



talent **FOUND**

**THE COLORADO**

# **TALENT PIPELINE REPORT**

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**2016**

**DISCOVER ABILITY > DEVELOP TALENT > FIND SUCCESS**

In accordance with C.R.S. 24-46.3- 103, this Talent Pipeline Report was prepared by the Colorado Workforce Development Council (CWDC) in partnership with the Department of Higher Education, the Department of Education, the Department of Labor and Employment (including the Division of Labor Standards and Statistics), and the Office of Economic Development and International Trade, with support from the Office of State Planning and Budgeting, the State Demography Office at the Department of Local Affairs, the Department of Human Services, and the Department of Regulatory Affairs, along with other partners.

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**TalentFOUND** is the brand of the statewide talent development network. It is a joint effort of partners working to ensure that students, job seekers, workers, and businesses can find the tools, programs, and resources they need to **design their own unique path to success.**

The Colorado talent development network is broad and diverse, including all systems, partners, programs, and initiatives working to build a strong talent pipeline for Colorado. Our students, job seekers, workers, and businesses need help navigating this sprawling, decentralized network -- TalentFOUND will be their guide.

**Key components of TalentFOUND to be created for spring 2017 full launch:**

- **Electronic gateway that filters database of assets via logic tree** to help students, job seekers, workers, and businesses access the tools and resources of the talent development network already in existence that best help each one find their own unique path to success
- **Public service announcement videos and digital ads** to help raise general public's awareness
- **Affiliate communications toolkit** containing content to share among their networks
- **Repository of real life success stories** to help strengthen the telling of the Colorado story

TalentFOUND is NOT designed to replicate the many sites and information points already available. It is intended to help visitors connect more efficiently with those resources that

best fit their individual needs. Additionally, TalentFOUND is not looking to prescribe anything about the way organizations provide services, nor is it to replace existing marketing, branding, or communications efforts.

**Outcomes: Students, job seekers, and workers** will have the information they need to explore a variety of education and training and career opportunities and more easily access the resources already available to help set and achieve their career goals. **Businesses** will use the Colorado talent development network as a reason for staying in, coming to, and expanding in Colorado. **Affiliates** will be able to communicate their role in the network and the benefits to students, job seekers, workers, and businesses. **Elected officials and community leaders** will see the value of the network and the resulting talent pipeline. **State agencies and the administration** will have access to common talking points and real success stories, ensuring a more consistent and stronger telling of the Colorado story.

At this time, we continue gathering feedback from partners, mapping assets for the gateway, creating the components for the spring 2017 launch, and recruiting charter affiliates. The September 2016 release of this report marks the soft launch of TalentFOUND as the overarching brand of the talent development network. A temporary landing page is live at [talentfound.org](http://talentfound.org) where any organization that is part of the network can learn more and sign up to become a charter affiliate of TalentFOUND.

As the Talent Pipeline Report tells the story of the talent development network through data and is a collaboration of network partners, we are excited for it to be the first use of the TalentFOUND brand.

# EXECUTIVE SUMMARY

**H**aving the right mix of talent is critical to supporting the growth of Colorado businesses, continuing to attract new business to the state, and ensuring that Coloradans have good job opportunities. This report explores issues impacting talent in the state, from the evolving labor market to changing demographics to postsecondary education outcomes.

Like in previous reports, we explore jobs that are high demand, high growth jobs that pay a living wage. This year we look at two earnings tiers: one that includes jobs meeting a living wage for a family of three (one working adult), another that includes jobs meeting a living wage for an individual. Job openings in the higher earnings tier are largely concentrated in healthcare practitioners and technical, business and finance, IT, and engineering occupations. Job openings in the lower earnings tier are largely concentrated in construction, office and administrative support, healthcare support, and education occupations. For job openings in the higher earnings tier, nearly all typically require formal education or training beyond high school for entry into the field, while the lower earnings tier offers far more opportunity for workers without education or training beyond high school.

In an effort to better understand in-demand, employer-sought skills, we look to trends in today's online job postings. While technical skills certainly vary depending on the occupation type and/or industry, among the most commonly posted professional competencies are oral and written communication, problem solving, and integrity. Studies show that work-based learning may have an advantage in developing certain skills, such as trustworthiness and teamwork, while school-based learning may have a comparative advantage in developing analytical thinking and the joy of learning.

Colorado is engaged in a range of programs and initiatives supporting talent development. Activity focusing on experiential work-based learning opportunities is guided by the Governor-appointed Business Experiential Learning (BEL) Commission, and occurring through initiatives such as CareerWise Colorado's youth apprenticeships. A statewide two-generation work group is engaged in expanding the implementation of two-generation strategies across more agencies and organizations. The Colorado Department of Labor and Employment offers numerous career services for veterans, serving over 18,000 veterans during the 2015 program year. Sector strategies continue to expand, with 21 active or emerging sector partnerships across the state focusing on industries such as healthcare, manufacturing, and agriculture, and over 450 involved businesses. Colorado has also been actively working on further developing career pathways; for example, legislation (HB 15-1274) has guided the development of IT career pathways, as well as those for healthcare and construction.

Recommendations include:

- Promote apprenticeships by creating a strong foundation of youth apprenticeships that integrate secondary education, postsecondary education, and work.
- Support the cross-agency 2-Gen approach, and focus on "two-generation approaches" that work with both parents/ caretakers and children to improve education and work outcomes.
- Support streamlined regulations of credentialing to result in a more rapid response to filling high demand occupations.

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# INTRODUCTION

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**H**aving the right mix of talent is critical to supporting the growth of Colorado businesses, continuing to attract new business to the state, and ensuring that Coloradans have good job opportunities. In this year's Talent Pipeline Report, we explore:

- Top talent issues of today;
- Top jobs and skills; and
- Talent development strategies.

# TOP TALENT ISSUES EXPLAINED

## THE FUTURE OF JOBS

The labor market is evolving faster than ever through the influence of technological innovations. How is this impacting talent?

- **Job qualifications are shifting.** While some jobs are becoming automated, many require increasingly higher levels of technology literacy to operate more advanced systems and procedures. More than ever, workers must have a “liquid skills mindset”—a “flexible, ongoing approach to skills accumulation” in response to volatility in the labor market (Infosys, p. 23).

As a result of technological advancements, the “ability to work with data and make data-based decisions will become an increasingly vital skill across many job families” (World Economic Forum, 2016, p. 21). Astutely, college students tend to believe that both interpersonal skills and agility with workforce-related technology help improve job prospects, with business and economics and STEM majors putting more emphasis on the importance of having a degree in what they perceive as a “marketable field,” over arts and humanities and social sciences majors (McGraw Hill, 2016).

It’s difficult to adapt fast enough to shifting job qualifications, as many jobs are requiring higher levels of technology literacy and a more flexible skills accumulation mindset.

- **Society can’t adapt fast enough.** Nearly half of young workers in the United States find that their formal education did not prepare them for their work life (Infosys, 2016), suggesting an opportunity to fill a gap between education and employment through work-based learning opportunities. Yet, while the majority of young workers have to learn new skills for their job, more than half are optimistic about their future job prospects (Infosys, 2016). Demographics also impact talent demands—for example, the role and importance of women as talent and consumers has been increasing, and the longevity of aging populations will also impact both talent needs and the nature of consumers (WEF, 2016).

- **Globalization of the economy.** Young people believe they are dealing with a more competitive job market as a result of increased globalization (Infosys, 2016). As a state, we compete nationally and internationally for talent, especially as new

technologies innovate work environments (e.g. working remotely, teleconferencing). For some types of jobs this means that increasingly, “work is what people do and not where they do it,” forcing organizations to become more agile if they wish to stay competitive (WEF, 2016, p. 30).



# THE GIG ECONOMY

With the emergence of online platforms, such as Uber and Taskrabbit, that directly connect a consumer with a provider of services or products, the concept of a seemingly more ubiquitous “gig economy” has evolved. How significant is this segment of the workforce? Does a “gig worker” truly benefit from such arrangements?

- Nationally, only about 0.5 percent of all workers rely primarily on an online gig economy platform (such as Uber) for their income. For the most part, alternative work arrangements—such as contract, on-call or temporary work—do not involve work coordinated through such online platforms, although this online gig workforce is, in fact, rapidly growing (Katz and Krueger, 2016).

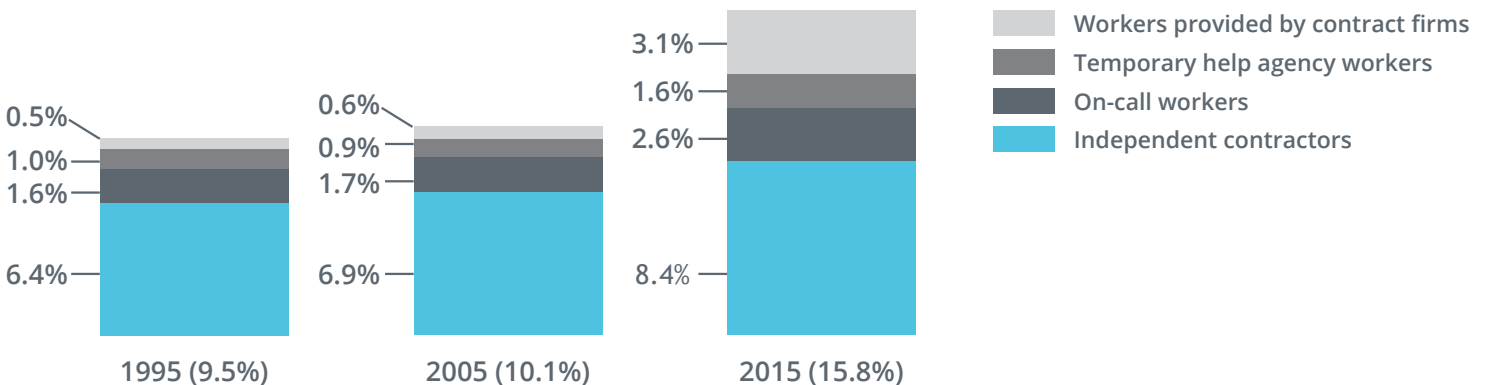
About 0.5% of all workers rely on an online gig platform (such as Uber) for primary income.

- Most workers who earn income through an online gig economy platform already have other jobs as their main income source. A JP Morgan Chase Institute study (2015) found that 82 percent of gig economy platform users (e.g. Uber drivers, TaskRabbit Taskers) relied on these earnings for less than 25 percent of their total income.

Older workers have seen the greatest increases in alternative work arrangements.

- Workers with their main job as an alternative work arrangement increased from 10.1 to 15.8 percent of all workers over the past decade, with the largest increase being seen in contracted workers (Katz and Krueger, 2016). See Figure 1 below.
- Through a combination of business cycles and workers’ changing ideals, there are cycles in entrepreneurial activity. There is typically growth in sole proprietorships/ entrepreneurship during a recession as people creatively pursue an income, which eventually declines as more workers return to traditional employment.
- The largest increase in the share of workers employed in alternative work arrangements as their main job is among workers over the age of 55. The percentages of women and Hispanic workers employed in an alternative work arrangement have also increased substantially (Katz and Krueger, 2016).
- Jobs in the gig economy may lack health insurance, retirement plans, guarantee of a specific income, and other benefits; also, a gig economy worker is typically considered an independent contractor and not an employee, thus not covered by various labor laws. However, many people value on-demand work opportunities for the flexibility and the opportunity presented through low operating costs, or for the option to work part-time as a retiree or student.

Figure 1. Breakdown of the Gig Economy in the United States



\*Percentages may not total due to rounding. Source: Data based on Katz and Krueger’s 2016 analysis

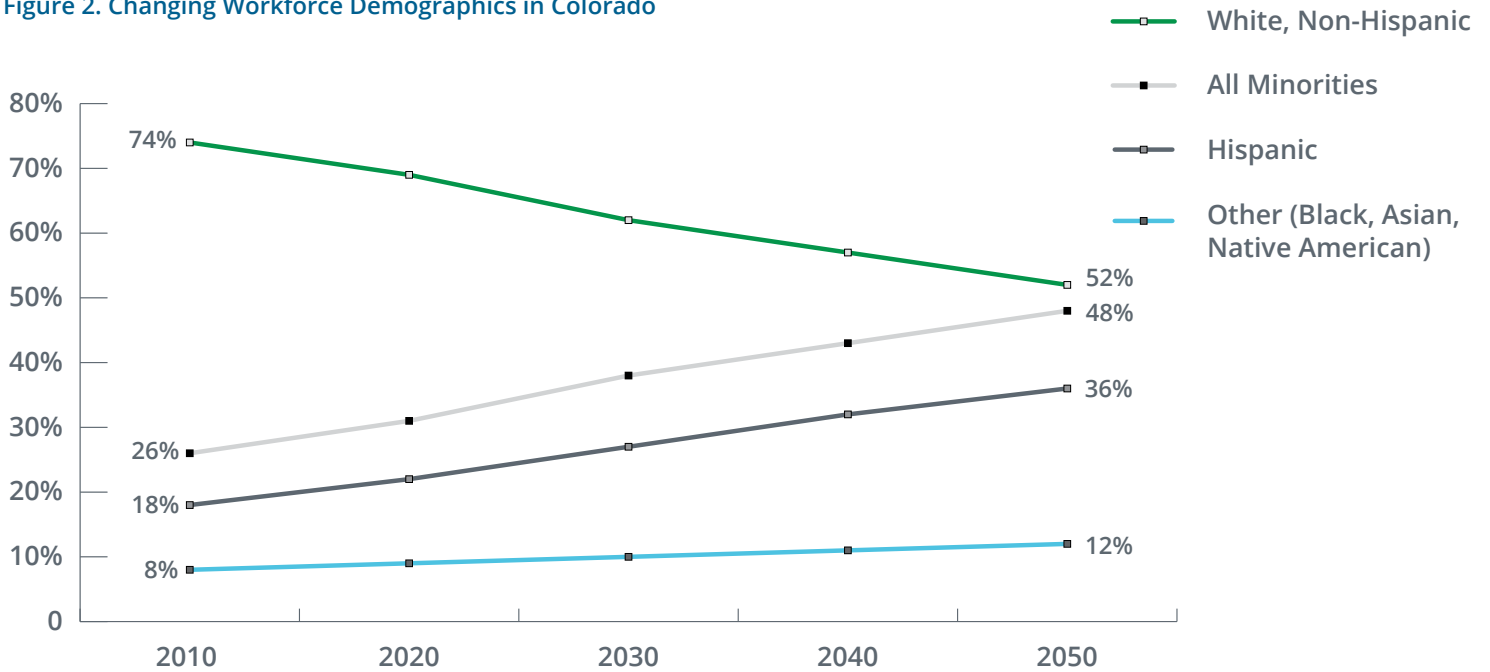
## THE FUTURE OF TALENT

- In various regions of the state, there is a relatively strong economy with low unemployment rates and growing job opportunities, and educated newcomers continue to move to the state. It is important to understand how changing demographics have the power to impact characteristics of our future workforce.

- The racial and ethnic composition of our state’s population is experiencing dramatic shifts—by 2050 our workforce will near a 50 percent balance between our majority and minority populations. Why does this matter? We have significant disparities in education levels between the majority white non-Hispanic adult population and Hispanic, black, and Native American populations—so much so that if we do not see continued improvement in educational attainment levels, we will see declines in the education levels of our adult population. This is not just an “education” issue, but a “workforce” issue.

By 2050, our workforce will near a 50/50 balance between our majority white and minority populations.

Figure 2. Changing Workforce Demographics in Colorado

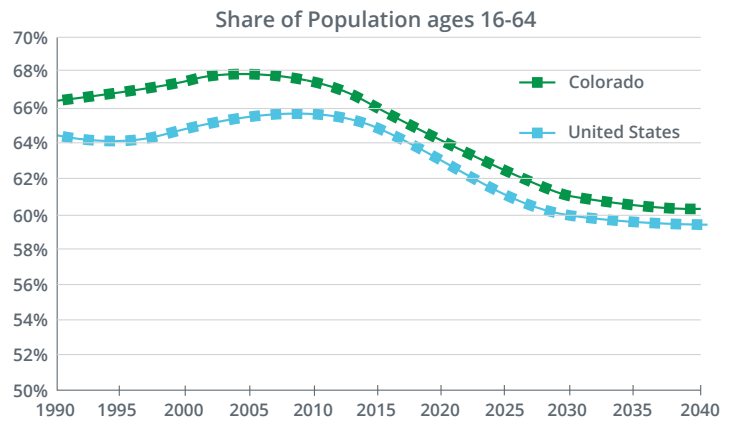


Source: Based on Colorado State Demographer’s population projections

- The total labor force participation rate will continue to decline as aging baby boomers exit the labor force.
- The labor force in Colorado will continue to increase in size, but at a slower rate than historical growth. By 2040, the labor force will be larger in number, older, and include a larger share of females. It will also be smaller relative to the total population it supports.

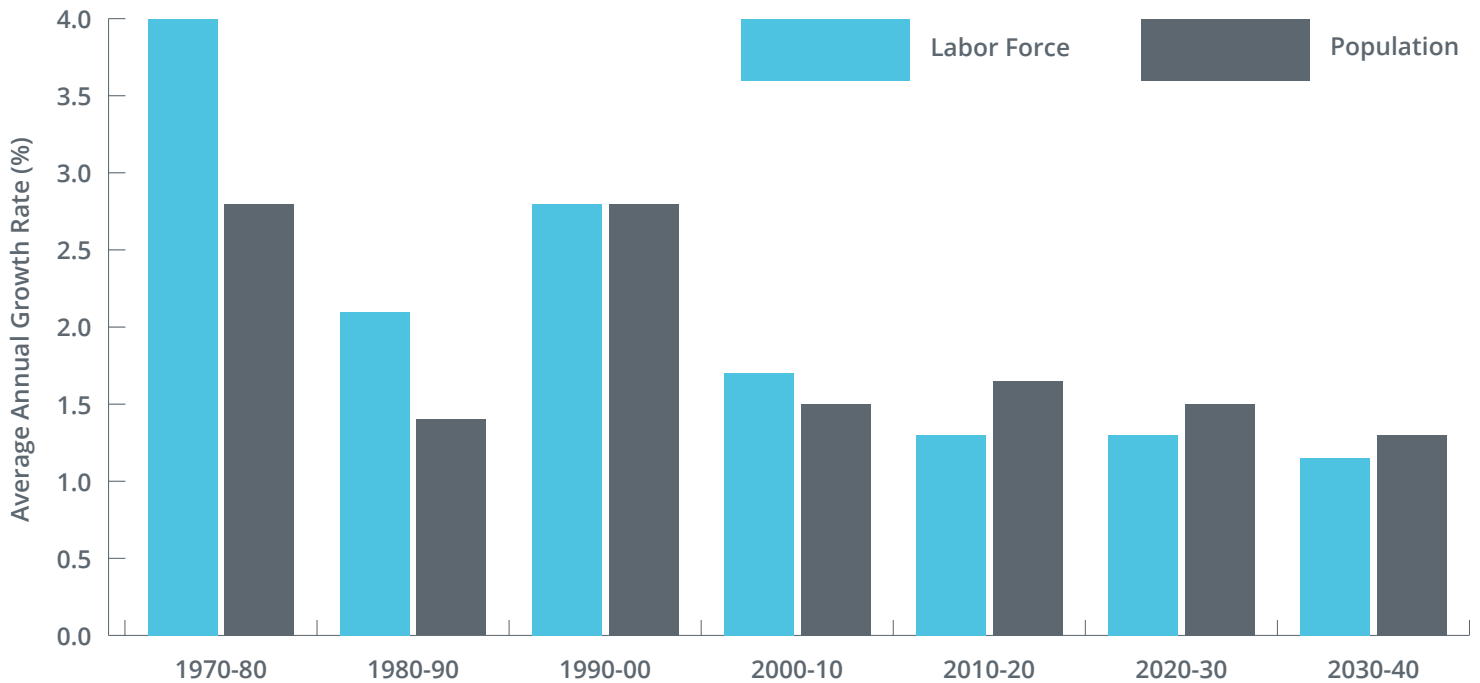
While we've had a younger population than the nation in recent years, the aging of the Baby Boomers will change Colorado's age distribution rapidly. We are increasingly looking more like the nation.

Figure 3. The Change in Age Distribution in Colorado



Source: Colorado State Demographer

Figure 4. The Growth Rate for the Colorado Labor Force

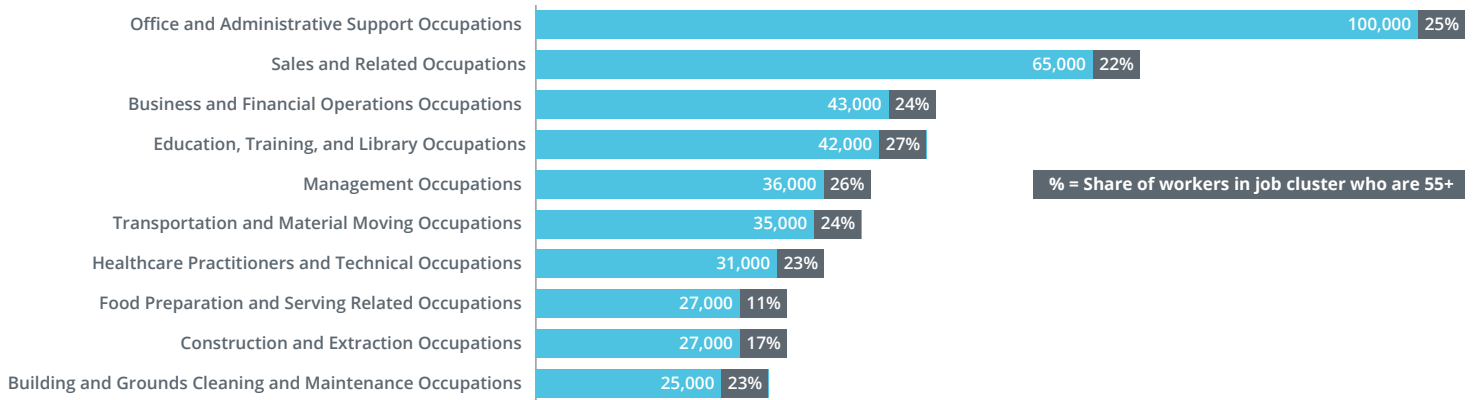


Source: Colorado State Demographer

The Colorado labor force will continue to grow, but at a much slower rate than historical growth.

- Certain occupation clusters have high numbers of workers nearing retirement, including:
  - Office and administrative support occupations (100,000 workers, or 25 percent of workers in this occupation cluster)
  - Sales and related occupations (65,000 workers, or 22 percent of workers in this occupation cluster)
  - Business and finance occupations (43,000 workers, or 24 percent of workers in this occupation cluster)
  - Education, training, and library occupations (42,000 workers, or 27 percent of workers in occupation cluster)

Figure 5. Occupation clusters with the largest number of workers who are 55+

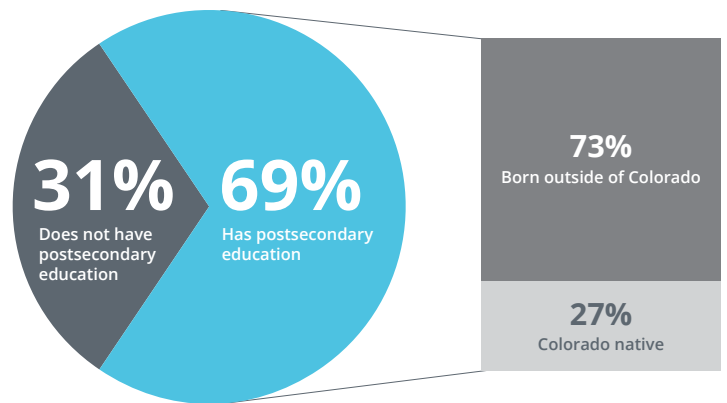


Source: EMSI 2016.3

## WHAT ABOUT THE COLORADO PARADOX?

- For many years, policy leaders and others misleadingly used the term “Colorado Paradox” as a way to describe the fact that Colorado ranked high in percentage of adults with postsecondary credentials, but low in the education attainment of its own students.
- Colorado attracts a highly educated population and consistently ranks as one of the top states to do so. It is also true that the majority of educated workers in Colorado were not born in Colorado; however, the majority of all adults (70 percent) were not born in Colorado.
- The education levels of Colorado-born adults are actually higher than education levels typically seen across all states for native-born adults who remain in their state of birth. Adults with higher levels of education tend to have more geographic mobility (explaining in part why people who move across state lines tend to be well-educated), so we have done relatively well in continuing to be an attractive place to live for our educated Colorado-born population. Ultimately, we need to have an infrastructure that keeps Colorado attractive to any skilled workforce no matter where they are born, ensuring quality and alignment between education and work opportunities, and a high quality of life.

Figure 6. Education Levels by Place of Birth



Source: U.S. Census Bureau; 2015 American Community Survey, 1-year estimates

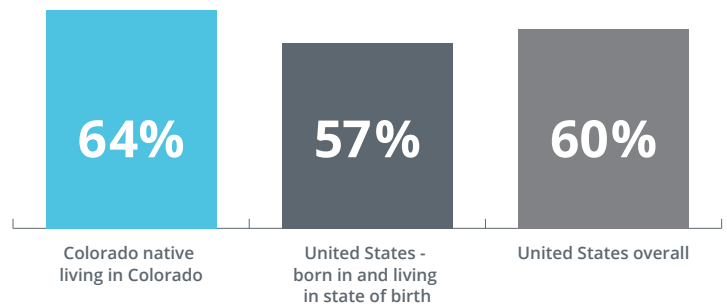
More than 70 percent of Colorado adults with education beyond high school were not born in Colorado. Overall, 70 percent of Colorado adults were not born in Colorado.

What is the issue at play in terms of educating talent in Colorado? Much of the challenge is in our changing demographics. As we have discussed in previous reports, Colorado—like most states—has an educational pipeline with numerous leaks, from on-time high school graduation through college enrollment and graduation. Unfortunately, like the rest of the nation, the leaks are far more pronounced for Hispanic, black, Native American, and low-income youth. With such a large and growing young Hispanic population, the impact of these inequities will continue to increase and be manifested in disparate education levels of our future adult population, unless we make changes in student success rates today. In our current adult populations, the gap already exists—54 percent of non-Hispanic white adults have a college degree, while 21 percent of Hispanic adults have a college degree (U.S. Census Bureau, 2015).

## COLORADO'S TO DO LIST:

1. GROW OUR OWN TALENT
2. ATTRACT THE BEST TALENT
3. RETAIN TALENT

**Figure 7. Percentage of Adults with Some College Experience and Above for Colorado Natives, Other States' Natives, and Overall United States**

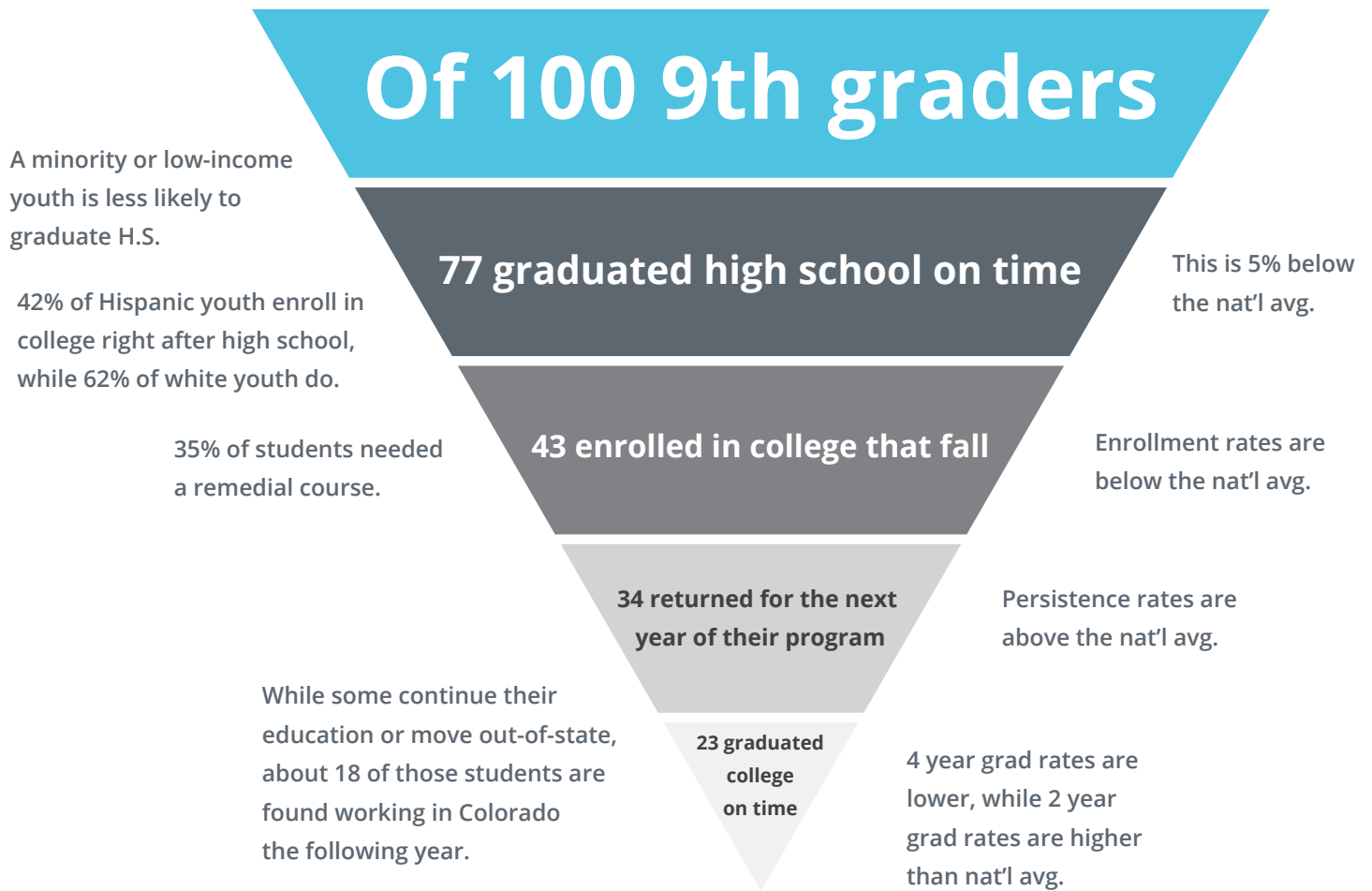


Source: U.S. Census Bureau; 2015 American Community Survey, 1-year estimates

We need to stay attractive to both businesses and our workforce, through maintaining features such as access to a high quality of life, vibrant communities and natural amenities.

The above serve as examples of factors that rank high per the Office of Economic Development and International Trade (OEDIT) business and talent surveys.

Figure 8. The K-12 - College Talent Pipeline in Colorado



While only 56 percent of high school graduates immediately enroll at a community college or university, a higher share of the adult population has at least some college experience. This differential is due to multiple factors, including the impact of Coloradans who matriculate into college as adults (about 40 percent of undergraduate students are over the age of 25) or obtain credentials through private occupational schools.

What about other pathways to success? Colorado does not have complete information about how our students are progressing through educational and training options outside the path of attending a college or university. There are many other postsecondary training options, including the military or work-based training and industry certification programs, which develop an individual's skills and lead to employment.

We know that there are many in-demand jobs that rely on apprenticeships and work-based learning to develop their talent (see the complete top jobs list in the Appendix, for example), and many more in-demand jobs that could etch out similar articulated training pathways. For many of these opportunities, information for students and counselors is not readily and systematically available. A comprehensive state resource providing such information could help streamline and strengthen these pathways.

For more data updates on education and employment throughout the year, visit our [data dashboard](#).

## THE IMPACT OF POSTSECONDARY EDUCATION

- As of July 2016, Colorado continues to see one of the lowest unemployment and underemployment rates in the nation, at 3.4 percent and 7.3 percent, respectively. The underemployment rate (that is, people who are involuntary part-time workers or whose skills are not being fully utilized in their current position) is the lowest it has been since 2007, prior to the Great Recession.
- Unemployment varies depending on education level. Among individuals with higher education levels, there tends to be a low unemployment rate and a higher rate of participation in the labor force, as well as a higher earnings potential. Among workers with less than a high school diploma the rate is similarly low in this Colorado dataset, but this is likely due to this segment being marginally engaged in the workforce, with low participation rates and lower skill levels. Their engagement is less stable, with many workers entering the workforce in low paying, low skill positions seasonally, whether it is their preference or not. This is also a much smaller segment of the state population, so shifts in behavior show up more dramatically in the data.

Table 1. Comparison of Unemployment Rates

|                      | Unemployment Rate (U-3) | Underemployment Rate (U-6) |
|----------------------|-------------------------|----------------------------|
| <b>Colorado</b>      | 3.4%                    | 7.3%                       |
| <b>Arizona</b>       | 5.7%                    | 11.3%                      |
| <b>Utah</b>          | 3.8%                    | 7.8%                       |
| <b>Washington</b>    | 5.7%                    | 10.7%                      |
| <b>United States</b> | 5.0%                    | 9.9%                       |

Source: Bureau of Labor Statistics, 2016. 3rd quarter of 2015 through 2nd quarter of 2016 averages.

Colorado's unemployment (3.4%) and underemployment (7.3%) rates are some of the lowest in the country.

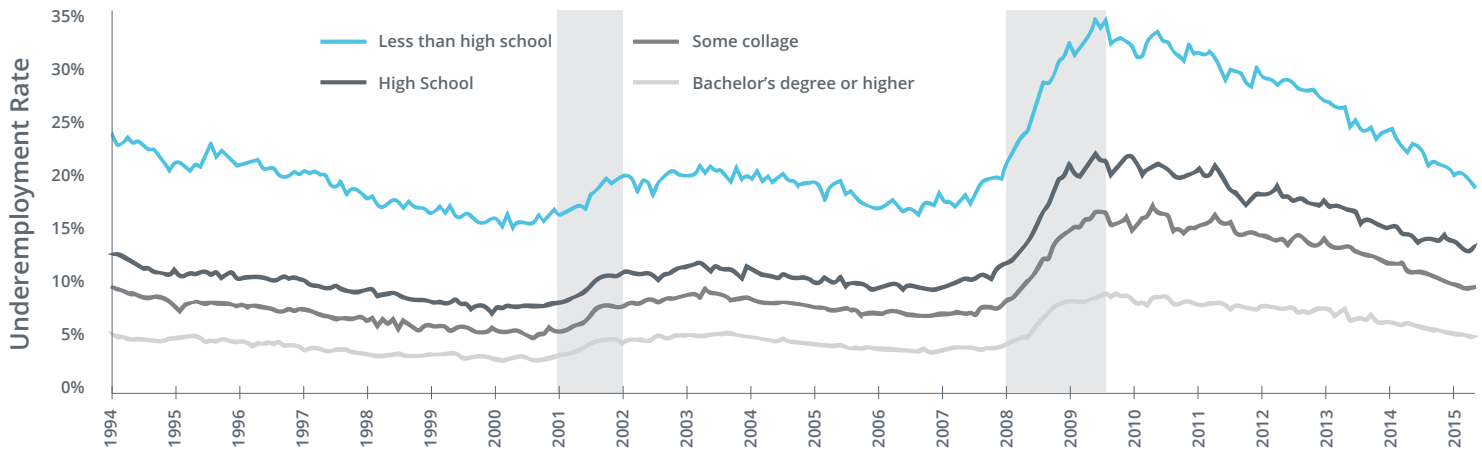
Table 2. Colorado and National Employment Statistics by Education Levels

| Educational Attainment                     | Labor Force Participation Rate - CO | Labor Force Participation Rate - US | Unemployment Rate (U-3) - CO | Unemployment Rate (U-3) - US | Median Earnings - CO | Median Earnings - US |
|--|-------------------------------------|-------------------------------------|------------------------------|------------------------------|----------------------|----------------------|
| Less than a high school diploma            | 52.1%                               | 45.4%                               | 2.5%                         | 8.0%                         | \$25,304             | \$21,320             |
| High school graduate or equiv., no college | 59.5%                               | 57.2%                               | 4.2%                         | 5.4%                         | \$31,280             | \$29,004             |
| Some college or associate degree           | 65.2%                               | 66.6%                               | 2.9%                         | 4.5%                         | \$35,392             | \$34,377             |
| Bachelor's degree                          | 71.7%                               | 74.4%                               | 2.2%                         | 2.6%                         | \$50,196             | \$50,930             |
| Graduate or professional degree            |                                     |                                     |                              |                              | \$63,270             | \$67,286             |

Source: For labor force participation and unemployment rates - Current Population Survey, 2016. For median earnings - U.S. Census Bureau; 2015 American Community Survey, 1-year estimates.

- Underemployment rates are still typically lowest for workers with the most education ([Economic Policy Institute analysis](#) of Bureau of Labor Statistics CPS monthly microdata). While not a new phenomenon, it is also not unusual for recent college graduates to have elevated levels of underemployment in comparison to the greater college educated population, as it may take some time for them to transition into a career (Abel & Deitz, 2016; Abel, Deitz & Su, 2014).

Figure 9. Underemployment Rate of Workers by Education Level in the United States, 1994-2015



Note: Shaded areas denote recessions.

Definition: Underemployment is measured to correspond to the Bureau of Labor Statistics' U-6 measure as "total unemployed, plus all persons marginally attached to the labor force, plus total employed part time for economic reasons, as a percent of the civilian labor force plus all persons marginally attached to the labor force." Underemployment is seasonally adjusted.

Source: EPI analysis of Bureau of Labor Statistics basic CPS monthly microdata

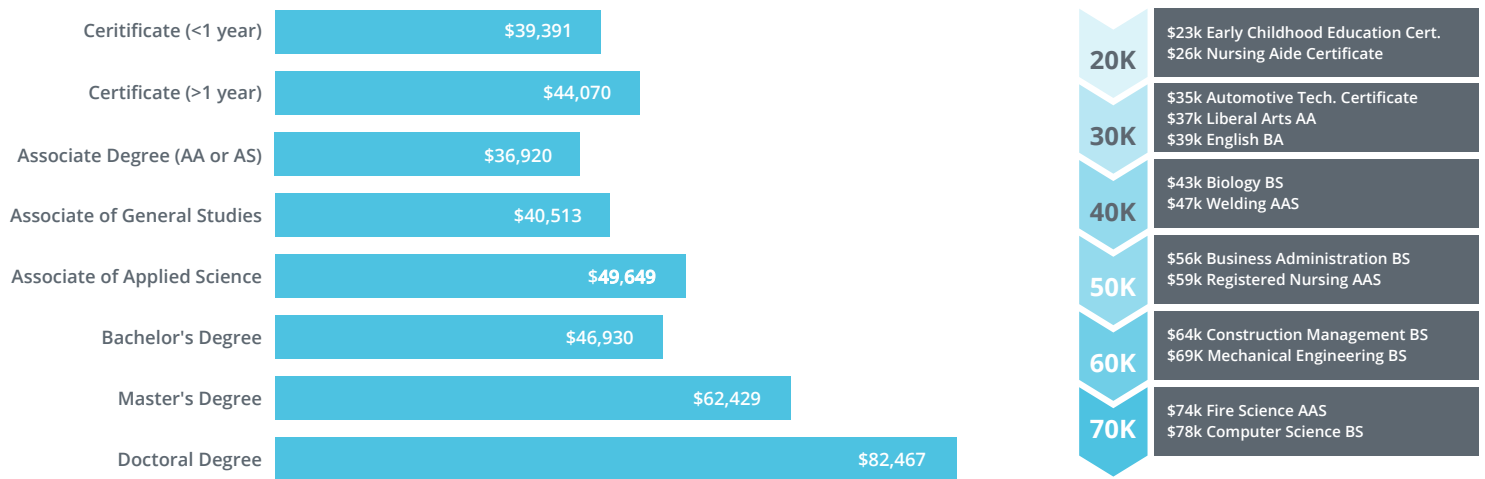
- Digging deeper, median earnings outcomes vary depending on college credential and major. Postsecondary credentials with high market value can be found at all levels, but what individuals study influences their initial earnings potential. While higher earnings are not the only benefit of postsecondary education, with students assuming a larger share of educational costs in recent years, this piece of the decision-making process is probably of greater interest to students and families than ever before.

### What is Postsecondary Education?

Educational options following successful graduation from high school (or high school equivalency) include, but are not limited to: certificate program, degree program, military training, or apprenticeship program.



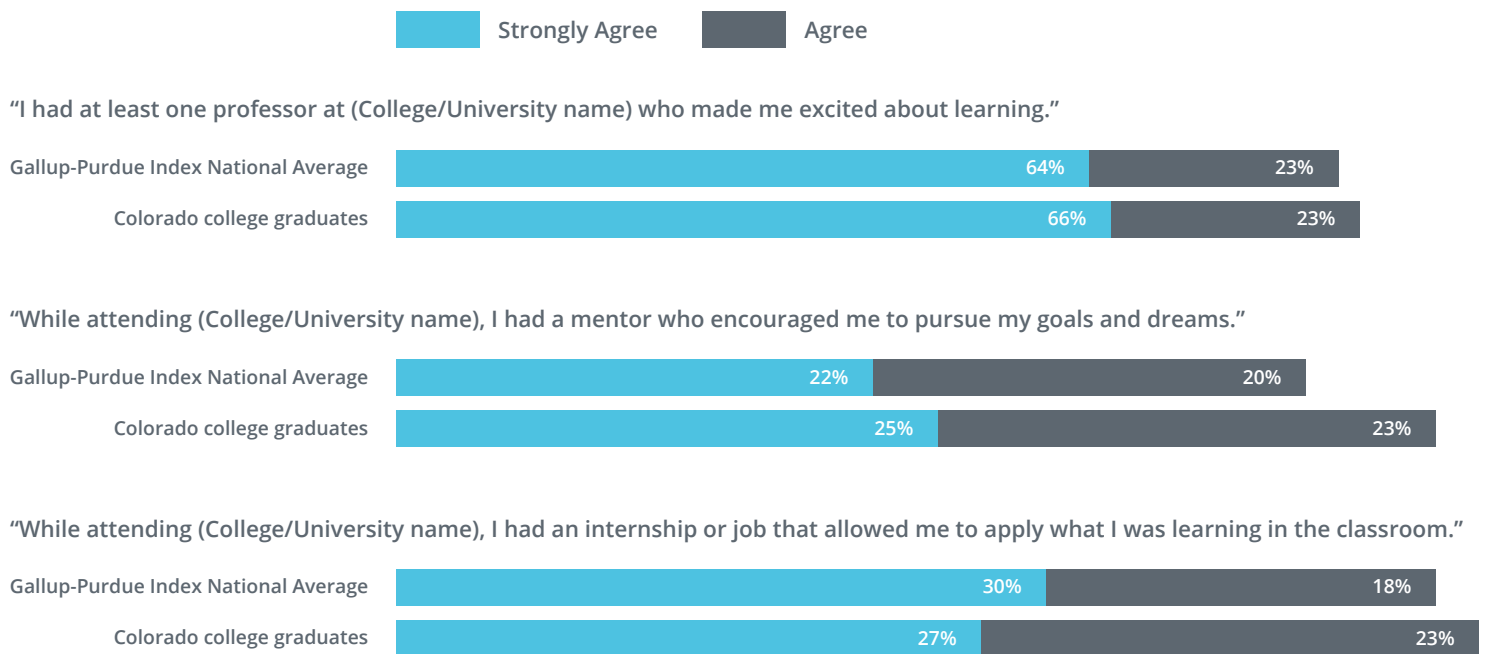
Figure 10. What You Study Matters: Median Earnings 5 Years Following Graduation



Source: Colorado Department of Higher Education

- More than just preparation for earnings potential, furthering one’s education provides benefits in other life skills and fulfillment. Recent studies have explored the relationship between certain positive experiences during college and subsequent success in the work environment. Students have the opportunity to interact with educators who make them excited about learning and serve as mentors, and gain the skills to garner positive social and emotional well-being throughout their lives. Research shows that if graduates received emotional support, mentorship, and participated in experiential learning opportunities while in college, their odds of being engaged at work are significantly higher (Gallup-Purdue, 2015).

Figure 11. Important Factors Influencing College Graduates’ Later Engagement at Work and Well-Being



- As already noted, apprenticeships are valuable postsecondary training opportunities, offering a pathway to a profession integrating experiential, on-the-job training with classroom instruction rather than relying solely on an academic education and/or examination. Colorado has initiatives underway and is increasing apprenticeship opportunities, though misperceptions still exist—for example, that they are never paid or that they preclude one from pursuing a college degree. From an economic standpoint, countries that have abundant apprenticeship training opportunities also have lower youth unemployment rates (Bilem, Petanovitsch & Schmid, 2015).
- Apprenticeship systems benefit both apprentice and employer. They allow employers to train a skilled labor supply and to vet candidates as they are being trained toward full employment, increasing productivity and reducing recruiting costs. The benefits for workers are also notable, as the U.S. Department of Labor (2013) reports that the average annual wage for apprenticeship completers was \$50,000 in 2011. In Great Britain, apprenticeship completers earn an average weekly wage 10 percent higher than that of peers and are more likely to be employed (Centre for Economics and Business Research, 2013).

# TOP JOBS IN COLORADO

## WHAT IS A TOP JOB?

This report uses labor market data from Colorado’s Office of Labor Market Information at the Colorado Department of Labor and Employment to identify jobs that meet three criteria: **projected high annual openings, above average growth rates, and offer a living wage**. The jobs in this report are categorized into two earnings tiers, as we know there are many essential jobs that may not typically pay a higher wage, but are in high demand and/or could lead to a higher paying in-demand job.

- The first tier includes jobs that have median earnings at or above a living wage for a family with two adults (one working) and one child (\$22.90/hour).

- The second tier adds in jobs that meet a lower living wage benchmark for an individual (median earnings of \$11.33/hour).

This report recognizes that there are jobs that do not exist today that will be in high demand in the future. Overall, these top jobs represent about 36 percent of all annual job openings in Colorado.

## TOP JOBS BY OCCUPATION GROUP

Please see this report’s Appendix for a complete list of occupations.

Table 3. Tier 1 Occupation Examples

| Engineering                          | Business & Finance                             |
|--------------------------------------|--|
| Civil Engineers                      | Accountants and Auditors                       |
| Mechanical Engineers                 | Market Research Analysts/Marketing Specialists |
| Computer Hardware Engineers          | Cost Estimators                                |
| Electrical Engineers                 | Training and Development Specialists           |
| Healthcare Practitioners & Technical | Information Technology (IT)                    |
| Registered Nurses                    | Software Developers                            |
| Pharmacists                          | Computer User Support Specialists              |
| Physician Assistants                 | Computer Systems Analysts                      |
| Dental Hygienists                    | Network/Computer Systems Administrators        |

Table 4. Tier 2 Occupation Examples

| Skilled Trades                      | Office & Administrative Support               |
|-------------------------------------|---|
| Electricians                        | Customer Service Representatives              |
| Construction Equipment Operators    | Receptionists/Information Clerks              |
| Plumbers, Pipefitters, Steamfitters | Medical Secretaries                           |
| Carpenters                          | Billing and Posting Clerks/Machine Operators  |
| Healthcare Support                  | Education, Social Services                    |
| Nursing Assistants (CNA)            | Teacher Assistants                            |
| Home Health Aides                   | Preschool Teachers                            |
| Medical Assistants                  | Education, Guidance and Vocational Counselors |
| Licensed Practical Nurses           | Mental Health Counselors                      |

Much like recent years, the higher paying tier 1 annual job openings are largely concentrated in **healthcare practitioners and technical, business and finance, IT, and engineering occupations**. Tier 2 job openings are largely concentrated in **construction, office and administrative support, healthcare support, and education occupations**. Of the 79 occupations on this list, 65 carried over from the previous year (for more information on the specific occupations that did not carry over from last year due to changes in projected growth rates and/or annual openings, please reference this report’s Appendix).

Figure 12. Tier 1 Top Jobs – Share of Projected Job Openings by Occupation Cluster

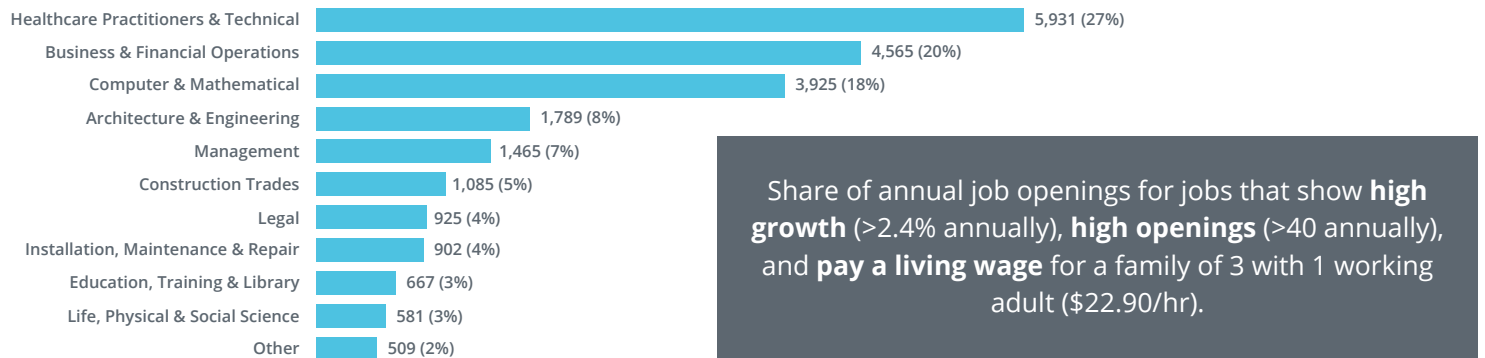


Figure 13. Tier 2 Top Jobs - Share of Projected Job Openings by Occupation Cluster

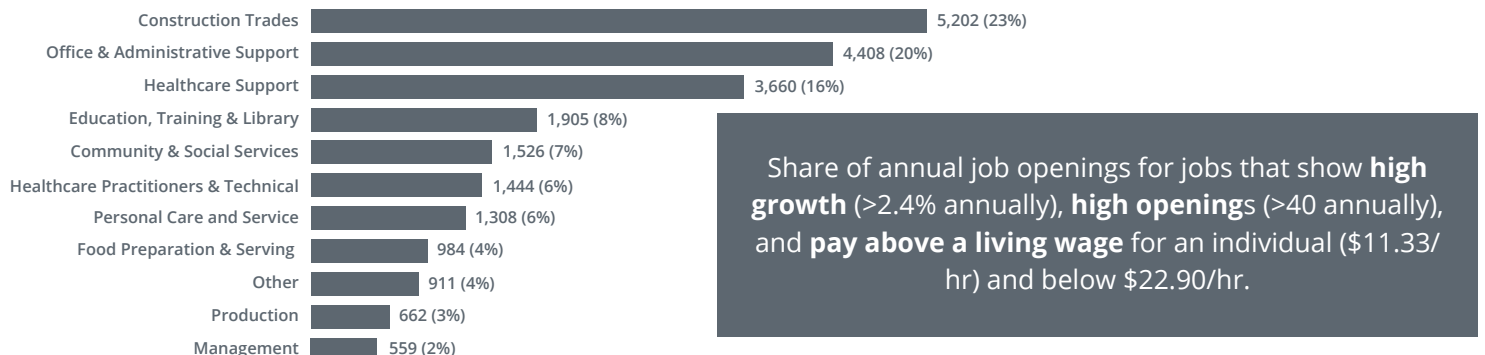
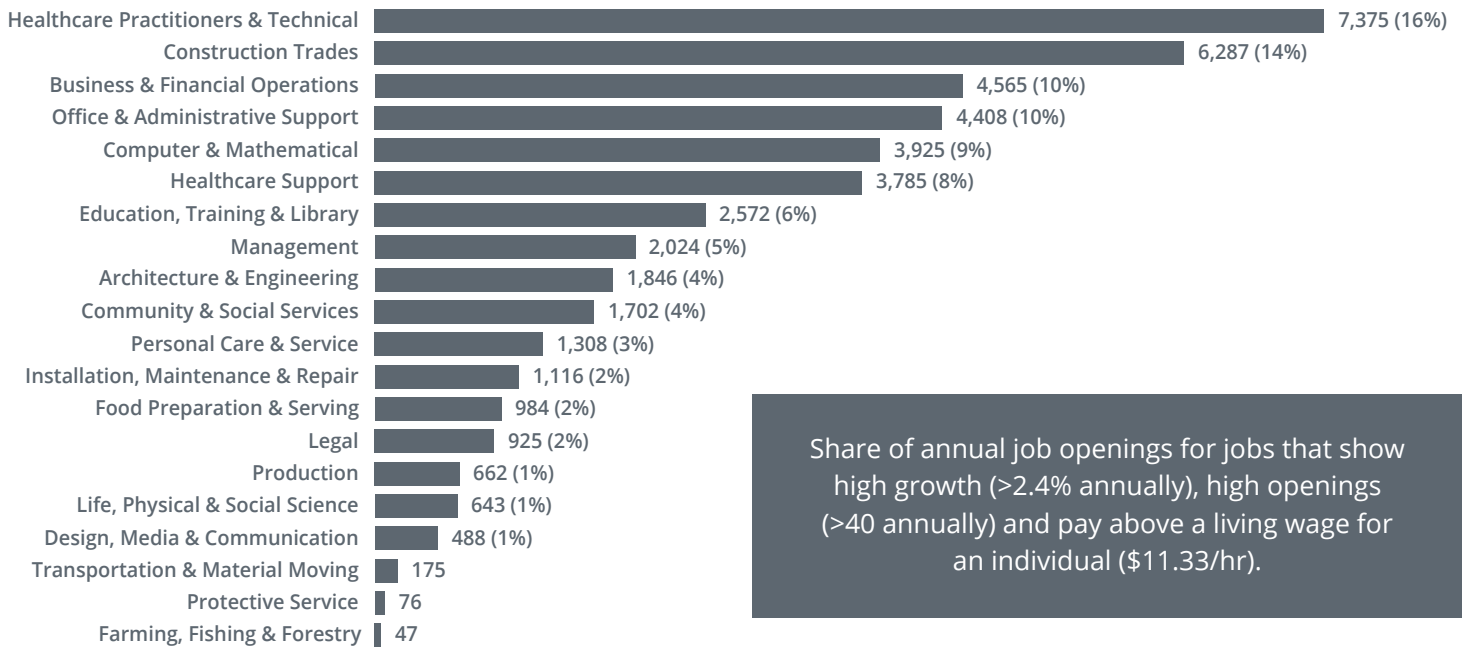


Figure 14. All Top Jobs - Share of Projected Job Openings by Occupation Cluster



Share of annual job openings for jobs that show high growth (>2.4% annually), high openings (>40 annually) and pay above a living wage for an individual (\$11.33/hr).

**STEM in Top Jobs**  
 (Brookings STEM Definition)

75% of tier 1 job openings are considered STEM  
 12% of tier 2 job openings are considered STEM  
 44% of all top job openings are considered STEM

**Where are Most of the STEM Top Jobs?**

Healthcare Practitioners & Technical  
 Information Technology (IT)  
 Finance  
 Construction Trades  
 Engineering

# TOP JOBS BY EDUCATION LEVEL

In-demand jobs that show high growth and pay above a living wage to support a family of three overwhelmingly require formal education or training beyond high school for entry into the field. When measured by job openings, 97 percent of jobs on the tier 1 list typically demand some level of formal postsecondary education/training, ranging from formal employer-sponsored training and coursework (that usually lead to industry certification) to graduate-level degrees. Seventeen percent of these job openings are for middle skill jobs—a job that typically requires additional formal education or training after a high school diploma, but less than a bachelor’s degree—in fields like IT, healthcare and the skilled trades. This analysis relies on the Bureau of Labor Statistics’ definition of typical entry education requirements for each occupation; certainly workers within an occupation embody a range of education and training levels, and occupational requirements can also shift due to changes in complexity, perception, or licensure regulation, for example.

For in-demand jobs that show high growth and pay above a living wage for one person, but below a living wage for a family of three, less than half (44 percent) typically require formalized postsecondary education/training for entry into employment. For jobs that call for formalized education and/or training beyond high school, most are considered middle skill jobs. Middle skill jobs on this list are concentrated in the skilled trades and healthcare support occupations. Here, occupations that expect a bachelor’s or graduate degree tend to be in education, counseling, or social services. Though, clearly, there are many in-demand job opportunities for workers that pay lower wages and require less education.

OJT, or on-the-job training, has three categories as defined by the Bureau of Labor Statistics. Short-term OJT—skills can be acquired during 1 month or less of OJT experience and informal training (e.g. retail salesperson). Moderate-term OJT—1 to 12 months of OJT experience and informal training (e.g. transit bus driver). Long-term OJT—More than 12 months of OJT or combined OJT experience and formal classroom instruction (e.g. power plant operator or air traffic controller).

Figure 15. Tier 1 Top Jobs - Share of Job Openings by Typical Education Needed for Entry

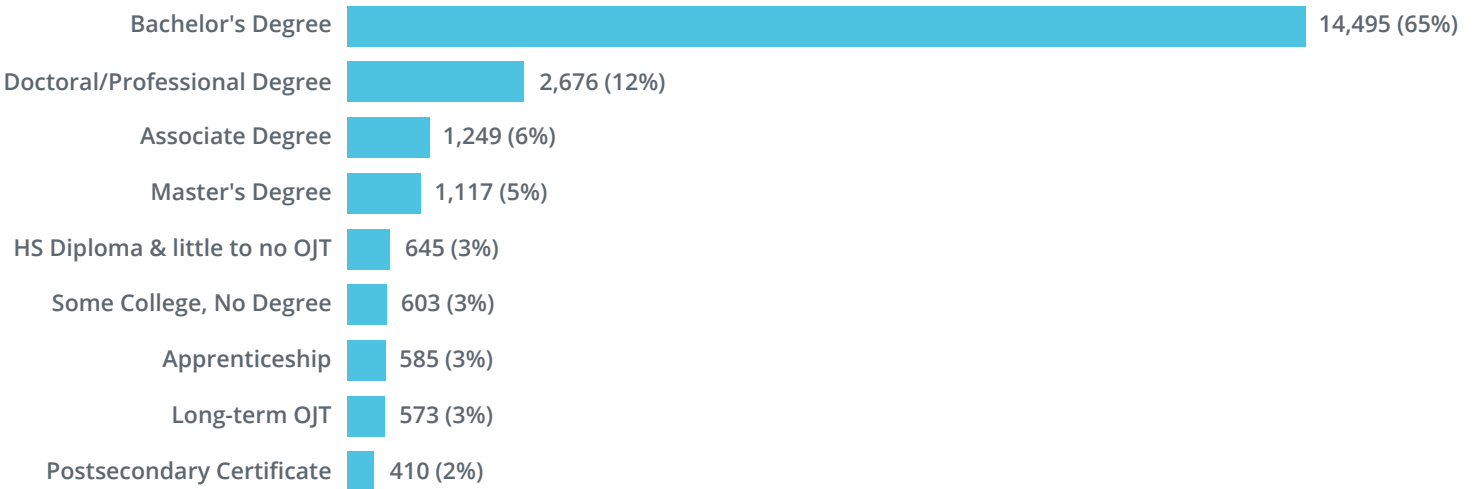
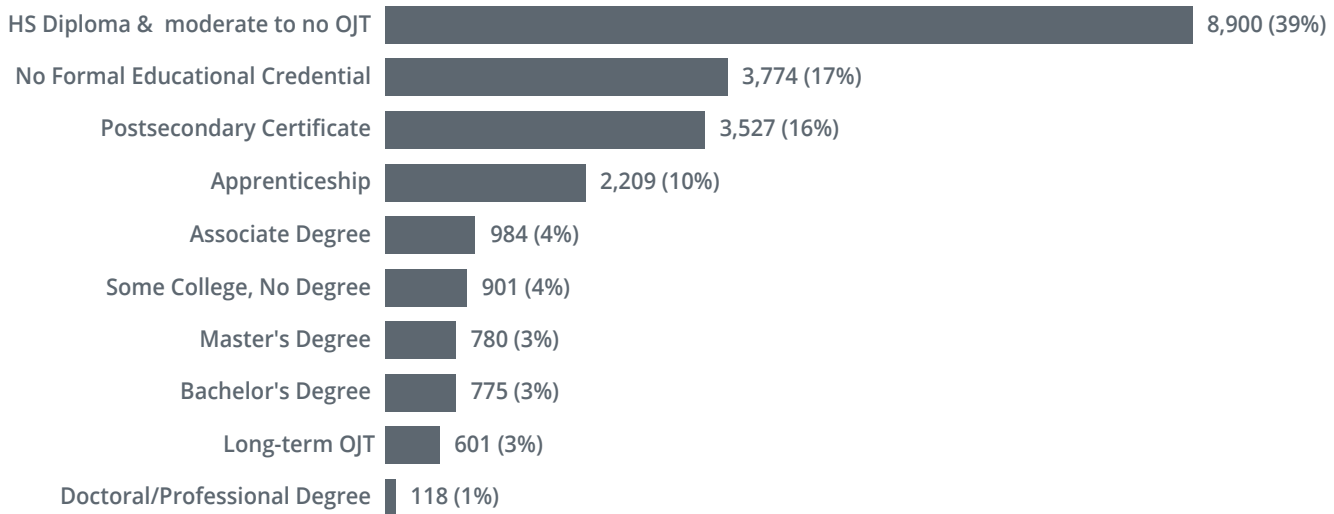
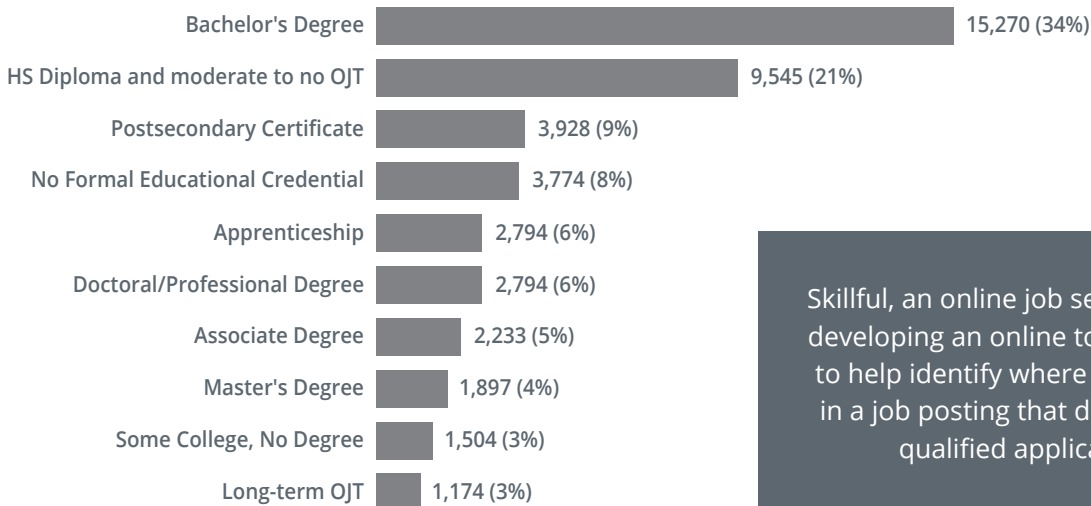


Figure 16. Tier 2 Top Jobs - Share of Job Openings by Typical Education Needed for Entry



70 percent of job openings across both tiers of top jobs typically require some level of formalized postsecondary education or training.

Figure 17. Top Jobs - Share of Job Openings by Typical Education Needed for Entry



Skillful, an online job seeker platform, is currently developing an online tool that employers can use to help identify where there may be gender bias in a job posting that dissuades a wider range of qualified applicants from applying.

- Some industries may be missing out on talent opportunities for jobs where certain demographic groups tend to be underrepresented. With nearly half of our workforce being female and a growing minority population, we have multiple talent sources to further nurture and tap into. Ultimately, all people should have the opportunity to get on a good career path, but some fields may benefit by implementing intentional recruitment strategies to fulfill talent needs.

Additional supply (postsecondary credential completions)-demand (projected job openings) analysis is planned. There is also opportunity to further examine top jobs, the jobs that lead to top jobs and the competencies needed to succeed in these occupations.

## NURTURING TALENT FOR TOP JOBS

Legislation has been enacted in recent years to better link education with workforce demand.

### HB 16-1289 CAREER DEVELOPMENT SUCCESS PILOT PROGRAM

The 2016 legislation ([HB 16-1289](#)) will help increase the number of high school graduates prepared for high demand fields or pathways toward such fields. The new law provides for school districts to receive incentives based on the number of students who complete qualifying career and technical education programs such as industry credential programs or pre-apprenticeships that are aligned with high demand, high growth occupations. A list of approved programs was informed by the high growth, high demand occupations that this report analyzes, and can be found on the Colorado Workforce Development Council's [website](#). Please see this report's Appendix for additional information regarding program requirements.

### HB 15-1170 POSTSECONDARY AND WORKFORCE READINESS

A 2015 bill (HB 15-1170) created a statewide postsecondary and workforce readiness (PWR) position, filled in December 2015, is shared between the Colorado Workforce Development Council and the Colorado Department of Education. The PWR coordinator works to support and leverage sector partnerships, career pathways, and work-based learning as key strategies to improve postsecondary attainment by Coloradans and ensure education programs are aligned with the needs of the labor market. The Departments of Education and Higher Education have collaborated to update the definition of postsecondary and workforce readiness. The PWR coordinator is tasked with supporting the implementation of the updated definition and accompanying PWR framework. A summary of initial accomplishments of the PWR coordinator are provided in the Appendix.

## IN-DEMAND SKILLS

Policymakers, educators, students, and parents are seeking to better understand in-demand, employer-sought skills. A concrete answer is challenging to deliver, as occupations require a wide array of technical skills, and even the same occupation across different industries can require certain areas of specialization that broad assessments do not adequately depict. And that does not consider how quickly skills and occupations can change in our fast paced world. This section uses current data resources to present trends in skills that Colorado employers value today.

Table 5 shows the skills that were most commonly referenced in online job postings. Interestingly, when young workers were surveyed on the most important skills they think they need for a successful career, they note some of the same skills—that is, time management, oral communication, teamwork, critical thinking, and job-specific technical skills (Infosys, 2016).

**Table 5. Most Commonly Posted Professional Competencies in Colorado Job Postings**

|                                |
|--------------------------------|
| Oral and written communication |
| Detail oriented                |
| Integrity                      |
| Customer service oriented      |
| Problem solving                |
| Creativity                     |
| Team-oriented, teamwork        |
| Self-starting / Self-motivated |
| Work independently             |
| Organizational skills          |

Source: Wanted Analytics, Aug. 2015-2016 job postings

See this report's Appendix for the most frequently posted professional and technical competencies by occupation cluster for the jobs that are on our "top jobs" list.



Research has found that certain professional competencies may be more effectively acquired through work-based learning opportunities. Work-based learning shows a comparative advantage in developing skills such as trustworthiness, teamwork, and reliability. School-based learning shows a comparative advantage in developing analytical thinking and the joy of learning (Bolli and Renold, 2015). Experiential academic courses also have the potential to increase collaborative skills, self-confidence, and creativity, although participants must also have a level of openness to new experiences and reflection in order to experience benefits (Victor, 2013).

Ensuring students are prepared and have the in-demand skills to enter the workforce is an essential strategy to meeting needs of employers in Colorado. At the secondary level, the goal is for all students to understand and articulate their individual skillset, how they relate to potential careers and jobs, and graduate from high school with these in-demand skills. Colorado industry representatives are clear that students who graduate from high school and seek to work in Colorado need in-demand skills that meet business, industry, and higher education standards. Aligned high school graduation expectations are intended to be a roadmap to help students and their families plan for success after high school by demonstrating their knowledge, skills, and abilities to enter the workforce, military, or higher education without significant training or remediation.

Obviously, graduating from high school with the competencies needed for future success is critical for all students. A discussion among statewide participants from business and industry, education, non-profit organizations, and government sectors developed a description of Postsecondary and Workforce Readiness (PWR) in Colorado that was approved by both the State Board of Education and the Commission on Higher Education. The work group also identified core skills that are necessary to successfully enter the workforce or educational opportunities beyond high school. The group's findings align well with skills that most frequently appear in real-time job postings—each of the top 10 skills listed in job postings can be found in the table below.

Globally, cognitive abilities such as cognitive flexibility, creativity, logical reasoning, problem sensitivity, mathematical reasoning, and visualization are becoming increasingly important across all industries, and require time and quality programming to develop (WEF, 2016). Colorado in particular has high levels of jobs demanding non-routine cognitive jobs (OSPB, 2014).

It is incredibly important for a student or jobseeker to learn how to articulate their skills through examples of past experiences or activities. Being able to self-advocate is critical to acing a job interview.

Postsecondary and Workforce Readiness is:  
 “Colorado high school graduates demonstrate the knowledge and skills (competencies) needed to succeed in postsecondary settings and to advance in career pathways as lifelong learners and contributing citizens.”

**Table 6. Essential Skills Needed for Workforce or Educational Opportunities Beyond High School Defined by 2015 Workgroup**

| Entrepreneurial                       | Personal                                    | Civic/Interpersonal           | Professional                        |
|---------------------------------------|---|-------------------------------|-------------------------------------|
| Critical thinking and problem solving | Initiative and self-direction               | Core academic foundation      | Time management                     |
| Creativity and innovation             | Personal responsibility and self-management | Collaboration and teamwork    | Career literacy                     |
| Inquiry and analysis                  | Adaptability and flexibility                | Communication                 | Grit and resilience                 |
| Risk taking                           | Personal awareness                          | Global and cultural awareness | Work ethic; dependable and reliable |
|                                       | Learn independently                         | Ethics and integrity          | Self-advocacy                       |
|                                       | Perseverance                                |                               |                                     |

# PUTTING POLICY INTO PRACTICE

It is important to continue establishing efficient and effective means of developing skilled talent so that employers can find the quality workforce they need to be competitive. While this report focuses on solutions for Colorado, this issue extends globally, as evidenced by the World Economic Forum's recent (2016) emphasis on the need for cross-industry and public-private collaboration to address talent issues. Creating systemic change requires public-private partnership to establish functional feedback loops between industry and education, and using resources wisely to get the desired results. This section provides an overview of various programs and initiatives supporting talent development currently underway in Colorado.

## SECTOR STRATEGIES: A KEY TO INDUSTRY-LED TALENT SOLUTIONS IN COLORADO

Colorado is a national innovator in sector strategies—with the launch of our next generation approach to sector partnerships in 2013, Colorado helped to elevate the value of this strategy nationally. In 2014, the federal Workforce Innovation and Opportunity Act (WIOA) identified sector strategies and industry-led career pathways as key strategies that states and local areas must implement for workforce development. Since then, Colorado has been recognized and used as a model for other states by national experts and the Employment and Training Administration. A recent example is an action guide published by the ETA in June of 2016.

### SECTOR PARTNERSHIPS IN COLORADO

A sector partnership is an industry-specific regional partnership that is led by business, in collaboration with economic development, education, and workforce development and formed to address specific priorities and needs as identified by business.

Sector partnerships are benefiting Coloradans and Colorado

businesses. The annual Key Performance Indicator survey measures the impact of partnerships across the state on job seekers and students as a result of better aligned community partners from workforce, education, and economic development, as well as the impact of the partnership on businesses. This section highlights the successes of partnerships across Colorado and their goals for the future, with additional information to be released in the coming months.

Colorado has **21 active and emerging sector partnerships** that engage over 450 businesses. These partnerships, representing five major industries, include the following:

- 11 health & wellness sector partnerships (2\*)
- 7 advanced manufacturing sector partnerships (1\*)
- 1 value-added agriculture sector partnership\*
- 1 tree care (arborist) sector partnership\*
- 1 tourism & outdoor recreation sector partnership\*
- 1 statewide sector strategy in Information Technology (IT)

\*Denotes the six sector partnerships that launched in the last 12 months, resulting in at least one sector partnership in every region of the state.

### WHAT ARE THE BENEFITS FROM SECTOR PARTNERSHIPS?

Colorado sector partnerships enable community partners from workforce, education, and economic development to better meet the talent development needs of businesses. Ultimately, the systems and programs involved in Colorado sector partnerships will benefit students and job seekers. Over the past year, Colorado sector partnerships reported the following outcomes<sup>1</sup> :

The examples on the next page illustrate how sector partnerships address employer needs in critical occupations

1 Key Performance Indicator survey completed in August, 2016. Based on responses from 21 active or emerging sector partnerships.

- 86% Implemented shared projects across partners
- 86% Experienced joint decision-making across partners
- 81% Increased collaboration across partners on talent development
- 81% Increased participation by businesses
- 81% Shared data across partners
- 76% Increased participation from partners in education, training, and workforce development
- 71% Increased student/jobseeker awareness of education and training programs
- 67% Enhanced existing or developed new education program(s)
- 62% Increased alignment across secondary, postsecondary, and/or workforce programming

The Southern Colorado Healthcare Sector Partnership is addressing employers' high demand for nurses. Healthcare employers have increased financial and in-kind investments in two regional nursing programs (CSU-Pueblo and Pueblo Community College) resulting in more students entering and completing nursing programs.

The Upper Arkansas Health and Wellness Sector Partnership is working with the two largest hospitals in their region to establish training programs within the hospitals for CNAs and MAs, in order to meet the high demand for staff trained with the right skills.

The Southeast Colorado Manufacturing Partnership is raising awareness about manufacturing careers with youth, in order to create the talent pipeline needed for the future of manufacturing. They send over 800 6th, 7th and 8th graders on tours of manufacturing facilities every year.

Several manufacturing partnerships have stated specific goals around growing the number of businesses involved in the partnership and developing additional leaders.

Manufacturers from CAMA South write monthly articles for the local business journal to increase awareness about the industry and partnership.

The NoCO Manufacturing Partnership's Talent Committee is focused on developing the region's manufacturing workforce through aligning workforce, training, and education resources with the needs of the region's manufacturing industry. The Talent Committee's business leaders have partnered with 10 high schools and one middle school across four different school districts and two Workforce Investment Boards to:

- Inform the development of a regional career pathway map and career pathway action plan, informing curricular changes and articulation agreements.
- Create and host a joint Career and Technical Education (CTE) advisory board for local community college CTE programs and school districts in alignment with the Workforce Investment Boards.
- Engage 847 students in hands on learning experiences in 49 different local manufacturing facilities over a year and a half.

## What businesses are saying about sector partnerships...

---

“This is a collaborative group that gets things done in our city and the space of the sector team provides a neutral environment that allows for both community health and business partnerships.”

---

“I truly believe that I can get expert advice on a wide range of business issues from mentors that care about my success.”

---

“Networking is an added benefit! With networking comes an increase in ideas and others know what your struggles are currently. Sometimes this leads to a (new business) partnership.”

---

### For businesses that received benefit from participating in a sector partnership...

42% formed new or enhanced joint ventures

36% implemented new recruitment practices

35% found support in finding employees with the skills and experiences their business needs

## LOOKING FORWARD

We expect these successful partnerships to continue their work over the next year. Some of the activity that we will follow over the next year includes:

- The **Southern Colorado Manufacturing Group** (Pueblo) has a goal of increasing enrollment/participation in the middle and high school manufacturing programs in Pueblo City Schools and District 70 by a minimum of 25 percent.
- Through support of the Colorado Opportunity Scholarship Initiative (COSI), the **Region 5 Sector Health and Wellness Partnership** is focused on filling 89 unfilled nurse, nurse aides, and medical assistant positions in their four county region. They hope to raise \$91,000 by December 2016 and train 40 people in two years.
- The **Southern Colorado Healthcare Partnership** will develop baseline measures to track the impact they are having on increasing the number of nursing graduates, increasing the number of nursing and allied health graduates that will live and work in Southern Colorado, and increasing the retention of nursing staff in facilities across Southern Colorado.

## STATEWIDE INDUSTRY ASSOCIATIONS ARE CRITICAL COLLABORATORS IN DEVELOPING TALENT

Across Colorado, industry associations are key leaders in developing the Colorado workforce to meet the needs of industry. Highlights of association activities include:

The **Associated General Contractors of Colorado (AGC)** has utilized the Innovative Industries Internship Grant to expand the number of internships within the construction industry. These internships are helping to promote a quality training program for a state industry that is anticipated to need 30,000 new employees in the next seven years.

The **Colorado Technology Association's (CTA)** Talent Council leads a Talent Agenda to support workforce needs of the technology industry. Programs in the CTA agenda address a spectrum of populations in the workforce, from youth to young adults to those changing careers. This past year CTA's emphasis was on internships. CTA also partnered with Markle/LinkedIn to define and publish competencies for 10 IT occupation clusters. Underpinning CTA's work is their strong commitment to advancing STEM—especially computer science—in the Colorado K-12 education system.

Frequent, early career exploration prepares students for success. This realization spurred the **Colorado Advanced Manufacturing Alliance (CAMA)** and Gates Corporation to develop Empowering Creators, an event in which teams of 8th graders compete for a space agency contract by designing and building the most capable Mars rover prototype.

The **Colorado Bioscience Institute** provides education, workforce, and career development for life science professionals, companies, students, and educators in Colorado. The Institute operates across the programmatic and educational pipeline, from K-12 to higher education to workforce training. Through research experiences for teachers, mentorship programs, internships, career fairs, and leadership training, they encourage businesses relying on a strong talent pipeline to not simply be passive consumers, but instead become active participants in education and workforce initiatives tied to real world solutions. Internships allow students to gain an understanding of what it means to be a life science professional in a working environment and the Innovative Industries Internship Program fits in with the Institute's goal of serving the life science workforce pipeline.

## BUILDING INDUSTRY-DRIVEN CAREER PATHWAYS SYSTEMS IN COLORADO

In Colorado, industry-driven career pathway systems ensure that education, training, and workforce systems stay deeply attuned and responsive to the needs of the labor market, preparing students and workers with the skills and credentials they need for jobs and careers. Colorado has been developing career pathways, both in direct response to legislation (HB 15-1274—designating the creation of statewide industry-driven career pathways) and through industry-led efforts and partnerships such as Skillful.

McGraw Hill's recent study (2016) of college students finds that only 25 percent of students are in majors with established career paths at their university. At the same time, most college students are motivated by increased job opportunities (Eagan et al., 2016). More structured and deliberate pathways will enable students to connect their education choices with future careers.

In 2016, the CWDC coordinated the development of the first statewide career pathways maps required by 2015 legislation. Information Technology (IT) was chosen as the first pathway due to IT occupations being in high demand and typically paying good wages. Globally, strong employment growth in IT positions across all industries—not just in the IT sector—is expected, reinforcing the wide range of data and technological literacy demanded by today's jobs (WEF, 2016).

Through the use of labor market data, employer engagement through regional Tech Talent Forums, and cross-agency collaboration, a map of five main IT pathways is now sequenced and posted online, while an interactive online version that further integrates data points such as earnings and related training/educational programs is currently in development. See this report's Appendix for additional information on the sequencing process and for additional IT occupation and education data. Career pathways mapping efforts for in-demand healthcare and construction/skilled trades occupations have begun.

## TWO-GENERATION STRATEGIES

In April 2016, a Colorado Statewide Two-Generation Action Plan Work Group began working with Ascend at the Aspen Institute to develop a strategy for implementing the “two-generation approach” across sectors. The partners are seeking to embed this strategy, which takes into account the needs of parents/caregivers and children, in more public and private service programs.

The Workgroup is currently developing two resources. One document, the “Colorado Guide to 2Gen,” will be shared throughout the state. It details the importance of the two-generation approach in Colorado and why two-generation matters to each of these sector groups, along with other information. A second resource will be a comprehensive Two-Generation Action Plan for Colorado.

The Workgroup began by identifying existing two-generation activities across agencies, in counties and at non-profit organizations; the Group is now focused on common program and system outcomes that will be the foundation for a broader Two-Generation Action Plan. Recently, Colorado applied to be a participant in the National Governors Association (NGA)/Center for Law and Social Policy (CLASP) Two-Generation State Policy Network, Parents and Children Thriving Together (PACTT). Participation in this network will help drive the two-generation work forward.

A resource from Ascend at the Aspen Institute was released on September 26th entitled [“State Human Services Model: Colorado as a Case Study for Policymakers”](#)

## VETERAN STRATEGIES

The Colorado Department of Labor and Employment (CDLE) is the federal grant recipient for programs that fund career services for job seekers. Veterans and their family members receive a full array of employment services through the 61 state and county operated Workforce Centers and satellite offices.

In the Workforce Centers during Program Year 2015:

- 18,161 veterans received services
- 58 percent of veterans entered employment following services
- 82 percent of those veterans were still working nine months later

## SERVICES FOR VETERANS WITH SIGNIFICANT BARRIERS TO EMPLOYMENT

The Jobs for Veterans State Grant provides funding for 29 Veteran Employment Specialists and nine Veteran Employment Representatives. CDLE strategically assigns the staff to locally operated workforce centers as part of their integrated employment and training operations and inside community partner offices throughout the state where veterans are likely to seek services.

Veteran Employment Specialists provide intensive employment services to veterans with significant barriers to employment. They provide specialized services such as individualized job search assistance and targeted career management. Veteran Employment Representatives provide services that increase the capacity for the workforce system to serve veterans, increase veteran employment, and ensure veterans receive priority of service for all employment and training services in the workforce system. They work directly with businesses to assist them with veteran recruiting and hiring, through personal visits to the business, employer panels, customized workshops, job fairs, and hiring events specifically for veterans on behalf of the business.

These highly trained subject matter experts also provide assistance to other agencies and organizations that provide employment services or have employment programs for veterans. In the absence of funding for supportive services or training, Veteran Employment Specialists are experts at identifying and leveraging the resources of partner programs, local community service organizations, and philanthropic businesses. They are also veterans themselves, personally understanding the challenges that veterans face.

Through the Colorado Veteran Employment Program during Program Year 2015:

- 1,665 veterans with significant barriers to employment received services
- 64 percent of veterans with barriers to employment entered employment following services
- 81 percent of those veterans were still working 9 months later

## HILTON HONORS (HHONORS) MILITARY REWARDS PROGRAM

In Partnership with the National Association of State Workforce Agencies and CDLE, Hilton donates 100,000 Hilton Honors points to eligible veterans and transitioning service members to support their transition to civilian employment. The points support hotel stays related to job search activities.

During Program Year 2015:

- 34 veterans were served, saving \$5,059 in hotel costs

- 24 veterans used the program for interviews
- 10 veterans used the program for training
- 14 veterans were hired at an average salary of \$51,026 per year

### **HB 16-1197 MILITARY VETERAN OCCUPATIONAL CREDENTIALS IMPLEMENTATION**

The Division of Professions and Occupations (DPO) at the Department of Regulatory Agencies is moving forward with implementing 2016 legislation (HB 16-1197) that directs DPO to evaluate and provide appropriate credit towards licensing and certification for military experience.

Under the new law, DPO will be better able to evaluate and award credit for military experience toward a license, thus helping active military personnel, veterans and their families transition into civilian life by providing opportunities for post-military employment sought by military professionals. Activities to be conducted include evaluation of which military training meets state requirements, identification of reciprocity mechanisms with other states, determination of relevant occupational exams, documentation of pathways available to a veteran to obtain authorization to practice an occupation, and consultation with postsecondary educational institutions to cover educational gaps or refresher courses for lapsed credentials.

## **STRATEGIES FOR COLORADANS WITH DISABILITIES**

While many Coloradans with disabilities are contributing their talents to the Colorado workforce, there is significant potential to increase labor force participation and career advancement within this group. Our state is preparing to achieve this by structuring and aligning our programs to maximize opportunity for students and job seekers with disabilities. Because the Colorado Division of Vocational Rehabilitation is now part of the Colorado Department of Labor and Employment and is also a core partner per the WIOA, Coloradans with disabilities will benefit from the breadth and depth of subject matter expertise from more partner programs. The additional resources and opportunities each partner offers increases the likelihood that people with disabilities will be empowered to craft a way to work. Increased workforce participation is a preliminary step in gaining the skills to compete for higher wages.

The term “disability” refers to a wide array of human experience. As we highlight strategies for increasing the ability of all Coloradans to contribute their talents to the talent pool, it is important to remember that people in every group already specified here may also experience disabilities. For example, as we continue expand career pathways to align education, training, and work-based learning, our approach must consider

the level of individualization required to include Coloradans with disabilities in benefiting from services designed for a broader population. Our policy and statutory barriers or perceived barriers to work-based learning must factor in the needs and experiences of students with additional challenges and focus on their abilities and opportunities. Although some individuals with disabilities have competitive credentials and relevant work experience, others lack appropriate skills and/or credentials in educational settings that are needed to acquire additional skills and credentials that would allow them to enter and participate more fully in the workforce. Alternative ways of demonstrating skill, such as through work-based training and other approaches to experiential learning, may support people with disabilities to increase labor force participation, earnings, and opportunities for professional growth.

## **IMPLEMENTING SYSTEMIC CHANGE IN EXPERIENTIAL LEARNING OPPORTUNITIES**

As referenced earlier, a disconnect often exists between formal education and job expectations. Experiential learning opportunities (including internships, apprenticeships, and other work-based learning initiatives) have the power to close this and are an important component of career pathway systems. But successful experiential learning requires collaboration between education and the business sector to make such meaningful experiential education opportunities possible on a large scale.

Colorado has begun implementing several strategies in this area, through initiatives such as the Governor-appointed Business Experiential Learning (BEL) Commission, expansion of adult apprenticeships, the Innovative Industries paid internship program, HIRE Colorado, and many local and regional efforts such as Denver’s Opportunity Youth Initiative and Mesa School District 51’s Project Based Learning program. Most recently, in fall 2016, Colorado announced CareerWise Colorado, a youth apprenticeship system focused on developing flexible, multi-skilled apprenticeships that open multiple career pathways for students, instead of a single occupation in a single industry. This initiative is also expected to encourage more out-of-state businesses to locate in Colorado to take advantage of skillsets and training opportunities for local talent. Additional information highlighting a number of statewide initiatives can be found in the Appendix.

Colorado already has a network of apprenticeships, which presents an opportunity to continue expansion in high demand fields. It does not appear that an all-inclusive centralized state apprenticeship database resource exists, aside from the sources used for the figures presented below (therefore, other apprenticeships may exist that are not captured here).

Table 7. Apprenticeship Data

| U.S. Dept. of Labor Registered Apprentices |          |          |
|--|----------|----------|
|  | Colorado | National |
| Total Active Apprentices                   | 5,222    | 448,000  |
| Youth Apprentices<br>(16-24 year olds)     | 26%      | 20%      |
| Female Apprentices                         | 5%       | 6%       |
| Hispanic Apprentices                       | 25%      | 20%      |

| Active Apprentices in Colorado Regulated by DORA |        |
|--|--------|
| Electrical                                       | 10,621 |
| Plumbing   | 7,893  |

\*There may be duplication across active apprentices in DORA's database and the U.S. DOL's active Registered Apprentices

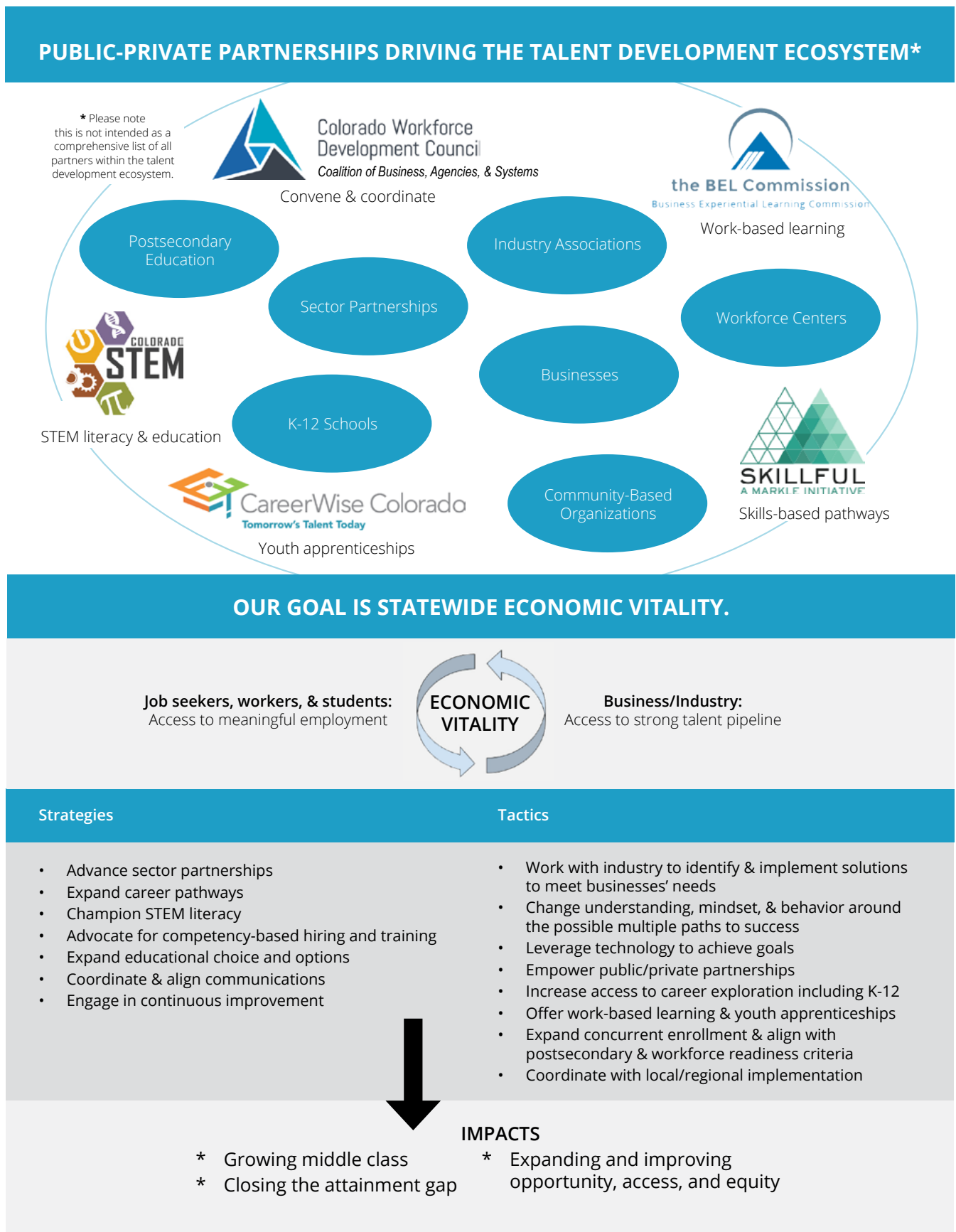
Source: U.S. Dept. of Labor RAPIDS data and the Colorado Department of Regulatory Agencies

## COLLABORATION ACROSS THE TALENT DEVELOPMENT NETWORK (Graphic Next Page)

Clearly, talent development in Colorado relies on key collaborators from across the public and private sector. This report highlights a number of critical initiatives and partners that are part of a complex system, and it can at times be difficult to understand how all of the components fit together. While a simplification of this network, the visual on the next page depicts where a number of players fit together in the Colorado talent development ecosystem. Collectively, we move the work forward to meet our overarching goal of statewide economic vitality.



Figure 18. The Colorado Talent Development Ecosystem Extends Beyond Government



# RECOMMENDATIONS

**T**he Governor’s Workforce and Education Cabinet workgroup is a subgroup of cabinet members and their key staff collaborating on workforce and education issues. This group, along with leadership from the Department of Education, jointly offers the following recommendations to address challenges, gaps, and opportunities as identified in this report. Many of the recommendations reference work already in implementation or planning phases. Accomplishing this work through integrated and meaningful solutions will take time and intentionality; anyone interested in helping to move these recommendations forward is encouraged to contact [cwdc@state.co.us](mailto:cwdc@state.co.us) to learn more.

## **PRIORITY: CLOSE ATTAINMENT GAPS**

- Continue to support policies and services for populations with unique needs (including underserved minorities, veterans, long-term unemployed, ex-offenders, persons with disabilities) to ensure access to career pathways and meaningful employment.
- Continue to support and expand concurrent enrollment as a means of increasing access to postsecondary education and shortening the time to degree.
- Continue efforts to increase career awareness and intensive career exploration opportunities.
- Continue to expand utilization of competency-based learning.
- Continue to support the work of the Colorado talent development network in promoting work-based opportunities, including expansion of apprenticeships into non-traditional occupations such as banking, finance, IT, and healthcare.
- Promote apprenticeships as a good postsecondary pathway for Coloradans, by creating a strong foundation of youth apprenticeships that integrate secondary education, postsecondary education, and work.
- Seek innovative approaches to re-engaging adults who lack work-ready credentials to help them gain needed skills to more fully participate in the workforce. Support the work of Skillful and other similar adult-focused initiatives in this area.
- Continue to utilize the Colorado STEM Roadmap to build a STEM-ready pipeline, by connecting learners with STEM experiences to further develop and increase STEM literacy.

## **PRIORITY: ALIGN RESOURCES AND PROVIDE ACCESS TO INFORMATION**

- Embrace and engage with TalentFOUND—the Colorado talent development network communication strategy—to help businesses, students, job seekers, and workers design their own unique path to success.
- Continue efforts to redefine employer expectations and worker qualifications by skills and competencies rather than only by degrees and credentials.
- Create a comprehensive state resource on non-traditional education pathways to improve student, parent, educator, and job seeker understanding of various educational pathways to success.
- Support initiatives that ease education/training transition points (leaks in the pipeline), including concurrent enrollment, career pathways, CareerWise Colorado, and apprenticeships.
- Improve data and information around the multiple education and training pathways one may pursue to inform better decision-making. Many transition points along the education and workforce spectrum lack continuity of data that will allow for a more complete understanding of the current and future state of the Colorado talent pipeline.
- Support the cross-agency 2-Gen approach, and focus on “two-generation approaches” that work with both parents/caretakers and children to improve education and work outcomes.

## **PRIORITY: INCREASE JOB PLACEMENT, RETENTION, AND WAGE GROWTH**

- Create contextual work-based “earn and learn” opportunities, such as traditional and non-traditional apprenticeships, built on existing sector strategies. This includes the creation of a work-based learning unit to expand opportunities statewide.
- Implement effective, coordinated strategies to assist businesses in recruiting, retaining, and developing talent.
- Support streamlined regulations of credentialing to result in a more rapid response to filling high demand occupations.
- Pursue practices that encourage access to and participation of a broader talent pool in high demand fields (e.g. underrepresented workers such as women or minorities in certain fields).
- Further examine top jobs, the jobs that lead to top jobs and the competencies needed to succeed in these occupations. Map the intersections of education and training pathways into these fields.

## **PRIORITY: CONTINUED COLLABORATION AND INTEGRATED EFFORTS**

Through three publications of this report the agencies have demonstrated the value of collaborative work.

- Continue to utilize the Colorado Workforce Development Council as the coordinator and convener of the talent development network.
- Support the Governor’s Business Experiential Learning Commission to provide awareness, alignment, and focus for work-based learning.
- Continue to partner with Skillful, an initiative of the Markle Foundation, as a resource for competency based hiring and training, and with LinkedIn to create a work-based learning market-place on the Skillful platform.
- Continue to support Colorado STEM as the hub for STEM experiences and educational opportunities.



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# APPENDICES

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Appendix A: Top Jobs List by Occupation Cluster | Tier 1

Appendix A: Top Jobs List by Occupation Cluster | Tier 2

Appendix B: Top Jobs List by Typical Education for Entry | Tier 1

Appendix B: Top Jobs List by Typical Education for Entry | Tier 2

Appendix C: Top Jobs

Appendix D: Changes in Top Jobs from Last Year to This Year

Appendix E: HB 15-1170: PWR Coordinator Update

Appendix F: Top Jobs: Top Skills and Employers from Online Job Postings

Appendix G: HB 16-1289: Career Development Success Pilot Program

Appendix H: Add'l Information Regarding Specific Collaborators in the Talent Development Network

Appendix I: Overview of Information Technology (IT) in Colorado



DISCOVER ABILITY > DEVELOP TALENT > FIND SUCCESS