Metro Denver and Northern Colorado Key Industry Clusters

Executive Summary

A community's economic development efforts should focus on industries in which the community has clear competitive advantages.

A major step in crafting a region's economic development strategy focuses on the types of industries to target for expansion and retention. Industry targets are chosen to meet varying community goals ranging from diversifying the economic base, to increasing the average wage, to utilizing natural and labor resources more fully. A community's economic development efforts should focus on industries in which the community has clear competitive advantages. Further, target industries should be economically, environmentally, and socially acceptable to the community.

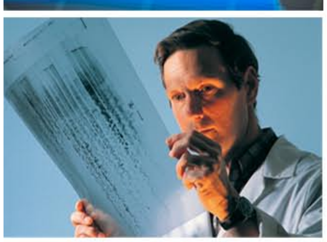
This study is based on the concept of industry clusters, which are geographic concentrations of interconnected companies and institutions in a particular field. Where an industry's employment concentration is greater than the national economy, it is presumed that the production of goods and services is more than sufficient to meet local demand, and is therefore exported, either physically or financially. Where industries are highly concentrated, it is presumed that a high degree of specialization among firms exists, a feature of competitive industry clusters, commonly called "primary jobs." These industries drive wealth creation within a region.

Eight major industry clusters in the nine-county Metro Denver and Northern Colorado region (Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, Larimer, and Weld Counties) are key to our economy, making them primary targets for national recruitment efforts as well as economic development retention and expansion efforts to grow and expand the region's industry cluster base.

This report summarizes key points about each industry cluster, including a brief description, employment concentration ranking compared to the 50 largest U.S. metropolitan areas, and other major industry information. In addition, primary location factors are identified along with a brief assessment of the region's competitive position and future viability in attracting additional employment in each industry cluster.






An overview of Metro Denver's eight major industry clusters

- **AEROSPACE –** Colorado has reclaimed its standing as the second-largest space economy in the United States, behind California. The nine-county region is a center of excellence for space with 19,500 workers, ranking the region second out of the 50 largest metropolitan areas in total private aerospace employment concentration. In late 2011, officials began working with the Federal Aviation Administration to designate a spaceport in the state, which will expand Colorado's competitiveness by developing new opportunities in commercial space transportation.

- **AVIATION –** Denver International Airport (DIA) is a major economic engine for the region's aviation industry, which employs 14,650 workers. DIA continues construction on its South Terminal Redevelopment Program that includes a hotel and a train station to connect the airport to Denver Union Station in downtown Denver as part of the FasTracks mass transit project. In addition, three strategically located reliever airports—Centennial, Front Range, and Rocky Mountain Metropolitan—support growth in the region's aviation cluster.

- **BIOSCIENCE –** More than 14,100 employees work at 600 bioscience companies in the nine-county region. The region has a notable advantage in the medical devices and diagnostics subcluster, ranking eighth in the country for employment concentration. The region's research universities and numerous innovation assets support the industry, as well as opportunities to bring together academic, research, and bioscience companies at the 578-acre Fitzsimons Life Science District and the adjacent Anschutz Medical Campus in Aurora.

- **BROADCASTING & TELECOMMUNICATIONS –** With 40,500 broadcasting and telecommunications workers, the nine-county region has the fourth-highest employment concentration out of the 50 largest metropolitan areas. The area's unique geographic location in the Mountain time zone makes it the largest region in the United States to offer one-bounce satellite uplinks.

- **ENERGY –** The inter-relationship between fossil energy and cleantech provides unique growth opportunities for this industry that employs 41,230 people at 3,120 companies in the region. The area ranks sixth for both fossil energy and cleantech employment concentration out of the 50 largest metros. The U.S. Department of Energy's National Renewable Energy Laboratory (NREL) in Golden is a prime asset for the region.

- **FINANCIAL SERVICES –** The nine-county region is one of the few areas outside of the Northeast with a significant financial industry in three key market segments: banking and finance, investments, and insurance. Various trade associations and service firms support the region's diverse financial services base of 13,320 companies and 86,070 employees.

- **HEALTHCARE AND WELLNESS –** With more than 169,150 healthcare and wellness workers in 17,950 companies across the region, the healthcare and wellness cluster is one of the region's fastest growing industry clusters and is a substantial contributer to the region's overall economic productivity.

- **INFORMATION TECHNOLOGY–SOFTWARE –** Colorado ranked third in the nation (for the fifth-consecutive year) for high-tech workers per capita in the nation according to TechAmerica Foundation's *Cyberstates 2011* report. A strong entrepreneurial spirit fuels this industry, employing 41,640 workers in 4,430 companies throughout the nine-county region.

Factors driving company location and expansion decisions

Location decisions are driven by a number of factors as companies within each of these industries examine communities in which to locate or expand. Some factors are industry specific. For example, proximity to military customers and prime contractors is important in aerospace company location decisions whereas fossil energy companies focus on access to natural resources. Other key locational factors cut across numerous industries, focusing on broader community attributes. While the combination of factors that enhance company success varies by industry, there are several common themes:

- The ability to recruit and retain technical and scientific talent.
- Affordable business operating costs.
- Favorable tax policies and pro-business state and local governments.
- A culture of innovation and entrepreneurism.
- Proximity to quality colleges, research universities, and federal laboratories.
- Efficient access to an international airport.
- An overall better quality of life.

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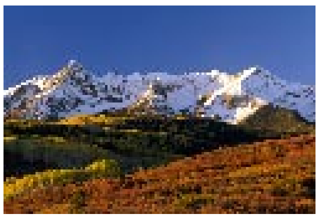
Competitive positioning to create jobs and investment

- **The ability to recruit and retain technical and scientific employees**
  Of Colorado's adult population, 36 percent have a bachelor's degree or higher, making Colorado the second-most highly educated state in the country behind only Massachusetts. *(U.S. Census Bureau; 2010 American Community Survey)*

- **Affordable business operating costs**
  Colorado ranks fifth overall on *Forbes'* "2011 Best States for Business and Careers" list. Rankings are based on each state's business costs and regulations, economy, labor supply, growth prospects, and quality of life. (*Forbes*, *2011*)

- **Favorable tax policies and pro-business state and local governments**
  Legislation passed in 2008 simplified Colorado's corporate tax structure by establishing a "single sales factor" for multistate corporations. Single factor apportionment allows companies to pay taxes based solely on their sales in the state. Colorado's corporate income tax rate of 4.63 percent is one of the lowest in the nation. *(State of Colorado; The Tax Foundation, 2011)*

- **A culture of innovation and entrepreneurism**
  The Colorado Innovation Network (COIN)—a privately funded alliance designed to foster new technology development across the state's existing and emerging industries—launched in 2011. COIN is part of Gov. John Hickenlooper's economic development plan, Blueprint Colorado, and will eventually operate a business incubator. *(Colorado Office of Economic Development and International Trade, 2011)*



- **Proximity to quality colleges, research universities, and federal laboratories**
  Colorado is a national leader for producing scientific and engineering talent, ranking among the top 15 states for science and engineering graduate students per 1,000 individuals ages 25 to 34 years old 2007. In addition, Colorado has one of the highest concentrations of federally funded science and research laboratories in the nation. *(National Science Foundation, 2010; CO-LABS, 2011)*

- **Efficient access to an international airport**
  Denver International Airport is the fifth-busiest airport in the nation and is 10th-busiest worldwide for passenger traffic. Denver's central U.S. location allows travellers efficient access to both coasts and efforts are underway to establish additional nonstop international flights. *(U.S. Bureau of Transportation Statistics, 2011; Denver International Airport, 2011)*

- **An overall better quality of life**
  Denver attracted the most relocating adults aged 25 to 34 of any large U.S. metropolitan area from 2008 to 2010. The Brookings Institution, which authored the study, noted that Denver and other top ranking areas are cities where young people can feel connected and have attachments to colleges or universities among highly educated residents. *(Brookings Institution: U.S. Census Bureau, 2010 American Community Survey)*

Incorporating an industry cluster strategy into economic development

Successful companies rely on market research to guide their marketing efforts, and economic development is no different. Armed with in-depth data on the industries showing the most promising job growth over the long term, the Metro Denver EDC has a "road map" that guides its job creation efforts. This industry data helps determine: which legislation will be conducive or detrimental to industry, what opportunities exist to reach industry decision makers and site selection consultants, where might a "supplier" recruitment strategy come into play, and most importantly, which factors are most important to companies analyzing a community for location or expansion.

In 2010, only one subcluster in Metro Denver posted positive growth—cleantech with a 7.1 percent employment increase. As Metro Denver continues to work its way out of the national recession, our latest analysis of 2011 data shows that employment in seven industries/subclusters grew last year (see accompanying Metro Denver Industries Employment Snapshot), further emphasizing the importance of supporting a diversified industry base during challenging economic times.

The healthcare and wellness industry has emerged as a new cluster this year due to its significant overall economic impact on our region and Metro Denver's brand. With 9.5 percent job expansion in 2011, healthcare and wellness leads all of the region's top industries in growth. When it comes to our brand, now more than ever, we recognize that our healthy community is an incredible asset to economic development.

For additional information on Metro Denver's major industry clusters, please contact 303.620.8092, info@metrodenver.org, or **www.metrodenver.org/industries**.

Metro Denver
Economic Development Corporation

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Metro Denver Industries Employment Snapshot

U.S. data in ( )

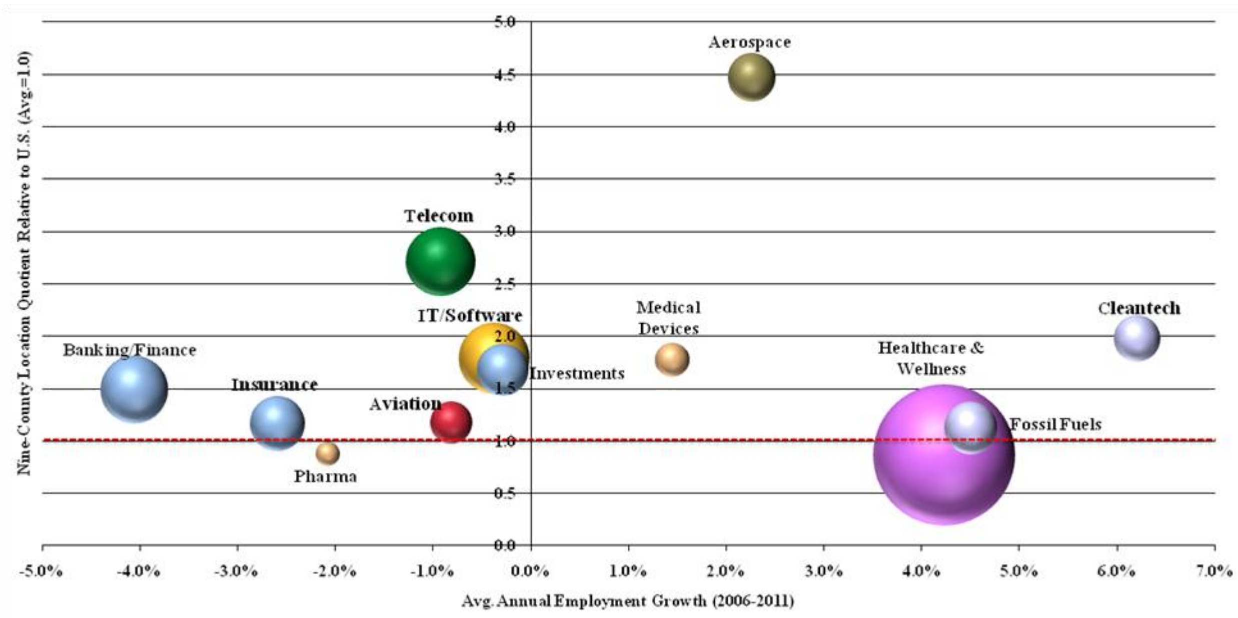
Metro Denver Industries	Aerospace	Aviation	Bioscience		Broadcasting & Telecommunications	Energy		Financial Services			Healthcare & Wellness	IT-Software
			Medical Devices & Diagnostics	Pharmaceuticals & Biotechnology		Fossil Energy	Cleantech	Banking & Finance	Investments	Insurance		
Direct Employment	19,500	14,650	9,480	4,630	40,500	23,230	18,000	38,460	22,520	25,100	169,150	41,640
Companies	110	590	330	270	2,640	1,620	1,500	4,190	5,440	3,690	17,950	4,430
Five-Year Employment Growth (2006-2011)	11.9% (-1.7%)	-4% (-0.4%)	7.5% (4.3%)	-9.9% (-5.9%)	-4.5% (-16.3%)	24.7% (15%)	35.2% (10.8%)	-18.7% (-14.2%)	-1.4% (-3.3%)	-12.3% (-8.8%)	23.1% (11.9%)	-1.8% (4.5%)
One-Year Employment Growth (2011)	1.7% (-0.5%)	-2.7% (2%)	1% (1.1%)	-1.2% (-2.2%)	-0.5% (-3.6%)	8.2% (7.1%)	6.4% (7.5%)	-0.4% (0.3%)	1.1% (2.5%)	-0.8% (-0.9%)	9.5% (1.7%)	4.7% (9.5%)
Direct Employment Concentration (2011)	1.1% (0.2%)	0.8% (0.7%)	0.5% (0.3%)	0.3% (0.3%)	2.3% (0.8%)	1.3% (1.2%)	1% (0.5%)	2.2% (1.5%)	1.3% (0.8%)	1.4% (1.2%)	9.6% 11.2%	2.4% 1.3%
Average Wage	$110,860	$47,060	$66,950	$94,770	$89,660	$103,010	$74,410	$61,430	$174,770	$62,840	$48,730	$93,800
Employment Concentration Ranking (among 50 largest metros)	2	13	8	21	4	6	6	4	8	26	25	9

Metro Denver and Northern Colorado Industries Economic Performance Snapshot

Bubble charts are popular tools used to illustrate industry clusters. These charts allow multiple variables to be plotted within the same graph, making it easy to assess relative economic performance. Bubble charts are often used for pinpointing priority industries since they allow visual comparisons of economic measures.

This chart illustrates industry cluster relationships for the 12 industry clusters and subclusters. The following three variables are plotted:

- Average annual employment growth, 2006 to 2011; on the *x-axis (horizontal)*;
- The industry's location quotient, 2011; on the *y-axis (vertical)*; and
- Employment size of the industry, 2011; indicated by the size of the bubble.



Industry subcluster bubbles are color coded to reflect that they belong to the same cluster. For example, fossil fuels and cleantech are light purple, indicating that they belong to the energy cluster.

Bubble charts show the clusters in a state or region as measured by total employment size (the bigger the bubble, the larger the industry in terms of employment), employment growth (the further to the right on the graph, the more growth), and the location quotient (the further up in the graph, the higher the location quotient (LQ)).

The LQ is a ratio that compares the region's employment share of a particular industry with the employment share nationwide. The following guidelines are used to evaluate the LQ:

- LQ > 1 indicates a significant employment concentration compared with the nation.
- LQ = 1 indicates that the region's employment concentration is equal to that of the nation.
- LQ < 1 indicates that the region has less of an employment concentration compared with the nation.

The dotted red line on the graph represents the location quotient equal to 1 to easily identify the bubbles that are above this demarcation.

For example, cleantech had substantial employment growth from 2006 to 2011, aerospace had a key locational advantage represented by its high LQ position on the graph, and healthcare and wellness had a significant number of employees represented by the size of its bubble. Looking at other clusters, broadcasting and telecommunications and IT-Software are relatively large industries represented by their bubble size and have above-average employment concentration compared to the nation, however have experienced employment declines from 2006 to 2011. While several of the industry clusters lost employment from 2006 to 2011 due to the recession, the location quotients greater than one indicate that the Metro Denver and Northern Colorado region remains a competitive location for these clusters, making them priority industries to pursue.