

**Analysis of Colorado's Creative Industries Cluster
Employment and Occupations**



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Executive Summary

The Colorado Office of Labor Market Information (LMI) conducted this employment and occupation study to objectively evaluate the number of workers, employment trends, and occupations that drive the Colorado creative cluster. This analysis is based on the 2008 study prepared by Mt. Auburn Associates/Regional Technology Strategies (RTS). The following key points were derived from a review of this and other relevant research:

- The use of a tested definition is valuable for comparative purposes.
- A “tighter” definition lends to better understanding of what the cluster is and may possibly do a better job of illustrating the state’s competencies.
- A customized definition should include items that are unique to the state.
- Grouping North America Industrial Classification System (NAICS) sectors allows for a better understanding of the cluster from both industry and occupation perspectives.

These considerations led to minor adjustments in the definition developed in the 2008 study.

There are approximately 108,000 employees in Colorado’s creative cluster. This includes about 72,000 covered employees who work in the private sector and 27,000 sole proprietors. The sector breakdown of the companies is much different for covered and sole proprietors. For example, sole

proprietors have a higher percentage of service and entertainment and production workers. On the other hand, there is a higher percentage of goods and publishing covered workers.

Colorado has a location quotient of 1.085 for covered workers. This level of concentration is a result of the strong presence of software publishing, particularly in Boulder County. In addition, there is a strong presence of companies in the following sectors with location quotients greater than 1.2 and employment greater than 1,000:

- Periodical publishers
- Greetings card and other publishers
- Interior design
- Architectural services
- Cable and other subscription programming
- Independent artists, writers, and performers
- Motion picture theaters.

An in-depth review of the concentrations for each of the sectors will help identify potential areas where the state can develop distinctive competencies.

There are approximately 38,000 workers in “creative” occupations. Of the “creative” covered employees, approximately 27,000 occupations are within the cluster. In addition, there are about 11,500 “creative” occupations

outside the NAICS sectors that define the creative cluster. The top creative occupations are:

- Public Relations Specialists and Managers
- Architects, Except Landscape and Naval
- Librarians and Library Technicians
- Graphic Designers

- Editors
- Producers and Directors
- Photographers
- Marketing Managers.

Purpose of the Study

The Colorado Office of Labor Market Information (LMI) conducted this employment and occupation study to objectively evaluate the number of workers, employment trends, and occupations that drive the Colorado creative cluster. This study was conducted on behalf of the Employment Training Division of the Colorado Department of Labor and Employment and the Creative Industries Division of the Governor's Office of Economic Development and International Trade.

This report builds on research conducted by Mt. Auburn Associates/Regional Technology Strategies (RTS) in December 2008, as well as other research conducted in the interim. The initial Colorado report defined the cluster based on NAICS

Review of Literature and Previous Methodology

A short literature review was conducted and a series of meetings and discussions were held with industry leaders to establish the methodology for this analysis. A short summary of key points from the reports/articles follows:

- Review the initial report, *The State of Colorado's Creative Economy* (Regional Technology Strategies, 2008), specifically for the purpose of determining if the current definition is relevant and appropriate for the state. This Colorado cluster is a subset of the sectors

employment categories and SOC occupations. It should be noted that the initial report derived data from the EMSI (Economic Modeling Specialists, Inc.) database, whereas the current report utilizes LMI databases.

While this analysis builds on the RTS report, the two documents have slightly different purposes. The intent of the initial study was to establish a baseline and impact analysis of the cluster, whereas this document is intended to identify the size of the cluster and establish a methodology for tracking cluster employment trends. As well, this analysis is intended to look more closely at the occupations associated with the cluster with the intent of providing efficient training programs.

that define the New England Foundation for the Arts (NEFA).

- Review of *Creative Enterprises in the Piedmont Triad Economy* (Regional Technology Strategies, 2009). A key point from this study is that clusters around the country may vary based on what is "unique and unusual" to the region. The final Colorado definition was evaluated based on what industries provide distinctive competencies for Colorado.

- Review of *Unveiling the Creative Economy in Arkansas*. (Regional Technology Strategies, 2009). This study highlighted the value that can be gained from understanding the industries and occupations associated with the cluster.
- Review of *Defining the Creative Economy, Industry and Occupational Approaches* (Wassall, DeNatale, and Cohen, 2008). The paper placed a focus on evaluating both employment and occupational levels, making a distinction between core and periphery occupations. The authors discussed the possibility of including religion; sports, recreation, and entertainment; and software publishing in the definition of creative industries. Finally, they took a swipe at Richard Florida for his use of the phrase, “the creative class” because it is “both crude and politically repugnant.”
- Review of *Creative Economy* (UNCTAD, 2008). The report discussed the creative economy from a global perspective. It suggested that the creative industries might best be served or understood by categorizing them into one of four categories: cultural, economic, technological, and scientific.
- Review of *The Economic Impact of the Creative Arts Industries: New York and Los Angeles*. The article included a much tighter definition of creative industries. It evaluated the clusters in the nation’s two largest cities in terms of employment, wages, and location quotients. The tighter definition placed a greater emphasis on the strength of the cluster in New

York and Los Angeles. (Dolfman, Holden, and Wasser, 2006).

- Review of *Fort Collins Cluster Report* (Shields, Marturana, 2010). The report provided information about the various clusters in Fort Collins. It was based on the definition of creative industries developed in the 2008 RTS report. Of particular interest, it reflected a decline in the industry, which is in agreement with the information provided in this document.

The key points from these reports are that many factors should be considered in establishing a cluster definition such as:

- Similarity to other definitions for comparative purposes
- Having a definition that is understandable and credible
- Inclusion of items that are unique to the state
- Using a definition that highlights the strengths of the state (whether that comes from a tighter definition or by grouping the sectors into major categories).

A series of informal meetings was held with LMI staff to discuss how to best collect, format, and present data relevant to this report. Likewise a series of meetings, phone calls, and email exchanges were held with members of the OEDIT and RTS staffs to review the definition, data, and progress of the report.

Methodology

This analysis was designed so that it could be easily replicated and provide reliable, relevant, and understandable information. To that point, it was compiled using data readily available to the public. The employment analysis included employment data from the Quarterly Census of Employment and Wages (QCEW) compiled by the Office of Labor Market Information (LMI) and the Bureaus of Labor Statistics (BLS) as well as sole proprietorships from the Non-Employer Statistics (NES) produced by the U.S. Census Bureau. Occupational data was based on QCEW data only. The QCEW data series is also referred to as covered employment.

QCEW –The definition of the creative industries included 84 six-digit NAICS codes. This total includes 19 NAICS codes added to the original definition set forth in the 2008 Mt. Auburn/RTS study (see Appendix I). Only the private sector was included in this study.

NES - In addition, the Nonemployer Statistics (NES), compiled by the Census Bureau, were used to determine the number of sole proprietors in each of the NAICS codes (see Appendix II).

This analysis reports on employment for the period 2002 to 2009. QCEW annual data was available for 2001 to 2009, whereas NES data was available for 2002 to 2008. For the purposes of this study, 2002 was used as the starting point. A projection was made for the 2009 NES total based on the performance of other data sets. For ease in understanding the cluster, employment and occupation data has been combined into four categories: Goods and Publishing, Trade & Leasing, Services, and Entertainment and Production.

Occupational data was secured from the Occupational Employment Statistics (OES) data set (2009Q2 – 3-digit NAICS). This data set includes occupational estimates and is the most current data set. It is available upon request from LMI.

The following section (Employment) includes three tables:

- Covered employment by NAICS sector/subsector
- Sole proprietorship by NAICS sector/subsector
- Total employment (Covered and sole proprietors).

Employment

Covered Employment by NAICS Sector/Subsector

QCEW Employment by NAICS Category 2002 to 2009										
NAICS Categories	2002	2003	2004	2005	2006	2007	2008	2009	% of Total	CAGR
Manufacturing (31, 32, 33)	9,739	9,082	8,808	8,749	8,851	8,925	8,593	7,071	9.9%	-4.5%
Trade (42, 44, 45)	8,357	7,917	7,590	7,655	7,101	6,823	6,606	5,867	8.2%	-4.9%
Publishers (51)	29,154	27,951	27,402	26,615	26,200	25,466	24,533	22,065	30.8%	-3.9%
Professional, Scientific Services (54)	15,717	15,276	15,865	16,701	18,067	18,995	19,040	16,096	22.5%	0.3%
Educational Services (61)	1,459	1,620	1,782	1,939	1,960	1,963	2,039	2,074	2.9%	5.2%
Personal Services (81)	716	571	462	354	269	276	220	150	0.2%	-20.0%
Entertainment Events (711)	4,797	4,728	4,498	4,651	4,906	5,060	4,956	4,602	6.4%	-0.6%
Entertainment Facilities (712)	1,479	1,452	1,510	1,363	1,456	1,621	1,611	1,511	2.1%	0.3%
Motion Picture (512)	4,533	4,269	4,149	4,159	4,403	4,388	4,184	4,161	5.8%	-1.2%
Broadcasting (515)	8,123	6,781	6,307	6,313	6,591	6,920	6,904	6,476	9.0%	-3.2%
News Services (519)	143	139	134	131	120	166	173	169	0.2%	2.4%
Video Leasing (532)	<u>2,721</u>	<u>2,627</u>	<u>2,590</u>	<u>2,423</u>	<u>2,105</u>	<u>1,894</u>	<u>1,707</u>	<u>1,436</u>	<u>2.0%</u>	<u>-8.7%</u>
TOTAL	86,937	82,413	81,098	81,054	82,028	82,497	80,566	71,678	100.0%	-2.7%
TOTAL CO Private Emp. (000s)	1,814.3	1,776.7	1,800.6	1,843.5	1,890.6	1,934.6	1,943.2	1,829.0		0.1%

About 40% of the employees in the cluster produce or publish goods, while about one-fourth provide services or provide entertainment. The remaining 10% are involved in trade or leasing industries. Overall, total private employment *increased* at the state level by 0.1%, while cluster covered employment *decreased* by 2.7%.

The following sectors (within the above categories) recorded growth during this period. These sectors are: 327 NonMetallic Mineral Products; 337 Household Furniture; 541 Professional, Scientific Services; 611 Educational Services; 519 News Services; and 712 Entertainment Facilities.

QCEW Employment by General Category 2002 to 2009										
General Category	2002	2003	2004	2005	2006	2007	2008	2009	% of Total	CAGR
Goods and Publishing	38,893	37,033	36,210	35,364	35,051	34,391	33,126	29,136	40.6%	-4.0%
Trade & Leasing	11,078	10,544	10,180	10,078	9,206	8,717	8,313	7,303	10.2%	-5.8%
Services	17,892	17,467	18,109	18,994	20,296	21,234	21,299	18,320	25.6%	0.3%
Entertainment and Production	19,075	17,369	16,598	16,617	17,476	18,155	17,828	16,919	23.6%	-1.7%
TOTAL	86,937	82,413	81,098	81,054	82,028	82,497	80,566	71,678	100.0%	-2.7%

Sole Proprietors by NAICS Sector/Subsector

NES Employment by NAICS Category 2002 to 2009										
NAICS Categories	2002	2003	2004	2005	2006	2007	2008	2009	% of Total 2008	CAGR 2009
Manufacturing (31, 32, 33)	606	615	616	590	629	716	675	-	1.8%	
Trade (42, 44, 45)	1,844	1,813	1,742	1,782	1,816	1,935	1,827	-	4.9%	
Publishers (51)	1,907	2,018	2,132	2,092	2,091	2,130	2,033	-	5.4%	
Professional, Scientific Services (54)	9,569	10,273	10,690	10,553	11,683	12,766	12,624	-	33.8%	
Educational Services (61)	309	368	429	483	493	508	523	-	1.4%	
Personal Services (81)	232	247	264	286	267	248	255	-	0.7%	
Entertainment Events (711)	12,638	13,101	13,417	14,363	14,963	16,237	16,148	-	43.2%	
Entertainment Facilities (712)	72	74	78	79	98	89	104	-	0.3%	
Motion Picture (512)	889	934	991	1,010	1,223	1,408	1,355	-	3.6%	
Broadcasting (515)	262	302	334	336	360	383	411	-	1.1%	
News Services (519)	596	679	839	909	1,005	1,380	1,409	-	3.8%	
Video Leasing (532)	59	64	63	49	51	55	40	-	0.1%	
TOTAL	28,982	30,488	31,595	32,532	34,679	37,855	37,403	36,000	100.0%	3.1%
TOTAL CO NES	350,943	369,784	385,326	401,092	405,155	426,017	414,663	400,000		1.9%

The composition of the cluster is much different for sole proprietors than for covered employment, which may partially explain the higher rate of growth compared to covered employment. Sole proprietors posted an overall gain for the period 2002 to 2008. Based on data through 2008, all but two of the major creative categories posted gains.

About one-eighth of the businesses in the cluster produce, publish, sell or lease some type of goods, compared to one-half in the wage and salary companies. About one-third provide services, compared to one-fourth of the wage and salary companies. Over half provide entertainment, compared to one-fourth of the wage and salary companies.

NES Employment by General Category 2002 to 2009										
General Category	2002	2003	2004	2005	2006	2007	2008	2009	% of Total 2008	CAGR 2002-2008
Goods and Publishing	2,513	2,633	2,748	2,682	2,720	2,846	2,708	-	7.2%	1.3%
Trade & Leasing	1,903	1,877	1,805	1,831	1,867	1,990	1,867	-	5.0%	-0.3%
Services	10,110	10,887	11,384	11,322	12,443	13,522	13,402	-	35.8%	4.8%
Entertainment and Production	14,457	15,090	15,659	16,697	17,649	19,497	19,427	-	51.9%	5.0%
TOTAL	28,982	30,488	31,595	32,532	34,679	37,855	37,403	36,000	100.0%	4.3%

Total Employment (Covered and Sole Proprietors)

QCEW and NES Employment by NAICS Category 2002 to 2009										
NAICS Categories	2002	2003	2004	2005	2006	2007	2008	2009	% of Total 2008	CAGR 2002-2008
Manufacturing (31, 32, 33)	10,344	9,698	9,424	9,339	9,480	9,641	9,267	-	7.9%	-1.8%
Trade (42, 44, 45)	10,201	9,730	9,332	9,437	8,917	8,758	8,433	-	7.1%	-3.1%
Publishers (51)	31,061	29,969	29,534	28,707	28,291	27,596	26,566	-	22.5%	-2.6%
Professional, Scientific Services (54)	25,286	25,549	26,555	27,254	29,750	31,761	31,664	-	26.8%	3.8%
Educational Services (61)	1,768	1,987	2,212	2,423	2,453	2,471	2,562	-	2.2%	6.4%
Personal Services (81)	948	818	726	640	536	524	475	-	0.4%	-10.9%
Entertainment Events (711)	17,435	17,829	17,915	19,014	19,869	21,297	21,104	-	17.9%	3.2%
Entertainment Facilities (712)	1,551	1,526	1,588	1,442	1,554	1,710	1,715	-	1.5%	1.7%
Motion Picture (512)	5,422	5,203	5,140	5,169	5,626	5,796	5,539	-	4.7%	0.4%
Broadcasting (515)	8,385	7,083	6,641	6,649	6,951	7,303	7,315	-	6.2%	-2.2%
News Services (519)	739	818	973	1,040	1,125	1,546	1,582	-	1.3%	13.5%
Video Leasing (532)	2,780	2,691	2,653	2,472	2,156	1,949	1,747	-	1.5%	-7.5%
TOTAL	115,920	112,901	112,693	113,586	116,707	120,352	117,969	107,678	100.0%	-1.0%
TOTAL QCEW and NES (000s)	2,194.2	2,177.0	2,217.6	2,277.2	2,330.5	2,398.5	2,395.2	2,265.0		0.5%

Combined. The mix of companies is split about equally between goods and publishing; services; and entertainment and production. About 9% of the employees are involved in trade or leasing categories. It should be noted that the mix of

companies between the three general categories is substantially different for the NES and QCEW categories. Overall employment (QCEW and NES) *increased* by 0.5% during this period, whereas the cluster *decreased* by 1.0%.

QCEW and NES Employment by General Category 2002 to 2009										
General Category	2002	2003	2004	2005	2006	2007	2008	2009	% of Total 2008	CAGR 2002-2008
Goods and Publishing	41,405	39,667	38,958	38,046	37,771	37,237	35,833	-	30.4%	
Trade & Leasing	12,981	12,421	11,985	11,909	11,073	10,707	10,180	-	8.6%	
Services	28,001	28,354	29,493	30,316	32,739	34,756	34,701	-	29.4%	
Entertainment and Production	33,532	32,459	32,257	33,314	35,125	37,652	37,255	-	31.6%	
TOTAL	115,920	112,901	112,693	113,586	116,707	120,352	117,969	107,678	100.0%	-1.0%

Employment Concentrations

Based on the definition used in this study, there are more than 8,400 companies in Colorado’s creative industry cluster. Employees at these companies account for about 3.8% of total Colorado private sector covered employment as compared to 3.5% for the U.S. As a result, Colorado has a location quotient for the cluster slightly greater than one (1.085). Note that two sectors were excluded from the calculation of the location quotient, sectors 312 and 615, because their levels of employment were estimated.

Three of the four groups have location quotients greater than 1.0. Caution should be exercised when using these ratings because the numbers of employees in some sectors are very small and a slight change in employment can cause the location quotient to change significantly. Appendices III through VI provide a detailed breakdown of the four broad categories of the cluster.

Number of Creative Companies, State and National Employment, and Location Quotient – Covered Employment				
NAICS Category	Colorado # of Companies	2009 CO Employment	2009 U.S. Employment	Location Quotient
Goods and Publishing	1,636	28,669	1,366,650	1.233
Trade and Leasing	903	7,303	400,045	1.073
Services	4,189	17,410	902,406	1.134
Entertainment and Production	1,678	16,919	1,139,196	0.873
TOTAL	8,406	70,301	3,808,297	1.085

Note: The report methodology did not allow for the calculation of Breweries (312) and Other Technical and Trade Schools (615)

Goods and Publishing – This group has a location quotient of 1.23. Sectors that inflate the location quotient include publishers of greeting cards and software, as well as other publishers. Many of these employees are located in Boulder County.

Trade and Leasing – The location quotient for this group is 1.07. The Arts dealers sector has the highest concentration for this group; however, it also has fewer than 500 employees. Many of the sectors have values near 1.0, which is common for the trade sector. In other words, these are not areas where economic developers can create distinctive competencies.

Service Providers – This group has a location quotient of 1.13. Many of the top sectors have close ties to the construction industry, which has been extremely strong in Colorado for much of the past two decades. Others have strong ties to business-to-business sectors or personal service sectors that typically have a location quotient of 1.0.

Entertainment and Production – Colorado has a distinctive competency in the cable and programming industry (NAICS 515210). There are about 2,800 workers in the sector, which has a location quotient of 1.9. Other sectors with location quotients near 2.0 have fewer than 1,000 employees. Sectors such as dinner theaters, museums, radio stations typically tend to have concentrations near 1.0.

Employment Concentrations

Over half of the employees in the cluster work in the Denver metro area. This is in proportion to the percentage of total covered workers in the state.

Boulder County has the highest concentration of cluster employees, which in turn causes other metro areas to have a lower percentage of creative employees.

Unlike some clusters, the creative industries cluster appears to have employees located in many counties throughout the state, specifically:

- Goods and Publishing 62 counties
- Trade and Leasing 48 counties
- Services 53 counties
- Entertainment and Production 52 counties

Percentage of Covered Creative Employees vs. Total Covered Employment		
Area	Percent of Creative Industry Employees	Percent of Colorado Total Covered Employment
Boulder MSA	15.6%	6.9%
Denver MSA	54.2%	55.1%
Mesa MSA	2.2%	2.8%
Northern Colorado MSAs	7.6%	9.2%
Southern Colorado MSAs	12.0%	12.7%
Rural	8.4%	13.3%
TOTAL	100.0%	100.0%

Source: LMI OCEW

Occupations

This section provides an overview of the “creative” occupations that support the cluster and that exist outside the cluster. Forty-eight “creative” occupations were identified in the 2008 economic impact cluster analysis prepared by Mt. Auburn/RTS. These occupations were in five two-digit categories (11, 13, 17, 25, and 27).

The Colorado OES NAICS-3 publication (200902pub naics3 100503.xls) was used to identify industries where these occupations existed. A query of the database identified about 38,500 individuals in cluster occupations, of which about 27,000 were within the industry and 11,500 were in other industries.

Occupations by General NAICS Category (Within Cluster by General Category)							
General Category	11 Management	13 Business & Financial Operations	17 Architecture & Engineering	25 Education, Training, & Library	27 Arts, Design, Entertainment, Sports, & Media	Total	% of Total
Goods and Publishing	400	-	-	-	3,870	4,270	15.8%
Trade & Leasing	560	-	-	-	470	1,030	3.8%
Services	700	-	3,220	3,000	7,650	14,570	53.9%
Entertainment and Production	70	130	-	220	6,720	7,140	26.4%
TOTAL	1,730	130	3,220	3,220	18,710	27,010	100.0%
Percentage	6.4%	0.5%	11.9%	11.9%	69.3%		100.0%

From the perspective of the SOC categories, about 70% of the occupations are in SOC 27 (Arts, design, entertainment, sports, and media). Approximately 12% are in both SOC 17 (Architecture and engineering) and SOC 25 (Education, training, and library).

About 40% are in the Professional, Scientific, and Technical Services (541) NAICS sector. About 40% are equally distributed between Educational Services (611), Broadcasting (515), and Publishing (511). The list of all occupations can be found in the Appendix VII.

Occupations by General NAICS Category (Within Cluster by Three Digit NAICS)							
General Category	11 Management	13 Business & Financial Operations	17 Architecture & Engineering	25 Education, Training, & Library	27 Arts, Design, Entertainment, Sports, & Media	Total	% of Total
312 Beverages					-	-	0.0%
323 Printing					250	250	0.9%
327 Non-Metallic Mineral Products					20	20	0.1%
332 Fabricated Metal Products					10	10	0.0%
334 Computer and Electronics	140				160	300	1.1%
337 Household Furniture					20	20	0.1%
339 Miscellaneous Manufacturing	40				230	270	1.0%
424 Merchant Wholesalers	40				290	330	1.2%
443 Electronics Stores						-	0.0%
451 Music Stores					-	-	0.0%
453 Miscellaneous Retailers	520					520	1.9%
511 Publishers	220				3,180	3,400	12.6%
541 Professional, Scientific Services	600		3,180	130	6,770	10,680	39.5%
611 Educational Services	100		40	2,870	880	3,890	14.4%
812 Personal Services					-	-	0.0%
512 Motion Picture					640	640	2.4%
515 Broadcasting	20				3,830	3,850	14.3%
519 News Services				10	-	10	0.0%
532 Video Leasing					180	180	0.7%
711 Entertainment Events	40	130			2,180	2,350	8.7%
712 Entertainment Facilities	10			210	70	290	1.1%
TOTAL	1,730	130	3,220	3,220	18,710	27,010	
Percentage of Total	6.4%	0.5%	11.9%	11.9%	69.3%		100.0%

Over 90% of the occupations fall in the following NAICS/Occupation sectors. In the list below, they are sorted by NAICS, with the number of occupations in parentheses:

- NAICS 453 Misc. Retailer, SOC 11 Management (520)
- NAICS 511 Publishers, SOC 27 Arts, Design, Ent. (ADE) (3,180)
- NAICS 512 Motion Picture, SOC 27 ADE (690)
- NAICS 515 Broadcasting, SOC 27 ADE (3,830)
- NAICS 541 Professional/Scientific, SOC 11 Management (600)
- NAICS 541 Professional/Scientific, SOC 17 Architect/Engineering (3,180)
- NAICS 541 Professional/Scientific, SOC 27 ADE (6,770)
- NAICS 611 Educational Services, SOC 25 Education (2,870)
- NAICS 611 Educational Services, SOC 27 ADE (880)
- NAICS 711 Entertainment Events, SOC 27 ADE (2,180)

Within these categories, a majority of the occupations, or about 19,650, are classified in the following groups (number of occupations follows the occupation):

- Public Relations Specialists and Managers 4,220
- Architects, Except Landscape and Naval 2,870
- Librarians and Library Technicians 2,810
- Graphic Designers 2,140
- Editors 1,680
- Producers and Directors 1,290
- Photographers 1,030
- Reporters and Correspondents 900
- Radio and Television Announcers 870
- Interior Designers 830
- Broadcast Technicians 610
- Musicians and Singers 510
- Technical Writers 490

In addition to the occupations within the cluster, there are 11,530 occupations outside the cluster.

NAICS Category	Occupations by General NAICS Category (Outside Cluster)				Total	% of Total	
	11 Management	13 Business & Financial Operations	17 Architecture & Engineering	25 Education, Training, & Library			27 Arts, Design, Entertainment, Sports, & Media
Mining	-	-	-	-	60	0.5%	
Utilities	-	-	-	-	20	0.2%	
Construction	40	-	190	-	600	5.2%	
Manufacturing	20	-	-	-	210	2.0%	
Trade	120	-	-	-	520	5.6%	
Transportation	-	-	20	-	40	0.5%	
Information	90	-	-	-	330	3.6%	
Financial Activities	340	-	-	-	780	9.7%	
Management of Companies	470	-	-	-	570	9.0%	
Support Services	100	-	-	-	520	5.4%	
Health Care	130	-	-	30	770	8.1%	
Arts Entertainment	30	-	-	-	240	2.3%	
Accommodations/Food	30	-	-	-	210	2.1%	
Personal Services	170	-	210	-	1,440	15.8%	
Government Services	60	-	2,340	-	1,060	30.0%	
TOTAL	1,600	-	2,760	30	7,140	11,530	100.0%

Approximately 85% of the occupations are in the following SOC categories:

- Public Relations Specialists or Managers 5,420
- Librarians 2,280
- Marketing Managers 1,010
- Graphic Designers 640
- Architects, Except Landscape and Naval 440.

Conclusion

There are approximately 108,000 employees in Colorado's creative cluster. This includes about 72,000 covered employees and 27,000 sole proprietors.

The state's creative industries have a location quotient of 1.085, meaning our concentration of covered workers is slightly higher than the nation. This higher concentration is due to the strong presence of software publishing, particularly in Boulder County. In addition, there is a strong presence of companies in the following sectors with location quotients greater than 1.2 and employment greater than 1,000:

- Periodical publishers
- Greetings card and other publishers
- Interior design
- Architectural services
- Cable and other subscription programming
- Independent artists, writers, and performers
- Motion picture theaters.

An in-depth review of the concentrations for each of the sector will help identify potential areas where the state can develop distinctive competencies.

The sector breakdown of the companies is much different for the two groups. The sole proprietors group has a higher percentages of service and entertainment and production workers. The covered employees group has a higher percentage of goods and publishing workers. It may be easier

to evaluate the cluster from an output and occupational perspective by grouping the companies into four categories: Goods and Publishing, Trade and Leasing, Services, and Entertainment.

There are five major SOC categories in which "creative" occupations have been identified; approximately 38,000 workers are in those positions. Of the "creative" covered employees, approximately 27,000 occupations, or slightly less than 40%, are within the cluster. In addition, there are about 11,500 creative occupations outside the NAICS sectors that define the creative cluster. Occupations were not assigned to the sole proprietors because these individuals often perform many functions associated with their business. The top occupations in the cluster are:

- Public Relations Specialists and Managers
- Architects, Except Landscape and Naval
- Librarians and Library Technicians
- Graphic Designers
- Editors
- Producers and Directors
- Photographers
- Marketing Managers

The creative cluster is similar to many of Colorado's other clusters in that many company and cluster leaders understand the value of having a trained workforce. What typically is not

understood are the types of jobs within the cluster, the types of training programs available, and the types of training programs supported by companies in the cluster.

This analysis provides a foundation for which cluster leaders can begin to understand who the companies are and what their needs might be. As such, it is recommended that this

report be used as a starting point for a series of discussions with company leaders in the various groups or sectors about the type of support best offered to meet their current and evolving needs.

Appendix I - NAICS Codes Of Industries In Colorado Creative Cluster (QCEW)

Note: *indicates sector added from previous study
**indicates a percentage of the sector used.

**NAICS 312120 Breweries (%)

*NAICS 312130 Wineries

*NAICS 312140 Distilleries

NAICS 323110 Commercial lithographic printing

NAICS 323111 Commercial gravure printing

NAICS 323112 Commercial flexography printing

NAICS 323113 Commercial screen printing

NAICS 323117 Books printing

NAICS 323119 Other commercial printing

NAICS 323121 Trade binding and related work

NAICS 323122 Prepress services

*NAICS 327212 Other pressed and blown glass and glassware

*NAICS 327991 Cut stone and stone product manufacturing

NAICS 332323 Ornamental and architectural metal work mfg.

*NAICS 334612 Audio and video media reproduction

*NAICS 334613 Magnetic and optical recording media mfg.

NAICS 337212 Custom architectural woodwork and millwork

*NAICS 339911 Jewelry, except costume, manufacturing

*NAICS 339912 Silverware and hollowware manufacturing

*NAICS 339913 Jewelers' material and lapidary work mfg.

*NAICS 339942 Lead pencil and art good manufacturing

NAICS 339992 Musical instrument manufacturing

NAICS 424920 Book and periodical merchant wholesalers

*NAICS 443130 Camera and photographic supplies stores

NAICS 451130 Sewing, needlework, and piece goods stores

NAICS 451140 Musical instrument and supplies stores

NAICS 451211 Book stores

NAICS 451212 News dealers and newsstands

*NAICS 451220 Prerecorded tape, CD, and record stores

NAICS 453920 Art dealers

NAICS 511110 Newspaper publishers

NAICS 511120 Periodical publishers

NAICS 511130 Book publishers

NAICS 511191 Greeting card publishers

NAICS 511199 All other publishers

*NAICS 51210 Software publishers

NAICS 512110 Motion picture and video production

NAICS 512120 Motion picture and video distribution

NAICS 512131 Motion picture theaters

NAICS 512132 Drive-in motion picture theaters

NAICS 512191 Teleportation and postproduction services

NAICS 512199 Other motion picture and video industries

NAICS 512210 Record production

NAICS 512220 Integrated record production and distribution

NAICS 512230 Music publishers

NAICS 512240 Sound recording studios

NAICS 512290 Other sound recording industries

NAICS 515111 Radio networks

NAICS 515112 Radio stations

NAICS 515120 Television broadcasting

NAICS 515210 Cable and other subscription programming

NAICS 519110 News syndicates

NAICS 519120 Libraries and archives

*NAICS 532230 Video tape and disc rental

NAICS 541310 Architectural services

NAICS 541320 Landscape architectural services

NAICS 541340 Drafting services

NAICS 541410 Interior design services

NAICS 541420 Industrial design services

NAICS 541430 Graphic design services

NAICS 541490 Other specialized design services

NAICS 541810 Advertising agencies

NAICS 541820 Public relations agencies

NAICS 541830 Media buying agencies

NAICS 541840 Media representatives

NAICS 541850 Display advertising

NAICS 541860 Direct mail advertising

NAICS 541890 Other services related to advertising
NAICS 541921 Photography studios, portrait
NAICS 541922 Commercial photography
**NAICS 611519 Other technical and trade schools
NAICS 611610 Fine arts schools
NAICS 711110 Theater companies and dinner theaters
NAICS 711120 Dance companies
NAICS 711130 Musical groups and artists
NAICS 711190 Other performing arts companies

NAICS 711310 Promoters with facilities
NAICS 711320 Promoters without facilities
NAICS 711410 Agents and managers for public figures
NAICS 711510 Independent artists, writers and performers
NAICS 712110 Museums
NAICS 712120 Historical sites
*NAICS 712190 Nature parks and other similar institutions
*NAICS 812921 Photofinishing laboratories, except one-hour

Appendix II - NAICS Codes Of Industries In Colorado Creative Cluster (NES)

Note: *indicates a percentage of the sector used (2008).

NAICS 312 Beverage & tobacco product mfg
NAICS 3231 Printing & related support activities
*NAICS 32721 Glass & glass product mfg (7.5%)
*NAICS 3279 Other nonmetallic mineral product mfg (33.0%)
*NAICS 332 Fabricated metal product mfg (4.2%)
*NAICS 334 Computer & electronic product mfg (0.5%)
*NAICS 337 Furniture & related product mfg (6.6%)
*NAICS 339 Miscellaneous mfg (0.3%)
NAICS 42492 Book, periodical, & newspaper merchant wholesalers
NAICS 44313 Camera & photographic supplies stores
NAICS 45113 Sewing, needlework, & piece goods stores
NAICS 45114 Musical instrument & supplies stores
NAICS 451211 Book stores
NAICS 451212 News dealers & newsstands
NAICS 45122 Prerecorded tape, compact disc, & record stores
NAICS 45392 Art dealers

NAICS 511 Publishing industries (except Internet)
NAICS 5121 Motion picture & video industries
NAICS 5122 Sound recording industries
NAICS 515 Broadcasting (except Internet)
NAICS 5191 Other information services
NAICS 53223 Video tape & disc rental
NAICS 54131 Architectural services
NAICS 54132 Landscape architectural services
NAICS 54134 Drafting services
NAICS 5414 Specialized design services
*NAICS 5418 Advertising & related services (94.8%)
NAICS 54192 Photographic services
*NAICS 611 Educational services (4.7%)
NAICS 7111 Performing arts companies
NAICS 7113 Promoters of performing arts, sports, & similar events
NAICS 71141 Agents/managers for artists, athletes, & other public figures
NAICS 71151 Independent artists, writers, & performers
NAICS 7121 Museums, historical sites, & similar institutions
NAICS 81292 Photofinishing

Appendix III – Concentration of Goods and Publishing Companies (Excluding Breweries)

Number of Goods and Producing Companies, State and National Employment, and Location Quotient – Covered Employment				
NAICS Category	Colorado # of Companies	2009 CO Employment	2009 U.S. Employment	Location Quotient
NAICS 511199 All other publishers	24	1,548	13,215	6.884
NAICS 511191 Greeting card publishers	7	887	9,464	5.508
NAICS 511210 Software publishers	436	11,188	255,417	2.574
NAICS 337212 Custom architectural woodwork and millwork	27	350	16,494	1.247
NAICS 511120 Periodical publishers	257	2,507	124,788	1.181
NAICS 327991 Cut stone and stone product manufacturing	21	478	23,832	1.179
NAICS 511110 Newspaper publishers	182	4,929	279,044	1.038
NAICS 339942 Lead pencil and art good manufacturing	11	90	5,121	1.033
NAICS 323119 Other commercial printing	30	738	42,923	1.010
NAICS 332323 Ornamental and architectural metal work mfg.	87	545	35,454	0.903
NAICS 511130 Book publishers	103	1,006	75,761	0.780
NAICS 323110 Commercial lithographic printing	172	2,597	198,634	0.768
NAICS 323113 Commercial screen printing	100	774	59,961	0.759
NAICS 323121 Trade binding and related work	21	141	17,835	0.465
NAICS 334612 Audio and video media reproduction	19	89	12,890	0.406
NAICS 339911 Jewelry, except costume, manufacturing	32	113	21,113	0.315
NAICS 323122 Prepress services	21	87	18,890	0.271
NAICS 312130 Wineries	28	158	40,100	0.232
NAICS 327212 Other pressed and blown glass and glassware	10	64	16,713	0.225
NAICS 323112 Commercial flexographic printing	16	132	34,763	0.223
Other NAICS (See Note below)	32	248	64,238	-
TOTAL	1,636	28,669	1,366,650	1.233

Note: NAICS 323111 Commercial gravure printing, NAICS 339912 Silverware and hollowware manufacturing, NAICS 334613 Magnetic and optical recording media mfg., NAICS 323117 Books printing, NAICS 339992 Musical instrument manufacturing, NAICS 339913 Jewelers' material and lapidary work mfg., and NAICS 312140 Distilleries are combined. Individually each of these categories has a location quotient less than 0.4.

Appendix IV – Concentration of Trade and Leasing Companies (Excluding Trade Schools)

Number of Trade and Leasing Companies, State and National Employment, and Location Quotient – Covered Employment				
NAICS Category	Colorado # of Companies	2009 CO Employment	2009 U.S. Employment	Location Quotient
NAICS 453920 Art dealers	182	492	18,139	1.594
NAICS 451212 News dealers and newsstands	9	172	8,109	1.246
NAICS 443130 Camera and photographic supplies stores	36	242	11,443	1.243
NAICS 451130 Sewing, needlework, and piece goods stores	99	897	44,309	1.190
NAICS 451220 Prerecorded tape, CD, and record stores	48	492	24,925	1.160
NAICS 451211 Book stores	172	2,189	121,445	1.059
NAICS 451140 Musical instrument and supplies stores	72	559	31,250	1.051
NAICS 532230 Video tape and disc rental	201	1,436	86,049	0.981
NAICS 424920 Book and periodical merchant wholesalers	84	824	54,376	0.891
TOTAL	903	7,303	400,045	1.073

Appendix V – Concentration of Service Providers

Number of Service Providers, State and National Employment, and Location Quotient – Covered Employment				
NAICS Category	Colorado # of Companies	2009 CO Employment	2009 U.S. Employment	Location Quotient
NAICS 541410 Interior design services	475	1,036	33,496	1.818
NAICS 541340 Drafting services	98	257	8,563	1.764
NAICS 541320 Landscape architectural services	241	993	33,671	1.733
NAICS 541850 Display advertising	87	897	32,482	1.623
NAICS 541830 Media buying agencies	29	237	10,295	1.353
NAICS 541310 Architectural services	878	3,844	174,154	1.297
NAICS 541840 Media representatives	74	605	27,493	1.293
NAICS 541921 Photography studios, portrait	331	1,285	64,794	1.165
NAICS 611610 Fine arts schools	204	1,314	68,481	1.128
NAICS 541430 Graphic design services	531	1,186	63,757	1.093
NAICS 541890 Other services related to advertising	178	1,088	62,697	1.020
NAICS 541810 Advertising agencies	480	2,740	169,016	0.953
NAICS 541860 Direct mail advertising	81	873	54,559	0.940
NAICS 541820 Public relations agencies	264	638	48,980	0.765
NAICS 541922 Commercial photography	103	112	8,889	0.740
NAICS 541490 Other specialized design services	54	177	14,238	0.731
NAICS 541420 Industrial design services	58	128	11,884	0.633
NAICS 812921 Photofinishing laboratories, except one-hour	23	150	14,957	0.589
TOTAL	4,189	17,410	902,406	1.134

Appendix VI – Concentration of Entertainment and Production Companies

Number of Entertainment Companies, State and National Employment, and Location Quotient – Covered Employment				
NAICS Category	Colorado # of Companies	2009 CO Employment	2009 U.S. Employment	Location Quotient
NAICS 711320 Promoters without facilities	112	742	20,753	2.101
NAICS 515210 Cable and other subscription programming	40	2,833	86,052	1.935
NAICS 712190 Nature parks and other similar institutions	12	248	7,759	1.878
NAICS 711510 Independent artists, writers and performers	556	1,072	45,689	1.379
NAICS 512131 Motion picture theaters	103	2,908	129,598	1.319
NAICS 512290 Other sound recording industries	12	48	2,310	1.221
NAICS 515112 Radio stations	77	1,457	74,871	1.144
NAICS 711120 Dance companies	7	178	9,279	1.127
NAICS 711130 Musical groups and artists	95	626	35,701	1.030
NAICS 711110 Theater companies and dinner theaters	46	1,014	59,290	1.005
NAICS 712110 Museums	60	1,220	74,395	0.964
NAICS 512240 Sound recording studios	24	84	5,350	0.923
NAICS 515120 Television broadcasting	51	1,807	118,799	0.894
NAICS 711310 Promoters with facilities	36	842	70,835	0.699
NAICS 512191 Tele-production and postproduction services	30	131	15,198	0.507
NAICS 519110 News syndicates	10	76	12,043	0.371
NAICS 512110 Motion picture and video production	278	880	184,921	0.280
NAICS 711410 Agents and managers for public figures	47	76	18,485	0.242
NAICS 515111 Radio networks	29	379	96,642	0.230
NAICS 519120 Libraries and archives	10	93	28,700	0.190
Other NAICS (See Note below)	43	205	42,256	-
TOTAL	1,678	16,919	1,139,196	0.873

Note: NAICS 512220 Integrated record production and distribution, NAICS 512230 Music publishers, NAICS 711190 Other performing arts companies, NAICS 512132 Drive-in motion picture theaters, NAICS 512210 Record production, NAICS 712120 Historical sites, NAICS 512199 Other motion picture and video industries, NAICS 512120 Motion picture and video distribution are combined. Individually each of these categories has a location quotient less than 0.65.

Appendix VII - Colorado Creative Cluster Occupations

11-2011	Advertising and Promotions Managers	27-3041	Editors
11-2021	Marketing Managers	27-3042	Technical Writers
11-2031	Public Relations Managers	27-3043	Writers and Authors
13-1011	Agents & Bus. Managers of Artists, Performers, & Athletes	27-3099	Media and Communication Workers, All Other
17-1011	Architects, Except Landscape and Naval	27-4011	Audio and Video Equipment Technicians
17-1012	Landscape Architects	27-4012	Broadcast Technicians
25-4011	Archivists	27-4014	Sound Engineering Technicians
25-4012	Curators	27-4021	Photographers
25-4013	Museum Technicians and Conservators	27-4031	Camera Operators, Television, Video, and Motion Picture
25-4021	Librarians	27-4032	Film and Video Editors
25-4031	Library Technicians	27-4099	Media and Communication Equipment Workers, All Other
25-9011	Audio-Visual Collections Specialists		
27-1011	Art Directors		
27-1012	Craft Artists		
27-1013	Fine Artists, Including Painters, Sculptors, and Illustrators		
27-1014	Multi-Media Artists and Animators		
27-1019	Artists and Related Workers, All Other		
27-1021	Commercial and Industrial Designers		
27-1022	Fashion Designers		
27-1023	Floral Designers		
27-1024	Graphic Designers		
27-1025	Interior Designers		
27-1027	Set and Exhibit Designers		
27-1029	Designers, All Other		
27-2011	Actors		
27-2012	Producers and Directors		
27-2031	Dancers		
27-2032	Choreographers		
27-2041	Music Directors and Composers		
27-2042	Musicians and Singers		
27-2099	Entertainers & Performers, Sports/Related Wrkrs, All Other		
27-3011	Radio and Television Announcers		
27-3021	Broadcast News Analysts		
27-3022	Reporters and Correspondents		
27-3031	Public Relations Specialists		