



CALIFORNIA
REGIONAL ECONOMIES PROJECT

MANUFACTURING IN TRANSFORMATION

ECONOMIC CHANGE AND
EMPLOYMENT OPPORTUNITIES
IN THE DESIGN, PRODUCTION,
AND LOGISTICS VALUE CHAIN



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**A Cluster Report of the
California Regional Economies Project
September 2004**

*Prepared By
Collaborative Economics*

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PREFACE

PURPOSE: THE CALIFORNIA REGIONAL ECONOMIES PROJECT

The California Regional Economies Project provides California's economic and workforce development system with information about changing regional economies and labor markets. The Project is a joint effort of the California Workforce Investment Board and the California Economic Strategy Panel. The Project was initiated in response to these challenges:

- California's economy is under-performing relative to its potential—we have tremendous talent, world-class companies, and a tradition of innovation.
- California lacks an economic and workforce investment strategy that focuses on regional strengths and opportunities, and connects state and local efforts for maximum impact.
- Local and state policymakers lack reliable and timely information about emerging industry and job opportunities, making good investment and policy decisions difficult.

The Project develops information that measures the performance of California's regional economies. This information provides a key resource in economic and workforce development planning, and a bridge connecting economic and workforce policies and programs at the state and regional levels.

Through its products and forums, The California Regional Economies Project fills a need for better information that can:

- improve specific decisions about state, regional, and local workforce investments and policies;
- connect state, regional, and local economic and workforce investment strategies;
- focus state, regional, and local marketing efforts on areas of regional economic advantage and opportunity;
- inform policy and investment decisions of government so that they promote, rather than discourage economic innovation and competitiveness; and,
- help individuals navigate their own transition to new employment opportunities.

PHASE I OF THE PROJECT: PRODUCTS AND FORUMS FOR USERS

During 2003-4, information was compiled for each of the nine California Economic Strategy Panel regions—Northern California, Northern Sacramento Valley, Greater Sacramento, Bay Area, San Joaquin Valley, Central Sierra, Central Coast, Southern California, and the Southern Border Region (see following map).

Each of these reports was presented at a regional forum, and discussed with the regional user community (e.g., employers, workforce investment boards, local economic development organizations, local education and training institutions, local government agencies, and other interested community leaders). At each forum, users had the opportunity to discuss the findings and suggest priorities for further cluster analysis (see following chart).

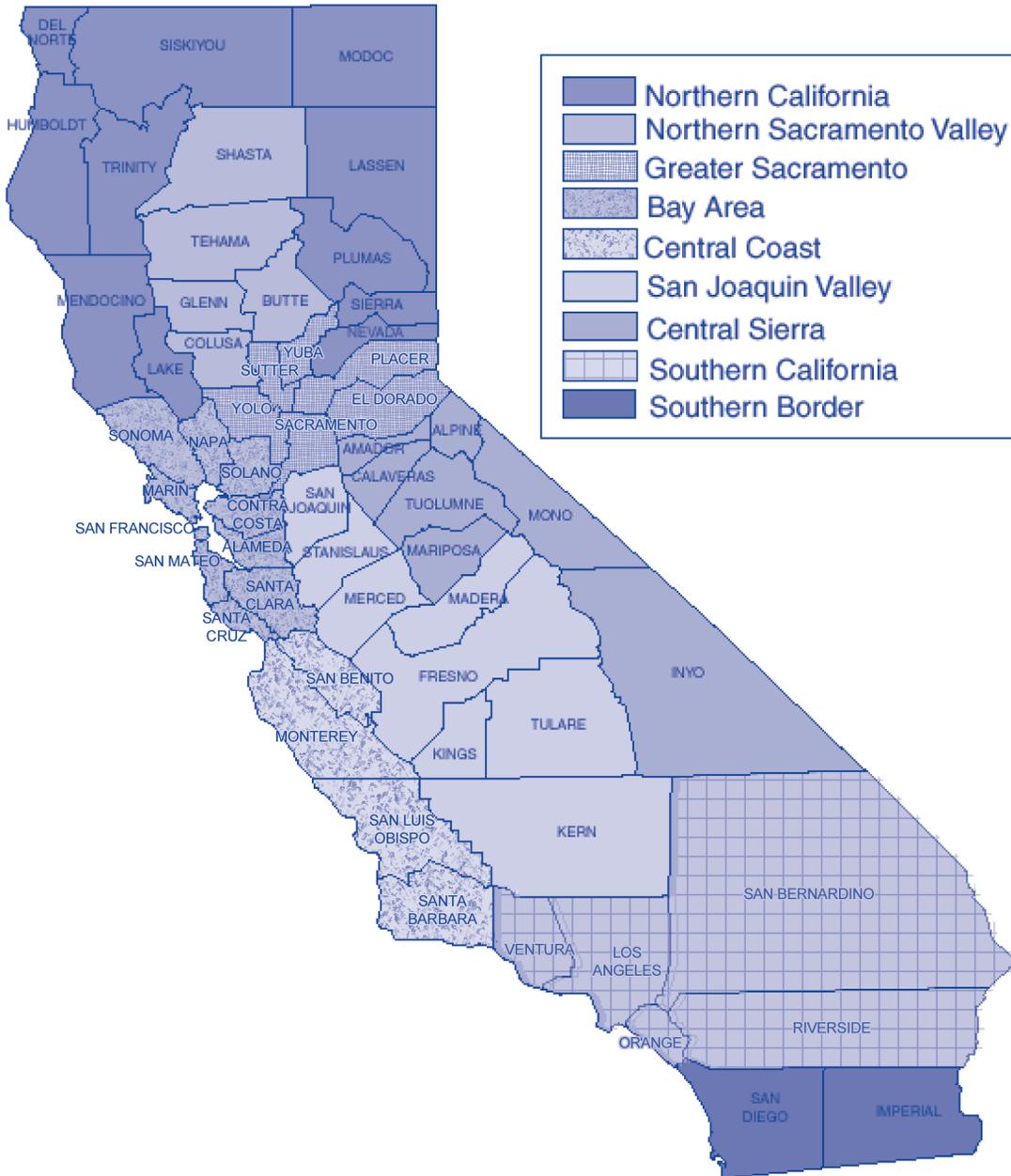
In addition, the Project compiled multi-region, cross-cutting Cluster of Opportunity reports. The focus for these reports was based on recommendations from the user community at regional forums and analysis of trends in the regional data. As a result, the Project focused on industries and occupations involved in:

- *Health Science and Services* (across all nine regions of California)
- *Manufacturing Value Chain* (the value chain of design, production, and logistics sectors in the five most urban regions of the state)
- *Regional Experience/Infrastructure* (in the four most rural regions California)

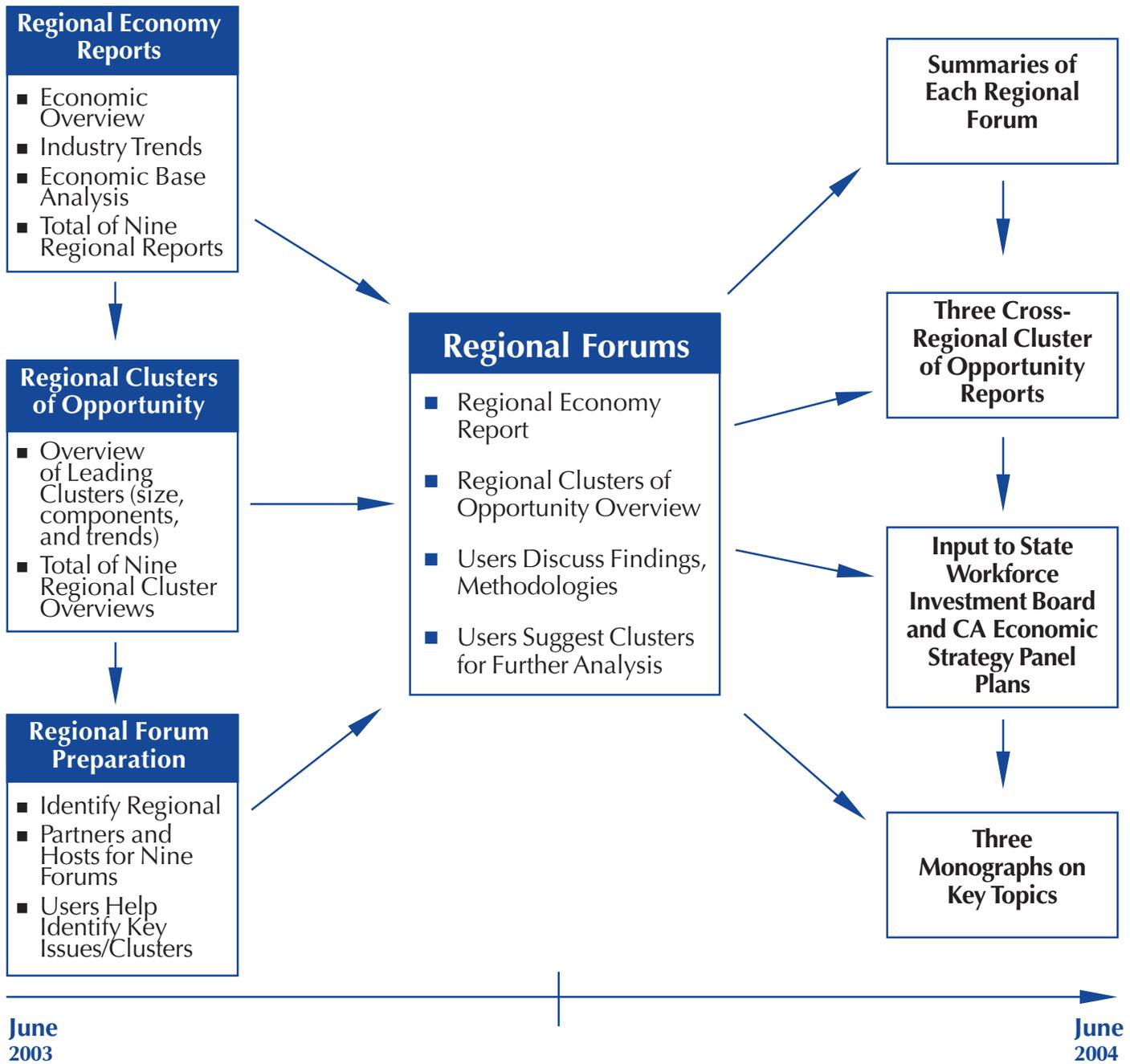
Each region was examined as part of the clusters of opportunity shown below.

Regions	Health Science and Services	Manufacturing Value Chain	Regional Exp/Infra
Northern California	XX		XX
Northern Sacramento Valley	XX		XX
Greater Sacramento	XX	XX	
Bay Area	XX	XX	
San Joaquin Valley	XX	XX	
Central Sierra	XX		XX
Central Coast	XX		XX
Southern California	XX	XX	
Southern Border	XX	XX	

THE PROJECT REGIONS



CALIFORNIA REGIONAL ECONOMIES PROJECT



The Project also produced monographs focused on key policy areas of concern to the regional user community and state-level policymakers. These monographs are focused on:

- *The Conditions of Competitiveness of California's Economy.* This monograph provides a balanced look at California's business climate by examining both cost and productivity factors with a special focus on the role of talent.
- *Innovation, Productivity and California's Prosperity.* This monograph examines the role of innovation in changing industry clusters, the impact of innovation and technology on productivity as well as the impact of productivity on the dynamics of job change.
- *Creating a Workforce Transition System in California:* Based on the regional analysis, this monograph recommends how a workforce transition system could be designed to help workers make transitions both within industries through career progression from entry to mid and higher occupational levels as well as transition across industries through adjustment to structural economic changes.

The monographs reinforce findings from the cluster reports as well—namely the importance of a balanced business climate based on cost and productivity, the imperative of innovation across all industries, and the need for a more effective workforce transition system to support California employers in their drive to innovate and remain competitive in the global economy.

Project Team and Sponsors

The Project Team includes Collaborative Economics (www.coecon.com), Center for the Continuing Study of the California Economy, (www.ccsce.com), California Center for Regional Leadership (www.calregions.org), and J.K., Inc.

The *California Workforce Investment Board* was established in 1998 to provide strategic guidance to the state's workforce investment system. For more information, visit <http://www.calwia.org>.

The bipartisan *California Economic Strategy Panel* was established in 1993 to develop a statewide vision and strategy to guide public policy decisions for economic growth and competitiveness. For more information visit www.labor.ca.gov.

EXECUTIVE SUMMARY

- *In recent years, it has become conventional wisdom to say that manufacturing is on the decline in California. In reality, manufacturing has been transforming—much as agriculture did in prior decades. Today we produce more with fewer people because the manufacturing process has changed dramatically. Yet, while we have fewer jobs in direct production, jobs in other sectors that are integral to manufacturing have increased in many regions of the state.*
- *Clearly, there has been a significant loss of traditional direct production manufacturing jobs in California in recent years, as well as in the rest of the United States. This decline is due to both the impact of cyclical factors, such as the national recession, and longer-term structural economic changes. Much of the loss of manufacturing jobs is the result of productivity gains.*
- *However, manufacturing is neither a single industry nor a single function. It is best to think of today's manufacturing as a "system" or a complex "value chain" that combines design and logistics with just-in-time, lean production to deliver directly to the customer. In short, a "new" manufacturing is emerging in the regions of California, and it is both creating opportunities in some employment sectors and destroying jobs in other sectors. Traditional manufacturing production jobs have fallen in California, but design, logistics and support jobs in manufacturing have grown in that same time frame—and in some regions the shift has been dramatic.*

Design includes companies that provide engineering services, specialized design, and management/technical consulting. Employment in these firms grew 36% from 1990 to 2002, and now makes up 16% of the manufacturing value chain. This sector is highly concentrated in California, with a location quotient of 2.44 relative to the US, and employment growth at an average annual rate of 2.6% from 1990 to 2002.

Logistics includes freight, warehousing, and delivery companies that move goods from producers to customers, including other producers and end users. Logistics employment grew by 29% from 1990 to 2002, and now makes up 17% of the manufacturing value chain. Logistics is highly concentrated in California, compared to the United States on the whole, as demonstrated by a location quotient of 1.77.

Production includes companies that directly produce a good. Within this category are producers of Aeronautical & Automotive Goods, Food & Agriculture, Furniture, Metal & Metal Products, Plastics & Chemical Goods, Semiconductors & Electronics, and Textiles & Apparel. These firms may use the design or logistics services of another firm.

- *The manufacturing value chain is directly responsible for 14% of California’s employment.* Production jobs comprise 67% of this total, with 17% of the jobs in logistics and 16% in industrial design. The following trends are evident:

Design and logistics grew faster than production jobs in any of the major industry sectors in California.

Design and logistics are much more highly concentrated in California compared to the United States.

Production jobs in semiconductor and electronics and metal and metal products remain strongly concentrated in California (more than 50% more concentrated than the U.S. average), while production jobs in other sectors remain at or below the U.S. average.

With the exceptions of aeronautical and automotive goods and semiconductors and electronics, average annual employment declines in production jobs in major sectors were less than 1% per year between 1990 and 2002.

- *The composition of the three parts of the manufacturing value chain in California has shifted in the last ten years.* In 1990, Design & Logistics made up a little less than a quarter of the manufacturing value chain, but by 2002 their share had grown to comprise one third of the value chain. Throughout this transition, the total number of people employed in manufacturing has remained more or less the same, just above two million.

California’s Manufacturing Value Chain Sector				
Share of Employment	1990	1994	2000	2002
Design	11%	12%	14%	16%
Logistics	13%	15%	16%	17%
Production	76%	73%	69%	67%
Total Manufacture	2.2 million	2 million	2.3 million	2.1 million

- *The Manufacturing “value chain” is considered a “cluster of opportunity” because:*

All manufacturing sectors are export oriented and compete in global markets. Through productivity improvements and general innovation, manufacturing generates wealth for California regions.

The size of the California market and its growth continue to create opportunities based on population growth. As the sixth largest economy in the world, California’s demand for goods is considerable, and is projected to continue to grow.

Manufacturing is more highly concentrated in California than the whole of the United States, with a location quotient of 1.24 relative to the US in 2002.

Opportunities exist for workforce transitions within and among key sectors of the value chain, including design, production, and logistics and support. While some kinds of production sector jobs (like assemblers) are declining, other sectors of the value chain (namely, design and logistics and support) are growing. Overall, there is a wide range of jobs at all levels along the manufacturing value chain.

- *The new Manufacturing Value Chain requires getting the right combination of factors in place including skilled workforce, technology, and logistics, as well as creating a business climate that promotes competitiveness. In order to achieve this business climate, regions must add positive factors such as training and remove negative constraints to productivity.*
- *Creating a positive business climate for the manufacturing value chain is an important balancing act between maintaining competitive costs and promoting innovation and high value added opportunities based on California's special market access and workforce skills. Recent reforms of the workers compensation system should be an important step in the right direction in reducing direct labor cost on manufacturers. Other regulatory reforms that streamline the manufacturing and logistics system would help to reduce cost of doing business.*
- *Ultimately, California firms will need to maintain a productivity advantage based on the skills of their workforce, their use of technology, and their overall operations to be competitive in the higher cost environment of this state. The monograph on The Conditions of Competitiveness of California's Economy addresses these issues in more depth.*
- *A major workforce challenge for the new manufacturing value chain is how to retrain current production workers for other opportunities. According to a recent California Research Bureau study, while most job losses have occurred within assembly and machinist occupations, only 15% of assembly workers receive job training (*The Manufacturing Sector and Job Training In California*, California Research Bureau April 2004).*
- *The first major implication of this cluster analysis is a recognition that manufacturing is undergoing a fundamental transformation in California as it evolves into a complex value chain encompassing design-production and logistics to serve customers in more specialized and increasingly direct ways. Understanding the new manufacturing model is the first step to developing appropriate state and regional workforce policies. To date, the assumption has too often been that manufacturing is "declining" or that "the cost of doing business in California" is making manufacturing impossible in the state. Clearly, the picture is much more varied by region, by industry sector and within the changing dynamics of the value chain with the shift away from direct production workers and the increase in design and logistics jobs in most regions.*

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- *Innovation should be promoted in all industries in each regions of the state, not simply in so called “high tech” information or bio industries. Traditional industries such as food production in the San Joaquin Valley have proven to be leaders of innovation by serving growing global markets through investments in technology and training. Likewise, logistics is increasingly dependent upon information technologies to manage the flow of goods, and requires increasing levels of innovation. California and its regions need to adopt pro-innovation strategies for all industries-that includes R&D, technology partnerships between industry and universities, and the movement to commercialization to ensure that California’s manufacturing value- added chains are world class.*
 - *Today, the workforce system is designed to primarily address cyclical employment changes rather than structural changes. The California workforce system needs to be redesigned to assist individuals in managing these transitions. While current programs provide elements of the necessary assistance, they do not utilize real-time information to work as a system in order to meet the greatest needs.*

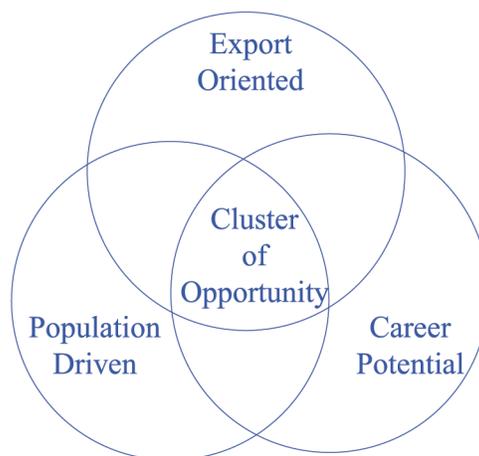
I. IDENTIFYING A CLUSTER OF OPPORTUNITY

WHAT IS A CLUSTER OF OPPORTUNITY?

Using a mix of criteria, the California Regional Economies Project identified several clusters of opportunity in regions across California:

- Consistent with most research and practice, the Project identified clusters that are export-oriented, geographically-concentrated, and interdependent industry sectors characterized by competing firms and buyer-supplier relationships, as well as shared labor pools and other specialized infrastructure.
- Building on this general definition, the Project added two additional considerations that focused on “opportunity”-that is, employment opportunities for regional residents. Thus, the definition of a “cluster of opportunity” focuses not only on export-oriented sectors, but also population-driven sectors-as well as sectors that offer occupations with “career potential.”

Clusters of Opportunity



The California Regional Economies Project responds to two separate sets of regional priorities. Many regional organizations are focused on efforts to promote long-term economic growth that is broadly shared among each region’s residents. The project’s economic base analyses helped identify sectors that have the potential for high-wage job growth such as, for example, biotech.

Workforce investment boards play a role in promoting economic growth but they also have mandates to help residents train for and find jobs when they are unemployed. Workforce investment boards are moving beyond the traditional job-finding role to develop programs focused on career paths and upward mobility.

Many areas of workforce shortage are not in the center of a regions’ economic base. They are in the many population-serving sectors like health care, construction and education. So, the Project focuses on the size of sectors, not just their potential for rapid growth and look closely at population-serving activities as well as each region’s economic base.

The Twin Challenges of Economic Growth and Workforce Investment

Economic Growth

- Identify sectors for innovation and growth, for example, biotech and nanotech
- Identify workforce and other policies to support high growth sectors
- Focus primarily on the region's economic base

Workforce Investment

- Identify sectors where people can find career paths and upward mobility, for example, nursing and construction
- Identify workforce policies that support both individuals and sectors
- Focus significantly on population-serving sectors

The Cluster of Opportunity provides a bridge connecting the goals of workforce and economic development. Workforce development is naturally most focused on preparing people for jobs that exist today, while economic development is often about nurturing not only the industries of today, but those of tomorrow as well. Thus, the sectors or clusters championed for long-term economic development purposes may be providing few jobs today, and even fewer opportunities with career potential, simply because it is not yet at the necessary size and maturity in a given region. The Cluster of Opportunity enables regions to bridge this natural gap between these goals by including some sectors and occupations with requiring immediate workforce development, and some sectors and occupations that are emerging and may be more important in the future.



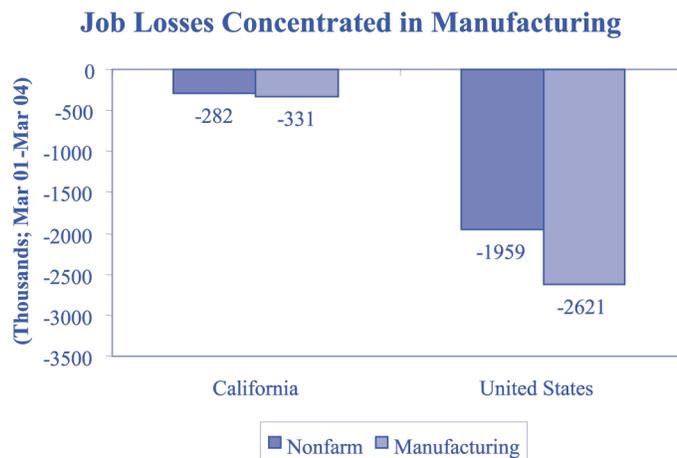
HOW WAS THIS CLUSTER CHOSEN FOR FURTHER ANALYSIS?

Using these criteria, potential clusters of opportunity were identified for discussion at each of the nine regional forums. In identifying potential clusters of opportunity, the Project examined the size, concentration relative to the California average (location quotient), growth, and wages (when available)-as well as past cluster studies and perspectives from regional employers. A panel of employers at each forum offered their perspectives on key clusters, with users concluding the meeting by suggesting certain clusters of opportunity for further analysis.

In the end, three major clusters of opportunity were defined for further analysis, each including a mix of industries and occupations that are export-oriented, population-driven, and have career potential. Since each of these clusters were important in multiple regions, they were analyzed with attention to regional similarities and variations. Supplementing the quantitative employment data, the Project team also interviewed employers from these clusters, identifying opportunities and requirements for future growth and competitiveness.

In particular, the Manufacturing Value Chain “cluster of opportunity” was chosen because:

- *All manufacturing sectors are export-oriented and compete in global markets.* Through productivity improvements and general innovation, manufacturing generates wealth for California regions.
- *The size of the California market and its growth continue to create opportunities based on population growth.* As the sixth largest economy in the world, California’s demand for goods is considerable, and is projected to continue to grow. Manufacturing is more highly concentrated in California than the whole of the United States, with a location quotient of 1.24 relative to the US in 2002.
- *Opportunities exist for workforce transitions within and among key sectors of the value chain, including design, production, and logistics and support.* While some kinds of production sector jobs (like assemblers) are declining, other sectors of the value chain (namely, design and logistics and support) are growing. Overall, there is a wide range of jobs at all levels along manufacturing value chain.



WHAT COMPRISES THE MANUFACTURING VALUE CHAIN CLUSTER OF OPPORTUNITY?

In recent years, it has become conventional wisdom to say that manufacturing is on the decline in California. In reality, manufacturing has been transforming—much as agriculture did in prior decades. Today we produce more with fewer people because the manufacturing process has changed dramatically. Yet, while we have fewer jobs in direct production, jobs in other sectors that are integral to manufacturing have increased in many regions of the state.

Manufacturing Jobs



Clearly, there has been a significant loss of traditional manufacturing jobs in California in recent years, as well as in the rest of the United States. This decline is due to both the impact of cyclical factors, such as the national recession, and longer-term structural economic changes. Much of the loss of manufacturing jobs is the result of productivity gains.

The impact of productivity on manufacturing employment has been global: the United States lost a total 1.95 million factory jobs between 1996 and 2002 or 11.5 percent (during years of both overall job growth and decline) while the world's other major nations—including China and Mexico—have lost 22 million, or 11 percent, of all factory jobs. Around the world, manufacturers have learned to do things better and cheaper with less labor, at the same time global output has increased 30 percent. (Alliance Bernstein Investment Research Report 10/03).

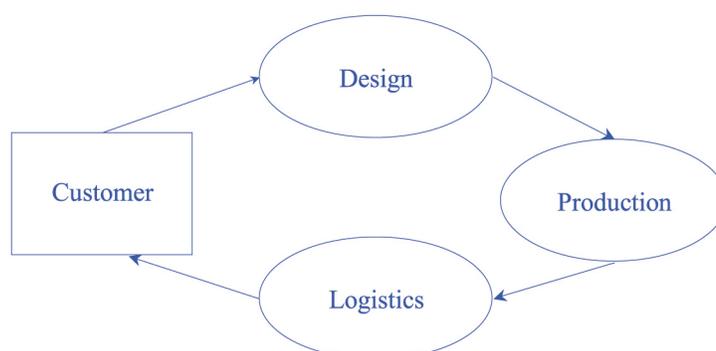
This is also true for other states, which have lost similar or even higher percentage of direct production manufacturing jobs as California since 2001.

The reality is that while manufacturing remains important to the future of California, it is rapidly transforming into a complex cluster that combines design, production and logistics into a just-in-time, lean production system that delivers directly to the customer with less inventory and more design in the process. In short, a “new” manufacturing is emerging in the regions of California, and it is both creating opportunities in some employment sectors and destroying jobs in other sectors. Traditional manufacturing production jobs have fallen in California from 1.7 million in 1990 to 1.4 million in 2002, but design, logistics and support jobs in manufacturing have grown from 500,000 to 700,000 in that same time frame—and in some regions the shift has been even more dramatic. Understanding these new realities is critical to developing effective workforce and infrastructure investment strategies.

Understanding the New Manufacturing Value Chain: the Design/Production/Logistics Cluster

Manufacturing is neither a single industry nor a single function. California manufacturing is made up of many different production sectors (ranging from the processing of food and agriculture products to the construction of semiconductors and electronics), and it encompasses a wide range of functions. It is best to think of today's manufacturing as a “system” or a value chain of interdependent business functions.

The Manufacturing Value Chain



Manufacturing remains an important source of employment for California and most of its regions. However, employment in direct production has been declining while the functions of service, support, and logistics have been outsourced in many cases to other companies. Design, support and logistics have shown employment increases in most regions, even during the recent recession.

California's Manufacturing Value Chain Sector				
Share of Employment	1990	1994	2000	2002
Design	11%	12%	14%	16%
Logistics	13%	15%	16%	17%
Production	76%	73%	69%	67%
Total Manufacture	2.2 million	2 million	2.3 million	2.1 million

As mentioned above, the Manufacturing Value Chain Sector contains three parts:

- *Design* includes companies that provide engineering services, specialized design, and management/technical consulting. Employment in these firms grew 36% from 1990 to 2002, and now makes up 16% of the manufacturing value chain. This sector is highly concentrated in California, with a location quotient of 2.44 relative to the US, and employment growth at an average annual rate of 2.6% from 1990 to 2002. Design is primarily a support sector.
- *Logistics* includes freight, warehousing, and delivery companies that move goods from producers to customers, including other producers and end users. Logistics employment grew by 29% from 1990 to 2002, and now makes up 17% of the manufacturing value chain. Logistics is highly concentrated in California, compared to the United States on the whole, as demonstrated by a location quotient of 1.77. This is a support sector in the manufacturing value chain.

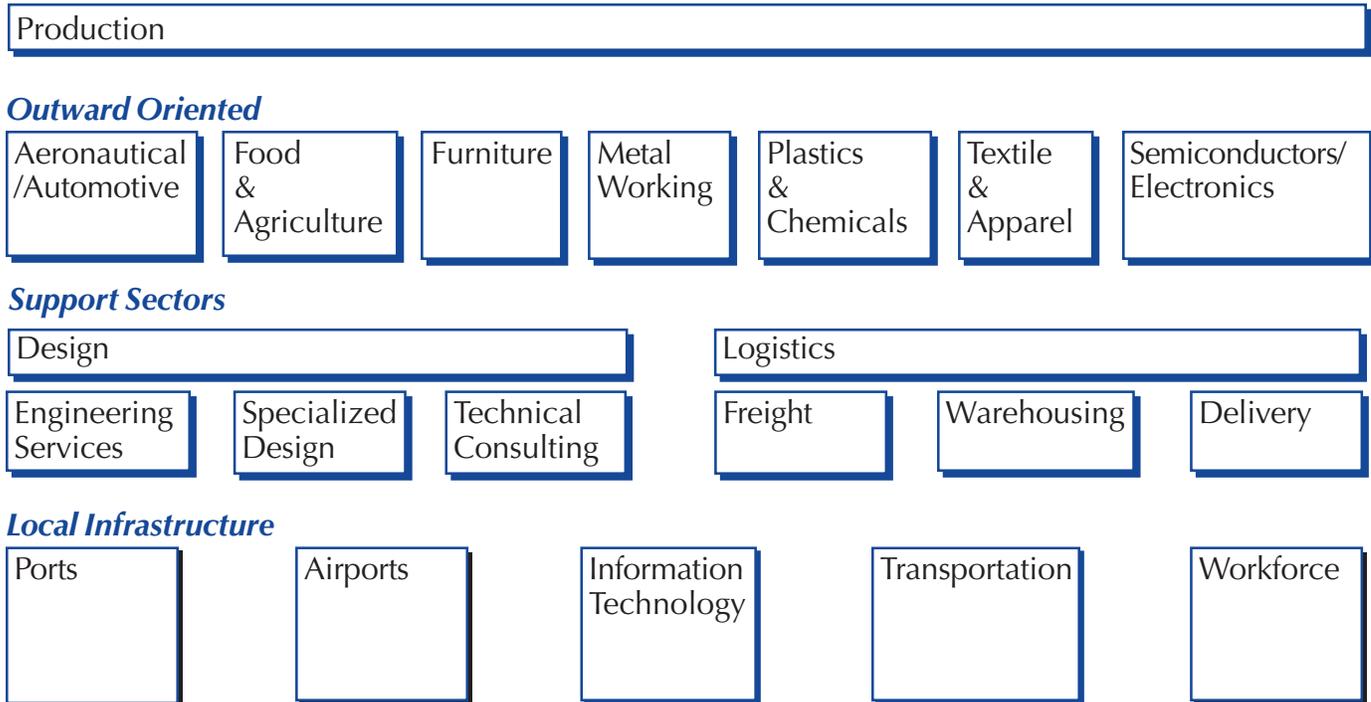
- *Production* includes companies that directly produce a good. Within this category are producers of Aeronautical & Automotive Goods, Food & Agriculture, Furniture, Metal & Metal Products, Plastics & Chemical Goods, Semiconductors & Electronics, and Textiles & Apparel. These firms may use the design or logistics services of another firm. Most of their goods are exported outside of the region, so they are considered outward oriented.

The composition of the three parts of the manufacturing value chain in California has shifted in the last ten years:

- In 1990 Design & Logistics made up a little less than a quarter of the manufacturing value chain, but by 2002 their share had grown to comprise one third of the value chain.
- Throughout this transition, the total number of people employed in manufacturing has remained more or less the same, just above two million.

Customers are also included in the diagram in order to highlight the role that the customer, who may be an end-user or a producer who depends upon other producers for goods in order to manufacture their finished product, plays in driving the manufacturing value chain. The infrastructure to move goods and communication between parties is integral to this process, but the employment numbers are not included for the purposes of calculating the size of the manufacturing value chain.

Manufacturing System Cluster Map

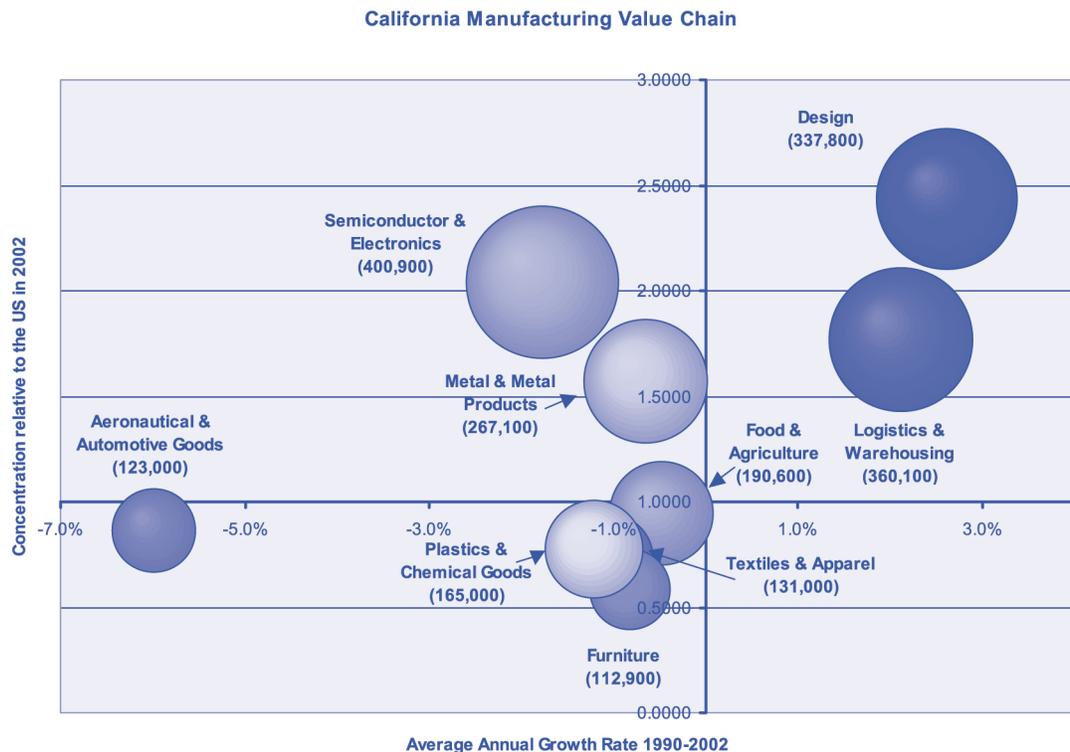


II. PROFILING THE CLUSTER OF OPPORTUNITY

THE STATEWIDE MANUFACTURING VALUE CHAIN

The manufacturing value chain is directly responsible for 14% of California's employment. Production jobs comprise 67% of this total, with 17% of the jobs in logistics and 16% in industrial design. The following chart illustrates the size, growth rate, and concentration relative to the U.S. in 2002. The following trends are evident:

- Design and logistics grew faster than production jobs in any of the major industry sectors in California.
- Design and logistics are much more highly concentrated in California compared to the United States.
- Production jobs in semiconductor and electronics and metal and metal products remain strongly concentrated in California (more than 50% more concentrated than the U.S. average), while production jobs in other sectors remain at or below the U.S. average.
- With the exceptions of aeronautical and automotive goods and semiconductors and electronics, average annual employment declines in production jobs in major sectors were less than 1% per year between 1990 and 2002.



While the loss of production jobs has greatly impacted California regions (Southern California alone lost 274,000 production jobs between 1990 and 2002), jobs are also being created in design and logistics. Southern California, Greater Sacramento and the San Joaquin Valley, for example, have shown particularly strong growth in logistics. The following chart tracks the changes in share across regions in design, logistics, and production.

Composition of Design, Logistics, and Production Employment within the Manufacturing Value Chain										
Year	Bay Area		Greater Sacramento		Southern Border		San Joaquin		Southern California	
	1990	2002	1990	2002	1990	2002	1990	2002	1990	2002
Design	13%	19%	15%	22%	15%	25%	8%	8%	10%	13%
Logistics	12%	13%	22%	25%	14%	18%	16%	24%	11%	18%
Production	75%	69%	62%	54%	71%	57%	77%	68%	79%	69%
Total Manufacture	547,033	522,584	61,275	80,440	139,300	148,400	127,397	145,434	1,286,411	1,074,422

What kinds of jobs are in the manufacturing value chain? Employment figures that are broken out by occupation and function indicate that within design, logistics, and production, a quarter of all jobs are in professional, administration, and support occupations statewide. Within specific functions, the occupational pattern varies, but in each case there are substantial jobs at the higher-level, mid-level, and entry-level. In the case of Design, while 50% of jobs are not surprisingly in high-level occupations, another 35% are in mid-level jobs and 15% in entry-level positions. Production has a much higher proportion of entry-level jobs (37%), but also a similar proportion of mid-level occupations (38%) and a good number of higher-level jobs (25%). Logistics offers the biggest proportion of mid-level jobs (80%), but much smaller numbers of higher-level (11%) and entry-level positions (9%).

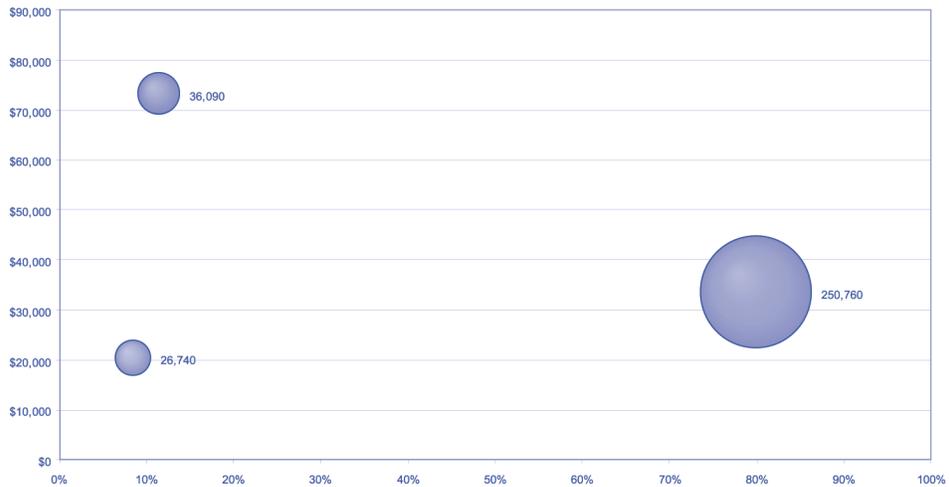
Manufacturing Value Chain Occupational Distribution

	Design	Production	Logistics
High-level	50%	25%	11%
Mid-level	35%	38%	80%
Entry-level	15%	37%	9%

These occupational distributions suggest the potential for career progression within and across functions in the manufacturing value chain. For example, within logistics, an occupational career progression might range from traffic and stock clerks through dispatchers and expediting clerks to transportation, storage and distribution managers, and operations research and logistics analysts. Wages start at \$7-12 hour at the entry levels moving up to \$12-

23 at the next level and \$24 or more levels according an analysis of EDD occupational data for the state of California. This occupational pattern also suggests the need for more focus on the specific pathways and obstacles to career progression in the manufacturing value chain.

The following charts shows average wage levels for the occupations in the high, mid- and entry-levels for design, production, and logistics-as well as examples of specific occupations and their average wages levels. Levels are based on statewide wage distribution: entry-level occupations are considered to be those that are below the 25th percentile on the state wage distribution; mid-level occupations are between the 25th and 75th percentile; and higher-level occupations are above the 75th percentile.



Logistics Occupational Clusters:
Employment Size, Share of Cluster, and Wage Level

Source: California Employment Development Department,
US Bureau of Labor Statistics

● High-Level ● Mid-Level ● Entry-Level

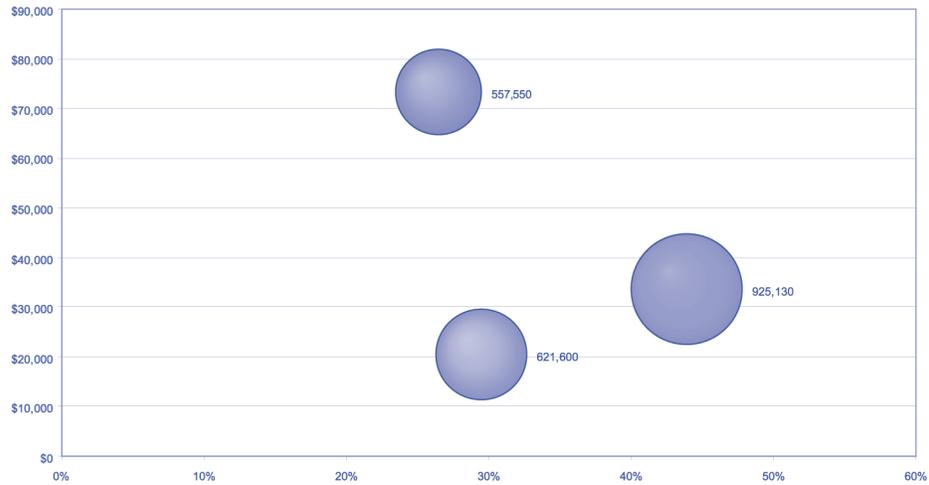
Examples of Logistics Occupations With Average Wages

<i>Higher-Level Occupations</i>	<i>CA Average Hourly Wage</i>	<i>CA Average Annual Wage</i>
General and Operations Managers	\$52.96	\$110,153
Transportation, Storage, and Distribution Managers	\$37.52	\$78,034
Sales and Related Workers, All Other	\$28.66	\$59,609
First-Line Supervisors/Managers of Transportation and Material-Moving	\$27.54	\$57,279
Business Operations Specialists, All Other	\$26.14	\$54,378

<i>Mid-Level Occupations</i>	<i>CA Average Hourly Wage</i>	<i>CA Average Annual Wage</i>
Industrial Truck and Tractor Operators	\$17.86	\$37,147
Truck Drivers, Heavy and Tractor-Trailer	\$17.20	\$35,775
Truck Drivers, Light or Delivery Services	\$14.00	\$29,128
Office Clerks, General	\$13.31	\$27,699
Laborers and Freight, Stock, and Material Movers, Hand	\$12.93	\$26,908

<i>Entry-Level Occupations</i>	<i>CA Average Hourly Wage</i>	<i>CA Average Annual Wage</i>
Reservation and Transportation Ticket Agents and Travel Clerks	\$11.78	\$24,487
Cleaners of Vehicles and Equipment	\$11.02	\$22,923
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	\$10.97	\$22,812
Packers and Packers, Hand	\$10.67	\$22,198
Couriers and Messengers	\$9.52	\$19,801

Source: EDD



Production Occupational Clusters:
Employment Size, Share of Cluster, and Wage Level

● High-Level ● Mid-Level ● Entry-Level

Source: California Employment Development Department,
US Bureau of Labor Statistics

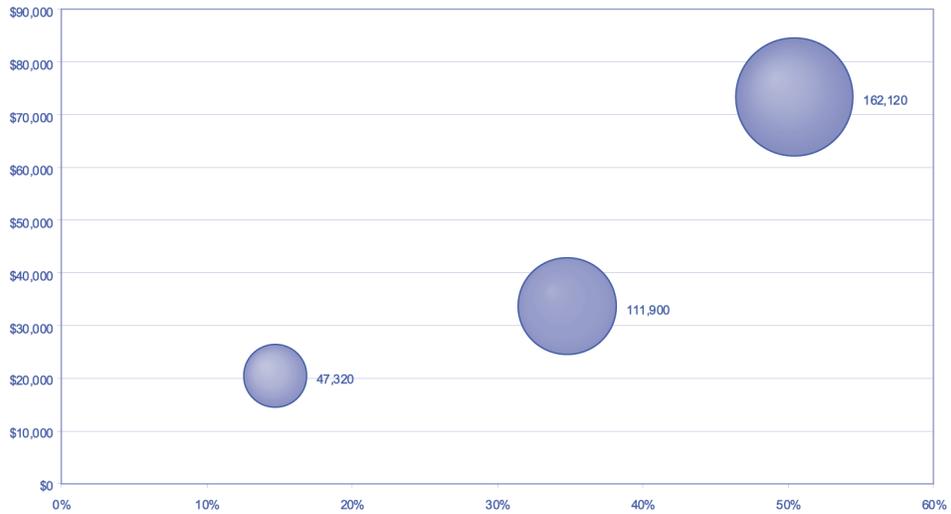
Examples of Production Occupations With Average Wages

<i>Higher-Level Occupations</i>	<i>CA Average Hourly Wage</i>	<i>CA Average Annual Wage</i>
General and Operations Managers	\$58.26	\$121,172
Computer Software Engineers, Applications	\$41.52	\$86,352
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	\$29.79	\$61,964
Purchasing Agents, Except Wholesale, Retail, and Farm Products	\$26.51	\$55,129
First-Line Supervisors/Managers of Production and Operating Workers	\$24.28	\$50,507

<i>Mid-Level Occupations</i>	<i>CA Average Hourly Wage</i>	<i>CA Average Annual Wage</i>
Machinists	\$17.89	\$37,211
Inspectors, Testers, Sorters, Samplers, and Weighers	\$14.59	\$30,361
Electrical and Electronic Equipment Assemblers	\$13.00	\$27,030
Shipping, Receiving, and Traffic Clerks	\$12.95	\$26,934
Team Assemblers	\$11.64	\$24,214

<i>Entry-Level Occupations</i>	<i>CA Average Hourly Wage</i>	<i>CA Average Annual Wage</i>
Laborers and Freight, Stock, and Material Movers, Hand	\$11.14	\$23,185
Production Workers, All Other	\$11.09	\$23,072
Helpers--Production Workers	\$10.32	\$21,463
Packers and Packagers, Hand	\$9.67	\$20,108
Sewing Machine Operators	\$8.64	\$17,968

Source: EDD



Design Occupational Clusters:
Employment Size, Share of Cluster, and Wage Level

● High-Level ● Mid-Level ● Entry-Level

Source: California Employment Development Department,
US Bureau of Labor Statistics

Examples of Design Occupations With Average Wages

<i>Higher-Level Occupations</i>	<i>CA Average Hourly Wage</i>	<i>CA Average Annual Wage</i>
General and Operations Managers	\$63	\$131,132
Management Analysts	\$49	\$102,725
Business Operations Specialists, All Other	\$40	\$82,893
Civil Engineers	\$36	\$75,426
Architects, Except Landscape and Naval	\$36	\$74,925
<i>Mid-Level Occupations</i>	<i>CA Average Hourly Wage</i>	<i>CA Average Annual Wage</i>
Architectural and Civil Drafters	\$21.65	\$45,040
Executive Secretaries and Administrative Assistants	\$20.84	\$43,342
Bookkeeping, Accounting, and Auditing Clerks	\$17.36	\$36,116
Secretaries, Except Legal, Medical, and Executive	\$14.03	\$29,185
Veterinary Technologists and Technicians	\$13.47	\$28,031
<i>Entry-Level Occupations</i>	<i>CA Average Hourly Wage</i>	<i>CA Average Annual Wage</i>
Laborers and Freight, Stock, and Material Movers, Hand	\$11.53	\$23,991
Office Clerks, General	\$11.37	\$23,638
Landscaping and Groundskeeping Workers	\$11.32	\$23,541
Interviewers, Except Eligibility and Loan	\$10.33	\$21,482
Veterinary Assistants and Laboratory Animal Caretakers	\$9.88	\$20,568

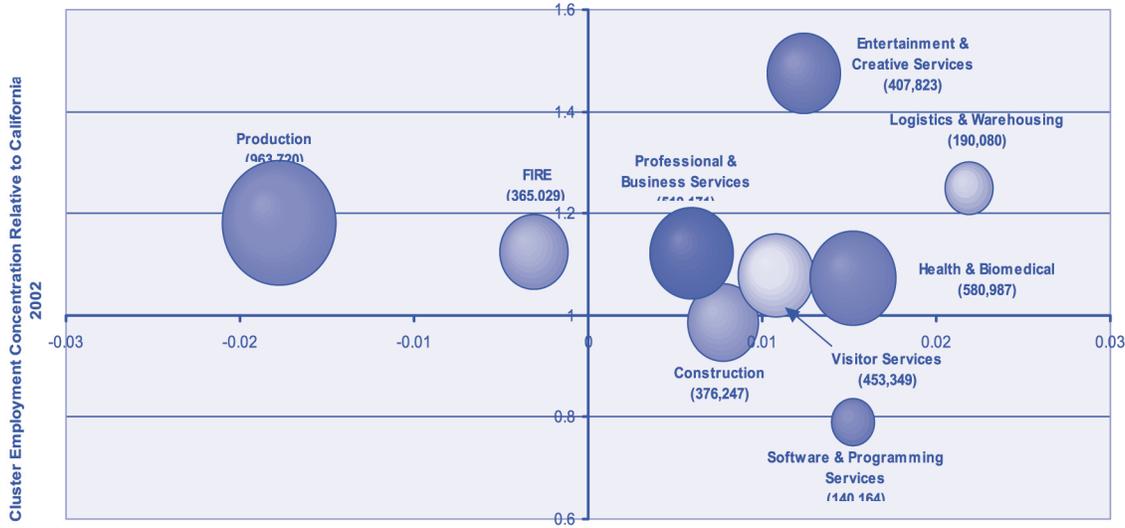
Source: EDD

REGIONAL MANUFACTURING VALUE CHAINS

Southern California

Southern California is one of the areas that have been most strongly impacted by the loss of production jobs as manufacturing transforms.

Southern California Industry Clusters 1990-2002



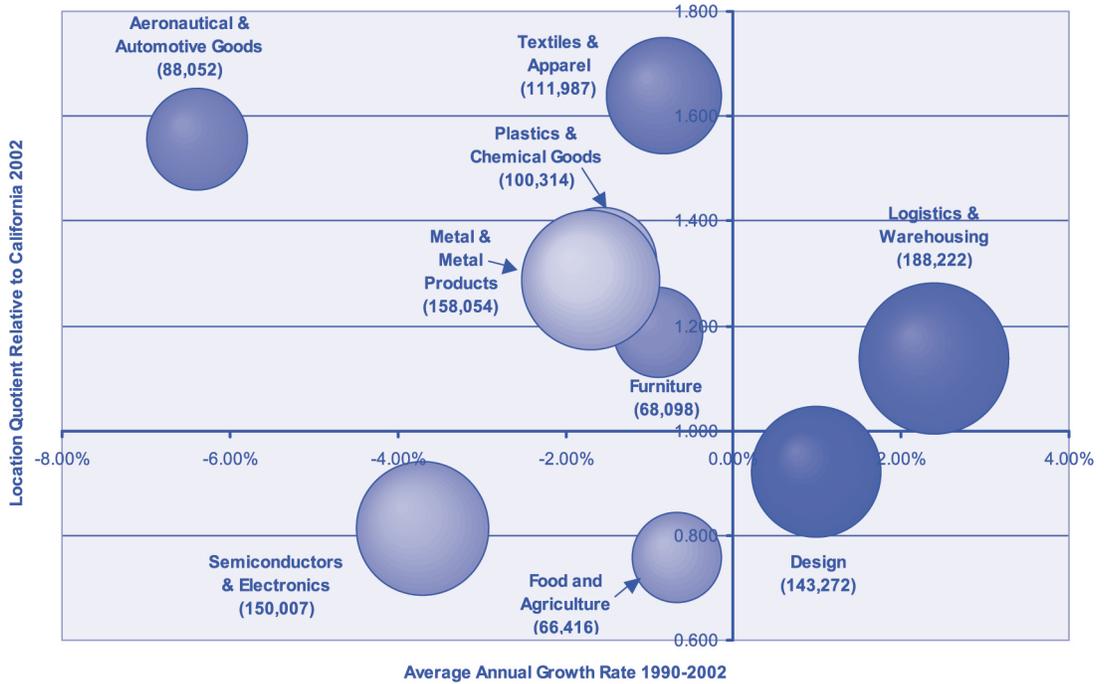
Southern California Employment Cluster by Concentration, 2002 (vertical axis), Average Annual Growth Rate 1990-2002 (horizontal axis) and Employment, 2002 (size of bubble).

While manufacturing stands out in the chart above because it is losing employment at such a high rate, it is also notable because it is one of the most highly concentrated industries in Southern California. In fact, with a concentration of 1.14, production is still more highly concentrated in Southern California than any other region in California. However, upon closer examination of the trends in direct production (see the chart below), not all production sectors are declining rapidly. Food & Agriculture, Textile & Apparel, and Furniture all lost employment at a rate of less than one percent averaged annually from 1990 to 2002.

At the same time, Logistics jobs in Southern California have increased from 11% of the total manufacturing value chain in 1990 to 18% in 2002, while direct production jobs have declined from 79% to 69%. With an annual growth rate of 2.4% and concentration of 1.14 relative to California, Logistics was as equally concentrated as production in Southern California, and growing steadily. This shift is significant in a region where manufacturing remains an important employer and the future of the region is increasingly linked to its ports. This highlights the need for continued infrastructure investment in the region's ports and transportation corridors as well as its links to other regions of the state including the San Joaquin Valley.

The lessons of Toyota have been learned in other industries as firms compete in the global economy using lean production combined with design and logistics to meet the consumer demand in more direct ways. This requires effective supply chain management and well-coordinated systems to link the different functions of the overall manufacturing value chain. Rarely do all of these functions reside in a single region anymore.

Southern California Manufacturing Value Chain



Toyota's Manufacturing Value Chain

Toyota pioneered the “lean production” system. Today it is the second largest automaker in the world with 15 percent global market share. It is the number one car brand and is rated as the most admired automobile company in America. It is the most productive auto manufacturer in the world which means it can make more cars per worker than any one else. Toyota’s productivity lead means that it can produce an equivalent product with only 70 percent of labor hours used to make a car in the United States, and it is 30 percent more productive than the rest of Japanese industry. The company has accomplished this with a system simply called the “Toyota Way”: creating value through the manufacture and delivery of quality products and services through “kaizen” (continuous improvement), building lean systems and structures, just-in-time logistics and respect for people (mutual trust and teamwork).

In many ways, Toyota has become a “logistics company” which manages the flow of its parts on a just-in-time basis to keep inventory very low and ensure quality at each stage of the production process. Southern California is home to Toyota National Logistics. The goal of the North American Parts Operation Center based in Torrance, CA is to ensure that suppliers, parts operations, distributors and dealers receive parts in one day. Their primary objective is to maintain a minimum of stock sufficient to cover actual demand from suppliers in addition to the frequent and planned supply demand that is based on actual sales from distributors and dealers. The key to Toyota’s success has been cost control through just-in-time delivery.

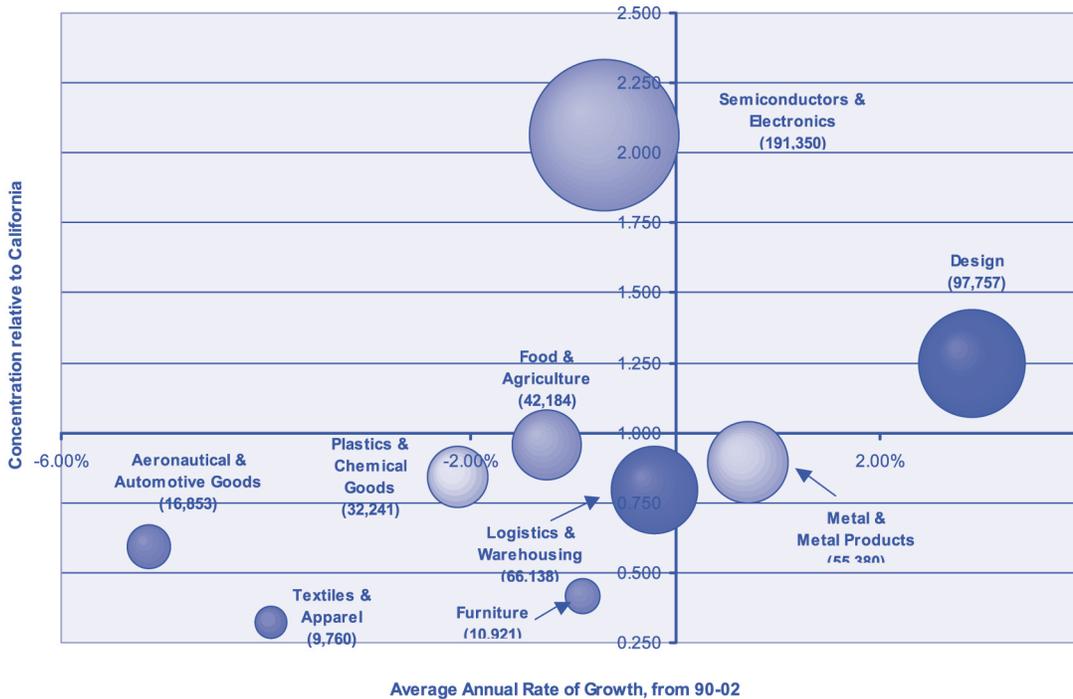
To remain a global leader, economic regions must draw on global talent, technology and capital through global partnerships while locally staying on the cutting edge of research, design, and production. Capable global partners can play an important role by filling out industry supply chains.

These realities raise important questions about the nature of manufacturing today. While both shifting demand and productivity increases have reduced direct production jobs, many “traditional” manufacturing functions are being outsourced to services, logistics, and distribution firms that have become important parts of the new manufacturing supply chains—especially in regions like Southern California where the ports have become an important economic factor. Understanding the new “lean” manufacturing model and how it fits with the global economy is important to understanding the future of manufacturing in California.

The Bay Area

Direct production jobs have generally declined in the Bay Area over the last ten years, with the exception of Metal Working, which is less concentrated in the Bay Area than in California on the whole, but grew at an average annual rate of 1% from 1990 to 2002.

Bay Area Manufacturing Value Chain



After significant job losses in the early 2000s, the Bay Area is now seeing some new manufacturing and logistics opportunities related to the Port of Oakland and its role as a transportation hub. According to a recent study commissioned by the Metropolitan Transportation Commission, goods movement dependent sectors represent 37% of the total output of Bay Area businesses. Including in-house expenditures, Bay Area businesses spend approximately \$6.6 billion annually on transportation, distribution and logistic services. Because of the growing importance of the Port of Oakland, air cargo at the region’s airports,

and rail freight, these goods movement industries account for more than 126,000 employees. The future of manufacturing in the region will be connected to the ability of the region to develop its goods movement infrastructure.

An example of the growing importance of logistics to the new manufacturing can be seen in the case of the New United Motors (NUMMI) facility established in the Bay Area as a joint venture between Toyota and GM which depends on just-in-time delivery of parts. When the West Coast Ports went on strike for a short time in 2003, it had a major impact on NUMMI and other manufacturers who increasingly depend on a just in time manufacturing and distribution system.

All of the Bay Area's leading industries have begun to adapt to the realities of the global economy, building creative partnerships across global regions. In the Bay Area region, the semiconductor manufacturing industry began to develop global partnerships in the 1970s and 1980s. Despite the highly cyclical nature of this industry, Silicon Valley has continued building on its strengths in sophisticated semiconductor equipment manufacturing, high speed microprocessors and "fabless" design while creating linkages with chip foundries in Asia. The logic and memory chip commodity end of the semiconductor industry is increasingly distributed across global regions while design and high-end development remains in the Bay Area along with the high wage jobs. We see this trend in the growth of design (2.9% average annual growth in the Bay Area, from 1990 to 2002) while semiconductor and electronics production jobs have declined (0.7% average annual decline between 1990 and 2002, and a 9.9% decline between 2000 and 2002).

Cisco Systems' supply chain strategy illustrates how one company has distributed and networked business functions using state of the art information technologies:

- A single enterprise system that embraces contract manufacturers, distributors, logistics partners, development engineers, service engineers, sales representatives and customers into a single information system enables business partners to manage much of Cisco's supply chain.
- Information sharing in real time allows the entire supply chain to operate from the same demand signal. This means that any change in one node of the network is immediately transmitted throughout the network.
- Cisco's contract manufacturing partnership directly to customers. Today, suppliers directly fulfill 55 per cent of the company's customer orders.
- Rapid new product introduction is possible by reducing the number of iterations required during prototype development. Automation and better connectivity has helped to reduce time-to-market by three months.

As each industry moves into higher-volume, commodity production, it makes economic sense to move the repetitive, mass production activities to regions that provide cost advantages. At the earlier stages of manufacturing including, research, design, and prototype production, innovation is more important than cost. For that reason, industries concentrate in regions like the Bay Area-which has the second-highest concentration of design industries in the state-that have the human capital to support these high-value activities. At later stages of commodity production, cost becomes more important while regional skills fit is less of a factor, and so production moves to regions with lower-cost labor.

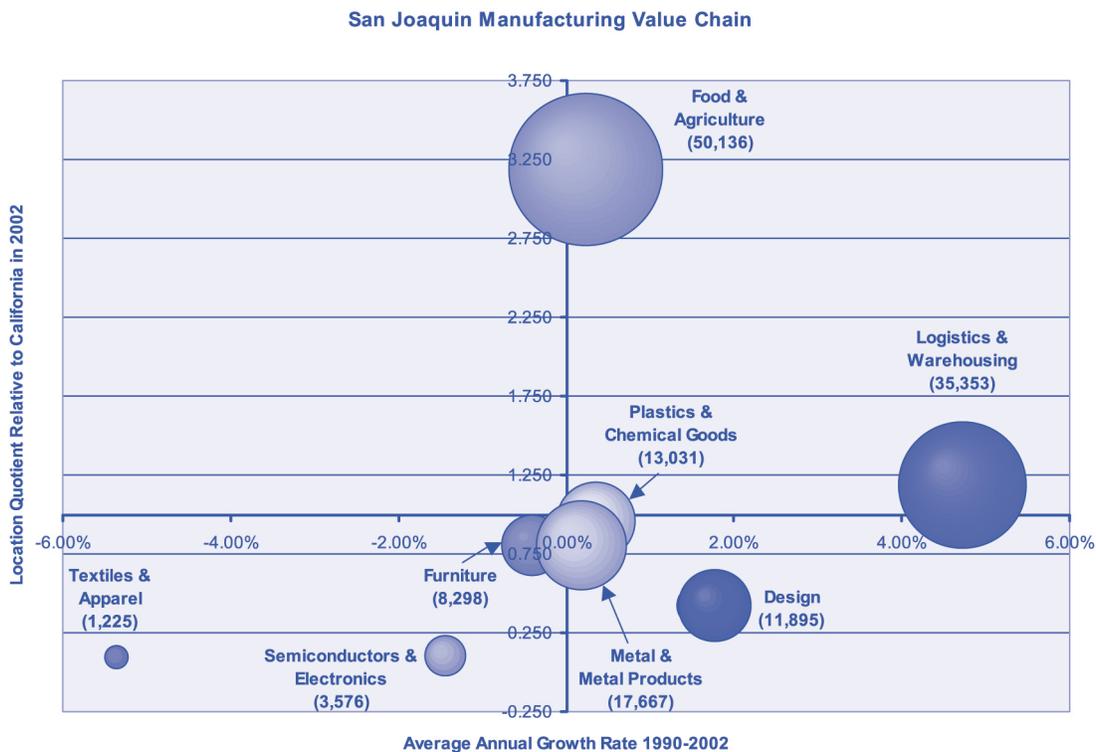
However, this shift does not mean the end of manufacturing. Today, innovative manufacturing encompasses the entire supply chain: from research and design through production and distribution in every industry. While a few companies may continue to house design, production, and logistics under the same roof, many will choose to focus on one part of the system.

The future of manufacturing is less about large factories, and more about smaller, customized production operations and growing production support services delivered to partners globally. It is not just technology-intensive industries that have to adapt agile manufacturing and logistics approaches to remain competitive. This is as true for food processing as it is for semiconductors.

San Joaquin Valley

In the San Joaquin Valley region, food processing remains the most concentrated and largest production industry, with a concentration of 3.18 relative to California. It is growing (an average annual rate of 2% from 2000 to 2002), and at the same time it is changing by moving toward high value products and more efficient production systems.

For example, Ruiz Foods of the San Joaquin Valley, the largest manufacturer of frozen Mexican foods in the United States, is a good example of a food processing company that is practicing new manufacturing methods. It is based in the small town of Dinuba and was established 40 years ago as a family business. Since then, it has grown based on state of the art practices in production, customer satisfaction and workforce development. It also has been addressing broader regional issues such as air quality through van pooling and cogeneration.



Logistics has taken off in the San Joaquin Valley, with an average annual growth rate of 4.7% from 1990-2002, and a concentration of 1.19 relative to California. The Fresno Regional Jobs Initiative, a collaborative regional initiative among business, government and education, is focusing on opportunities in agile manufacturing and logistics as part of an overall effort to create 30,000 net new jobs in the next 10 years.

Logistics has become an opportunity for the San Joaquin Valley due to its location. With access to most of the West Coast population within a one day drive by truck, the region has become a hub for inter-modal transportation along its major highway routes, including I-5 and Highway 99. In the region alone there are over 423 transportation companies responsible for \$2.1 billion in sales annually (Fresno Regional Jobs Initiative Report, p. IV-38).

The San Joaquin Valley is well positioned to take advantage of its central location relative to major markets within California and the ports of Southern California and the Bay Area for access to other western markets. For example, IKEA selected the Tejon Industrial Complex near Bakersfield for its 1.7 million acre Western North America Division because from there it could access every market in California on a turn-around trip. IKEA also services its stores in Houston and San Diego from this hub.

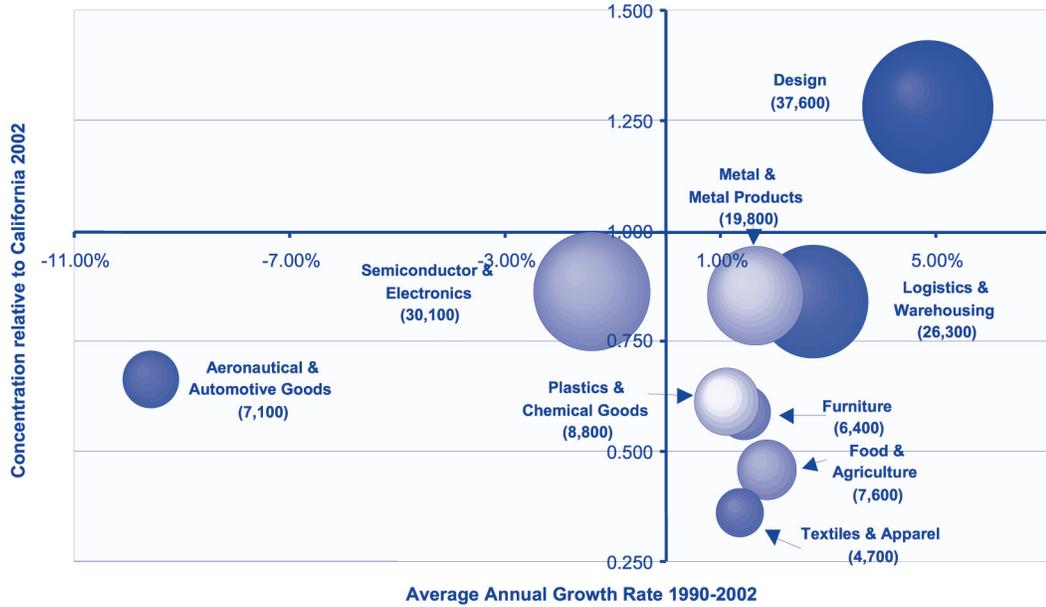
Southern Border

The Southern Border has the strongest design sector in the state of California, with a concentration of 1.28 relative to California and an annual growth rate of 4.8% from 1990-2002. Average annual growth rate in design is also rising in the Southern Border Region, up to 5.9% from 2000 to 2002. In total, the design sector makes up 25% of the Region's manufacturing value chain.

While Logistics and Warehousing was still less concentrated in Southern Border than the whole of California in 2002, growth was strong from 1990 to 2002 at a rate of 2.7%.

The Southern Border is unique because while none of the production sectors are more concentrated in the region than the California average (i.e., the location quotient when compared to the state is below one for all production sectors), the majority of region's production sectors grew from 1990 to 2002. Food and Agriculture, which is less than half as concentrated in the Southern Border as California, showed the strongest growth at 1.8% between 1990 and 2002, and increasing to an average annual growth rate of 6.5% from 2000 to 2002. Production of Metals and Metal Products, one of the most highly concentrated production sectors in the region, grew at an average annual rate of 1.6% during the period of 1990 to 2002. Textile & Apparel and Furniture both averaged growth of 1.4% annually from 1990 to 2002. Finally, production of Plastics and Chemicals Goods grew at 1.1% annually, for a total growth of 14% from 1990 to 2002.

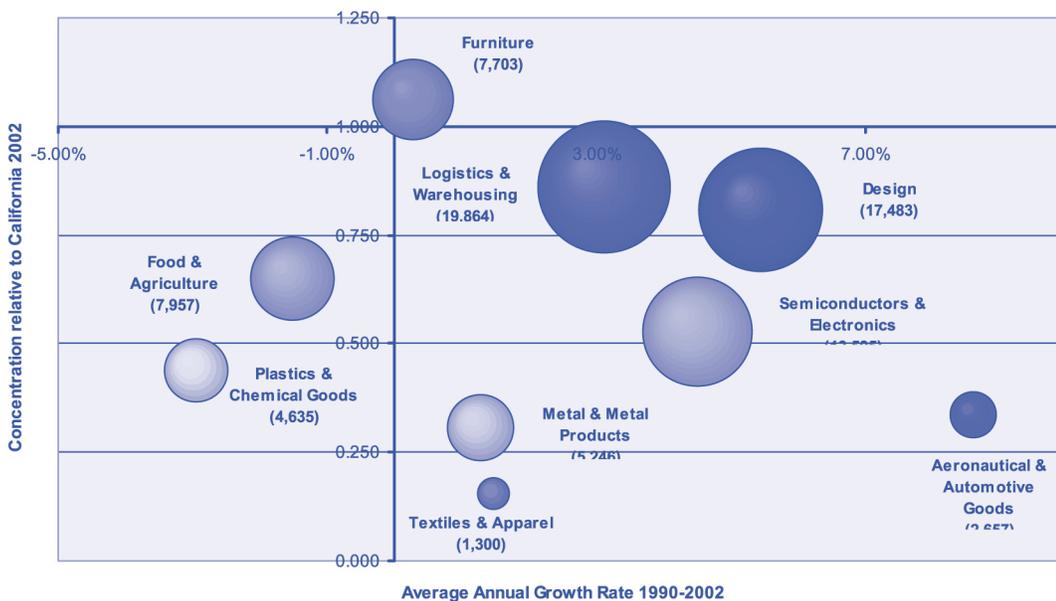
Southern Border Manufacturing Value Chain



Greater Sacramento

Design showed strong and consistent growth in Greater Sacramento from 1990 to 2002. The sector grew at an average annual rate of 5.4% in that time period, with a total growth of 89%. The 17,500 employees in companies that produce for the design sector made up 22% of the Greater Sacramento manufacturing value chain in 2002.

Sacramento Manufacturing Value Chain



Logistics also fared well in Greater Sacramento where the sector had a concentration of .86 in 2002, and an annual growth rate of 3.1% from 1990 to 2002. Together, design and logistics made up almost half of the manufacturing value chain in Greater Sacramento in 2002.

Total production grew by 1.0% in Greater Sacramento, but there were a few stand-out sectors within production. While Furniture is only slightly more concentrated in Greater Sacramento than in the whole of California, with a location quotient of 1.06, it is by far the most highly concentrated production sector in the region.

The real challenge facing California regions is that not all production sectors are becoming more productive. Innovation has been concentrated in a few sectors so far. While overall manufacturing productivity growth has been growing at 4.6% annually since 1997 nationwide, most of that gain is concentrated in autos, pharmaceuticals, medical equipment and computers/software. There have not yet been enough productivity gains in other manufacturing sectors, including furniture (1.3% average annual growth in productivity between 1997 and 2003), fabricated metals (1.3%), and primary metals (2.9%). This is generally due to the small size of many of these firms and the reluctance of these firms to adopt new technologies or upgrade the skills of their workforce to develop new products for competitive global markets. Nationally, manufacturers spent \$109 billion of their own funds on research and development in 2001. However, two-thirds of that was in information technology, biotechnology and auto manufacturing (Business Week, 5/24/04).

California manufacturing industries, including large and small firms across all sectors in every region of the state, must adopt strategies to promote innovation in order to successfully compete globally. There is much that the state and regions can do to help promote a pro-innovation environment, while at the same time reducing cost of operations.

WHAT ARE KEY OPPORTUNITIES AND REQUIREMENTS FOR FUTURE GROWTH AND COMPETITIVENESS?

The new Manufacturing Value Chain requires getting the right combination of factors in place including skilled workforce, technology, and logistics, as well as creating a business climate that promotes competitiveness. In order to achieve this business climate, regions must add positive factors such as training and workforce investment and remove negative constraints to productivity.

Address Business Climate Issues

While costs still matter for the manufacturing value chain, the primary costs are no longer direct labor costs. The overall manufacturing value chain must be as productive as possible in each stage from design to production to logistics as demonstrated by lean production systems, to be competitive in a relatively high cost environment such as California. Most California manufacturing firms are small employers who face a number of constraints to operating in this state. The overall cost for manufacturers to operate in California statewide is approximately 30% higher than the nation, according to a recent study by the Milken Institute. Factors such as high housing costs, energy, and workers compensation rates have created cost challenges for California manufacturers.

At the same time, California's manufacturing industries continue to employ more workers than any state in the nation with the exception of Texas. The percentage of California total income from manufacturing occupations is still higher than the national average. California manufacturers have close proximity to the California market, the 6th largest economy in the world, and California's ports give access to Asia, the fastest growing market in the world. There clearly remain many reasons for firms to do business in and from California.

Creating a positive business climate for the manufacturing value chain is an important balancing act between maintaining competitive costs and promoting innovation and high value-added opportunities based on California's special market access and workforce skills. Recent reforms of the workers compensation system should be an important step in the right direction in reducing direct labor cost on manufacturers. Other regulatory reforms that streamline the manufacturing and logistics system would help to reduce cost of doing business.

Ultimately, California firms will need to maintain a productivity advantage based on the skills of their workforce, their use of technology, and their overall operations to be competitive in the higher-cost environment of this state. The monograph on Conditions of Competitiveness of California's Economy addresses these issues in more depth.

Meet Infrastructure and Workforce Requirements for Design, Production, and Logistics

Regions of California are beginning to take advantage of the economic opportunities within the design/production/logistics cluster. Southern California and the Bay Area are both developing visions and strategies that focus on both physical infrastructure and workforce requirements for new manufacturing/logistics. San Joaquin Valley is also beginning to develop strategies for agile manufacturing and logistics for the region.

Southern California continues to be one of the nation's most dynamic gateways for international trade. The Ports of Los Angeles and Long Beach respectively serve the second and third highest volumes of trade in the nation, and the Los Angeles International Airport ranks eighth nationally in value of trade. Despite the loss of direct production manufacturing jobs during the 1990s, the region's economic base has become more diversified with stronger ties in international trade and logistics, as well as entertainment, tourism and business services. The vision that Southern California is now developing for the future is focused on its role as a "gateway," with the transportation and logistics support essential to support these activities (SCAG, 2003-2004 Annual Report). The shift of manufacturing employment from direct production jobs toward logistics and design suggests that that transition is now taking place. It will require continued and sustained investments in both transportation and human resource infrastructure. Proposed cuts in transportation will have a major economic impact in this region, delaying necessary service improvements and the development of growth of the logistics employment.

The Gateway Cities Partnership, based in the region of Southern California around the Port of Long Beach, has focused on encouraging development of logistics training programs to meet growing employment opportunities for entry-, middle-, and higher-level occupations. In Los Angeles County alone, logistics grew by 6,950 from 1997 to 2004. They face the challenge of preparing a region with relatively low educational attainment (58% of the adult

population has a high school education or less) for these employment opportunities. Gateway Cities Partnership works with local institutions to focus on career pathways to help workers move from office, administrative, stock, and traffic clerks to accounting, customer service, and dispatchers to first line supervisors for transportation and materials movement into higher level management, research and logistic analyst positions.

A major workforce challenge for the new manufacturing value chain is how to retrain current production workers for other opportunities. According to a recent California Research Bureau study, while most job losses have occurred within assembly and machinist occupations, only 15% of assembly workers receive job training (The Manufacturing Sector and Job Training In California California Research Bureau April 2004).

The California Research Bureau found the following:

- The Employment Training Panel (ETP), Workforce Investment Boards and Vocational Education through Community Colleges provide formal training to assembly line workers.
- 23% of California workers receive formal training during each year; 41% of training is provided by community colleges; 36% by technical schools; and 21% by high schools.
- The ETP spent \$27 million on 23,000 workers in 2002/03.
- Workforce Investment Boards served 71,000 adults in 2002, 41,000 of whom were dislocated workers.
- Community Colleges annually provide 340,000 student enrollments in non-credit vocation and technical education.

The report identifies a number of options for addressing this challenge:

- Employers should be offered incentives to help low skilled workers improve their skills. This could be done through public private partnerships involving community colleges.
- Community colleges, Workforce Investment Boards, and the ETP should develop partnerships among themselves and with the manufacturing sector in order to train assembly workers. The current system is disjointed.
- Focus the ETP to train displaced workers.
- Increase the FTE (Full Time Equivalent) reimbursement amount for courses in the Community Colleges that target the manufacturing industry, to cover the actual cost of providing these courses.

The challenges of helping individuals to manage workforce transition are found in other industries in California regions, including the health care industry, where there are urgent challenges in nursing and health professions. The monograph on managing workforce transitions addresses these issues and suggests how the California workforce system could be redesigned to help deal with these challenges that result from structural changes in regional economies.

III. Implications for State and Regional Action

IMPLICATIONS FOR STATE AND REGIONAL ACTION

The first major implication of this cluster analysis is a recognition that manufacturing is undergoing a fundamental transformation in California as it evolves into a complex value chain encompassing design-production and logistics to serve customers in more specialized and increasingly direct ways. Understanding the new manufacturing model is the first step to developing appropriate state and regional workforce policies. To date, the assumption as too often been that manufacturing is “declining” or that “the cost of doing business in California” is making manufacturing impossible in the state. Clearly, the picture is much more varied by region, by industry sector and within the changing dynamics of the value chain, with the shift away from direct production workers and the increase in design and logistics jobs in most regions.

This recognition of the changing nature of the manufacturing value chain leads directly to several specific implications.

Develop Innovation Strategies for the Manufacturing Value Chain

Innovation should be promoted in all industries in each regions of the state, not simply in so called “high tech” information or bio industries. Traditional industries such as food production in the San Joaquin Valley have proven to be leaders of innovation by serving growing global markets through investments in technology and training. Likewise, logistics is increasingly dependent upon information technologies to manage the flow of goods, and requires increasing levels of innovation. California and its regions need to adopt pro-innovation strategies for all industries-that includes R&D, technology partnerships between industry and universities, and the movement to commercialization to ensure that California’s manufacturing value added chains are world class. This requires an innovation strategy that is focused on increasing productivity in key element of the manufacturing value chain. California can create high paying jobs by becoming an innovative leader in design and logistics.

Help Individuals Manage Workforce Transitions

As we have seen, the structural changes caused by global competition, new technologies, and productivity growth have caused disruptions in the workforce and have required individuals to make difficult transitions both within industries and across industry sectors. Today, the workforce system is designed to primarily address cyclical employment changes rather than structural changes. The California workforce system needs to be redesigned to assist individuals in managing these transitions. While current programs provide elements of the necessary assistance, they do not utilize real time information to work as a system in order to meet the greatest needs.

Within manufacturing, assembly workers have been losing their jobs due to productivity gains as well as shifts in global demand. Currently, these workers only receive a small portion of total training. Regions should have the discretion to design innovative partnerships

involving Workforce Investment Boards, community colleges and other training institutions to help prepare dislocated assembly workers for jobs in other growing clusters such as logistics or design. The program for logistics worker career training in Gateway Cities is an example of the potential for this kind of innovative partnership. The state needs to address corollary infrastructure investment needs, especially with regards to ports, telecommunications and transportation requirements for advanced logistics.

CONCLUSION: HOW THIS CLUSTER REPORT CAN BE USED

The information and analysis generated by The California Regional Economies Project, including this cluster report, can be used in many ways by many users across the state. It can:

- Provide local general purpose government, councils of governments and other municipal bodies with timely information on employment growth and decline by industry statewide and in each economic region to help them prepare targeted infrastructure investment plans and identify economic development priorities
- Provide State and local employment training and education organizations with detailed information on high demand occupations by industry statewide and in each economic region to assist in the development of targeted workforce investment plans, curriculum development, school to career partnerships, and industry sector initiatives
- Provide State and local economic development organizations with an analysis of industry trends in employment growth and concentration by industry statewide and in each economic region to assist them in the development of successful local economic strategies
- Provide human resource officers, employment agencies, labor councils, and community services partners with timely information about changing industry needs and occupational demands to better serve employers and workers
- Provide State and local business and industry associations and their members with an analysis of industry trends in employment growth and concentration for their industry statewide and in each economic region, to adjust their business plans to documented economic trends and conditions and assess workforce needs and gaps
- Provide State and local research organizations and consulting firms with base line data for comparative studies on the employment growth and decline of key industries statewide and in each region to assess the potential causes for these trends and their impact on the economy statewide and by region.
- Provide the Legislature (at the State and district levels) and the Administration with the ability to track the economic impact of employment growth and decline on an ongoing basis, for informing policy debates about the state of the California economy and aligning state resources and policies to support regional strategies
- Provide the general public, news organizations and opinion makers with accurate information about employment growth and decline by industry statewide and in each economic region to build a better understanding of economic trends and their implication for California workers, businesses and investors

