Strategic Sonoma

Sonoma County Comprehensive Economic Development Strategy

DRAFT Report 2 – Target Cluster Report

Prepared for the Sonoma County EDB | March 12, 2018

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Executive Summary

Note: Executive Summary included in third phase document – Strategic Sonoma Action Plan.

01 Introduction

Introduction

In 2016, Sonoma and Mendocino Counties formed the Sonoma-Mendocino Economic Development District (SMEDD). Following guidelines from the United States Economic Development Administration (EDA), this partnership created a multi-year Comprehensive Economic Development Strategy (CEDS). By forming the SMEDD and developing a CEDS according to EDA guidelines, Sonoma and Mendocino are now eligible for certain programs and resources offered by the Federal government. This collaborative effort was an important step in strategizing for Sonoma County's future.

Following completion of the 2016 Sonoma-Mendocino CEDS, the Sonoma County Economic Development Board (EDB) identified a need for a Sonoma County-specific Action Plan. This Action Plan will provide a foundation for making decisions related to economic development in Sonoma County. In partnership with the Sonoma County Workforce Investment Board and Santa Rosa Junior College, the EDB issued a request for proposal for assistance with the strategy. Through a national search and competitive bidding process, the EDB selected Austin, Texas-based Avalanche Consulting to assist in developing this Action Plan, titled **Strategic Sonoma**.

Strategic Sonoma will build on the 2016 Sonoma-Mendocino CEDS and expand the analysis of Sonoma County's specific competitive position; assess the economic development issues most relevant to Sonoma County and prioritize needs and new opportunities; evaluate business clusters of opportunity that best match Sonoma County's assets, values, and goals; and create a five-year collaborative Action Plan tailored specifically to Sonoma County

Developing Strategic Sonoma is occurring in four phases with a series of deliverables, of which this report is the first:

Phase 1 – Refine and Expand the CEDS and Prioritize Economic Development Issues

During this phase, Avalanche Consulting and the EDB engaged with stakeholders throughout Sonoma County to hear their stories, conducted an extensive data and benchmarking analysis, examined national and international trends to monitor, refined the 2016 CEDS SWOT analysis, and developed a prioritized list of strategic issues facing Sonoma County. The results of this phase are presented in this report. *Deliverable – Competitive Assessment Report*

Phase 2 – Evaluate Clusters of Opportunity

In Phase 2, Avalanche will present a more detailed Sonoma County industry cluster analysis, recommend target clusters of opportunity for local economic and workforce development, present profiles of these clusters that include their business, workforce, and other needs; and offer an inventory of supportive resources. *Deliverable – Target Cluster Report*

Phase 3 – Develop Strategic Sonoma Action Plan

The final phase of Strategic Sonoma will be creating an actionable plan to address strategic priorities. The Action Plan will include a vision statement, strategic goals, and specific recommendations for Sonoma County economic development partners – both public and private. The Action Plan will include implementation tables with timeframes, lead and partner organizations, and metrics to track progress and provide accountability. *Deliverable – Strategic Action Plan*

Note, Strategic Sonoma began in June 2017, and midway through Phase 1, the October fires hit. Recognizing the importance of focusing on the immediate needs of county residents and businesses, the Sonoma County Board of Supervisors extended the contract with Avalanche Consulting to assist in developing an Economic Recovery Plan. Focused on the first 12 months after the fires, this Economic Recovery Plan should be viewed as the first year of Strategic Sonoma. Recommendations in the Plan will be seamlessly integrated into the longer-range, five-year Strategic Sonoma Action Plan.

Inclusive Economic Development

Economic development activities in a community are intended to serve the needs of local residents and businesses. To achieve this goal, the strategic planning process must be inclusive and directly listen to the stories of as diverse a group of stakeholders as possible. These Sonoma County voices will play a critical role in identifying their needs and the creative solutions to meet those needs.

Inclusive Economic Development was a primary theme of the 2016 Sonoma-Mendocino CEDS, and Strategic Sonoma has worked towards inclusion from initiation. Avalanche Consulting and the Sonoma County EDB engaged residents and businesses through a variety of avenues – workshops, focus groups, tours, in-person and telephone interviews, surveys, and conversations in every district of Sonoma County. Throughout this process, the team strove to include a broad diversity of perspective. The strategic planning team could not reach every individual in the county, but Strategic Sonoma emphasizes the importance of inclusion and the ongoing need to listen to local voices throughout implementation and everyday activities.

Through the planning process, the consulting team spoke directly to nearly 200 individuals representing more than 140 organizations from across the county, including:

- Access Sonoma Broadband
- Amy's Kitchen
- Boys & Girls Clubs of Central Sonoma County
- Burbank Housing
- Camelbak
- Carograph Wines
- Charles Schulz Airport
- City of Cloverdale
- City of Petaluma
- City of Santa Rosa
- Community Action Partnership
- Community Development Commission
- Community Foundation of Sonoma County
- Costeaux French Bakery
- Cotati Chamber of Commerce
- Cowgirl Creamery
- Creative Sonoma
- CTE Foundation
- Exchange Bank
- Go Local Coop
- Goodwill
- Habitat for Humanity
- Healdsburg Chamber
- Healthcare Foundation
- Hispanic Chamber of Commerce
- John Jordan Foundation
- Kaiser Permanente
- Keysight Technologies
- La Luz Center
- Labcon
- North Bay Leadership Council
- North Coast Builders Exchange
- Petaluma Chamber
- Petaluma People Services Center
- Preserve Farm Kitchens
- Redwood Credit Union
- Regional Climate Protection Agency
- Rohnert Park Chamber of Commerce
- Santa Rosa Chamber
- Santa Rosa Junior College
- Santa Rosa Press Democrat
- Sebastopol Chamber
- Sonoma Brands
- Sonoma Clean Power
- Sonoma County Alliance
- Sonoma County Office of Education
- Sonoma County Transportation Authority
- Sonoma County Water Agency
- Sonoma County Wine Growers
- Sonoma County Workforce Investment Board
- Sonoma Land Trust
- Sonoma State University
- Sonoma Valley Chamber
- Sonoma Valley Education Foundation
- Sonoma Valley Small Business Development Center
- Sonoma Valley Visitors Bureau
- St. Joseph Health
- Strauss Family Creamery
- Sutter Health
- The Family Coppola
- West County Health Center
- Windsor Chamber
- YMCA

Acknowledgements

Strategic Sonoma would not have been possible without the support of the **Sonoma County Board of Supervisors** and the hard work of the Sonoma County Economic Development Board staff, including:

Ben Stone, Executive Director

Al Lerma, Director of Business Development & Innovation

Ethan Brown, Program Manager, Business Retention & Expansion

Jack Percival, Project Coordinator, Strategic Initiatives

Funding for Strategic Sonoma and critical input also came from the **Sonoma County Workforce Investment Board, Santa Rosa Junior College**, and the **Morgan Family Foundation**. The EDB staff and consulting team would like to thank:

Jerry Miller, Senior Dean, Career & Technical Education and Economic Development, Santa Rosa Junior College

Katie Greaves, Director, Sonoma County Workforce Investment Board

And special thanks to the Strategic Sonoma Advisory Group, who have given their time and expertise to provide guidance for the strategy. The Advisory Group includes:

- **Brett Martinez** (Chair), Redwood Credit Union
- **Pam Chanter** (Chair), Vantreo Insurance
- **Bill Angeloni**, Tenzing Consulting
- **Blair Kellison**, Traditional Medicinals
- **Brian Elliot**, Fire & Emergency Services Consulting
- **Brian Ling**, Sonoma County Alliance
- **Chris Denny**, The Engine is Red
- **Chris Snyder**, Operating Engineers #3
- **Cindy Gillespie**, Amy's Kitchen
- **Craig Nelson**, Nelson Staffing
- **Cynthia Murray**, North Bay Leadership Council
- **David Guhin**, City of Santa Rosa
- **Doug Hilberman**, AXIA Architects
- **Frank Chong**, Santa Rosa Junior College
- **Herman G. Hernandez**, Youth Connections – Community Action Partnership
- **Jennifer Edwards**, The Passdoor
- **John Burns**, Sonoma Media Investments
- **Judy Coffey**, Kaiser Permanente
- **Karissa Kruse**, Sonoma County Winegrowers
- **Kathy Goodacre**, CTE Foundation
- **Larry Florin**, Burbank Housing
- **Lisa Wittke Schaffner**, John Jordan Foundation
- **Margaret VanVliet**, Community Development Commission
- **Mia Bowler**, Friedemann Goldberg LLP
- **Oscar Chavez**, County of Sonoma – Human Services
- **Patricia Shults**, Sonoma Valley Chamber
- **Patrick Harper**, Keysight Technologies
- **Percey Brandon**, Vintners Inn
- **Rick Toyota**, The Family Coppola
- **Suzanne Smith**, Sonoma County Transportation Authority
- **Tom Scott**, Oliver's Markets

About this Report

This Target Cluster Report includes a detailed analysis of Sonoma County's current industry and occupation trends, recommended target clusters of opportunity, and profiles of each of these clusters. The profiles are intended to educate Sonoma County leadership, businesses, and residents about each cluster, their niche sector opportunities, the business and workforce factors that influence their growth, and an inventory of supportive local resources.

Targeting specific industry clusters is an important component of economic development. No community can be all things to all businesses and people. In order to make the best use of economic, workforce, and community development investments, Sonoma County most focus on those industry clusters that present the greatest opportunities and support community goals – related to economic inclusion, building a more resilient and sustainable economy, and growing the prosperity of residents.

Identifying target clusters is an iterative process – looking at a community's existing industry base, assets that support growth, and local values and goals. Target clusters represent a mix of opportunities for growth – including expanding and retaining strong existing clusters while identifying clusters with high growth potential through entrepreneurial activity and outside attraction. Ongoing conversations with Sonoma County stakeholders through the Strategic Sonoma planning process combined with extensive data analysis and the consultants national perspective have helped identify a range of diverse opportunities for Sonoma County.

This report is divided into three sections:

Industry Cluster Analysis

A detailed analysis of recent and forecast industry cluster trends in Sonoma County. This section looks at the size, growth, and relative concentration of all major industry and occupation clusters in Sonoma County. This analysis helps better understand local competitive strengths and opportunities.

Target Cluster Recommendations

A description of how target clusters were identified for Sonoma County and a summary of the recommended target clusters and their niche sectors.

Target Cluster Profiles

Detailed profiles of each target cluster. These profiles include an overview of the cluster, descriptions of their supportive niche sectors, discussion of the cluster's top workforce and education needs, and a summary of supportive resources in Sonoma County.

02

Industry Cluster Analysis

Introduction

This section provides a detailed examination of industry and occupational composition in Sonoma County. The analysis highlights recent employment trends – including cluster size, growth rates, and relative concentration to the US average. Current baseline growth forecasts are discussed for each cluster. Note – these forecasts are based on past trends and current constraints and ideally do not reflect the potential for greater growth due to proactive economic development and other investments countywide that will result from Strategic Sonoma.

The industry and occupational cluster analysis uses Location Quotients. Location Quotients, also called “LQs”, represent the relative concentration or density of a specific cluster in a region compared to the US average. For example, a 1.5 LQ indicates that the location has 50% more jobs as a share of the overall economy than the US. This usually indicates local competitive strengths in that cluster. Note that because LQs are a relative measure, a high concentration in one cluster means that others will have lower concentrations.

The “bubble chart” on the following page combines LQs, growth, and relative size to illustrate a snapshot of Sonoma County’s cluster performance. The horizontal axis displays employment growth of each cluster. The vertical axis shows the LQ or relative concentration. The size of each bubble indicates the number of local jobs in the cluster. Generally clusters can be grouped in four categories as described in the map below:

HIGHER CONCENTRATION

TOP LEFT – STRONG BUT DECLINING

Contains clusters that are more concentrated in the region but are declining (negative employment growth). Over time, these clusters may fall to the bottom left as job losses eventually lead to declining concentration.

TOP RIGHT – STRONG & ADVANCING

Contains clusters that are more concentrated in the region and are growing. These clusters are usually built on highly competitive local assets and are also experiencing strong national and international growth.

NEGATIVE GROWTH ← → **POSITIVE GROWTH**

BOTTOM LEFT – WEAK & DECLINING

Contains clusters that are under-represented in the region (low concentration) and are also losing jobs. In general, clusters in this quadrant reveal a lack of competitiveness.

BOTTOM RIGHT – WEAK BUT ADVANCING

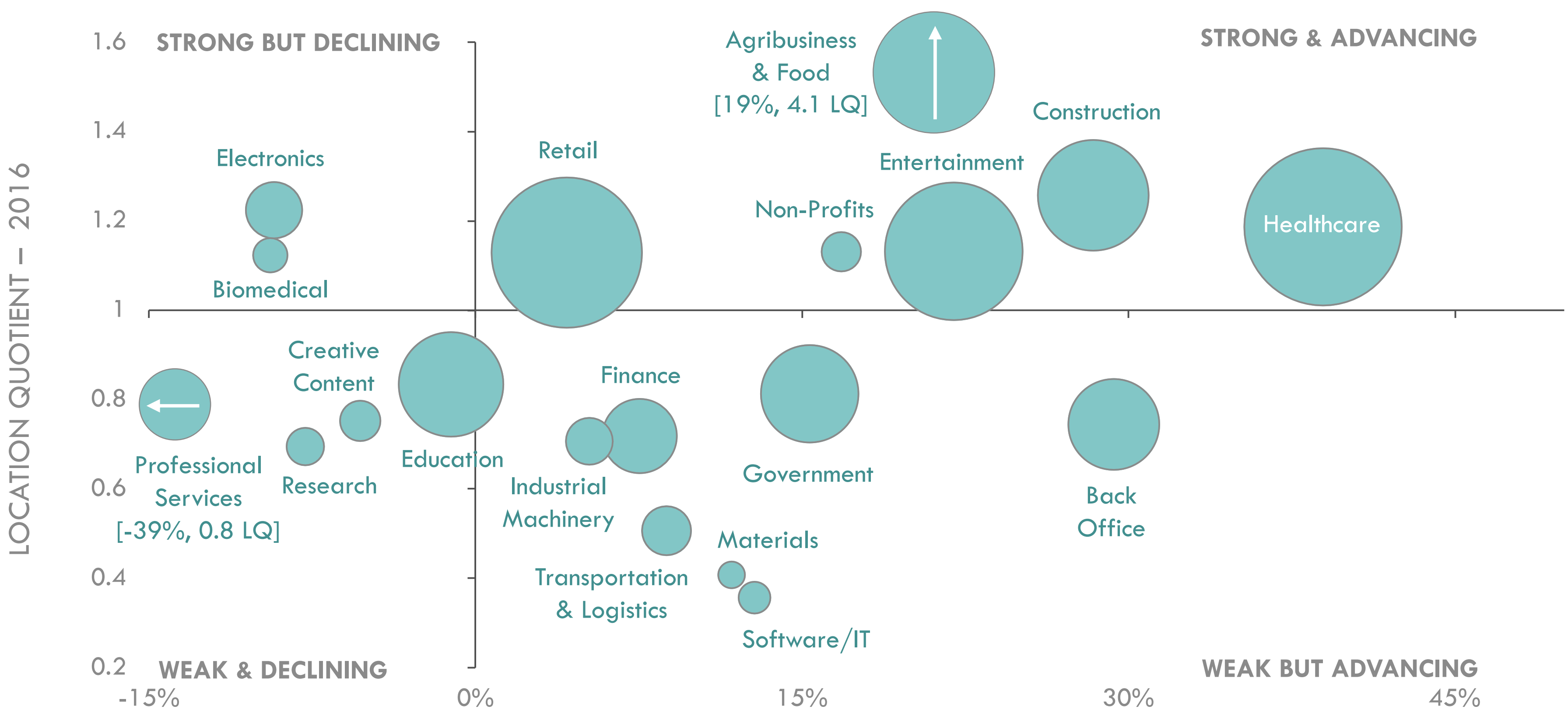
Contains clusters that are under-represented in the region but are growing. If growth continues, these clusters will eventually move into the top-right quadrant. These are generally considered “emerging” clusters.

LOWER CONCENTRATION

Sonoma County Recent Cluster Performance

Sonoma County has a relatively diverse range of industry clusters, and nearly all clusters experienced strong growth in recent years. In 2016, the largest Sonoma County clusters by employment were **Healthcare** (32,820 jobs), **Retail** (30,000), **Entertainment** (25,200), **Agribusiness & Food** (17,970), and **Education** (14,650). With the exception of Education, all these clusters created jobs between 2011 and 2016. **Healthcare** was the fastest growing industry cluster over this period – adding 9,200 local jobs at a growth rate of 39%. The next fastest growing clusters were **Back Office** (2,520 new jobs, 29% growth), **Construction** (3,630, 28%), **Entertainment** (4,540, 22%), and **Agribusiness & Food** (2,890, 19%).

SONOMA COUNTY MAJOR INDUSTRY CLUSTERS – 2016



LOCAL GROWTH, 2011 - 2016

SOURCE: EMSI / AVALANCHE CONSULTING

Sonoma County Recent Cluster Performance

By far Sonoma County's most concentrated industry cluster is **Agribusiness & Food,** with an LQ of 4.1 – meaning the local cluster is 410% more concentrated than the US average. Other clusters with above average concentration in Sonoma County are **Construction** (1.3 LQ), **Healthcare** (1.2 LQ), **Electronics** (1.2 LQ), **Biomedical** (1.1 LQ), **Entertainment** (1.1 LQ), **Consumer Goods Manufacturing** (1.1 LQ), **Non-Profits** (1.1 LQ), and **Retail** (1.1 LQ).

Notably, most of these highly concentrated clusters in Sonoma County were in the Strong & Advancing category, except Electronics and Biomedical, which experienced some job losses in recent years.

Sonoma County has many industry clusters in the Weak But Advancing, or "Emerging," category. These are promising clusters that are less concentrated today but are growing rapidly – indicating they will become more concentrated over time. Emerging Sonoma County clusters include **Back Office** (0.7 LQ, 29% growth), **Software / IT** (0.4 LQ, 13%), **Finance** (0.7 LQ, 8%), **Materials** (0.4 LQ, 12%), **Industrial Machinery** (0.7 LQ, 5%), and **Transportation & Logistics** (0.5 LQ, 9%).

Only a few Sonoma County clusters were both less concentrated and lost jobs in recent years. These clusters included **Professional Services** (0.8 LQ, -39% growth), **Research** (0.7 LQ, -8%), **Creative Content** (0.87 LQ, -5%), and **Education** (0.8, -1%).

Industry Cluster	**2016 Jobs**	**2016 LQ**	**2011-16**		
			Net New	**% Growth**	**US %**
Aerospace	17	0.0	4	30.8%	0.6%
Agribusiness & Food	17,967	4.1	2,890	19.2%	8.1%
Apparel & Textiles	448	0.6	58	14.9%	-2.8%
Automotive	277	0.1	(59)	-17.6%	21.9%
Biomedical	1,683	1.1	(175)	-9.4%	6.3%
Back Office	11,122	0.7	2,523	29.3%	16.2%
Construction	16,400	1.3	3,627	28.4%	18.4%
Creative Content	2,293	0.8	(128)	-5.3%	0.8%
Education	14,649	0.8	(165)	-1.1%	2.5%
Electronics	4,357	1.2	(444)	-9.2%	1.2%
Energy	866	0.4	160	22.7%	-5.3%
Entertainment	25,201	1.1	4,542	22.0%	16.2%
Finance	7,490	0.7	526	7.6%	6.7%
Furniture	595	0.8	69	13.1%	11.4%
Consumer Goods Mftg	1,020	1.1	45	4.6%	3.4%
Government	12,763	0.8	1,700	15.4%	0.1%
Healthcare	32,821	1.2	9,201	39.0%	13.2%
Industrial Machinery	3,052	0.7	152	5.2%	3.4%
Software / Info. Tech.	1,451	0.4	165	12.8%	29.7%
Transportation & Logistics	3,330	0.5	269	8.8%	16.3%
Materials	1,044	0.4	110	11.8%	3.7%
Metalworking	823	0.3	24	3.0%	4.4%
Mining & Loggin	210	0.7	43	25.7%	3.2%
Non-Profits	2,181	1.1	314	16.8%	3.4%
Professional Services	4,959	0.8	(3,200)	-39.2%	7.9%
Research	1,983	0.7	(168)	-7.8%	18.0%
Retail	29,995	1.1	1,210	4.2%	5.7%
Shipbuilding	4	0.0	-	0.0%	9.8%
Telecom Services	980	0.9	274	38.8%	-8.9%
Total	**201,024**	**-**	**23,866**	**13.5%**	**9.2%**

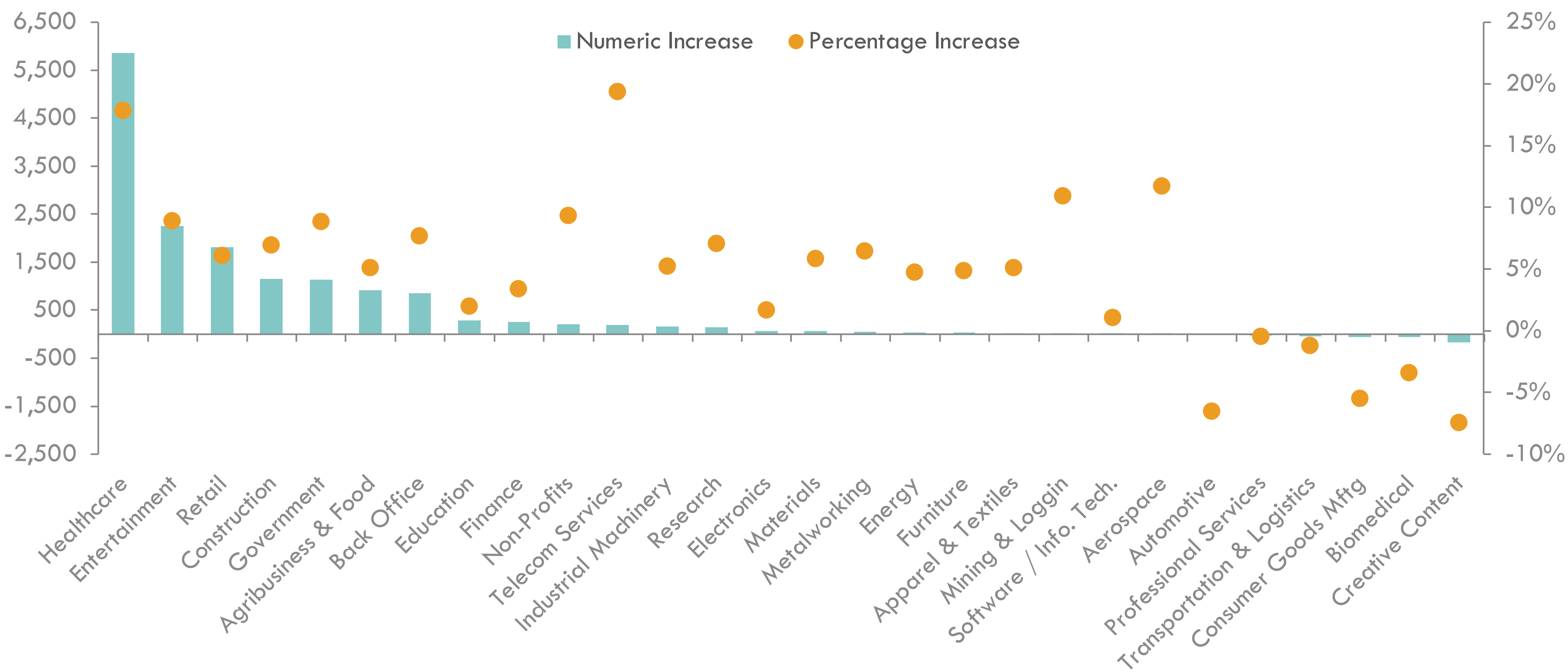
SOURCE: EMSI / Avalanche Consulting

Sonoma County Forecast Cluster Growth

Baseline employment forecasts are based on past trends and current constraints. Although useful for planning purposes, forecasts should not be taken as absolute. The future always remains uncertain, and ideally, new proactive economic and workforce development efforts that result from Strategic Sonoma will lead to enhanced outcomes.

Current forecasts anticipate growth across most industry clusters in Sonoma County, but slightly slower growth in the overall economy than recent years. Forecasts from EMSI predict Sonoma County will add 15,630 new jobs between 2016 and 2021 – a growth rate of 7.8% - compared to 13.5% growth in the previous five years. This forecast growth is still higher than the forecast for national job growth (6.4%).

SONOMA COUNTY PROJECTED EMPLOYMENT GROWTH BY INDUSTRY CLUSTER
2016 – 2021



SOURCE: EMSI / AVALANCHE CONSULTING

Sonoma County Forecast Cluster Growth

From 2016 to 2021, the Healthcare cluster is forecast to lead Sonoma County's job growth. **Healthcare** is projected to create 5,850 new jobs over this period – a growth rate of 18%. The clusters with the next highest local job creation forecasts are **Entertainment** (2,250 new jobs, 9% growth), **Retail** (1,820, 6%), **Construction*** (1,150, 7%), **Government** (1,130, 9%), **Agribusiness & Food** (920, 5%), and **Back Office** (860, 8%).

Only a handful of local clusters are currently projected to lose employment. These include **Creative Content** (-170 jobs, -7% growth), **Biomedical** (-57, -3%), **Consumer Goods Manufacturing** (-56, -6%), **Transportation & Logistics** (-39, -1%), **Professional Services** (-22, 0%), and **Automotive** (-18, 7%).

A number of Sonoma County clusters are expected to outperform national trends. **Apparel & Textiles** is forecast to grow 5% locally compared to -8% nationally. **Industrial Machinery** has a 5% local forecast versus 3% nationally. **Materials** has a 6% local forecast versus -1% nationally. **Metalworking** has a 6% local forecast versus 3% nationally. **Non-Profits** are expected to grow well at 9% compared to 3% nationally, and **Telecom Services** are forecast to grow 19% in Sonoma County while declining 5% nationally.

Note – Construction forecasts were generated before the October 2017 fires. Sonoma County is expected to need significantly more construction workers over the next decade to assist with building efforts.

Industry Cluster	2016 Jobs	2016 LQ	Forecast, 2016-21		
			Net New	% Growth	US %
Aerospace	17	0.0	2	11.8%	0.9%
Agribusiness & Food	17,967	4.1	923	5.1%	4.0%
Apparel & Textiles	448	0.6	23	5.1%	-7.6%
Automotive	277	0.1	(18)	-6.5%	4.9%
Biomedical	1,683	1.1	(57)	-3.4%	6.5%
Back Office	11,122	0.7	858	7.7%	8.2%
Construction	16,400	1.3	1,146	7.0%	6.6%
Creative Content	2,293	0.8	(170)	-7.4%	-1.3%
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Healthcare	32,821	1.2	5,853	17.8%	12.5%
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Materials	1,044	0.4	61	5.8%	-1.1%
Metalworking	823	0.3	53	6.4%	2.5%
Mining & Loggin	210	0.7	23	11.0%	2.8%
Non-Profits	2,181	1.1	204	9.4%	3.2%
Professional Services	4,959	0.8	(22)	-0.4%	5.6%
Research	1,983	0.7	141	7.1%	13.7%
Retail	29,995	1.1	1,822	6.1%	5.1%
Shipbuilding	4	0.0	-	0.0%	2.5%
Telecom Services	980	0.9	190	19.4%	-4.7%
Total	**201,024**	**-**	**15,631**	**7.8%**	**6.4%**

SOURCE: EMSI / Avalanche Consulting

Major Occupation Cluster Trends

Examining the Major Occupation Cluster in Sonoma County helps reveal workforce strengths that support a variety of industries. The most concentrated (highest LQ) occupation clusters in Sonoma County are **Agriculture** (3.4 LQ), **Architecture** (1.3 LQ), **Construction** (1.2 LQ), **Design** (1.2 LQ), **Hospitality** (1.2 LQ), and **Personal Services** (1.1 LQ).

The largest occupation clusters in Sonoma County are **Hospitality** (33,410 jobs), **Back Office** (25,830), **Personal Services** (22,210), **Medical** (21,990), and **Logistics** (17,360).

From 2011 to 2016, all occupation clusters experienced growth in Sonoma County except **Financial** – which declined by 1,090 jobs. Nearly all occupations saw higher growth rates than the US average over this period.

The fastest growing occupation clusters were **Construction** (38% growth), **Social Services** (24%), **Architecture** (23%), **Medical** (22%), **Mechanics** (21%), and **Hospitality** (21%).

The occupations that created the most new jobs over this period were **Hospitality** (5,690 new jobs), **Medical** (3,980), **Construction** (2,640), **Logistics** (2,320), and **Back Office** (1,750).

Occupation Cluster	2016 Jobs	2016 LQ	2011-16 Net New	2011-16 % Growth	2011-16 US %
Agriculture	5,291	3.4	249	4.9%	7.5%
Architecture	310	1.3	58	23.0%	13.5%
Back Office	25,831	0.9	1,749	7.3%	6.9%
Business	6,895	1.0	930	15.6%	10.4%
Communications	645	0.7	69	12.0%	7.5%
Computer	3,955	0.6	122	3.2%	13.4%
Construction	9,507	1.2	2,635	38.3%	17.5%
Design	1,505	1.2	189	14.4%	8.1%
Education	12,446	1.0	651	5.5%	3.6%
Engineering	4,190	1.0	332	8.6%	6.4%
Financial	4,486	0.7	(1,092)	-19.6%	9.7%
Geology	82	0.3	7	9.3%	-14.8%
Hospitality	33,408	1.2	5,685	20.5%	13.5%
Legal	1,001	0.5	28	2.9%	3.0%
Logistics	17,361	0.9	2,318	15.4%	11.0%
Math	77	0.3	7	10.0%	19.0%
Mechanics	6,905	0.9	1,218	21.4%	9.8%
Medical	21,991	1.0	3,978	22.1%	11.5%
Plant Operators	353	0.7	38	12.1%	2.3%
Sales & Marketing	1,443	1.0	157	12.2%	9.9%
Performance	565	0.7	51	9.9%	9.8%
Political	123	0.7	14	12.8%	4.1%
Production	12,555	1.0	1,401	12.6%	7.3%
Personal Services	22,212	1.1	1,628	7.9%	6.5%
Social Service	7,896	0.9	1,502	23.5%	6.1%
Total	**201,024**	-	**23,866**	**13.5%**	**9.2%**

SOURCE: EMSI / Avalanche Consulting

03

Target Cluster Recommendations

Target Cluster Identification

Target selection is not an exact science – no single mathematical formula can identify the perfect target clusters. Target selection is instead an iterative process – combining both quantitative and qualitative information. Through a process of data analysis and conversations across the community, target clusters and supporting niche sectors are identified and tailored to Sonoma County's specific assets, needs, and opportunities.

The data analysis and stakeholder input conducted through Strategic Sonoma and presented in the Competitive Assessment and previous sections of this report provide a baseline for recommending specific target clusters.

A sample of key filters considered when identifying target clusters are shown below. Throughout the process of identifying target clusters, the consulting team considered whether the cluster will make Sonoma County's economy more diverse, resilience, and environmentally sustainable.

1. Is the cluster growing and projected to grow within the county, region, and the US?

Examining national and international trends helps understand if the target cluster will continue to grow and create future opportunities in Sonoma County.

2. What clusters have an existing presence in the region?

Clusters with an existing concentration in the region demonstrate local competitive strengths and present some of the best opportunities for expansion, recruitment, and startup growth.

3. Which clusters are best suited to the county's assets?

Strategic Sonoma examined assets in Sonoma County across a variety of topics. The ability of these assets to support cluster ecosystems and expanded activity is an important filter.

4. Which clusters align with the county's goals and values?

Each cluster was evaluated on whether it reinforces the goals and values identified by Sonoma County stakeholders through conversations, interviews, and focus groups conducted throughout Strategic Sonoma.

Target Cluster Recommendations

Through the identification process discussed in the preceding sections, Avalanche Consulting recommends the following target cluster and niche sectors for Sonoma County.

ADVANCED TECHNOLOGY

Additive Manufacturing
Aerospace
Medical Technology

AGRICULTURE & FOOD

Agriculture Technology
Cannabis
Local Food
Specialty Food
Wine & Beverages

HEALTHCARE

Healthcare Providers
Performance Medicine
Wellness

HOSPITALITY & RECREATION

Athletic Training
Creative Arts
Outdoor Recreation & Environmental Education

OUTDOOR PRODUCTS & CRAFT GOODS

Cycling Products
Locally-Made Products
Outdoor Apparel & Equipment

PROFESSIONAL SERVICES & IT

Banking & Personal Finance
Freelancers & Entrepreneurs
Software / IT

Sonoma County Opportunity

Advanced Technology

Sonoma County has long been home to companies specializing in Advanced Technology, especially medical technology and other complex electronics. Although many parts of the actual manufacturing process have shifted to other locations, companies still thrive in Sonoma County partially due to the availability of highly skilled technology workers and innovators. This export-oriented cluster pays high salaries and brings a range of career opportunities to residents.

Agriculture & Food

Sonoma County's climate and geography have long made it a center for the production of agricultural products – including apples, grapes, livestock, and much more. Changing technology, laws, and consumer preferences continue to drive innovation in this cluster and create new business opportunities well matched to Sonoma County's assets – from specialty and local food production to the emerging legal cannabis market.

Healthcare

Healthcare is one of the largest existing employers in Sonoma County, and this cluster provides a vital service to the residents of Sonoma County and the broader Northern California region that the local hospitals and doctors serve. Ensuring a stable and sustainable Healthcare cluster requires ongoing workforce development efforts to supply employers with skilled workers as well as opportunities in specialized niche sectors that serve the residents of Sonoma County.

Hospitality & Recreation

Sonoma County's reputation as a destination continues to grow – drawing in visitors from across the state, nation, and globe to enjoy the natural beauty, recreation activities, wine and other local products, and much more. In support of traditional hospitality jobs, this cluster presents strong opportunities to provide ancillary services that pay higher salaries and diversify the overall cluster.

Outdoor Products & Craft Goods

There is a strong Maker culture in Sonoma County that when combined with natural beauty, endurance sports, geographic location in a major metropolitan region, and a strong global brand for the county, creates numerous opportunities for businesses that design, test, and manufacture a range of Outdoor Products & Craft Goods. The rapidly growing eCommerce market allows Sonoma County makers to sell their goods to customers around the globe.

Professional Services & IT

Professional Services & IT covers a range of services from banking to information technology support that directly serve local businesses.. Technology underlies nearly all industries today, and companies often contract with partners for website, data management, and other services. Communication technology has also allowed businesses to serve clients across the globe from any internet connected location, and for individuals to support their businesses from remote offices as well. This trend opens opportunities for continued growth in locations outside of urban cores with an attractive quality of life and supportive resources.

04

Target Cluster Profiles

Introduction

The Target Cluster Profiles on the following pages provide more detailed information about each cluster and its niche sectors. This information allows Sonoma County to better understand the dynamics, business needs, and workforce needs of each cluster. In turn, this information will help better develop strategic business and workforce development programs to help expand existing opportunities and support important Sonoma County clusters.

Each profile begins with a Cluster Overview describing the nature of the industry – employment trends, the factors that influence location and growth of the cluster, and the global forces affecting these dynamics.

The profiles then provide descriptions of each niche sector and the opportunity they present for Sonoma County.

Next, the profiles describe the primary Workforce & Education needs of the cluster – focusing on the top twenty-five occupations that support the cluster and the education requirements of each.

Lastly, the profiles conclude with an inventory of Industry Resources in Sonoma County. These are intended to facilitate business development and marketing. They describe the assets and resources in Sonoma County that provide competitive advantages for each local cluster.

Advanced Technology

Cluster Overview

The Advanced Technology Industry includes companies that design and manufacture products heavily dependent on technological innovation. Within Sonoma County, recommended Advanced Technology niche clusters include Additive Manufacturing, Aerospace, and Medical Technology.

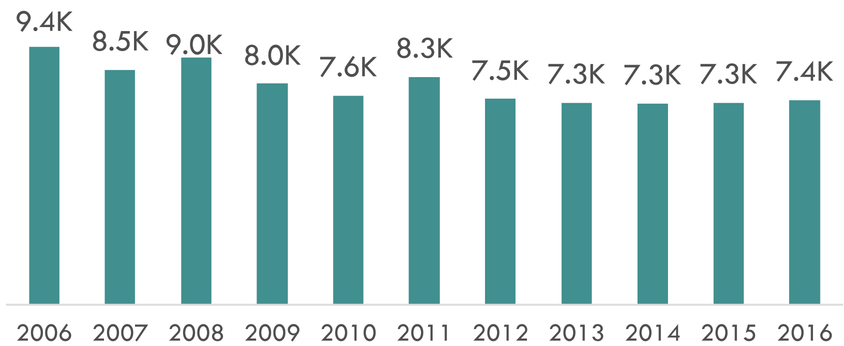
Advanced Technology products often incorporate complex materials, circuitry, computer-operated machinery, and other sophisticated engineering in the design and production process. Advanced Technology is used to produce innovation-intensive products such as aircraft, including unmanned aerial vehicles (UAV), mobile devices, and semiconductors. The sector is highly automated, a dynamic that has increased its overall competitiveness. Automation has also reduced the number of workers needed to support such operations while simultaneously increasing the demand for specialized skills among the remaining workers.

Advanced Technology companies often prefer locations with affordable and redundant utilities, strong technical training programs that support workforce development, aligned university research and development expenditures, and extensive transportation infrastructure.

Beginning the 1970s, the fortunes of Advanced Technology and manufacturing began to divergence. The production of many products that were previously designed *and* manufactured in thee US was increasingly offshored to foreign locations with lower labor costs, fewer worker protections, and a less burdensome regulatory climate. While domestic Manufacturing has recently enjoyed a resurgence, the headquarters, administration, and research & development operations of Advanced Technologies have continued to increase employment even in otherwise lean years. The Advanced Technology industry, as well as other sectors like Information Technology, continue to invest heavily in R&D – US R&D expenditures have increased for five consecutive years.

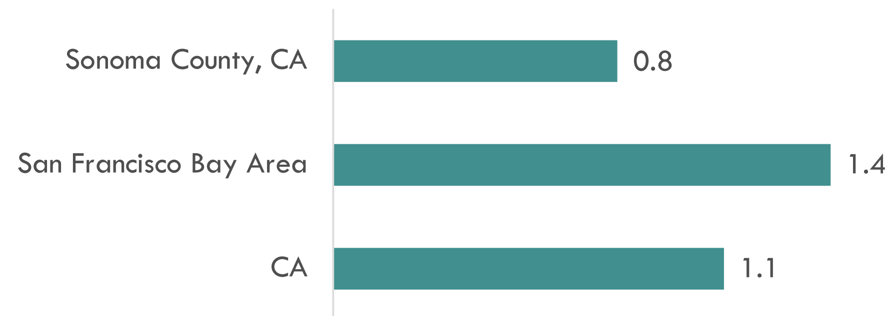
The Advanced Technology cluster is currently slightly less concentrated in Sonoma County than average – with an LQ of 0.8 – but it is 40% more concentrated in the Bay Area overall. Cluster employment declined 10% in Sonoma County over the past five years but grew 15% in the Bay Area – nearly four times faster than the national average. Overall and in Sonoma County the Advanced Technology cluster pays salaries well above average.

ADVANCED TECHNOLOGY
SONOMA COUNTY EMPLOYMENT, 2006 – 2016



SOURCE: EMSI / Avalanche Consulting

ADVANCED TECHNOLOGY
LOCATION QUOTIENT (LQ) – 2016



SOURCE: EMSI / Avalanche Consulting

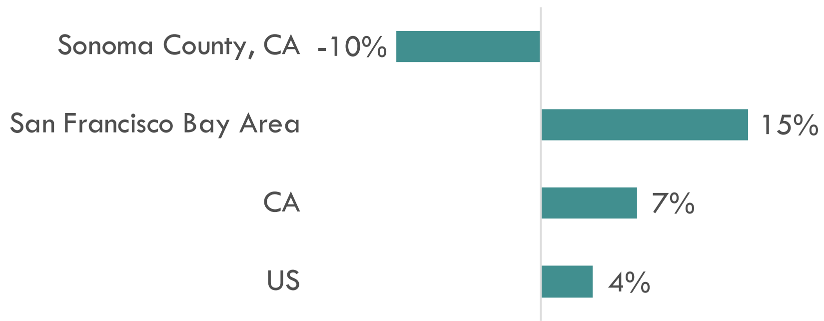
Niche Sectors

Additive Manufacturing – Traditionally, manufacturing has involved subtractive methods such as milling and drilling in which material is removed from a larger object. Additive manufacturing involves the production of an object by placing ultrathin layers of material on top of one another. Although Additive manufacturing has long been used to create prototypes, its use has become more widespread in recent years. Additives use far fewer materials than conventional manufacturing techniques, resultaing in lighter products and significant cost savings. As a result, Additive Manufacturing is becoming increasingly adopted in advanced industries such as aerospace. Continued growth across a variety of industries such as motor vehicles, medical supplies, and consumer products projected to drive Additive Manufacturing growth in the years ahead.

Aerospace – Aerospace includes the development and manufacture of aircraft, engines, component parts, missiles, and space vehicles. Aircraft manufacturing is the largest and fastest-growing subsector of the cluster. The civilian Aerospace market is projected to enjoy continued growth in the years ahead. A dramatic increase in international air travel over the next several decades, for example, is expected to fuel the need for a large number of new aircraft. In addition to traditional markets such as aircraft manufacturing, emerging sub-markets such as unmanned aerial vehicles and commercial spacecraft are also expected to drive industry growth.

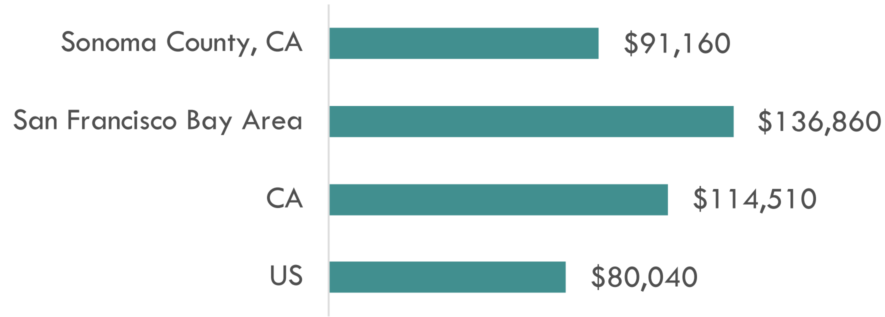
Medical Technology – The Medical Technology sector, dubbed MedTech, encapsulates the convergence of software, services, and devices that address human healthcare needs. Growth in this sector is primarily driven by technological advances and demographic reality. MedTech companies often cluster in regions that boast a combination of research hospitals, existing firms, a workforce rich in talent, and a population that facilitates the testing of new products and services. Within the US, an aging population provides a growing, lucrative market for a variety of healthcare products, including Medical Technology. Abroad, rising levels of both income and healthcare spending also support growing market opportunities for

ADVANCED TECHNOLOGY
EMPLOYMENT GROWTH, 2011 – 2016



SOURCE: EMSI / Avalanche Consulting

ADVANCED TECHNOLOGY
AVERAGE SALARY, 2016



SOURCE: EMSI / Avalanche Consulting

Niche Sectors

domestic MedTech businesses. Communities that serve broader, more rural regions may have additional related opportunities related to Telemedicine.

Green Technology – The Green Technology niche sector covers a broad range of activities focused on converting renewable energy resources into useable fuels and electricity, storing electricity, and transmitting electricity. This niche sector includes the direct manufacturing of components, equipment, and devices for creating renewable energy alongside related conservation products such as energy efficient household items. Efforts to make energy production and utilization more efficient are fueling innovations in motors and generators. The development of renewable energy resources had bolstered production of wind turbines, photovoltaic solar cells, and biological energy sources – the irregular production of renewable energy contributes to research into energy storage and battery technology.

SOURCE: EMSI / Avalanche Consulting

Workforce & Education

Nationally, the Advanced Technology cluster is reliant on a range of skilled and unskilled positions. The top twenty-five occupations supporting this cluster include **Team Assemblers** (6% of cluster jobs), **Supervisors of Production Workers** (3%), **Inspectors** (3%), **Machinists** (3%), and **Welders** (2%). Although technically these jobs minimally require a high school degree for entry level positions – Machinists, Welders and others generally require more on-the-job training or additional certificates.

More advanced education programs in this cluster are focused on **Industrial Engineers** (2% of jobs), **Mechanical Engineers** (2%), **Systems Software Developers** (1%), and numerous industrial and operations managers.

Among the top 25 occupations in the Advanced Technology cluster, Sonoma County has the highest existing concentrations in **Packaging & Filling Machine Operators** (2.7 LQ, 1,500 jobs), **Mixing & Blending Machine Operators** (2.3 LQ, 420), **Industrial Production Managers** (1.6 LQ, 380), **General & Operations Managers** (1.3 LQ, 3,970), and **General Maintenance & Repair Workers** (1.1 LQ, 2,160).

SOC Code	Advanced Technology Occupation	Share of Cluster Jobs	Minimum Entry Level Education	2016 Jobs	2016 LQ	2011-16 Net New	2016 Avg. Salary
51-2092	Team Assemblers	6%	High School	809	0.5	-22	$34.9K
51-1011	Supervisors of Production Workers	3%	High School	723	0.8	49	$63.0K
51-9061	Inspectors, Testers, & Weighers	3%	High School	553	0.8	25	$44.4K
51-4041	Machinists	3%	High School	220	0.4	-10	$52.7K
51-4121	Welders, Cutters, & Solderers	2%	High School	416	0.8	31	$48.7K
51-2022	Electrical & Elec. Equip. Assemblers	2%	High School	282	0.9	-78	$40.0K
17-2112	Industrial Engineers	2%	Bachelor's	287	0.8	-3	$98.7K
17-2141	Mechanical Engineers	2%	Bachelor's	130	0.3	-16	$96.0K
11-1021	General and Operations Managers	2%	Bachelor's	3,971	1.3	651	$117.2K
51-4072	Molding & Casting Mach. Operators	2%	High School	119	0.6	-28	$29.8K
53-7062	Laborers & Material Movers, Hand	2%	None	3,184	0.9	410	$30.3K
41-4012	Sales Representatives	2%	High School	2,237	1.1	238	$70.6K
51-4031	Cutting, Punch., & Press. Mach. Oper.	2%	High School	162	0.6	-8	$43.9K
43-5071	Shipping, Receiving, & Traffic Clerks	1%	High School	873	0.9	63	$35.3K
15-1133	Software Dev., Systems Software	1%	Bachelor's	352	0.6	-15	$129.7K
49-9071	Maint. & Repair Workers, General	1%	High School	2,161	1.1	258	$48.8K
51-4011	CNC Machine Tool Operators	1%	High School	63	0.3	-7	$39.4K
51-9111	Packaging & Filling Mach. Oper.	1%	High School	1,499	2.7	341	$32.8K
51-9198	Helpers--Production Workers	1%	None	544	0.9	68	$28.6K
43-9061	Office Clerks, General	1%	High School	3,900	0.8	66	$39.9K
43-4051	Customer Service Representatives	1%	High School	2,328	0.6	139	$40.6K
49-9041	Industrial Machinery Mechanics	1%	High School	383	0.8	57	$52.0K
51-9011	Chemical Equipment Operators	1%	High School	21	0.2	4	$46.2K
11-3051	Industrial Production Managers	1%	Bachelor's	382	1.6	44	$98.3K
51-9023	Mixing & Blending Mach. Oper.	1%	High School	417	2.3	93	$36.0K

SOURCE: EMSI / Avalanche Consulting

Industry Resources

- Sonoma County has a strong existing base of Advanced Technology companies – with a distinct cluster around medical technology and measurement devices. Existing companies include Keysight Technologies and Medtronic.
- The San Francisco Bay Area is the world's leading center for research and development of new technologies. Ongoing research at neighboring universities and private companies drive innovation in Advanced Technology and make Sonoma County an attractive location for related business activities.
- Developing, recruiting, and retaining talented employees is one of the greatest challenges for Advanced Technology employers. Sonoma County has a highly educated population, and many residents are trained in specialized areas related to this field. Interviews with existing employers revealed that availability of talent – particularly engineers – is what continues to make Sonoma County a competitive location in this cluster.
- Sonoma State University offers programs through its School of Science and Technology that support a range of Advanced Technology training development.
- Santa Rosa Junior College strong and expanding supportive Career and Technical Education programs, and departments of Applied Technology & Engineering, Computer Studies, and Industrial Trade Technology. They continue to expand their apprenticeship programs. In partnership with the Sonoma County Career & Technical Education Foundation, Sonoma County Office of Education, K-12 schools, and private employers, the local education system is developing strong pathways to connect skilled students with employers.
- Sonoma County is more affordable than many other locations within the San Francisco Bay Area and offers a highly desirable quality of life – making it an attractive location for employers looking to recruit and retain top level talent.
- Charles M. Schulz Sonoma County Airport has adjacent land that could be further utilized for business development in Aerospace – particularly testing and development of UAV and other new technology.

Agriculture & Food

Cluster Overview

The Agricultural & Food sector involves the production, processing, and sales of crops and livestock agricultural products in both raw forms and finished products. Within Sonoma County, recommended niche sectors include Agriculture Technology, Cannabis, Farm-to-Table, Specialty Food, and Wine & Beverages.

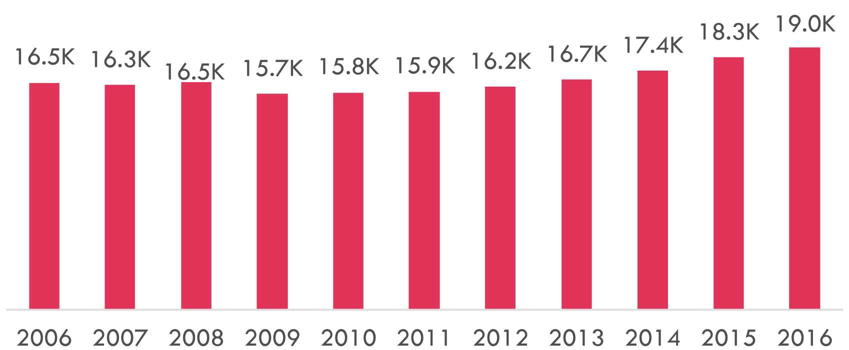
Agricultural & Food Sciences operations are highly dependent on geographic providence. Crop and animal production rely on natural resources, including the availability of land, types of soil, climate, and water abundance. These subsectors also benefit from proximity to distribution channels for their harvested products, including highway, rail lines, and waterways. Processing, packaging, and other related facilities frequently locate near the point of crop and animal production.

California remains a leading provider of Agricultural & Food products. The state accounts for the overwhelming share of domestic production of a variety of crops, including artichokes, broccoli, cauliflower, and garlic. In Sonoma County, Agricultural & Food employment has risen by more than 15% during the past decade.

While the agriculture has been around for more than 10,000 years, the modern Agricultural & Food sector continues to evolve in response to a multitude of environmental, political, and demographic changes. A warming planet will require farmers to device new strategies to combat more frequent heat waves, altered growing seasons, and drought. In some communities, Agricultural & Food is likely to become less viable. On the political front, changes in federal immigration policy are likely to disproportionately impact the Agricultural & Food sector due to its reliance on migrant labor. While innovations in automation and mechanization may limit the sector's workforce woes, many of these technologies remain in their infancy. The ownership of many farms is likely to change hands in the years ahead. The average of age of farmer owner-operators in the US has steadily risen for the past 30 years and is quickly approaching 60. Many younger individuals may find it increasingly difficult purchase these farmers due the challenge of obtaining financing as well as competition from other buyers such as land developers.

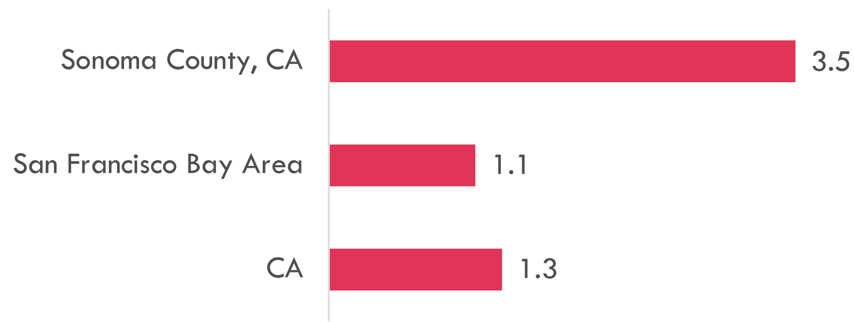
Agriculture & Food is highly concentrated in Sonoma County – with an LQ of 3.5. At 20% growth from 2011 to 2016, it is also growing more than twice as quickly as in the US. The local cluster pays near $10,000 more on average than the US.

AGRICULTURE & FOOD
SONOMA COUNTY EMPLOYMENT, 2006 – 2016



SOURCE: EMSI / Avalanche Consulting

AGRICULTURE & FOOD
LOCATION QUOTIENT (LQ) – 2016



SOURCE: EMSI / Avalanche Consulting

Niche Sectors

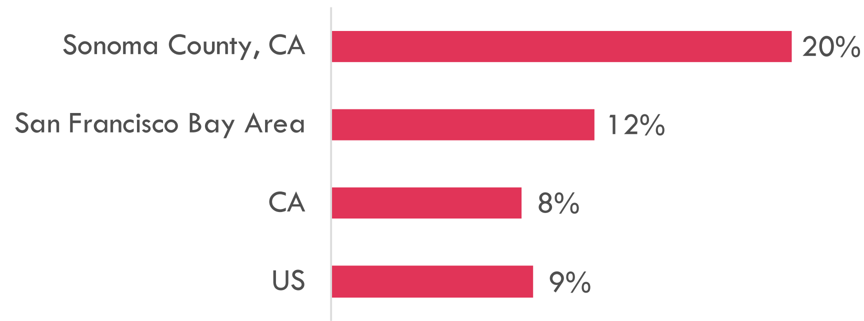
Agriculture Technology – Agricultural crop and animal production in its present form is highly dependent on petrochemicals, water, and often people. As farmers and ranchers look to increase yields while also reducing their workforce demands and environmental impacts, researchers and entrepreneurs are exploring new ways to deliver water to crops and animals, sow seeds and harvest plants, apply pesticides and fertilizers, protect livestock, and much more. These efforts include designing and manufacturing new devices and equipment as well as developing software and services to manage new technology.

Cannabis – On January 1, 2018 California became one of a handful of states to legalize recreational marijuana production and use. This made California immediately the largest legal market for marijuana in the world. The Cannabis industry is projected to experience significant growth in the years ahead, fueled by cultivation, manufacturing, retail, distribution, and testing facilities.

Farm-to-Table – The Farm-to-Table sector has boomed during the past decade as as growing number of Americans have embraced healthier alternatives to processed foods. Consumers increasingly place a premium on purchasing locally grown, organic produce and meats both a home and when they dine out. Farm-to-Table operations rely on direct relationships with restaurants in larger cities, and Sonoma County benefits from its proximity to large population centers and ability to quickly distribute fresh produce to consumers in those markets.

Specialty Food – Specialty Food restaurants, organic and high-quality grocers, farmers markets, and other edible attractions with unique culinary offerings that become a destination for residents and visitors alike. Specialty Food firms often o locate in communities that embrace quality foods, are located in proximity to local and regional working farms, and support small-business development of restaurants and other retail outlets. Like other niche sectors such as Locally-Made Products, Specialty Foods clusters are typically homegrown and benefit from a supportive community and business resources.

AGRICULTURE & FOOD
EMPLOYMENT GROWTH, 2011 – 2016



SOURCE: EMSI / Avalanche Consulting

AGRICULTURE & FOOD
AVERAGE SALARY, 2016

SOURCE: EMSI / Avalanche Consulting

Niche Sectors

Wine & Beverages – Wine & Beverages include the production and sales of wine and craft beer. Wine & Beverages encompasses the development and production of alcoholic drinks, both from small-scale startups to large-scale operations. Wine & Beverages are also frequently associated with the Hospitality & Recreation and Outdoor Products & Craft Goods sectors due to sales in storefronts and restaurants. This sector is an export industry that brings in outside dollars from global sales and also serves as a cultural resource for community residents and a draw for visitors. Wine & Beverages sectors are most vibrant in community with characterized by strong agricultural production, distribution infrastructure, and the presence of a lifestyle that embraces production and consumption of aligned products.

Workforce & Education

Generally the Agriculture & Food workforce is less well-educated than other clusters. Many of the operations required for this cluster have skills that can be learned on-the-job or through specialized training.

The most common occupations in Agriculture & Food are **Crop Farmworkers & Laborers** (10% of jobs), **Sales Representatives** (4%), **Packaging & Filling Machine Operators** (4%), **Hand Laborers & Material Movers** (4%), and **Food Batchmakers** (3%). The entry level education requirements for these positions range from none to high school.

The two of the top occupations in this cluster that require extended education include **Veterinary Technologists & Technicians** (Associate degree) and **Veterinarians** (Doctorate).

Sonoma County has an abundant and highly concentrated supply of workers in Agriculture & Food. The top occupations most concentrated locally are **Crop Farmworkers & Laborers** (3.5 LQ, 3,620 jobs), **Farmers / Ranchers & Agricultural Managers** (3.2 LQ, 330), **Farm / Ranch & Animals Farmworkers** (2.7 LQ, 330), **Food Batchmakers** (2.9 LQ, 610), and **Packaging & Filling Machine Operators** (2.7 LQ, 1,500).

In recent years, global economic conditions and changes in immigration policy have led to decreased availability of migrant farm labor – a trend that will likely drive increased automation of repetitive jobs in this cluster.

SOC Code	Agriculture & Food Occupation	Share of Cluster Jobs	Minimum Entry Level Education	2016 Jobs	2016 LQ	2011-16 Net New	2016 Avg. Salary
45-2092	Farmworkers & Laborers, Crops	10%	None	3,620	3.5	240	$27.7K
41-4012	Sales Representatives	4%	High School	2,237	1.1	238	$70.6K
51-9111	Packaging & Filling Mach. Oper.	4%	High School	1,499	2.7	341	$32.8K
53-7062	Laborers & Material Movers, Hand	4%	None	3,184	0.9	410	$30.3K
51-3092	Food Batchmakers	3%	High School	607	2.9	182	$29.1K
53-3032	Heavy & Tractor-Trailer Truck Drivers	3%	Certificate	1,671	0.7	64	$50.5K
51-3022	Meat, Poultry Cutters & Trimmers	3%	None	147	0.7	34	$28.5K
53-3031	Driver/Sales Workers	3%	High School	874	1.4	164	$35.7K
53-7064	Packers & Packagers, Hand	3%	None	1,169	1.2	182	$27.1K
29-2056	Vet. Technologists & Technicians	2%	Associate	322	2.3	94	$44.2K
43-5081	Stock Clerks & Order Fillers	2%	None	3,269	1.2	389	$28.3K
53-7051	Industrial Truck & Tractor Operators	2%	None	701	0.9	103	$34.0K
51-3023	Slaughterers & Meat Packers	2%	None	138	1.2	44	$23.8K
31-9096	Veterinary Assistants	2%	High School	213	1.7	50	$29.9K
11-9013	Farmers, Ranchers, & Ag. Managers	2%	High School	330	3.2	-15	$99.8K
53-3033	Light Truck or Delivery Svcs. Drivers	2%	High School	1,307	1.1	184	$40.2K
29-1131	Veterinarians	2%	PhD or Prof.	178	1.8	43	$133.4K
51-1011	Supervisors of Production Workers	2%	High School	723	0.8	49	$63.0K
51-3011	Bakers	2%	None	453	1.8	90	$29.3K
51-9198	Helpers--Production Workers	2%	None	544	0.9	68	$28.6K
43-4171	Receptionists & Information Clerks	1%	High School	1,590	1.1	126	$36.1K
43-9061	Office Clerks, General	1%	High School	3,900	0.8	66	$39.9K
45-2093	Farmworkers, Farm, Ranch & Animals	1%	None	328	2.7	-1	$31.7K
49-9071	Maint. & Repair Workers, General	1%	High School	2,161	1.1	258	$48.8K
43-5071	Shipping, Receiving, & Traffic Clerks	1%	High School	873	0.9	63	$35.3K

SOURCE: EMSI / Avalanche Consulting

Industry Resources

- Sonoma County has long agricultural traditions, with many existing businesses in grapes, wine production, dairy, beef and poultry, apples, and other products. The county's geography and climate make a highly fertile location.
- Demand for specialty and farm-to-table food products is growing across the nation, and the San Francisco Bay Area is one of the top areas in the country for these movements. Sonoma County's location as an agricultural center within the Bay Area make it an ideal location for operations that grow, process, package, and distribute these products. A strong Go Local movement within the county also helps support Agriculture & Food businesses.
- The Agriculture & Food workforce is currently highly concentrated in Sonoma County. Santa Rosa Junior College also offers Career & Technical Education and Agriculture and Natural Resources programs that help train the future workforce and expand the skills of existing workers.
- Numerous agricultural trade groups and associations exist in Sonoma County to support a wide-range of operations and sales. The Sonoma County EDB partnered with these organizations to create the Agricultural Business Council which acts as a voice for this cluster and works on strategic initiatives to strengthen it.
- The Sonoma County EDB's Cannabis Program and individual cities offer resources to businesses interested in entering this newly legalized market within California. They can help businesses understand the new regulations and find ways to get started.
- Sonoma County has a strong global brand identity.
- Sonoma County's location within the innovative Bay Area positions it well to be a center for the testing and development of new Agriculture Technologies – from automated grape picking to UAV monitoring of watering. New technology is transforming agriculture and making it more sustainable. UC Davis and other California schools are leading centers of Agriculture Technology development.

Healthcare

Cluster Overview

The Healthcare cluster involves the development and delivery of technology, products, and services that enhance human health. Within Sonoma County, recommended Healthcare niche clusters include Healthcare Providers, Performance Medicine, and Wellness.

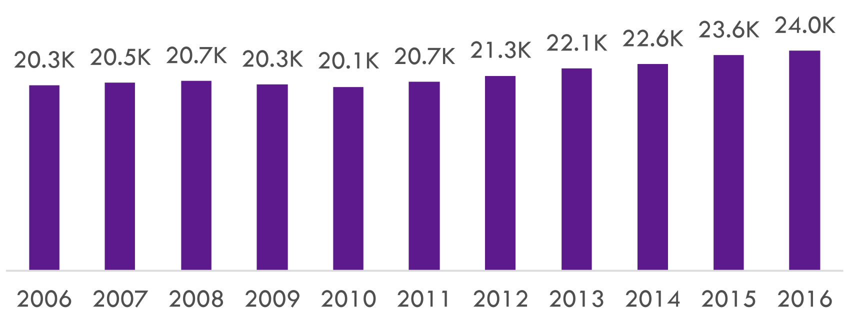
Successful Healthcare clusters often depend on a combination of demographics, innovation, and local values. Hospitals, clinics, nursing facilities, and doctors offices – the primary providers of healthcare services – locate where there are patients. More specialized sectors of healthcare, such as Performance Medicine, usually concentrate where their services are most needed – in this case centers of endurance sports. These sectors themselves can become a destination for patients from outside a region. In other areas such as Wellness, a community's values may support a concentration of medical practitioners that ultimately becomes a regional area of expertise.

US Healthcare spending and employment is likely to experience sustained increases in the years ahead due to a variety of demographic, technological, and regulatory factors.

The growing and aging US population continues to fuel demands for healthcare services. More than 10,000 Baby Boomers turn 65 *every day*, a phenomenon that will continue for another decade. At the same time, the development of new medical devices, therapies, and pharmaceuticals heightens demand while simultaneously raising costs. Frequent regulatory changes add further costs and complexity to the national Healthcare system. Although the long-term future of the Affordable Care Act remains uncertain, the legislation appears to be increasing the demand for Healthcare. Rising costs within the Healthcare sector are also contributing to a wave of consolidation as healthcare companies attempt to leverage their size to negotiate better pricing.

Currently, Healthcare has the same concentration in Sonoma County as the US average – with an LQ of 1.0. A growing population (especially among older individuals) have fueled local cluster growth – employment grew 16% over the past five years – faster than the US and California. With an average salary of $67,760 in Sonoma County, Healthcare pays more than many other industries.

HEALTHCARE
SONOMA COUNTY EMPLOYMENT, 2006 – 2016



SOURCE: EMSI / Avalanche Consulting

HEALTHCARE
LOCATION QUOTIENT (LQ) – 2016

SOURCE: EMSI / Avalanche Consulting

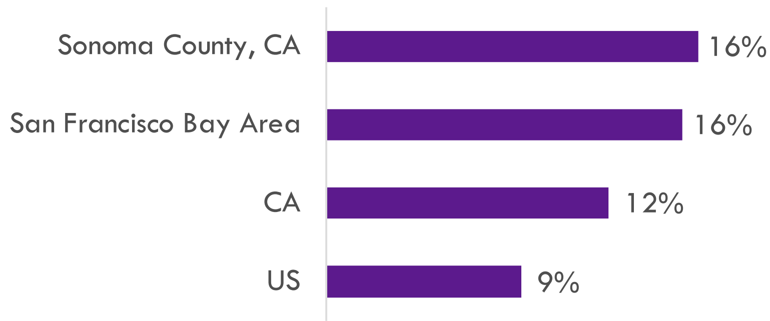
Niche Sectors

Healthcare Providers – Healthcare Providers includes hospital medical care as well as outpatient treatment. In recent years, Healthcare provider employment has proven virtually immune to the ups and downs of the broader economy. During boom times, Healthcare employment increases. During economic downturns, Healthcare continues to expand. At the local level, providers employment is primary driven by demographic considerations. Specifically, communities with populations that are older, growing, and feature high levels of health insurance coverage tend to see cluster growth. Continued cost pressures, evolving consumer preferences, and technological innovation have all contributed to even greater levels of growth among outpatient care providers.

Performance Medicine – This sector involves the provision of specialized healthcare and development of medical devices for sports injuries, injury prevention, and overall physical fitness. Performance Medicine operations encompass a variety of services, from doctor's offices that specialize in orthopedics and major hospitals to the research, design, and manufacture of medical devices such as knee and spinal implants or custom orthotics. This Performance Medicine sector continues to rapidly evolve as biological research and new technologies expand diagnostic and treatment capabilities.

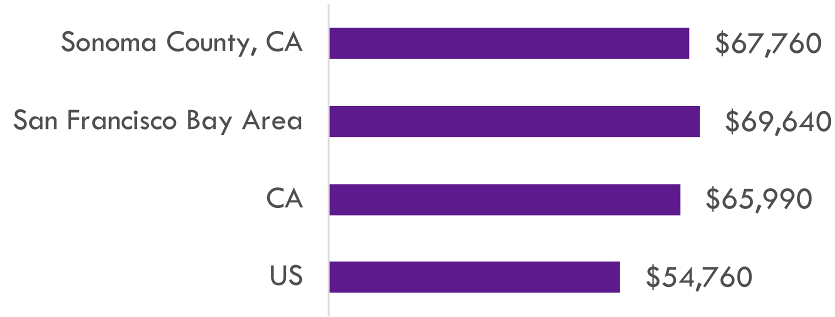
Wellness – The Wellness sector in involves less traditional medical care operations that are increasingly recognized for their health benefits. These services and activities include but are not limited to yoga, acupuncture, massage, meditation, and nutrition. In recent years, the Wellness sector has enjoyed growth as a growing number of US consumers adopt a more holistic approach to healthcare. This trend shows little signs of slowing and is a worldwide phenomenon. According to an analysis by Euromonitor International, global market health and wellness spending is projected to rise from $686 billion in 2016 to $815 billion by 2021.

HEALTHCARE
EMPLOYMENT GROWTH, 2011 – 2016



SOURCE: EMSI / Avalanche Consulting

HEALTHCARE
AVERAGE SALARY, 2016



SOURCE: EMSI / Avalanche Consulting

Workforce & Education

The Healthcare cluster is highly dependent on a well-educated workforce. Almost all occupations in this cluster require some degree of training beyond high school. As a result, workforce development programs are critical to sustaining a robust, high-quality local Healthcare cluster.

The most common occupations in Healthcare's top twenty-five are **Registered Nurses** (17% of jobs), **Medical Assistants** (4%), **Medical Secretaries** (4%), **Nursing Assistants** (4%), and **Home Health Aides** (3%).

Educational requirements in this cluster rom from Medical degrees for physicians and surgeons to associate and bachelor's degrees for nurses, managers, technologists, technicians, and more.

The top occupations most concentrated in Sonoma County are **EMTS & Paramedics** (2.5 LQ, 860 jobs), **Dental Assistants** (1.5 LQ, 680), **Medical Assistants** (1.4 LQ, 1,290), **Medical & Clinical Laboratory Technicians** (1.4 LQ, 320), **Medical Secretaries** (1.2 LQ, 930), and **Personal Care Aides** (1.2 LQ, 3050).

SOC Code	Healthcare Occupation	Share of Cluster Jobs	Minimum Entry Level Education	2016 Jobs	2016 LQ	2011-16 Net New	2016 Avg. Salary
29-1141	Registered Nurses	17%	Bachelor's	3,621	0.9	678	$105.8K
31-9092	Medical Assistants	4%	Certificate	1,287	1.4	163	$42.9K
43-6013	Medical Secretaries	4%	High School	934	1.2	91	$45.0K
31-1014	Nursing Assistants	4%	Certificate	1,220	0.6	206	$32.4K
31-1011	Home Health Aides	3%	None	314	0.3	33	$39.2K
43-4171	Receptionists & Information Clerks	3%	High School	1,590	1.1	126	$36.1K
39-9021	Personal Care Aides	3%	None	3,045	1.2	1,351	$27.0K
29-2061	Licensed Practical & Voc. Nurses	2%	Certificate	893	0.9	135	$55.2K
31-9091	Dental Assistants	2%	Certificate	682	1.5	16	$47.1K
29-1069	Physicians & Surgeons, All Other	2%	Doct. or Prof.	141	0.3	-11	$157.1K
43-9061	Office Clerks, General	2%	High School	3,900	0.8	66	$39.9K
11-9111	Medical & Health Svcs. Managers	2%	Bachelor's	524	1.1	114	$115.9K
29-2021	Dental Hygienists	2%	Associate	302	1.0	5	$89.6K
43-3021	Billing & Posting Clerks	1%	High School	553	0.8	-69	$45.0K
29-2034	Radiologic Technologists	1%	Associate	269	0.9	41	$76.2K
43-1011	Supervisors of Off. & Admin. Workers	1%	High School	1,885	0.9	194	$61.0K
43-6014	Secretaries & Admin. Assistants	1%	High School	3,146	0.8	43	$42.0K
29-1123	Physical Therapists	1%	Doct. or Prof.	300	1.0	58	$101.1K
29-2041	EMTS & Paramedics	1%	Certificate	857	2.5	266	$35.1K
29-2011	Med. & Clinical Lab. Technologists	1%	Bachelor's	128	0.5	16	$74.5K
29-1171	Nurse Practitioners	1%	Master's	177	0.8	31	$113.9K
29-2012	Med. & Clinical Lab. Technicians	1%	Associate	318	1.4	63	$46.1K
29-2071	Med. Records & Health Info. Techs.	1%	Certificate	271	0.9	25	$44.7K
43-4051	Customer Service Representatives	1%	High School	2,328	0.6	139	$40.6K
37-2012	Maids and Housekeeping Cleaners	1%	None	1,528	1.1	-423	$28.3K

SOURCE: EMSI / Avalanche Consulting

Industry Resources

- Sonoma County is currently home to seven hospitals that serve local residents and the broader Northern California region. As the local population grows older, demand for Healthcare will continue to grow.
- Sonoma County is a major center for athletic training – from endurance running to cycling. Along with the county's temperate climate and high quality of life, this makes it an attractive location for Performance Medicine operations.
- Santa Rosa Junior College Health Sciences Department offers a range of training programs for nurses, technicians, technologies, and aides that support the overall Healthcare cluster. They also offer a Sports Medicine & Athletic Training program.
- Sonoma State University's School of Science & Technology offers a Health Professions Advisory Program, Nursing, and Family Nurse Practitioner Program.
- Health Action is a partnership of Sonoma County leaders and organizations focused on improving the overall county health and reducing disparities. The active work of this organization and others reflects and overall commitment to Wellness within Sonoma County.

Hospitality & Recreation

Cluster Overview

The Hospitality & Recreation cluster includes three complementary but distinct components – Athletic Training, Creative Arts, and Outdoor Recreation & Environmental Education. All three clusters require both environmental and creative assets that help connect local treasures with outside audiences.

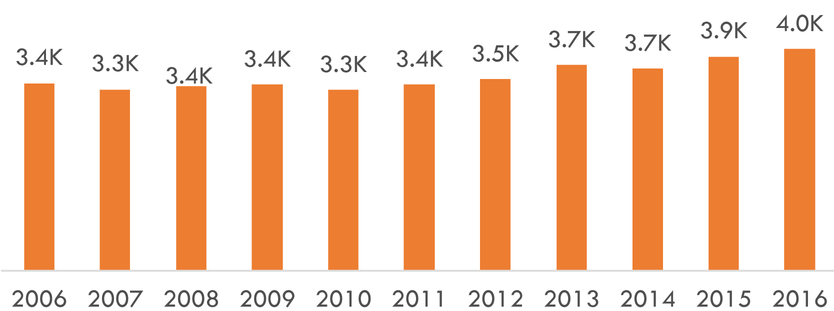
Labor requirements of the Hospitality & Recreation sector are minimal, though access to a large potential labor pool can be helpful. Instead, other factors such as a unique natural environment and the presence of a large consumer base within driving distance are often more important to a community's Hospitality & Recreation cluster. The industry also benefits from visionary local entrepreneurs that can leverage underutilized advantages to meet consumer demand.

Ultimately, the health of a local Hospitality & Recreation cluster is dependent on distinctive cultural, recreational, and educational experiences that can not be readily found elsewhere. Sonoma County's natural beauty, climate, strong destination brand, and other factors have fueled a growing Hospitality & Recreation cluster.

In recent years, consumer spending has shifted away from material possessions in favor of lived experiences. According to estimates from McKinsey & Company, since 2014 total US spending on experience-related services has grown nearly four times faster than overall spending on goods. This behavior has been especially notable among the Millennial generation. Individuals in this cohort are more likely to believe experiences contribute to greater happiness than does the acquisition of goods, a dynamic generally backed by scientific studies. Additionally, the rise of social media has encouraged consumers, particularly among Millennials, to emphasize the "Instagramability" of their discretionary spending.

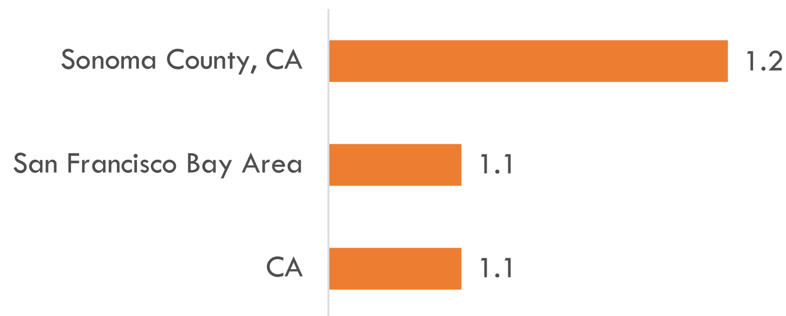
Since 2011, overall Hospitality & Recreation employment in Sonoma County has increased by more than 19% - faster than the US average but slower than California and the San Francisco Bay Area. With an LQ of 1.2, this cluster remains more concentrated in Sonoma County than the Bay Area (1.1 LQ) or California (1.1 LQ). At $23,660 In Sonoma County, Hospitality & Recreation pays salaries below average – but in California the cluster pays more than twice as much at $52,600 – indicating that with the right specialized growth, Hospitality & Recreation has greater potential to benefit local residents.

HOSPITALITY & RECREATION
SONOMA COUNTY EMPLOYMENT, 2006 – 2016



SOURCE: EMSI / Avalanche Consulting

HOSPITALITY & RECREATION
LOCATION QUOTIENT (LQ) – 2016



SOURCE: EMSI / Avalanche Consulting

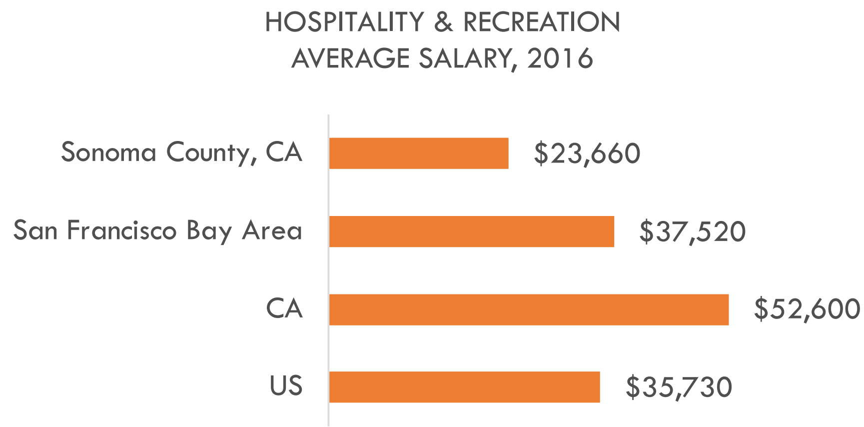
Niche Sectors

Athletic Training – Athletic Training is a highly specialized niche sector that includes facilities and businesses that serve athletes preparing for sport. Olympic, professional, and amateur athletes, for example, often seek locations and/or unique facilitates that resemble those found at formal competition sites. Training activities may include anything from track exercise to climbing, trail running, cycling, cross-country skiing, and more. Athletic Training participants may include full-time residents as well as individuals training in the community on a short-term basis.

Creative Arts – Creative Arts encompasses a range of artistic individuals and activities, including painters, sculptors, writers, filmmakers, theaters, musicians, and others. The Creative Arts sector often enlivens the quality of life of residents while also helping the community attract outside visitors. Thriving Creative Arts clusters are typically homegrown affairs that enjoy broad public and private support. The Creative Arts cluster requires physical spaces such as galleries, theaters, and music venues to showcase work as well as affordable living and working spaces for the artists themselves.

Outdoor Recreation & Environmental Education – Outdoor Recreation includes recreationally-oriented tours and activities that take place in nature settings. Environmental Education involves instructional services aimed at increasing awareness of local ecosystems and their importance to the larger environment. On a smaller scale, outdoor recreational activities such as hiking, biking, camping, hunting, fishing, paddling, and wildlife-watching can contribute greatly to a community's wellbeing. In other locales, Outdoor Recreation is a powerful economic driver. According to the Outdoor Industry Association, the Outdoor Recreation industry generates $887 billion in consumer spending and 7.6 million jobs annually. Environmental Education often involves the participation of local schools, universities, and non-profits to help deliver specialized environmental training curricula to both visitors and residents.

SOURCE: EMSI / Avalanche Consulting



SOURCE: EMSI / Avalanche Consulting

Workforce & Education

The workforce requirements of Hospitality & Recreation are generally less education dependent. Many positions in this cluster require no entry level education or only a high school degree. What those statistics do not capture are the requirements for an entrepreneurial spirit and creative talent that underpin much of this cluster.

The most common among the top twenty-five Healthcare & Recreation occupations are **Amusement & Recreation Attendants** (8% of jobs), **Fitness Trainers & Aerobics Instructors** (8%), **Landscaping & Grounds Workers** (4%), **Waiters & Waitresses** (4%), and **Self-Enrichment Education Teachers** (4%).

The top occupations most concentrated in Sonoma County are **Fitness Trainers & Aerobics Instructors** (1.8 LQ, 680 jobs), **Amusement & Recreation Attendants** (1.7 LQ, 700), **Landscaping & Grounds Workers** (1.5 LQ, 2,030), **Waiters & Waitresses** (1.3 LQ, 4,850), **Recreation Workers** (1.3, 660), **Bartenders** (1.3 LQ, 1,130), and **General & Operations Managers** (1.3 LQ, 3,970).

SOC Code	Hospitality & Recreation Occupation	Share of Cluster Jobs	Minimum Entry Level Education	2016 Jobs	2016 LQ		2011-16 Net New	2016 Avg. Salary
39-3091	Amusement & Recreation Attendants	8%	None	703	1.7	★	118	$24.3K
39-9031	Fitness Trainers & Aerobics Instructors	8%	High School	682	1.8	★	97	$55.2K
37-3011	Landscaping & Grounds Workers	4%	None	2,028	1.5	★	304	$34.0K
35-3031	Waiters & Waitresses	4%	None	4,851	1.3	★	972	$33.5K
25-3021	Self-Enrichment Education Teachers	4%	High School	415	1.0	★	109	$49.5K
27-2022	Coaches and Scouts	3%	Bachelor's	351	1.1	★	55	$45.4K
41-2011	Cashiers	3%	None	6,005	1.2	★	718	$26.1K
37-2011	Janitors and Cleaners	2%	None	3,274	1.0	★	399	$30.2K
11-1021	General & Operations Managers	2%	Bachelor's	3,971	1.3	★	651	$117.2K
33-9092	Lifeguards & Other Protective Svcs.	2%	None	174	0.8	☆	11	$31.9K
43-4171	Receptionists & Information Clerks	2%	High School	1,590	1.1	★	126	$36.1K
33-9032	Security Guards	2%	High School	1,121	0.7	☆	95	$33.5K
39-3031	Ushers, Attendants, & Ticket Takers	2%	None	90	0.5	☆	-36	$23.0K
39-9011	Childcare Workers	2%	High School	1,025	1.0	★	-823	$29.9K
43-9061	Office Clerks, General	2%	High School	3,900	0.8	☆	66	$39.9K
41-2031	Retail Salespersons	2%	None	6,279	1.0	★	614	$29.2K
49-9071	Maint. & Repair Workers, General	2%	High School	2,161	1.1	★	258	$48.8K
39-9032	Recreation Workers	2%	High School	663	1.3	★	189	$28.1K
35-3011	Bartenders	2%	None	1,131	1.3	★	208	$31.1K
25-3099	Teachers & Instructors, All Other	2%	Bachelor's	189	0.5	☆	-13	$49.5K
43-6014	Secretaries & Admin. Assistants	1%	High School	3,146	0.8	☆	43	$42.0K
35-3022	Counter Attendants	1%	None	506	0.7	☆	31	$27.2K
35-2014	Cooks, Restaurant	1%	None	1,972	1.1	★	416	$30.8K
43-4051	Customer Service Representatives	1%	High School	2,328	0.6	☆	139	$40.6K
39-1021	Supervisors of Personal Svc. Workers	1%	High School	251	0.9	☆	116	$47.0K

SOURCE: EMSI / Avalanche Consulting

Industry Resources

- Sonoma County is a well-known tourism destination – attracting more than seven million visitors each year. Alongside wine and scenic beauty, many visitors come to enjoy the a range of outdoor recreation activities – including hiking, cycling, rock climbing, kayaking, and more. These same assets make it an attractive location for endurance and other athletes to train.
- Sonoma County offers extensive outdoor recreation opportunities in close proximity to more urbanized parts of the San Francisco Bay Area – making it an attractive destination that could see further growth. The same proximity to urban areas could allow Sonoma County to be a destination for Environmental Education programs for regional students who lack immediate access to natural environments.
- Santa Rosa Junior College offers related environmental education programs in their Earth and Space Sciences departments. Sonoma State University offers an Environmental Studies program within their School of Social Sciences.
- Sonoma County Tourism and other local tourism boards and organizations have well-developed networks across the state, nation, and globe that allow them to effectively market Hospitality & Recreation assets.
- The recently created Outdoor Recreation Business Council will bring together related businesses in this cluster to develop new initiatives, share resources, and overall support the cluster.
- Creative Sonoma and numerous other arts organizations and collectives provide resources for local artists and performers – allowing them to get their work in front of wider audiences.

Outdoor Products & Craft Goods

Cluster Overview

The Outdoor Products & Craft Goods industry involves the production and sale of unique, small-batch goods by skilled craftspeople. These goods range from artisan food and craft beers to home decor and apparel. Outdoor Products & Craft Goods are generally distinguished from franchise and large-scale businesses by their local, high-quality focus and limited production runs.

The industry is diverse but has a high proportion of self-employed individuals, often pursuing their businesses as a second job and operating out of homes. Traditionally known as "cottage industries," these Outdoor Products & Craft Goods entrepreneurs provide valuable additional income to families with relatively little stress on a community's infrastructure. As sales increase, businesses may hire employees.

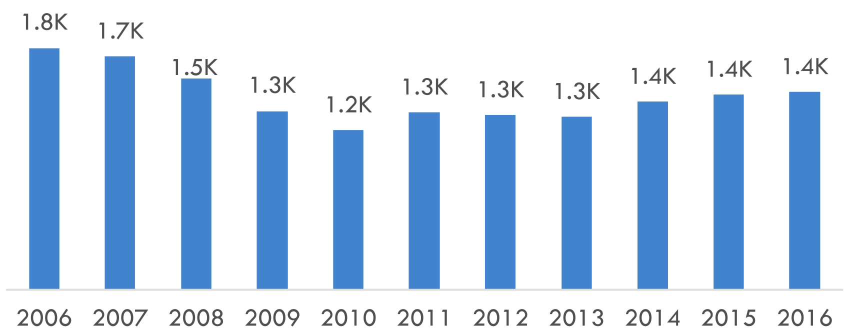
Outdoor Products & Craft Goods industry typically thrives in a communities with healthy levels of tourism and a strong brand identify. The industry benefits significantly from an influx of tourists dollars and also enhances a community's quality of life by enriching local retail and cultural arts offerings.

The US retail industry is experiencing a ongoing wave of disruption. Facing increased competition from online retailers, as well as pressure from past overbuilding and evolving consumer tastes, major retailers have announced plans to close more than 6,500 stores in 2017. Additional closures are likely in the coming years. As Nike's president recently stated in conference call with investors, in the coming years "undifferentiated, mediocre retail won't survive." Instead, consumers are looking for unique and authentic retail and recreation experiences such as Outdoor Products & Craft Goods that have no immediate digital equivalent.

Outdoor Products & Craft Goods employment in Sonoma County is currently as concentrated as the US average – with an LQ of 1.0. Although employment dipped during the recession, over the past five years the cluster grew 12% in Sonoma County – faster than the US rate and well above California, which saw essentially no growth.

Sonoma County salaries in Outdoor Products & Craft Goods are well above average for the county and cluster – paying $53,210 on average.

OUTDOOR PRODUCTS & CRAFT GOODS
SONOMA COUNTY EMPLOYMENT, 2006 – 2016



SOURCE: EMSI / Avalanche Consulting

OUTDOOR PRODUCTS & CRAFT GOODS
LOCATION QUOTIENT (LQ) – 2016

SOURCE: EMSI / Avalanche Consulting

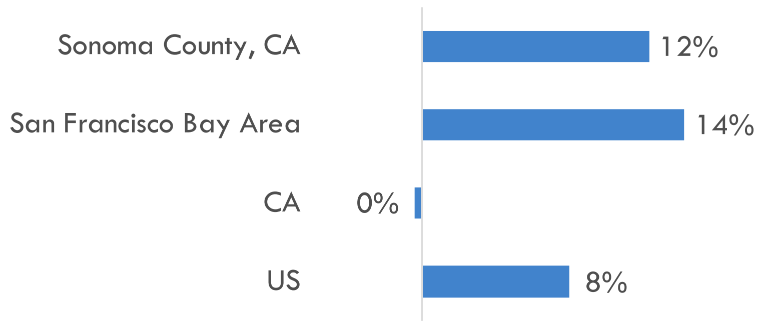
Niche Sectors

Cycling Products – The past decade has ushered in a period of renewed cycling activity among Americans. Since 2010, the number of Americans that commute via a bicycle increased by more than 30%. A number of metropolitan areas have experienced even more significant growth. In the San Francisco metro, for example, the number of individuals who commute to work via a bicycle has soared by more than 85%. The Cycling Products is highly fragmented; while bicycle sales themselves are dominated by a few major producers, smaller manufactures of bicycle components and apparel are often successful by focusing on niche applications. Cycling Products are often designed in the US and manufactured abroad.

Locally-Made Products – Locally-Made Products include independent artists creating art for sale and skilled production of goods. Focusing on a particular style of artisan goods, such as Western Heritage and/or Wellness, often helps local producers differentiate their ware from mass-produced competitors. Local artisans also benefit from communities such as Sonoma County with well-established, nationally known brand identities. While online retailing threatens may traditional brick and mortar stores, Locally-Made Products often benefit from online platforms. The rise of eBay and Etsy, for example, helps small-batch producers reach an exponentially larger consumer base than is otherwise available. Since 2012, for example, sales at Etsy have increased from $75 million to nearly $365 million.

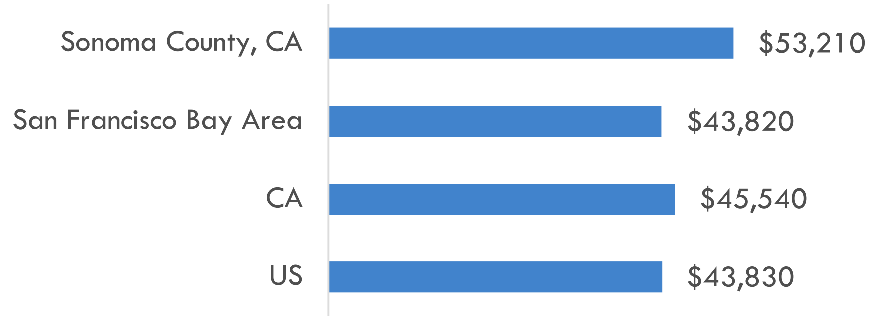
Outdoor Apparel & Equipment – Outdoor Apparel & Equipment includes the design, testing, and manufacture of outdoor technical gear and apparel. Companies in this industry often involve US-based headquarters strictly focused on design and testing in outdoor environment. While manufacturing and distribution are often located off-shore, small-scale manufacturers may operate out of homes and workshops.

OUTDOOR PRODUCTS & CRAFT GOODS
EMPLOYMENT GROWTH, 2011 – 2016



SOURCE: EMSI / Avalanche Consulting

OUTDOOR PRODUCTS & CRAFT GOODS
AVERAGE SALARY, 2016



SOURCE: EMSI / Avalanche Consulting

Workforce & Education

Outdoor Products & Craft Goods is a fairly diverse cluster – focused on small-scale manufacturing but requiring a diverse range of skills for each type of operation and material – from wood to cloth to leather and more. Generally, these skills can be trained and learned on-the-job and are less focused on formal education but many benefit from certificates and other specialized programs.

The most common among the top twenty-five occupations in this cluster are **Team Assemblers** (9% of jobs), **Cabinetmakers & Bench Carpenters** (8%), **Woodworking Machine Operators** (7%), **Sewing Machine Operators** (6%), and **Sawing Machine Operators** (6%).

The top occupations most concentrated in Sonoma County are **Cabinetmakers & Bench Carpenters** (1.4 LQ, 190 jobs), **General & Operations Managers** (1.3 LQ, 3,970), **Hand Packers & Packagers** (1.2 LQ, 1,170), **Bookkeeping & Accounting Clerks** (1.2 LQ, 2,760), and **General Maintenance & Repair Workers** (1.1 LQ, 2,160).

SOC Code	Outdoor Products & Craft Goods Occupation	Share of Cluster Jobs	Minimum Entry Level Education	2016 Jobs	2016 LQ	2011-16 Net New	2016 Avg. Salary
51-2092	Team Assemblers	9%	High School	809	0.5	-22	$34.9K
51-7011	Cabinetmakers & Bench Carpenters	8%	High School	185	1.4	36	$48.0K
51-7042	Woodworking Machine Operators	7%	High School	63	0.6	-3	$31.7K
51-6031	Sewing Machine Operators	6%	None	151	0.8	19	$30.2K
51-7041	Sawing Machine Operators	4%	High School	62	0.9	4	$35.2K
53-7062	Laborers & Material Movers, Hand	4%	None	3,184	0.9	410	$30.3K
51-1011	Supervisors of Production Workers	4%	High School	723	0.8	49	$63.0K
41-4012	Sales Representatives	2%	High School	2,237	1.1	238	$70.6K
51-9198	Helpers--Production Workers	2%	None	544	0.9	68	$28.6K
47-2031	Carpenters	2%	High School	1,774	1.8	561	$67.8K
51-2099	Assemblers & Fabricators, All Other	2%	High School	66	0.2	-16	$34.1K
11-1021	General & Operations Managers	2%	Bachelor's	3,971	1.3	651	$117.2K
53-7051	Industrial Truck & Tractor Operators	2%	None	701	0.9	103	$34.0K
43-9061	Office Clerks, General	2%	High School	3,900	0.8	66	$39.9K
51-6093	Upholsterers	2%	High School	20	0.4	-3	$34.3K
51-9061	Inspectors, Testers, & Weighers	2%	High School	553	0.8	25	$44.4K
43-5071	Shipping, Receiving, & Traffic Clerks	2%	High School	873	0.9	63	$35.3K
53-3032	Heavy & Tractor-Trailer Truck Drivers	1%	Certificate	1,671	0.7	64	$50.5K
43-4051	Customer Service Representatives	1%	High School	2,328	0.6	139	$40.6K
53-7063	Machine Feeders & Offbearers	1%	None	101	0.8	9	$26.6K
49-9071	Maint. & Repair Workers, General	1%	High School	2,161	1.1	258	$48.8K
51-7021	Furniture Finishers	1%	High School	12	0.5	0	$41.8K
53-7064	Packers & Packagers, Hand	1%	None	1,169	1.2	182	$27.1K
43-6014	Secretaries & Admin. Assistants	1%	High School	3,146	0.8	43	$42.0K
43-3031	Bookkeeping & Accounting Clerks	1%	Some College	2,757	1.2	-107	$48.7K

SOURCE: EMSI / Avalanche Consulting

Industry Resources

- Outdoor Products & Craft Goods manufacturers often prefer locations that match their brand identity. Sonoma County's scenic natural resources, strong commitment to environmental stewardship, and global brand identity make it such an attractive location.
- Sonoma County is already home to number of nationally-recognized Outdoor Apparel & Equipment manufacturers – including CamelBak, Marmot, Kitsbow Cycling Apparel, and more.
- Sonoma County's location within the San Francisco Bay Area allow these and other goods manufacturers to benefit form research and development focused on new materials and technologies. Companies are also able to test products locally.
- Sonoma County has a growing number of Maker spaces, where students and individuals are able to develop, test, and construct their own products. These Maker spaces are great learning centers and reflect a strong creative culture within the county.
- Sonoma County has a strong Go Local program, and many residents are committed to supporting local businesses – including craftspeople. The growth of eCommerce also allows the makers of Locally-Made Products to sell their goods around the world – enhanced by Sonoma County's strong brand reputation.
- The Sonoma County EDB, local chambers of commerce, and the Napa-Sonoma Small Business Development Center all provide extensive resources to small businesses and startups looking to enter the Outdoor Products & Craft Goods market.

Professional Services & IT

Cluster Overview

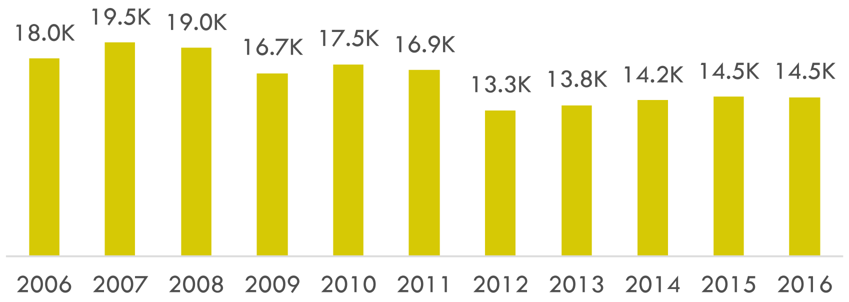
The Professional Services & IT cluster includes software production, mobile game and application development, computer systems research and development, computer systems design, cybersecurity services. Fueled by growth in a variety of niche clusters, Professional Services Technology employment has consistently grown faster than the overall job market in recent years.

Professional Services & IT firms require minimal infrastructure support. Instead, the availability of talent locally is often the most important location consideration. In many parts of the US, the Professional Services & IT workforce is inadequate, especially for the most skilled positions. As a result, Professional Services & IT firms often cluster in regions with a major research university that can deliver a workforce with the latest computer programming skills. Locations rich in venture capital financing are also highly desirable. The path to profitability for Professional Services & IT may take several years. Venture capital is vital in sustaining operations during this period. Venture capital in the US remains extraordinarily concentrated in a handful of regions such as San Francisco and San Jose.

After a sustained period of tighter regulations adopted in the wake of the global financial crisis, a new US presidential administration has signaled its intention to relax the country's regulatory environment, as least in the area of financial services. In other sectors, such as media, ongoing disclosures of nefarious actions by foreign actors have increased calls for greater government oversight. The growing threat of cyber warfare has become a paramount concern for both governments and private industry. The 2017 Equifax breach, for example, exposed the information of nearly half the US population. In addition to cybersecurity, mobile applications have been a significant driver of software development. Many companies are adopting a "mobile first" strategy that prioritizes Mobile Applications above desktop-based experiences. The trend reflect changing consumer behavior; mobile and tablet devices now account for more web traffic than desktop and laptop computers.

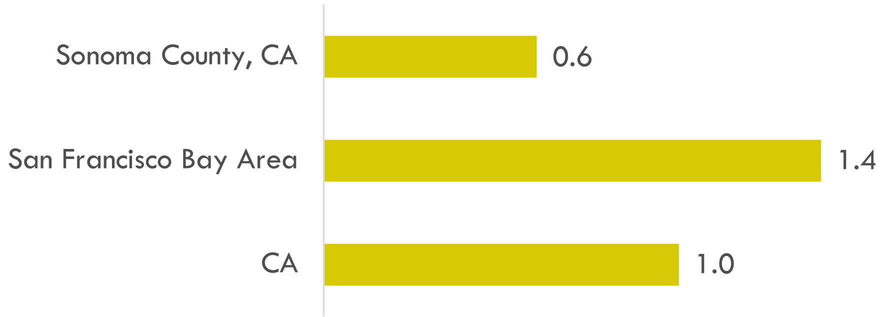
Professional Services & IT employment is currently 40% less concentrated in Sonoma County than the US average. The cluster also saw a large loss of jobs from 2011 to 2016, despite being one of the fastest growing sectors nationally – but this appears to be largely due to the closure of one corporate office. At $82,670, this cluster pays salaries well above the overall county average, but lower than the cluster pays in other locations.

PROFESSIONAL SERVICES & IT
SONOMA COUNTY EMPLOYMENT, 2006 – 2016



SOURCE: EMSI / Avalanche Consulting

PROFESSIONAL SERVICES & IT
LOCATION QUOTIENT (LQ) – 2016



SOURCE: EMSI / Avalanche Consulting

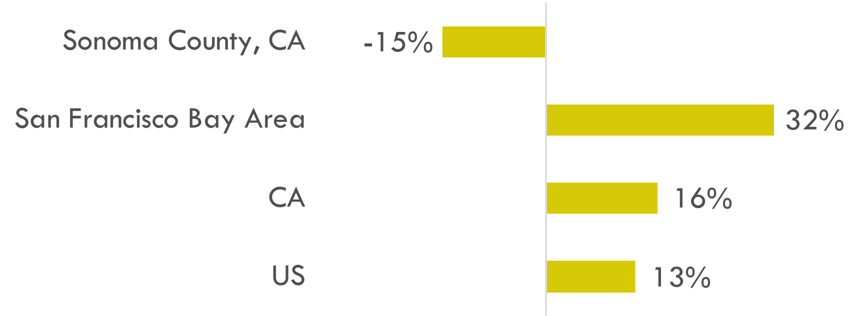
Niche Sectors

Banking & Personal Finance – After significant turmoil during the recession, the Banking & Personal Finance sector has stabilized. Consumer spending continues to increase. Increased consumer debt, combined with rising interest rates that are likely to experience additional hikes in 2017, should help bolster industry profits. Despite these tailwinds, technological innovation will create significant risks and opportunities for the the Banking & Personal Finance cluster. For example, one-third of Millennials don't think they will need a bank in 5 years. The entrance of new players such as Square, Apple, Samsung, and Google into payment services underscore growing competition from non-banks and an increased emphasis on technological innovation.

Freelancers & Entrepreneurs – The rise of "digital nomads," workers and business owners who operate independent of a physical office or even a permanent place of residence, in fields such as engineering, software programming, design, and financial advising provides an immediate talent attraction opportunity for communities such as Sonoma that feature a high quality of life. Nationally, just 5% of employed individuals work from home. The figure for locations rich in lifestyle amenities and unique outdoor recreational opportunities, however, is much higher. In Boulder, Colorado, for example, more than 13% of employed residents telecommute. Asheville and Santa Fe also boast some of the highest telecommuting rates in the US.

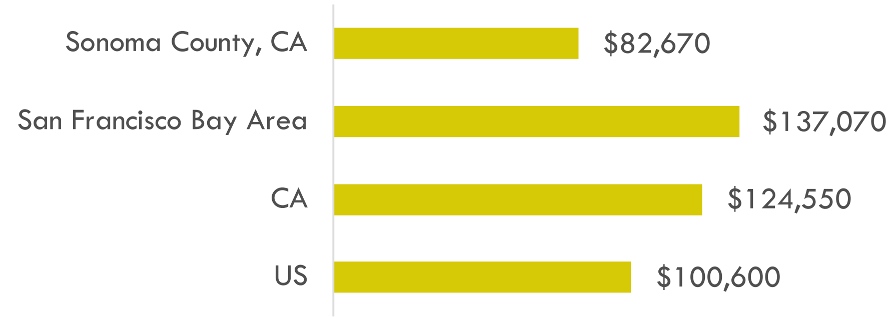
Software & Information Technology – In recent years, Big data and cloud computing have been especially notable drivers of Software & Information Technology growth. The exponential increase in data production has increased the need for services that help companies in areas such as finance and health analyze and understand vast volumes of data. The increased production of information has also contributed to growth in cloud computing, which allows users to outsource the management, processing, and storage of data to off-site third-party vendors. As more and more sensitive information is moved to the cloud, the demand for ever more sophisticated cyber security software also increases.

PROFESSIONAL SERVICES & IT
EMPLOYMENT GROWTH, 2011 – 2016



SOURCE: EMSI / Avalanche Consulting

PROFESSIONAL SERVICES & IT
AVERAGE SALARY, 2016



SOURCE: EMSI / Avalanche Consulting

Workforce & Education

Professional Services & IT is both one of the highest paying national clusters and one of the most education-dependent. A high share of occupations in this cluster require at least a bachelor's degree at entry level.

The most common of the top twenty-five occupations in this cluster are **Accountants & Auditors** (4% of jobs), **Applications Software Developers** (4%), **Customer Service Representatives** (4%), **Tellers** (3%), and **Lawyers** (3%).

Sonoma County has a relatively low share of workers in this cluster. Among the top occupations, those with above average concentration in Sonoma County are **General & Operations Managers** (1.3 LQ, 3,970 jobs), **Loan Officers** (1.1 LQ, 460), and **Financial Managers** (1.1 LQ, 840).

Sonoma County currently has especially low concentrations of software and computer related workers – including **Applications Software Developers** (0.5 LQ, 540) **Computer Systems Analysis** (0.5 LQ, 370), **Computer User Support Specialists** (0.6 LQ, 550), **Systems Software Developers** (0.6 LQ, 350), **Computer & Information Systems Managers** (0.6 LQ, 280), and **Computer Programmers** (0.7 LQ, 250).

Nationally, these are some of the most in-demand and fast growing positions. They present strong job opportunities for residents when paired with educational programs at the junior college and university level.

SOC Code	Professional Services & IT Occupation	Share of Cluster Jobs	Minimum Entry Level Education	2016 Jobs	2016 LQ		2011-16 Net New	2016 Avg. Salary
13-2011	Accountants & Auditors	4%	Bachelor's	1,475	0.8	☆	-996	$78.1K
15-1132	Software Developers, Applications	4%	Bachelor's	537	0.5	☆	14	$115.1K
43-4051	Customer Service Representatives	4%	High School	2,328	0.6	☆	139	$40.6K
43-3071	Tellers	3%	High School	570	0.8	☆	-48	$32.1K
23-1011	Lawyers	3%	Doct. or Prof.	401	0.5	☆	13	$155.0K
11-1021	General & Operations Managers	3%	Bachelor's	3,971	1.3	★	651	$117.2K
43-9061	Office Clerks, General	3%	High School	3,900	0.8	☆	66	$39.9K
43-3031	Bookkeeping, Accounting, & Auditing	2%	Some College	2,757	1.2	★	-107	$48.7K
15-1121	Computer Systems Analysts	2%	Bachelor's	370	0.5	☆	25	$88.1K
43-6014	Secretaries & Admin. Assistants	2%	High School	3,146	0.8	☆	43	$42.0K
13-1111	Management Analysts	2%	Bachelor's	654	0.7	☆	5	$86.3K
43-1011	Supervisors Office/Admin. Workers	2%	High School	1,885	0.9	★	194	$61.0K
41-3031	Commod. & Fin. Svcs. Sales Agents	2%	Bachelor's	348	0.7	☆	18	$85.3K
13-2072	Loan Officers	2%	Bachelor's	459	1.1	★	92	$78.1K
15-1151	Computer User Support Specialists	2%	Some College	551	0.6	☆	-49	$65.0K
13-1161	Market Research Analysts	2%	Bachelor's	759	0.9	★	97	$87.5K
41-3099	Sales Representatives, Services	2%	High School	1,105	0.8	☆	76	$62.3K
11-3031	Financial Managers	2%	Bachelor's	844	1.1	★	19	$131.0K
15-1133	Software Dev., Systems Software	2%	Bachelor's	352	0.6	☆	-15	$129.7K
23-2011	Paralegals & Legal Assistants	2%	Associate	139	0.4	☆	0	$65.7K
13-1199	Business Operations Specialists	1%	Bachelor's	1,262	0.9	★	180	$68.6K
43-4131	Loan Interviewers & Clerks	1%	High School	204	0.6	☆	32	$44.1K
11-3021	Computer & Info. Systems Managers	1%	Bachelor's	278	0.6	☆	12	$143.2K
15-1131	Computer Programmers	1%	Bachelor's	252	0.7	☆	-1	$79.4K
43-6012	Legal Secretaries	1%	High School	157	0.6	☆	-6	$51.6K

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Industry Resources

- Professional Services & IT operations directly support residents and other industry clusters by providing financial, technical, legal, and other services to their customers. Sonoma County has a relatively industrially diverse economy that creates demand for a wide range of services in this cluster.
- Although relative to the US, Sonoma County has a high cost of living, it is the fourth most affordable county in the San Francisco Bay Area. As cost of living and doing business continues to rise in more central parts of the Bay Area, Professional Services & IT firms that wish to remain within the area are seeking lower-cost locations like Sonoma County.
- Sonoma County has a high share of self-employed individuals and tele-commuters. The Sonoma County EDB, local chambers of commerce, the Napa-Sonoma SBDC, and other partners offer a range of resources to support these individuals, startups, and other entrepreneurs. As new technology and business practices make tele-commuting more common, Sonoma County's high quality of life and relative affordability make it an attractive location for these Freelancers & Entrepreneurs to operate.
- Santa Rosa Junior College offers a range of supportive educational programs, including Business Administration, Computer Studies, and Social Sciences.
- Sonoma State University's School of Business & Economics, School of Science & Technology, and School of Social Sciences all offer programs that train students for opportunities in Professional Services & IT.
- Empire College School of Law in Santa Rosa is one of the top-ranked law schools in California.