilled applicants in the Manufacturing, Production & Maintenance function?

Yes 01
No 02
(Do not read) Refuse 97
(Do not read) Don’t know/Not sure 98

8fff. (If seeing shortage of skilled applicants in the Manufacturing, Production & Maintenance function per Q.8ff)
Please tell me the skill level of applicants required to meet your Manufacturing, Production & Maintenance skill shortages. Approximately what percentage of the shortages you are experiencing require high-skill applicants (those with a 4-year degree or higher); middle-skill applicants (training or education beyond high school, but less than a 4-year degree); and low-skill applicants (high school or less). What percent of positions require ... Answers MUST total 100%
Refuse = 97
Don’t know/Not sure = 98

High-skill, requiring a 4-year degree or higher ___
Middle-skill, training or education beyond high school, but less than a 4-year degree ___

8g. Do you employ staff in the Patient Care function?

Yes 01
No 02
(Do not read) Refuse 97
(Do not read) Don’t know/Not sure 98

8gg. (If employ staff in Patient Care function per Q.8g)
Are you seeing a shortage of skilled applicants in the Patient Care function?

Yes 01
No 02
(Do not read) Refuse 97
(Do not read) Don’t know/Not sure 98

8ggg. (If seeing shortage of skilled applicants in the Patient Care function per Q.8gg)
Please tell me the skill level of applicants required to meet your Patient Care skill shortages. Approximately what percentage of the shortages you are experiencing require high-skill applicants (those with a 4-year degree or higher); middle-skill applicants (training or education beyond high school, but less than a 4-year degree); and low-skill applicants (high school or less). What percent of positions require ...

Answers MUST total 100%
Refuse = 97
Don’t know/Not sure = 98

High-skill, requiring a 4-year degree or higher ___
Middle-skill, training or education beyond high school, but less than a 4-year degree
Low-skill, requiring high school or less

8ggg. (If seeing shortage of skilled applicants in the Patient Care function per Q.8gg)
On a scale of 1 to 5 where 1 means “not at all important” and 5 means “very important,” how important to your business is the shortage of middle-skill applicants, those with less than a 4-year degree but more than high school, in the Patient Care function?

1 - Not at all important
2
3
4
5 - Very important
(Do not read) Refuse
(Do not read) Don’t know/Not sure

9. In your business, what percentage of positions requires each of the following levels of experience? What percent of positions require ...

Answers MUST total 100%
Refuse = 97
Don’t know/Not sure = 98
A minimum of 4 or more years of experience
A minimum of 1 to 3 years of experience
Some experience, but less than 1 year
No experience

10. In your business, what percentage of your total employees requires each of the following levels of education as a minimum requirement? What percent of positions require...

Answers MUST total 100%
Refuse = 97
Don’t know/Not sure = 98
High-skill, requiring a 4-year degree or higher
Middle-skill, training or education beyond high school, but less than a 4-year degree
Low-skill, requiring high school or less

11. What percentage of jobs in your business are available for individuals with industry relevant short-term training, meaning not more than 6 months past high school?

No jobs
1 to 25% of jobs
26 to 50% of jobs
51 to 75% of jobs
76 to 100% of jobs
(Do not read) Refuse
(Do not read) Don’t know/Not sure

12. Rank the importance of the following factors in advancing a worker on the career or skill ladder in your organization, where “1” is most important. (Do not read. Read the four factors and then ask them to rank).

Refuse = 97
Don’t know/Not sure = 98
Length of job experience
Demonstrated job performance
Completing an industry-recognized credential
Receiving an educational degree