COLORADO TECHNOLOGY ASSOCIATION

2024 Colorado Tech Industry Report

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Introduction

The **Colorado Technology Association** (CTA) has been the steward of the state's tech economy since 1994. CTA represents approximately 400 members including the top technology companies, organizations, and institutions across the state of Colorado. As the lead organization for tech policy and tech industry growth in Colorado, the organization has committed to collect and publish statewide data on the tech sector. CTA has contracted with Economic Leadership LLC, a national consulting firm with a long history of evaluating state technology performance, to build a report that will evaluate the current state of the tech sector in Colorado. This report is an update to an earlier report produced in 2022. The research was supported and reviewed by the Colorado Chamber Foundation, Colorado Office of Economic Development and International Trade, Downtown Denver Partnership, Elevate Quantum, Metro Denver Economic Development Corporation, Moss Adams, Slalom, and Wells Fargo.

To develop a full picture of the industry and its trends, Economic Leadership LLC collected a wide variety of data, surveyed CTA members, and conducted interviews with tech leaders in the state. This report shows statistics for tech in 2023, the most recent year with final data. This report serves as a resource of data and trends for the economic development community, policy makers, and the tech industry.

The tech sector has a robust presence in the state and this summary underlines its vitality and importance to the greater Colorado economy. One job created in the tech industry supports another 2.67 jobs in the state economy. Colorado ranked in the top 15 states for 29 out of the 61 metrics evaluated for this study.

The Colorado Tech Industry Report quantifies the impact of the industry on Colorado and provides a repository of facts, statistics, trends, and narratives. This report research was completed by Economic Leadership, LLC. The report partners of this report did not in any way impact the direction of the report or the findings.

Report Partners

Colorado Chamber Foundation: The Colorado Chamber Foundation supports research, programs and solutions that will drive opportunity and growth for Colorado's economy and advance the well-being of our communities through outreach and civic education. The Foundation has set out with a vision to drive economic growth by working collaboratively with the statewide business community and focusing on forward-thinking solutions using research and data, community engagement, and strategic initiatives.

Colorado Office of Economic Development & International Trade: The Colorado Office of Economic Development and International Trade (OEDIT) works to empower all to thrive in Colorado's economy by promoting economic growth and long term-job creation. We foster a thriving business environment across industries and regions by recruiting, retaining, and expanding Colorado businesses and providing programs that support entrepreneurs and businesses of all sizes at every stage of growth.

Metro Denver Economic Development Corporation: The Metro Denver Economic Development Corporation (Metro Denver EDC) is a private, business-led economic development organization driven by the support of its corporate and community investors. Funded by businesses, for businesses, Metro Denver EDC focuses on fostering a robust economic ecosystem by attracting and retaining companies, talent, and investment to the 11-county front range region in Colorado. Through strategic collaboration with more than 100 communities and innovative initiatives, the Metro Denver EDC is committed to advancing the region's position as a global hub for business success and community prosperity.

Moss Adams: Moss Adams provides specialized accounting, consulting, and wealth management services. With over 100 years of experience and 4,750 professionals across 30+ markets, our forward-thinking business solutions allow your company to focus on what matters most: transforming the world through your innovation.

Slalom: Slalom is a fiercely human business and technology consulting company that leads with outcomes to bring more value, in all ways, always. From strategy through delivery, our agile teams across 52 offices in 12 countries collaborate with clients to bring powerful customer experiences, innovative ways of working, and new products and services to life. We are trusted by leaders across the Global 1000, many successful enterprise and mid-market companies, and 500+ public sector organizations to improve operations, drive growth, and create value. At Slalom, we believe that together, we can move faster, dream bigger, and build better tomorrows for all.

Wells Fargo Technology Banking Group: As part of the Commercial Banking division, Wells Fargo's Technology Banking Group has delivered specialized insights and recommendations to technology companies for more than 25 years. The team provides scalable support to clients in all stages of the business life cycle – early, growth, and maturity – and combines industry experience with the strength and resources of one of the largest U.S. commercial banks.

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Highlights

- The tech industry directly accounts for **10 percent of Colorado's employment** and **20 percent of the state's gross domestic product** (GDP).
- Colorado is the **third most concentrated tech industry economy in the nation**, behind only Massachusetts and New Mexico.
- Over the last five years, the tech industry added **47,440 net new jobs**, the most jobs added by any major industry in the state.
- The total tech industry is predicted to **grow at a rate of 11.5 percent** in the next five years. This is the 5th highest projected rate in the nation.
- Colorado ranked **5th in the US in venture capital funding** rates from 2018 to 2023.

Colorado Technology Industry Summary Statistics, 2023

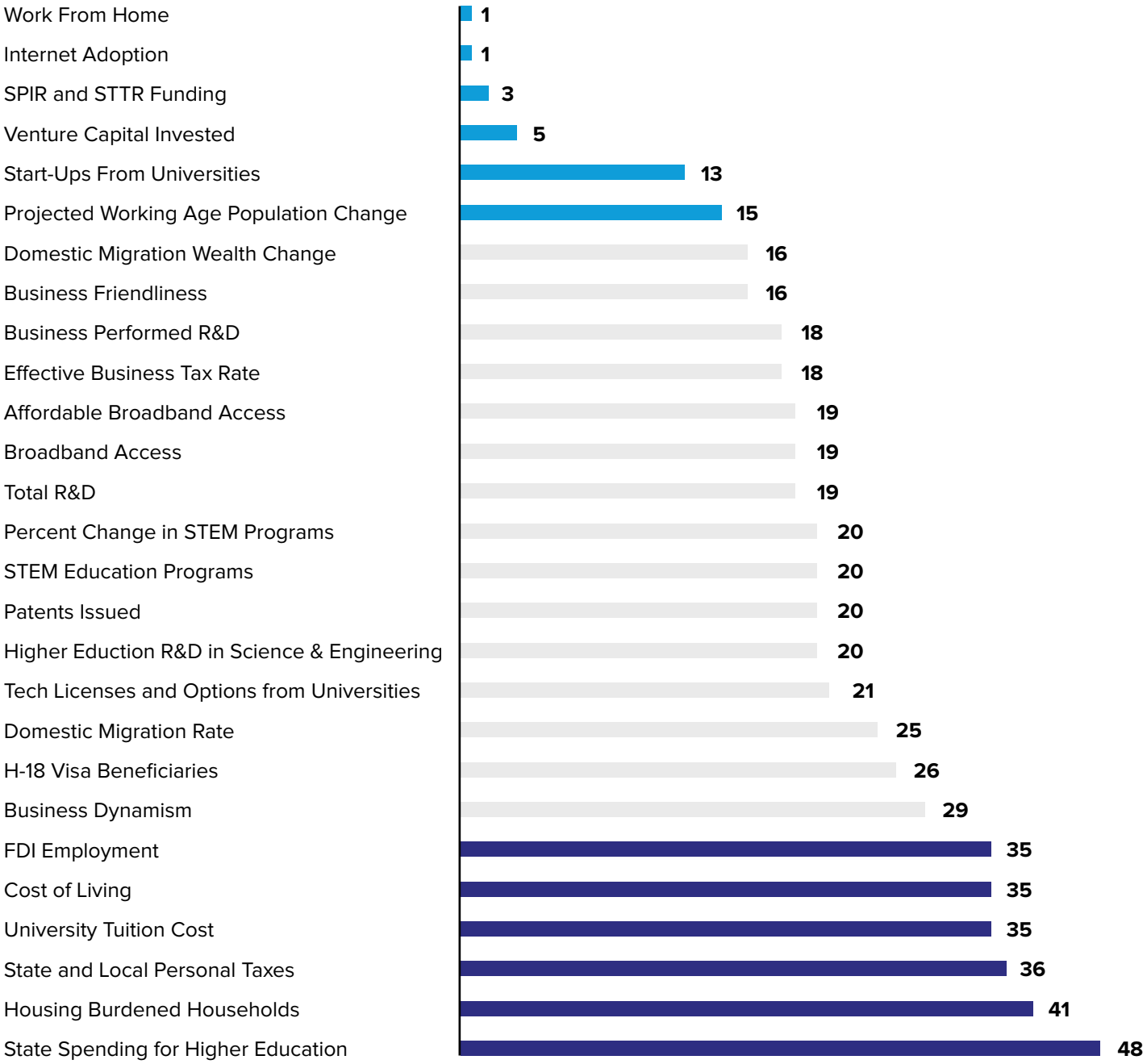
INDICATOR	STATE TECHNOLOGY INDUSTRY	STATE TOTAL	STATE TOTAL PERCENTAGE
Employees	302,489	3,065,199	9.9%
Establishments	32,703	258,422	12.7%
Earnings (millions)	$44,574	$246,072	18.1%
Sales (millions)	$132,604	$792,396	16.7%

Source: EL estimates based on Lightcast 2024.4

Note: One company can have multiple establishments in a state, see pg. 19 for full definition.

Colorado State Rankings for Tech Industries and Occupations (2023)

Colorado State Rankings for Tech Infrastructure Indicators (2023)

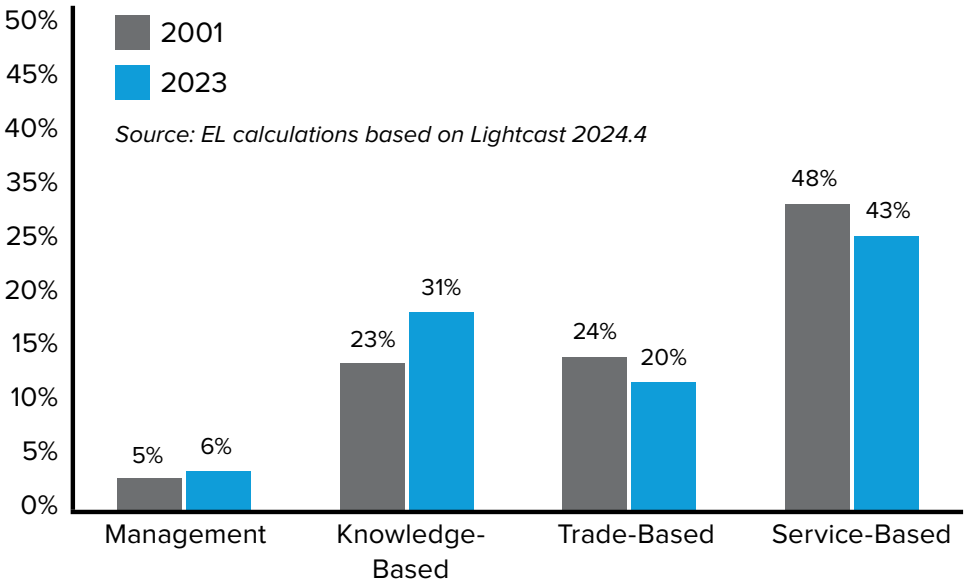


Note: These Rankings are out of the 50 states and do not include the District of Columbia.

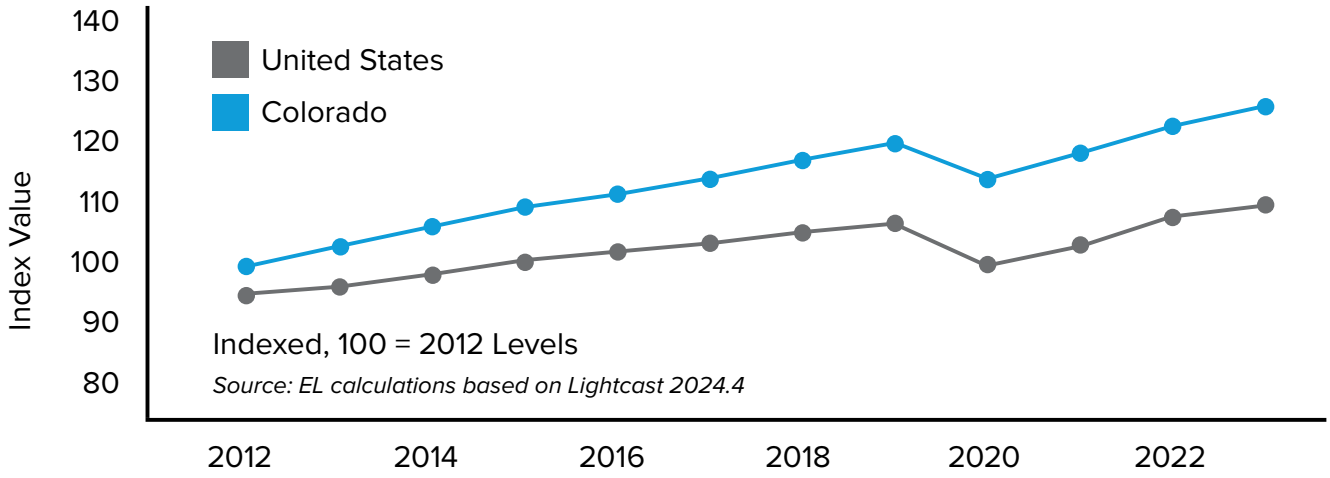
Section 1.
State of the Industry & Regional Trends

The overall economy in Colorado has shifted in recent decades. The state's economy has become more reliant on knowledge-based workers like business operations, finance, and tech. This change has also resulted in a smaller share of jobs in trade or service-based sectors. The overall number of jobs has grown at higher rates than the national average since 2012. The employment growth since the COVID-19 recession has also been strong in the state.

Occupational Share of Colorado's Economy

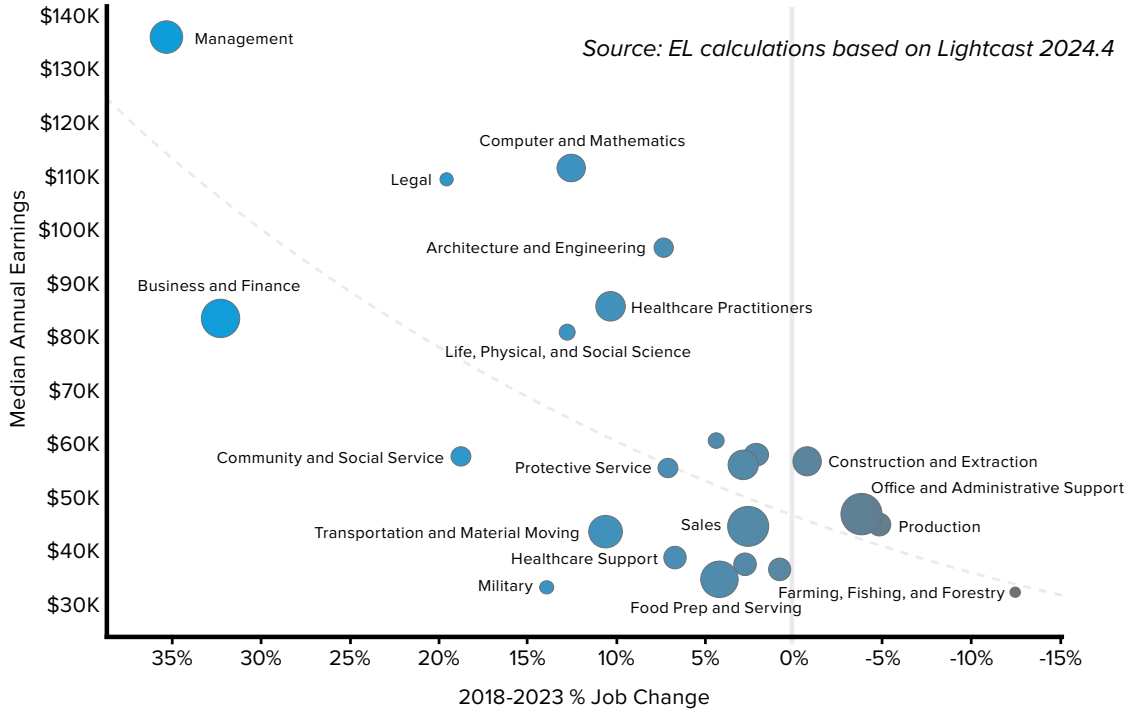


Total Employment Change



Knowledge-based jobs are powering the state's economy. The highest paying jobs like management, tech, and business are among the fastest growing jobs in Colorado. The management occupation group includes manager positions across all industry types. This report will detail how the tech industry has been a key support to Colorado's economy during this time-frame and how tech offers workers stable and high wage opportunities. Some of the traditional and more rural-based jobs like extraction, production, and farming are lower compensated positions and jobs are declining in these positions across the state.

Colorado Job Change by Occupation and Earnings



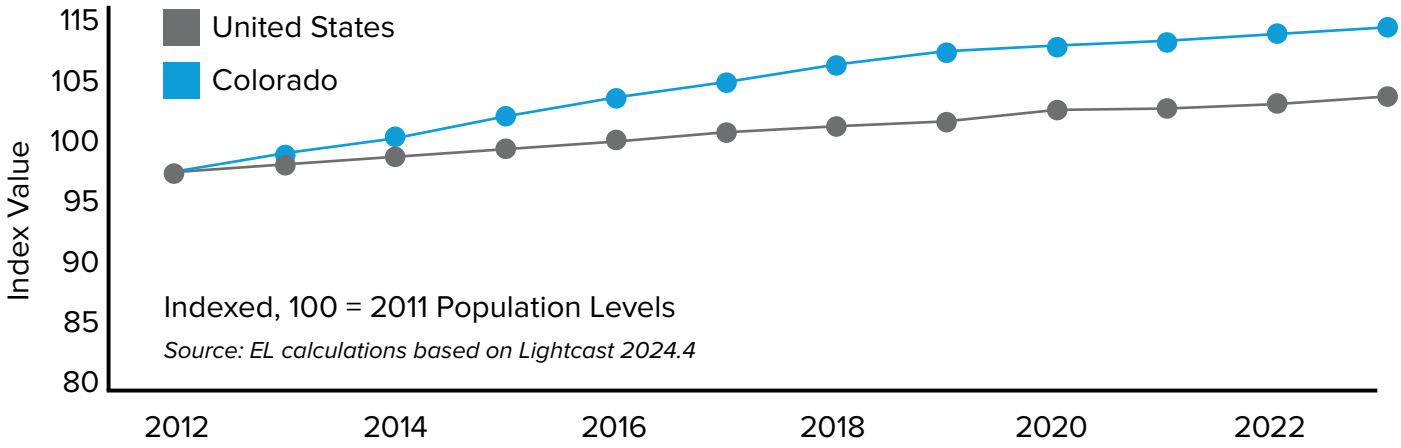
Colorado is the headquarters for nine Fortune 500 companies across several different industries, including two in tech. These anchor companies have large employment footprints which creates a strong talent pool. Even if these companies are operating in non-tech industries, they often utilize and develop technologies within their operations that make them critical drivers of the tech innovation system of the state.

Colorado Based Fortune 500 Companies

NAME	CITY	INDUSTRY
Arrow Electronics	Centennial	Tech
Ball	Westminster	Manufacturing
DaVita	Denver	Healthcare
EchoStar	Englewood	Tech
Liberty Media	Englewood	Media
Newmont	Denver	Metal Mining
Ovintiv	Denver	Oil and Gas
QURATE Retail	Englewood	Retail
VF	Denver	Apparel

A significant contributor to this economic progress has been population growth. The bulk of this growth has been in the young worker age brackets (age 24 to 39). As one stakeholder interviewed stated, “Colorado brings in the highly-educated and the highly-economically mobile.” The state’s population growth rate jumped above the national average between 2012 and 2018 and has maintained that lead in recent years. Tech employers that were interviewed highlighted how the quality of life in Colorado helps make recruiting workers easier. This surge of young, working-aged people has sparked the state’s economy and increased its pool of workers.

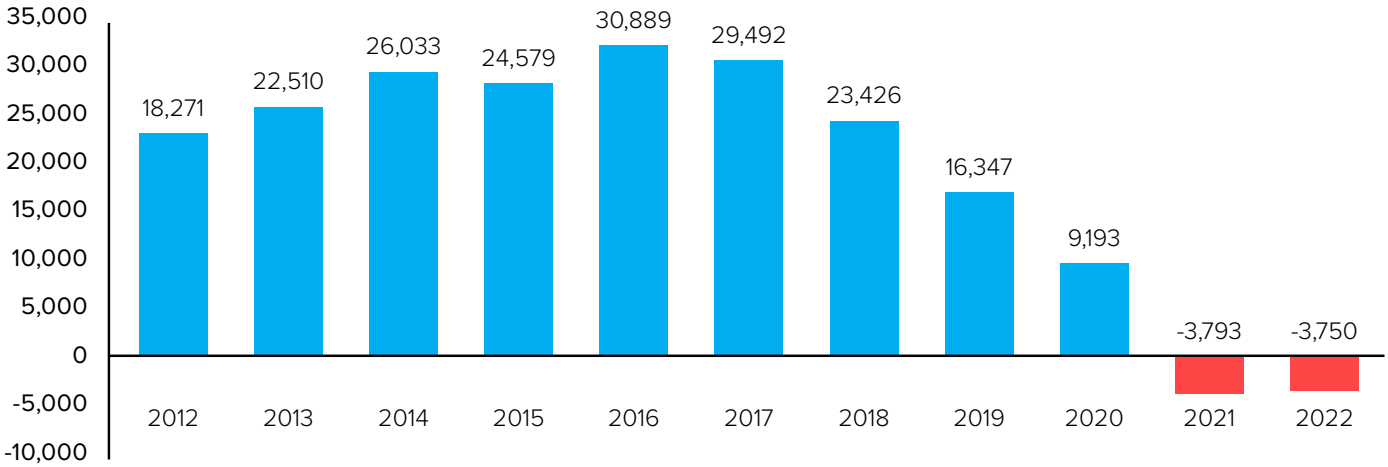
Population Change



Source: EL calculations based on Lightcast 2024.4

Data from IRS tax records help provide information on domestic taxpayers moves from state to state. Data on taxpayers does not cover the entire population but does provide focus on those most likely to participate in the labor force. This data reveals a sharp increase in net domestic taxpayer migration in 2012 through 2017, meaning more people moved to the state than left. Beginning in 2018 the trend began to decline and in the most recent two years of data more people were leaving the state than moving in.

Colorado Net Domestic Taxpayer Migration



Source: EL calculations based on Lightcast 2024.4

The IRS data reveals that the biggest portion of in-bound taxpayer migration is coming from the former residents of Texas, California, and Florida. When the outbound migration is subtracted to gather total net migration, Colorado is gaining residents from the more expensive coastal states like California, Illinois, and New York. In 2022, more people left Colorado for Florida, Oklahoma, North Carolina, and 28 other states than people moving into Colorado from those states. The shift in domestic taxpayer migration patterns is an important metric to continue to track. If people continue to leave the state at higher rates, this can impact Colorado based businesses' talent pool in an already difficult workforce environment.

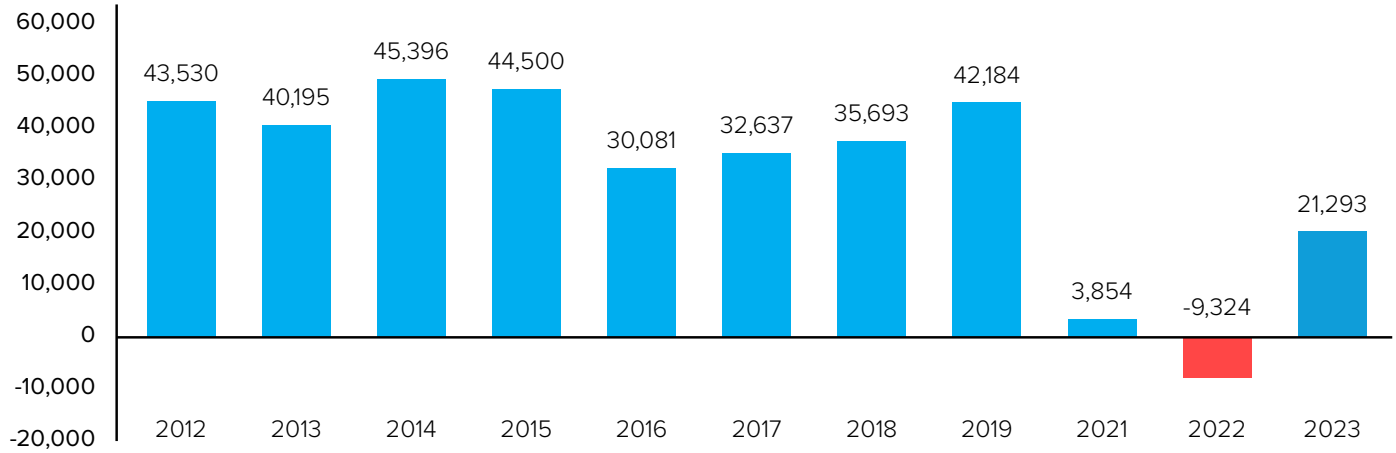
Top In-Bound and Out-Bound Migration States, 2022

TOP FIVE IN-BOUND STATES		TOP FIVE OUTBOUND STATES	
Texas	+22,700	Texas	-22,580
California	+22,370	Florida	-16,470
Florida	+11,260	California	-13,420
Arizona	+8,760	Arizona	-9,280
Illinois	+7,210	North Carolina	-5,990
TOP FIVE NET MIGRATION STATES		**BOTTOM FIVE NET MIGRATION STATES**	
California	+8,950	Florida	-5,220
Illinois	+3,070	Oklahoma	-2,000
New York	+1,430	North Carolina	-1,570
Massachusetts	+890	Tennessee	-1,530
New Jersey	+870	Wyoming	-1,260

Source: EL calculations based on Lightcast 2024.4
Note: Based on IRS data from Individuals who file taxes.

Data on migration for all groups, not just taxpayers, is available through the Census. This data features more segments of the population like children who are not likely to fill out IRS tax forms. This data also confirms the decline in migration post-pandemic. The most recent data for 2023 was net positive, indicating that migration may have stabilized, but still at lower levels than experienced before the pandemic.

Colorado Net Migration – Total Population

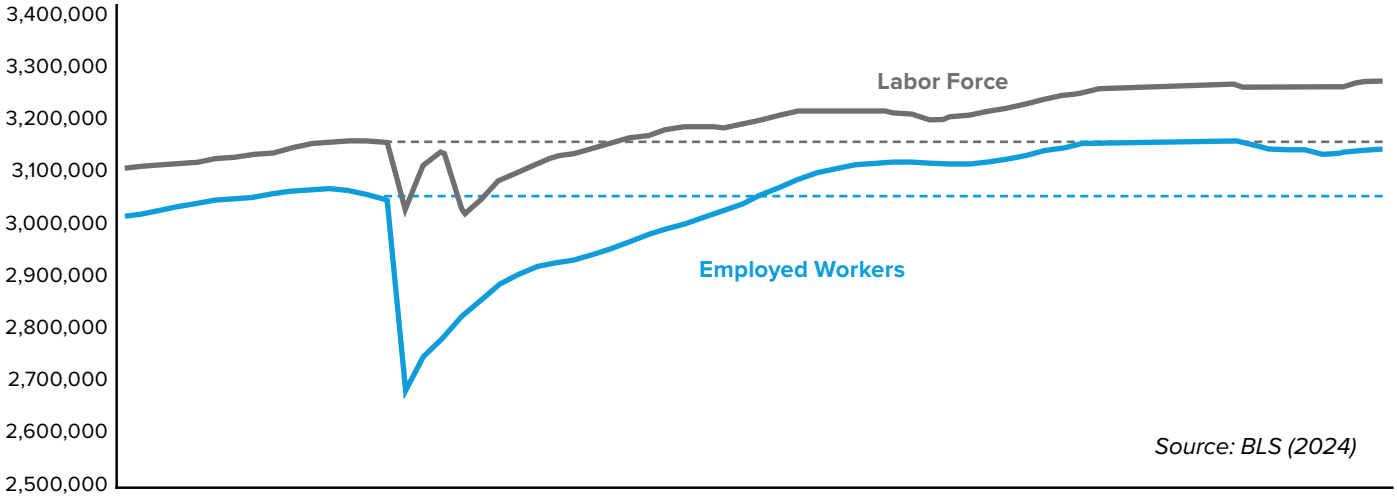


Source: EL calculations based on Lightcast 2024.4

Note: Data for 2020 is not available.

Despite the disruption of the pandemic, the Colorado economy was able to return to pre-pandemic levels of labor force and employment by the fall of 2021. The labor force and employment growth began to level off in the last year. Hiring has generally dampened across the US as the economy cooled following interest rate hikes from the Federal Reserve. At the time of this report, the Federal Reserve has cut rates twice in the fall of 2024 and hiring may begin rising again.

Colorado Employment and Labor Force Trends



January 2019 - August 2024

Source: BLS (2024)

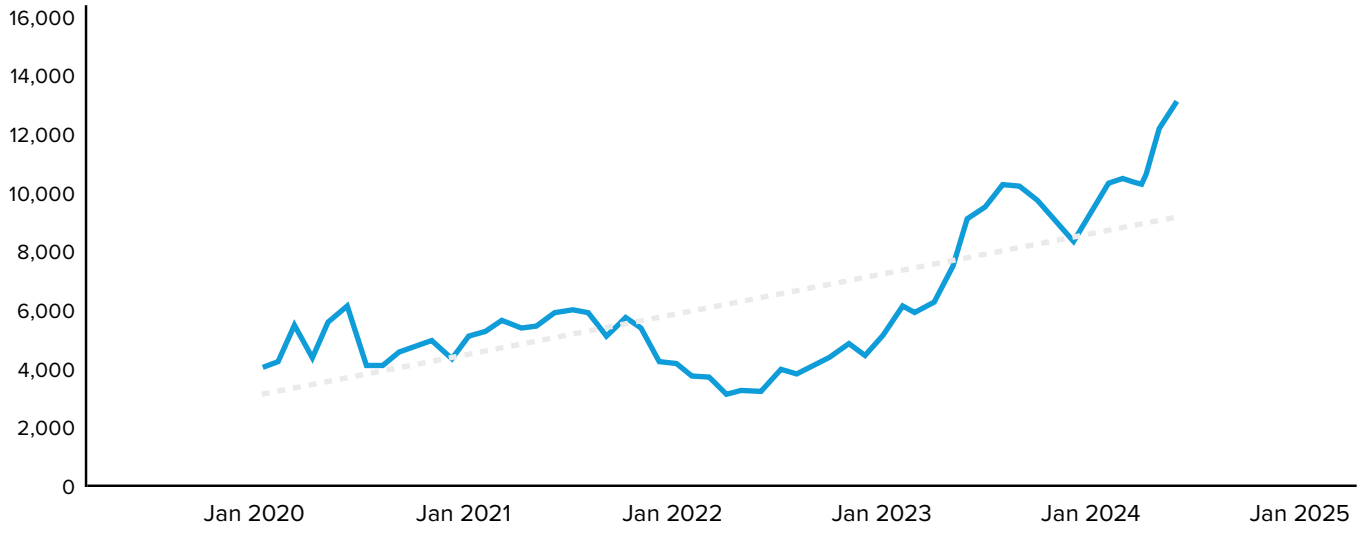
Despite this cooling in the economy and hiring rates, the state job openings remain high. Indicating that there is potential for job growth that is being unmet. This pattern matches national and global labor shortages. Many employers interviewed mentioned that they have several jobs they could fill today if they had the right or willing talent.

Colorado Labor Force Trends

January 2014 - July 2024

Colorado's labor market remains tight, the unemployment rate in September 2024 was 4 percent. There are still more job openings than there are unemployed workers in the state. LinkedIn data that showed a variety of tech roles in August 2024 were down nationally compared to their August 2018 levels. This research prompted the Business Insider article in Nov 2024 titled, "Tech jobs are mired in a recession." The article notes that tech may be one of the sections of the economy where the rosy overall economic numbers don't match workers' perception. Some of this is a stabilization from a post-pandemic hiring spree and low interest rates to our current reality of slower but steady growth. With unemployment rising above pre-pandemic levels this is another shifting trend that could signal slower future growth in the tech economy.

Colorado Computer & Mathematics Unemployed Workers



Source: EL calculations based on Lightcast 2024.4

Section 2. The Colorado Tech Industry

To define Colorado's technology industry, Economic Leadership identified 88 separate 6-digit NAICS code industries to characterize the "Total Technology Industry" for the state and for comparison with other US states. A full list of each 6-digit industry is available in the appendix of this report. These categories are based on several definitions of the technology industry. The primary source for defining the technology industry was based on TechAmerica Foundation's Technology Industry Classification. Other state and city tech industry reports were evaluated, and this report maintains a definition that is comparable to those reports.

To measure tech occupations that exist across all industries, Economic Leadership reviewed 85 separate 5-digit SOC codes to determine how many tech workers exist in the state across all industries. In addition to the data analysis, CTA surveyed its members and received 91 responses, and Economic Leadership conducted detailed interviews with ten tech leaders in the state. Quotes from these interviews and survey findings will be presented alongside statistical data throughout the report.

To calculate trends of the tech sector in terms of employment, wages, and establishments, Economic Leadership utilized data developed by Lightcast, which is largely based on the Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages dataset. Lightcast data fills in gaps from the BLS non-disclosure policy by amalgamating several economic data sources to allow for granular review of economic data.

The data presented in this report are calculations based on Lightcast data for the year 2023. This is the most recent full year of data available. The federal government revises data several times over the first year of reporting and often the revisions are impactful. Final 2024 estimates will not be available until mid-2025. Most trend data presented is for the 5-year period from 2018-2023. This approach is retrospective but allows for the most accurate assessment of the tech industry because it incorporates the finalized numbers from public sources. Some data such as unemployment and job postings offer more real-time analysis and are presented throughout the report. Company specific data was gathered using Gazelle, an AI software that scrapes and then verifies company information. The media review was conducted using Muck Rack, a PR and media monitoring software platform.

Colorado Technology Industry Summary Statistics, 2023

INDICATOR	SATE TECHNOLOGY INDUSTRY	STATE TOTAL	STATE TOTAL PERCENTAGE
Employees	302,489	3,065,199	9.9%
Establishments	32,703	258,422	12.7%
Earnings (millions)	$44,574	$246,072	18.1%
Sales (millions)	$132,604	$792,396	16,7%

Source: EL estimates based on Lightcast 2024.4

In 2023, the tech industry in Colorado employed over 302,489 workers at 32,703 tech establishments. This accounts for almost 10 percent of the total jobs in the state. The tech industry has an even more pronounced role in the economy in terms of establishments, wages, and sales. The tech industry paid almost $45 billion in earnings to workers in the state. This represented over 18 percent of all wages paid in the state.

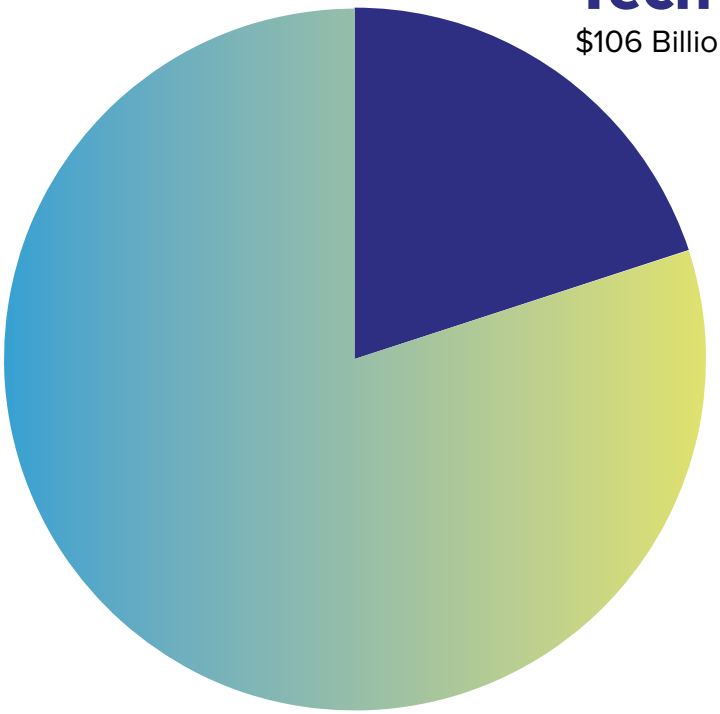
Colorado Technology Industry Economic Contributions, 2023

INDICATOR	TECHNOLOGY INDUSTRY	STATE TOTAL	STATE TOTAL PERCENTAGE
Taxes Paid (millions)	$6,479	$31,339	20.7%
Exports (millions)	$90,590	$441,807	20.5%
GDP (millions)	$105,845	$524,556	20.2%

Source: EL estimates based on Lightcast 2024.4

The industry also contributes heavily to Colorado's tax revenue, exports, and GDP. The tech industry generated over $106 billion in GDP in 2023, accounting for 20 percent of the state's total economic output. The contributions of the tech industry to the state economy have risen since the previous report. For example, tech's contribution to GDP was 18 percent in 2021, a rise of two percentage points.

Technology Industry Contribution to Colorado's GDP (2023)

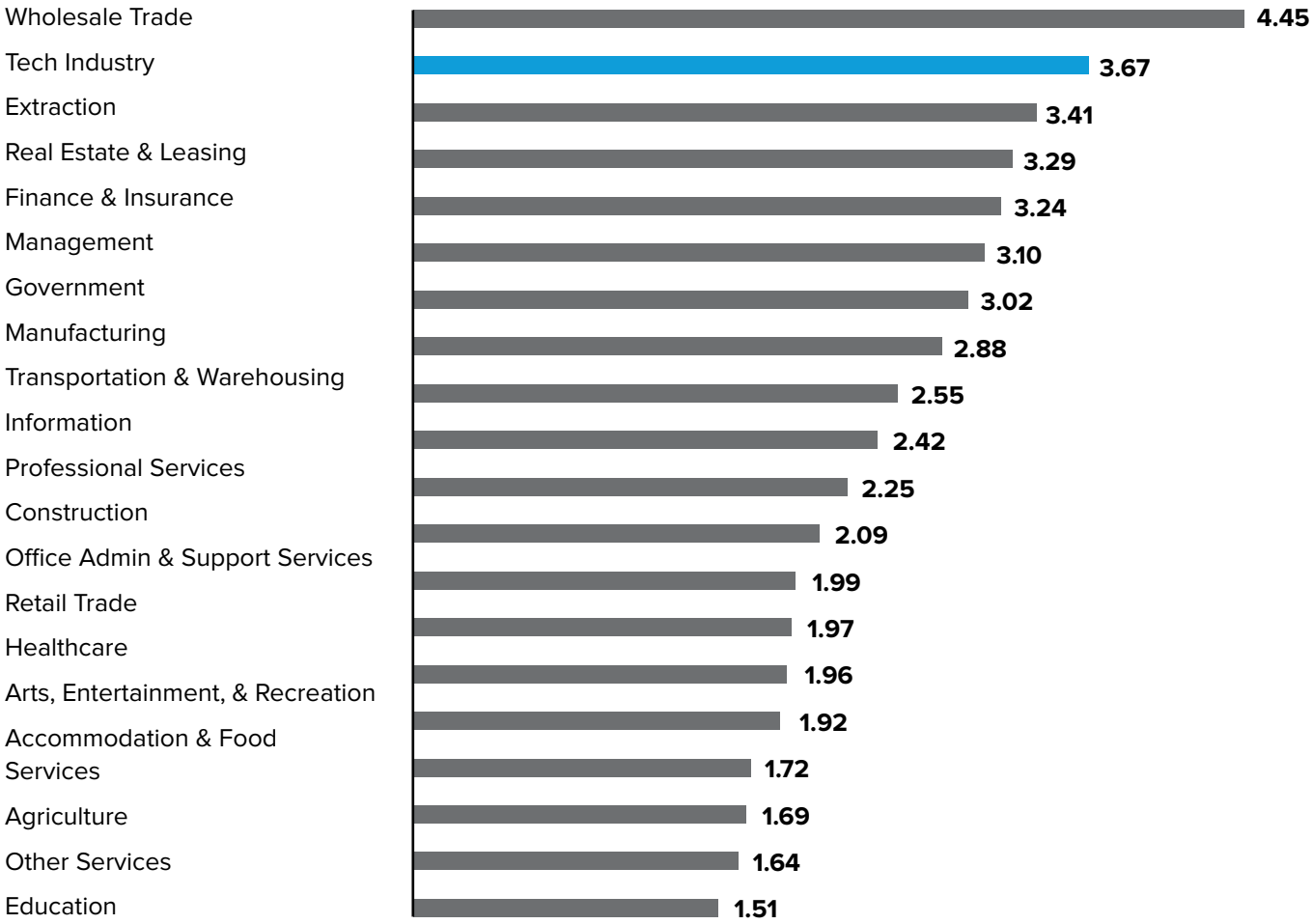


Source: EL calculations based on Lightcast 2024.4

> **"Many people don't realize the extent of the tech sector in the state. Tech is not as visible to a community as a manufacturing plant, sports stadium, or a bank even though the economic impact may be larger."**
>
> **— Stakeholder Quote**

The tech industry creates a profound ripple effect throughout the economy. This ripple effect can be measured through input-output economic modeling that estimates the flow of money throughout a region. Based on this research for the 2023 Colorado economy, when one job was added in the tech industry another 2.67 jobs were added on average elsewhere in the Colorado economy. This amounts to a total job impact of 3.67. This multiplier of 3.67 jobs was one of the largest across the Colorado economy only behind wholesale trade. This multiplier effect increased from a value of 3.42 in 2021 in the initial report. When tech leaders were asked if they thought those outside of the industry understood the impact the sector has on the state economy, many thought the positive impacts were only understood to a certain degree. Many believed the importance of the industry to the state could be further conveyed

Colorado Job Multiplier by Industry (2023)



Source: EL calculations based on Lightcast 2024.4

To measure the tech industry more granularly the industry was broken down into four sub-categories:

- Energy Technology
- Environmental Technology
- Life Sciences
- IT, Telecom, Hardware & Software (IT)

The Information Technology (IT) group includes industries related to hardware manufacturing, software services, telecommunications, and other computer related services. Energy Technology includes industries related to fossil fuel and renewable power operations. Environmental Technology includes industries related to electrification, batteries, environmental consulting, and waste remediation services. Life Sciences includes industries related to pharmaceutical manufacturing and research and development.

Colorado's Technology Industry by Sub-Categories

TECHNOLOGY CATEGORIES	EMPLOYMENT, 2023	EMPLOYMENT CHANGE, 2022-2023	EMPLOYMENT CHANGE, 2018-2023	ESTABLISHMENTS, 2023	JOB CONCENTRATION
Energy Tech	27,248	4.9%	-17.1%	1,537	1.42
Environmental Tech	18,391	4.2%	15.5%	1,859	1.17
Life Sciences	86,545	4.2%	25.1%	7,692	1.46
IT	170,306	1.3%	24.2%	21,616	1.61
TOTAL TECH	**302,489**	**2.6%**	**18.6%**	**32,703**	**1.51**

Source: EL estimates based on Lightcast 2024.4

Note: Some values may not add to the exact total due to rounding.

Tech Industry Employment by MSA

MSA	TECH INDUSTRY EMPLOYMENT, 2023	SHARE OF STATE TOTAL
Denver	171,523	57%
Boulder	44,748	15%
Colorado Springs	33,323	11%
Fort Collins	15,253	5%
Greeley	10,159	3%
Grand Junction	3,600	1%
Pueblo	2,911	1%

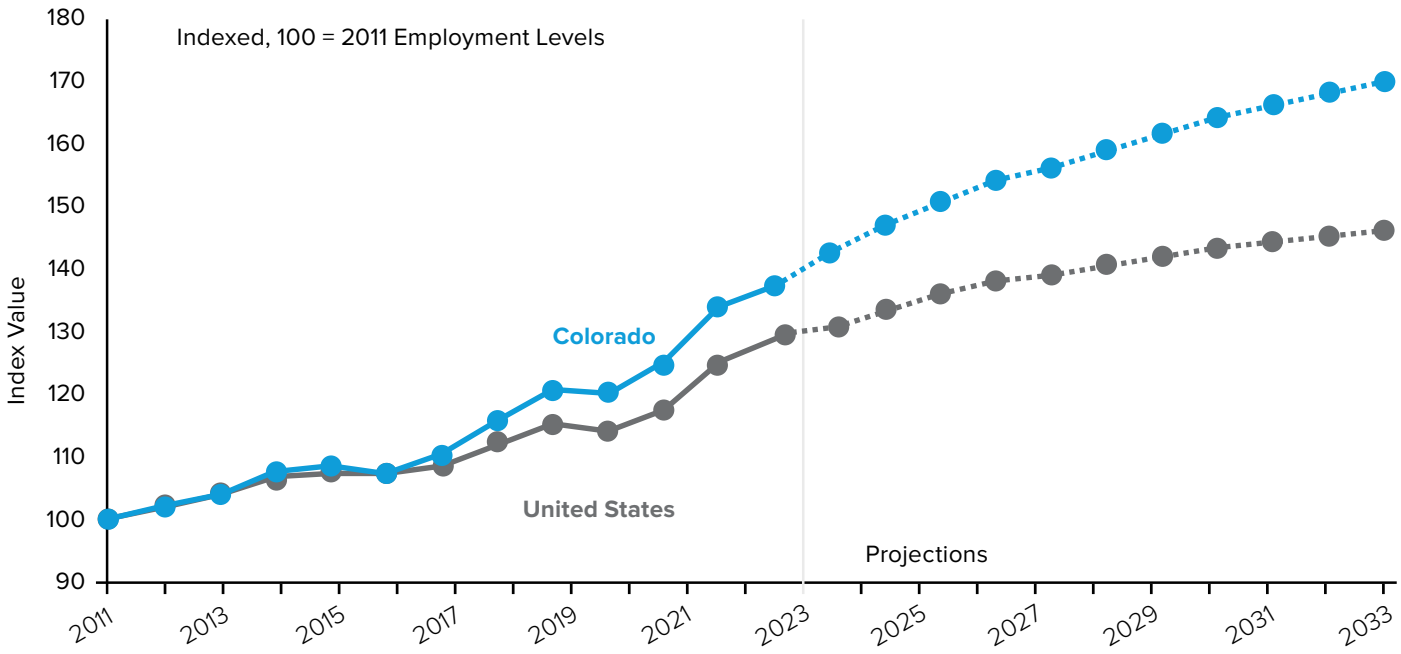
Source: EL calculations based on Lightcast 2024.4

Job concentration calculations offer an understanding of the uniqueness of an industry in an economy. Concentration values greater than 1.00 indicate that industry is a larger share of Colorado's economy than the national average and is a significant part of a region's economic base. Industries with high concentration values often generate a significant portion of the economy's exports and wealth. Remarkably, Colorado has high location quotients for each of the four sub-categories. This highlights a tech industry that is diverse with many types of operations. Overall, the industry is 51 percent more concentrated than the national average, and increased from 48 percent two years ago.

The IT group of industries accounts for 56 percent of the total tech industry employment in the state. Job growth has been strong in each sub-category except energy tech. In the last year, each sub-category saw net job gains. IT had some of the fastest five-year job growth levels but had the slowest rate of the categories in the last year.

The Denver metropolitan statistical area (MSA) accounts for 57 percent of the tech industry in Colorado. The next MSAs with the largest levels of tech industry jobs are Boulder and Colorado Springs with 15 and 11 percent of the state's total employment respectively.

Long Term Tech Industry Employment Trends



Source: EL calculations based on Lightcast 2024.4

Job growth in Colorado's tech industry has been strong since the recovery from the Great Recession. The state followed national trends of growth, but then in 2017 started to accelerate and grow at even higher rates. The future looks strong for the industry as Lightcast models predict growth over the next 10 years for the state at a higher rate than the nation. This job forecast is based on the 5-,10-, and 15-year employment trends in the industry and national industry projections. Later in the report, these growth projections are compared against other states.

The tech industry can also be evaluated by the type of product produced, services or manufactured goods. In Colorado, a significant majority of the tech industry was involved in providing tech services. Tech manufacturing jobs fell from 2022 to 2023 and is less concentrated in the state than national levels. One bright spot within tech manufacturing was the addition of over 200 jobs in the semiconductor device manufacturing industry. This indicates Colorado is capitalizing on efforts to re-shore chip building in the US. An over-reliance on tech services makes the state more vulnerable to shocks in these industries. A more robust tech manufacturing industry also expands the tech workforce to high-paying jobs that don't require as advanced education.

Colorado's Tech Industry by Output Categories

TECHNOLOGY OUTPUT CATEGORIES	EMPLOYMENT, 2023	EMPLOYMENT CHANGE, 2022-2023	EMPLOYMENT CHANGE, 2018-2023	ESTABLISHMENTS, 2023	SALES, 2023 (MILLIONS)	NATIONAL LOCATION QUOTIENT
Tech Services	268,913	3.3%	20.4%	31,932	$119,674	1.62
Tech Manufacturing	33,576	-2.3%	5.9%	771	$12,930	0.97
TOTAL TECH	**302,489**	**2.6%**	**18.6%**	**32,703**	**$132,604**	**1.51**

Source: EL estimates based on Lightcast 2024.4

In Colorado in 2023, the average earnings per worker in the tech industry was $165,500 a year. The average earnings for workers across all industries in the state is about $88,970. A tech industry worker earns almost double the average worker in the state. This metric of earnings includes all the wages and supplements received by a worker. This metric allows for comparing the total compensation an employee receives across different jobs and industries. Supplements include employee benefits and on average accounted for about $22,980 of a tech industry worker's earnings in Colorado. Earnings in tech in Colorado are comparable or higher than the national average. Over the years Colorado transitioned from being a lower-cost option compared to the coastal hubs to a higher-priced market itself.

Average Annual Earnings per Worker by Sub-Industry, 2023

TECHNOLOGY CATEGORIES	COLORADO	NATIONAL AVERAGE
Energy Tech	$198,500	$175,900
Environmental Tech	$102,200	$97,600
Life Sciences	$143,900	$153,800
IT	$178,200	$187,800
ALL CATEGORIES	**COLORADO**	**NATIONAL AVERAGE**
Tech Services	$168,400	$170,200
Tech Manufacturing	$143,400	$166,000
TOTAL TECH INDUSTRY	**$165,600**	**$169,500**

Source: EL estimates based on Lightcast 2024.4

Higher wages enhance workers' purchasing power, improve quality of life, and can stimulate consumer spending, which supports broader economic growth. However, elevated wage levels also increase operating costs for employers, potentially compressing profit margins. Higher labor costs can lead to difficult choices around price adjustments, automation, or workforce reductions to maintain competitiveness.

The tech industries were also aggregated into more detailed groupings, super sub-industries to better understand the sector. This breakdown shows that software services are a significant driver of the tech industry growth in the state. Jobs in this group have grown by 42 percent from 2018 to 2023. Research and development is also on the rise in the state with a 5-year growth rate of 38 percent. These industries help develop new technologies that can catalyze further innovation. Notably concentration levels are strong across almost all categories in Colorado. One area of slight decline is in the internet, social media, and telecommunications grouping. This industry contains many of the companies that people refer to as "Big Tech." Telecommunications companies have traditionally been some of the larger companies within the tech industry in the state. The decline in other energy and power generation jobs is consistent with national trends.

Colorado's Tech Industry by Super Sub-Industries

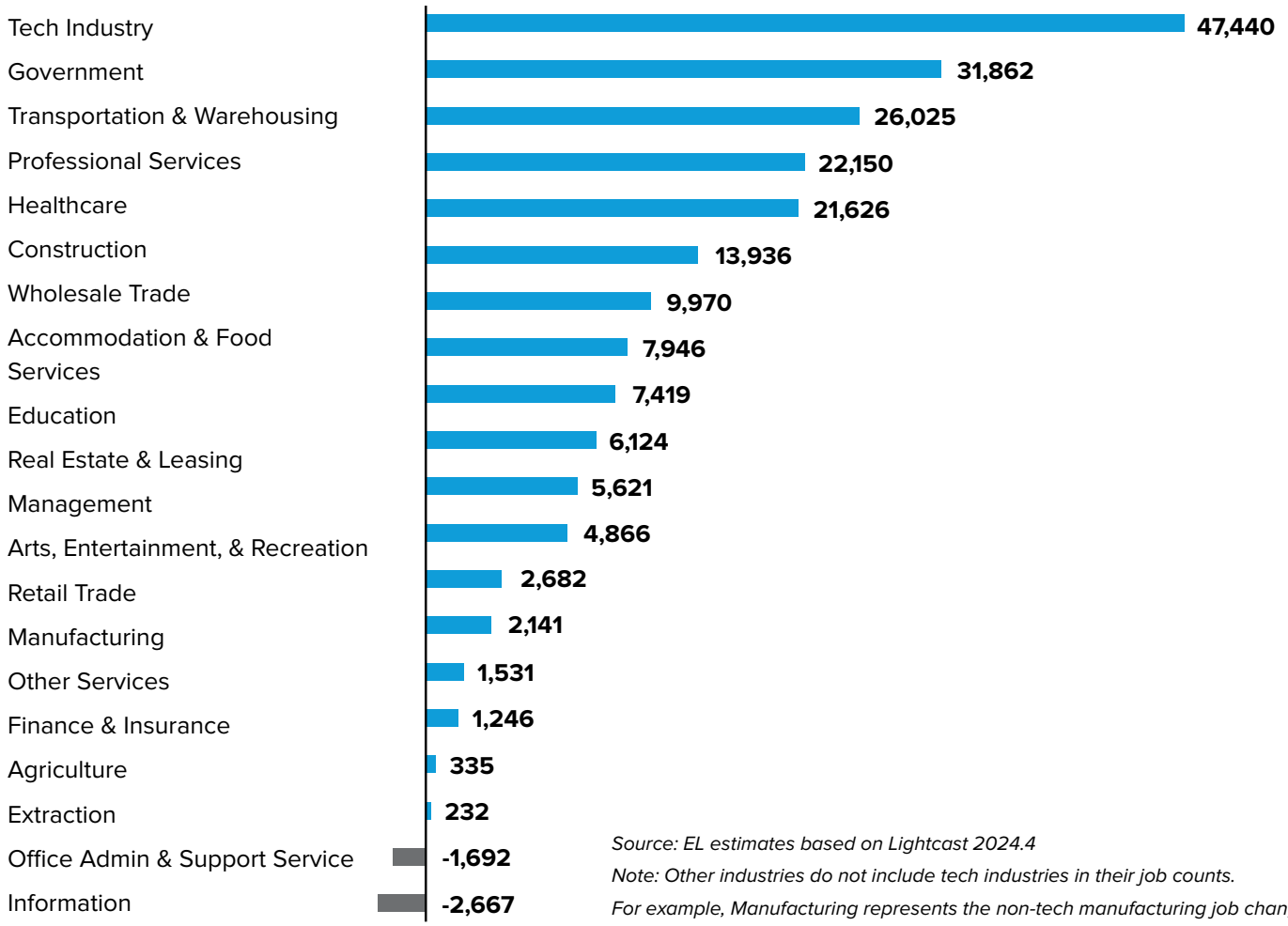
SUPER SUB-INDUSTRIES	2023 EMPLOYMENT	EMPLOYMENT CHANGE (2018-2023)	ESTABLISHMENTS, 2023	JOB CONCENTRATION
Software	109,002	42%	18,285	1.83
Engineering, Environmental, & Clean Tech	52,809	24%	4,818	1.91
Internet, Social Media, & Telecom	45,327	-1%	3,056	1.56
R&D and Testing	26,934	38%	3,419	1.14
Other Energy and Power Generation	26,408	-19%	1,467	1.42
Electronics Hardware	15,977	8%	275	0.92
Life Sciences Manufacturing	14,682	4%	415	1.03
Remediation and Waste Management	10,510	18%	898	1.09
Renewable Energy	840	162%	70	1.39
TOTAL TECH INDUSTRY	**302,489**	**19%**	**32,703**	**1.51**

Source: EL estimates based on Lightcast 2024.4

Over the last five years, the tech sector added 47,440 net new jobs, the most jobs added by any major industry in the state. This highlights the importance of the industry on the state's economy. The next biggest growth contributors were government and transportation and warehousing. Non-tech media that makes up the information industry saw net job losses in the state. Office and administration jobs are down in the state as well as nationally.

Not only is the tech industry growing in terms of jobs, but in recent years the number of tech establishments has risen dramatically. An establishment is defined as any company that has a location with a payroll. One company can have multiple establishments in a region. The growth in establishments has been primarily in computer programming, design services, and software companies. The increase of tech establishments is likely part of the trend of smaller start-ups and entrepreneurship. R&D and environmental firms have also seen significant gains in the state.

Net Jobs Change in Colorado by Industry (2018-2023)

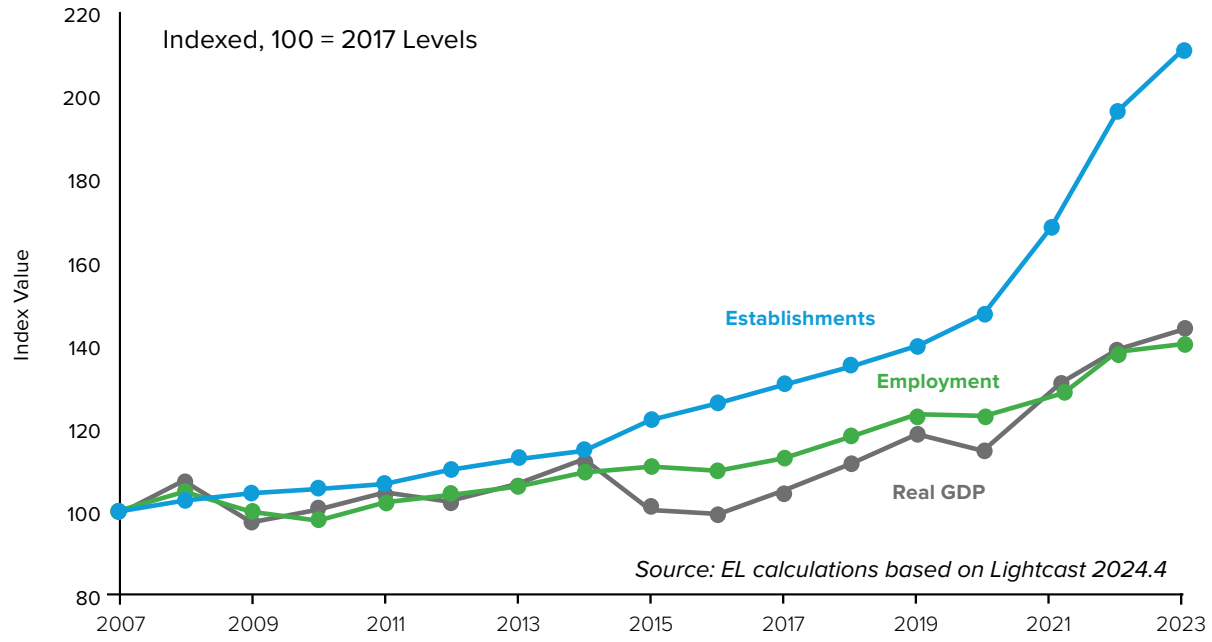


Source: EL estimates based on Lightcast 2024.4

Note: Other industries do not include tech industries in their job counts.

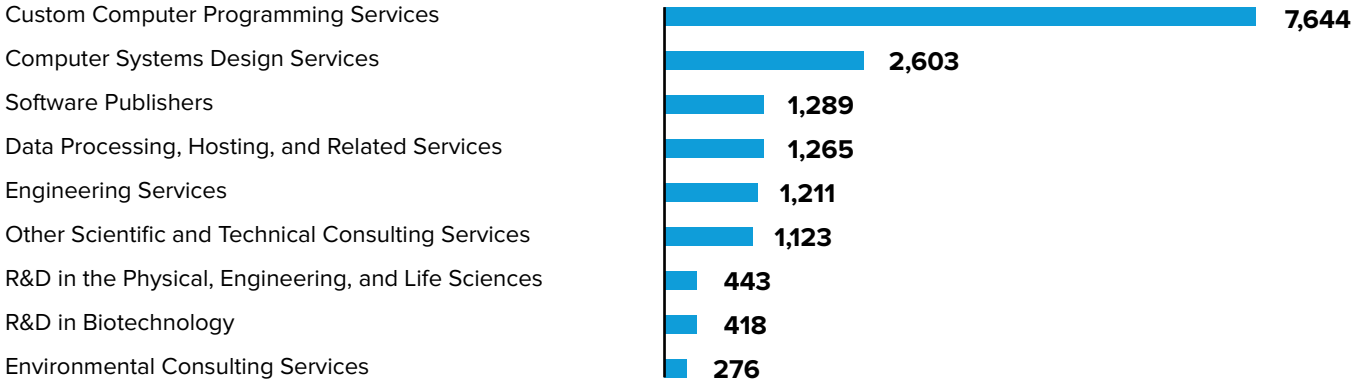
For example, Manufacturing represents the non-tech manufacturing job change.

Colorado Tech Industry Growth Metrics



Source: EL calculations based on Lightcast 2024.4

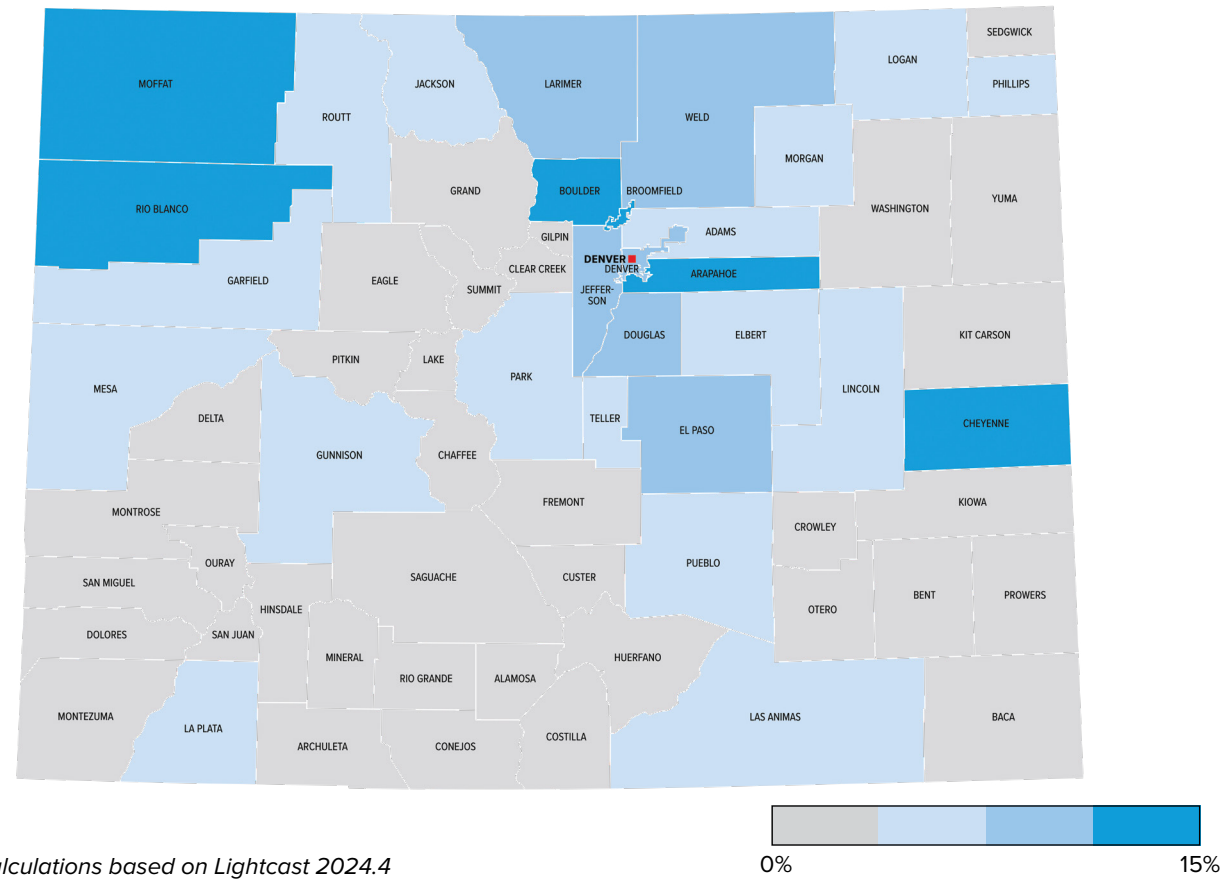
Colorado Tech Industry
Top Establishment Change (2007-2023)



Source: EL calculations based on Lightcast 2024.4

Across the state, the tech industry is most concentrated in front range counties. Some western slope counties have large energy-based economies that account for sizable portions of their total economy. Cheyenne County in the East also has energy and environmental jobs, including growth in wind power and environmental consulting. The counties with a smaller tech industry presence tend to be rural and more reliant on agriculture and/or tourism.

Tech Industry Jobs as a Percentage of Total Jobs (2023)



Source: EL calculations based on Lightcast 2024.4

By design, many of the government-based labor market data agencies do not report information on employment or wages for specific companies. It can be difficult to obtain specific company information as some companies may want to keep their information private. For this year's report another data tool, Gazelle, was used to generate the names and company information of the top tech companies in the state. Gazelle is an AI software that scrapes and then verifies company information and offers estimates on revenue and employee counts.

Using Gazelle, company data was filtered for companies headquartered in Colorado and for those whose primary business is in tech manufacturing or services. The results included almost 6,960 companies headquartered in the state. Just under half of those companies employed ten or more workers (2,960 companies) and 66 companies employ more than 500 workers. About 628 of these companies headquartered in the state have received venture capital funding. Based on the year founded, 191 tech companies were started in the state within the last year. Gazelle also estimates a company's expansion potential and 60 of the tech companies headquartered in the state had higher likelihood ratings for expansion. The list below of the top tech companies headquartered in the state was created using Gazelle data and information provided by CTA.

Top Tech Companies Headquartered in Colorado, 2024

NAME	CITY
Accuris	Denver
Advanced Energy Industries	Fort Collins
Arcadia	Greenwood Village
Arrow Electronics	Centennial
CSG International	Englewood
DispatchHealth	Denver
EchoStar	Englewood
Fast Enterprises	Centennial
Frontgrade Technologies	Colorado Springs
Granicus	Denver
Guild	Denver
Housecall Pro	Denver
Ibotta	Denver

NAME	CITY
Madwire	Fort Collins
Optiv	Denver
OtterBox	Fort Collins
Palantir Technologies	Denver
Pax8	Greenwood Village
Ping Identity	Denver
Quantim Metric	Colorado Springs
Trimble	Westminister
TTEC Digital	Greenwood Village
Vantage Data Centers	Denver
Vertafore	Denver
Zayo Group	Boulder

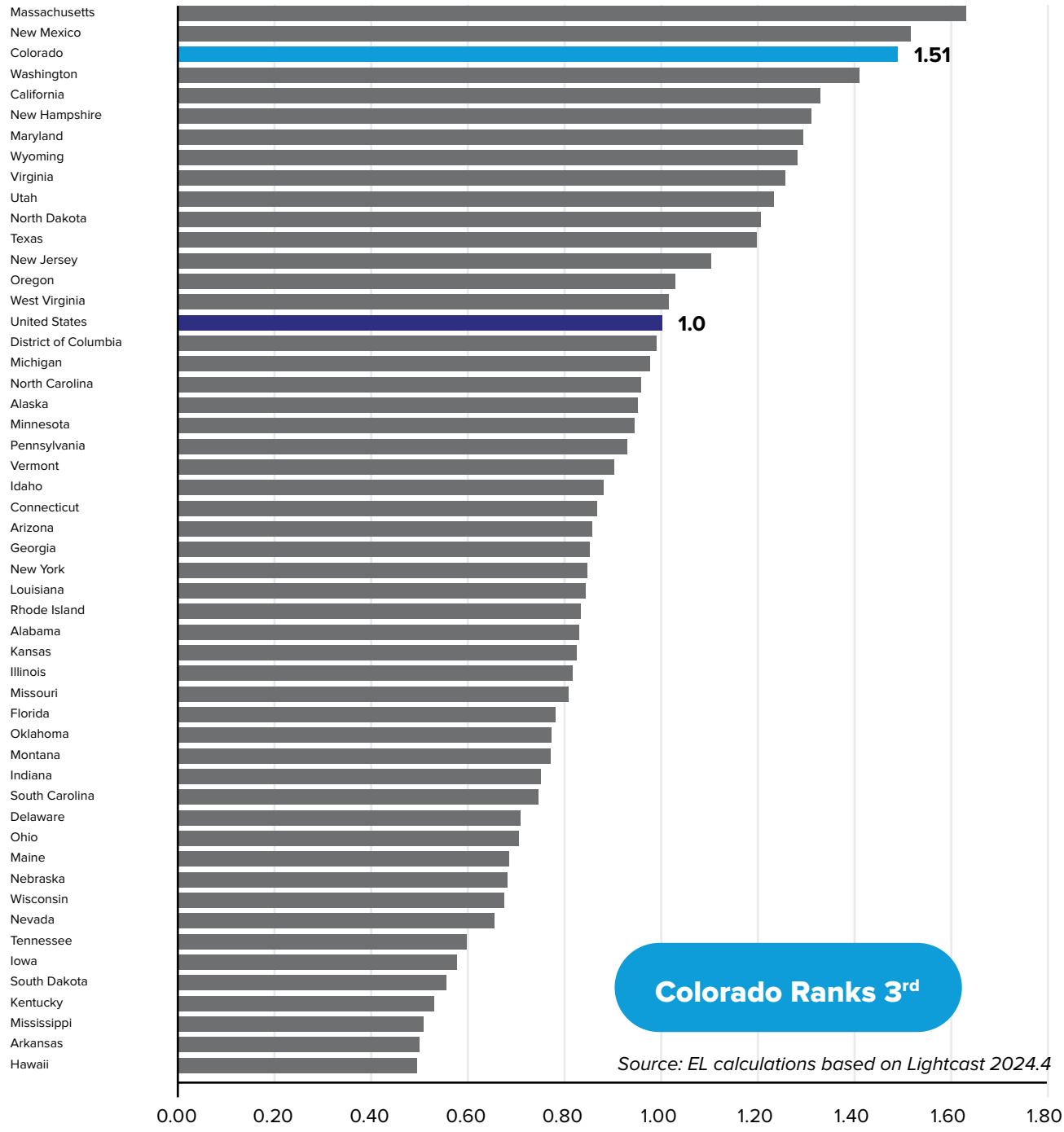
Source: Gazelle (2024) and Colorado Technology Association

Note: Companies were selected for this list based on the total number of employees. They are listed here in alphabetical order.

Section 3.
State Comparisons of Tech Industry Metrics

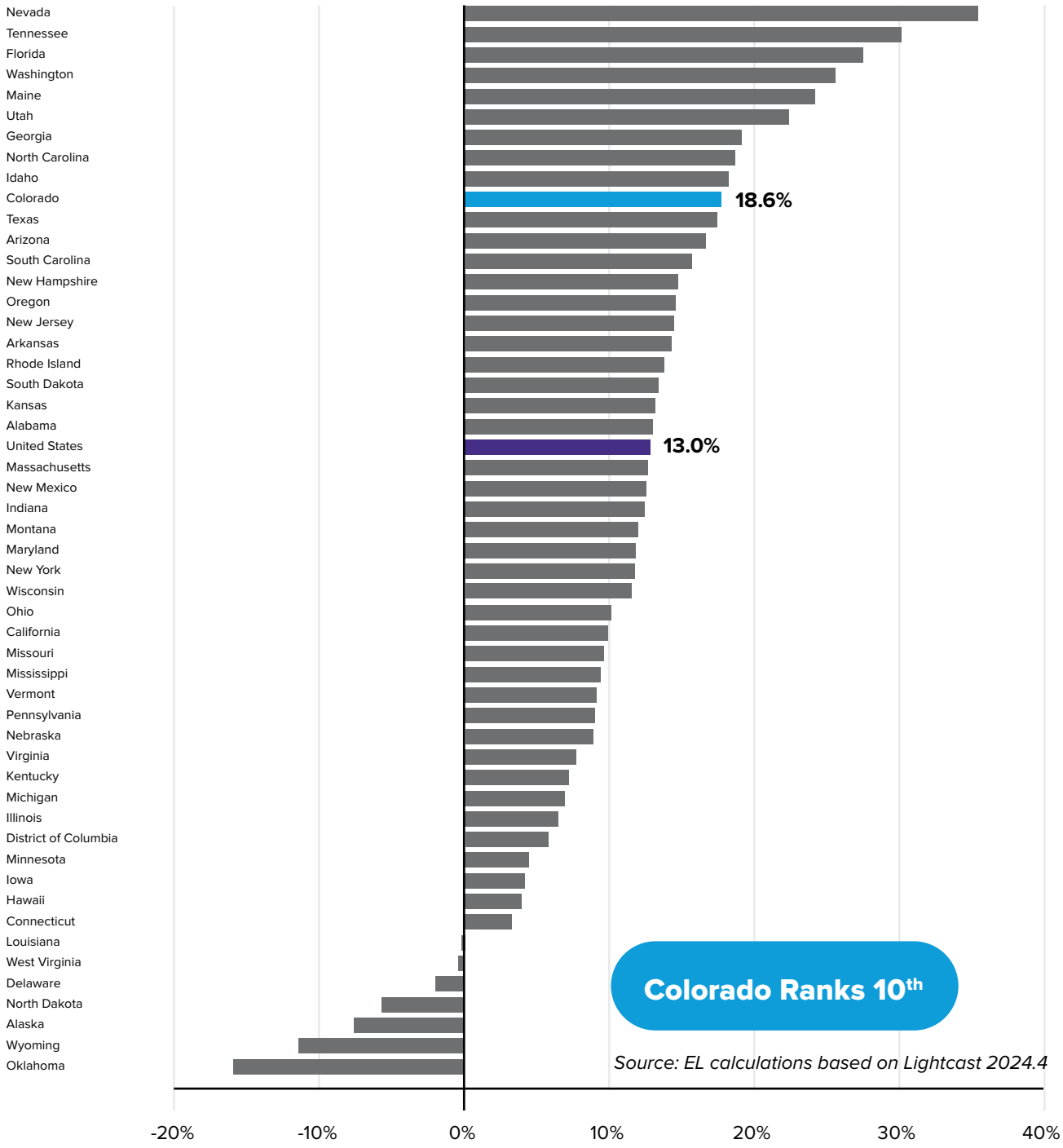
An important focus of the state of the industry report is to compare Colorado with other states in the country. This will help place the state's performance in context, identifying strengths and areas for attention. In the first report, Colorado was the second most concentrated tech industry economy, only behind Massachusetts. In 2023, Colorado dropped one position to third. These high concentrations highlight the industry's importance to the state's economy. As one stakeholder noted in an interview, "tech is one industry where Colorado is right on par with the 'Big Tech' states."

Employment Concentration of Total Tech Industry (2023)



Source: EL calculations based on Lightcast 2024.4

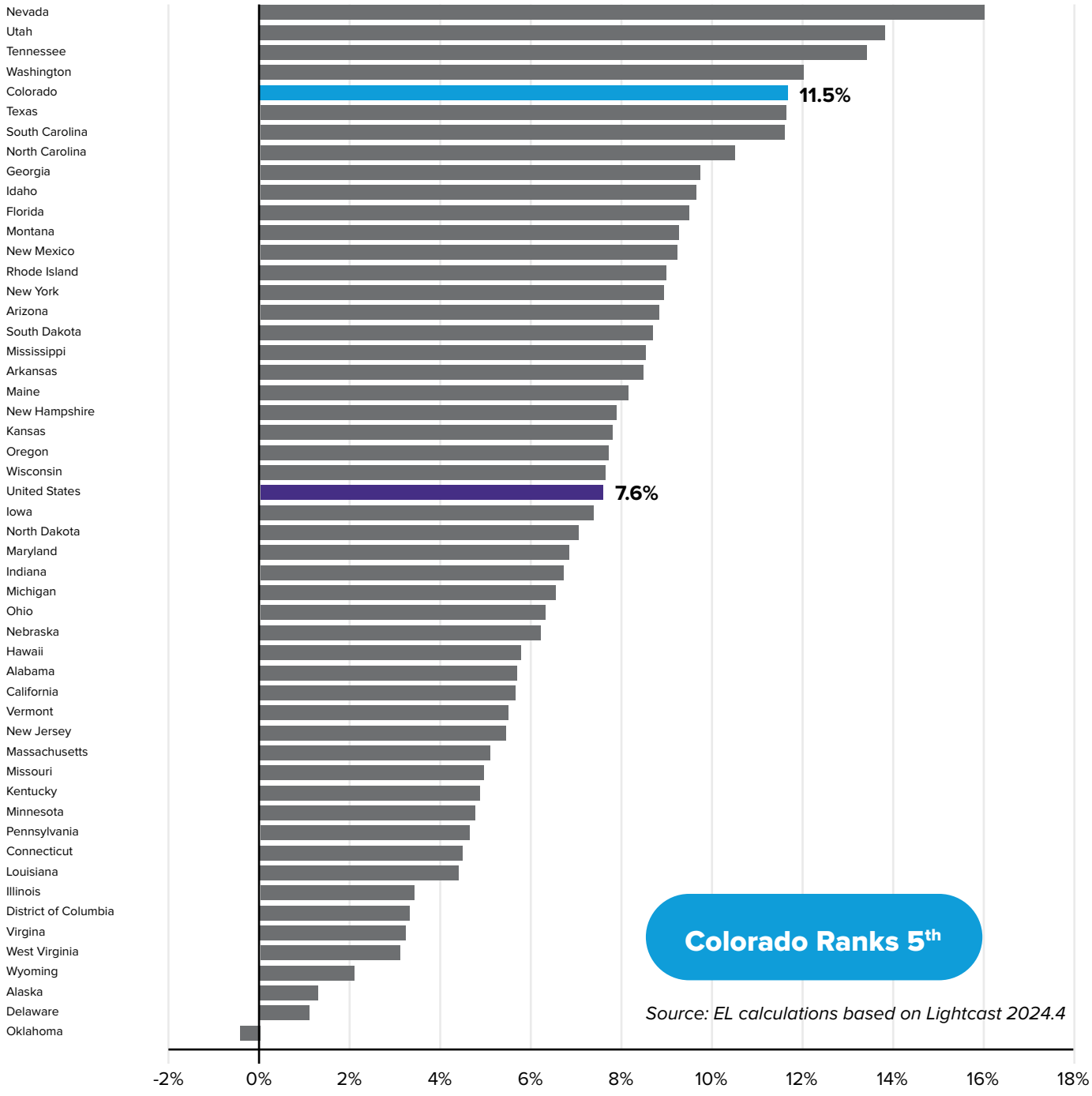
Total Tech Industry Employment Change (2018-2023)



Looking at growth patterns for the tech industry, Colorado grew tech industry employment by over 18 percent in the last five years. This was the 10th fastest growth rate in the nation, an improvement in the rankings from 11th in the previous report. Other Mountain West states, Nevada and Utah also scored high. The number one state, Nevada, is growing at a high rate due, in part, to the rapid expansion at the Tesla Gigafactory in Reno. States in the southeast like Tennessee, Florida, Georgia, and North Carolina are also growing their tech industry at higher rates than Colorado.

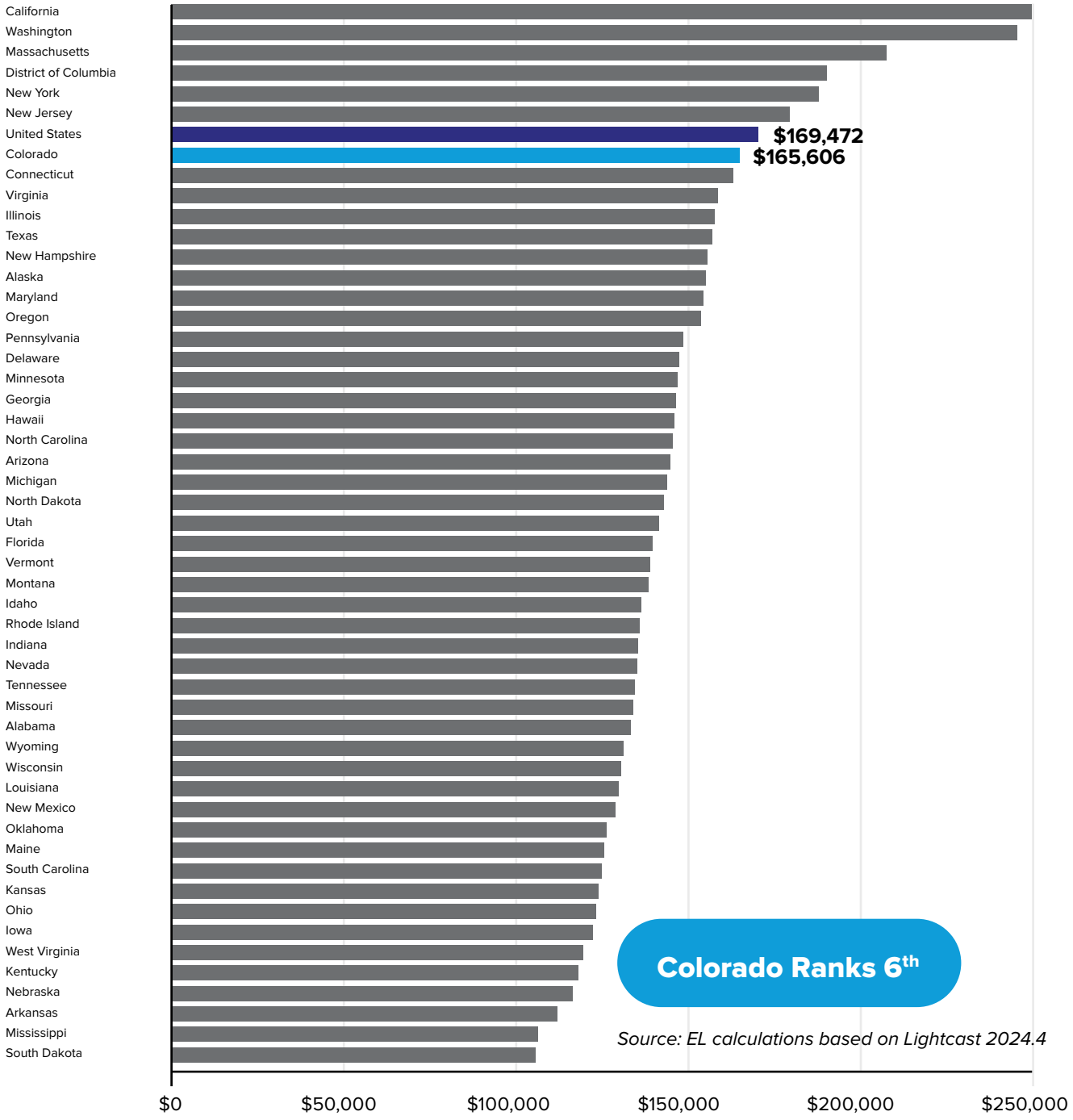
Based on Lightcast models that measure the historical 5-year, 10-year, and 15-year growth trends to predict future growth, Colorado is estimated to increase employment in the tech industry by 11.5 percent from 2024 to 2029. This is the 5th highest growth rate predicted across the nation. Other Mountain West states like Utah and Nevada also rank in the top ten.

Expected Total Tech Industry Employment Change (2024-2029)



Earnings are a key talent recruiting tool. Colorado workers in the tech industry average over $165,600 per year. This is the 6th highest average earnings across the country. Workers must weigh their compensation with the cost of living when comparing locations. In 2023, Colorado had a cost-of-living (COL) score of 111.2, the national average is 100, indicating essential items like housing, food, and transport were more costly in Colorado than other places in the nation. When wages are adjusted to account for this higher cost of living, the average tech industry worker earns

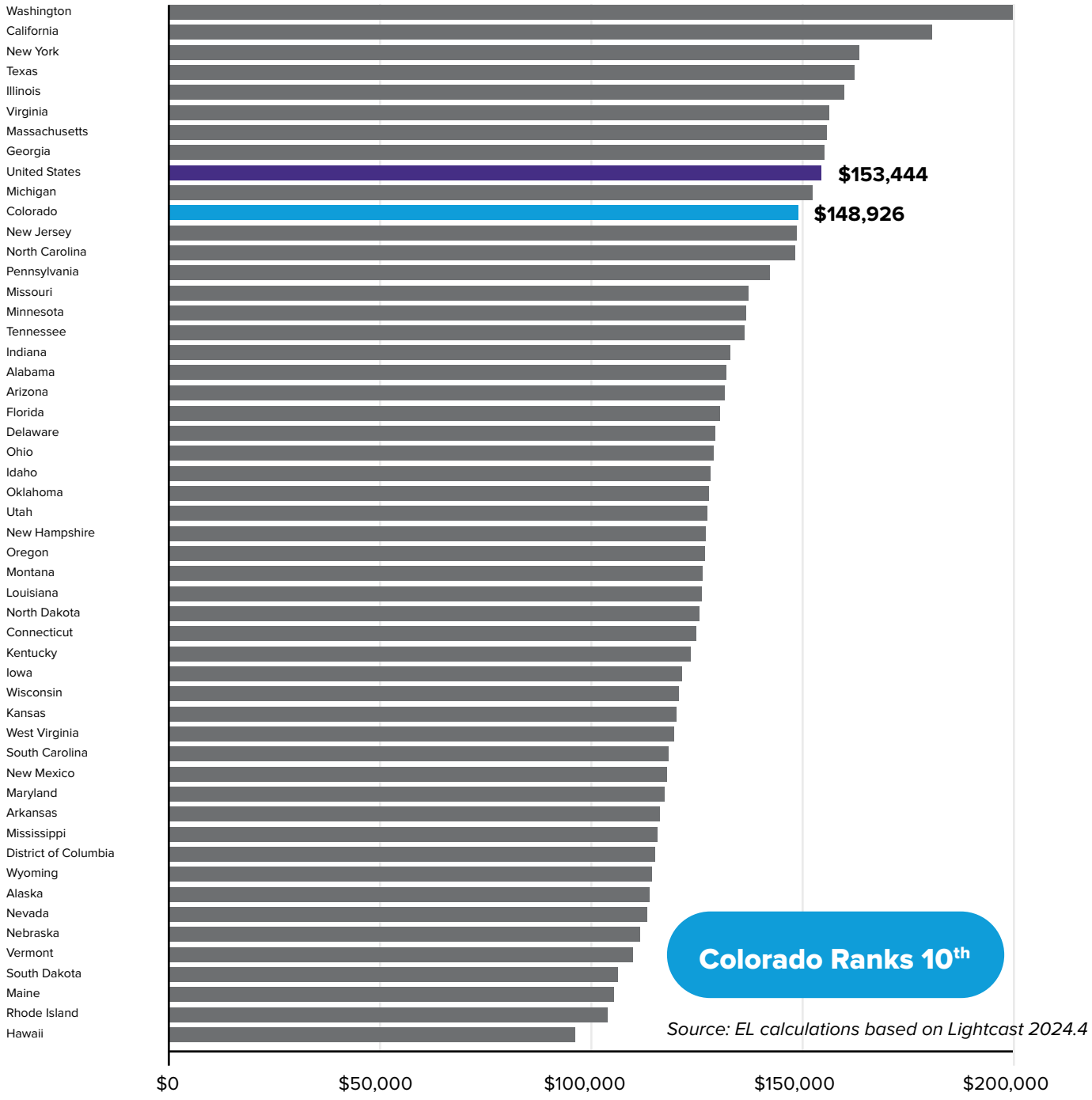
Annual Average Earnings for Total Tech Industry Employees (2023)



Source: EL calculations based on Lightcast 2024.4

over $148,900. When cost of living is factored into wages Colorado moves down in the rankings from 6th (unadjusted earnings) to the 10th highest average earnings level in the country. This year's ranking for adjusted earnings is an improvement from ranking 12th in the previous report. This is consistent with the qualitative finding that Colorado has transitioned to a higher labor cost market.

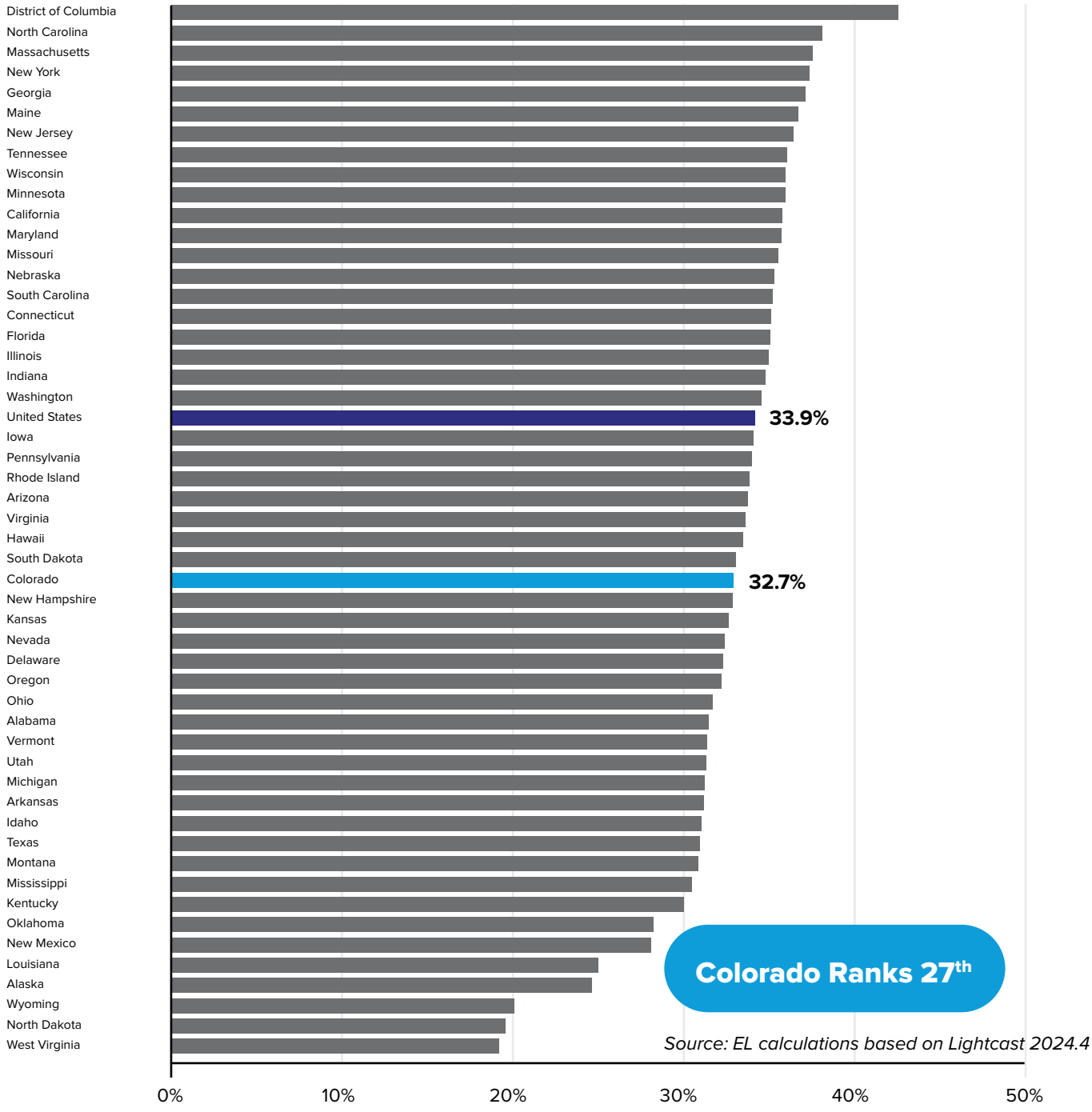
Annual Earnings for Total Tech Industry Employees with COL Adjustments (2023)



Source: EL calculations based on Lightcast 2024.4

The next area of focus demonstrates an area where the state is lagging and could work to improve its standing. This is in the diversity of the tech industry workforce. The state ranked in the middle of pack for gender diversity with women accounting for 32.7 percent of the workforce. This is below the national average and the state ranks 27th. The state's ranking did improve from 28th in the initial tech report. Every state was well below an equal distribution along gender.

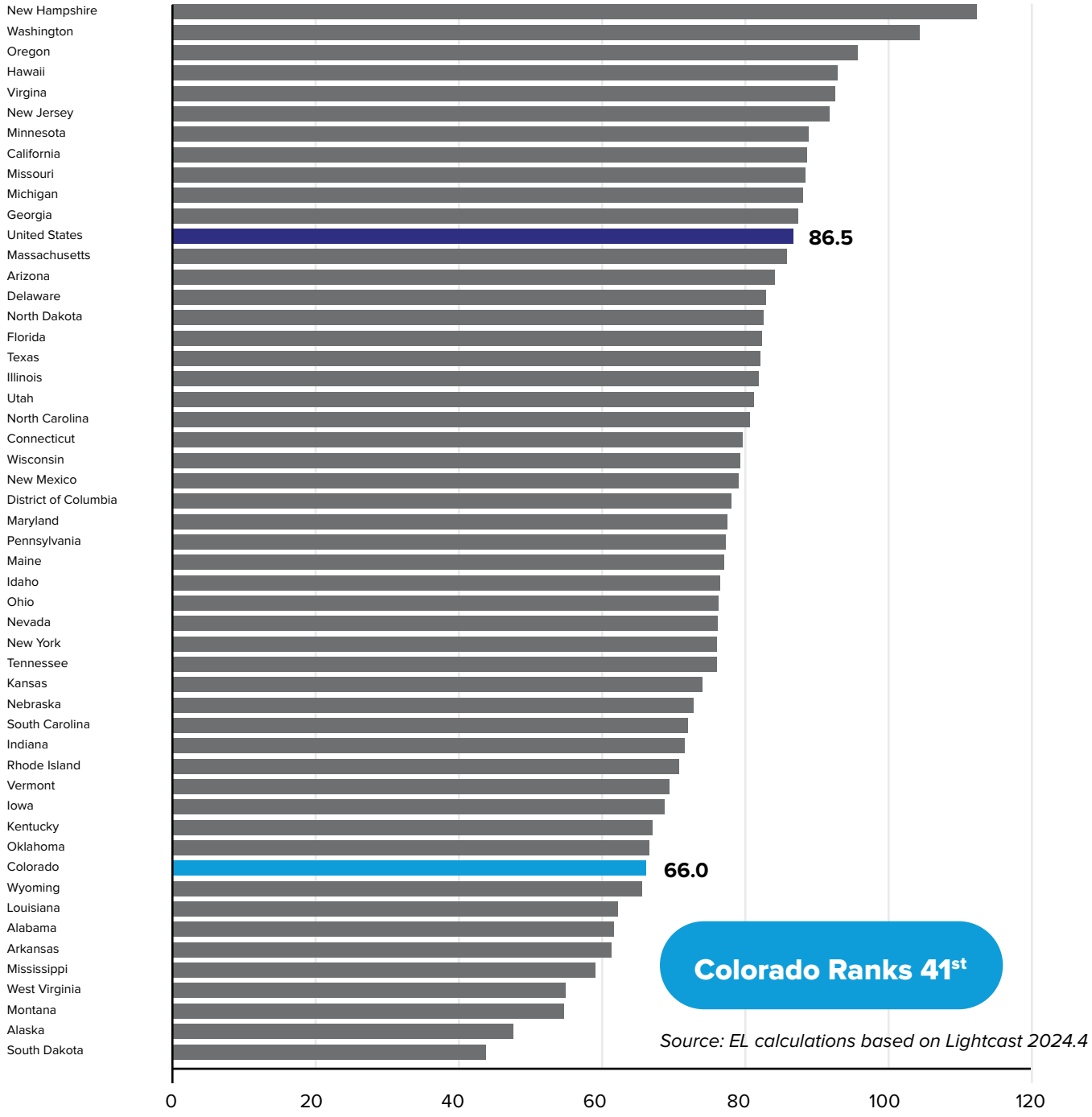
Percentage of Women in the Tech Industry Workforce (2023)



Source: EL calculations based on Lightcast 2024.4

The tech industry diversity index is calculated by dividing the percentage of tech industry workers who identify as people of color or in the Hispanic community by the ratio present in the overall population. Therefore, if a state has a tech industry diversity index lower than 100, this indicates that the tech industry is less diverse compared to the state's overall population. A value of 100 would mean the tech industry is representative of the state's overall population. Only two states had a diversity index score above 100. Colorado scored in the bottom 15 states, 41st, and below the national average. This indicates that people of color are underrepresented in the industry in Colorado. Colorado did improve from a 42nd ranking in the previous report.

Total Tech Industry Diversity Index (2023)



Source: EL calculations based on Lightcast 2024.4

Several of the tech leaders interviewed spoke about diversity as a weakness for the state's tech sector. They wanted to see the whole population of the state benefit from the success of the sector. From a company's perspective, it helps expand the local talent pool if more people from diverse groups are participating in the tech workforce. Companies noted, however, that finding diverse employees with the needed skills in the state is difficult. The opportunity exists to train more existing Colorado residents and keep them in the state with jobs in tech. Paid apprenticeships are popular in the trades and could be adopted by tech more to expand the labor pool.

Total Tech Industry

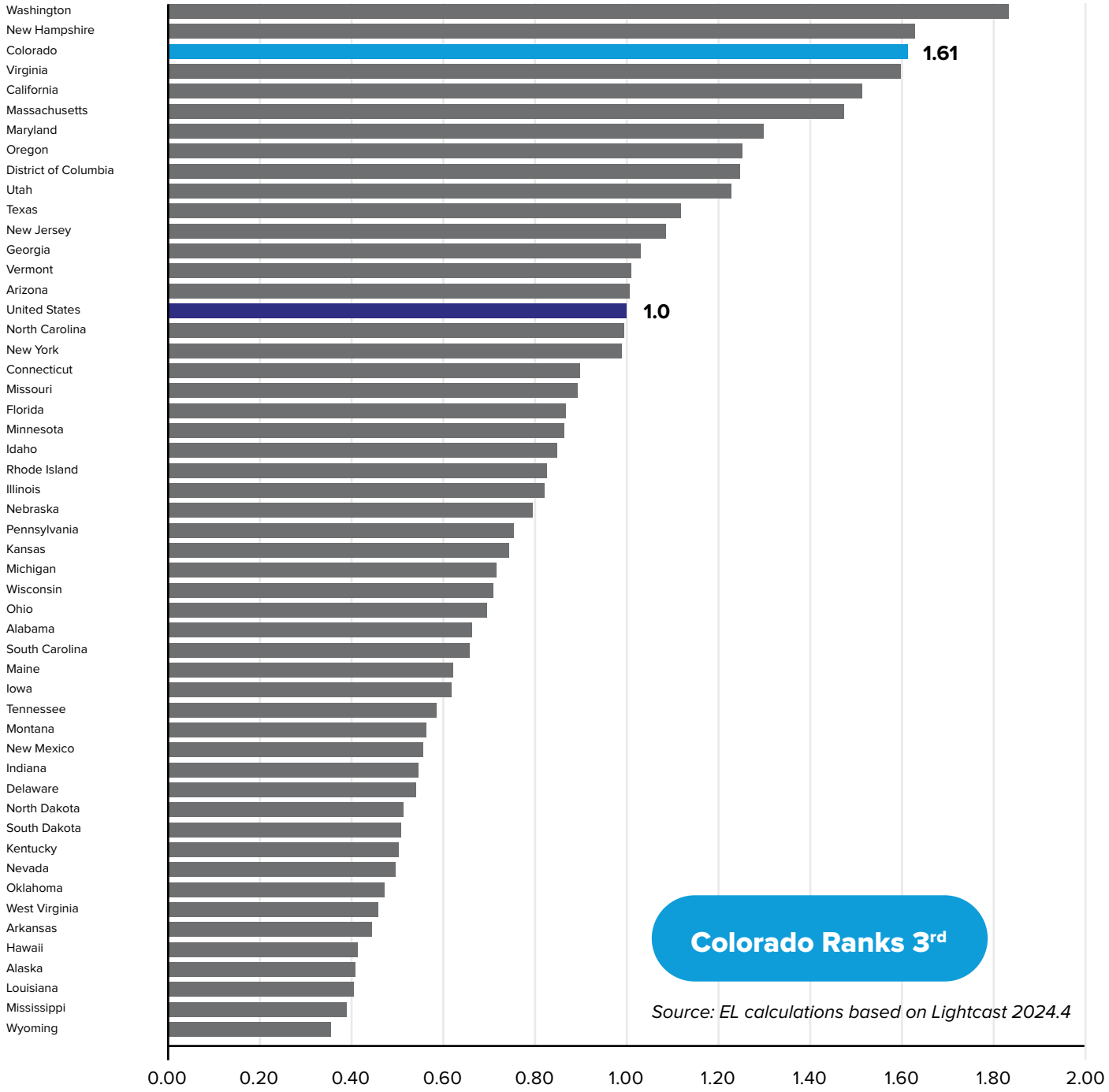
METRIC	VALUE	RANK
Technology Sector Employment Concentration (2023)	1.51	3
Technology Sector Employment Growth (2018-2023)	18.6%	10
Expected Technology Sector Employment Growth (2024-2029)	11.5%	5
Average Annual Wage for Technology Sector Employees with Purchasing Power (2023)	$148,926	10
Percentage of Women in the Technology Workforce (2023)	32.7%	27
Tech Industry Diversity Index (2023)	66.0	41

Source: EL estimates based on Lightcast 2024.4

IT Industry Subgroup

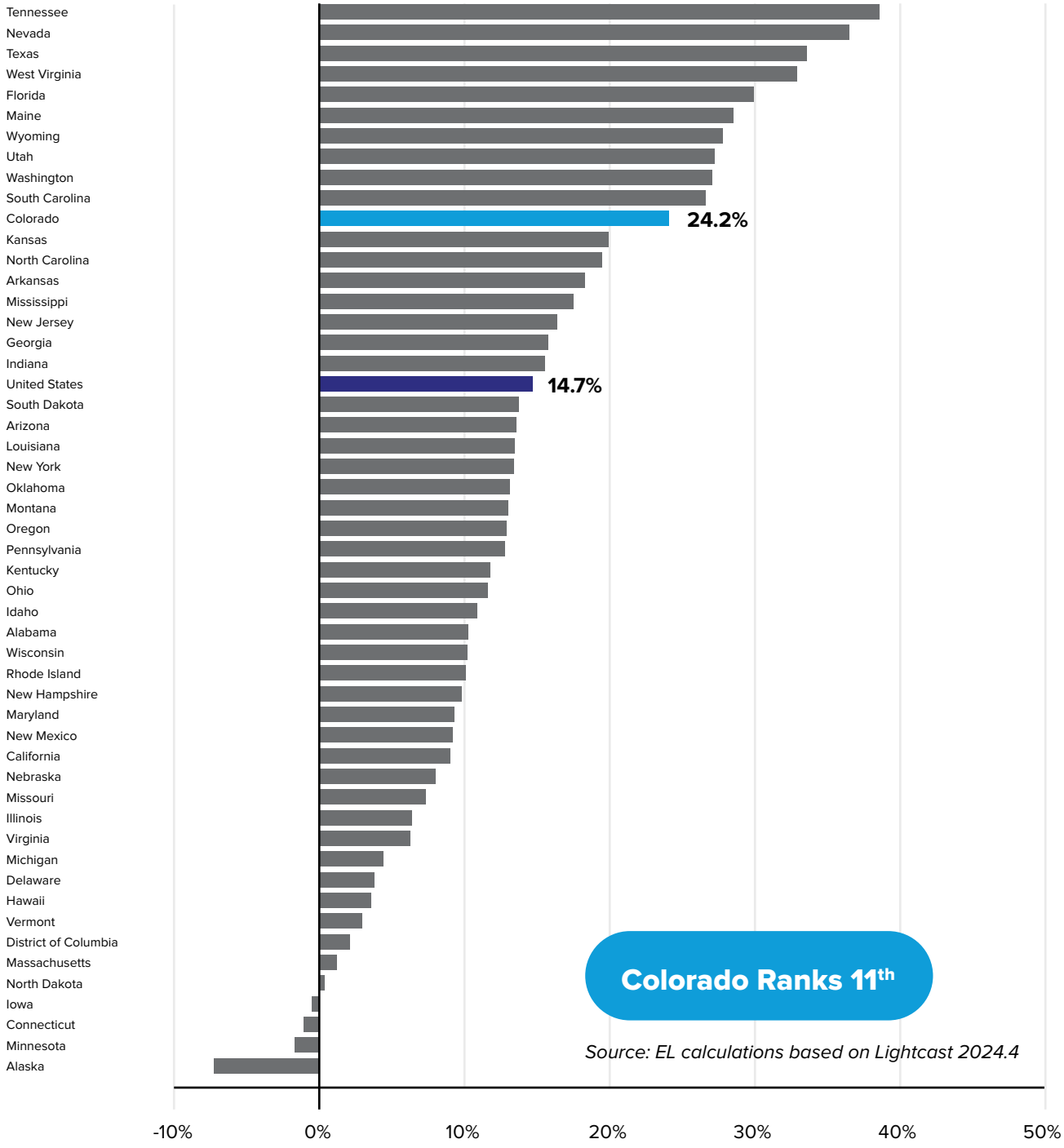
Next, the IT sub-industry was compared to other states. This group of industries represents the high-tech core including hardware manufacturing, internet, data storage, telecommunications, and software companies. In 2023, the IT industry was 61 percent more concentrated in Colorado than at the national level. This is the third most concentrated IT economy in the nation, behind Washington and New Hampshire. Colorado moved up two spots in the rankings as the industry is becoming more concentrated in the state.

IT Industry Employment Concentration (2023)



Growth in the IT subgroup has been stronger than the total tech industry over the last five years. The increase of IT employment in Colorado by over 33,200 jobs (24 percent) was the 11th fastest growth rate in the nation from 2018 to 2023. While the state's growth rates remain strong, the state's ranking slipped from 7th position in the previous report as other states are experiencing even stronger expansion in IT industries.

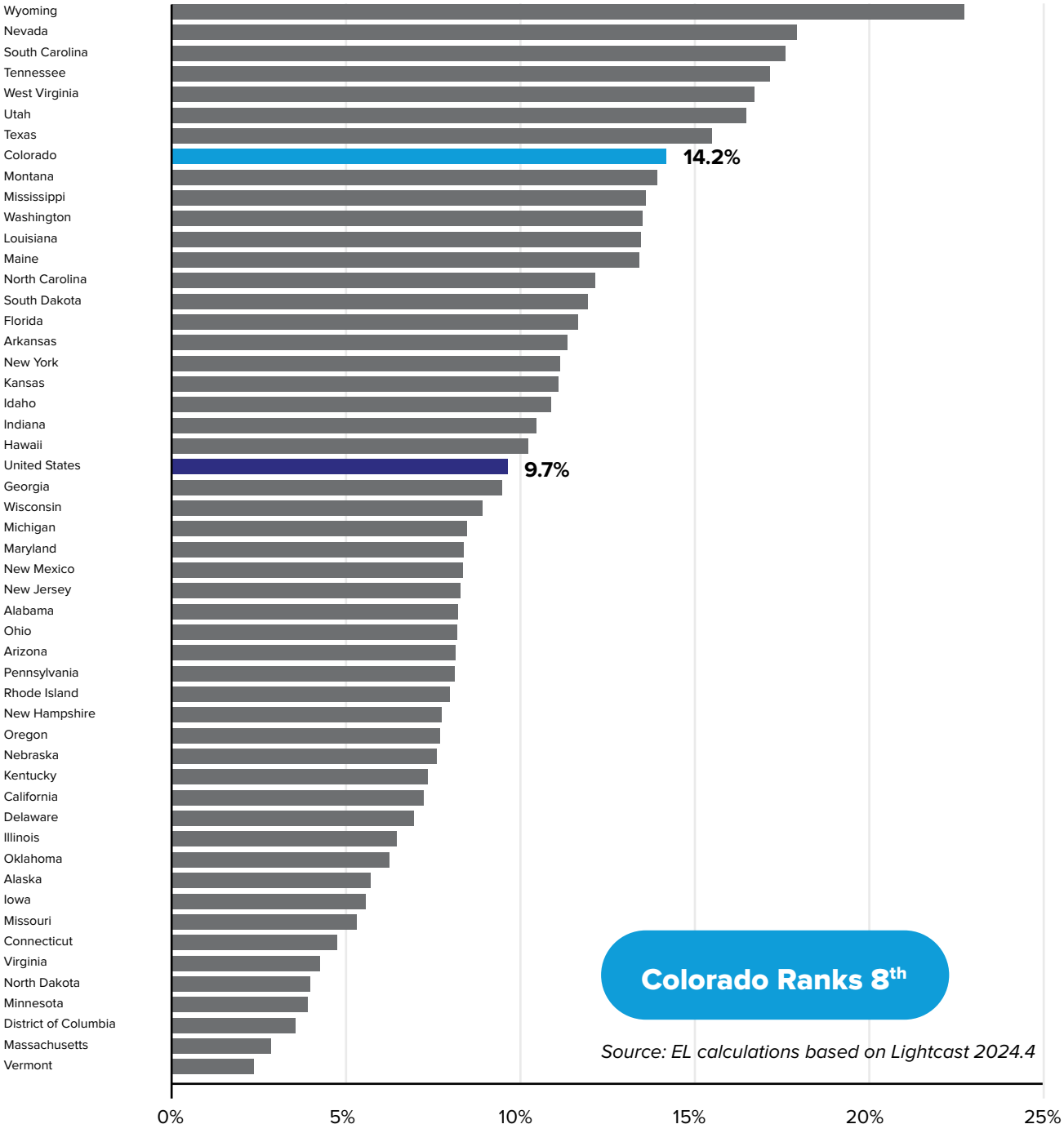
IT Industry Employment Change (2018-2023)



Source: EL calculations based on Lightcast 2024.4

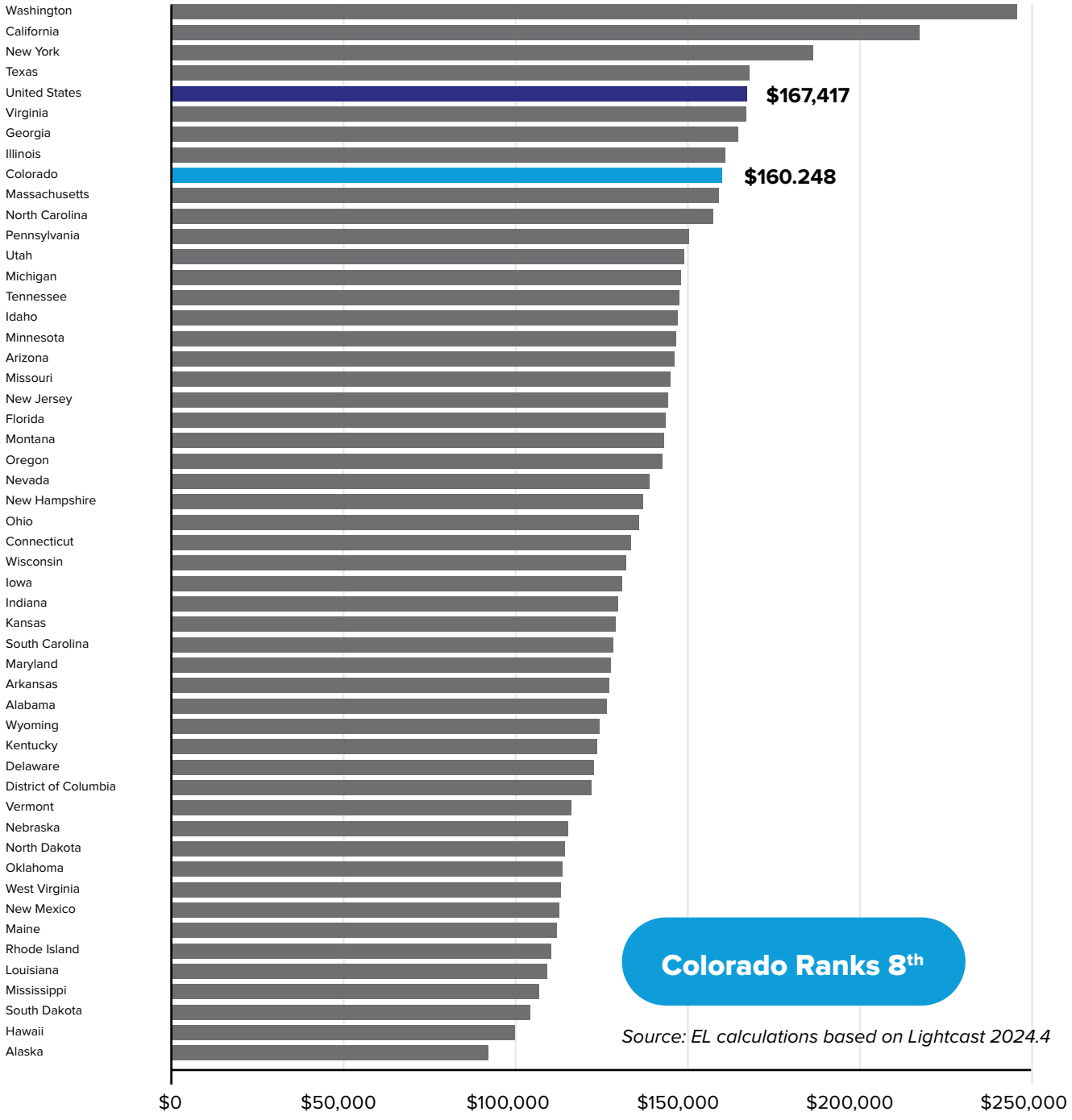
Lightcast's predictive models estimate a future five-year growth rate over 14 percent, ranking as the 8th fastest growing IT state. Again, growth rates in the state are predicted to be very strong but just not at the same level as other states. Faster growth in these states accounts for the shift in rankings from 3rd in the previous report. The District of Columbia is not counted in the state rankings but is presented in charts. Colorado's neighbor, Wyoming, is predicted to have the highest growth in IT in the next five years. Another neighboring state, Utah, is also expected to grow at a higher rate.

Expected IT Industry Employment Change (2024-2029)



IT earnings in Colorado are competitive with the national average and the state ranks 8th in the nation in cost-of-living adjusted average earnings. The state moved two spots higher from 10th in the last report. Colorado's wages still lag behind the states with high employment from Big Tech firms like Google, Amazon, etc. These states have average earnings at almost a quarter of a million dollars annually even when accounting for cost of living. This can make it difficult for Colorado firms in search of top-tier talent to compete with those markets.

Average Annual Earnings for IT Industry Employees with COL Adjustments (2023)



Source: EL calculations based on Lightcast 2024.4

IT Industry

METRIC	VALUE	RANK
IT Sector Employment Concentration (2023)	1.61	3
IT (Tech Core) Employment Growth (2018-2023)	24.2%	11
Expected IT Sector Employment Growth (2024-2029)	14.2%	8
Average Annual Wage for IT Sector Employees with Purchasing Power (2023)	$160,248	8

Life Sciences Industry Subcategory

New to this year's report, the performance of the other subcategories of the tech industry were ranked. Life Sciences contains industries that conduct research & development as well as science consulting, engineering, and biomedical product development. A list of the industries in each subcategory are included in the appendix. Life Sciences was the fastest growing tech subcategory in the state from 2018 to 2023. In 2022, Life Sciences employment is 46 percent more concentrated in the state than at the national level. This was the 5th most concentrated Life Science economy in the nation. The subcategory has expanded jobs at a rate of 25 percent over the last five years. That growth ranked 14th in the nation, an impressive feat considering Life Sciences jobs were already concentrated in the state.

The Life Sciences sector has benefited from more investment in recent years. The sprint to develop COVID-19 vaccines and treatments spurred investment in the industry. According to Invest.gov, a government website tracking private investment announcements associated with the major federal stimulus bills in recent years (CHIPS Act, IRA, BIL, etc.), there has been $725 billion in biomanufacturing investment in Colorado. These investments and expansions are expected to add about 160 jobs to the industry.

Life Sciences Industry

METRIC	VALUE	RANK
Life Sciences Employment Concentration (2023)	1.46	5
Life Sciences Job Change (2018-2023)	25.1%	14
Expected Live Sciences Job Change (2024-2029)	9.8%	12
Average Annual Wage for Life Sciences Employees with Purchasing Power (2023)	$129,449	21

Energy Tech Industry Subcategory

The Energy Tech subcategory has traditionally been an important part of the state's economy. However, as the energy fuel mix in the country shifts to cleaner technologies, Colorado has lost jobs in the oil and gas portion of the energy tech economy. While these jobs are on the decline, renewable energy is expanding rapidly in the state. Colorado also has the opportunity to build on its traditional sector and expand into carbon capture technology. This is why the state is predicted to add jobs in this industry group in the next five years.

Since 2020, over 30 clean power projects have been announced in the state with over $2 billion in private investment, according to Invest.gov. This growth has also spurred investments in the manufacturing sector to support this energy generation. Wind turbine manufacturer, Vestas, recently added 400 new jobs at their plant in Windsor.

Energy Tech Industry

METRIC	VALUE	RANK
Energy Tech Employment Concentration (2023)	1.42	11
Energy Tech Job Change (2018-2023)	-17.1%	47
Expected Energy Tech Job Change (2024-2029)	2.1%	19
Average Annual Wage for Energy Tech Employees with Purchasing Power (2023)	$178,535	10

Environmental Tech Industry Subcategory

Growth in this subcategory is being driven by battery manufacturing to serve the EV market and environmental consulting services. The state is highly concentrated in environmental tech and had the 15th fastest job growth rate. Jobs in environmental tech are likely to expand in the future as the EV market drives battery manufacturing demand. Lithium-ion battery manufacturer Amprius selected Brighton, Colorado for its future 5 GWh facility. The state also was also awarded, along with Wyoming, an NSF Engine grant of up to $160 million over the next 10 years to develop climate-resilient and sustainable technologies. The goal of the NSF Engine funding is to help develop and commercialize energy technology in the fields of methane emissions, soil carbon capture, earth sensing, water scarcity, and extreme weather events.

Environmental Tech Industry

METRIC	VALUE	RANK
Environmental Tech Employment Concentration (2023)	1.17	12
Environmental Tech Job Change (2018-2023)	15.5%	15
Expected Environmental Tech Job Change (2024-2029)	7.9%	19
Average Annual Wage for Environmental Tech Employees with Purchasing Power (2023)	$191,868	16

Tech Services Output Group

Next, tech groupings based on output type were evaluated. Tech services represents the high-tech core services like social media, data storage, telecommunications, and software companies. In 2023, the tech services industry was 62 percent more concentrated in Colorado than at the national level. This was one of the highest rankings for the state in this year's report. Colorado ranked in the top 15th for each metric evaluated for tech services.

Tech Services

METRIC	VALUE	RANK
Tech Services Employment Concentration (2023)	1.62	2
Tech Services Job Change (2018-2023)	20.4%	10
Expected Tech Services Job Change (2024-2029)	12.3%	5
Average Annual Wage for Tech Services Employees with Purchasing Power (2023)	$151,417	10

Tech Manufacturing Output Group

Tech manufacturing is not as strong in Colorado. While growth rates were positive for this group, they were not among the top states. These industries are also likely to expand as federal policy and private investment is refocusing manufacturing to the US for critical tech products like semiconductors. Two Colorado Springs based companies, Microchip and Entegris, have received extensive federal support as a part of the CHIPS Act to support an expansion in their chip manufacturing capacities.

Tech Manufacturing

METRIC	VALUE	RANK
Tech Manufacturing Employment Concentration (2023)	0.97	19
Tech Manufacturing Job Change (2018-2023)	5.9%	25
Expected Tech Manufacturing Job Change (2024-2029)	4.7%	34
Average Annual Wage for Tech Manufacturing Employees with Purchasing Power (2023)	$128,975	18

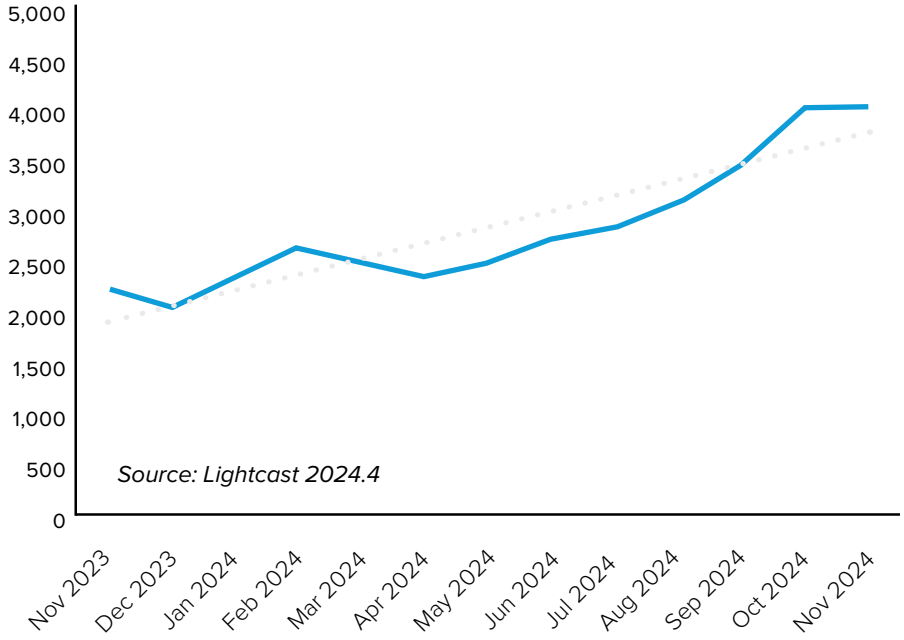
Section 4. Emerging Tech Opportunities

There are many portions of the tech sector that stakeholders would like to measure, but are difficult to capture in the traditional labor market data. A company is assigned to the NAICS code of their primary activity. If a company is providing software solutions to the agricultural market, they are likely categorized as a software publisher, and there is no way of knowing they are a player in the emerging market of AgTech. Job postings, survey, and company data are alternative ways to measure these emerging sectors. This type of data can be filtered based on the postings that mention certain phrases. In this section, some trends in a few emerging tech markets in the Colorado tech economy are reviewed.

Artificial Intelligence (AI)

The newest disruptive technology, artificial intelligence (AI), has created a stir in the economy. AI is a transformative technology that enables machines to perform tasks requiring human cognition, such as learning, decision-making, and problem-solving. The largest public-facing product, chatGPT, has been available for use for about two years. The app reached 100 million users within two months, making it the fastest growing tech product in history. AI extends far beyond ChatGPT, encompassing transformative applications across diverse industries. In healthcare, AI systems like IBM Watson Health analyze vast datasets to assist in personalized treatment plans and disease prediction. In manufacturing, robotics powered by AI, such as those used by Tesla, optimize production efficiency and quality control. In finance, AI underpins fraud detection systems and algorithmic trading platforms, ensuring security and efficiency. Agriculture has embraced AI through precision farming technologies, such as John Deere's See & Spray system, which uses machine vision to reduce chemical usage and improve crop yields.

Colorado Unique AI Job Postings

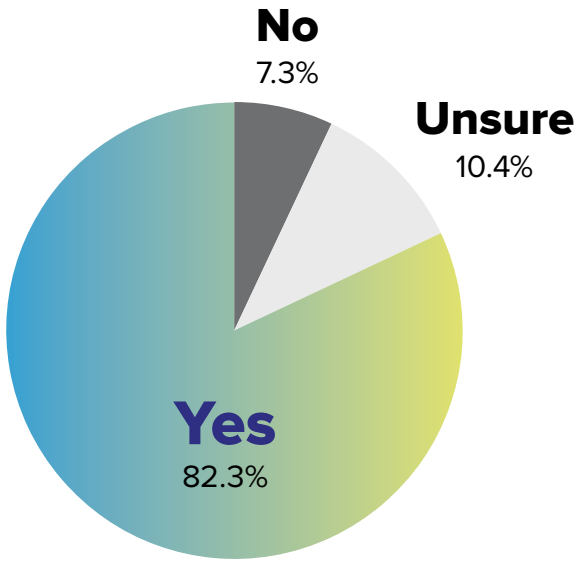


In Colorado, demand for AI in the last year is on the rise in terms of job postings. There were 17,070 unique jobs posted with about 2,500 employers competing for AI specific talent. The median posted salary for jobs requiring AI skills was $122,200 per year.

Top Colorado Companies Posting for AI:

- Outlier
- University of Colorado
- Amazon
- Deliotte
- Vorto
- Labelbox
- Echostar
- Lockheed Martin
- Sierra Nevada Corporation
- USAA
- NREL
- Biodesix
- Dynatrace

CTA Members – Is Your Company Investing or Providing AI Tools or Services?



When CTA members were polled about their company's usage or development of AI products, more than 82 percent of respondents stated they were utilizing or developing AI tools. Colorado has many employers who need AI talent to help these companies. Job postings data indicates the need for AI skills is spread across a diverse range of companies in the state. Company data from Gazelle also indicates a strong ecosystem of Colorado headquartered companies that are AI product creators. Another recent highlight was the City of Denver hosting the first major city-led AI summit in September 2024. The sold-out inaugural summit displayed the region's commitment to AI and the many stakeholders willing to collaborate across the state. The DenAI summit featured high profile speakers including the co-founder of LinkedIn and the CEOs of Promise, Honor, Ibotta, and Guild. The summit hopes to explore each year a different application of AI technology that can be used positively to address difficult social problems; the focus of the first year was affordability.

AI was one of the most discussed topics in stakeholder interviews. However, stakeholders were worried that AI innovation was threatened by recent legislation passed by the state. In the recent CTA member survey, about 52 percent of respondents stated that AI was a very important issue for the state from an advocacy perspective. This was higher than any other issue in the state. The Colorado Artificial Intelligence Anti-Discrimination Law (Senate Bill 24-205) sparked significant

debate among stakeholders since it became law in 2024. It establishes a framework to mitigate algorithmic discrimination in AI systems that impact critical sectors such as housing, employment, financial services, and education. This legislation requires developers and deployers of "high-risk" AI systems to ensure transparency, avoid bias, and disclose AI interactions to consumers. Enforcement authority rests with the Colorado Attorney General, and the law will come into effect in 2026.

> **"Policy should establish guard rails, but not create a predetermined, single path."**
>
> **— Stakeholder Quote**

Proponents argue that this legislation addresses real risks associated with discriminatory AI applications and sets a model for other states. Critics, including many of the tech stakeholders in the state, express concerns about overly broad definitions and potential stifling of innovation. They highlight the challenge of balancing regulation with fostering a competitive tech ecosystem in a rapidly evolving field. Governor Polis, while supportive of the bill's intent, emphasized the importance of refining the law during its implementation phase to prevent unintended consequences, such as discouraging tech development in Colorado. There is a task force currently working together to limit negative impacts from this law while also meeting its original intent. CTA and some of its members were appointed to serve on this task force to represent business interests. Changes to law are anticipated to be introduced in the 2025 Legislative Session. The biggest concern from stakeholders was that the Colorado legislature is attempting to be a national leader on regulation in the same way California has passed legislation in attempts to generate federal changes. One interviewee noted that Colorado does not have the same economy size or power as the state of California and being a first state to regulate can mean companies are more likely to conduct their AI and other cutting-edge tech in other states.

Quantum Computing

Quantum computing harnesses the principles of quantum mechanics, such as superposition and entanglement, to process information in ways fundamentally different from classical computing. Unlike traditional computers, which use bits as binary states (0 or 1), quantum computers use qubits that can exist in multiple states simultaneously, allowing them to perform complex calculations exponentially faster. This capability positions quantum computing as a transformative tool for solving problems in optimization, cryptography, and material science that are currently intractable with classical methods, offering the potential to drive innovation and efficiency across numerous sectors. For example, in pharmaceuticals, quantum algorithms can rapidly simulate molecular interactions, accelerating drug discovery processes. In logistics, companies like DHL and FedEx could use quantum computing to optimize complex supply chain networks, reducing costs and improving delivery speeds.

The Mountain West and Colorado specifically have been well-positioned in the quantum space. Four of the Nobel laureates in quantum physics are in the region and many of the federal labs are driving research in this space. This expertise culminated in creation of the Elevate Quantum

> **"Quantum is where Colorado is very unique.."**
>
> **— Stakeholder Quote**

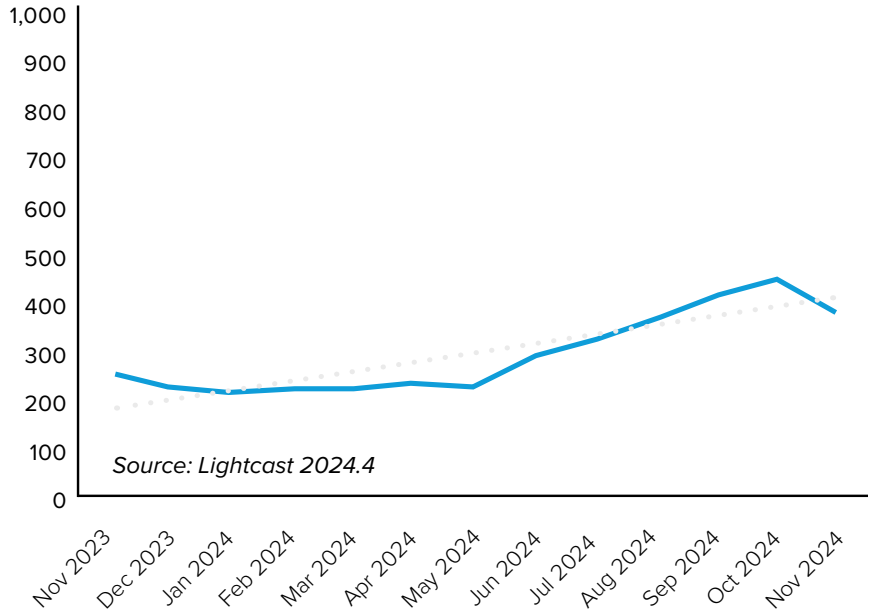
technology hub. The hub was designated by the US Department of Commerce's Economic Development Agency (EDA) as one of 31 regional tech hubs supported by the CHIPS Act across the country in 2023. As of this report, the hub has been awarded $41 million from the EDA, $77 million from the state of Colorado, and $10 million from the state of New Mexico. This $127 million in public funding is expected to drive more than $2 billion in additional private capital. The goal of these efforts is to create world-class, open-access quantum research facilities that will help create new commercial start-ups in the space. Through the CHIPS Act, the Elevate Quantum hub is eligible for up to $1 billion in federal funding over the next ten years.

Colorado's designation as a quantum computing tech hub builds on its existing assets, such as the National Institute of Standards and Technology (NIST) in Boulder and the University of Colorado's Quantum Engineering Program, to accelerate advancements in this cutting-edge field. By attracting federal funding, skilled talent, and private investment, the tech hub could bring sustained economic development and strengthens Colorado's role as a national innovation leader. Elevate Quantum's goal is to create 10,000 jobs in the industry that offer a median salary of $125,000 per year. This hub can also catalyze growth in existing Colorado-based companies to lead in developing quantum technologies that support their business, such as developing ultra-secure communication systems for the aerospace sector—a key industry in the state.

In Colorado, demand for quantum is not as pronounced as AI given it requires highly specific skills, but the demand is growing. In the last year, 1,850 unique jobs have been posted with about 150 employers competing for talent. The median posted salary for jobs requiring quantum skills was $95,600 per year. Job postings requesting quantum skills are on the rise in the past several months.

When CTA members were polled about their company's usage or development of quantum products, only 26 percent of respondents stated they were utilizing or developing these tools. This type of technology is still emerging as evidenced by the number of respondents who did not know if their company was working on quantum. The job postings data reveals that Colorado has many employers who need highly skilled

Colorado Unique Quantum Job Postings

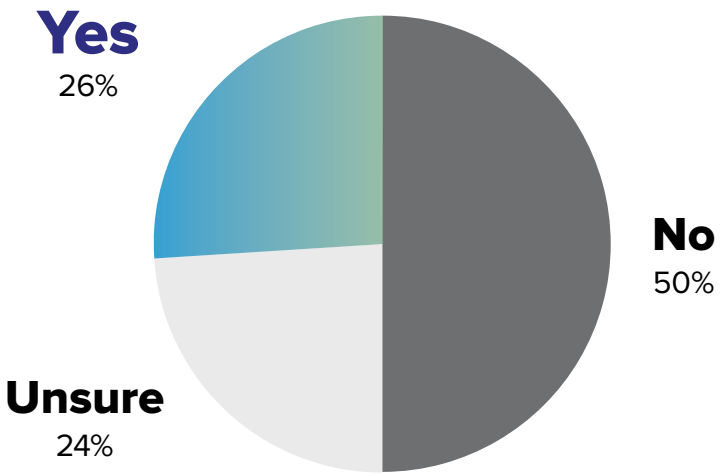


talent that can work on quantum to help their efforts. Company data from Gazelle show there are several companies that are operating in Colorado in the quantum space.

Top Colorado Companies Posting for Quantum:

- Colorado School of Mines
- Arinc International
- Raytheon Technologies
- Quantinuum
- Keysight
- IBM
- State of Colorado

CTA Members – Is Your Company Investing or Providing Quantum Tools or Services?



Top Quantum Companies in Colorado, 2024

NAME	CITY
Lockheed Martin	Littleton
Form Factor	Boulder
Raytheon	Aurora
Keysight Technologies	Colorado Springs
Quantinuum	Broomfield
Infleqtion	Louisville
Atom Computing	Boulder
Vescent Photonics	Golden

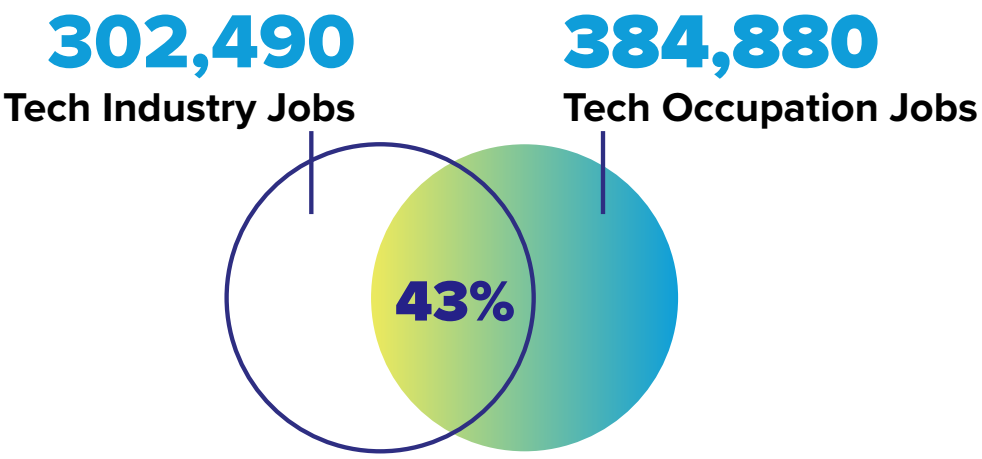
NAME	CITY
Kapteyn-Murnane Laboratories	Boulder
Maybell Quantum	Denver
Key Management Solutions	Fountain
Mesa Quantum	Boulder
Xairos	Highlands Ranch
Octave Photonics	Louisville
Quantum Rings	Broomfield

Source: Gazelle 2024.4 and Elevate Quantum

Section 5.
Tech Occupations

Technology workers today are present in almost every industry. Technology has permeated most businesses and is increasingly important to company competitiveness especially in industries like banking, energy, and healthcare. To account for the number of tech occupations that exist across all industries, Economic Leadership reviewed 85 separate 5-digit Standard Occupational Codes (SOC) codes focusing mostly on STEM driven work. A complete list is included in the appendix.

Staffing Patterns of Tech Industries and Tech Occupations, 2023



43% of tech occupation jobs
are employed in tech industries. (2023)

Source: EL estimates based on Lightcast 2024.4

In 2023, there were 384,880 tech workers employed across the Colorado economy. This is a more sizable number than the 302,490 workers who are employed at tech companies. When these occupations are cross-referenced with the tech industry codes, it is found that about 43 percent of tech workers work at a tech industry firm. The rest of the tech workers are spread across industries like finance, construction, and healthcare.

Top 10 Tech Occupations in Colorado, 2023

DESCRIPTION	2023 OCCUPATIONS	CHANGE IN EMPLOYMENT, 2018-2023	MEDIAN ANNUAL WAGE[a]	ANNUAL OPENINGS	TURNOVER RATE
Business Operations Specialists	48,400	+97%	$83,050	7,744	65%
Software Developers	45,680	+21%	$134,970	4,025	29%
Project Management Specialists	31,060	+57%	$100,550	3,953	50%
Market Research Analysts	27,460	+38%	$77,250	3,641	57%
Computer User Support Specialists	17,540	+13%	$67,100	1,669	45%
Management Analysts	13,720	+23%	$94,740	1,498	53%
Computer and Information Systems Managers	12,370	+65%	$173,035	1,583	37%
Network and Computer Systems Administrators	11,150	-15%	$103,440	805	41%
Computer Network Architects	11,000	+55%	$132,950	1,288	41%
Computer Systems Analysts	9,750	-15%	$105,980	848	37%
All Tech Occupations[b]	384,878	26%	$101,230	46,440	45%

Source: EL estimates based on Lightcast 2024.4

[a] Wage estimate is different from the average annual wage values in the previous charts. The average annual wage value is calculated across all occupations in the tech industry and measures the average versus the median.

[b] This is a sum of the 85 SOC codes (see appendix) not only the 10 most common occupations displayed in the table above.

Software developers are one of the top occupations of the tech workers group. This occupation grew by 21 percent in the last five years and garnered a median annual wage of almost $135,000. Every year, on average, 46,440 tech jobs need to be filled to accommodate for growth and retiring workers.

The Denver-Aurora-Lakewood MSA is host to 236,190 tech jobs. This is about 61 percent of all tech jobs in the state.

Analyst jobs were among the top occupations experiencing growth. The increase of Big Data has created demand for workers who can help process and dissect information. This shows a tech workforce is not just about coding websites and apps, but it is also critical to have capable individuals well versed in statistics and mathematics. As semiconductor manufacturing rises in the state the demand for processing technicians has jumped by 112 percent.

Top 5 Tech Occupations in Growth

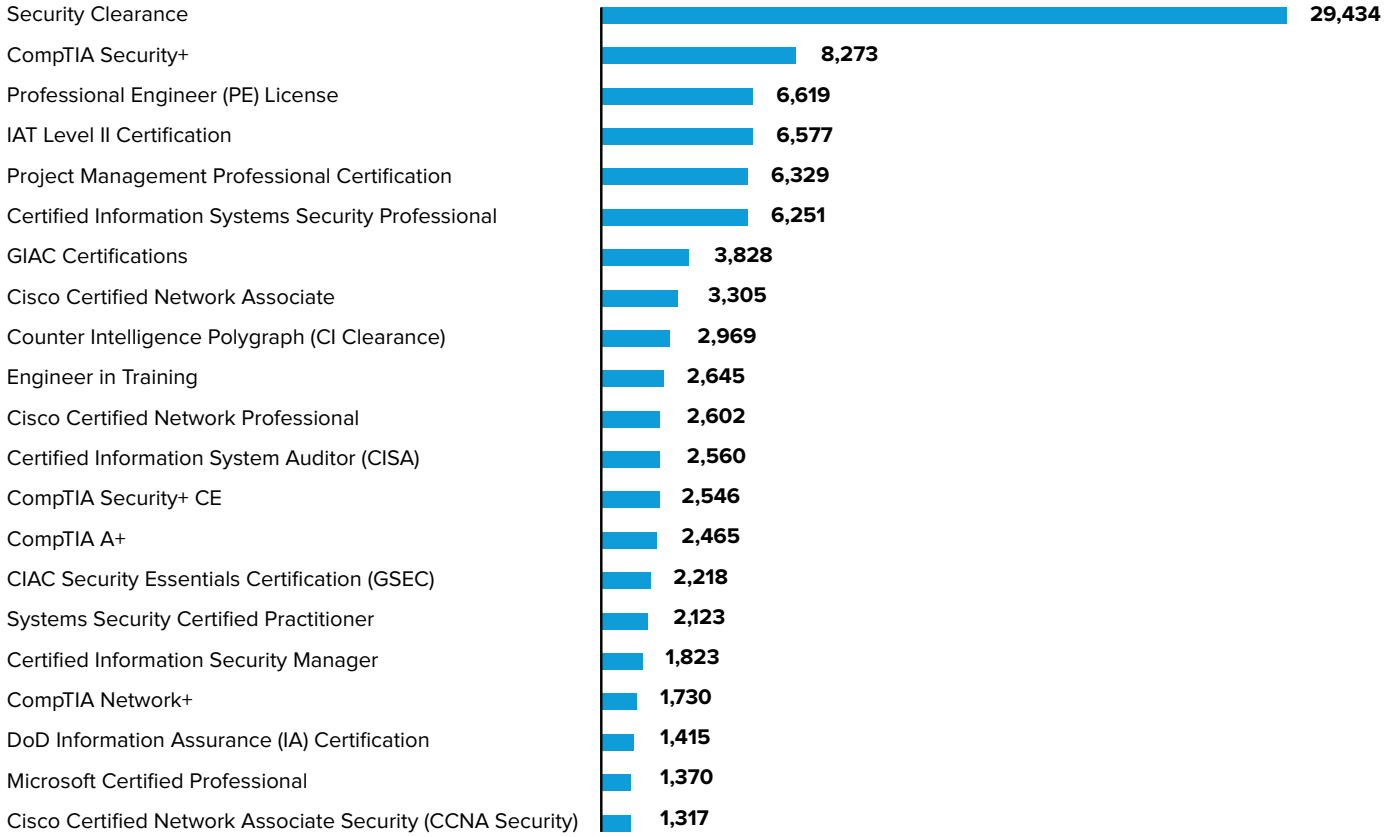
TOP FIVE IN NET JOB GROWTH		TOP FIVE IN GROWTH PERCENTAGE	
Software Developers	+7,951	Mathematical Science Occupations	+556%
Market Research Analysts	+7,550	Actuaries	+250%
Computer and Information Systems Managers	+4,891	Data Scientists	+239%
Data Scientists	+4,119	Semiconductor Processing Technicians	+112%
Financial and Investment Analysts	+4,076	Web and Digital Interface Designers	+101%

Source: EL estimates based on Lightcast 2024.4

Information security analysts were among the top five fastest growing tech occupations in Colorado in the previous report but dropped slightly in the rankings. However, the data still indicates a strong demand for cybersecurity professionals. When reviewing the top certifications listed in online job postings for Colorado tech jobs, security credentials were in the highest demand. Colorado's cybersecurity industry benefits from the large military presence in the state. There are six military bases in Colorado. Most of these are Air Force bases including the Air Force Academy in Colorado Springs. The federal government employed 5.1 percent of all the tech occupations in Colorado. Tech jobs in the military specifically are up 8 percent (about 279 jobs) in the last five years.

Top Certifications Listed in CO Tech Job Postings

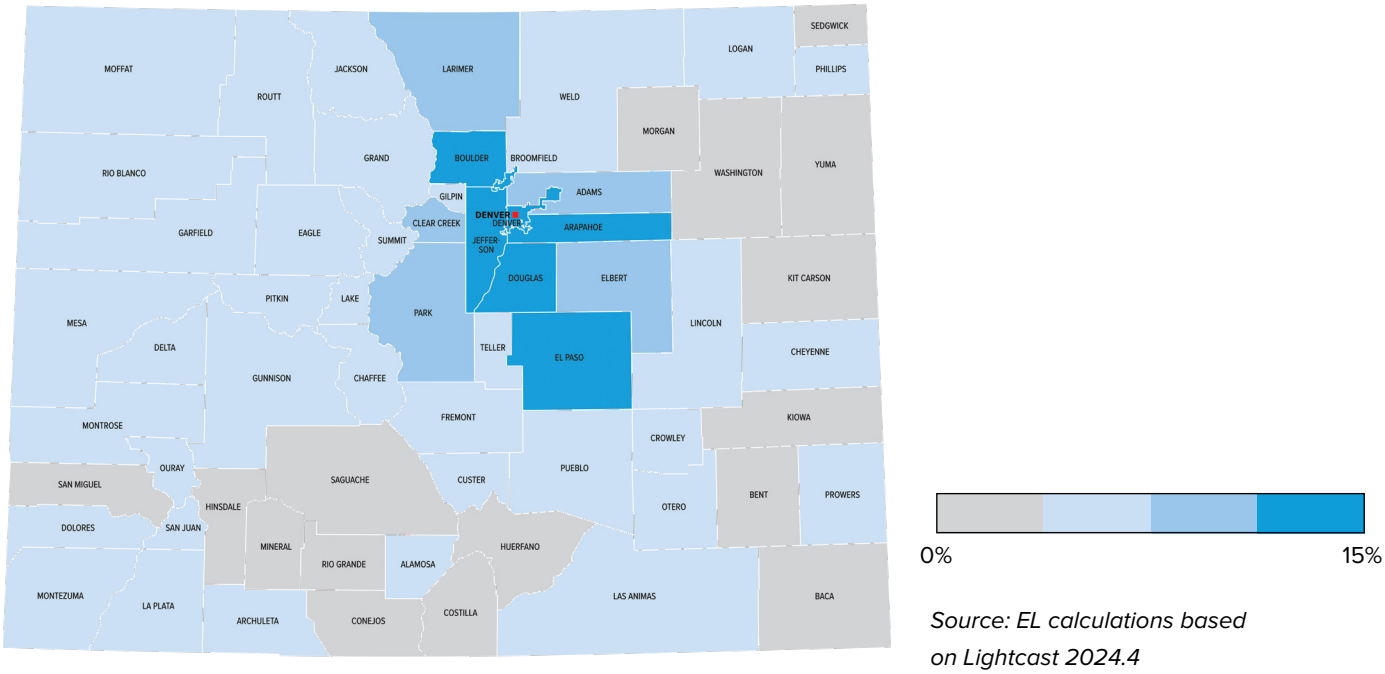
Oct 2022 – Oct 2024



Source: calculations based on Lightcast 2024.4

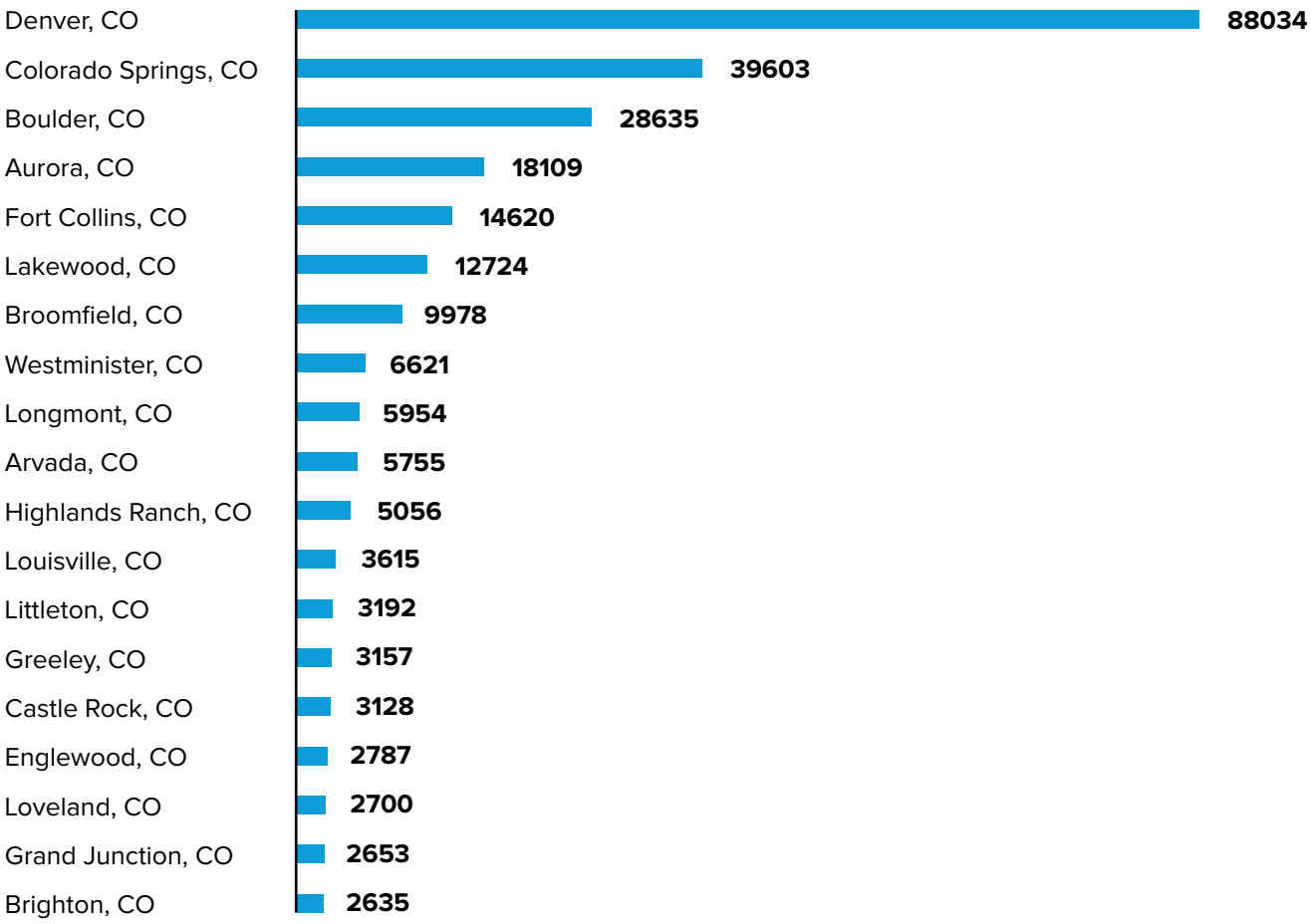
Like tech industry jobs, tech occupations tend to strongly concentrate in the more urban counties. Over 22 percent of Broomfield County's workers are tech workers. However, tech workers have permeated more places than IT industry jobs. The eastern and southern parts of the state have the lowest concentrations of tech workers. When tech jobs are broken out by city, Denver dominates the list followed by Boulder and Colorado Springs. Many of the other top cities for tech workers are in suburban towns along the Front Range.

Tech Occupations as a Percentage of All Occupations (2023)



Source: EL calculations based on Lightcast 2024.4

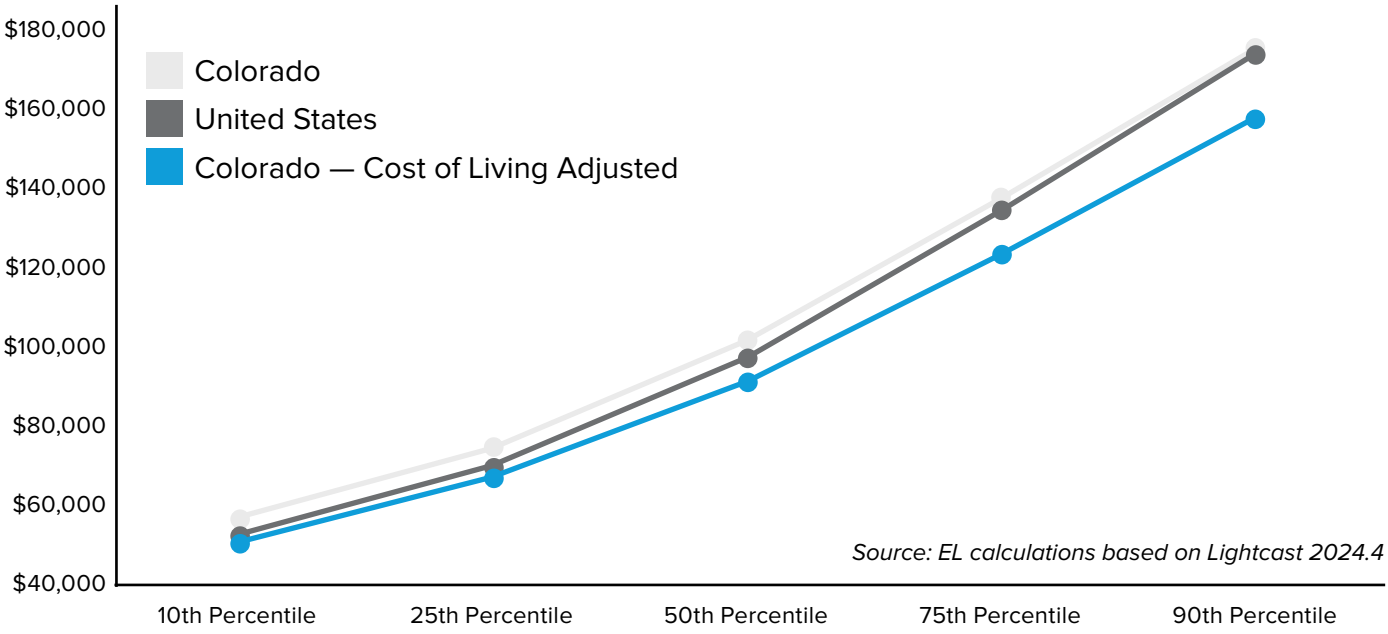
Tech Occupations by Colorado City, 2023



Source: EL calculations based on Lightcast 2024.4

Finding enough workers with the skills that are in demand is the top competitive factor in today's economy. While the median earnings for a tech occupation are around $101,200, the true earnings can range based on industry and experience. The lowest percentile earns about $56,400 and the highest can earn about $174,700 a year. The cost of living of any state can be a factor in worker location decisions. In 2023, Colorado had the 15th highest cost of living in the country. This means earnings of $100 were worth about $90 in Colorado due to the higher prices of goods compared to the national average. Lower paid and entry level tech positions are more comparable to the national average, but at higher paid positions earnings are lower compared to other locations in the US when the cost-of-living adjustment is included. As a growing state, managing the rising cost of living will be a challenge for Colorado in the coming years. Further discussion on cost of living is provided in the tech infrastructure section of the report.

Tech Occupations Wage Distribution by Location (2023)

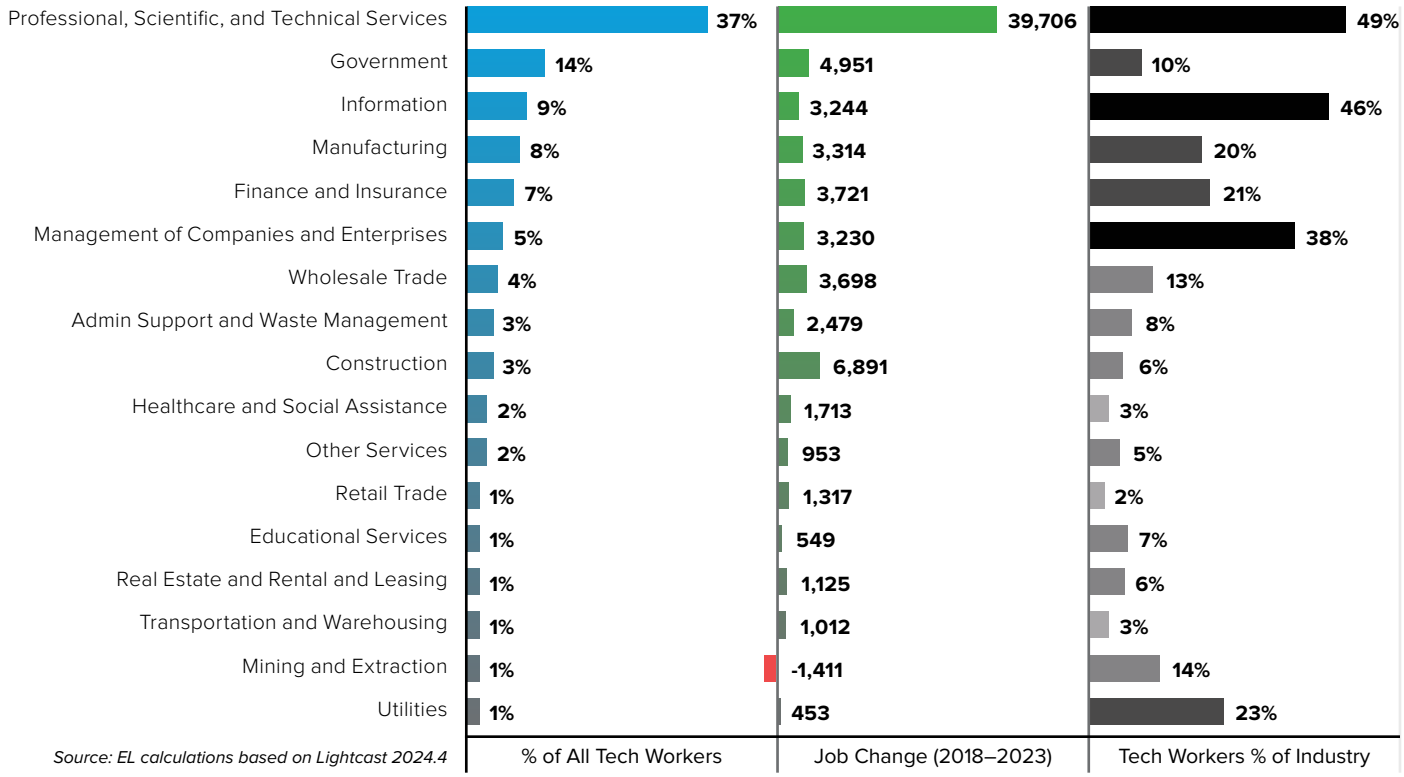


Source: EL calculations based on Lightcast 2024.4

Tech occupations exist across many different industries. The chart below demonstrates which industries (2-digit level) employ tech workers in Colorado. Beyond the expected Professional Services and Information industries, tech workers are also present and growing strongly in government, manufacturing, finance, and wholesale trade. In finance and insurance, about 21 percent of all jobs in the industry are tech occupations and 3,721 tech workers were added over in the last five years. Tech workers now account for 20 percent of the manufacturing industry as production has become more automated and integrated. This is an increase from 18 percent in the previous report.

As discussed previously, cybersecurity and military tech is a large component of the government's large share of tech workers in the state. Several of the tech leaders interviewed were excited about the future of tech in the state because they believed the state could be a major player in some of the next iterations of the tech industry. Many of those opportunities are outside the traditional tech space including robotic technology for manufacturing automation and the energy economy.

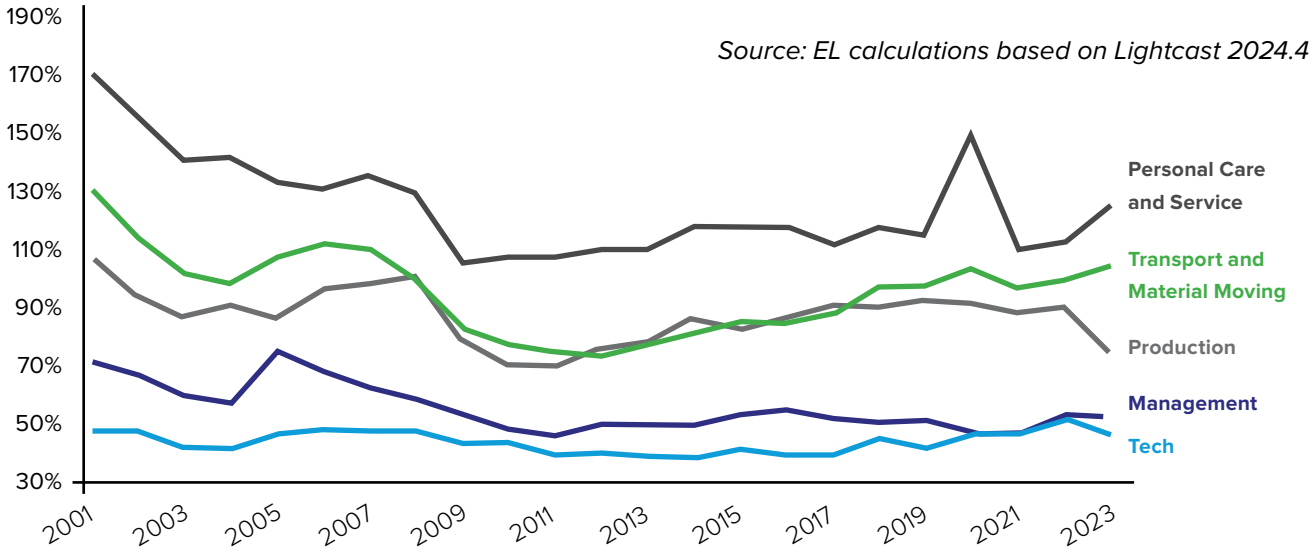
Top Industries Employing Tech Occupations in Colorado, 2023



Source: EL calculations based on Lightcast 2024.4

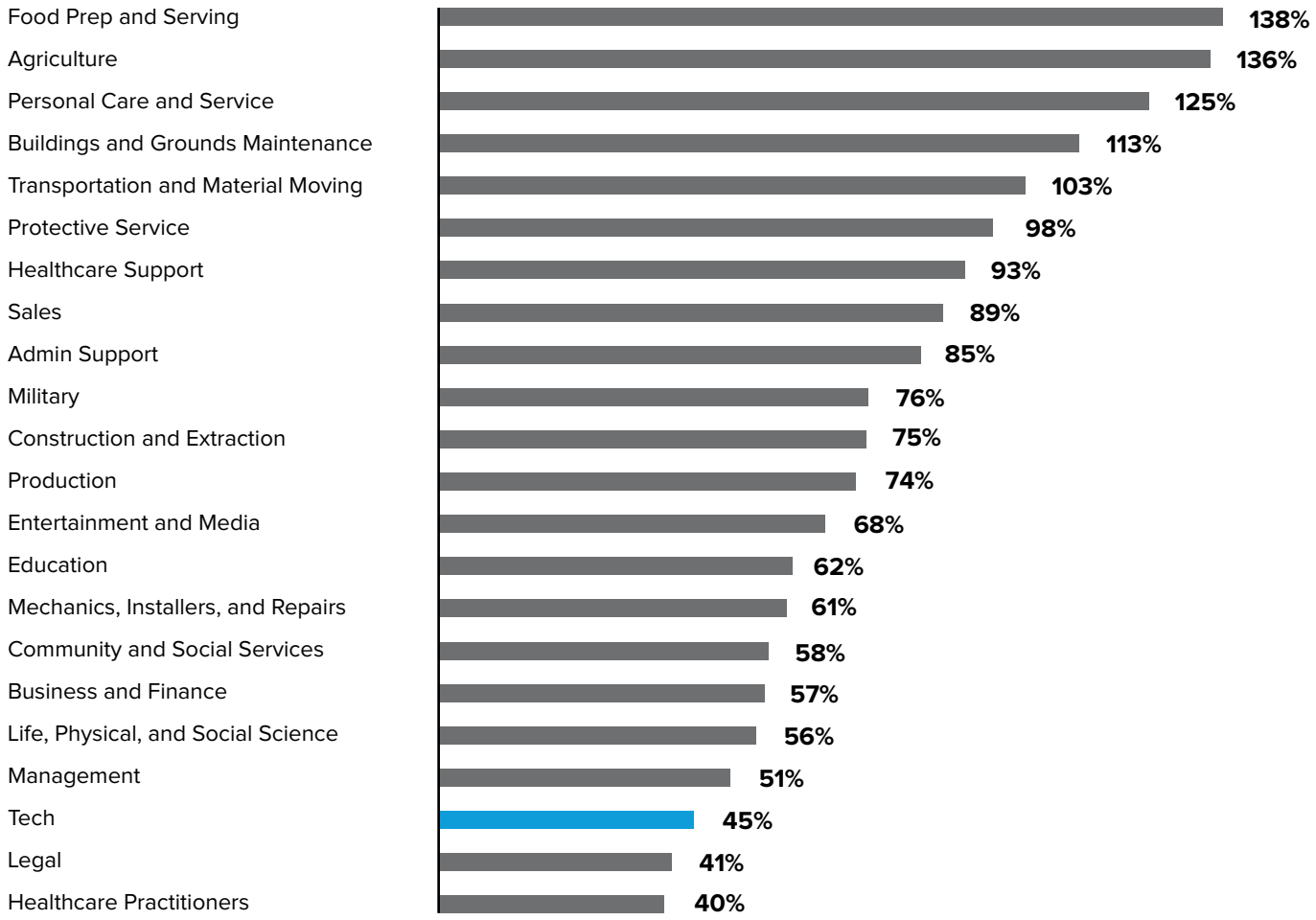
High turnover can create difficulty for employers looking for long term talent. Turnover across occupations can be measured by taking the number of separations (when a social security number is removed from a payroll) by the total number of employees in the field. This turnover rate provides a sense of churn in workers in the field. For tech jobs, the rate was about 45 percent in 2023. This was one of the lowest rates in Colorado's economy. The turnover rate in tech has increased slightly in recent years, but not to the extent of other occupations.

Colorado Turnover Rate by Occupation Type



Source: EL calculations based on Lightcast 2024.4

Colorado Turnover Rate by Occupation Type (2023)



Source: EL calculations based on Lightcast 2024.4

In a knowledge-based job like many tech jobs, it can be difficult and costly to find another worker with the same skills. Despite lower turnover rates than other positions, companies in Colorado have been willing to take steps to retain tech workers in this economy. In interviews with stakeholders, managers indicated they had expanded access to remote work, offered flexible scheduling, and increased pay/bonuses.

Tech occupation data offers the opportunity to look granularly at the demographics of the workforce. Similar to the earlier calculation of the diversity index of the tech industry, an index was created to determine which demographic groups were underrepresented in tech occupations. The percentage of the demographic group in the tech occupations is divided by the percentage of the demographic group in the overall Colorado population and multiplied by 100. If the value is lower than 100, then the demographic group is underrepresented in tech occupations. If the value is over 100, the demographic group is overrepresented in tech occupations. Looking at gender, women account for one-third of tech occupations while accounting for one-half of the population. The index value for women did rise slightly from 2021 to 2023.

Gender Distribution of Tech Occupations in Colorado, 2023

DEMOGRAPHIC	TECH OCCUPATIONS	COLORADO POPULATION	INDEX
Women	35%	49%	70.1
Men	65%	51%	129.1

Source: EL estimates based on Lightcast 2024.4

In Colorado, 75 percent of tech workers are white, and they are overrepresented in tech occupations when compared to the state's population. Workers who are Asian are also well-represented (index over 100) in the tech workforce. Other groups of color do not fare as well. Hispanic people accounted for 11 percent of tech occupations but make up 23 percent of the state's total population. The representation rates for Native communities and Black people in the tech workforce were also very low in the state.

Race/Ethnicity Distribution of Tech Occupations in Colorado, 2023

DEMOGRAPHIC	TECH OCCUPATIONS	COLORADO POPULATION	INDEX
White	75%	66%	113.9
Hispanic or Latino	11%	23%	46.5
Asian	8%	4%	213.7
Black or African American	3%	4%	78.5
Two or More Races	3%	3%	105.5
American Indian or Alaska Native	0.3%	0.6%	41.6
Native Hawaiian or Other Pacific Islander	0.1%	0.2%	78.3

Source: EL estimates based on Lightcast 2024.4

Diversity Index of Tech Management Jobs, 2023

DEMOGRAPHIC	TECH LEADERSHIP INDEX
Women	59.9
Men	139.1
White	121.0
Hispanic or Latino	35.0
Asian	197.1
Black or African American	58.0
Two or More Races	85.1
American Indian or Alaska Native	34.2
Native Hawaiian or Other Pacific Islander	59.5

Source: EL estimates based on Lightcast 2024.4

When looking specifically at tech management roles across the state, women are even less represented. Most racial and ethnic categories have lower index scores at the leadership level than the overall tech workforce. When talking with stakeholders, diversity of the workforce was referenced less than during research conducted two years ago, but business leaders still believed that diversity efforts were a part of addressing talent shortages.

Diversity Index of Denver Tech Jobs, 2023

DEMOGRAPHIC	DENVER MSA INDEX
Women	71.5
Men	128.1
White	120.5
Hispanic or Latino	43.9
Asian	169.7
Black or African American	59.9
Two or More Races	99.9
American Indian or Alaska Native	54.0
Native Hawaiian or Other Pacific Islander	68.2

Source: EL estimates based on Lightcast 2024.4

“Diversity in the tech workforce isn’t just the right thing to do, it helps you leverage your local workforce.”

— Stakeholder Quote

The same diversity index was calculated for the overall tech workforce of the Denver metro area. The representation of women in tech roles was slightly improved in Denver compared to the state. Most racial and ethnic categories have lower scores in Denver than the state overall, except for Native American and Pacific Islander workers.

The age of the tech workforce was also compared against the age breakdown of the overall state workforce. Tech occupations tend not to rely on the very young but have a higher level of young and middle-aged workers.

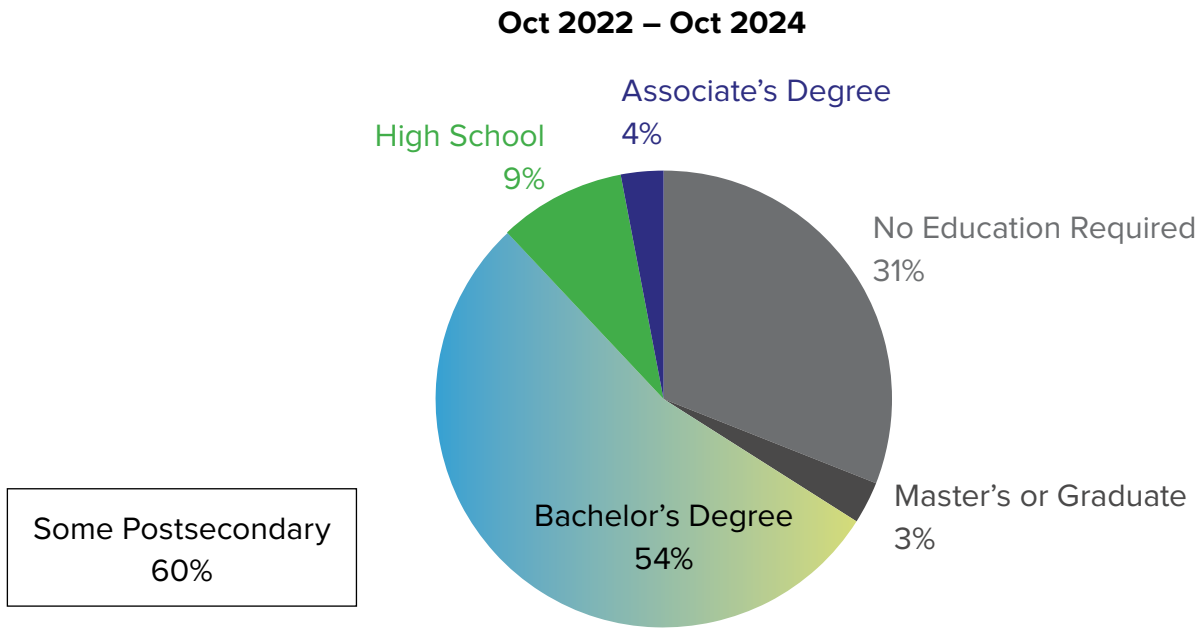
Age Distribution of Tech Occupations in Colorado, 2023

DEMOGRAPHIC	TECH OCCUPATIONS	COLORADO WORKFORCE	INDEX
Age 21 and below	1%	8%	17.0
Age 22 to 34	33%	30%	110.3
Age 35 to 54	47%	41%	114.0
Age 55+	19%	22%	88.4

Source: EL calculations based on Lightcast 2024.4

One of the ways to broaden the available labor pool is to focus on skills-based hiring. While many companies stated their intent to remove their education requirements to expand their labor force pool, a review of job postings in the last three years reveals that about 60 percent of postings for tech jobs required some form of postsecondary education. This level increased from 56 percent in the last report.

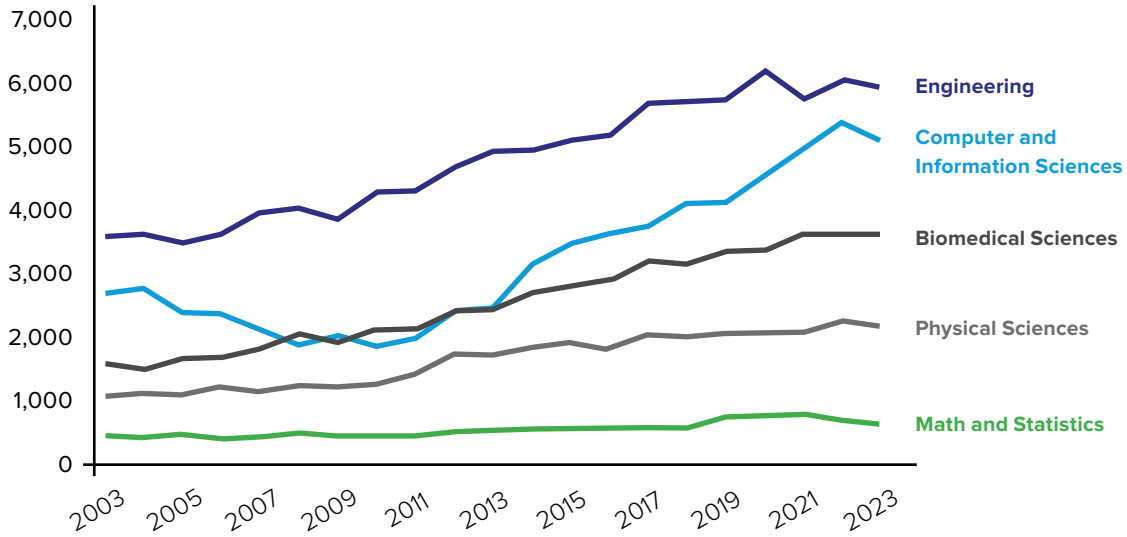
Minimum Education Level Required in Colorado Tech Job Postings



Source: EL calculations based on Lightcast 2024.4

Fortunately, the postsecondary education completions (certificates and degrees) for computer and information sciences have risen in recent years in the state. Colorado is still mostly known for its engineering education.

Annual Postsecondary Completions in Colorado for Relevant Programs

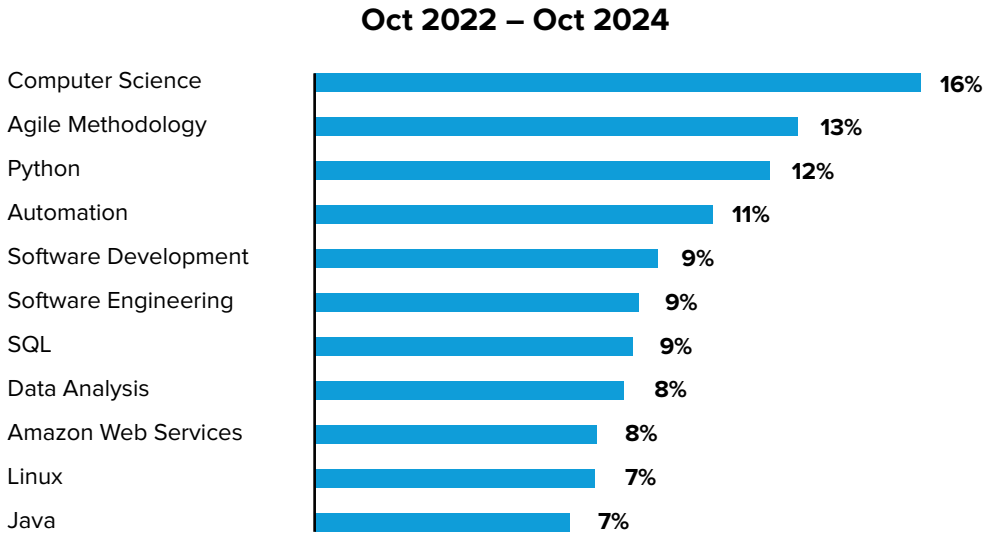


Source: EL calculations based on Lightcast 2024.4

In 2023, 30 postsecondary institutions offered almost 5,170 degrees or certificates in computer science. Almost half, 48 percent, of these completions are bachelor's degrees. Another 16 percent are certificates that can be earned in two years or less. About 71 percent of the computer science completions were offered as distance learning programs. Distance learning programs for computer science are up 243 percent in the state since 2012. The increase in computer science and other STEM education is encouraging as it shows the skilled workforce is growing. However, the tech industry in Colorado averaged over 12,400 hires per month in the last two years. This has left many of the Colorado-based companies to recruit workers from outside the state according to interviews with tech leaders.

While computer science education is still listed as a preference in many of Colorado's tech job postings, specific software skills are also important. Short-term training that focuses on specific programming languages like SQL, Python, and Java could be helpful in filling talent gaps more quickly than 4-year computer science degrees.

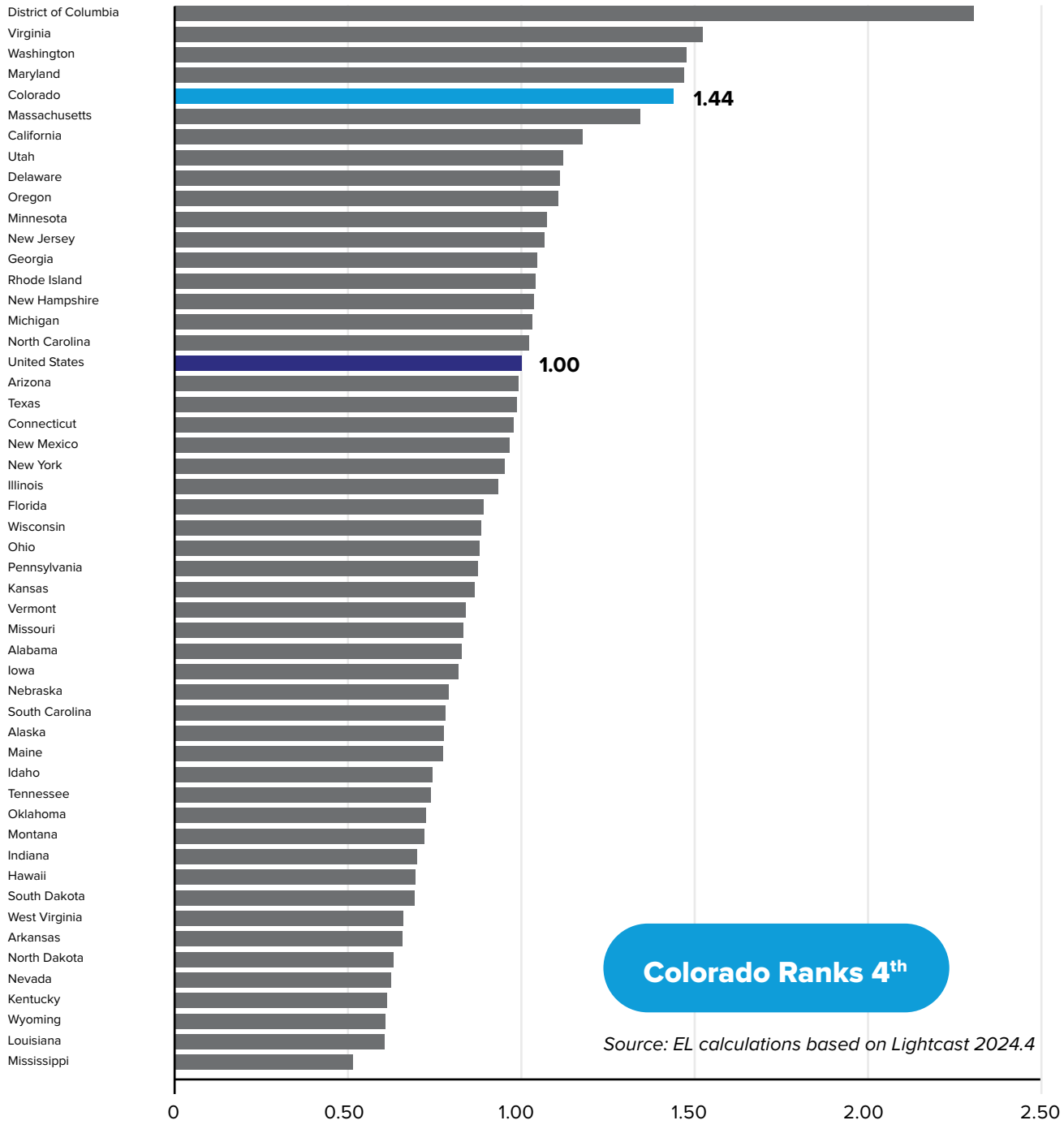
Top Skills Listed in CO Tech Occupation's Job Postings



Source: EL calculations based on Lightcast 2024.4

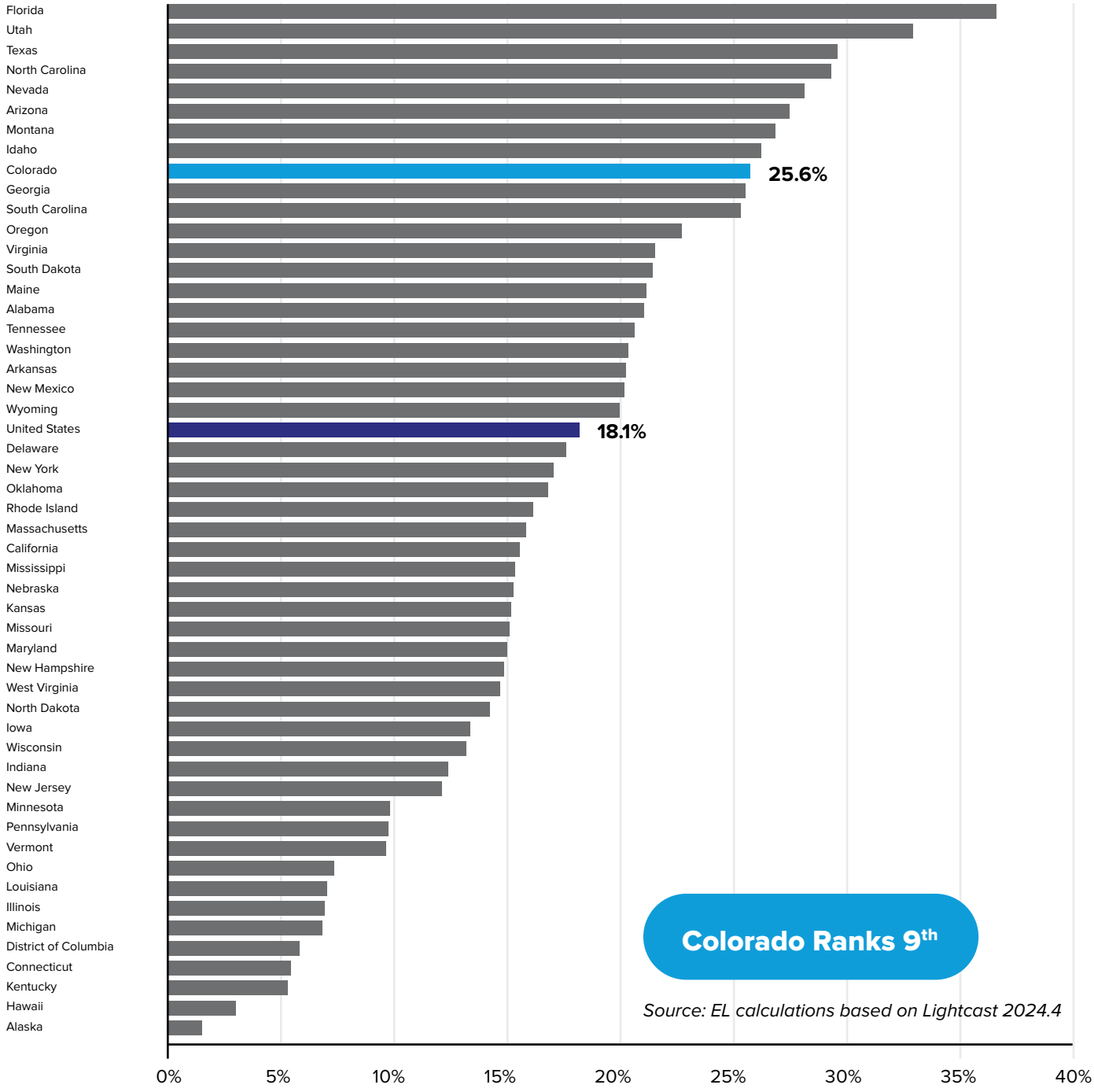
When the performance of tech occupations in Colorado are compared against the rest of the nation, again, the state ranks among the best. Tech jobs are uniquely concentrated in Colorado's economy, experienced strong growth, and are predicted to grow at the 10th highest rate for the next five years. Despite the higher cost of living reducing tech workers' purchasing power, median earnings for tech occupations in Colorado are still in the top 15 states in the nation.

Tech Occupations Employment Concentration (2023)

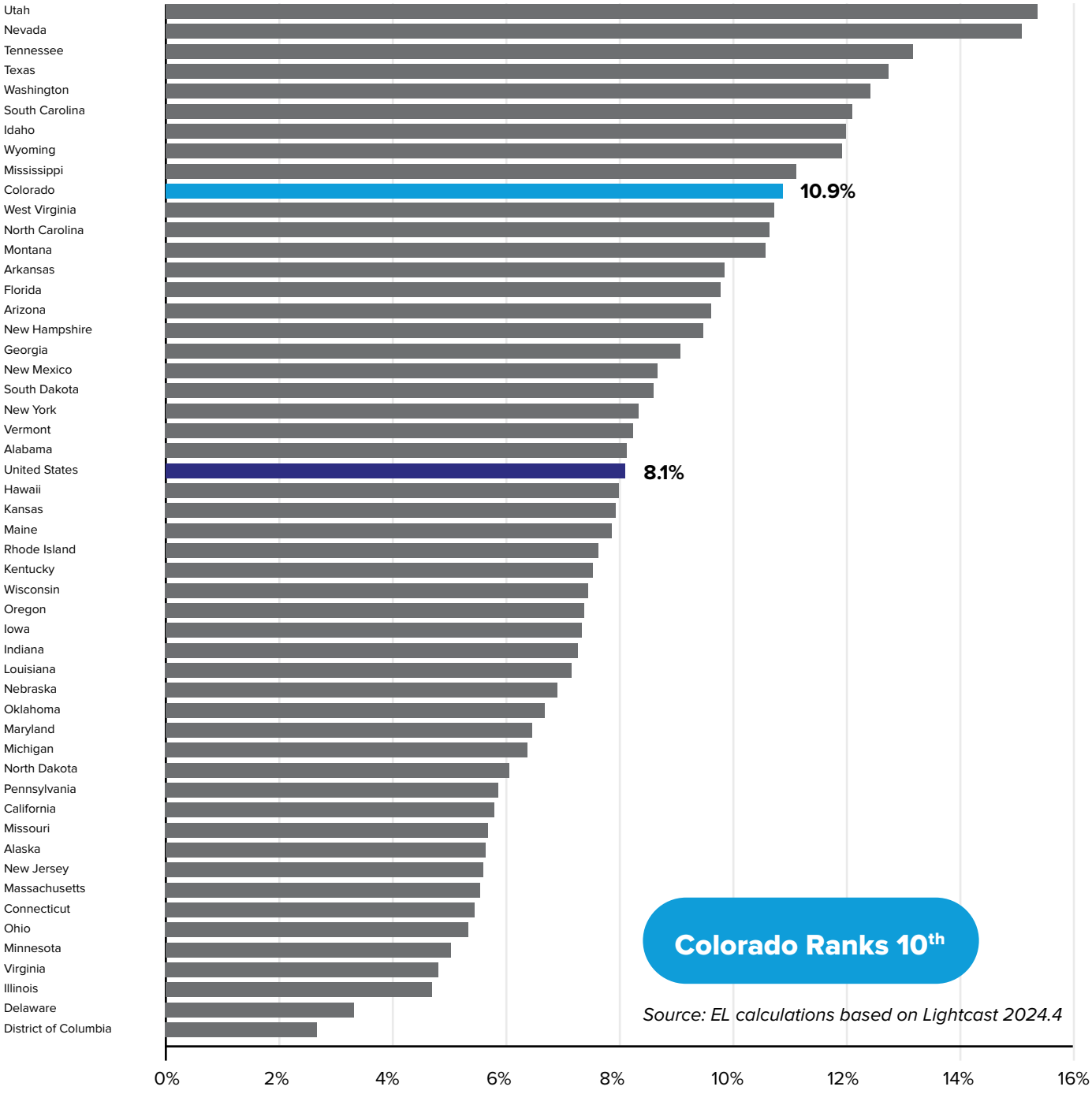


Source: EL calculations based on Lightcast 2024.4

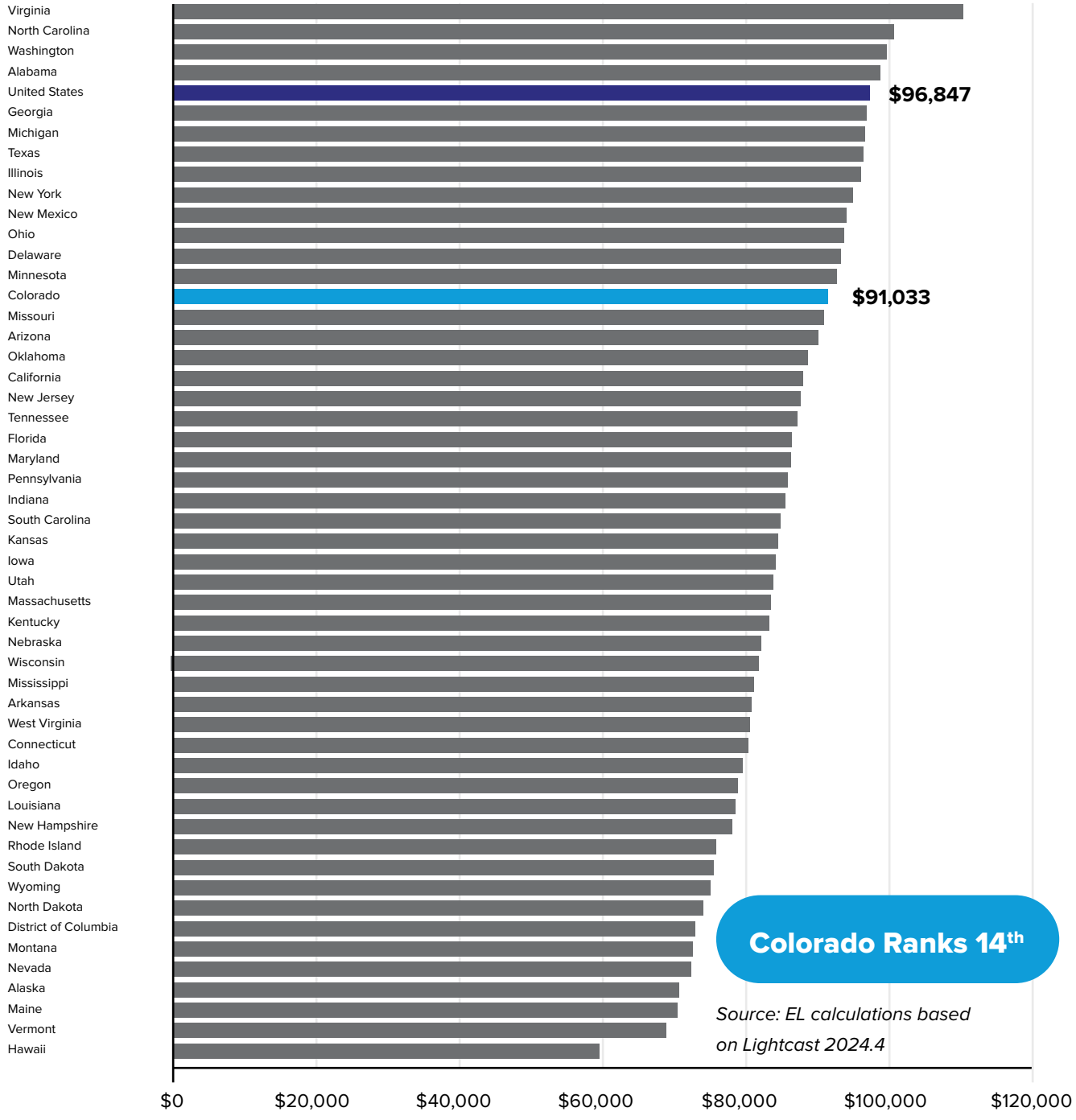
Tech Occupations Job Change (2018-2023)



Expected Tech Occupations Job Change (2024-2029)



Tech Occupations Median Annual Earnings Cost of Living Adjusted (2023)



While tech occupation jobs continue to grow in the state, Colorado rankings for tech occupation growth have slowed some since the initial report. The expected growth rate ranking for the state dropped from 3rd to 10th. These changes are not due to a reduction in growth estimates for Colorado but for the fact that other states are expected to grow at higher rates.

Tech Occupation State Comparisons

METRIC	VALUE	RANK
Tech Occupations Employment Concentration (2023)	1.44	4
Tech Occupations Growth (2018-2023)	25.6%	9
Expected Tech Occupations Growth (2024-2029)	10.9%	10
Median Annual Earnings Adjusted for Purchasing Power (2023)	$91,033	14

Section 6. State Comparison of Technology Infrastructure

Similar to other parts of the economy, the technology sector requires a solid infrastructure to flourish. Logistics firms must have good highways to conduct their business, agriculture needs good ports for export, and many manufacturers need modern water systems. A strong technology infrastructure is often referred to as a "knowledge-based economy". The World Bank defines strong knowledge-based economies on four pillars:

- Entrepreneurship incentives,
- Skilled and educated labor force,
- Physical infrastructure access for technology and communications, and
- Innovation ecosystem that fosters collaboration between academia, private sector, and government.

Using this framework, the technology infrastructure of Colorado by comparing factors such as research, funding access, patents, STEM education, and university technology transfer were evaluated. This section compares indicators that reflect a state's technology infrastructure and assesses Colorado's position amongst other states. Other competitiveness factors like working age population change and business tax rates were weighed.

Research & Development (R&D) funding is a major component of a technology sector's infrastructure. R&D funding helps companies and universities develop new technologies that can be commercialized and spur tech growth. Looking at the total R&D obligations, including federal, state, and private funding sources, across all states, Colorado ranks 19th in the nation when standardized by GDP. The state dropped from a ranking of 16th in the previous report.

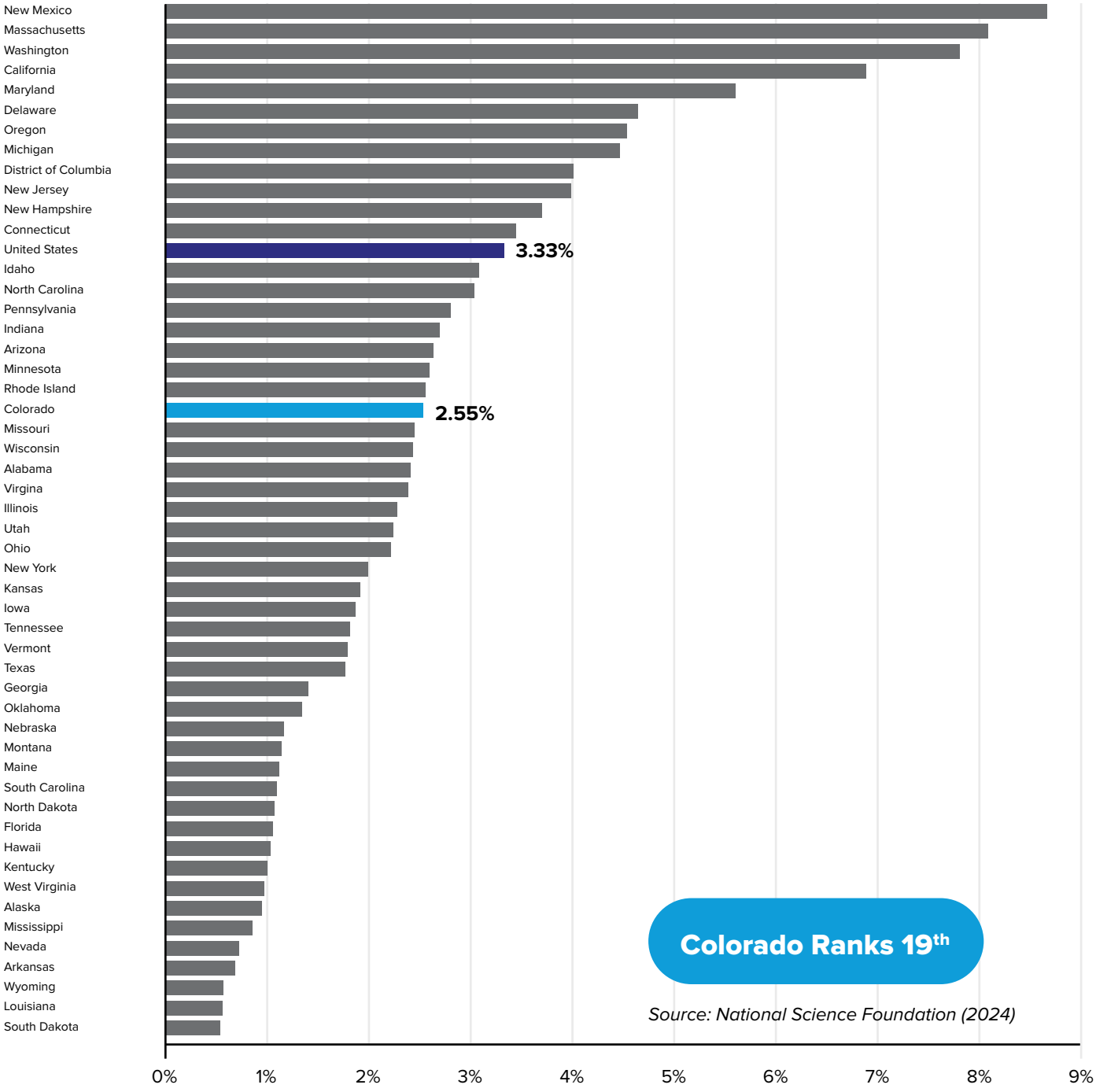
R&D Funding Rank by Source, 2021

FUNDING SOURCE	CO RANKING
Federal	6th
State	26th
Business	18th
Academic	23rd
TOTAL R&D	**19th**

Source: National Science Foundation (2024)

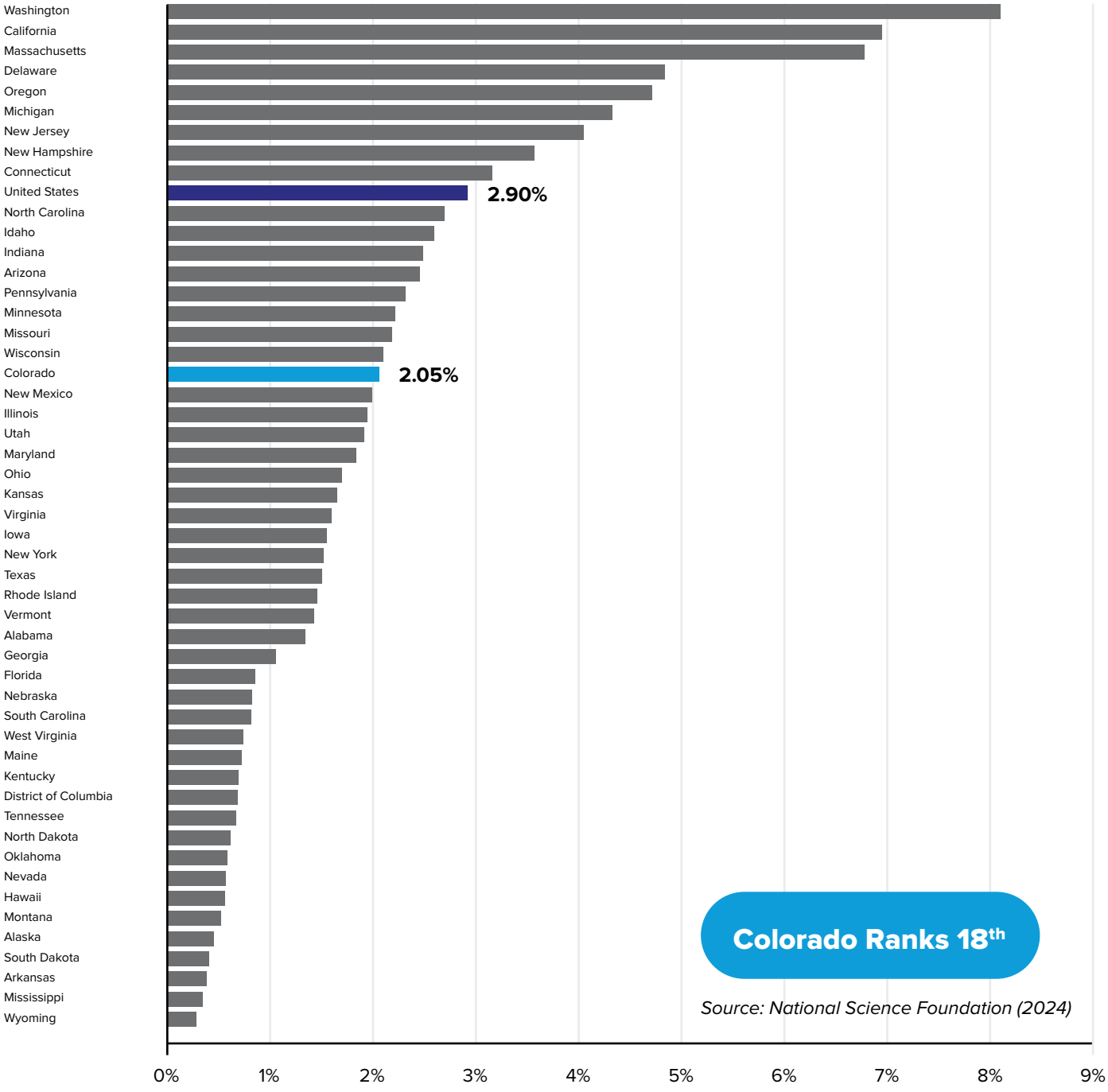
As the chart shows, significant amounts of federal research and development are concentrated in the states with large federal facilities. New Mexico understandably ranks first in this list with its high levels of funding to federal labs, including the Los Alamos National and Sandia National Laboratories, relative to the state's gross product. Colorado benefits from its concentration of 33 federal laboratories in the state, including the National Oceanic and Atmospheric Administration (NOAA) lab and the National Renewable Energy Laboratory (NREL). In fact, the state ranks 6th in the nation in federal funding per GDP. The federally funded research labs in the state were found to contribute about $2.6 billion to the economy and supported over 17,600 jobs in 2016, according to research from UC-Boulder. The state is well positioned to improve further on federal R&D through its recent designation of the quantum tech hub, the Colorado-Wyoming Climate Resilience NSF engine, and semiconductor manufacturing research supported by the CHIPS Act. The other sources of R&D funding, however, rank lower in the state, resulting in the middle-of-the-pack ranking overall.

Total R&D as a Percentage of GDP (2021)



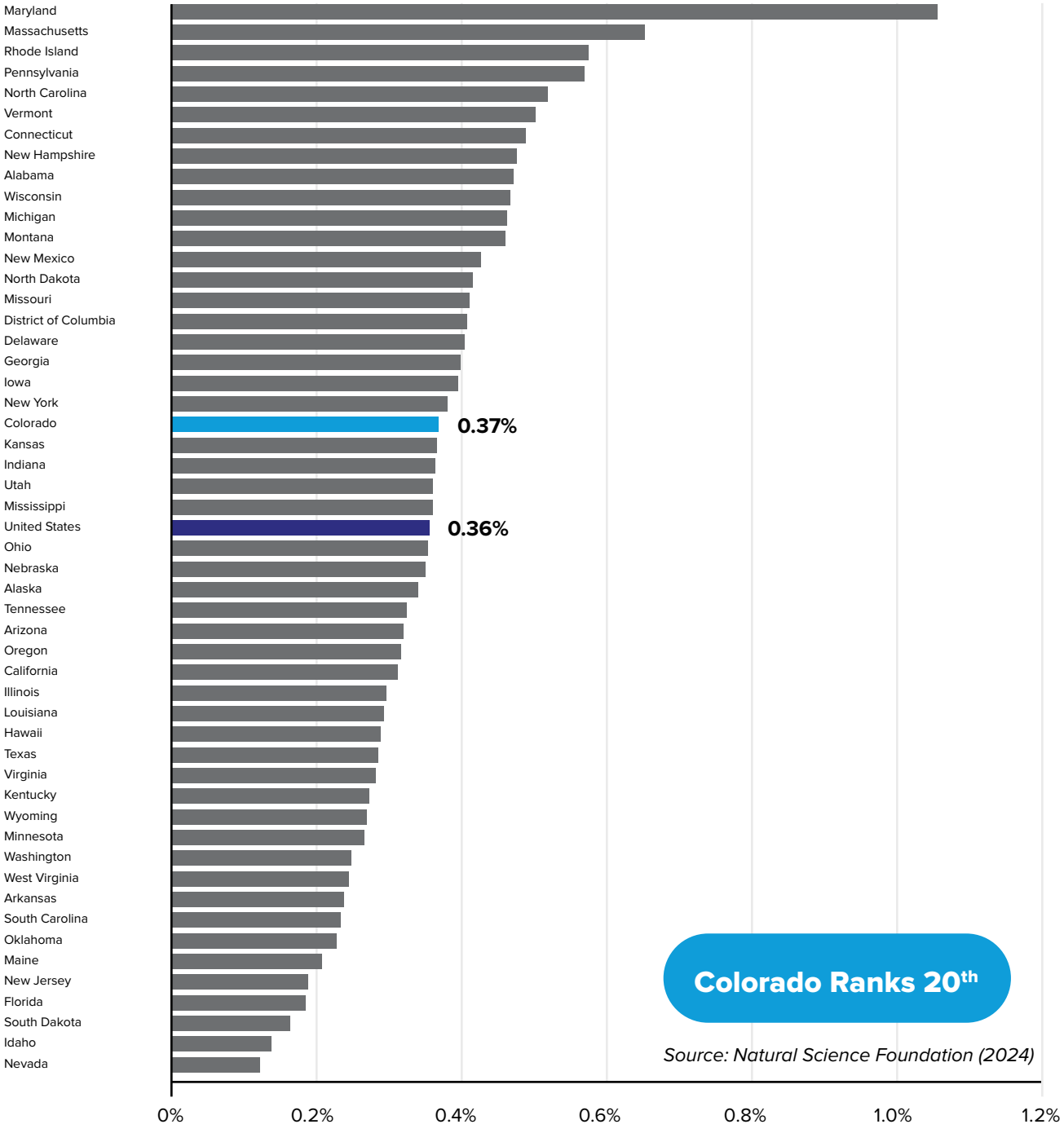
Another indicator of a technology development atmosphere is the number of private R&D spending as a percentage of the state's private output. This demonstrates R&D driven by companies themselves for profit driven innovation which is even more likely to spur commercialization. Business performed R&D funding made up for 2.1 percent of Colorado's private sector GSP in 2021, ranking it 18th in the nation. The Pacific states of California, Washington, and Oregon all top this list. The state's ranking was unchanged from data for 2020.

Business Performed R&D as a Percentage of Private Industry Output (2021)



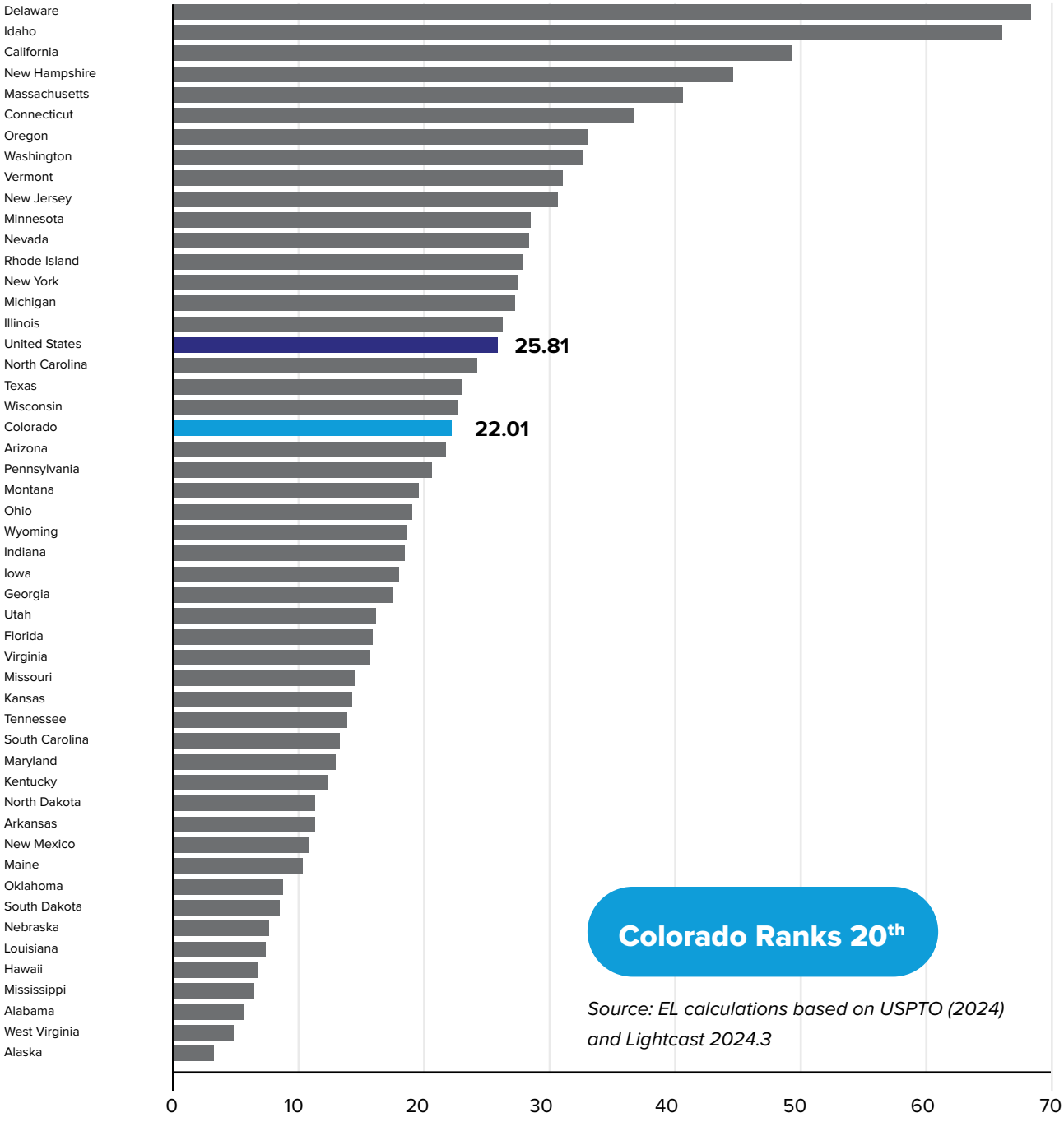
The fourth source of R&D funding is academic. Here, science & engineering funding in higher education is evaluated specifically. The technology that comes from this research can be spun off to create new companies. Colorado ranked 20th amongst the states and scored above the national average. This is an improvement in the rankings from 22nd in the last report.

Higher Education R&D in Science & Engineering as a Percentage of GDP (2022)



Patents awarded can also indicate the level of innovation occurring in a place. Patents usually spur economic growth, particularly in high-cost industries like semiconductors. For this metric, patents are standardized by the number of science and engineering workers. In 2023, Colorado averaged about 22 patents per 1,000 science and engineering workers. This ranks the state 20th in the nation for patent development.

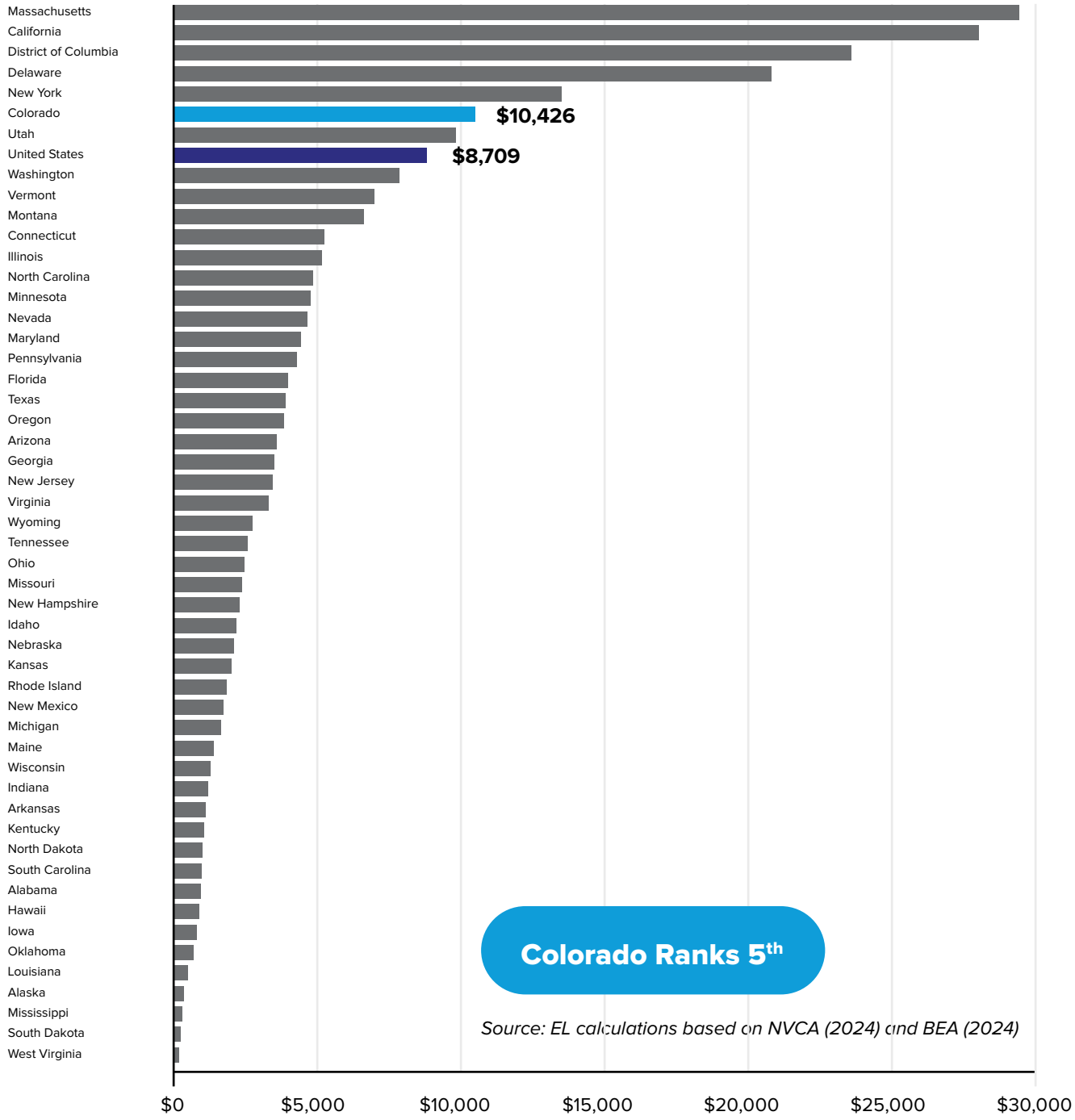
Patents Issued per 1,000 Science & Engineering Workers (2023)



Venture capital is often an essential tool for start-up companies to grow into a large mainstream tech leader and to get to market quickly. Traditional tech economies like California, Massachusetts, and Washington are still accumulating much of the nation's venture capital. Venture capital invested in Colorado is on the rise. Colorado improved from 6th to 5th in this year's report. These rankings standardize funding by the size of the state economy. A small handful of states are winning in

securing access to capital and Colorado is clearly one of those top states. Colorado maintains an advantage in funding rates compared to other Inter-mountain West and Southeast top growing tech states. In interviews with stakeholders, many felt there was adequate funding for start-ups, but that mid-sized companies have more difficulty accessing capital.

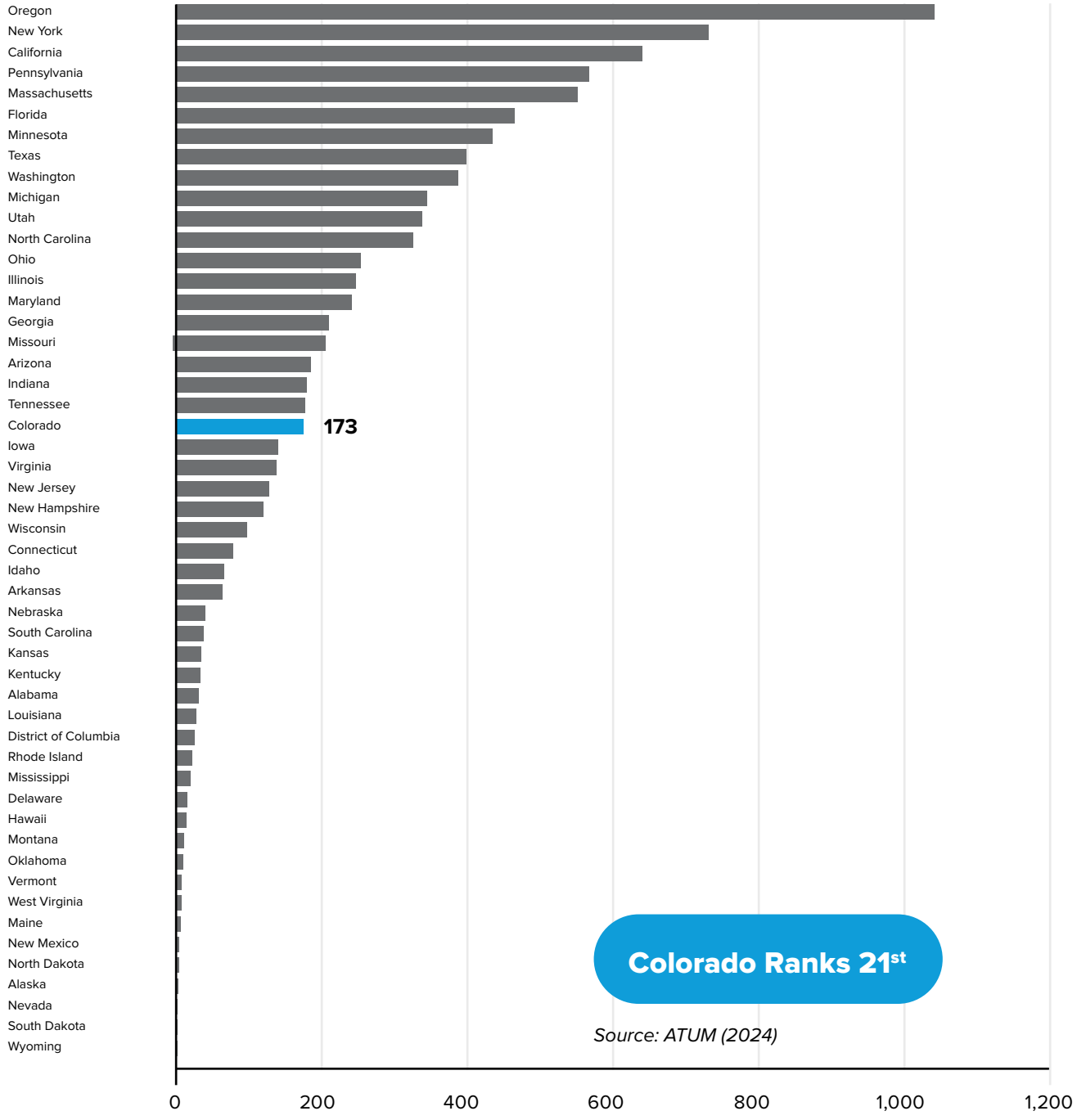
Venture Capital Invested per $1 Million of GDP (2018-2023)



Source: EL calculations based on NVCA (2024) and BEA (2024)

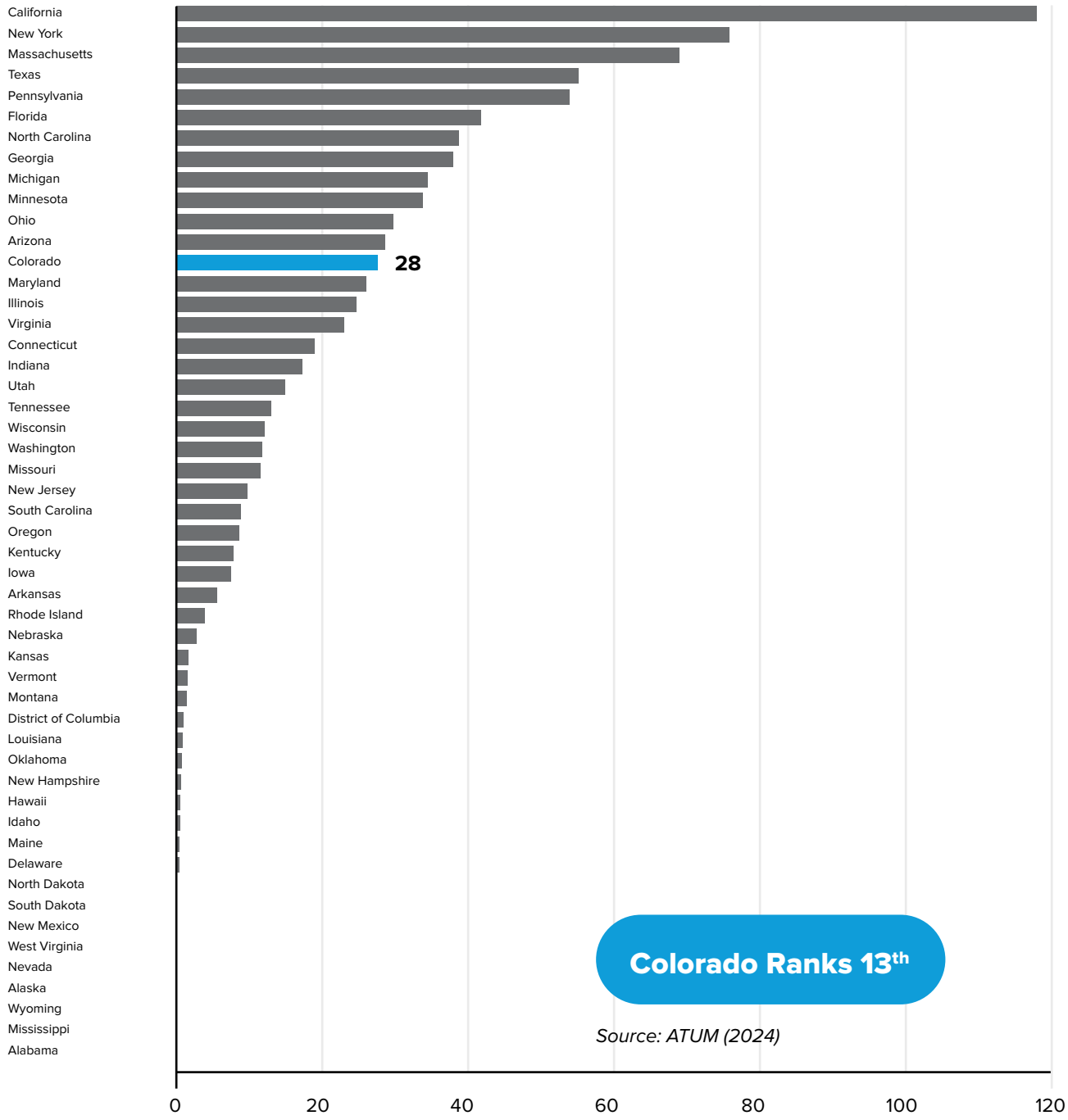
Successful new developments from research occurring at universities can be commercialized and help spur new private sector growth in an area. The ability of a state to capitalize on its research capabilities and turn them into marketable concepts means more tech start-ups and jobs. This level of tech transfer can be measured by the number of options and licenses of university IP that is spun off to the private sector. An association of university technology transfer managers, AUTM, catalogs the tech transfer data from over 190 universities. In 2020, 127 licenses and options of university-developed technology were executed in Colorado. By 2023, this figure increased to 173 licenses and options. The state ranks 21st in this tech transfer metric

Technology Licenses and Options Executed from Universities, 2023



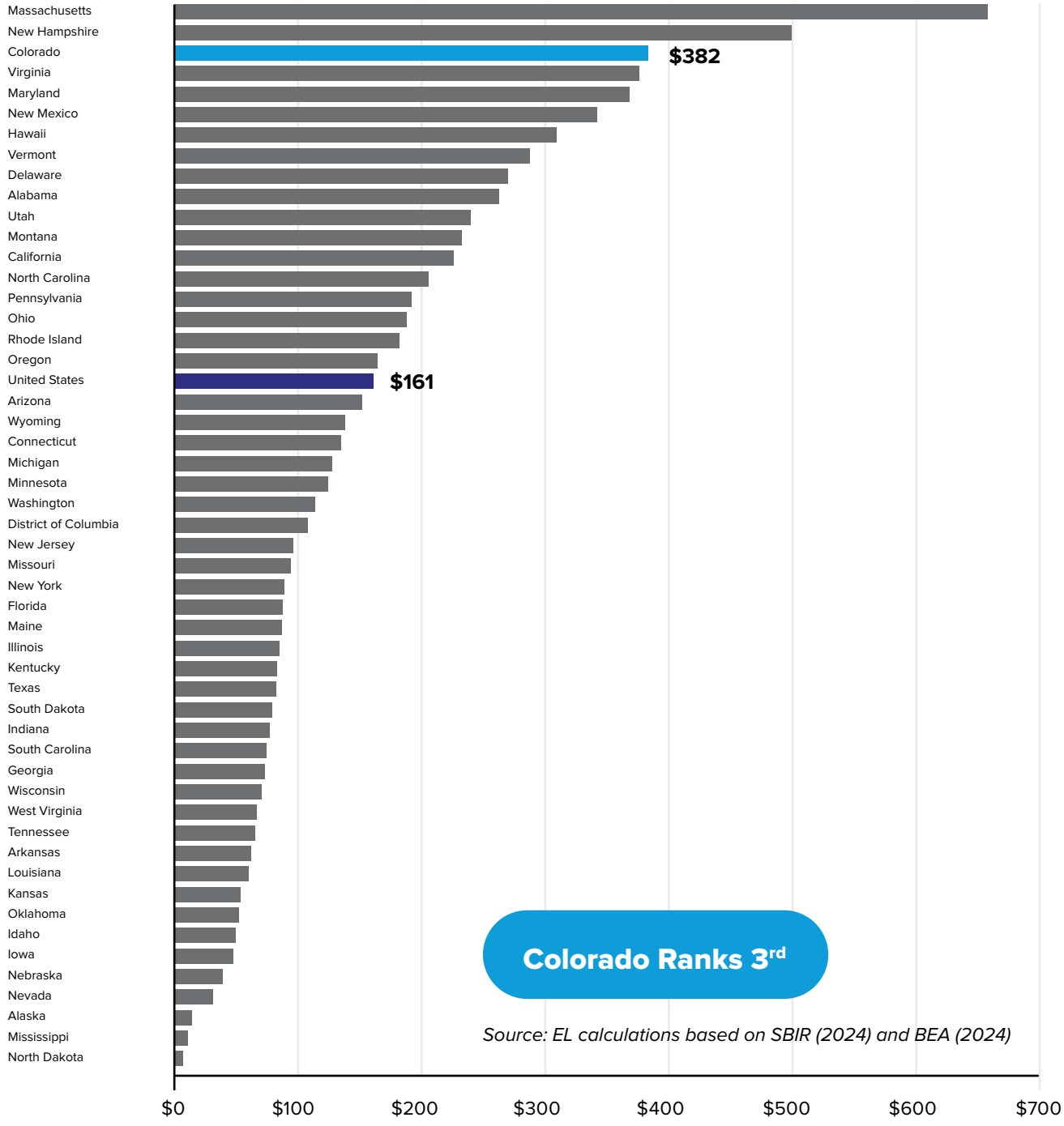
Another measure of technology transfer, the number of start-ups from universities, can indicate the level of entrepreneurship interest within a state's universities as well as its ability to convert research assets and public funding into economic opportunities. Colorado universities produced 28 start-ups in 2023, the 13th highest amount in the country. While AUTM data must be lagged in its release in order to collect across a number of universities, other data sources indicate that Colorado will see an increase in startups for the year 2024. According to the UC-Boulder technology transfer office, there were 35 startups launched in 2024. These startups combined with other Colorado universities have the potential to move the state up in the rankings next year.

Start-Ups from Universities (2023)



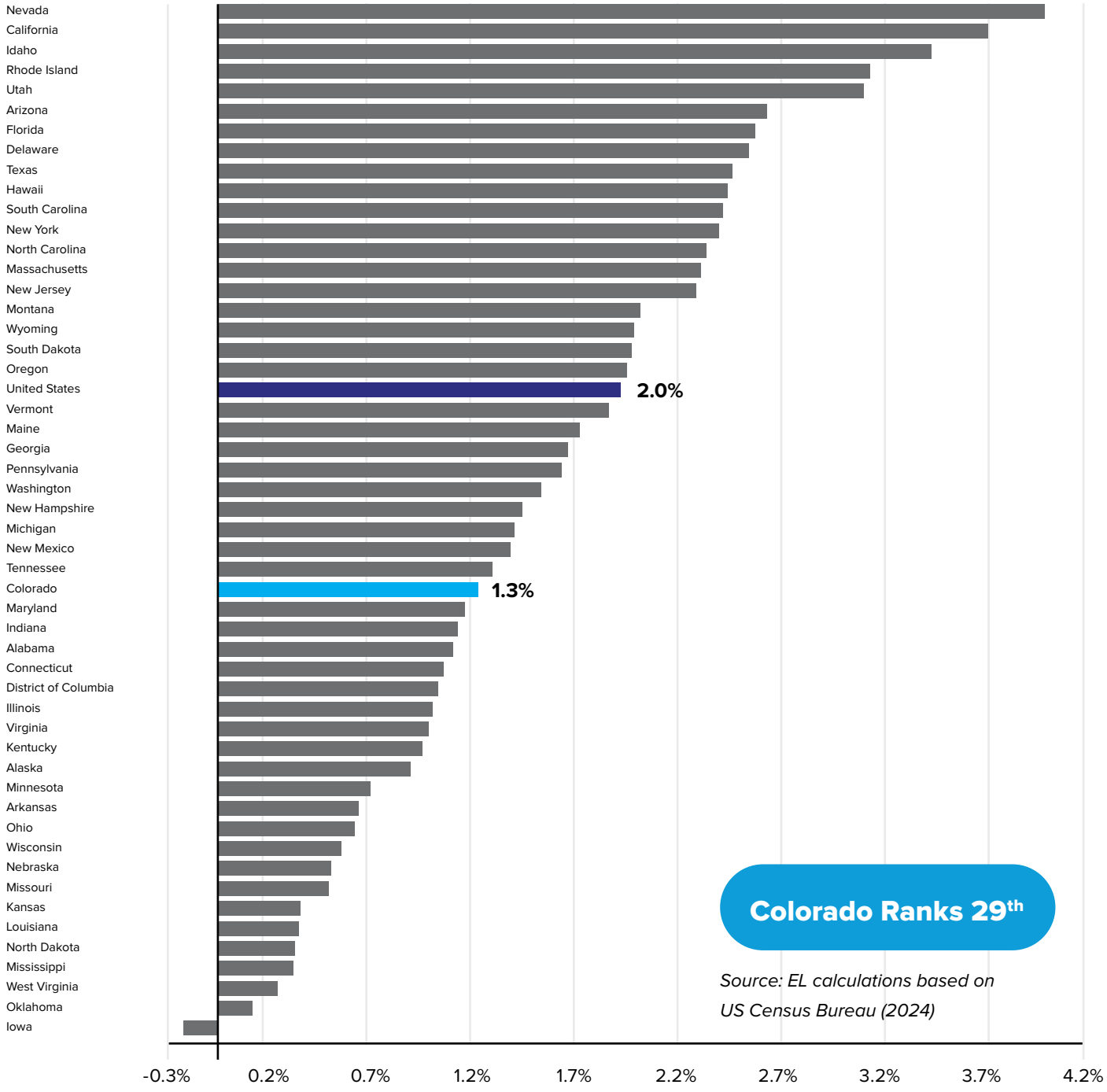
One option for new companies seeking funding for high-tech R&D is the federal government's Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR) funding programs. These programs support and encourage American innovation by investing in small businesses during their concept and prototype development phases with the goal of reaching commercialization. SBIR/STTR funding can be critical early-stage funding for high-reward concepts. From 2018-2023, when the level of SBIR/STTR funding is standardized by the size of the state economy, Colorado has the 3rd highest rate of funding. An improvement from the previous ranking of 5th with 2016 to 2021 data

SBIR and STTR Funding per $1 Million of GDP (2018-2023)



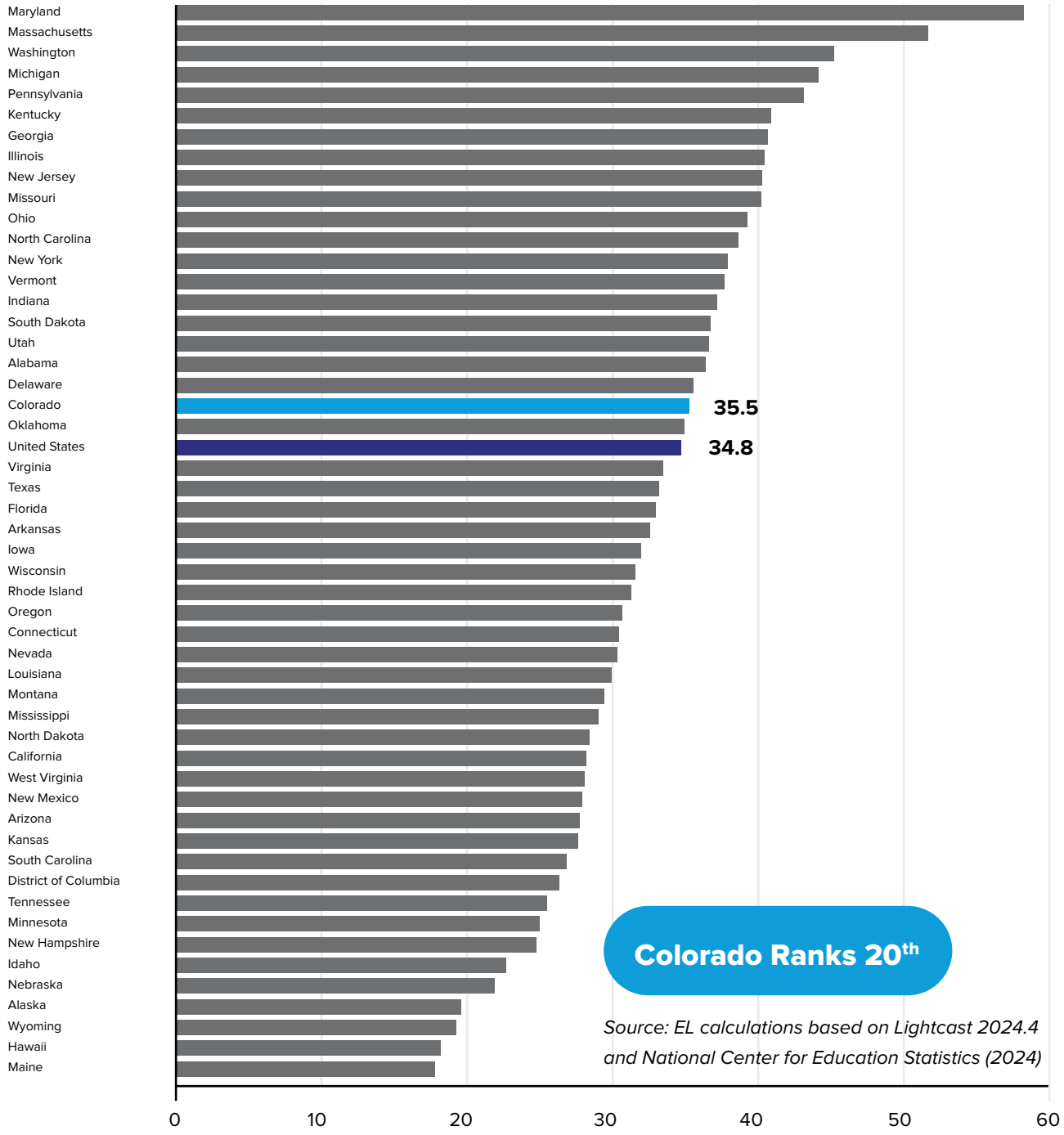
Entrepreneurs are the lifeblood of a knowledge-based economy. Each year the economy is replenished and re-energized by entrepreneurial activity. Business that originates in one location often look to grow and establish their roots in that same region. The US Census Bureau tracks the number of companies entering and those who exit the market. The most recent data is available for the year 2022. Comparing the rates of entrance and exit can provide a measure of business dynamism. High dynamism fosters more competition, economic equality increases, and innovation. In Colorado, the rate was positive at 1.3 percent. While this was an overall improvement in dynamism, the state's ranking dropped to 29th as this rate was not as high as much of the US for this time-frame.

Business Opening vs Closing Rate (2022)



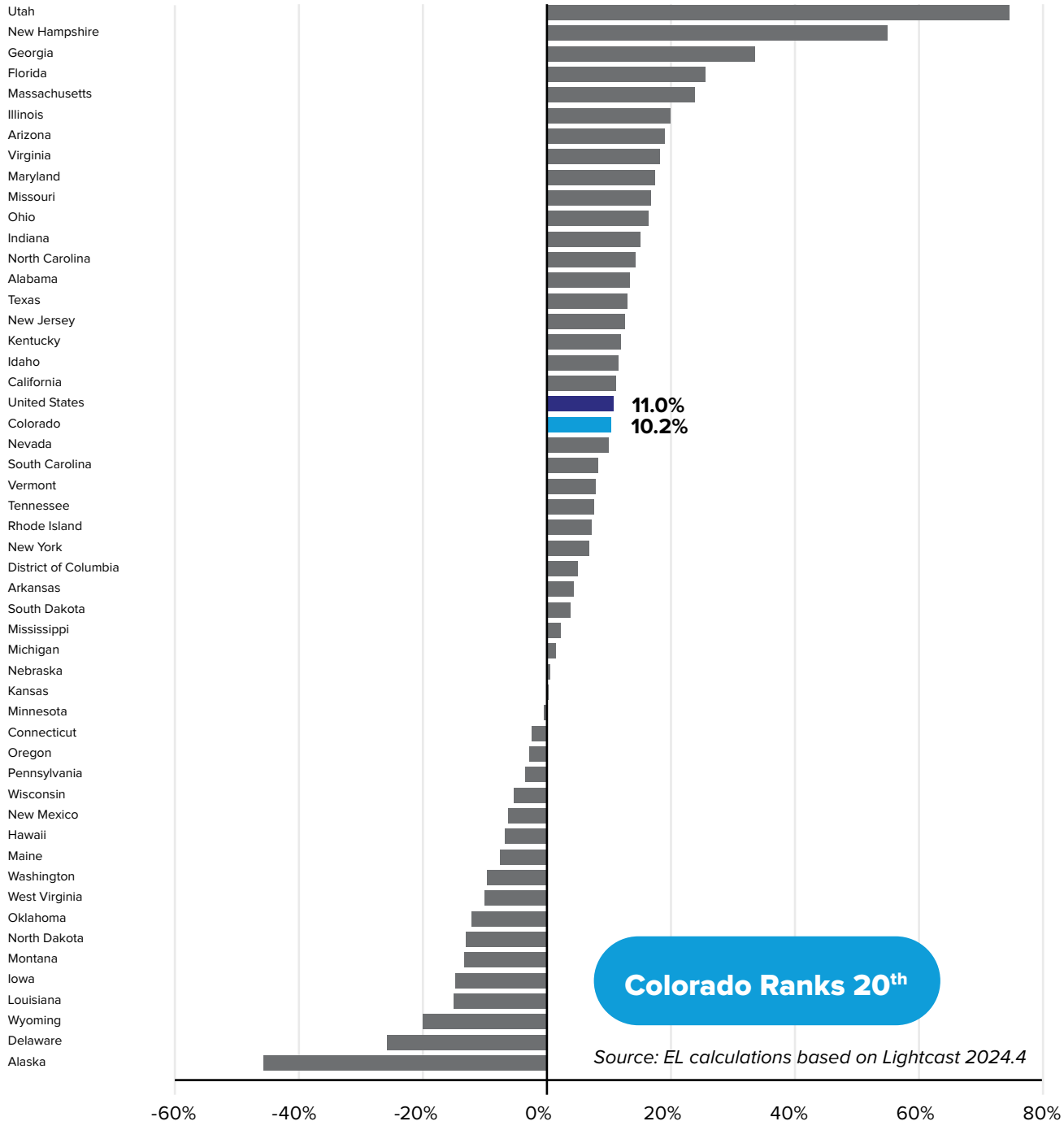
One of the essential components of infrastructure for a knowledge-based economy is a skilled labor force. Tech occupations often require science, technology, engineering, and math (STEM) bachelor's degrees for basic entry-level positions. In 2023, Colorado produced 12,433 STEM degrees or certificates. When standardized by the number of enrolled postsecondary students in each state, Colorado had a level higher than the national average and ranked 20th across the country.

Completed STEM Education Programs per 1,000 Enrolled Students (2023)



Over the past few years, many states have focused their efforts on growing the number of STEM students in their educational systems. In the initial report Colorado's growth in STEM program completions from 2016 to 2021 was 20 percent. With updated data from 2018 to 2023, this growth dropped to about 10 percent. The state dropped in the rankings from 15th to 20th.

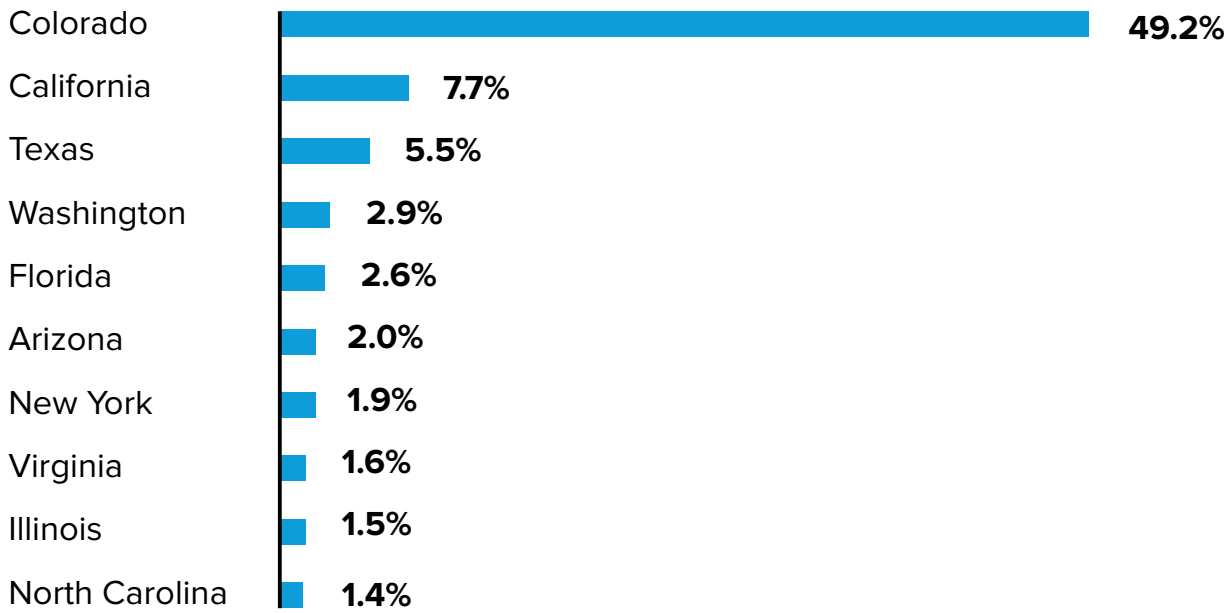
Percent Change in STEM Education Program Completions (2018-2023)



Source: EL calculations based on Lightcast 2024.4

When online professional profiles for individuals who had received a STEM degree, award, or certificate from a Colorado postsecondary institution were reviewed, there were 392,230 profiles that had been updated since 2019. About half of these profiles listed their current location in Colorado. About 7.7 percent were currently working in California and another 5.5 percent were working in Texas. While this analysis of online profiles is not a total accounting of all the STEM graduates coming out from Colorado schools, it does provide some indication that a significant portion of those educated in STEM in Colorado do stay and work in the state. This highlights how supporting local postsecondary institutions can help expand the local tech labor pool.

Current Location of STEM Program Completers from Colorado Schools

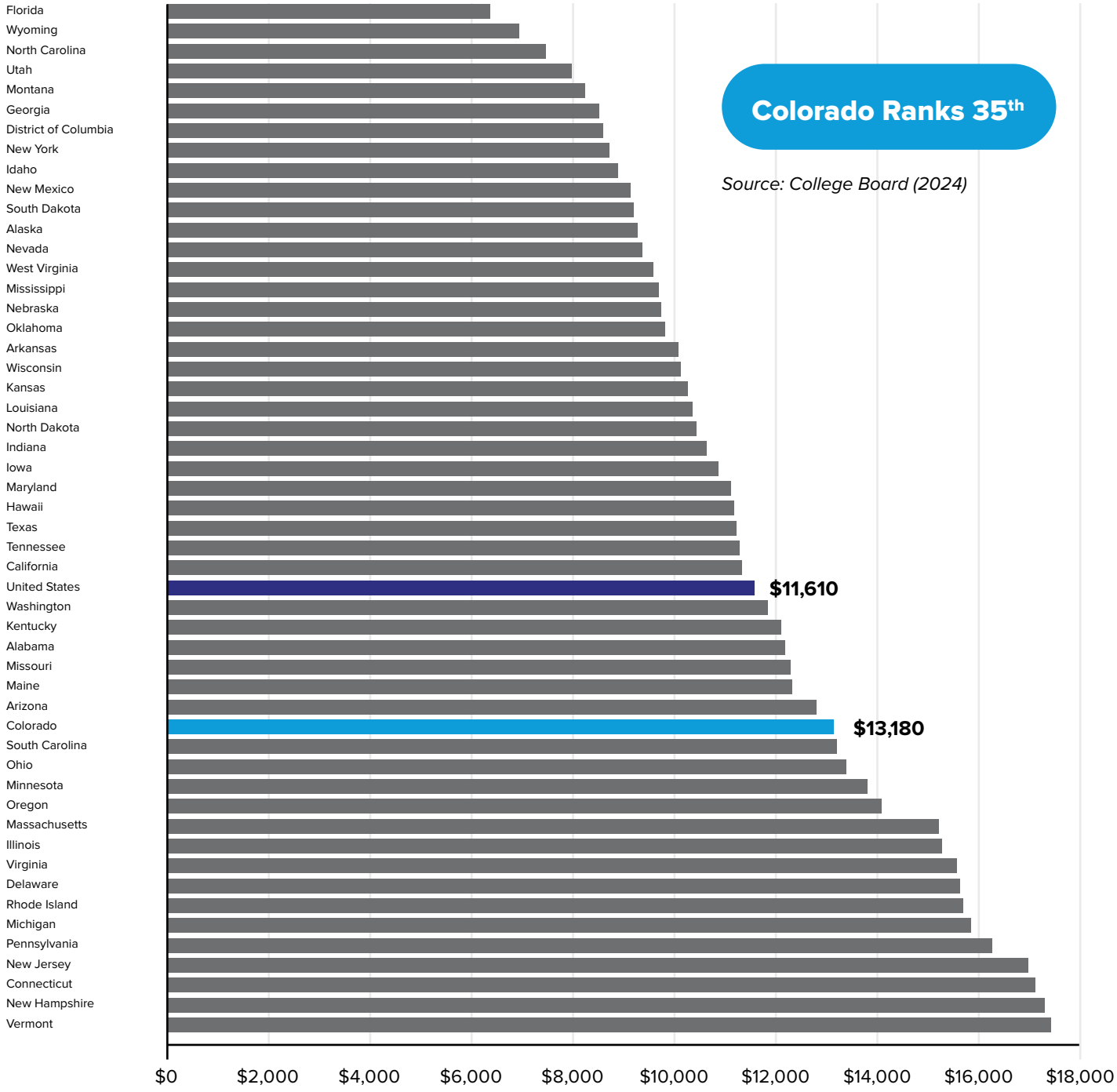


Source: EL calculations based on Lightcast 2024.4

Note: This data comes from online profiles of individuals who have updated their profile since 2019.

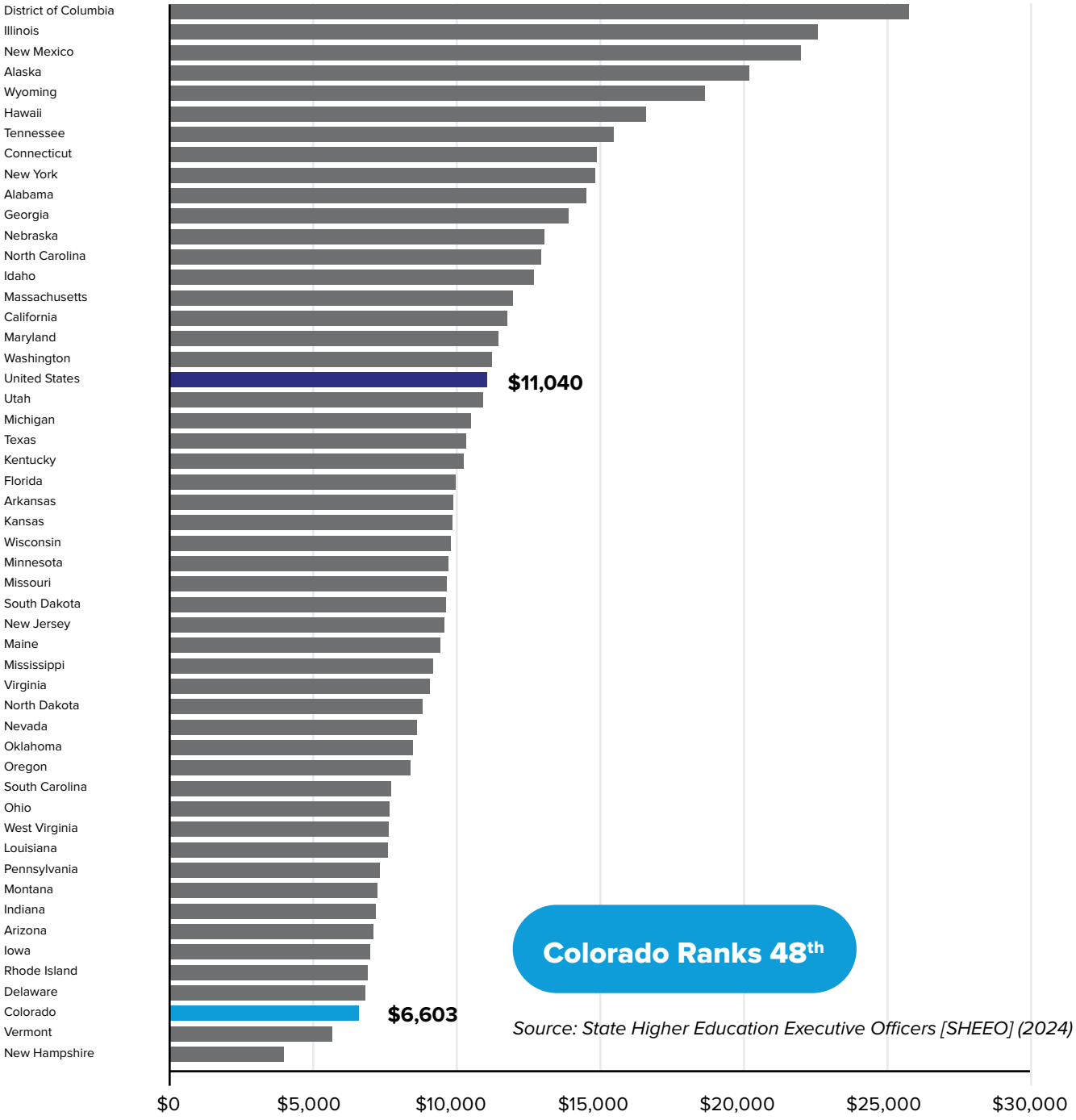
A key to generating local talent is offering affordable tuition to in-state students. Students today are keenly aware of the educational debt burden. High in-state tuition can send talented students to other states where even the out-of-state tuition is lower. For the 2024-25 school year, the average 4-year public university tuition is $13,180 for in-state tuition in Colorado. This cost is higher than the national average and ranks the state 35th. The state dropped one place in the rankings from 34th in the initial report.

Average In-State Tuition, 2024-2025



Colorado's funding per student for public higher education has been on the rise since reaching its lowest level in 2013. Despite these increases, Colorado had the 3rd lowest funding rate, 48th overall, in the country with $6,603 of state spending per full time student in 2023. With this low level of funding, in-state tuition could increase and thus threaten the local talent pipeline. Lower levels of funding can impact the number of offerings at colleges and faculty research.

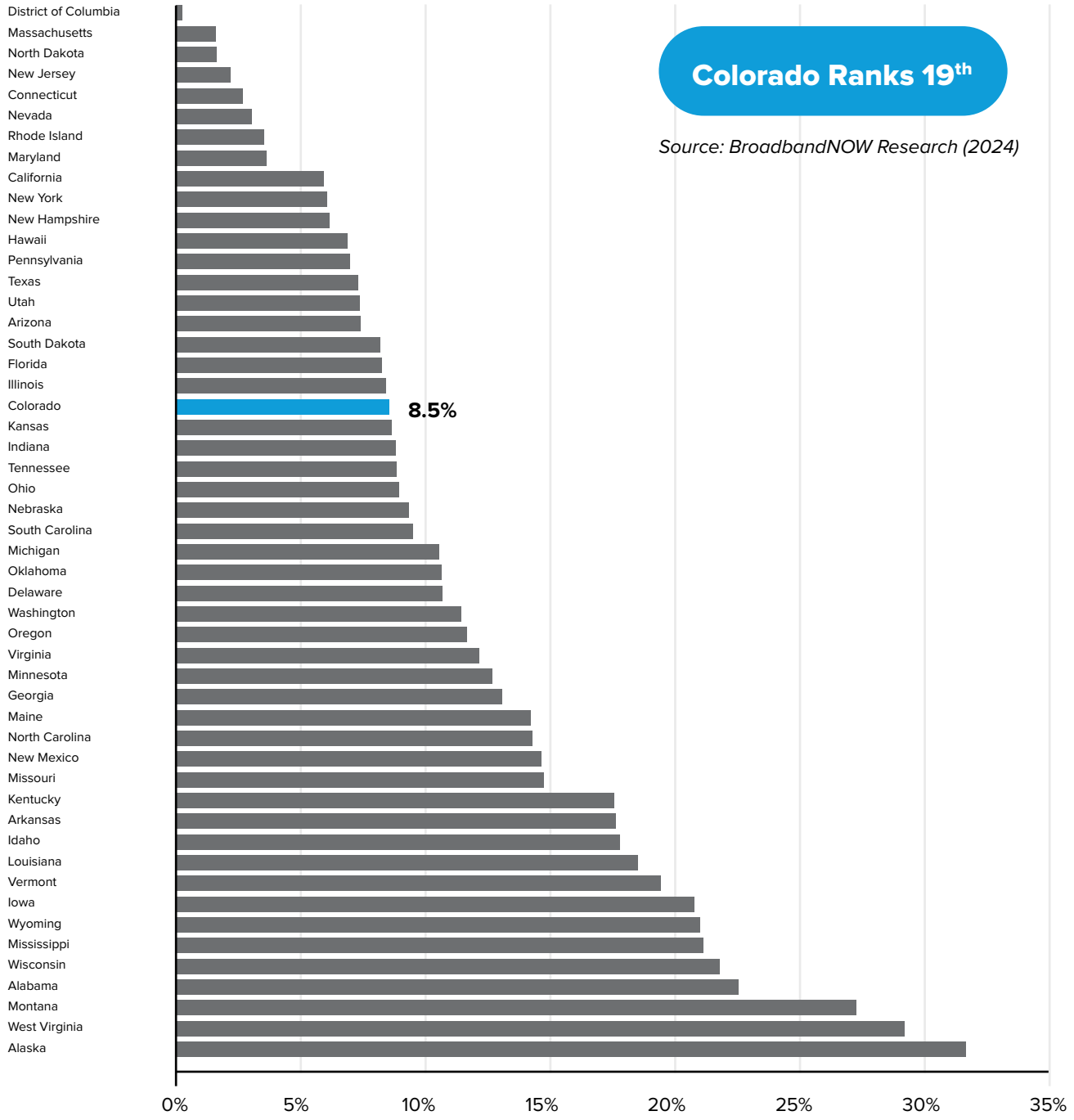
State Spending on Higher Education per FTE Student (2023)



Source: State Higher Education Executive Officers [SHEEO] (2024)

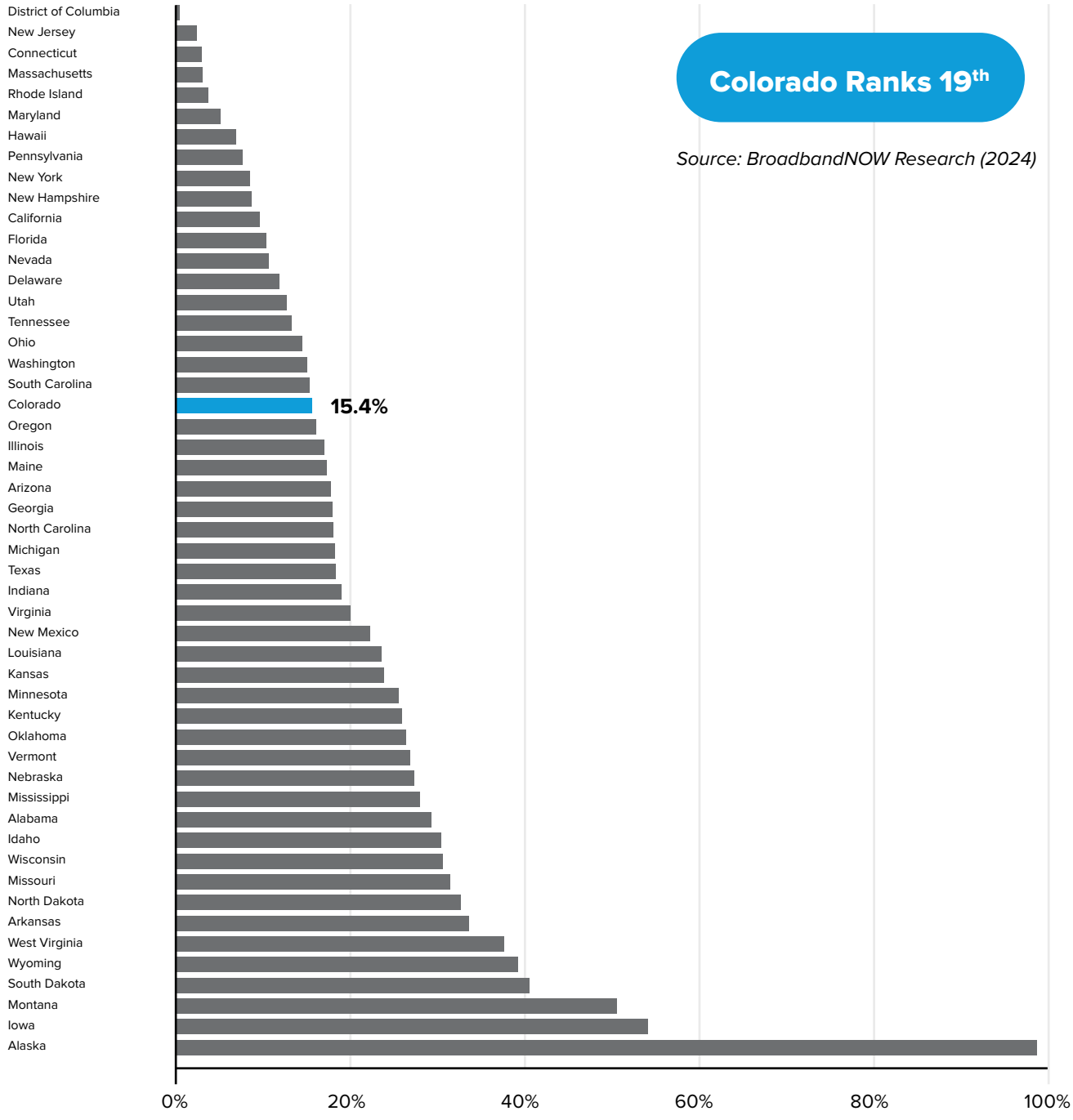
High-speed broadband internet is a priority for many states and a good indicator of connectivity for a knowledge economy. Access is the first step in making sure everyone can be plugged into the information economy. Research shows only 8.5 percent of Colorado's population did not have access to high-speed broadband in 2024. Colorado ranks in the middle of the pack at 19th for high-speed broadband access. This was an improvement from ranking 21st with 2021 data.

Percentage of Population without Access to High-Speed Broadband (2024)



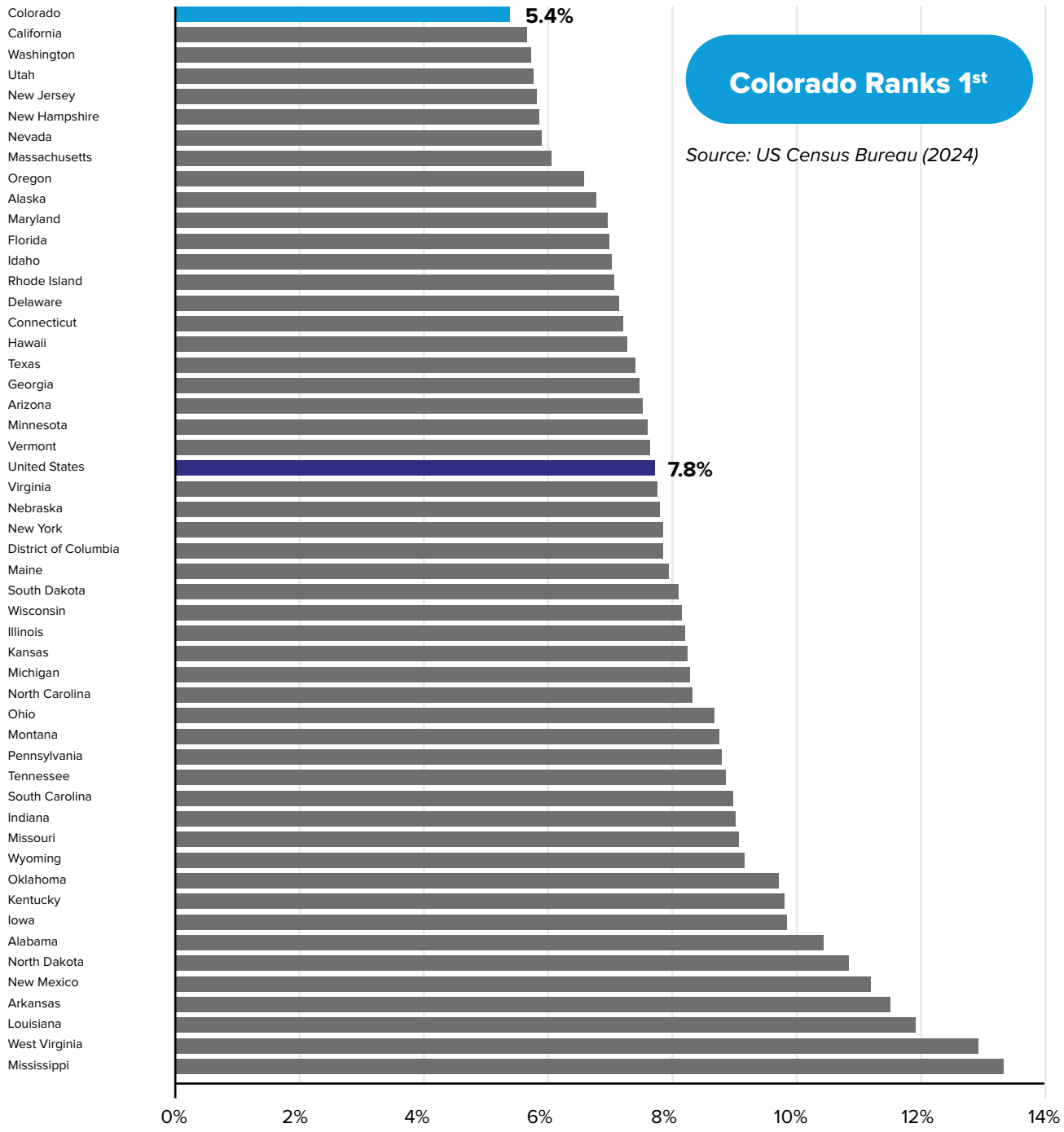
The availability of broadband must be paired with adoption by communities to ensure that all households are connected to the internet. Research has shown that adoption has a stronger link to economic benefit than just broadband availability. The central piece to adoption is affordability. Affordable plans were defined as under $60 per month in 2024. A higher share, 15.4 percent, of Colorado's population do not have access to high-speed broadband at an affordable price. Colorado ranks 19th for this metric which is vastly improved from the initial report where the state was ranked in the bottom third. The state also ranks number one in terms of the lowest percentage of households without internet subscriptions.

Percentage of Population without Access to Affordable Broadband (2024)



The US Census Bureau measures the level of adoption of internet by households. In Colorado, only 5.4 percent do not have an internet subscription. This was the highest level of adoption across the country. Compared with the data from BroadbandNOW, this may indicate that more households in the state are accessing broadband that is not considered high-speed.

Percentage of Households without an Internet Subscription (2023)

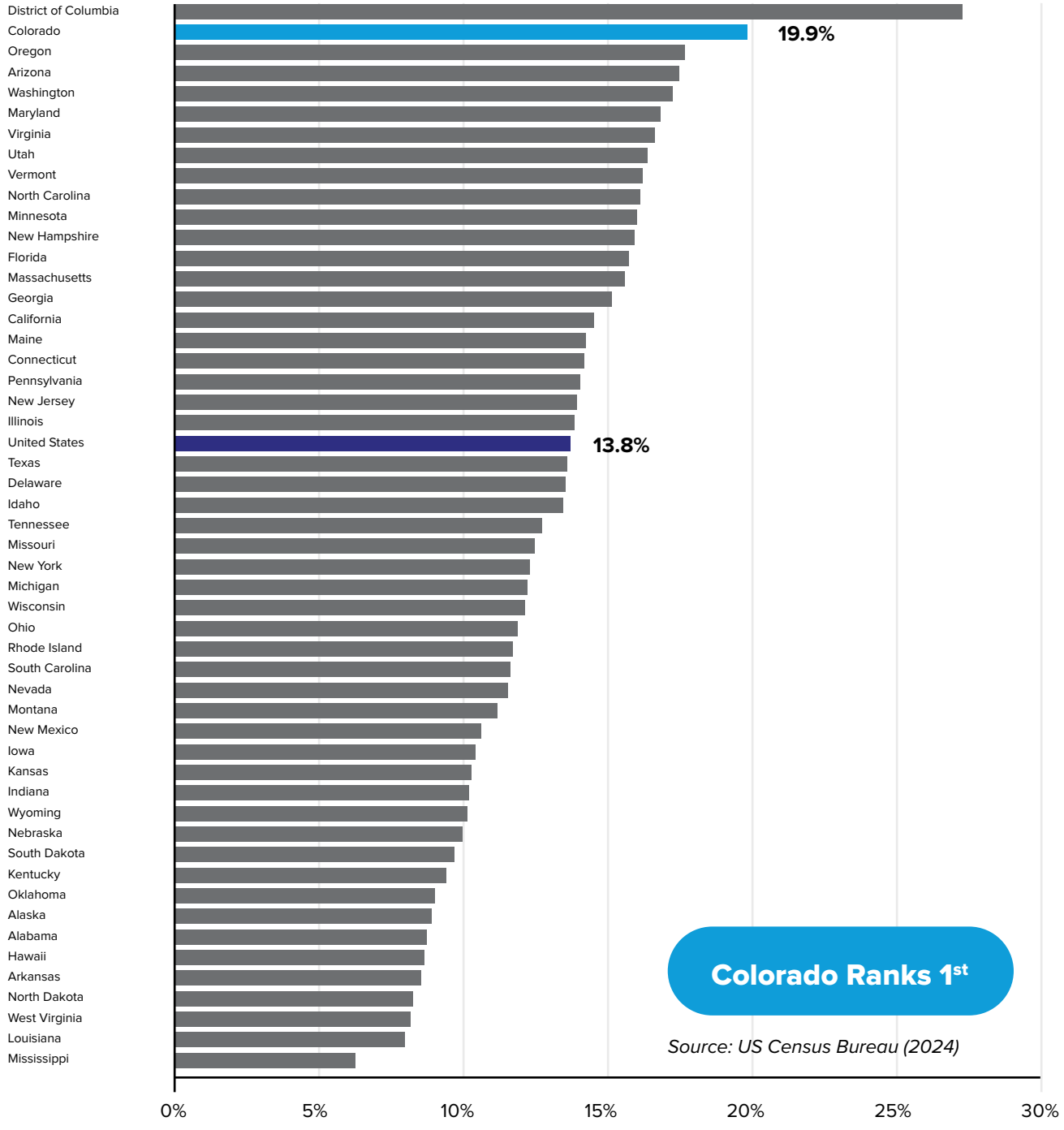


Colorado Ranks 1st

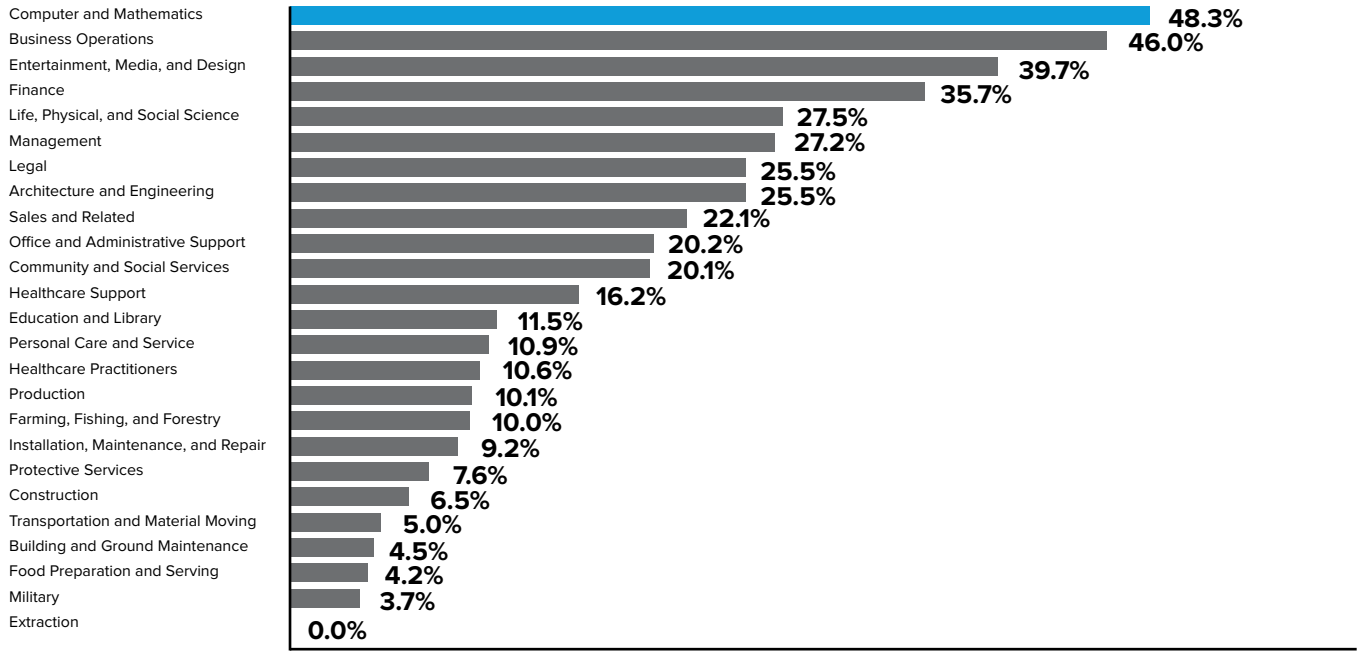
Source: US Census Bureau (2024)

Remote work has the potential to spread tech workers into more geographically diverse locations. The expansion of remote work during the pandemic can also bring new talent to an area regardless of the local employment situation. It can also help local employers expand their talent pool across the state and the nation. According to Census surveying, Colorado had 20 percent almost of its workers who said they worked from home. This was the highest state. The District of Columbia had higher rates but is not counted in the state rankings. The rate of working from home in the previous report was 24 percent. Remote work is tamping down from its pandemic height but remains quite elevated for tech workers.

Percentage of Workers Working at Home (2023)



Percentage Working from Home by Occupation (2023)



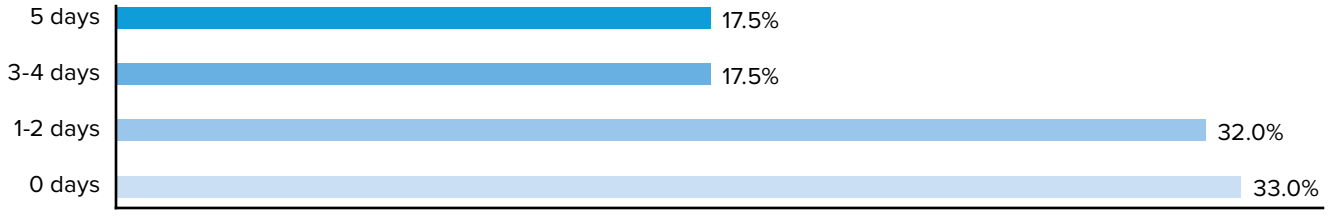
Source: EL calculations based on US Census Bureau microdata

Computer occupations were the occupation most likely to utilize working from home in Colorado. The top computer occupations to work from home in 2023 were:

- Software QA Analysts (73%)
- Web Developers (68%)
- Web and Digital Interface Designers (60%)
- Database Administrators and Architects (56%)
- Software Developers (55%)

The prevalence of remote work was confirmed by CTA members who were surveyed in the Fall of 2024. One third of members are entirely remote and only 17.5 percent work fully in-person.

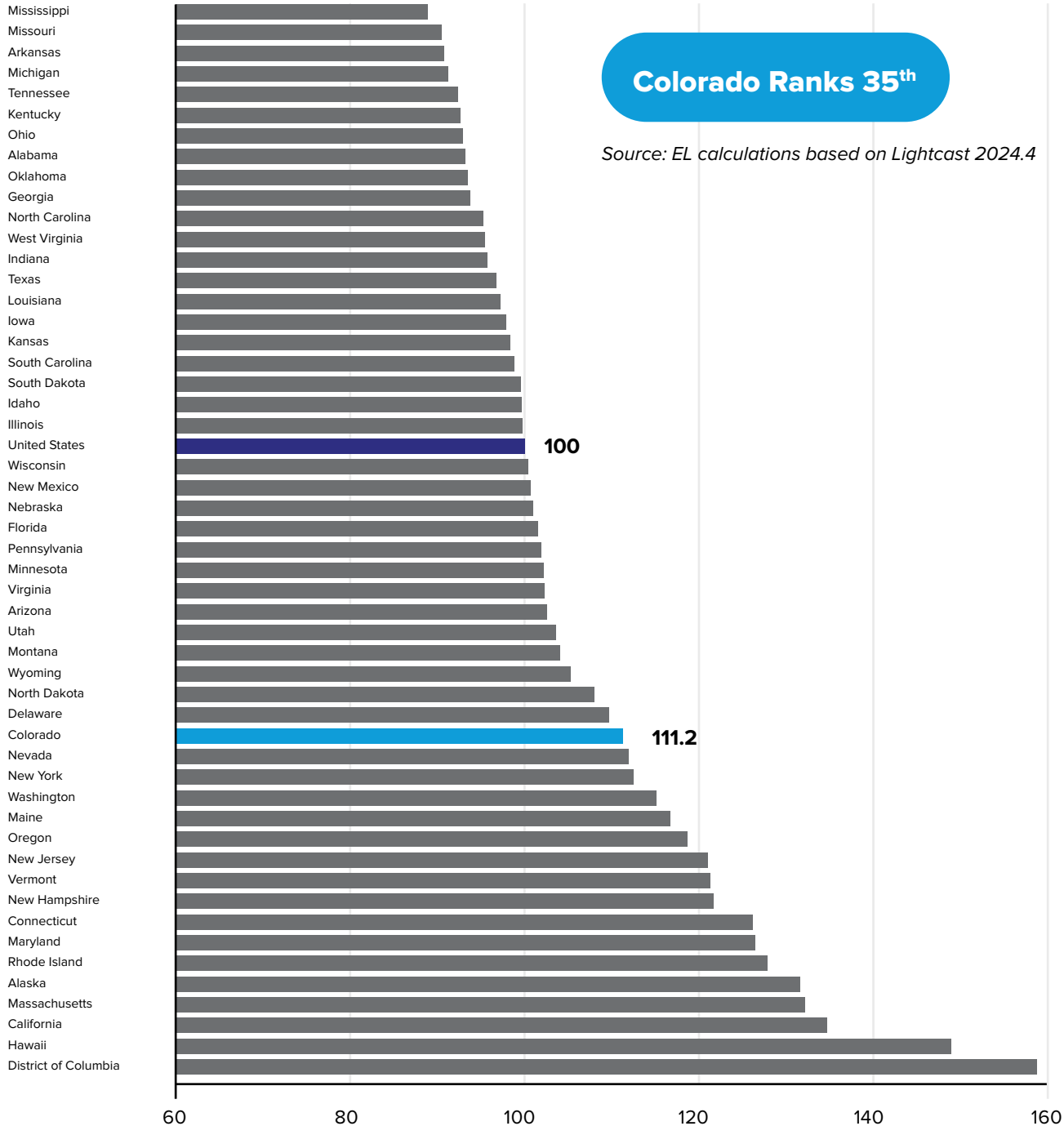
CTA Members by Number of Days Physically in the Office



Source: CTA Membership Survey, n=97

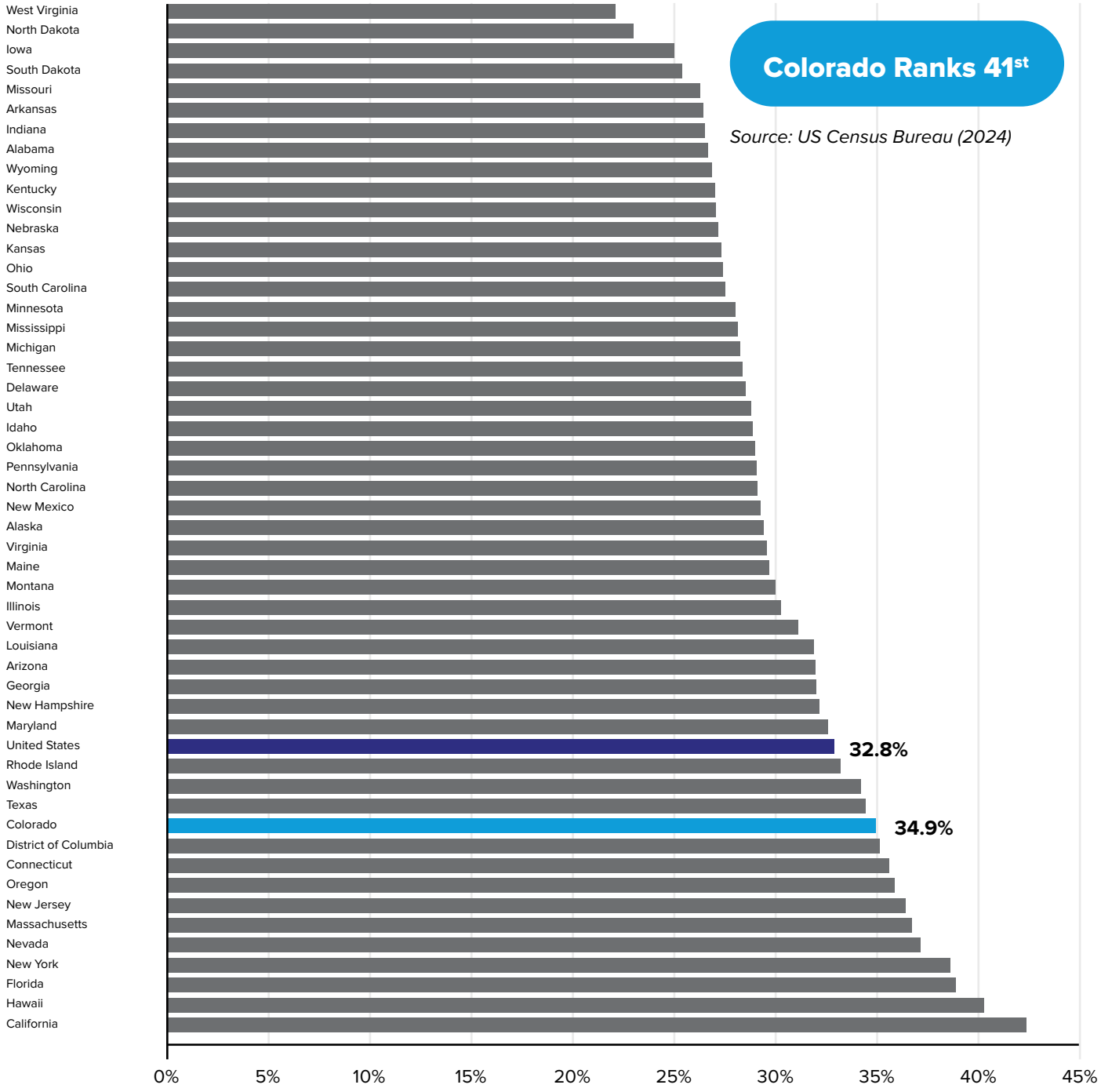
The attractive quality of life in Colorado has brought many new people to the area in recent years. One downside of this growth is the impact to cost of living. Several stakeholders commented in interviews that although Colorado's cost of living has risen it is still lower than many other traditional tech states like California and New York which can be advantageous when recruiting top-skilled tech talent. Other cost of living data sources that have released their 2024 findings indicate that Colorado's cost of living continues to rise. In CNBC's Top States for Business 2024 rankings, Colorado ranked 46th for cost of living. This report uses 2023 data to remain consistent with the labor market data presented in this report.

Cost of Living Index (2023)



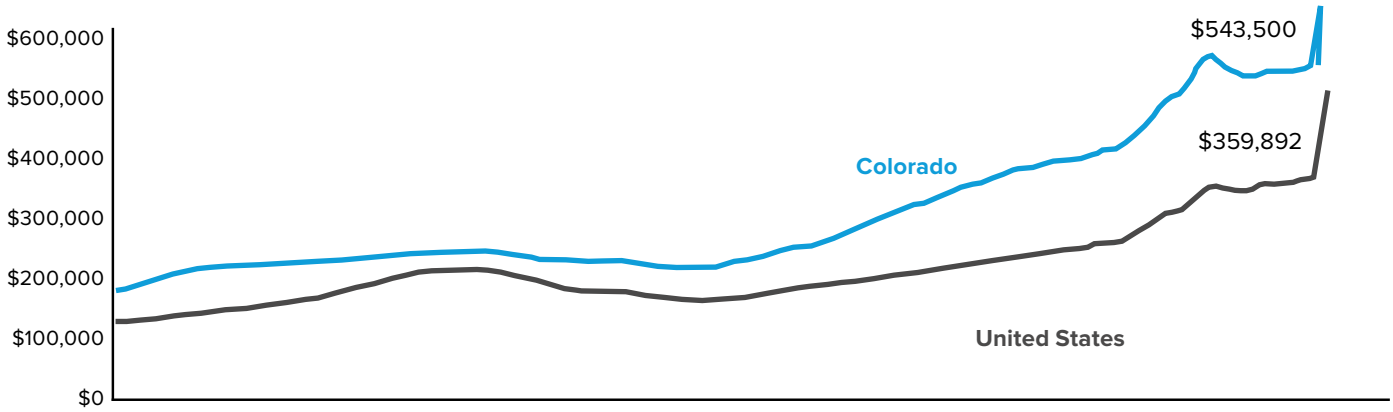
Housing prices specifically rose sharply in the Mountain West in recent years, making affording rent or mortgages more difficult. This is one of the biggest contributors to Colorado's high costs. In 2020, almost 23 percent of households were considered housing burdened (paying more than 30 percent of household income on housing). By 2023, this rate increased to 35 percent. This rate is higher than the national average and Colorado dropped to 41st in the rankings. The lack of affordable housing was one of the biggest threats to the tech workforce mentioned in interviews with stakeholders.

Share of Housing Burdened Households (2023)



Colorado home prices had been rising relative to the national average before the pandemic. After the pandemic, this trend became even more pronounced. After the Federal Reserve began fighting inflation with interest rate cuts, the real estate market stabilized. With recent cuts in rates from the Federal Reserve in the fall of 2024, a spike of real estate activity could start prices to increase again but these increases are unlikely to be as dramatic as those experienced in recent years.

Typical Home Value



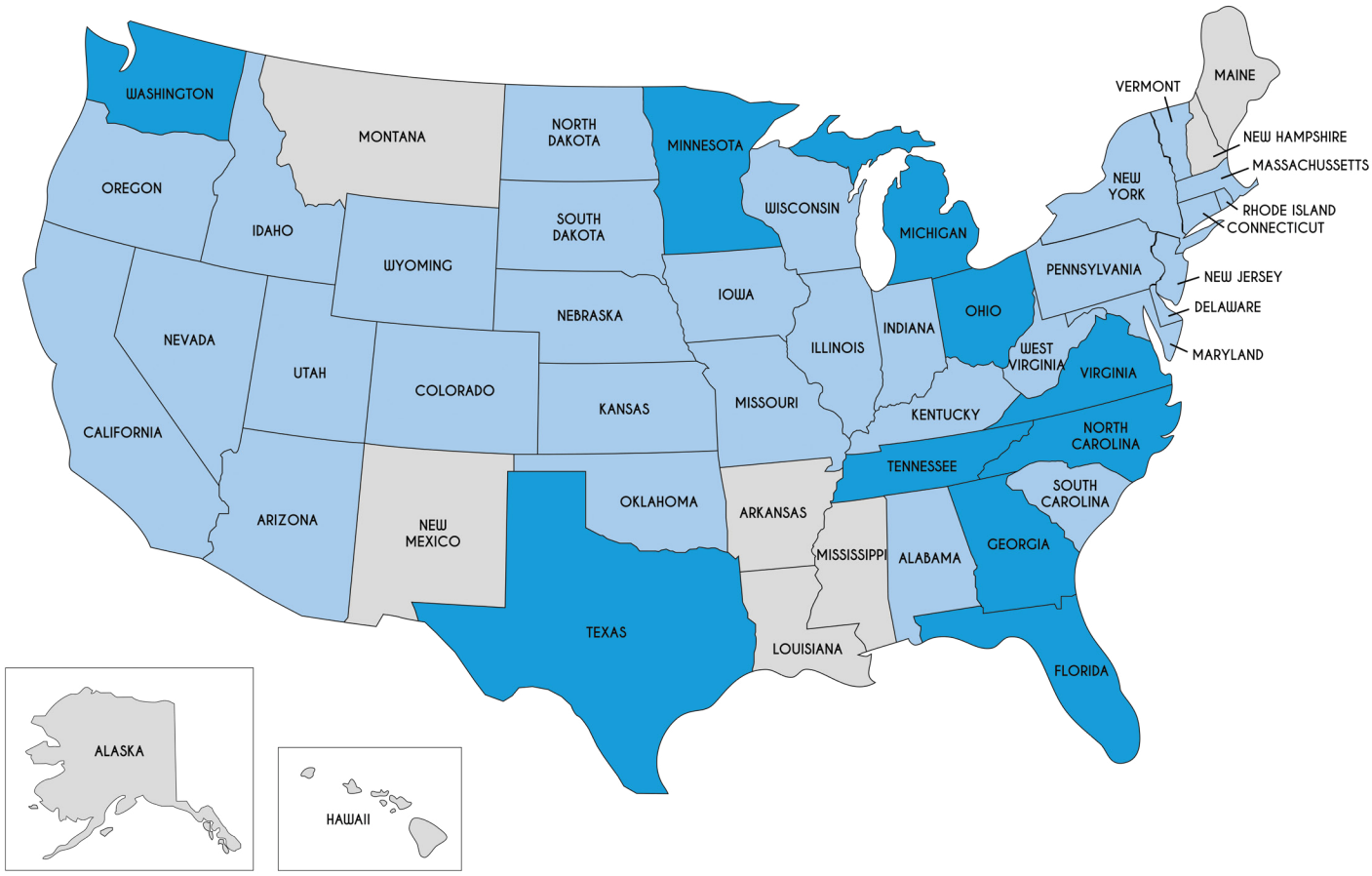
January 2000 – September 2024

In this year's report several business climate and workforce metrics were added to the tech infrastructure section. A friendly business climate is crucial in states where the tech sector is prominent, as supportive policies and incentives can attract high-growth firms, skilled talent, and venture capital. By fostering a competitive regulatory and tax environment, the state enhances its appeal as a hub for innovation.

Top States for Business Rankings (2024)

Top 10 Rank
Ranked 11–40
Bottom 10 Rank

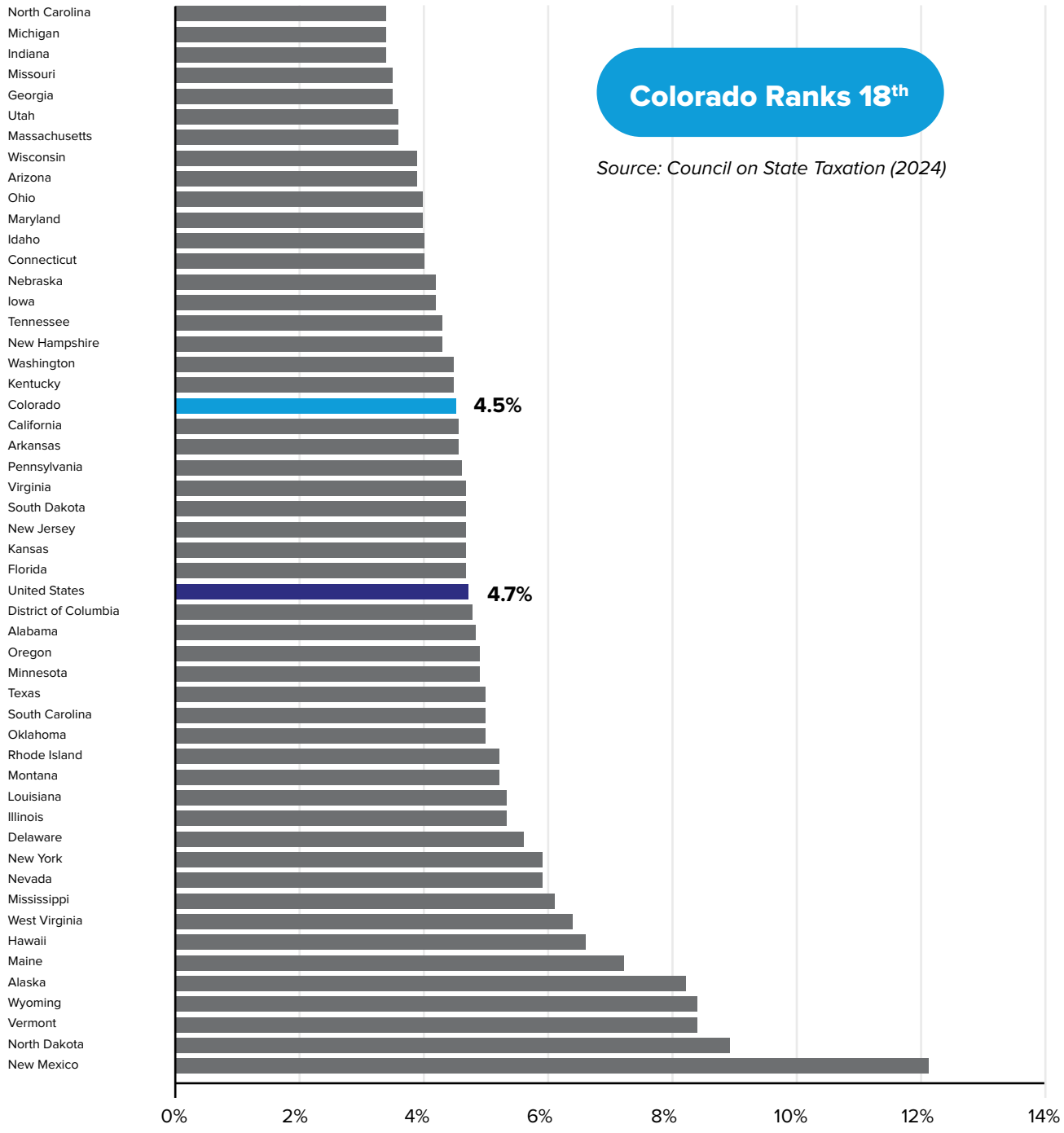
Colorado Ranks 16th



Source: CNBC America's Top States for Business 2024

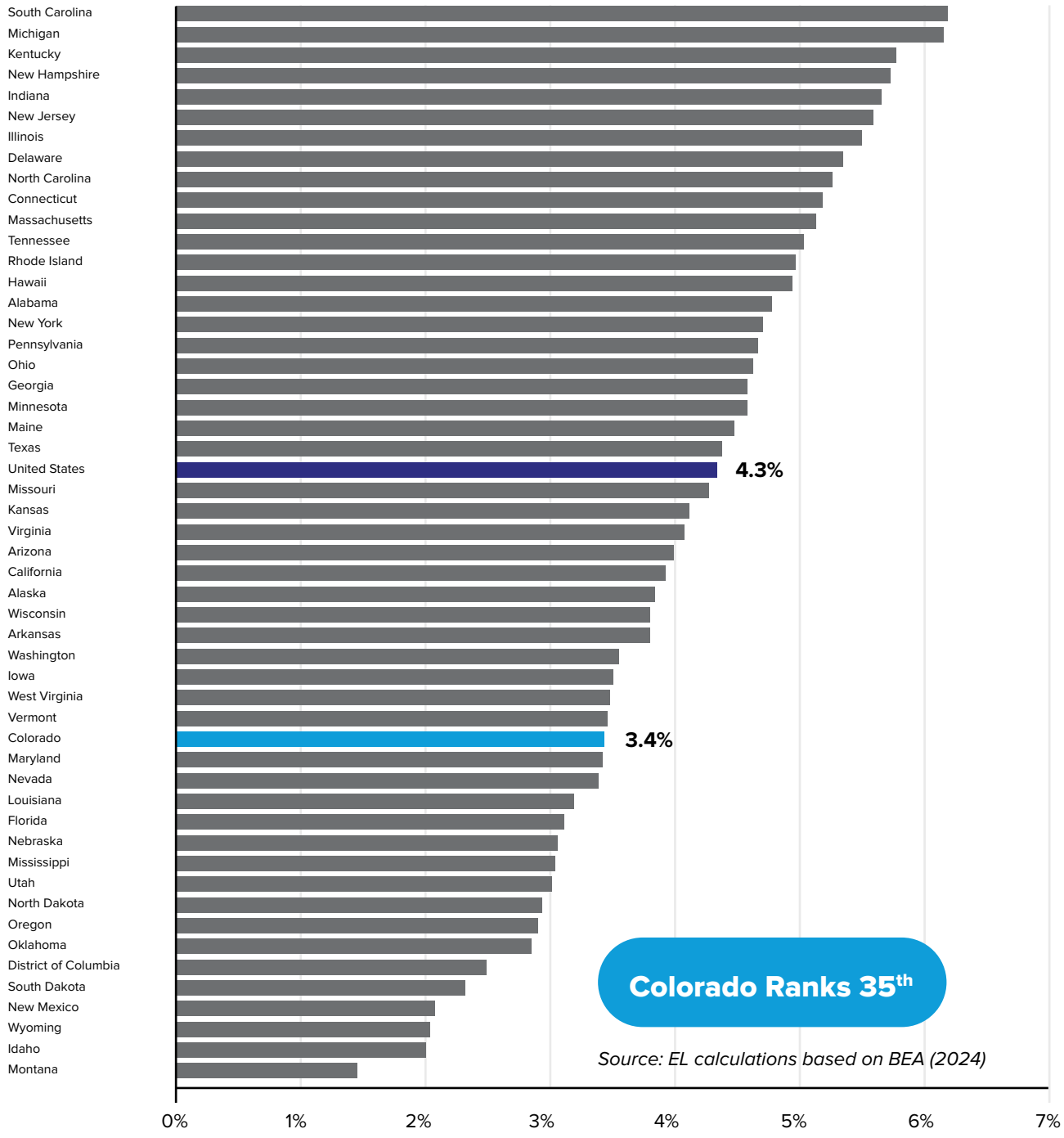
Colorado was ranked by CNBC as the 16th best state for doing business. CNBC's ranking includes several factors including infrastructure, workforce, education, quality of life, and others. In their sub-ranking for the cost of doing business, Colorado ranked 39th. The CNBC cost of doing business sub-ranking includes business costs like wages, taxes, utilities, insurance, and commercial real estate. Looking specifically at the business tax rate, Colorado tied for the 18th lowest rate in 2023. This was a decline in the rankings from the 15th lowest effective business tax rate in 2022. Competitive tax rates can help recruit new businesses and retain existing companies in the state.

Total Effective State Business Tax (2023)



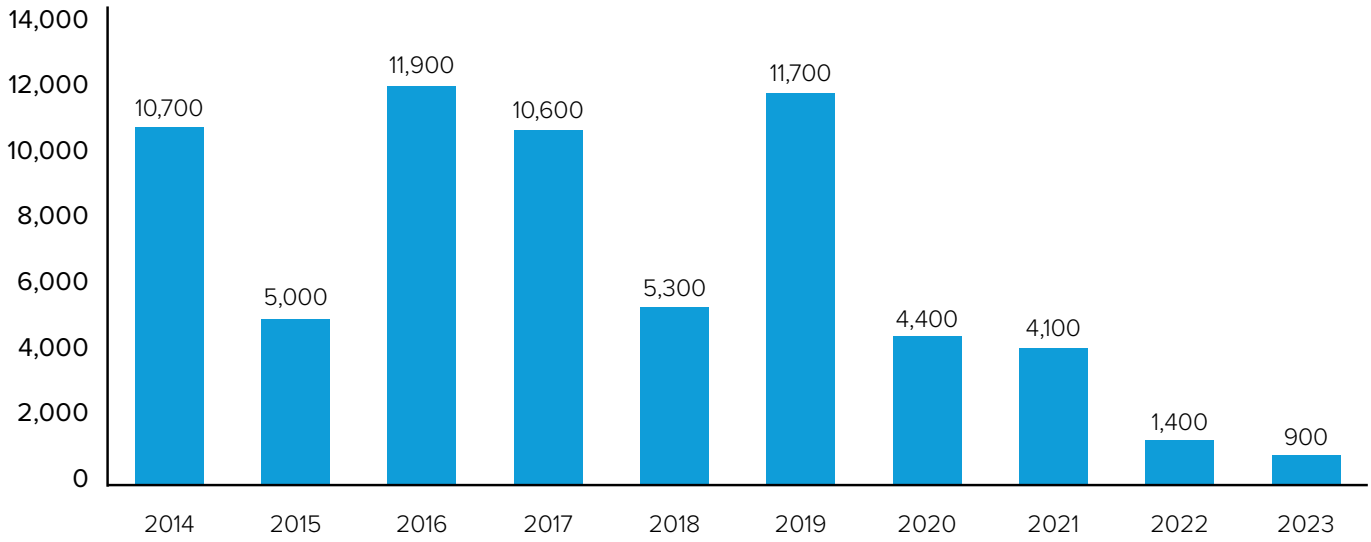
Foreign direct investment (FDI) was measured to understand the state's global competitiveness. FDI into the state can bring capital, new technologies, and expand the region's tech ecosystem. The most recent data is from 2021, when 3.4 percent of all employment in the state was a result of foreign-based companies. Colorado's level of FDI is less than the national average and ranks 35th in the US.

FDI Employment as a Percentage of Total Employment (2021)



The BEA also tracks data on new sources of FDI as they come online. This data reveals there has been smaller levels of jobs gained from recent FDI projects in the state. This represents an area of opportunity for the state to find new sources of investment into Colorado.

Colorado New Jobs from FDI

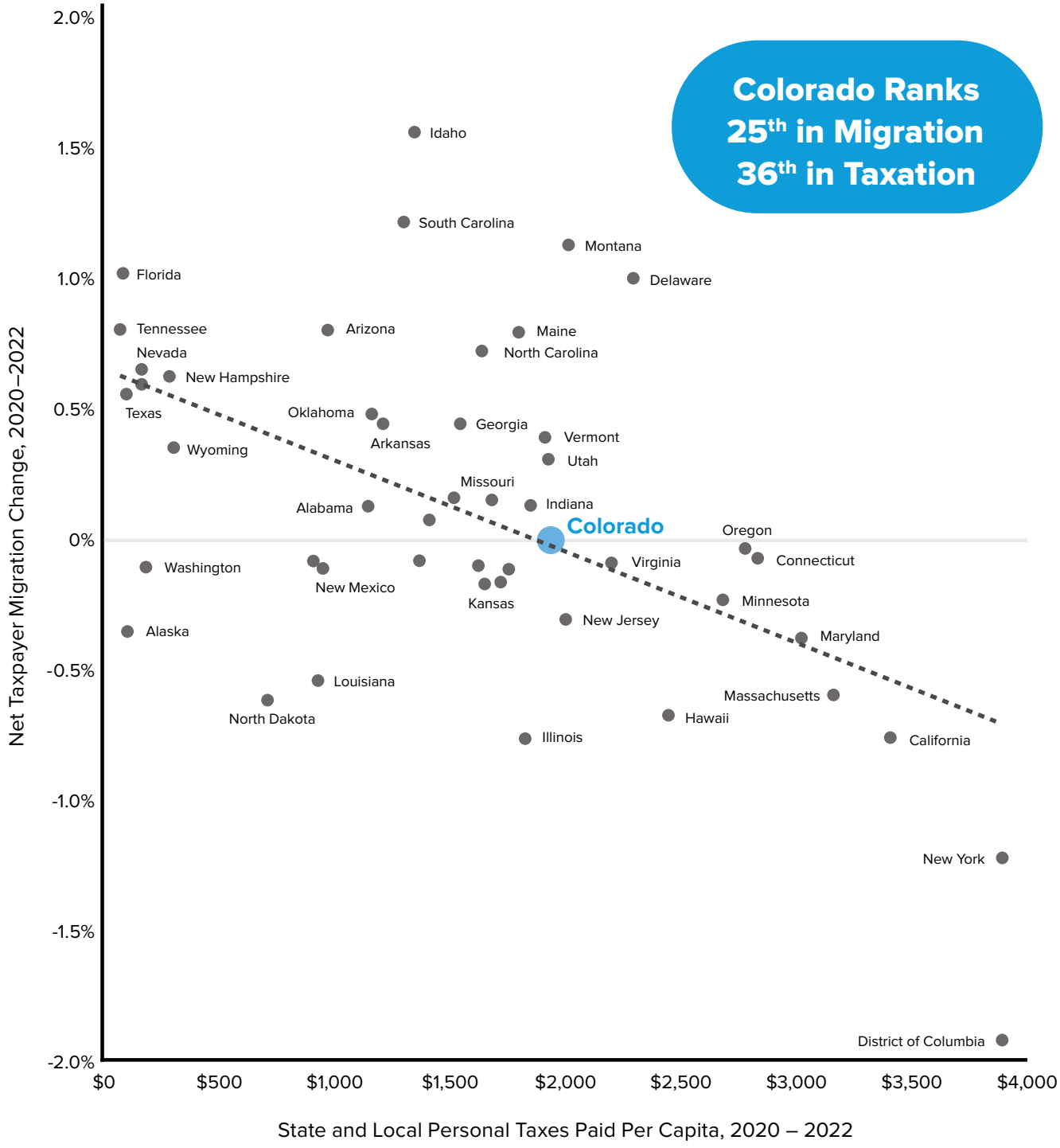


Source: BEA (2024)

As workforce continues to be a key challenge in the tech workforce, specific data that influences the size of the talent pool for the state were measured. Migration into the state can increase the size of the workforce. As mentioned previously in this report, Colorado's migration has slowed in recent years. The state's average annual migration rate from 2020 to 2022 was close to zero and ranked 25th in the country. Migration patterns particularly in recent years have followed trends in state taxation. States with the lowest income taxes tended to gain the most new residents. Colorado's average taxes per person during this time frame were 14th highest, ranked 36th. Other states with similar personal tax rates to Colorado experienced more in-migration than Colorado during this time, including Idaho and Montana.

When the average income of those moving into the state is compared to the income of those moving out, Colorado fares better. The income change is a net gain in the state and ranks 16th across the nation. This indicates the state is still attracting wealth to the region which can help support and invest in the tech ecosystem.

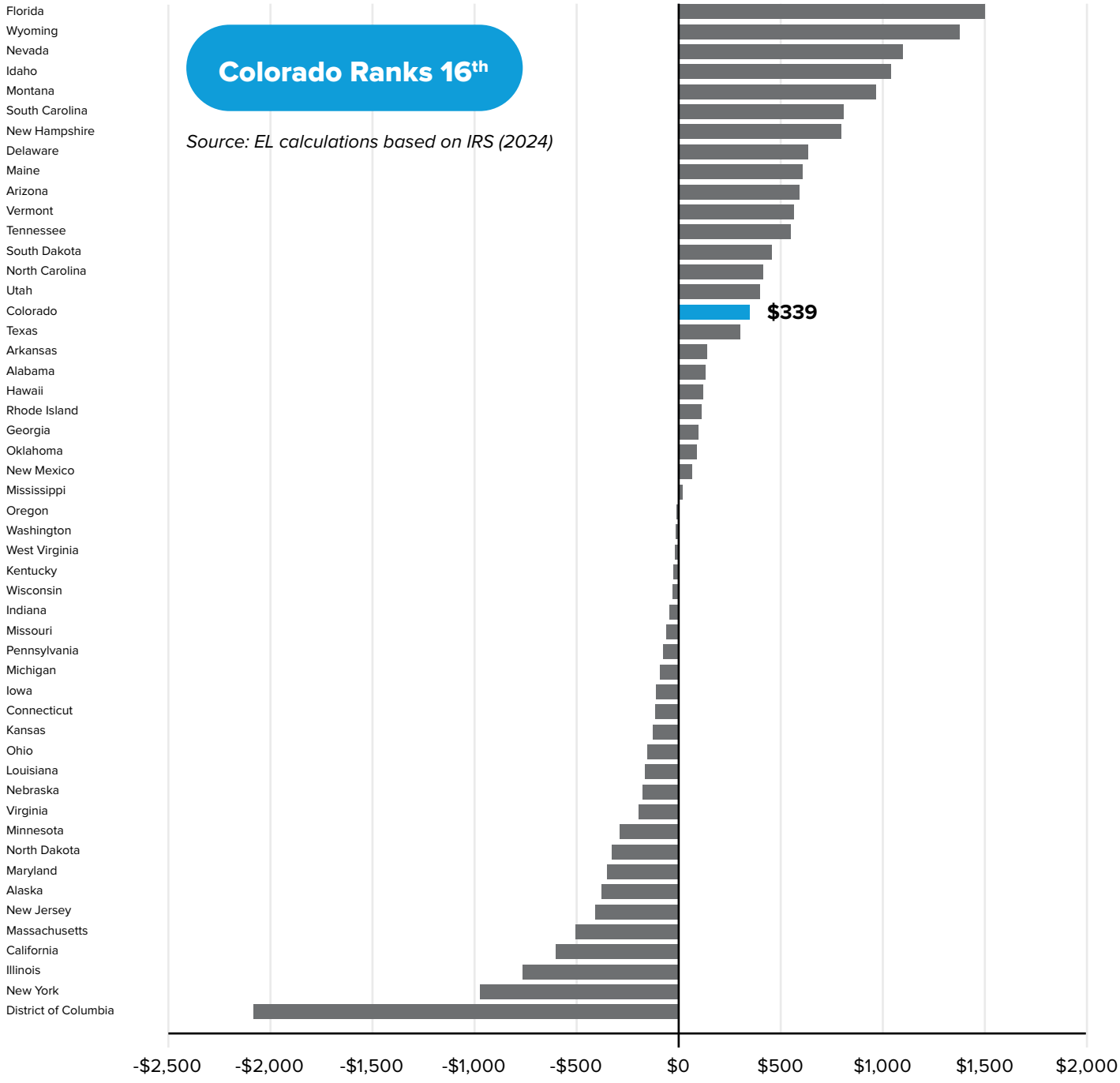
Post Pandemic Domestic Migration vs State and Local Personal Taxation



Source: EL calculations based on IRS (2024) and BEA (2024)

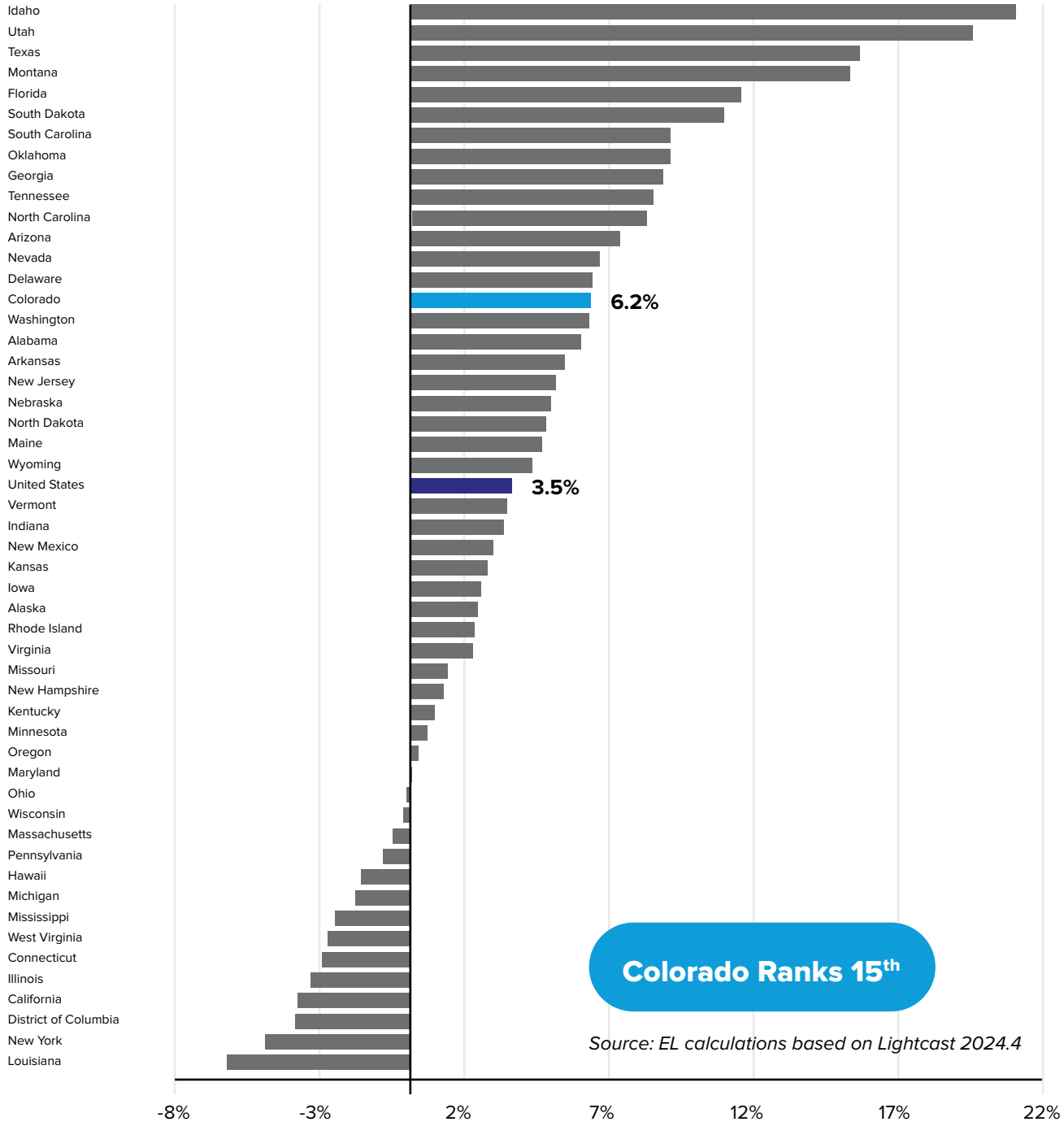
Note: The tax per capita value includes state and local taxes on income, personal property, motor vehicle licenses, and other taxes on personal licenses by US residents. The figure does not include federal taxes or sales, residential property, or production activity taxes.

Net Migration Income Change per Capita (2020-2023)



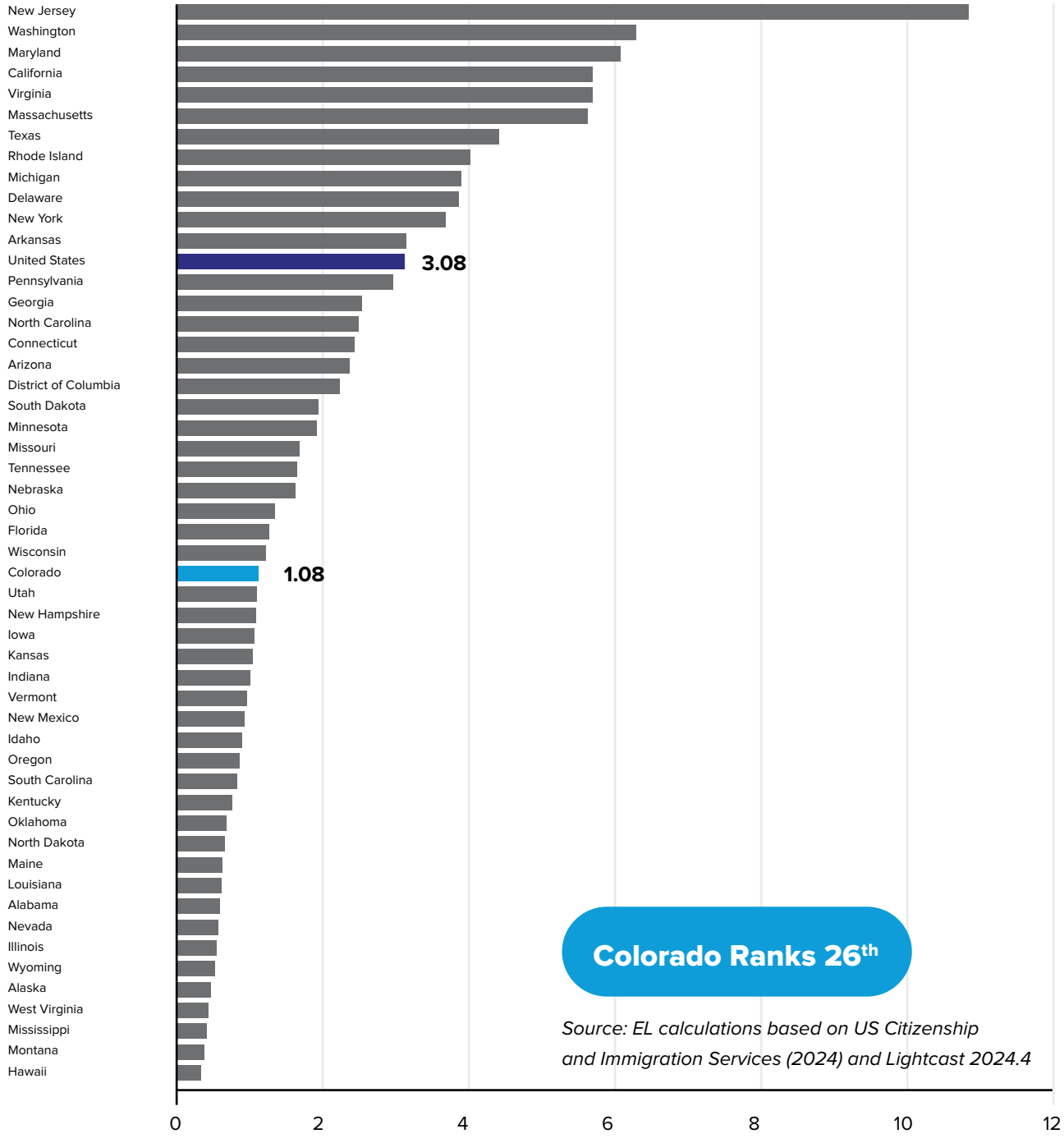
Migration is only a part of the workforce size equation. Fortunately, Colorado's working age population is predicted to grow in the next ten years at a rate of 6.2 percent. This is the 15th highest rate in the nation and higher than the national average. Several states in the country are expected to see declines in their working age population during this time. These trends help Colorado remain competitive in today's talent wars.

Projected Working Age (25 to 64) Population Change (2024-2034)



Tech has often utilized H1-B visas which allow firms to bring high skilled international talent to the US. From 2021 to 2024, Colorado utilized H1-B visas at a lower rate than the national average. The state ranked in the middle of the pack at 26th.

H-1B Visa Beneficiaries per 1,000 Workers (2021-2024)



Source: EL calculations based on US Citizenship and Immigration Services (2024) and Lightcast 2024.4

Section 7.
Media Audit

"Nestled among the vast plains and mesas of the Mountain West and in the shadow of the great Rockies, the future is being created. Colorado has emerged as the global epicenter of the quantum revolution—the next generation of computing power that has the potential to leave today's technology in the dust."

— Forbes

For this year's report, Economic Leadership conducted a media audit to gain a better understanding of external perceptions and interest in the Colorado technology sector and determine the topics and themes in industry news that resonate with reporters and key audiences. Knowing that state, regional, and local media outlets cover Colorado business and industry sectors more closely, this audit focuses more on national and trade media and the trends in reporting on the state's technology sector. Better understanding of the current media landscape and knowing areas of strength and opportunity provides insight in shaping a proactive strategy to elevate the reputation of Colorado as a place for technology businesses to start, locate or expand and as a place for tech talent to live, work and raise a family. Economic Leadership used Muck Rack software to aggregate stories on tech in Colorado and categorized the findings into major themes. Links to major news stories are provided in the appendix by theme.

There were five clear storylines that stood out among the research:

1. The Quantum Tech Hub announcement
2. Colorado's population growth and overall workforce growth
3. Academia's role in supporting the technology industry
4. Globally recognized companies/brands elevating the states' visibility
5. Artificial Intelligence regulatory environment

Details of each of these themes follow below with examples of headlines.

Key Storylines and Themes

1. **The Elevate Quantum Tech Hub announcement was a huge win for the state and garnered the most attention from national news media.**

Coverage of the Elevate Quantum Tech Hub award and federal and state funding dominated the research. The visibility gained from this designation brings opportunities to create more jobs and a "better future" for the state. This storyline is also strong because it includes so many collaborators to show the strength of the hub and opportunities for growth long term. For "places," storylines

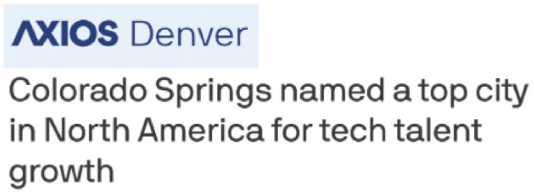
around technology are often too general. **The specificity of quantum really propelled this news into the national spotlight given Colorado's unique position to develop emerging technologies.** From a workforce perspective, coverage of the announcement also includes what the hub does to create opportunities for those traditionally unable to participate in the tech sector including minorities and workers in rural and low-income areas.


Forbes

Colorado Takes The Lead In Quantum Technologies

2. **Colorado's population growth is seen as a positive for business growth, particularly in the technology sector.**

People choosing to relocate to Colorado for a better quality of life and improved job opportunities are fueling population growth, making the state a hot spot for business growth. Colorado is recognized as an innovation hub for biotech, healthtech, agriculture, aerospace and AI, making various lists and rankings almost weekly. Emerging fields like green and sustainable tech innovation are also tracking in news monitoring, creating awareness of some of the state's newer efforts that have generated noteworthy coverage, most notably the Colorado Smart Cities Alliance and the Collective Clean Energy Fund.


AXIOS Denver

Colorado Springs named a top city in North America for tech talent growth


FAST COMPANY

06-06-2024 | PREMIUM

The case for Denver as America's next great tech hub

The Colorado capital may lack the size and talent pool of the Bay Area or Austin, but local business leaders say it's poised for growth that will rival its frontier heyday.

3. **Universities and the organizations and programs associated with Colorado's four-year institutions are becoming recognized as one of the bolsters of the state's workforce.**

Four-year institutions are not just educating and producing graduates for careers in tech, these institutions are a critical part of the technology and innovation ecosystem. The universities in Colorado that garner the most media interest as it relates to technology and innovation are University of Colorado (Denver and Boulder), Colorado State University, and the Colorado School of Mines. Announcements around federal funding awards, new programs, and partnerships dominate most of the news around schools, including coverage of the U.S. National Science Foundation (NSF) nanoscale fabrication facility at CU Bolder and the Quantum Commons campus in Arvada in collaboration with Elevate Quantum and the Colorado School of Mines.


CNBC

TOP STATES FOR BUSINESS

These 10 states are America's best at producing the workers that employers want to hire


CNBC

Denver, Boulder are poaching more of California's tech founders, workers and VC billions

4. **The presence of globally recognized companies like Oracle, Microsoft, Salesforce, HPE, FedEx (software development) and others is a benefit to drawing media attention to Colorado's small to mid-size technology businesses and industry ecosystem.**

Several global tech companies announced new facilities in and/or relocations to Colorado, including Google, IBM, Amazon, Zoom and Salesforce. While these companies largely chose the Boulder region, these announcements have generated significant national headlines that help to bolster Colorado's tech leadership role in the domestic and international markets. Awareness of these companies being part of the industry sector in the state only adds to the opportunities for start-ups and small to mid-size businesses to flourish.

5. **Artificial Intelligence legislation poses a threat to the reputation of Colorado as a place for innovation.**

There are some overall negative news and content pieces related to the May 2024 adoption of the Colorado AI Act (CAIA), which gained quite a bit of national attention for being the first of its kind state regulation. Not only did media cover the news, nearly every major law firm drafted news or content pieces about the new law with an emphasis on concern regarding impacts to industry innovation. Continued coverage of the new regulations associated with CAIA presents a risk to the state's competitiveness, particularly as it relates to business climate and innovation. This is forecasted to be a news item that will be followed as other states explore regulatory standards around AI.

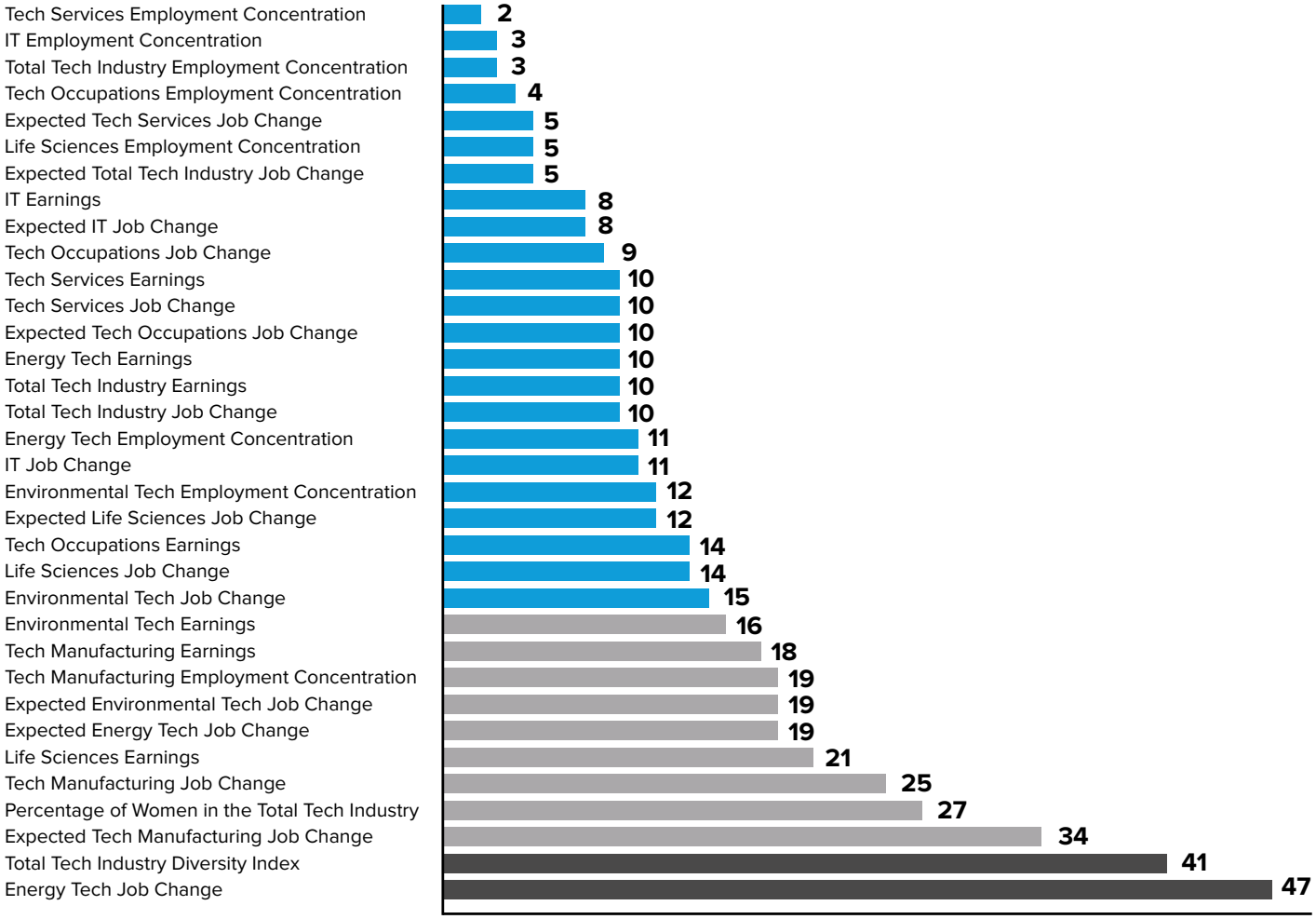
It should also be noted that the Techstars departure was a temporary bruise on the tech and innovation ecosystem. And while Techstars previously announced its departure from Boulder in early 2024, the fall announcement on the return of the well-known venture capital firm and start-up accelerator was wildly celebrated by the Colorado tech community, including local media.

Section 8.
Key Takeaways for Tech Sector

The following charts lists all the metrics we have measured for Colorado's tech sector and its corresponding ranking among the other states. Colorado ranks in the best 15 of all states for 23 out of the 34 labor market indicators that were evaluated. Colorado ranked in the bottom 15 states in tech industry diversity and energy tech job change. These rankings highlight the success the industry has had in the state and Colorado's competitiveness compared with other states. The drop in many growth rankings from the last report are areas for continued monitoring. These changes stress the diligence of industry stakeholders required to keep the state at the top of the field. Opportunity exists to expand the state's tech manufacturing industries to diversify the state's tech portfolio.

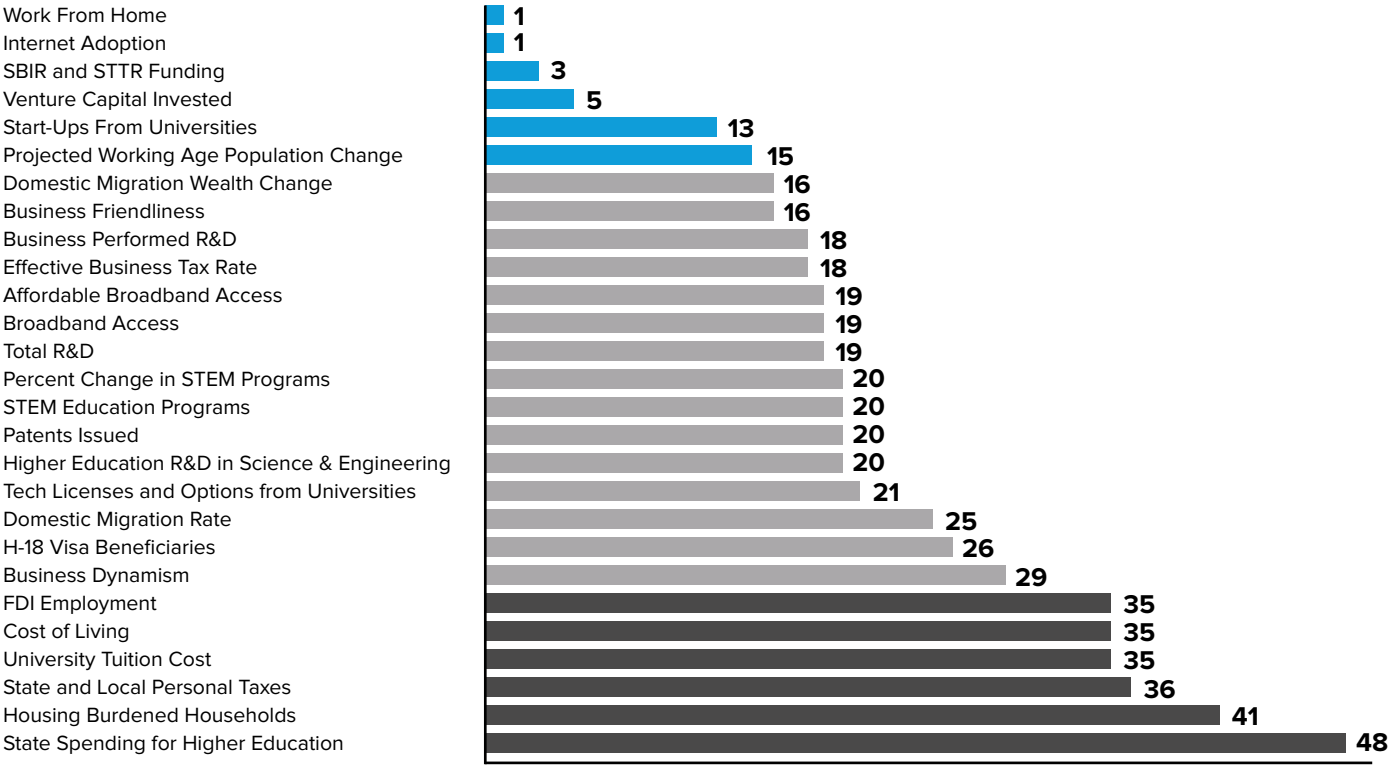
	Indicates a state ranking of 15th or higher
	Indicates a state ranking between 16th and 35th
	Indicates a state ranking of 35th or greater

Colorado State Rankings for Tech Industries and Occupations



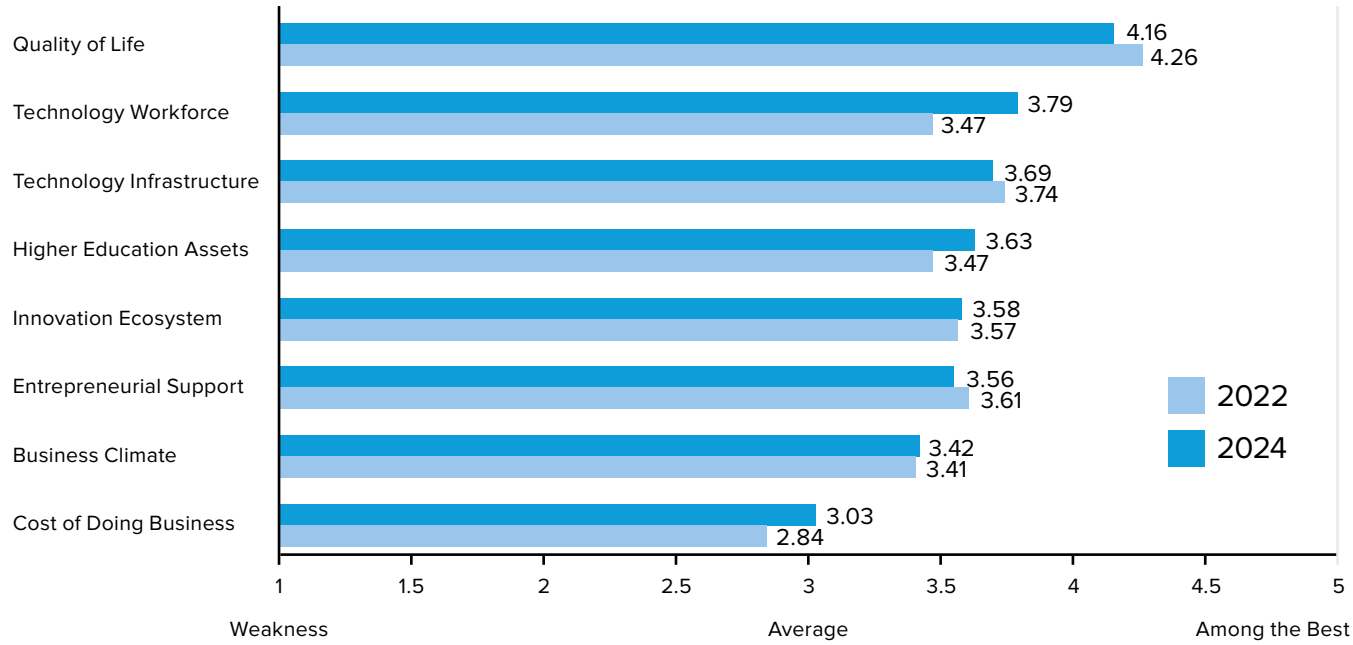
Colorado ranked in the top 15 states for six of the 27 of the tech infrastructure metrics. This indicates the state has several of the essential components for supporting a knowledge-based economy into the future. Gains in funding from the federal government (SBIR/STTR) and the private sector (venture capital) for new businesses are a strength for Colorado.

Colorado State Rankings for Tech Infrastructure Indicators



Most of the data findings of this report match what CTA members think about the state's competitive advantages. Entrepreneurial support performs better in the national rankings than CTA members believe. Most of the CTA members survey ranked Colorado above average on several competitive factors. One of the biggest challenges moving forward will be managing the cost of living (particularly housing and tuition) and the cost of doing business, while maintaining the job gains of recent years. Affordability has moved to the top of list for people considering relocation. This will be a critical factor for the tech workforce going forward. There are several neighboring states in the West and in the Southeast that are growing fast and could 'leap frog' Colorado in the coming years if innovation and workforce are not prioritized.

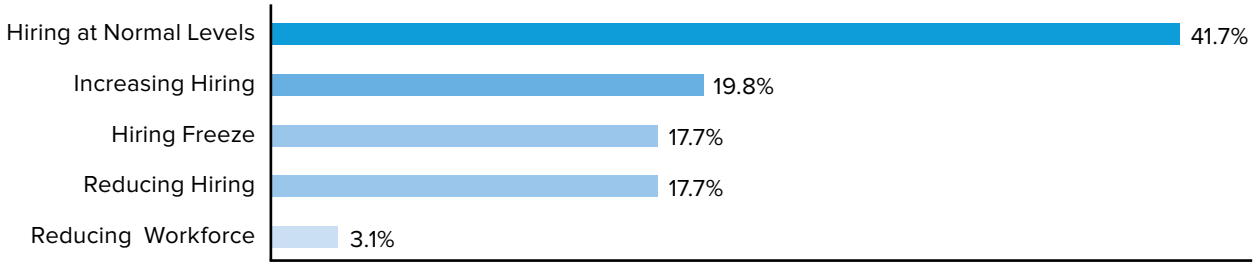
Colorado's Competitive Position Ranked



Source: CTA Membership Survey, (2024)

Colorado has many tech assets that should continue growth in the sector in the future like strong funding and a commitment to leveraging federal funding for tech innovation. When CTA members were asked what they expect their hiring patterns to be over the next six months, 41.7 percent said they expected to continue hiring at normal levels. Only 3.1 percent of respondents expected their company to reduce the size of their workforce, indicating the tech industry has weathered a challenging economic environment and the companies in the state have confidence in the future.

CTA Members – Employment Expectations for Next 6 Months



Source: CTA Membership Survey, (2024)

Appendix.

Notable Headlines From Media Review

Tech Hub: Notable Headlines

- *The Case for Denver as America's Next Great Tech Hub*, Fast Company
- *Colorado Breaks Ground on 70-Acre Quantum Commons, Aiming to Build a Global Quantum Tech Hub*, Quantum Computing Report
- *EDA Tech Hubs: Catalyzing Job Creation and Workforce Opportunities,* Forbes
- *Colorado Takes The Lead In Quantum Technologies*, Forbes
- *What the Latest Tech Hubs Funding Means for Site Selection Executives*, Area Development
- *Colorado Leaders Embrace the 'Quantum Revolution'*, Colorado Newsline
- *Quantum Tech Hub Awarded $41M in Colorado, New Mexico*, IoT World Today
- *How one innovation hub plans to diversify the tech industry*, Route Fifty
- *Learn how Colorado is now the Silicon Valley of the quantum era*, Lyons Recorder
- *Quantum rush: Denver-Boulder area aims to be the Silicon Valley of the future*, CNBC

Industry: Notable Headlines

- *Colorado ranks sixth in analysis of state economies*, The Business Times
- *3 exciting US tech roles to apply for right now*, TechSpot
- *Denver-Area VC Funding Declined 52%, But Life Sciences, Aerospace Offer Hope for Rebound*, Bisnow Denver
- *The 20 best mid-size cities in the United States*, CNN
- *10 Top States Gen Z Is Moving To — And How Much It Costs To Live There*, Yahoo! Finance
- *These 10 states are America's best for the workers that employers want to hire*, CNBC
- *Which States Have the Most Demand for Tech Workers?*, Design News
- *Denver, Boulder are poaching more of California's tech founders, workers and VC billions*, CNBC
- *5 cutting edge tech companies making Colorado their second home*, Built In Colorado

- *Move over, California. Is Colorado the new land of opportunity?*, California Policy Center
- *Colorado Springs named No. 2 up-and-coming tech talent market*, Axios

Innovation: Notable Headlines

- *Colorado's Rise as a BioTech and HealthTech Powerhouse*, Smart Business Dealmakers
- *Top Innovation Hubs to Watch*, Business Facilities
- *L&T Technology Services announces strategic collaboration with Colorado Smart Cities Alliance*, CIO News
- *LTTS Bags Deal from Colorado Smart Cities Alliance in US*, The Economic Times
- *Colorado Smart Cities Alliance enters strategic partnership*, Smart Cities World
- *LTTS and CSCA Forge Partnership to Redefine Urban Energy Systems*, Environment + Energy Leader
- *Colorado's model for green finance*, Colorado Newsline

Education: Notable Headlines

- *The Most Innovative Colleges*, University Magazine
- *Colorado to Copenhagen: Atom Computing's Vision for Quantum Europe*, Forbes
- *Three booming businesses that make Denver stand out*, CNBC
- *The Thriving Tech Industry in Colorado*, EnergyPortal.eu
- *Mining for talent: Education's crucial role in America's clean energy, mineral driven future*, Utility Dive
- *Engineers Who Are Changing Tech Culture And How to Get an Education in This Field in 2024*, Apple World Today
- *20 US Cities on the Verge of a Major Tech Boom*, Hashtag Investing
- *University lands $20M to launch national quantum design facility — Denver Business Journal*, Colorado Inno

Total Technology Industry 6-Digit NAICS Code Breakdown

NAICS	INDUSTRY	SUPER SUB-CATEGORY	SUB-CATEGORY	MANUFACTURING OR SERVICES
325411	Medicinal and Botanical Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
325412	Pharmaceutical Preparation Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
325413	In-Vitro Diagnostic Substance Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
325414	Biological Product (except Diagnostic) Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
334516	Analytical Laboratory Instrument Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
334517	Irradiation Apparatus Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
339112	Surgical and Medical Instrument Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
339113	Surgical Appliance and Supplies Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
339114	Dental Equipment and Supplies Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
541330	Engineering Services	Engineering, Environmental, & Clean Tech	Life Sciences	Services
541380	Testing Laboratories	R&D and Testing	Life Sciences	Services

541690	Other Scientific and Technical Consulting Services	R&D and Testing	Life Sciences	Services
541713	Research and Development in Nanotechnology	R&D and Testing	Life Sciences	Services
541714	Research and Development in Biotechnology (except Nanobiotechnology)	R&D and Testing	Life Sciences	Services
541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	R&D and Testing	Life Sciences	Services
333242	Semiconductor Machinery Manufacturing	Electronics Hardware	IT	Manufacturing
334111	Electronic Computer Manufacturing	Electronics Hardware	IT	Manufacturing
334112	Computer Storage Device Manufacturing	Electronics Hardware	IT	Manufacturing
334118	Computer Terminal and Other Computer Peripheral Equipment Manufacturing	Electronics Hardware	IT	Manufacturing
334210	Telephone Apparatus Manufacturing	Electronics Hardware	IT	Manufacturing
334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	Electronics Hardware	IT	Manufacturing
334290	Other Communications Equipment Manufacturing	Electronics Hardware	IT	Manufacturing

334310	Audio and Video Equipment Manufacturing	Electronics Hardware	IT	Manufacturing
334412	Bare Printed Circuit Board Manufacturing	Electronics Hardware	IT	Manufacturing
334413	Semiconductor and Related Device Manufacturing	Electronics Hardware	IT	Manufacturing
334416	Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing	Electronics Hardware	IT	Manufacturing
334417	Electronic Connector Manufacturing	Electronics Hardware	IT	Manufacturing
334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing	Electronics Hardware	IT	Manufacturing
334419	Other Electronic Component Manufacturing	Electronics Hardware	IT	Manufacturing
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	Electronics Hardware	IT	Manufacturing
334519	Other Measuring and Controlling Device Manufacturing	Electronics Hardware	IT	Manufacturing
335921	Fiber Optic Cable Manufacturing	Electronics Hardware	IT	Manufacturing
335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing	Electronics Hardware	IT	Manufacturing
513210	Software Publishers	Software	IT	Services

516210	Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers	Internet, Social Media, & Telecom	IT	Services
517111	Wired Telecommunications Carriers	Internet, Social Media, & Telecom	IT	Services
517112	Wireless Telecommunications Carriers (except Satellite)	Internet, Social Media, & Telecom	IT	Services
517121	Telecommunications Resellers	Internet, Social Media, & Telecom	IT	Services
517410	Satellite Telecommunications	Internet, Social Media, & Telecom	IT	Services
517810	All Other Telecommunications	Internet, Social Media, & Telecom	IT	Services
518210	Data Processing, Hosting, and Related Services	Internet, Social Media, & Telecom	IT	Services
519290	Web Search Portals and All Other Information Services	Internet, Social Media, & Telecom	IT	Services
541511	Custom Computer Programming Services	Software	IT	Services
541512	Computer Systems Design Services	Software	IT	Services
541513	Computer Facilities Management Services	Software	IT	Services
541519	Other Computer Related Services	Software	IT	Services
334512	Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use	Engineering, Environmental, & Clean Tech	Environmental Technology	Manufacturing

334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	Engineering, Environmental, & Clean Tech	Environmental Technology	Manufacturing
334514	Totalizing Fluid Meter and Counting Device Manufacturing	Engineering, Environmental, & Clean Tech	Environmental Technology	Manufacturing
334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	Engineering, Environmental, & Clean Tech	Environmental Technology	Manufacturing
335910	Battery Manufacturing	Engineering, Environmental, & Clean Tech	Environmental Technology	Manufacturing
221310	Water Supply and Irrigation Systems	Engineering, Environmental, & Clean Tech	Environmental Technology	Services
221320	Sewage Treatment Facilities	Remediation and Waste Management	Environmental Technology	Services
221330	Steam and Air-Conditioning Supply	Engineering, Environmental, & Clean Tech	Environmental Technology	Services
541620	Environmental Consulting Services	Engineering, Environmental, & Clean Tech	Environmental Technology	Services
562111	Solid Waste Collection	Remediation and Waste Management	Environmental Technology	Services
562112	Hazardous Waste Collection	Remediation and Waste Management	Environmental Technology	Services
562119	Other Waste Collection	Remediation and Waste Management	Environmental Technology	Services

562211	Hazardous Waste Treatment and Disposal	Remediation and Waste Management	Environmental Technology	Services
562212	Solid Waste Landfill	Remediation and Waste Management	Environmental Technology	Services
562213	Solid Waste Combustors and Incinerators	Remediation and Waste Management	Environmental Technology	Services
562219	Other Nonhazardous Waste Treatment and Disposal	Remediation and Waste Management	Environmental Technology	Services
562910	Remediation Services	Remediation and Waste Management	Environmental Technology	Services
562920	Materials Recovery Facilities	Remediation and Waste Management	Environmental Technology	Services
562991	Septic Tank and Related Services	Remediation and Waste Management	Environmental Technology	Services
562998	All Other Miscellaneous Waste Management Services	Remediation and Waste Management	Environmental Technology	Services
211120	Crude Petroleum Extraction	Other Energy and Power Generation	Energy Technology	Services
211130	Natural Gas Extraction	Other Energy and Power Generation	Energy Technology	Services
212112	Underground Coal Mining	Other Energy and Power Generation	Energy Technology	Services
212114	Surface Coal Mining	Other Energy and Power Generation	Energy Technology	Services

213111	Drilling Oil and Gas Wells	Other Energy and Power Generation	Energy Technology	Services
213112	Support Activities for Oil and Gas Operations	Other Energy and Power Generation	Energy Technology	Services
213113	Support Activities for Coal Mining	Other Energy and Power Generation	Energy Technology	Services
221111	Hydroelectric Power Generation	Other Energy and Power Generation	Energy Technology	Services
221112	Fossil Fuel Electric Power Generation	Other Energy and Power Generation	Energy Technology	Services
221113	Nuclear Electric Power Generation	Other Energy and Power Generation	Energy Technology	Services
221114	Solar Electric Power Generation	Renewable Energy	Energy Technology	Services
221115	Wind Electric Power Generation	Renewable Energy	Energy Technology	Services
221116	Geothermal Electric Power Generation	Renewable Energy	Energy Technology	Services
221117	Biomass Electric Power Generation	Renewable Energy	Energy Technology	Services
221118	Other Electric Power Generation	Renewable Energy	Energy Technology	Services
221121	Electric Bulk Power Transmission and Control	Other Energy and Power Generation	Energy Technology	Services
221122	Electric Power Distribution	Other Energy and Power Generation	Energy Technology	Services
221210	Natural Gas Distribution	Other Energy and Power Generation	Energy Technology	Services
324110	Petroleum Refineries	Other Energy and Power Generation	Energy Technology	Services

Tech Occupations SOC Code Breakdown

OCCUPATION SOC CODE	OCCUPATION DESCRIPTION
11-3021	Computer and Information Systems Managers
11-9041	Architectural and Engineering Managers
13-1081	Logisticians
13-1082	Project Management Specialists
13-1111	Management Analysts
13-1141	Compensation, Benefits, and Job Analysis Specialists
13-1161	Market Research Analysts and Marketing Specialists
13-1199	Business Operations Specialists, All Other
13-2031	Budget Analysts
13-2041	Credit Analysts
13-2051	Financial and Investment Analysts
13-2054	Financial Risk Specialists
13-2099	Financial Specialists, All Other
15-1211	Computer Systems Analysts
15-1212	Information Security Analysts
15-1221	Computer and Information Research Scientists
15-1231	Computer Network Support Specialists
15-1232	Computer User Support Specialists
15-1241	Computer Network Architects
15-1242	Database Administrators
15-1243	Database Architects
15-1244	Network and Computer Systems Administrators
15-1251	Computer Programmers
15-1252	Software Developers
15-1253	Software Quality Assurance Analysts and Testers
15-1254	Web Developers
15-1255	Web and Digital Interface Designers
15-1299	Computer Occupations, All Other
15-2011	Actuaries
15-2021	Mathematicians
15-2031	Operations Research Analysts
15-2041	Statisticians
15-2051	Data Scientists
15-2099	Mathematical Science Occupations, All Other
17-1021	Cartographers and Photogrammetrists

17-2011	Aerospace Engineers
17-2021	Agricultural Engineers
17-2031	Bioengineers and Biomedical Engineers
17-2041	Chemical Engineers
17-2051	Civil Engineers
17-2061	Computer Hardware Engineers
17-2071	Electrical Engineers
17-2072	Electronics Engineers, Except Computer
17-2081	Environmental Engineers
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors
17-2112	Industrial Engineers
17-2121	Marine Engineers and Naval Architects
17-2131	Materials Engineers
17-2141	Mechanical Engineers
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers
17-2161	Nuclear Engineers
17-2171	Petroleum Engineers
17-2199	Engineers, All Other
17-3021	Aerospace Engineering and Operations Technologists and Technicians
17-3022	Civil Engineering Technologists and Technicians
17-3023	Electrical and Electronic Engineering Technologists and Technicians
17-3024	Electro-Mechanical and Mechatronics Technologists and Technicians
17-3025	Environmental Engineering Technologists and Technicians
17-3026	Industrial Engineering Technologists and Technicians
17-3027	Mechanical Engineering Technologists and Technicians
17-3028	Calibration Technologists and Technicians
17-3029	Engineering Technologists and Technicians, Except Drafters, All Other
17-3031	Surveying and Mapping Technicians
19-1021	Biochemists and Biophysicists
19-1031	Conservation Scientists
19-1042	Medical Scientists, Except Epidemiologists
19-1099	Life Scientists, All Other
19-2021	Atmospheric and Space Scientists
19-2031	Chemists
19-2032	Materials Scientists
19-2041	Environmental Scientists and Specialists, Including Health
19-2042	Geoscientists, Except Hydrologists and Geographers
19-2043	Hydrologists
19-2099	Physical Scientists, All Other

19-4012	Agricultural Technicians
19-4013	Food Science Technicians
19-4021	Biological Technicians
19-4031	Chemical Technicians
19-4042	Environmental Science and Protection Technicians, Including Health
19-4043	Geological Technicians, Except Hydrologic Technicians
19-4044	Hydrologic Technicians
19-4051	Nuclear Technicians
43-9111	Statistical Assistants
49-2011	Computer, Automated Teller, and Office Machine Repairers
51-9141	Semiconductor Processing Technicians

The research scope of the CO Tech Industry Report was directed by Colorado Technology Association and was completed by Economic Leadership, LLC. The report partners did not in any way impact the direction of the report or the findings. For more information visit **ColoradoTechnology.org/COTechReport**.

This report was written by Skylar Elliott Casey,
Kat Saunders, and Ted Abernathy in the winter of 2024-2025.