

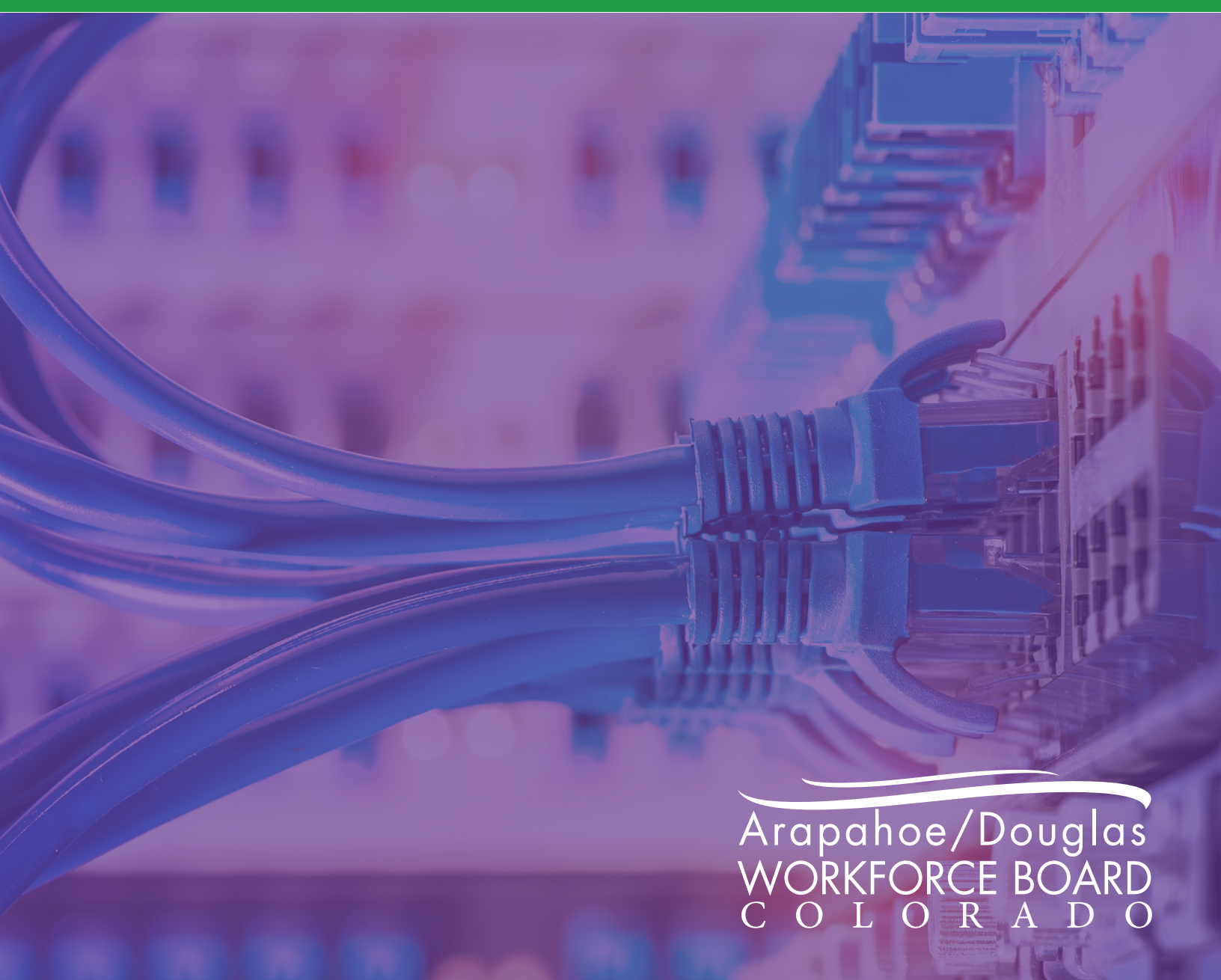


2023

Information Technology

INDUSTRY PROFILE

Colorado Urban Front Range



Arapahoe/Douglas
WORKFORCE BOARD
C O L O R A D O

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Top Occupations

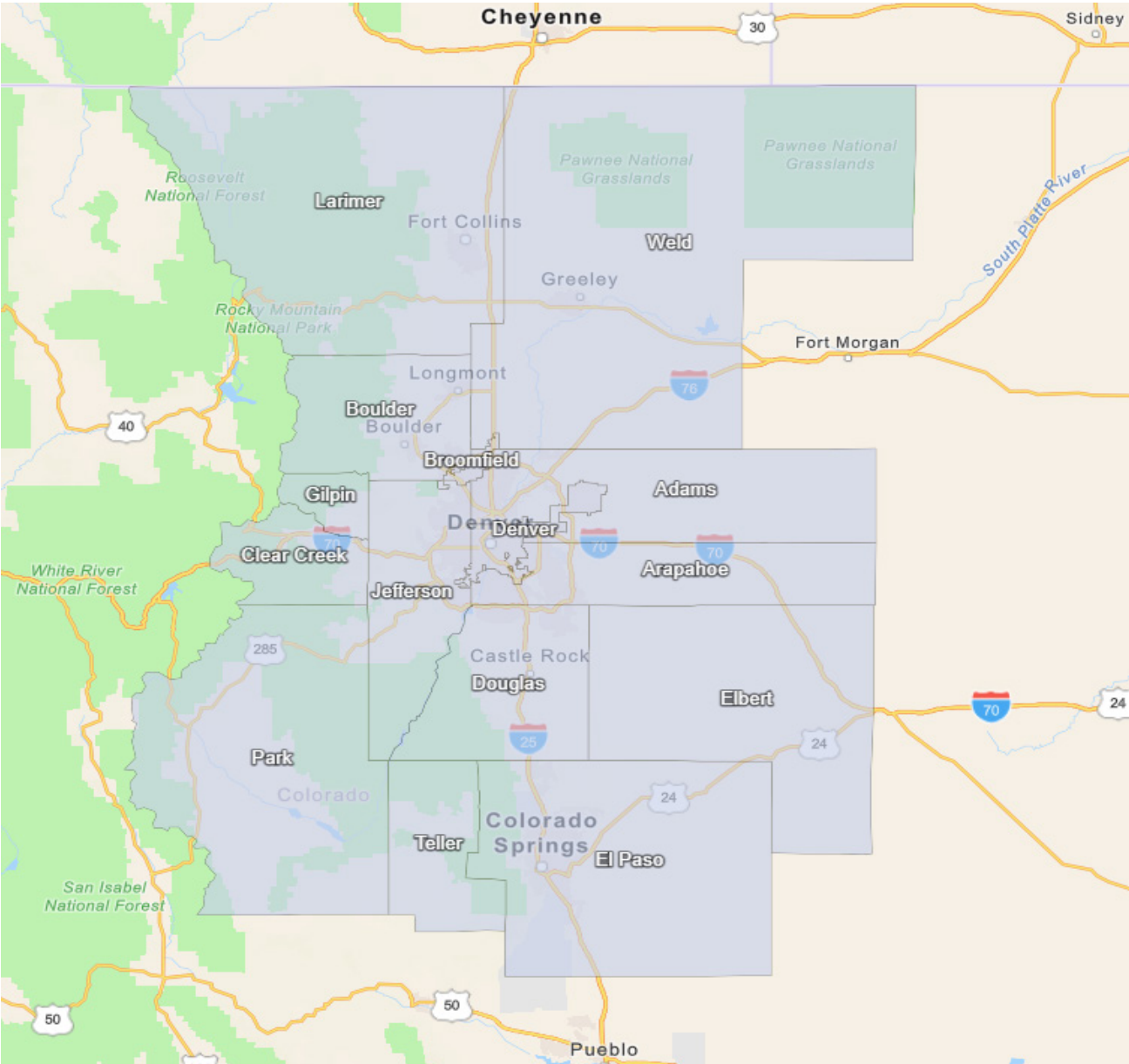
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Let’s Talk!

Geographical Area



The geographical area for this industry profile includes the 15 counties that make up Colorado’s Urban Front Range.



The geographic region includes the following metropolitan areas:

- Boulder
- Colorado Springs
- Denver-Aurora-Lakewood
- Fort Collins
- Greeley

In 2022, this 15 county region employed nearly 2.7 million people across all industries, and made up 84% of Colorado’s total employment.

In 2022, the Gross Regional Product (GRP) for the Front Range region was \$416.3 billion, which made up just under 1.7% of the national Gross Domestic Product (GDP). GDP is the total market value of all goods and services in the nation, and GRP is the total market value of all goods and services in the region.

Information Technology

▲ 5.5% From prior year

4.6%

Total Jobs in CO
Urban Front Range



122,405

Total Jobs



16,655

Establishments



41 B

Total Sales

Industries
Making up
the Sector

The information technology sector employs 122,405 people in 16,655 establishments. An ‘establishment’ is one facility in which people work. For example, a business in the sector may have several locations, and each one of those locations counts as an ‘establishment.’

In 2022, the sector had \$41.3 billion in sales, and contributed \$30 billion to the region’s GRP. The information technology sector in the region is vibrant and rapidly growing. It is home to numerous tech companies and startups. The region’s thriving IT ecosystem is supported by a skilled workforce and a collaborative tech community, making it an attractive hub for tech professionals and businesses alike.

Source: Lightcast

Information Technology Sector

Employment concentration measures the concentration of employment in an industry in the local region against the average employment concentration in that industry nationwide. For example, we would read, “Employment in data processing, hosting and related services is 2.23 times more concentrated than the national average for this industry.” The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

Software Publishers

NAICS
511210

Numbers to Know

- 19,663 jobs
- 1,183 establishments
- 1.91 employment concentration
- \$10.0 billion in sales
- 4.5% change to 2027
- \$177,714 average wage
- \$30,218 average employer paid benefits

Data Processing, Hosting, & Related Services

NAICS
518210

Numbers to Know

- 16,725 jobs
- 1,561 establishments
- 2.23 employment concentration
- \$10.6 billion in sales
- 10.0% change to 2027
- \$156,950 average wage
- \$33,195 average employer paid benefits

Internet Publishing & Broadcasting & Web Search Portals

NAICS
519130

Numbers to Know

- 3,044 jobs
- 424 establishments
- 0.56 employment concentration
- \$1.7 billion in sales
- 10.9% change to 2027
- \$135,345 average wage
- \$11,418 average employer paid benefits

Custom Computer Programming Services

NAICS
541511

Numbers to Know

- 40,533 jobs
- 7,712 establishments
- 2.22 employment concentration
- \$9 billion in sales
- 17.8% change to 2027
- \$154,740 average wage
- \$20,087 average employer paid benefits

Computer Systems Design Services

NAICS
541512

Numbers to Know

- 39,415 jobs
- 5,394 establishments
- 2.09 employment concentration
- \$8.8 billion in sales
- 12.5% change to 2027
- \$148,939 average wage
- \$19,298 average employer paid benefits

Computer Facilities Management Services

NAICS
541513

Numbers to Know

- 666 jobs
- 88 establishments
- 0.52 employment concentration
- \$216 million in sales
- (4.4%) change to 2027
- \$101,647 average wage
- \$13,170 average employer paid benefits

Other Computer Related Services

NAICS
541519

Numbers to Know

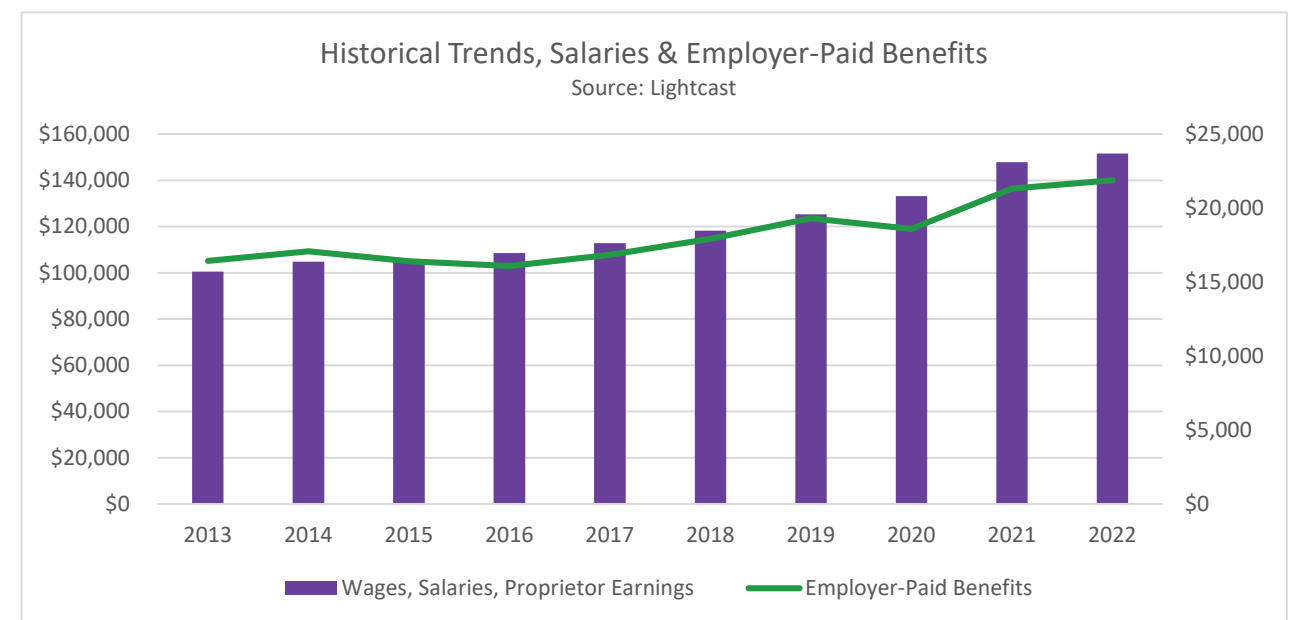
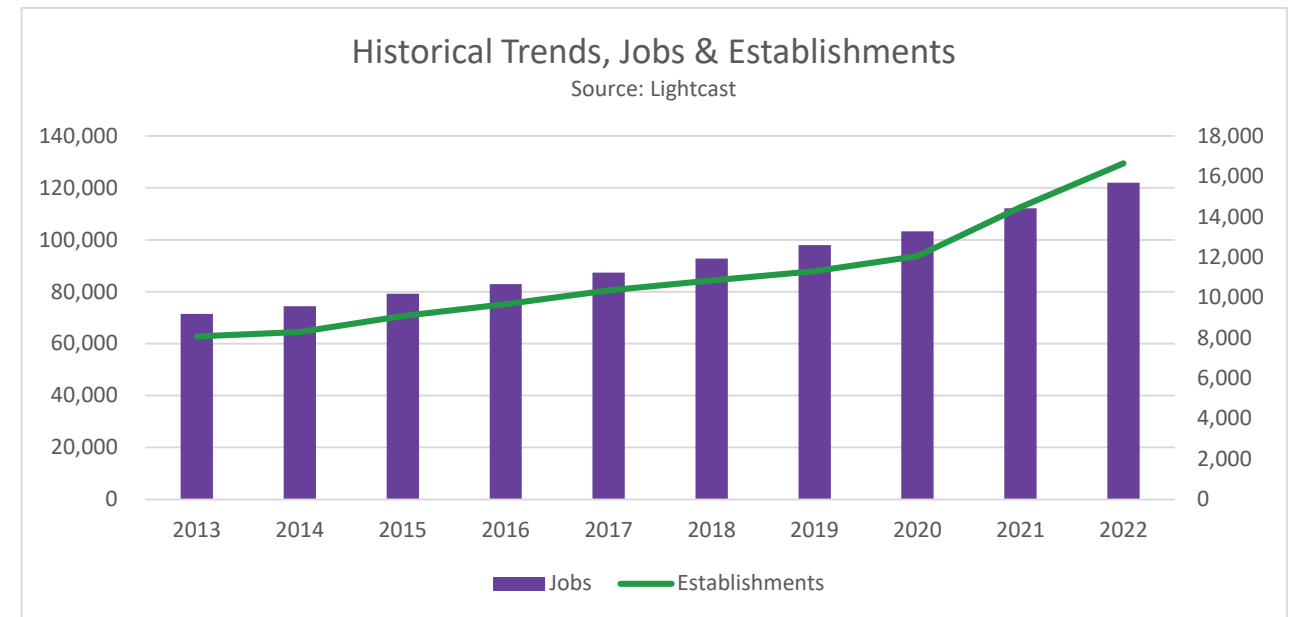
- 2,358 jobs
- 295 establishments
- 1.03 employment concentration
- \$900 million in sales
- 4.4% change to 2027
- \$148,462 average wage
- \$19,248 average employer paid benefits



Historical Trends

Colorado Urban Front Range

The first graph shows the growth in jobs (purple bars), and the growth in the number of establishments (green line) in the sector between 2013 and 2022. The second graph shows the growth in wages, salaries and proprietor earnings (purple bars) and in employer-paid benefits, including the employer portions of both Social Security and Medicare payroll deductions (green line) for the same period.

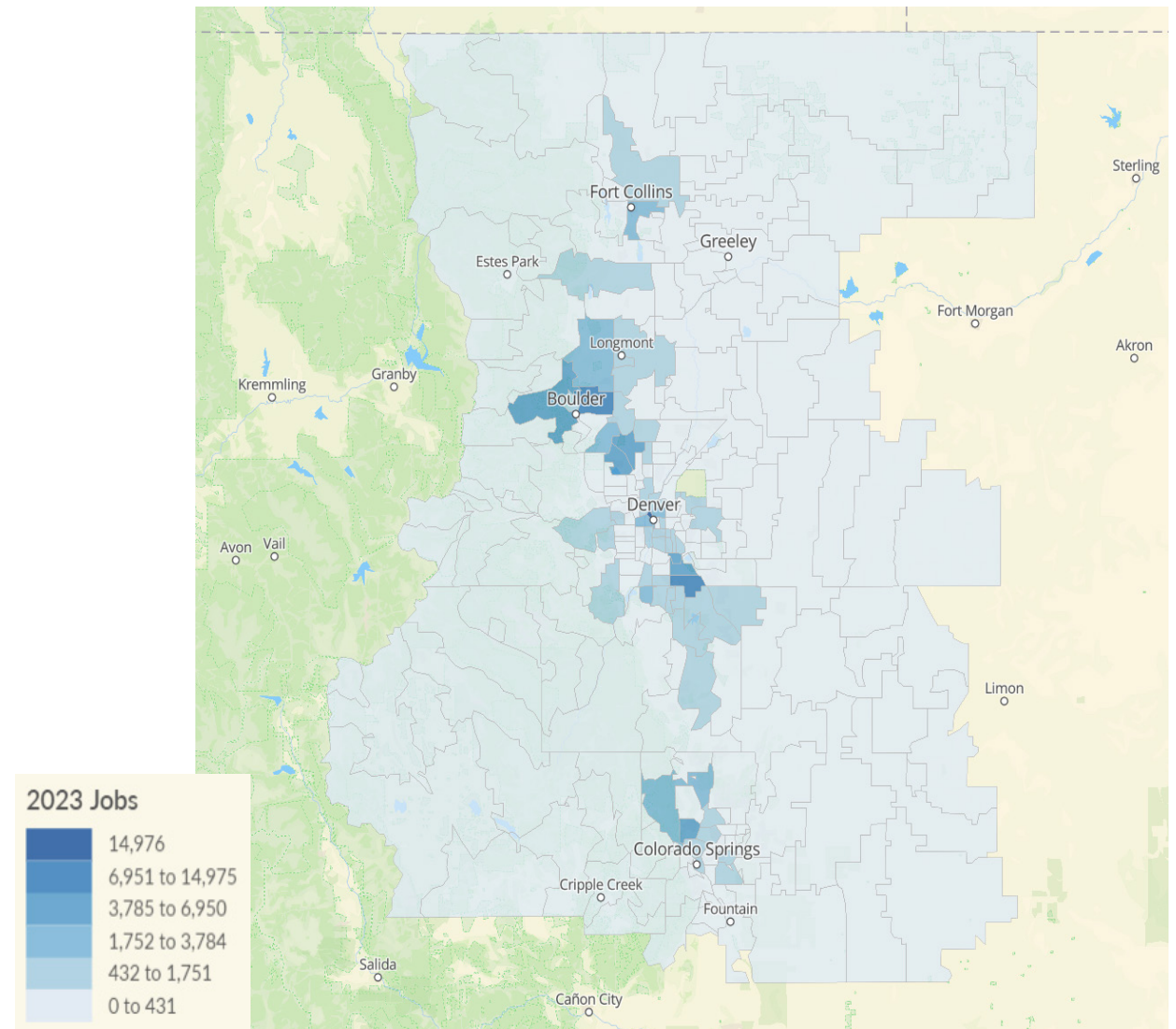


Source: Lightcast



Employment Concentration

Employment Concentration Map



Colorado Urban Front Range

The overall employment concentration in this sector is 2.05 times the national average, which suggests the region is a national hub for this sector. Concentration also varies by county, with the heaviest sector employment concentrations in Broomfield and Boulder counties.

Source: Lightcast

Sector Employment Concentration



Employment concentration in the sector is shown here within each of the 15 counties making up the region. Note that the current wages, salaries, and proprietor earnings, as well as the current employer-paid benefits are different within each county. This is because each county has a different mix of sector industries. For example, the average wage in software publishing is \$177,714, as opposed to the average wage of \$148,939 in computer systems design. As a result, depending on the sector industry mix in each county, wages and employer-paid benefits will be different.

ADAMS

- Jobs - 2,353
- Employment Concentration - 0.37
- Current Wages, Salaries, & Proprietor Earnings - \$142,977
- Benefits - \$20,841
- Top Businesses - Verint Systems, Avaya, Maxar Technologies

ARAPAHOE

- Jobs - 18,720
- Employment Concentration - 2.09
- Current Wages, Salaries, & Proprietor Earnings - \$147,210
- Benefits - \$22,477
- Top Businesses - CSG Systems International Inc., Fast Enterprises LLC, I H S Markit

BOULDER

- Jobs - 19,764
- Employment Concentration - 3.81
- Current Wages, Salaries, & Proprietor Earnings - \$192,870
- Benefits- \$27,759
- Top Businesses - Zayo Group Holdings Inc., GHX, Google

DOUGLAS

- Jobs - 8,806
- Employment Concentration - 2.32
- Current Wages, Salaries, & Proprietor Earnings - \$156,420
- Benefits - \$22,448
- Top Businesses - Sastrugi Marketing, Douglas County Technology Service, Dynamic Data Technology Group

EL PASO

- Jobs - 14,261
- Employment Concentration - 1.54
- Current Wages, Salaries, & Proprietor Earnings - \$128,139
- Benefits - \$17,563
- Top Businesses - Northrop Grumman, Apogee Engineering LLC, Cherwell Software

ELBERT

- Jobs - 103
- Employment Concentration - 0.86
- Current Wages, Salaries, & Proprietor Earnings - \$142,003
- Benefits - \$19,833
- Top Businesses - Information Partners Inc., Jones Consulting LLC, MKS Systems LLC

GILPIN

- Jobs - 21
- Employment Concentration - 0.19
- Current Wages, Salaries, & Proprietor Earnings - \$129,184
- Benefits- \$18,244
- Top Businesses - James Associates, Gilpin County Public Library District, Mountain Neighbor

JEFFERSON

- Jobs - 10,199
- Employment Concentration - 1.60
- Current Wages, Salaries, & Proprietor Earnings - \$130,350
- Benefits - \$19,086
- Top Businesses - Monks Associates Inc., Itransition, ReedGroup Management LLC

LARIMER

- Jobs - 4,585
- Employment Concentration - 0.97
- Current Wages, Salaries, & Proprietor Earnings - \$121,545
- Benefits - \$17,077
- Top Businesses - HACH Co., Emcompass Technologies, New Century Software

BROOMFIELD

- Jobs - 5,421
- Employment Concentration - 4.88
- Current Wages, Salaries, & Proprietor Earnings - \$188,453
- Benefits - \$30,445
- Top Businesses - Datavail, VMWare, Webroot Software Inc.

CLEAR CREEK

- Jobs - 21
- Employment Concentration - 0.25
- Current Wages, Salaries, & Proprietor Earnings - \$161,214
- Benefits- \$22,307
- Top Businesses - Clear Creek County Library District, KYGT, Mara Ink

DENVER

- Jobs - 37,052
- Employment Concentration - 2.52
- Current Wages, Salaries, & Proprietor Earnings - \$159,605
- Benefits - \$24,043
- Top Businesses - Optiv Security Inc., Palantir Technologies, ServiceSource International

PARK

- Jobs - 50
- Employment Concentration - 0.64
- Current Wages, Salaries, & Proprietor Earnings - \$124,707
- Benefits - \$16,546
- Top Businesses - SC Inc., Vcheck Systems, Park County Public Libraries

TELLER

- Jobs - 80
- Employment Concentration - 0.38
- Current Wages, Salaries, & Proprietor Earnings - \$96,565
- Benefits- \$13,477
- Top Businesses - Ridge Automation & Software, Scientific Games Corporation, MNM Webworks LLC

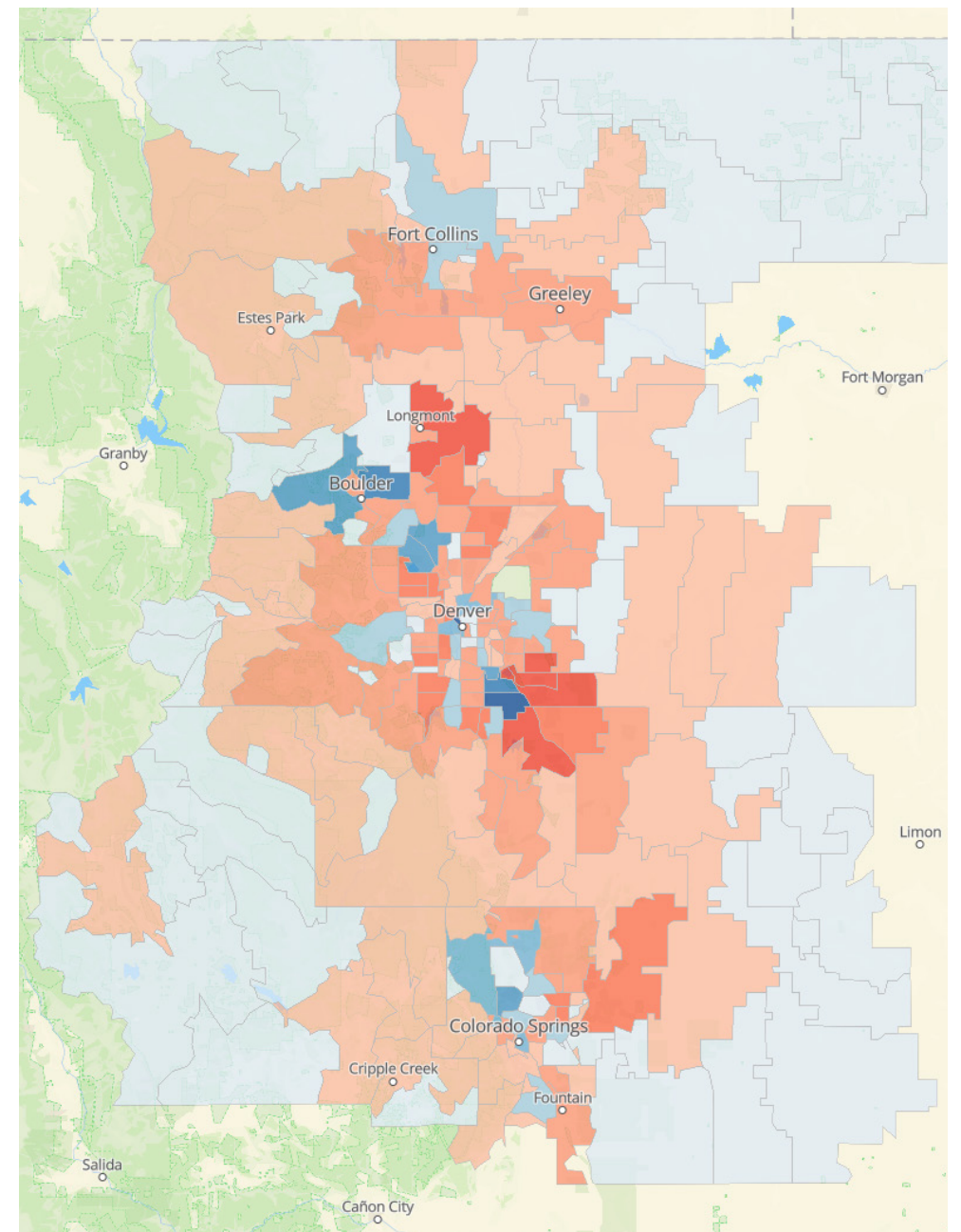
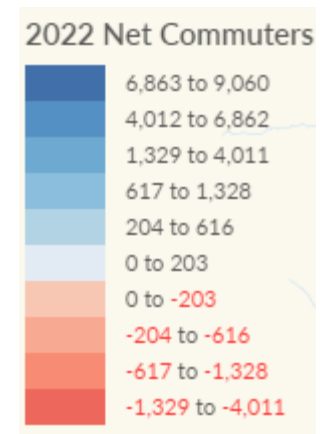
WELD

- Jobs - 968
- Employment Concentration - 0.32
- Current Wages, Salaries, & Proprietor Earnings - \$142,555
- Benefits- \$19,698
- Top Businesses - Computer Information Concepts, Mesa Networks, Thin Air Networks



Where Core Workforce Lives

Commute Map



Every sector has a group of occupations it needs to fulfil its mission. This is called a staffing pattern, and generally includes managers, business and finance people, sales and administrative support, computer and mathematical occupations. There is also a core set of occupations that are primarily responsible for producing the good or services that industry provides. In information technology, this core set of occupations is made up of computer occupations. Examples of these occupations include software developers, user support specialists, and information security analysts. This map shows where persons employed in these occupations live (orange areas) and where they work (blue areas).

Where Core Workforce Lives

Commute Patterns

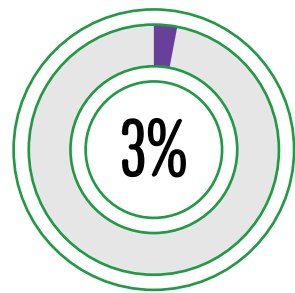
The table shows net commuters. For example, 16,412 people in these core occupations live in Jefferson County, while there are 11,006 employed there. This means 5,406 more computer sciences professionals live in Jefferson County than work there.

County	Net Commuters	Resident Workers	Jobs
Denver	12,552	19,533	32,085
Boulder	3,325	11,633	14,958
Arapahoe	3,022	16,721	19,743
Broomfield	1,595	2,970	4,566
El Paso	565	16,203	16,768
Clear Creek	(11)	62	51
Gilpin	(22)	85	64
Park	(142)	211	69
Teller	(250)	429	179
Elbert	(397)	511	114
Larimer	(624)	5,931	5,307
Weld	(3,861)	5,461	1,599
Adams	(4,400)	9,766	5,366
Douglas	(4,728)	13,007	8,279
Jefferson	(5,406)	16,412	11,006

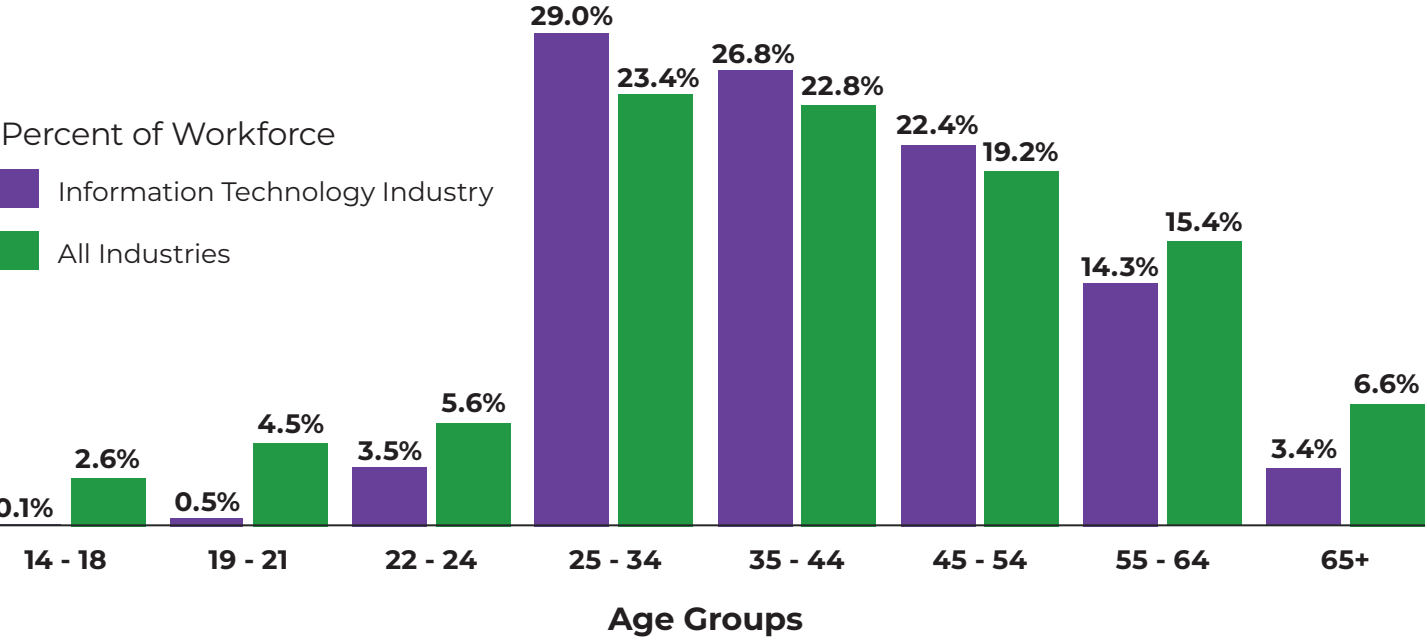
Source: Lightcast



Comparative Retirement Risk



Retirement risk in information technology is much lower than that across all industries in the region. This reflects a younger labor force with significantly higher numbers in the 25 to 54 age bands than the regional average across all industries.



Comparative Gender

Percent of Workforce
Information Technology Industry
All Industries

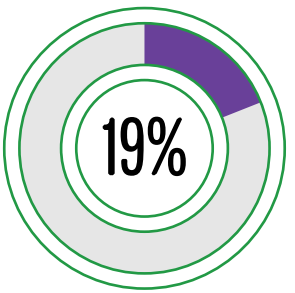


Men
66.6%
52.8%

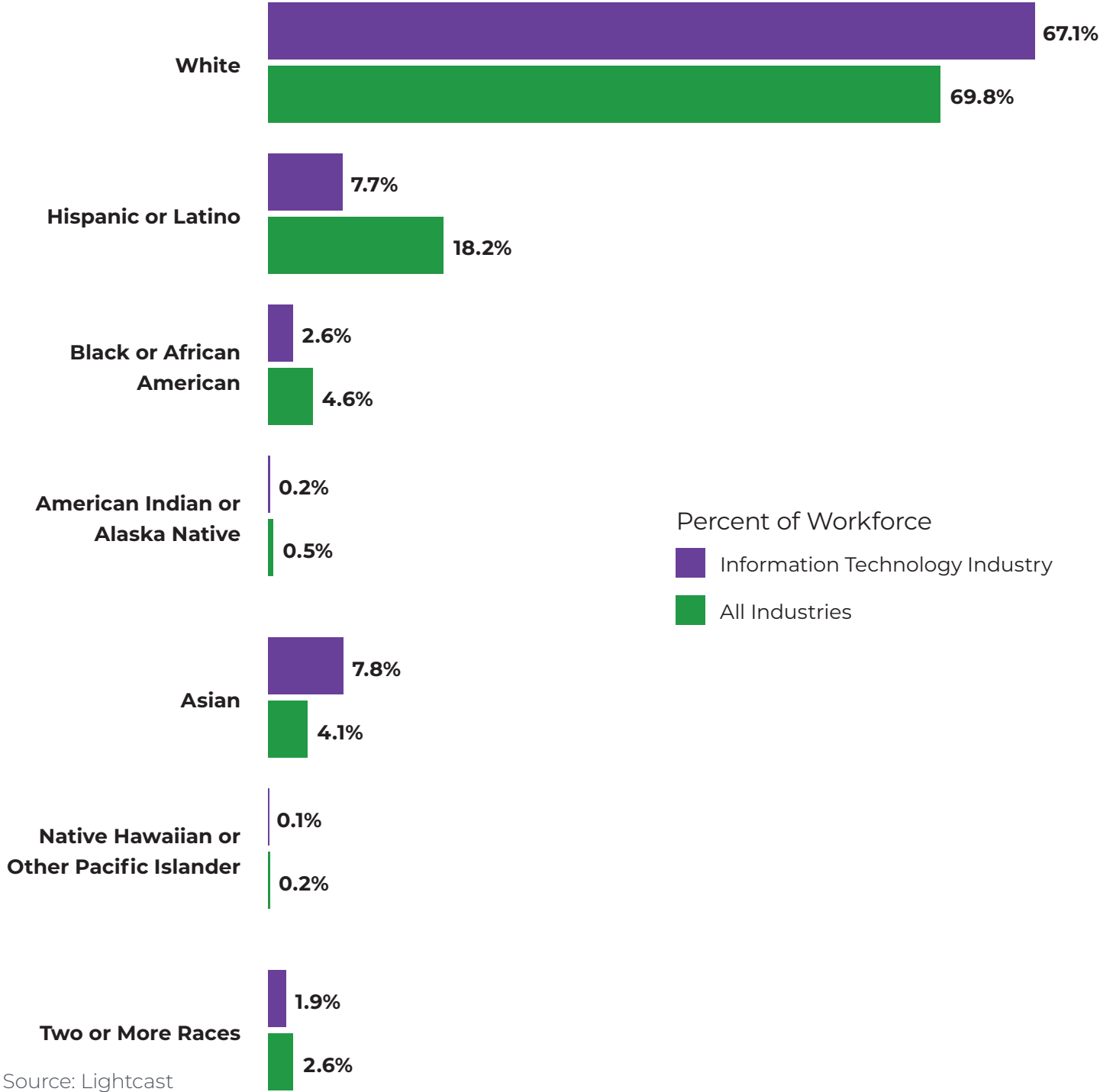


Women
33.4%
47.2%

Comparative Racial Diversity



This bar chart shows the racial and ethnic diversity in the industry versus across all industries in the 15 county region. This is measured by a concept called 'total diversity,' which is the percent of racial or ethnic minorities employed in the sector versus the percent of racial and ethnic minorities employed across all industries. Information technology is much less diverse than the overall average within the region, with overall diversity at only 19.4% of the sector's workforce, versus 30.2% across all industries.



Source: Lightcast

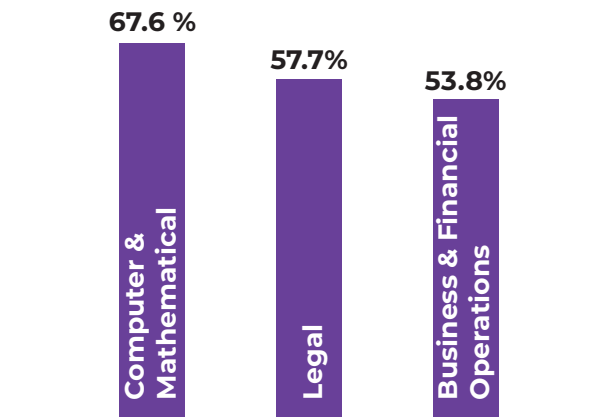


Telework and Automation Strategies

Remote Work Potential

52.6% Remote Work Capability for Sector

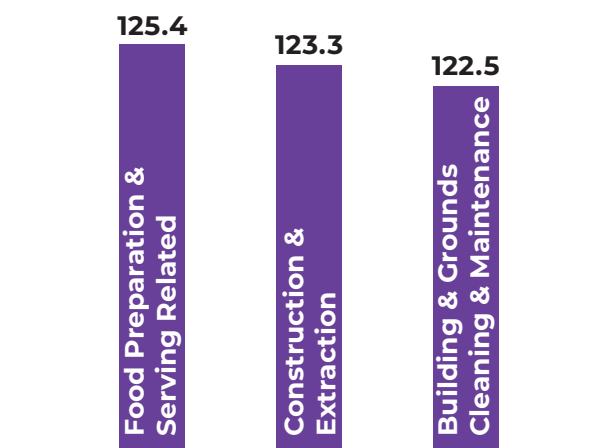
In a scarce labor market, a valid strategy for employers might be to review their staffing pattern and determine which positions, if any, can be employed remotely or on a hybrid work schedule. Approximately 52.6% of the workforce in information technology has at least partial teleworking capacity.



Automation Index

87.2

Another valid strategy employers can use in today's scarce labor market is automation. Automation seldom replaces workers 1:1. Rather, automation leverages the productive capacity of fewer workers to allow for higher output. Examples of automation in information technology include cloud software, and the ability of user and network support people to 'remote in' to fix issues for an end user



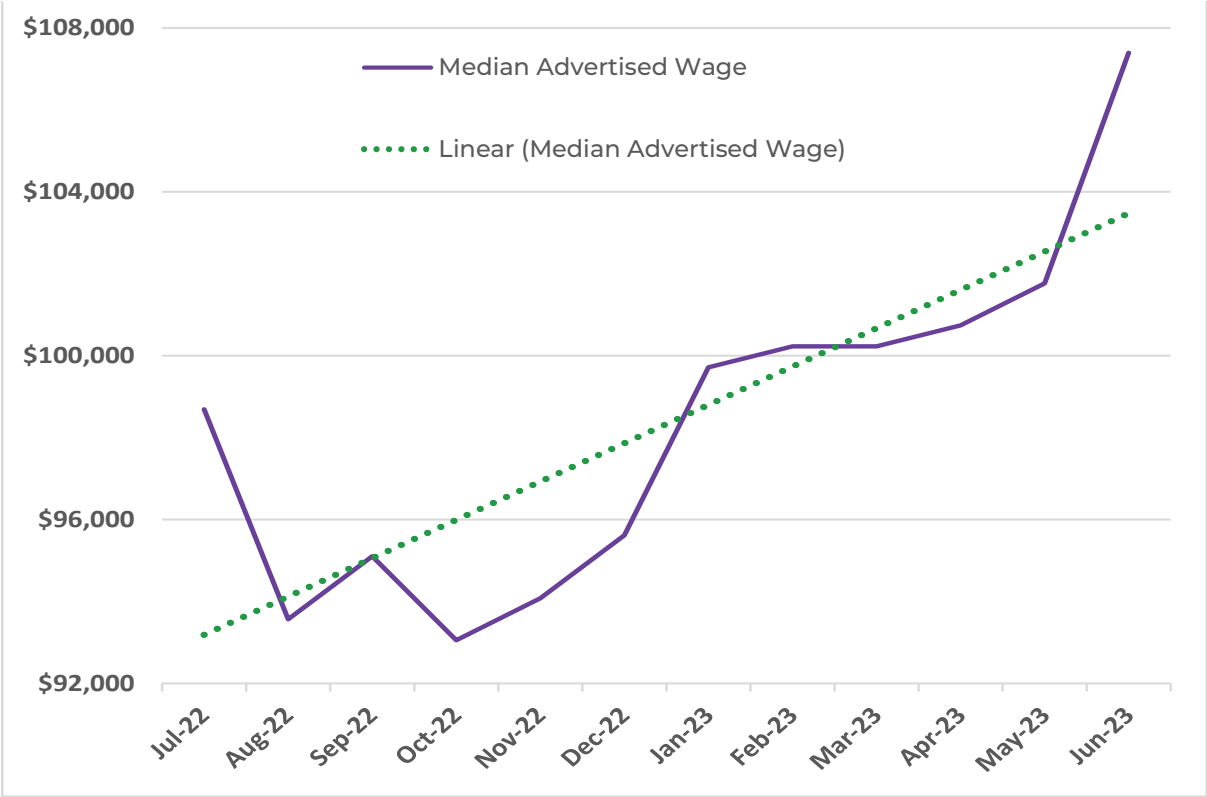
Source: Lightcast



Wages

Advertised Wage Trends

The scarce labor market has driven wages up over time. This line graph shows movement in advertised wages in jobs posted in the sector over the last year.



Competitive Wage Analysis

The following table shows the top 20 occupations by percentage of total employment in the sector, as well as total employment across industries. For example, the information technology sector employs 1,955 accountants and auditors, but there are over 32,000 accountants and auditors employed across all industry sectors. This is important because engineering services must compete with other sectors for critical talent, such as accountants, software developers and business and financial people. Average annual openings for each occupation is estimated according to known attrition (people leaving the occupation or retiring) as well as expected national and local growth in the occupation.

Median posted wage levels can be compared to estimated entry and experienced level wages, and the typical entry level education, as well as the typical on-the-job training (OJT) are shown to illustrate the potential for apprenticeships and OJT to supplement shortfalls in the traditional training pipeline.

The Standard Occupational Classification (SOC) system is used by Federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data.

Competitive Wage Analysis

SOC	Description	Jobs in Sector	% of Total Employment in Sector	Jobs Across all Industries	Average Annual Openings		Median Posted Wage	Entry Level Wage	Median Wage	Highly Experienced Level Wage	Typical On-the-Job Training	Typical Entry Level Education
11-1021	General and Operations Managers	2,724	2.2%	42,055	4,592		\$39.82	\$37.10	\$56.71	\$80.00	None	Bachelor's degree
11-3021	Computer and Information Systems Managers	4,804	3.9%	10,534	1,114		\$78.52	\$62.40	\$77.33	\$100.06	None	Bachelor's degree
13-1082	Project Management Specialists	1,447	1.2%	16,436	1,846		\$46.89	\$34.88	\$46.25	\$60.37	None	Bachelor's degree
13-1111	Management Analysts	4,246	3.5%	25,298	2,433		\$43.26	\$31.43	\$44.16	\$62.56	None	Bachelor's degree
13-1161	Market Research Analysts and Marketing Specialists	1,602	1.3%	12,164	1,515		\$28.25	\$26.56	\$36.13	\$48.89	None	Bachelor's degree
13-1199	Business Operations Specialists, All Other	3,641	3.0%	23,578	2,952		\$34.83	\$28.89	\$37.75	\$49.44	None	Bachelor's degree
13-2011	Accountants and Auditors	1,955	1.6%	32,517	3,434		\$34.34	\$28.94	\$37.68	\$49.47	None	Bachelor's degree
15-1211	Computer Systems Analysts	2,023	1.7%	35,183	3,549		\$50.15	\$38.73	\$48.27	\$61.98	None	Bachelor's degree
15-1212	Information Security Analysts	5,008	4.1%	11,755	1,132		\$55.26	\$36.84	\$49.20	\$64.31	None	Bachelor's degree
15-1232	Computer User Support Specialists	2,783	2.2%	6,300	706		\$26.65	\$22.88	\$29.36	\$38.94	None	Some college, no degree
15-1241	Computer Network Architects	7,223	5.9%	16,309	1,597		\$52.80	\$45.10	\$59.32	\$76.45	None	Bachelor's degree
15-1244	Network and Computer Systems Administrators	3,724	3.1%	8,501	616		\$44.92	\$35.77	\$45.86	\$55.44	None	Bachelor's degree
15-1251	Computer Programmers	3,888	3.2%	11,532	911		\$42.03	\$30.83	\$44.40	\$58.76	None	Bachelor's degree
15-1252	Software Developers	26,783	21.7%	43,868	4,512		\$58.95	\$46.46	\$56.86	\$67.08	None	Bachelor's degree
15-1253	Software Quality Assurance Analysts and Testers	3,228	2.6%	5,247	550		\$51.57	\$37.15	\$47.00	\$58.27	None	Bachelor's degree
15-1254	Web Developers	2,936	2.4%	7,567	731		\$55.08	\$28.21	\$36.81	\$55.74	None	Bachelor's degree
15-1299	Computer Occupations, All Other	2,111	1.8%	5,359	370		\$57.23	\$36.57	\$47.84	\$60.44	None	Bachelor's degree
17-2061	Computer Hardware Engineers	7,057	5.8%	32,889	3,933		\$55.38	\$50.63	\$62.09	\$75.91	None	Bachelor's degree
41-3091	Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	1,449	1.2%	5,769	677		\$26.15	\$22.58	\$31.37	\$50.46	Moderate-term OJT	High school diploma or GED
43-4051	Customer Service Representatives	2,760	2.3%	42,391	6,261		\$19.38	\$15.05	\$17.97	\$22.36	Short-term OJT	High school diploma or GED



Top Occupations

Top 20 Occupations Currently Listed in the Colorado Urban Front Range

Top Occupations

These figures use information from unique job postings across the sector to show the number of jobs posted in the 15 county region during the last year and median posted salary. It is also important when planning staffing strategy to look at hires, separations and turnover rate for each of the occupations, whether the occupation is apprenticeable or not, and the top skills demanded over the prior 12-month period.

Discover more about each occupation by simply clicking on the respective icon.



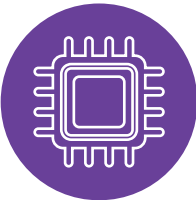
Software Developers

- Unique Postings 26,783
- Posted Salary \$58.95
- Hires 18,552
- Separations 13,343
- Turnover Rate 32.0%
- Apprenticeable Yes
- Top Skills: Software Engineering, Computer Science, Agile Methodology



Computer Network Architects

- Unique Postings 7,223
- Median Salary \$52.80
- Hires 8,078
- Separations 7,144
- Turnover Rate 45.2%
- Apprenticeable Yes
- Top Skills: Network Engineering, Network Routing, Computer Science



Computer Hardware Engineers

- Unique Postings 7,057
- Median Salary \$55.38
- Hires 24,684
- Separations 22,587
- Turnover Rate 70.0%
- Apprenticeable Yes
- Top Skills: Hardware Architecture, Computer Engineering, Electrical Engineering



Information Security Analysts

- Unique Postings 5,008
- Median Salary \$55.26
- Hires 4,957
- Separations 4,205
- Turnover Rate 37.2%
- Apprenticeable Yes
- Top Skills: Cyber Security, Vulnerability, Computer Science



Computer & Information Systems Managers

- Unique Postings 4,804
- Median Salary \$78.52
- Hires 4,734
- Separations 3,559
- Turnover Rate 35.4%
- Apprenticeable No

Top Skills: Computer Science, Project Management, Agile Methodology



Management Analysts

- Unique Postings 4,246
- Median Salary \$43.26
- Hires 13,088
- Separations 12,174
- Turnover Rate 49.3%
- Apprenticeable Yes

Top Skills: Project Management, Finance, Business Process



Web Developers

- Unique Postings 2,936
- Median Salary \$55.08
- Hires 3,265
- Separations 2,650
- Turnover Rate 36.3%
- Apprenticeable No

Top Skills: JavaScript, Cascading Sheet Styles (CSS), User Experience (UX)



Customer Service Representatives

- Unique Postings 2,760
- Median Salary \$19.38
- Hires 41,080
- Separations 39,541
- Turnover Rate 94.2%
- Apprenticeable Yes

Top Skills: Call Center Experience, Data Entry, Merchandising



Computer Programmers

- Unique Postings 3,888
- Median Salary \$42.03
- Hires 4,585
- Separations 4,603
- Turnover Rate 40.7%
- Apprenticeable Yes

Top Skills: Computer Science, Agile Methodology, Project Management



Network & Computer Systems Administrators

- Unique Postings 3,724
- Median Salary \$44.92
- Hires 3,203
- Separations 3,403
- Turnover Rate 40.8%
- Apprenticeable Yes

Top Skills: Operating Systems, Linux, System Administration



Computer User Support Specialists

- Unique Postings 2,783
- Median Salary \$26.65
- Hires 3,122
- Separations 2,210
- Turnover Rate 36.9%
- Apprenticeable Yes

Top Skills: Technical Support, Help Desk Support, Operating Systems



General & Operations Managers

- Unique Postings 2,724
- Median Salary \$39.82
- Hires 26,168
- Separations 21,569
- Turnover Rate 53.0%
- Apprenticeable Yes

Top Skills: Operations Management, Marketing, Project Management



Business Operations Specialists, All Other

- Unique Postings 3,641
- Median Salary \$34.83
- Hires 14,953
- Separations 12,306
- Turnover Rate 54.1%
- Apprenticeable No

Top Skills: Project Management, Auditing, Marketing



Software Quality Assurance Analysts & Testers

- Unique Postings 3,228
- Median Salary \$51.57
- Hires 2,537
- Separations 1,866
- Turnover Rate 37.3%
- Apprenticeable No

Top Skills: Automation, Test Automation, Agile Methodology



Computer Occupations, All Other

- Unique Postings 2,111
- Median Salary \$57.23
- Hires 1,661
- Separations 1,731
- Turnover Rate 32.6%
- Apprenticeable Yes

Top Skills: Systems Engineering, Agile Methodology, Computer Science



Computer Systems Analysts

- Unique Postings 2,023
- Median Salary \$50.15
- Hires 19,967
- Separations 17,717
- Turnover Rate 51.5%
- Apprenticeable Yes

Top Skills: Computer Science, Agile Methodology, Project Management



Accountants & Auditors

- Unique Postings 1,955
- Median Salary \$34.34
- Hires 18,038
- Separations 17,007
- Turnover Rate 53.3%
- Apprenticeable Yes
- Top Skills: Accounting, Auditing, Finance



Market Research Analysts & Marketing Specialists

- Unique Postings 1,602
- Median Salary \$28.25
- Hires 7,457
- Separations 5,722
- Turnover Rate 49.4%
- Apprenticeable Yes
- Top Skills: Marketing, Social Media, Project Management



Sales Representatives of Services, Except Advertising, Insurance, Financial Services, & Travel

- Unique Postings 1,449
- Median Salary \$26.15
- Hires 2,795
- Separations 2,323
- Turnover Rate 41.4%
- Apprenticeable No
- Top Skills: Sales Prospecting, Selling Techniques, Marketing



Project Management Specialists

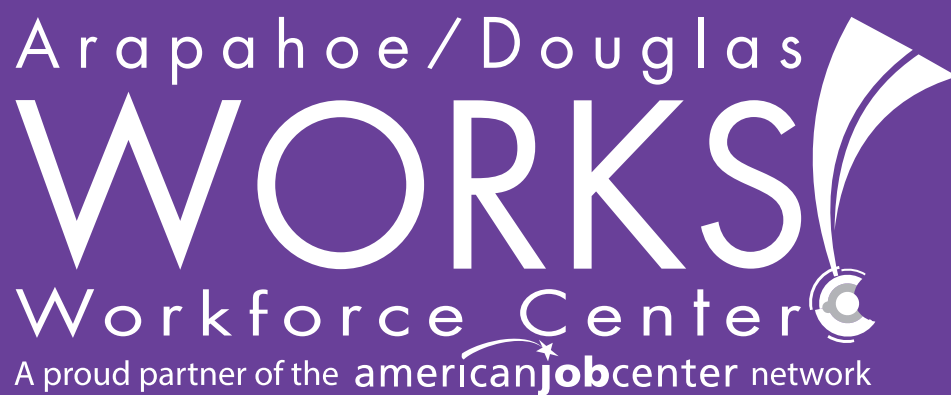
- Unique Postings 1,447
- Median Salary \$46.89
- Hires 12,711
- Separations 11,617
- Turnover Rate 72.6%
- Apprenticeable Yes
- Top Skills: Project Management, Project Schedules, Subcontracting

Source: Lightcast

Let's Talk!

There are a number of strategies you can employ to enhance employee recruitment and retention. The Arapahoe/Douglas Works! Business Services Team can help you strategize and implement these tactics. Get started by calling (303) 636-1359 or visiting <https://bit.ly/ADWBusinessServices>.





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