



BROADBAND & DIGITAL COMMUNICATIONS

*This cluster sends a clear
signal – our companies are
creating connection across
the globe.*



- full report -

2020



Metro**Denver**EDC

Often called a “center of influence,” the Metro Denver EDC was the nation’s first regional economic development organization. From Castle Rock to Fort Collins and Golden to Greeley, we represent the nine counties and 66 communities that contribute to our resilient economy and incredible culture. All told, the EDC’s service territory makes up two-thirds of the Colorado GDP and approximately three-quarters of the state’s population.

Thanks to the leadership and generosity of 250 of Colorado’s most influential companies, the EDC works to monitor and advance the Metro Denver economy through corporate attraction and retention; workforce development; domestic and global marketing; investments in infrastructure; and public policy that fosters a pro-business climate.

The data we produce is foundational to the work we do. Publications like our annual Industry Cluster Studies offer the companies we court (as well as the regional partners we support) a deeper understanding of what’s happening across Metro Denver, and for certain industries, the state more broadly. We track this data closely – leveraging the intel and insights to not only drive corporate recruitment and investment, but foster competition, build a culture of impact and innovation, strengthen the business community and work to ensure that life and work in Metro Denver are thriving.

- Broadband & Digital Communications Report -

CONTENTS

04 Industry
Overview

04 Cluster
Definition

04 Cluster Job
Growth

05 Major Industry Investments,
Expansions & Milestones

07 Economic
Profile

09 Industry Infrastructure
Support

11 Workforce
Profile



BROADBAND & DIGITAL COMMUNICATIONS

INDUSTRY
snapshot
(U.S. DATA IN PARENTHESES)

Companies	Average Wage	*Emp. Ranking
4,770	\$107,110	3

*Employment
Concentration
Ranking

Direct
Employment:
43,080

Direct Employment
Concentration (2020):
1.9% (0.6%)

5-Year Employment
Growth (2015-2020):
4.5% (-14.1%)

1-Year Employment
Growth (2020):
-1.1% (-4.6%)

Industry Overview

Colorado is the preferred location for many of the world's largest broadband and digital communications companies. DISH Network and the Liberty family of companies, both headquartered in Colorado, consistently rank on *Forbes'* and *Fortune's* lists of top public companies. Metro Denver is also home to major operations for Lumen Technologies and Charter Spectrum. Comcast has made Metro Denver one of their largest employment centers in the United States. Local companies in the cluster attracted nearly \$443 million in 50 deals representing 31% of the total amount invested across all industries, according to PricewaterhouseCoopers.

Cluster Definition

The Metro Denver and Northern Colorado region is comprised of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, Larimer and Weld counties. In this report, the Broadband & Digital Communications Cluster consists of 16, six-digit North American Industry Classification System (NAICS) codes including radio and television communications equipment, telephone communications and cable television services. This definition allows for a comparative analysis of the Metro Denver and Northern Colorado region's Broadband & Digital Communications Cluster relative to other metropolitan regions throughout the United States.

Cluster Job Growth

- Employing over 43,080 employees in 4,770 companies, the Broadband & Digital Communications Cluster is one of Metro Denver's largest, with the number of companies doubling since 2012.
- Employment declined 1.1% between 2019 and 2020, compared with a 4.6% decline in the cluster nationwide.
- The region has the nation's third-highest employment concentration for the Broadband & Digital Communications Cluster, up two positions from 2019.
- Between 2015 and 2020, broadband and digital communications employment has fluctuated, with four years of job growth and two of decline.
- The Broadband & Digital Communications Cluster posted 4.5% growth over the past five years, or 18.6 percentage points higher than the nationwide decline of -14.1%.
- Over 91% of the state's cluster employment is concentrated in the Metro Denver region.

Major Industry Investments, Expansions & Milestones

Growth, Mergers & Acquisitions

- **Rocky Mountain Public Media** opened its new \$34 million Buell Public Media Center in Denver. The building houses the Colorado Media Collaborative, the Community Center, a 500-seat performance theatre, office space and shared studios.
- Long-time Colorado provider **CenturyLink Inc.** was renamed **Lumen Technologies** to better highlight the future direction and focus of providing digital services directly to large customers. Plans include higher-value applications and enterprise services including smart cities, retail and industrial robotics, real-time virtual collaboration and automated factories.
- Englewood-based **WOW! Internet, Cable & Phone** was named by Cablefax as the Multi-System Operator of the Year. The annual list honors top cable and broadband operators based on impressive growth statistics and innovative service offerings.
- With the merger of **T-Mobile US Inc.** and **Sprint**, **DISH Network** was granted the right to purchase wireless spectrum and two mobile phone businesses to become the fourth nationwide wireless mobile operator. Colorado could gain 2,000 jobs from this deal in order to build out the new 5G network.
- Denver-based **Liberty Global Inc.** acquired Swiss-based **Sunrise Communications Group AG** in a \$7.5 billion deal to advance its broadband network throughout Europe.
- Douglas County-based DISH Network completed its \$1.4 billion purchase of **Boost Mobile** to form a retail foundation for its 5G network. With the purchase, DISH gained 9 million customers, which was a key part of the deal DISH made with T-Mobile and Sprint.
- **Liberty Global** entered a joint venture agreement with Spanish multinational telecommunications company Telefónica to combine brands in order to better compete in the United Kingdom.

Broadband

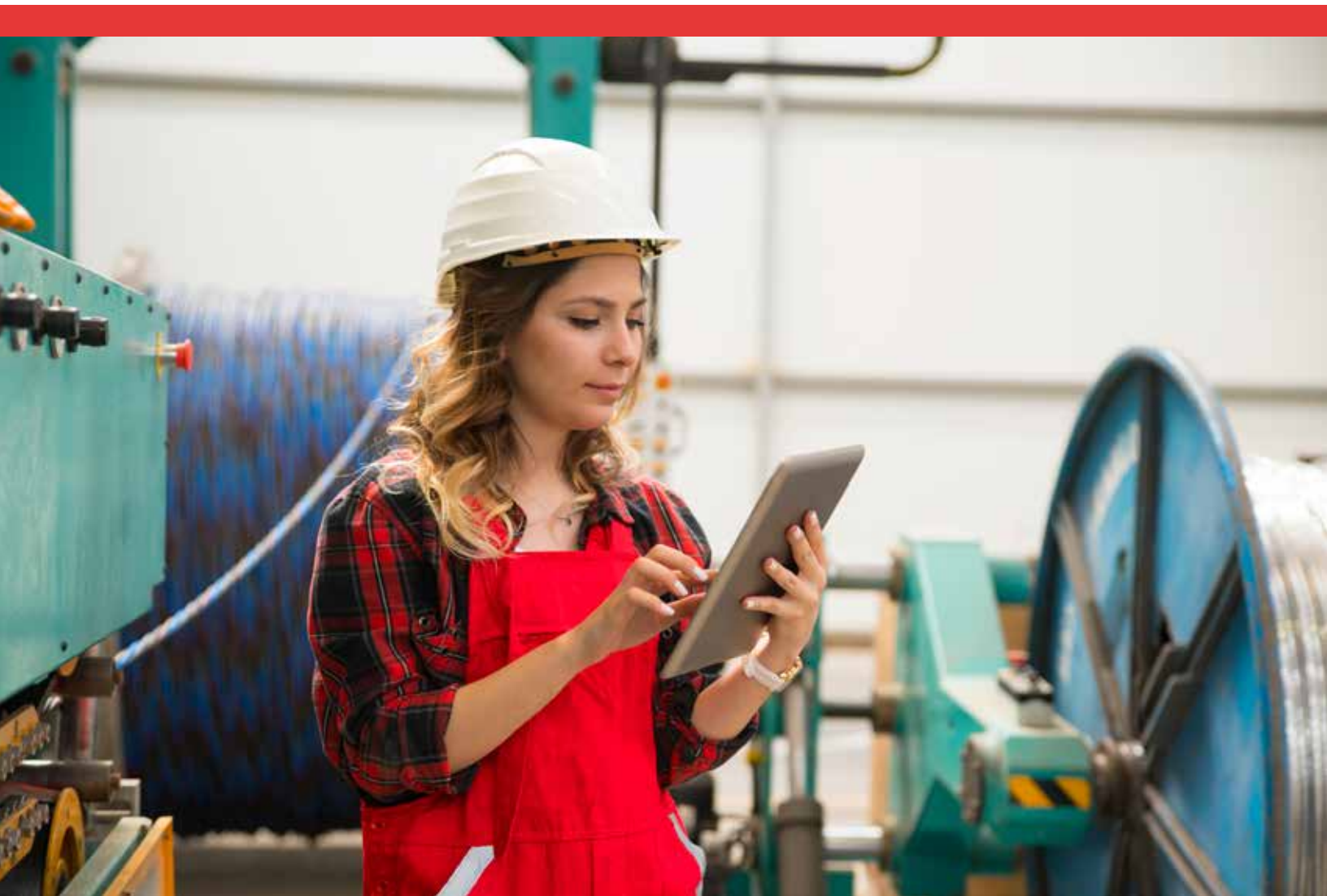
- **Connexion** is continuing construction and installation for its 800-mile fiber network in Fort Collins. As of 2020, more than 110 miles of fiber, 1,700 vaults and 2,900 flowerpots have been installed.
- **Crown Castle** spent the past six years upgrading Denver's existing wireless infrastructure, installing fiber and building new facilities. Most recently, their teams have been deploying small cell technology in Denver to accommodate increased demand.
- Detailed planning, available funding and regional cooperation have made Colorado a leader in boosting broadband access to underserved areas, according to a report from the Pew Charitable Trusts. Since 2016, the state's Broadband Fund has awarded \$34.1 million to 43 projects across the state, providing broadband access to 21,473 rural households.

5G Deployment


- Denver-based **BridgeComm Inc.** partnered with Nokia Bell Labs to pioneer laser-based optical data communications in space. The companies are positioning the technology to help roll out 5G networks and is capable of moving 100 gigabits per second.

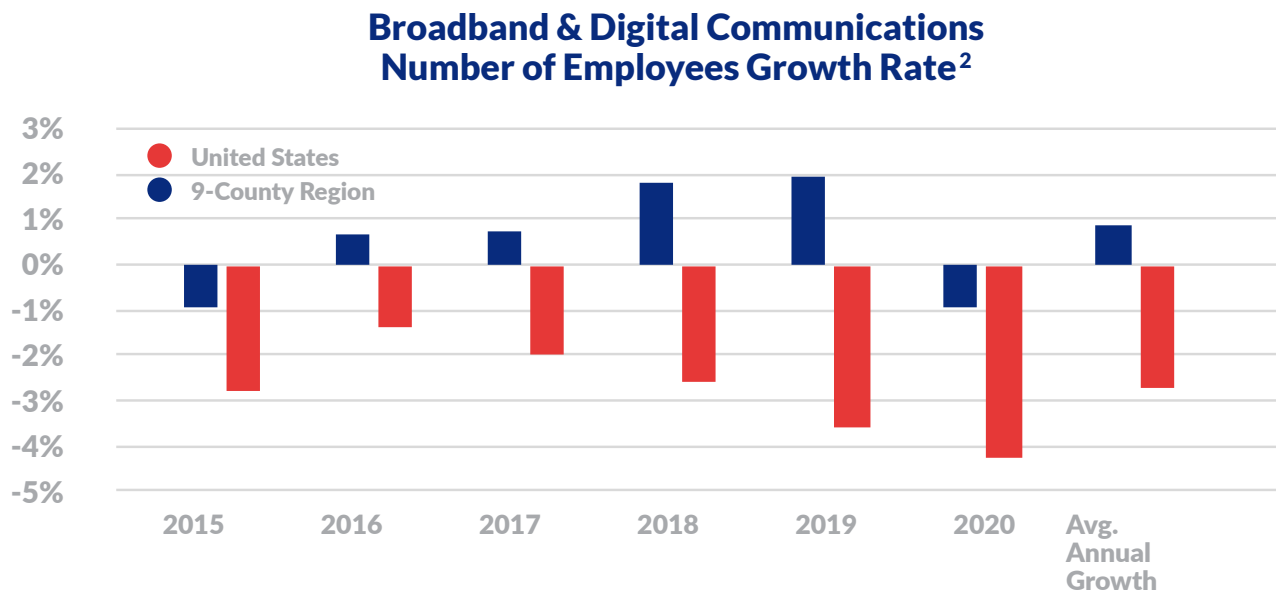
Research & Development

- Louisville-based **CableLabs** merged with the Society of Cable Telecommunications Engineers, creating one of the largest engineering trade groups in the telecommunications industry. The purpose of the merger is to increase industrywide support for 10G.
- The **National Institute of Standards and Technology** (NIST) is helping to build the crucial measurement infrastructure for emerging wireless systems, including developing new measurement methods and analysis tools and facilitating the sharing of 5G performance data. The **5G mmWave Channel Model Alliance**, organized by NIST five years ago to address the need for accurate channel measurements and models, now has more than 175 participants representing 80 academic, government and industry research organizations worldwide.



Economic Profile

 Broadband & Digital Communications Employment & Company Profile, 2020¹		
	9-County Region	U.S.A.
Direct employment, 2020	43,080	991,020
Number of direct companies, 2020	4,770	159,300
One-year direct employment growth, 2019-2020	-1.1%	-4.6%
Five-year direct employment growth, 2015-2020	4.5%	-14.1%
Avg. annual direct employment growth, 2015-2020	0.9%	-3.0%
Direct employment concentration	1.9%	0.6%
% of companies with <10 employees	90.8%	85.2%



¹ Dun & Bradstreet, Inc., Hoover's Online Database; Market Analysis Profile, 2015-2020; Development Research Partners.

² Dun & Bradstreet, Inc., Hoover's Online Database; Market Analysis Profile, 2015-2020.

³ Market Analysis Profile, 2020; Development Research Partners.



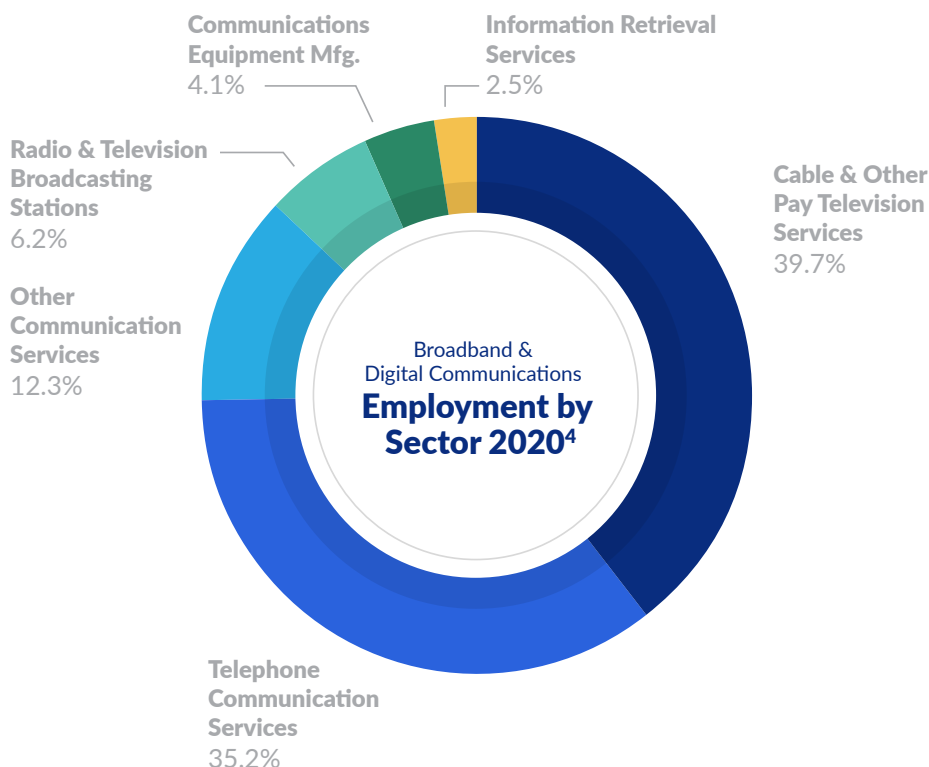
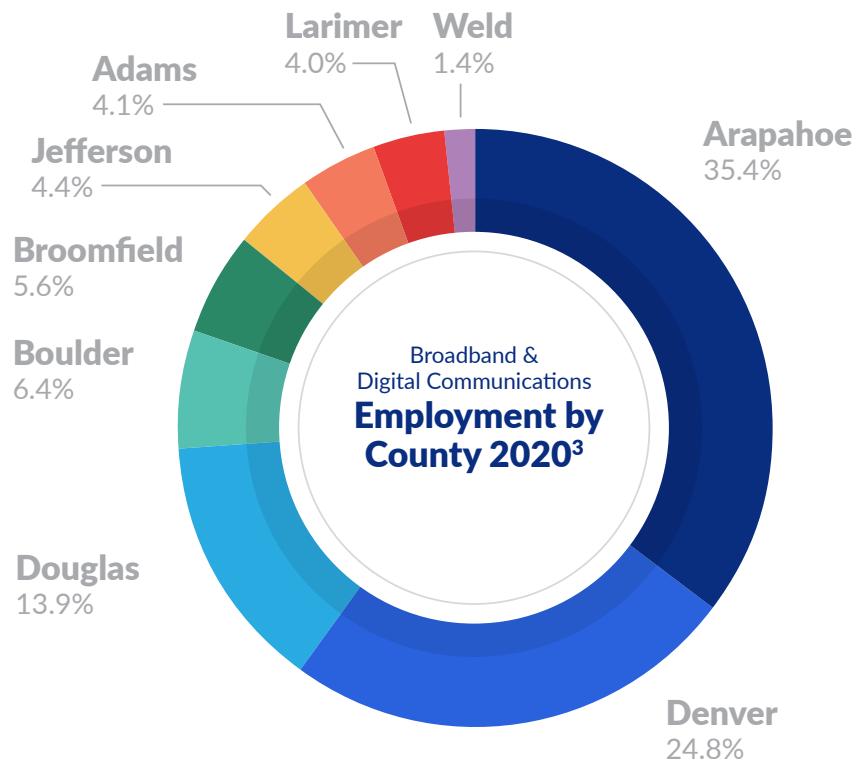
9-County⁵ RANKINGS

3rd

**Broadband & digital
communications
direct employment
concentration**

8th

**Broadband & digital
communications
direct employment**



⁴ Market Analysis Profile, 2020; Development Research Partners.

⁵ Direct employment rank based on the number of employees in the industry cluster in a state. Employment concentration rank based on the direct cluster employment in a state expressed as a percent of total employment in all industries in the same state. Rankings are for the 50 states. No multiplier effects are included. 1st = highest for both rankings.

Industry Infrastructure Support

CableLabs®

CBA
Colorado Broadcasters Association



CTA COLORADO
TELECOMMUNICATIONS
ASSOCIATION





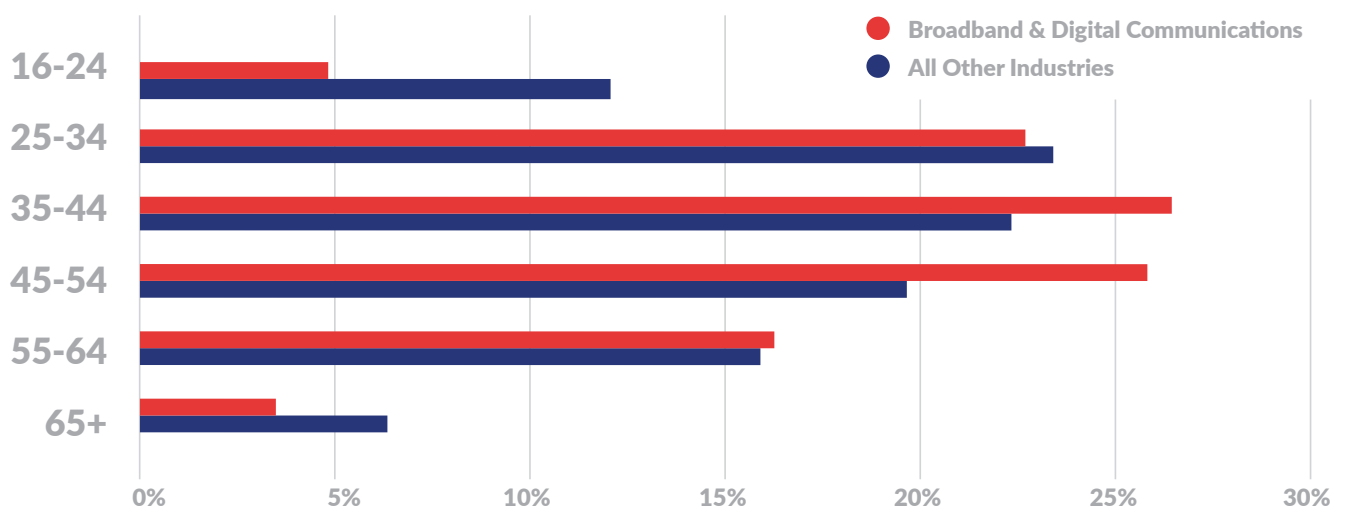
Workforce Profile

- Denver ranked 10th and Boulder ranked 12th among CompTIA's "Top Tech Towns" in 2020.
- Telecommunications and Internet Services ranked second among the leading tech industry sectors by employment in Metro Denver for the third consecutive year, according to CompTIA's *Cyberstates 2020* report.
- The region also has the fifth-highest concentration of radio, cellular, and tower equipment installers and repairers.

Age Distribution

- The cluster has a larger share of employees who are between the ages of 35 and 54 years and older (52.5%), compared with the age distribution of all industries across the nine-county region (42.1%).

Metro Denver & Northern Colorado's Distribution of Employment by Age⁶



⁶ Provided by Arapahoe/Douglas Works!; QCEW Employees, Non-QCEW Employees, & Self Employed - EMSI 2020.3 Class of Worker.

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Wages

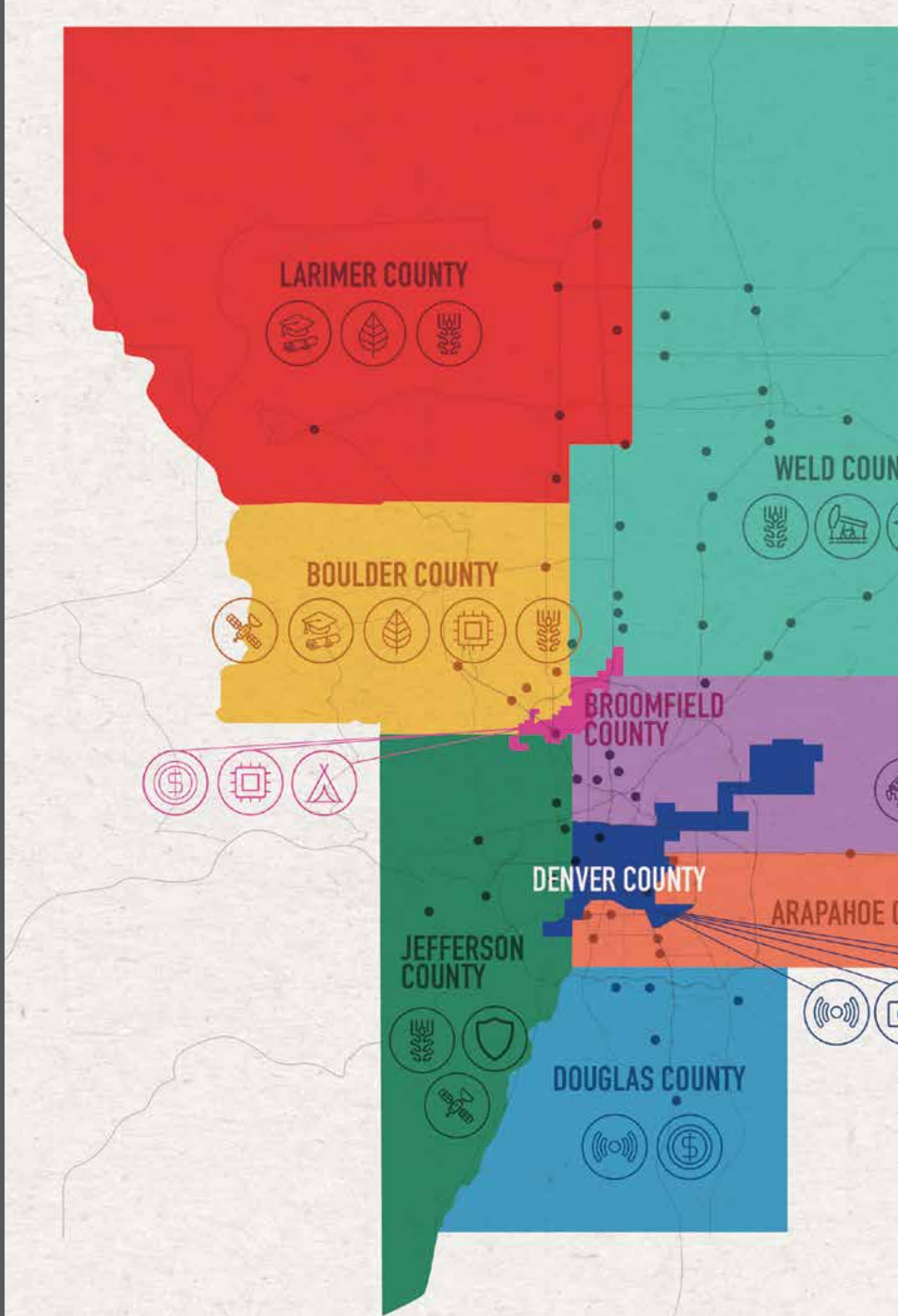
- The 2019 average annual salary for workers in the cluster was \$107,110 in the region, which was 11% higher than the national average of \$96,300.
- The average starting salary was \$55,680 in the region, compared with \$39,070 across all industries.
- Total payroll rose 4.9%, totaling nearly \$4.7 billion in 2019.

Metro Denver & Northern Colorado Broadband & Digital Communications Occupation & Salary Profile, 2020⁷

10 Largest Broadband & Digital Communications Occupations in Metro Denver & Northern Colorado	Total Working Across All Industries (2020)	Number of Available Applicants (2020)	Number of Graduates (2019)	Median Salary	10th Percentile Salary	25th Percentile Salary	75th Percentile Salary	90th Percentile Salary
1. Sales representatives of services, except advertising, insurance, financial services, & travel	27,993	2,026	3	\$62,892	\$27,972	\$41,912	\$96,367	\$150,140
2. Customer service representatives	36,553	2,646	0	\$37,342	\$25,232	\$29,976	\$47,988	\$60,833
3. Telecommunications equipment installers & repairers, except line installers	3,487	252	16	\$66,049	\$42,100	\$51,516	\$77,172	\$88,034
4. Software developers & software quality assurance analysts & testers	39,511	2,860	1,671	\$108,957	\$66,127	\$84,400	\$135,987	\$163,147
5. Project management specialists & business operations specialists, all other	42,873	3,103	50	\$80,642	\$45,847	\$58,960	\$108,751	\$142,539
6. Electronics engineers, except computer	5,241	379	517	\$109,374	\$69,262	\$84,885	\$142,241	\$165,561
7. Telecommunications line installers & repairers	1,706	123	16	\$49,596	\$33,977	\$39,958	\$61,370	\$74,550
8. Computer network architects	5,881	426	2,362	\$120,022	\$74,734	\$93,416	\$148,703	\$171,571
9. Network & computer systems administrators	10,084	730	663	\$87,781	\$55,711	\$69,348	\$110,445	\$131,148
10. Computer network support specialists	4,173	302	1,116	\$70,177	\$43,457	\$53,015	\$92,617	\$112,844

Notes: The number of available applicants is a point-in-time measurement of the number of people who have registered in Colorado's workforce development system's statewide database, Connecting Colorado, as being able and available to work in a particular occupation. Results should be interpreted with caution since registration in Connecting Colorado is self-reported. In addition, the skills rubric may assign up to four occupation codes for each registrant. Therefore, the number of available applicants could be inflated.

Metro Denver Industry Map



Notable Rankings

#1

Colorado made an impressive showing in the 2020 U.S. News & World Report's "Best Places to Live" list with Front Range cities ranking #1, #2, #4 and #5.

#1

Colorado was recently named the top state for Women-Led Startups by small business reviewer, Merchant Maverick.

#1

USA Today recently named DEN the Best Large Airport in the U.S.

#2

U.S. News & World Report ranked Colorado as the second-best state economy in the country, after four years maintaining the top spot.

#2

Colorado is the second-best state in the U.S. to retire in, according to a study by WalletHub.

#2

Milken Institute named Colorado #2 for "Best State for Technology and Science," with a strong entrepreneurial infrastructure and STEM workforce.

#3

Colorado saw the third largest increase of millennials in the past five years, according to Haven Life.

#3

Denver ranked third for STEM job growth, according to the 2020 STEMdex.

#4

A new study by Spanning says Colorado has the fourth-most tech jobs per capita - citing 123,040 tech workers at a median annual wage of \$94,880.

#4

Denver took in the #4 spot for U.S. cities that people moved to in 2020, according to Updater.com.

#6

LinkedIn gave Denver the 6th place ranking for cities with the most opportunity for job seekers.

#6

Denver ranked sixth among the "Best U.S. Cities for Remote Workers" in 2020, according to BusinessInsider.com.

Data research provided by Development Research Partners, Inc.
Founded in 1994, DRP specializes in economic research for local and state government and private sector businesses, including industry cluster research, industry trends analysis and strategic competitive analysis.
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