

# Southern California Regional Report

■ ■ ■

2005

Moya Gollaher







# California: Economic Overview 2005

## ***Gross Product***

In the period between 2001 and 2003, there was a gap between the performance of the State as a whole and the Los Angeles five county area. In 2004 and 2005, there was a welcome convergence.

## **Gross Product Comparisons, 2003**

1	United States	\$10,985.5
2	Japan	4,301.8
3	Germany	2,408.6
4	United Kingdom	1,798.6
5	France	1,754.3
6	Italy	1,470.9
	California	1,440.7
7	China (excluding Hong Kong)	1,409.9
8	Canada	866.9
9	Spain	840.1
	<b>SD/LA/OC</b>	<b>753.7*</b>
10	Mexico	626.1
11	South Korea	605.4
12	India	575.3
13	Australia	512.7
14	Netherlands	508.2
15	Brazil	497.9
16	Russia	434.2
17	Switzerland	309.4
18	Belgium	303.1
208		
19	Sweden	301.8
20	Taiwan	286.0

\*San Diego estimated at \$101B Sources: IMF, LAEDC

## ***Trends in Major Industries***

***Technology:*** There are conflicting views about the outlook for this industry in 2005. Some see continued moderate growth, while others see a slowdown. For example, the Semiconductor Industry Association is forecasting essentially flat sales during the year (after a record year in 2004), but the Association's outlook for 2006 calls for a 6.3% sales gain. Federal tax breaks for business investment expire at the end of 2004, which could further crimp tech equipment sales in early 2005. On the plus side, corporate profits have been strong, and several industry sectors are talking about ramping up overall capacity.

By specific sector, software sales in 2005 are expected to be slow, but prospects for hardware are very good. In the telecom sector, competition remains fierce, but both cable and phone companies are rolling out new services that should drive hardware purchases.

Statewide employment in this sector has been sliding since the 2000 peak of 1,076,800 jobs. In 2004, there was a further job loss despite a turnaround at mid-year. The good news for 2005 is a 19,600 job gain, with almost all segments participating. However, there is lingering concern that both manufacturing and development work will continue to go overseas due to the high costs of operating in California.

***International trade:*** This industry should see the total value of two-way trade through the state's three customs districts increase by 14.8% to \$459.3 billion in 2005. This comes on the heels of 2004's 14.2% gain. Setting the

# California: Economic Overview 2005

growth pace in 2005 will be the San Francisco Customs District, up by 18.4% to \$111.2 billion. The Los Angeles Customs District should see a 13.9% gain in two-way trade to a new record level of \$303.6 billion in 2005, while San Diego should record a 12.4% increase to \$44.5 billion.

Two thorny issues for the international trade industry developed during 2004 --congestion and fall of capacity on the railroads. Making matters worse, cargo volume in 2004 was higher than forecast, while the first of the "mega" ships (8,000 or more TEUs) went in to service.

Port terminal projects have been vigorously challenged by environmental groups, since the facilities have been fingered as major sources of diesel pollution in the Los Angeles area.

**Travel & tourism:** Despite high gas prices and some labor problems at hotels in Los Angeles and San Francisco, this industry had a good 2004, and can look forward to an even better 2005. Foreign tourism picked up towards the end of 2004, thanks to the decline in the value of the U.S. dollar, and further declines are expected in 2005. Also helping will be the 50<sup>th</sup> anniversary celebration at Disneyland and a King Tut exhibit in Los Angeles. A further boost in 2005 should come from business travel, due to improving corporate profits.

**Agriculture:** The state's industry did fairly well during 2004. The weather was somewhat

variable, which reduced yields of many products. Demand, however, was good, especially in international markets due to the declining value of the U.S. dollar. Cash receipts should be around \$30.3 billion for the year. The results for 2005 will depend on the weather, but will also continue to benefit from



Port of Los Angeles

the weaker dollar. Foreign competition will remain fierce. In 2005, the increase is estimated at 18,000 jobs, moving the annual average to 414,500 workers.

**Construction:** The number of housing permits in the state during 2005 should ease down by 4.8% to 197,500 units. This comes after a very strong performance in 2004 with a count of 207,500 units, the highest level of activity since 1989. New home construction will ease further during 2006.

Office, industrial and retail construction were all strong during 2004, despite high vacancy rates in the Bay Area.

## **The Key Three**

These issues will have major implications for California's economy:

- **BRAC** or the base realignment and closure

## California: Economic Overview 2005

process, with the latest round of proposed closures to be released by the Secretary of Defense in May 2005. California has 62 military installations and is considered vulnerable. People around the state are very nervous, including the Bay Area and Los Angeles and San Diego counties. The job and tax revenue loss potential is significant.

- **BUDGET**, with the deficit for the 2005-06 tax year estimated at between \$6 and \$10 billion. While statements have been made that there will be no tax increases, many point out there will have to be some type of tax hike to avoid major cuts in various programs.

- **BUSINESS ENVIRONMENT**; There also were some modest improvements: legislative reform to minimize "nuisance" lawsuits, and minimal reduction in the cost of workers' compensation insurance. On the downside, there is talk of increasing the minimum wage and of a "split-roll" tax on real estate.

- **CONGESTION** has become a hot topic. While traffic congestion has long been an acknowledged problem for people (this is starting to change lifestyles), freight congestion has jumped up the agenda,

### Net Results

California's non farm employment will increase by 1.7% or by 253,700 jobs in 2005. The state's unemployment rate should inch down from an average of 6.1% in 2004 to

6.0% in 2005. Total personal income should increase by 6.2% in 2005, after a 5.4% gain in 2004.

The inflation picture will remain mixed during 2005. Much of the punch will continue to

come from the southern half of the state. While there is a significant amount of new retail development underway attention will have to be paid to changes in retailing.



Governor Schwarzenegger

Many other issues will impact the state's economy over the next two years, and the political dynamics in Sacramento promise to be quite wild in 2005, especially with the Governor talking about calling a special election.

### Growth in Southern California

The economic news out of Southern California has been bright, and 2005 will see further job gains. The forecast for 2005 calls for 157,700 jobs to be created in the region.

### Risks to the California Economy

- A hot summer in 2005 that causes power shortages in Southern California.
- More congestion problems at the Southern California ports.
- No honest solution to the state's 2005-06 budget problem, putting off the bad news until the 2006-2007 budget season.

# Outlook for San Diego: Economic Overview

## OUTLOOK FOR SAN DIEGO COUNTY

The County's economy did fairly well during 2004, and prospects for 2005 look even better. However, there are two clouds hanging over San Diego. One is the severe financial problems with which the city of San Diego. The second is dealing with the BRAC process (the County has a lengthy list of facilities, with several felt to be at significant risk).

### Positive Economic Forces

- There will be continued growth in aerospace (the County's programs don't seem to be at risk of cuts).
- The stem cell initiative should benefit the bio-med industry.
- The tech sector should do OK.
- The tourist industry should have another bang-up year.
- Indian gaming continues to gain critical mass.

### Negative Economic Forces

- How quickly can the city of San Diego dig out of its financial problems? Construction of public facilities has already been put on hold.
- Despite investment in mass transit, the County still faces congestion issues.
- A BRAC closure would hurt.
- Also worrisome is the lack of progress on finding a site for a new airport. On-going disagreements have resulted in continued tinkering at Lindbergh Field to get a little bit more capacity.



### Net Results

Nonfarm employment in the County should increase by 1.9% or by 23,500 jobs in 2005. This will be an improvement on the results for 2004, when there was a 1.4% gain. By sector, the best results will come in construction (+8,800 jobs), leisure & hospitality services (+3,100 jobs), and retailing and finance & insurance at 2,000 new jobs each. The manufacturing sector should eke out a small job gain during the year.

The County's unemployment rate will ease down to an average of 3.6% in 2005, from 2004's average of 3.9%. The cycle high was 4.3%, in both 2002 and 2003.

# Outlook for San Diego: Economic Overview

Total personal income in the County should move ahead by 6.5% on the heels of a 5.8% increase in 2004. However, inflation is a little worrisome.

At the last reading in the first half of 2004, inflation was up by 3.7% over the year. Taxable retail sales will increase by 9.6% in 2005, a modest bump up from 2004's 9.4% gain. A lot of retail capacity continues to be added in the County. Another boost to retail comes from tourism, where San Diego has been very successful. The 15.5 million overnight visitors annually do a lot of spending.

New homebuilding in the County will continue to be lackluster in 2005, with the number of units permitted declining by 3.6%. However, this will be an improvement over 2004 when the unit count declined by 8.8%. The performance of the resale housing market in 2005 will be interesting. Unit sales should continue to ease down over the year, while the median resale price could move up very, very modestly. In 2004, the median increased by 27.8% to \$543,750, but the price peaked in July, and eased down over the rest of the year. Nonresidential construction activity should inch up by 0.6% in 2005. Much of the activity has been in the office sector in the downtown area.

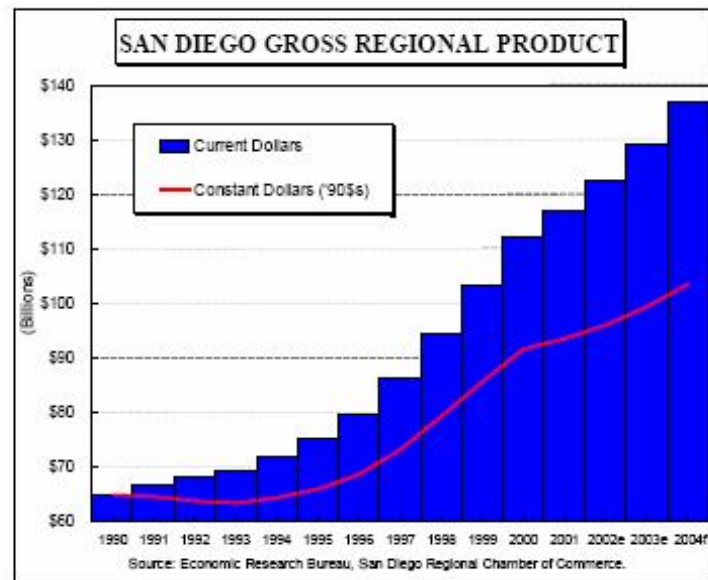
## Hot Spots

- Downtown San Diego continues to see lots of development, including another large hotel next to the convention center.
- North County also is seeing lots of development along both I-15 and I-5.
- Attention also has to be paid to the Indian casinos, which are becoming more elaborate.

the bug-a-bear of all of Southern California.

## San Diego Gross Regional Product

San Diego's gross regional product reached a record \$129.2 billion in 2003. If San Diego were a separate country, the County would rank as the 30<sup>th</sup> largest economy in the world, equal in economic output to the dollar value goods and services produced by Finland or Thailand.



## Risks

- A hit from BRAC would not be good news.
- The city of San Diego's financial problems get worse.
- San Diego's Mayor, narrowly elected in November, resigned in May, leaving the City's political organization in total disarray. A special election is slated for July with no clear front runners.
- Traffic congestion is getting worse.

# Outlook for Orange County: Economic Overview

## OUTLOOK FOR ORANGE COUNTY

For 2005, Orange County can expect solid growth, with sizzle provided by the 50<sup>th</sup> anniversary celebration of Disneyland.

### Positive Economic Forces

- The 50<sup>th</sup> anniversary celebration of Disneyland, the declining U.S. dollar, and better recognition due to the TV show "The O.C." will result in a strong year for tourism. There will be a cultural twist as well, with the Performing Arts Center in Costa Mesa doing a "Ring" cycle.
- The County's bio-tech industry will continue to grow.
- The tech sector will see moderate growth.
- There will be continued growth in aerospace, with the caveat that the DoD is looking at cutting back some programs. Still, most of the County's activities don't appear to be at risk.

### Negative Economic Forces

- People will be watching the housing sector, both the resale market (will there be a decline in prices), and new construction (it will continue to lag).
- Local government finance will remain a challenge.
- Traffic congestion will continue to worsen, with no clear strategy to deal with this problem in sight (a light rail line has been proposed, but it is controversial).

### Net Results

Nonfarm employment in the County should



increase by 1.7% or by 23,700 jobs. In 2004, there was a modest 0.8% or 10,400 job gain, but this should be revised up. The best job gains in 2005 will come in leisure & hospitality (+5,500), construction (+5,000 jobs), and retail trade (+3,500 jobs). Of note will the modest gains in both government and manufacturing. Some of the push in the latter is in aerospace. The County may not be much at risk from DoD program cutting, but would feel the impact from a closure of Los Angeles Air Force Base.

The County's unemployment rate will slide from the 2004 average of 3.4% to 3.0%, among the lowest in the state. Total civilian employment in the County has been growing much faster than nonfarm jobs.

Total personal income should move ahead by 6.1% during 2005, while taxable retail sale

# Outlook for Orange County: Economic Overview

should increase by 8.5%. With so much happening during 2005, the County's tourism industry should enjoy a 3.0% increase in the number of overnight visitors to 44.9 million.

The County's housing market could generate interesting results during 2005. New homebuilding is expected to continue to slip, down by 5.6% to 8,500 units, despite job and population growth. In the resale market, unit sales declined during 2004, but the median price increased by 27.3% to \$622,860. However, the price peaked in May of 2004, and has been trending down since. There is a possibility that resale prices could decline by 5.3% during 2005, with the caveat again that the high end of the market has been soft since mid-2004. The value of nonresidential construction should decline by 7.7% during 2005. There are some twists to the County's nonresidential real estate sector. Industrial construction has been lagging despite an 8.2% industrial vacancy rate. However, new office building has been moving ahead despite a 12.0% vacancy rate. In the latter sector, many people are still nervous about the large amount of space that sub-prime real estate lenders lease in the County.

## Hot Spots

- Anaheim has aggressive plans for its downtown area, and is also in the hunt for an NFL franchise.
- The University of California Irvine could benefit from stem cell research.
- Huntington Beach continues to work on its downtown area.
- And Santa Ana of interesting development including a controversial high rise.

## Risks

- Local government finance.
- Transportation congestion for both goods and people gets much worse.
- Overall, Orange County may be at a tipping point in growth. It has high housing costs and significant traffic congestion, plus it has to consider the fact that it is getting close to running out of developable land. Yet this combination of issues has been ignored to date by County leaders.



University of California Irvine 1965 and 2005



# Outlook for Los Angeles: Economic Overview

## OUTLOOK FOR LOS ANGELES COUNTY

Los Angeles County's economy was in a solid growth mode at the end of 2004, and the outlook for 2005 is much improved. However, the year got off to a less than auspicious start with damaging rains followed by announcement of the coming shutdown of the 717 commercial jet program. This was the last airliner made in Los Angeles County and is the coda in a rich history of aircraft production.

### Positive Economic Forces

- The high-value aerospace industry will be adding jobs, although an eye must be kept on the fate of some Air Force weapons programs (the F-22) as the Department of Defense trims its spending. There was a little good news in the commercial aircraft sector, thanks to Boeing's 7E7 program.
- International trade should have another strong year.
- The tourist industry should see more vigorous growth, with the declining U.S. dollar continuing to drive more international travel. The King Tut exhibition in the second half of 2005 will also provide support.
- The motion picture/TV production industry should have another good year, after strong job growth in 2004. Better yet, there will be no major labor problems.
- New homebuilding will hold at a high level during 2005.
- There will be continued support from major projects, ranging from hospitals to schools to transit projects.



### Negative Economic Forces

- Some fear that Los Angeles Air Force Base will be on the BRAC list. The base along with the Allied Aerospace Corporation generate 49,300 jobs annually in the County, as well as \$13.4 million in county and city taxes.
- The pending shutdown of the 717 program in Long Beach was unpleasant but not unexpected news. Layoffs will start at year-end 2005.
- Many fear more congestion at the local ports in 2005.

# Outlook for Los Angeles: Economic Overview

- The shortage of quality industrial space is worrisome. Overall the County's industrial vacancy rate is 2.5%, while new construction has lagged.
- Local governments remain under financial constraints.

## Two Interesting Events

- Mid-year 2005, Los Angeles County's population will move past that of Michigan. Thus, if the County were a separate state, it would rank 8<sup>th</sup> in the nation in this measure.
- In February 2005, new metropolitan area definitions will go into effect. Los Angeles and Orange counties will be combined into the "Los Angeles-Long Beach-Santa Ana MSA," although data for each county will continue to be reported separately (the two counties will be classified separately as "metropolitan divisions").

## Net Results

Nonfarm employment will grow by 1.6% or by 66,000 jobs in 2005. The pace will quicken to 1.9% in 2006. The best job gains in 2005 will come in leisure & hospitality services (+22,500), followed by information services (+12,000 jobs), and administrative services (+8,500 jobs – it's less of a risk to hire a temp). Government employment will decline by 6,000 jobs in 2005, but should start growing again in 2006. Finally, the County's important manufacturing sector will still see employment losses in 2005, down by 2,900 jobs. As to aerospace jobs in the County, layoffs from the 717 program are scheduled to start at year-end 2005, although these could be delayed if existing options for the airplane are exercised.

It is difficult to measure all the people working in Los Angeles County, since many can work as an independent contractor in an array of industries, including construction, entertainment, international trade, professional business services and real estate. Total civilian employment in the County averaged 4.51 million people in 2004, compared with the 4.02 million nonfarm employees.

The County's tourism industry is eagerly looking forward to 2005, with a 3.9% increase in the number of overnight visitors being forecast. A variety of forces will drive this gain, including the cheaper U.S. dollar -- which will continue to push international travel to the area, the favorable national and international media exposure the area has been receiving, and of course the five-month King Tut exhibit.



## Outlook for Los Angeles: Economic Overview

The County's unemployment rate will ease down to 6.1% in 2005, from the 2004 average of 6.3%. The high for the latest business cycle was 6.7%,

which was the average for both 2002 and 2003. Total personal income in the County should increase by 6.2% in 2005, after a quite decent 5.5% gain in 2004. The Consumer Price Index (for the Los Angeles five-county area) will move ahead by 3.1% in 2005, after a 3.2% gain in the previous year. Upward pressure will continue to be exerted by housing costs although energy costs should retreat a bit.

Taxable retail sales growth in the County during 2005 will simmer down to a 5.9% gain, after 2004's hefty 6.7% advance. There are several things to watch in the retail sector, the current development trends are "lifestyle" centers, as well as "main street" retailing.

New homebuilding in the County will ease down during 2005, to a still healthy 22,400 units. The 2004 total of 25,156 units was the highest level since 1989 when 48,341 units were permitted. Over half of the new units in 2005 will be "multifamily", which includes apartments and condos, a continuing trend. All eyes will be on the resale housing market, where unit sales during 2005 should continue to slide. However, the median price of a resale home in the County increased by 24.7% in 2004 to \$431,100. At year-end, no sign of any flattening out in price was in evidence.



### Hot Spots

- Aerospace/defense clusters, such as Redondo Beach/El Segundo and the Antelope Valley.
- Downtown Los Angeles, where residential development, both new construction and conversions of older buildings, continues to gather speed. The demographics of the district's new residents are quite attractive. Besides the projects around the Convention Center, the Grand Avenue project is slowly getting underway.
- The downtown area of Long Beach continues to see both residential and retail development. The city has crafted a very attractive product for smaller conventions,

## Outlook for Los Angeles: Economic Overview

and is also considered "neutral" ground between Los Angeles and Orange counties.

- Areas adjacent to Downtown Los Angeles need to be monitored as some surprising gentrification is going on. In Los Angeles County, sprawl has reached its limits, and now development is rolling back into the center of the County.

### Risks

- Obviously, if Los Angeles Air Force Base were placed on the BRAC list, this would have serious economic implications for the County, especially the South Bay area.
- More severe congestion at the ports would further sully the reputation of Southern California as an international trade center, and generate more action as well as talk of "diversions" of ships to other ports.
- Failure to craft a financing package for the convention center hotel would cause the County to fall further behind the rest of the California tourism "big 4."





# Southern California Industry Outlook 2005: The Life Sciences

## OUTLOOK FOR BIOTECHNOLOGY

Chemistry and physics were the sciences that propelled technological advances in the first half of the 20th century. Advances in engineering and electronics led to the computer and information technology revolution in the second half of the 20th century, but progress in microbiology and genomics hold the promise to make biotechnology the dominant economic force of the first half of the 21st century. The electronic and computer breakthroughs will allow massive amounts of genetic information to be decoded and processed. We are likely to see a fusing of information technology and biotechnology into a highly effective means of disease prevention, detection and finding cures. As a science and industry, biotechnology will mature and create enormous changes in our lives and benefit the entire human race. Numerous proteins are already used as therapeutics, the result of recombinant DNA technology. Biotechnology companies have, through their partnership with pharmaceutical firms, improved the quality of human life and extended the lifespan of many individuals. The industry has discovered antibodies for cancer, arthritis and tissue transplant, growth hormones, and clot-busting enzymes.

### Geographic Industry Clustering

In addition to the race for discovering biotechnology-derived therapeutics, there is a different kind of race underway: the one that will determine where the primary geographic locations of this industry reside. The economic outcomes of where these biotechnology clusters form and



The Salk Institute

grow are likely to be immense.

The 21st century biotechnology cluster race has many regional entries in the U.S. and around the world. Within the U.S., California has several metropolitan areas that are among the leaders as the race commences including Oakland, San Francisco, San Jose, Los Angeles, Orange County, and San Diego. The East Coast has Boston, Philadelphia, Washington, D.C., and Raleigh-Durham among the leading aspirants. Seattle and Austin appear to be two other top geographic contenders

### San Diego: #1 Biotech Cluster

San Diego has particular strength in biotechnology research and development assets. Many San Diego-based biotech and life science firms are devoted to R&D, either basic or applied, and they are seeking more R&D funds and support. The Scripps Research Institute, Salk Institute for Biomedical Studies, Burnham Institute and the University of California, San Diego (UCSD) provide a rich R&D knowledge base

# Southern California Industry Outlook 2005: The Life Sciences

for the region. San Diego's relative advantages come from its attractiveness to public R&D funding such as National Science Foundation (NSF) for basic biotech research and National Institutes of Health (NIH) for advanced research. San Diego also benefits from commercial opportunities for biotech research. San Diego's superior rankings in the relative biotech Small Business Technology Transfer (STTR) awards and biotech Small Business Innovation Research (SBIR) statistics confirm regional effectiveness in

commercializing R&D efforts and new ventures. Boston ranked 2nd with a composite score 78.9 (or a rebased score of 99) and Seattle, 3rd, followed by Raleigh-Durham- Chapel Hill, 4th among the 12 competing metros.

**Milken Institute's 2004 Biotech Index**  
By Category and Overall Composite

1. R&D Inputs			2. Risk Capital			3. Human Capital		
MSA	Rank	Composite Score	MSA	Rank	Composite Score	MSA	Rank	Composite Score
San Diego	1	100.0	San Jose	1	100.0	Raleigh-Durham-Chapel Hill	1	100.0
Boston	2	99.0	San Francisco	2	98.9	Boston	2	90.2
Seattle-Bellevue-Everett	3	98.4	San Diego	3	97.4	Oakland	3	80.0
Raleigh-Durham-Chapel Hill	4	91.9	Raleigh-Durham-Chapel Hill	4	95.4	San Diego	4	79.7
Philadelphia	5	84.9	Boston MA-NH	5	89.9	San Jose	5	78.7
Washington, D.C.	6	80.3	Seattle-Bellevue-Everett	6	85.1	Philadelphia	6	74.3
San Jose	7	75.3	Washington, D.C.	7	80.9	Washington, D.C.	7	74.0
Los Angeles-Long Beach	8	75.3	Philadelphia	8	77.3	Seattle-Bellevue-Everett	8	73.7
San Francisco	9	71.1	Orange County	9	76.0	Austin-San Marcos	9	66.6
Oakland	10	68.7	Los Angeles-Long Beach	10	63.6	Los Angeles-Long Beach	10	63.8
Orange County	11	54.0	Oakland	11	58.9	San Francisco	11	59.9
Austin-San Marcos	12	52.0	Austin-San Marcos	12	53.1	Orange County	12	51.7
4. Biotech Workforce			5. Current Impact (Biotech)			Overall Composite		
MSA	Rank	Composite Score	MSA	Rank	Composite Score	MSA	Rank	Composite Score
Raleigh-Durham-Chapel Hill	1	100.0	San Diego	1	100.0	San Diego	1	100.0
Boston	2	99.2	Boston NECMA	2	80.3	Boston NECMA	2	95.1
San Jose	3	95.8	San Jose	3	78.1	Raleigh-Durham-Chapel Hill	3	92.5
Oakland	4	93.9	Raleigh-Durham-Chapel Hill	4	89.4	San Jose	4	87.8
San Diego	5	91.7	Seattle-Bellevue-Everett	5	88.4	Seattle-Bellevue-Everett	5	83.8
Washington, D.C.	6	86.3	Washington, D.C.	6	84.8	Washington, D.C.	6	79.4
Seattle-Bellevue-Everett	7	78.3	Oakland	7	84.2	Philadelphia	7	78.5
Philadelphia	8	77.7	San Francisco	8	83.6	San Francisco	8	75.8
San Francisco	9	76.1	Philadelphia	9	58.5	Oakland	9	74.3
Los Angeles-Long Beach	10	70.8	Los Angeles-Long Beach	10	50.0	Los Angeles-Long Beach	10	68.5
Orange County	11	67.7	Orange County	11	29.2	Orange County	11	54.1
Austin-San Marcos	12	42.2	Austin-San Marcos	12	27.8	Austin-San Marcos	12	47.8

# Southern California Industry Outlook 2005:

## The Life Sciences

### Intellectual Capital: Key to Innovation

In today's highly mobile, increasingly democratized global economy, talented people, particularly those who possess the ability and capacity for scientific and technological innovation and the management of such creative activities, are more in demand than ever before.

Though there are many prevailing economic factors expediting the formation of these clusters, the underlying fundamental that enables these long-chains of clusters to form across multiple regions and countries are pools of talent; human capital—a pool of talented professionals capable of innovation, creation, and capturing the institutional knowledge—and its respective capacity to fulfill the technical and operational requirements. Location still matters only if the region or the location has the capacity to attract talent that yields tremendous amounts of intellectual capital. The importance of having highly qualified talent pools as a reservoir of human capital in a region cannot be underestimated.

### In SoCal, Scientists Move to Industry

A regional science center, backed by resident research-oriented institutions such as the University of California, San Diego and other bio-science and molecular research centers, can extend the benefit of external economies of scale. Then it is not surprising to see that the number of biotech start-ups affiliated with UCSD and the many PhDs who have joined local companies. Some have estimated that 95

percent of PhD-holders from UCSD and San Diego State University went into private industry, whereas, about 85 percent of PhDs nationwide enter academia. It is clear that the region, both in industry and academic institutions, has formed a new culture, placing a high value on human capital at work combined with entrepreneurial spirit.

### Academic Research Institutions Bolster Talent Pool

Over the past quarter century, San Diego has become the focus of bioscience and biotechnology development in the world. It is a region, in the words of Gail Naughton, a former biotech executive and dean of San Diego State University's Business School, that grew from a "lazy government contract town" to becoming "the leaders in biotech, software and telecom..."

In particular, San Diego's reputation in growing biotech start-ups has surpassed other leading biotech and bioscience regions along the Northeast pharmaceutical and life science corridor.

The rise of San Diego's biotech cluster is a new chapter in the region's history and a testament to the region's capacity as a strong knowledge-based economy. Certainly, the region's advancement in and ability to compete head-to-head with other science and technology dominant regions.

### San Diego Biotech Research 2003

	San Diego	California	Percent of California Total
Biotech Research Institutes	12	47	26%
NIH Awarded Research Projects	745	1,213	61%
NIH Awarded Research Funding	316.2 (\$ Mil.)	537.8 (\$ Mil.)	59%

Sources: National Institutes of Health (NIH), Milken Institute.

# Southern California Industry Outlook 2005:

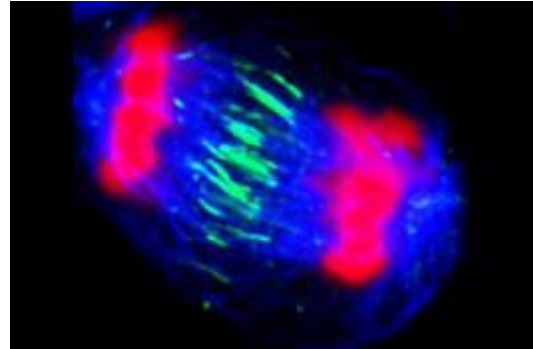
## The Life Sciences

San Diego's strong ranking in the postdoctoral component, yet weaker showing in the number of recent PhD degrees awarded and relatively lower score in the number of graduate students enrolled, strongly indicates that San Diego "imports" many fresh-minted PhDs from other locations. The region relies on them to build the width and depth of its biotech cluster. The high rate of young PhDs with a strong commitment to private industry is probably the most important asset the region has.

Interestingly, the San Diego model works almost perfectly from a regional industry building and economic development perspective, attracting talent from other regions to reinforce and compensate for the shortcomings of the local infrastructure (e.g., the limited number of universities in a small geographical boundary). Through this "enrichment process," San Diego has heightened its capacity to bring in not only the talent and a "denser" human capital pool, but along with them, millions of dollars in research funding.

This concentration of talent aided the region in attracting bioscience and biotech talent from other regions, including neighboring Los Angeles and Orange Counties. It is then not a surprise to see that the largest amount of NIH Biotech R&D funding in 2002 being awarded to a single research entity is in San Diego—The Scripps Research Institute—valued at \$191 million. Other NIH funding awarded to the region also shows the depth and width of the metro's human capital and intellectual capacity.

San Diego has 26 percent of California's research institutes, and captures 61 percent of NIH awarded projects and receives 59 percent of NIH funding.



Cell Division: The Burnham Institute

### **Location, Location, Location**

The results of the diversity analysis show San Diego's biotech industry to be the most diverse in the nation. According to a local biotech executive, "One of the great things about San Diego is its size. It's large enough to be very stimulating in that you're always making new connections and meeting more people, but it's small enough that you can maintain those connections."

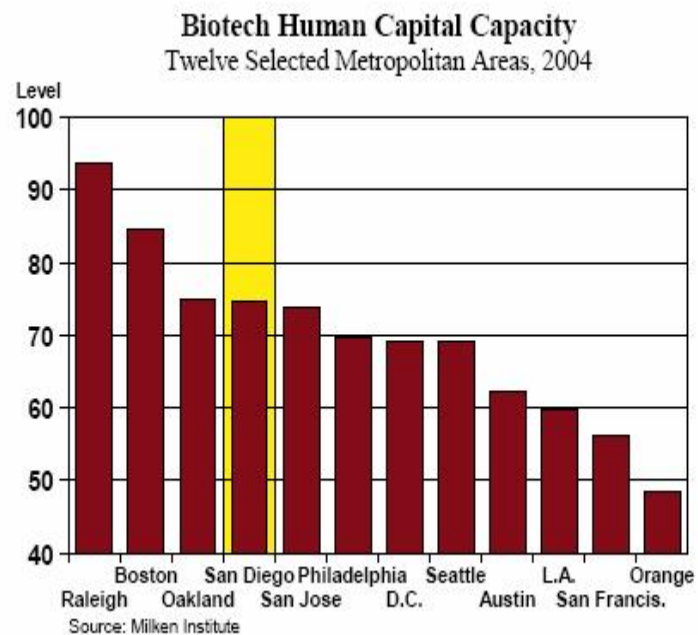
In San Diego, three out of the four industries that make up biotech have seen their employment grow faster than the nation, placing the metro 4th in the employment growth category. Oakland, San Francisco, and Washington, D.C. all tied for 1st, and have at least four biotech-related industries growing faster than the U.S.

# Southern California Industry Outlook 2005: The Life Sciences

## SoCal: A “Young” Market Competing with Established Research Regions

What is worth noting in this chart, however, are the small numeric differences among the three California technology concentrated regions: Oakland, San Diego, and San Jose. San Diego has a minor advantage over its sister regions up north.

Boston and Philadelphia, the two combined leading life science clusters in the country and the world, have almost two centuries of tradition and expertise in medical science, pharmaceuticals, medical devices, chemical, biochemical material research and production. The depth of these regions’ human and intellectual capital, and their capacity to generate and attract financial capital, are far superior to either San Diego or Raleigh-Durham-Chapel Hill. Worth mentioning, however, is the fact that San Diego and Raleigh-Durham-Chapel Hill, a pair of “young talents,” took less than one-quarter century to be comparable to and competitive with these life science giants in one of the most regulated, complex and multi-disciplinary fields of science and technology research and production.





# Southern California Industry Outlook 2005: Information Technology

## OUTLOOK FOR INFORMATION TECHNOLOGY

California's high-tech industry seems to be slowly improving. While high-tech employment fell by 67,800 in 2003, this is significantly fewer than the 134,400 jobs lost in 2002. State employment data for 2003 are the most recent available. Yet, 2004 export and venture capital investments data show that the technology industry is improving in California, according to [Cyberstates 2005: A State-by-State Overview of the High-Technology Industry](#), a new analytical report released today by AeA.

In fact, high-tech exports from California increased by \$6.7 billion in 2004 to \$48.3 billion from \$41.5 billion in 2003. This represented a 16 percent increase for California compared to a 12 percent increase for the nation as a whole. This is especially important because 44 percent of all exports from California were concentrated in the high-tech industry.

"California's tech industry still leads the nation in innovation and employment, and things are only getting better here in the Golden State," said Kevin Carroll, Executive Director, AeA San Diego Council. "Venture Capital investments are up for the first time in 4 years, and California remains a high quality, innovative location for tech companies. The San Diego area remains especially attractive with many world class universities nearby, a strong culture of technology advancement, and sunshine all year round."



Although California lost jobs in 2003, the average annual wage for employees in the technology industry increased from \$80,800 in 2002 to \$84,400 in 2003, adjusted for inflation. These workers were well compensated for their knowledge and skills, earning twice as much as the average private sector worker in California.

Nationally, *Cyberstates 2005* shows that the high-tech industry is slowly turning the

# Southern California Industry Outlook 2005: Information Technology

corner. High-tech employment was down by only 25,000 jobs out of 5.6 million workers in 2004. U.S. high-tech exports were up by 12 percent for a total of \$191 billion in 2004. And, technology related venture capital investments were up for the first time in four years.

## **Hi Tech Trade Up in 2004**

U.S. high-tech goods exports increased by 12 percent from \$171 billion in 2003 to \$191 billion in 2004. U.S. electronics imports rose by 17 percent during the same time period, and the technology goods deficit in 2004 was a record \$80 billion.

This is the second year in a row where high-tech exports have increased. Furthermore, the increases in 2004 span all industry sectors, from industrial electronics (+28%) and communications equipment (+20%) to photonics (+20%) and electromedical equipment (+12%).

“These data further reinforce the idea that the technology industry has turned a corner, as both high-tech exports and imports are up,” said William T. Archey, President of AeA. “Although, one has to be careful when analyzing the increase in high-tech imports, particularly from China, Taiwan, and Mexico, because a significant portion of these imports are really intra-company transfers from U.S. production facilities overseas who are

shipping finished products back to the United States.”

On a country basis, the largest markets for U.S. high-tech exports in 2004 were the European Union (\$41 billion), Mexico (\$28 billion), Canada (\$27 billion), Japan (\$13 billion), South Korea (\$9.0 billion), and China (\$8.7 billion). On the other side of the trade picture, the United States imported the most high-tech products from China (\$68 billion), Mexico (\$37 billion), Japan (\$32 billion), the European Union (\$31 billion), and Malaysia (\$22 billion).

## **U.S. High-Tech Goods Exports** *(in billions of current U.S. dollars)*

<b>Industry Segment</b>	<b>2003</b>	<b>2004</b>	<b>Change</b>	<b>Change</b>
Computers and Office Equipment	\$41.5	\$44.3	+7%	+\$2.8
Consumer Electronics	\$8.1	\$9.0	+11%	+\$0.9
Communications Equipment	\$18.8	\$22.5	+20%	+\$3.7
Electronic Components	\$14.6	\$15.8	+8%	+\$1.2
Semiconductors	\$46.1	\$47.9	+4%	+\$1.8
Industrial Electronics	\$26.2	\$33.5	+28%	+\$7.3
Electromedical Equipment	\$10.9	\$12.2	+12%	+\$1.3
<u>Photonics</u>	<u>\$4.7</u>	<u>\$5.6</u>	<u>+20%</u>	<u>+\$0.9</u>
<b>Total</b>	<b>\$170.9</b>	<b>\$190.9</b>	<b>+12%</b>	<b>+\$19.9</b>

# Southern California Industry Outlook 2005:

## U.S. High-Tech Goods Exports by Country

(in billions of current U.S. dollars)

Rank	Country	2003	2004	Change	Change
	World	\$170.9	\$190.9	+12%	\$19.9
1.	European Union - 25	\$37.5	\$40.9	+9%	\$3.3
2.	Mexico	\$25.0	\$28.1	+13%	\$3.2
3.	Canada	\$24.3	\$27.3	+12%	\$3.0
4.	Japan	\$12.2	\$13.2	+8%	\$1.0
5.	South Korea	\$8.5	\$9.0	+7%	\$0.6
6.	China	\$7.0	\$8.7	+24%	\$1.7
7.	Taiwan	\$7.3	\$8.6	+18%	\$1.3
8.	Singapore	\$6.4	\$7.8	+23%	\$1.4
9.	Hong Kong	\$6.2	\$7.7	+23%	\$1.4
10.	Malaysia	\$8.2	\$7.6	-7%	-\$0.6

## High-Tech Employment: Slowdown Levels Off

A study released by AeA shows that in 2004 the U.S. high-tech industry lost 25,000 jobs, dropping to 5.6 million. This decline in 2004 represents a considerable slowdown in technology jobs lost, compared to the 333,000 jobs lost in 2003 and the 612,000 jobs lost in 2002.

For the first time since 2000, both software services and engineering and tech services added jobs. Each of these tech sectors added over 30,000 net new jobs to the economy in 2004. This is especially positive news because tech jobs pay 84 percent more than the average private sector job.

All but four states lost high-tech jobs in 2003, the most recent year for which state data are available. California and Texas lost the most number of tech jobs, shedding some 67,800 and 32,900 jobs, respectively. Despite these losses, California and Texas remained the leading cyberstates by employment, followed by New York and Florida. However, Virginia displaced Massachusetts in 2003, becoming the fifth largest state by technology employment. And, while Colorado remained the nation's leading state by concentration of high-tech jobs, Virginia also moved up by this metric to second place.

## Venture Funding Up for IT

Venture capital investment in the technology industry rose for the first time since 2000. High-tech venture capital investment totaled \$11.8 billion in 2004, compared to \$10.7 billion in 2003.

Archey further stated, "While the tech industry is beginning to make some headway, we need to be aware of increased challenges to our lead in science and technology as competition from the rest of the world intensifies. We need to pay particular attention to the factors that drive technology innovation, primarily a highly educated and skilled workforce and research and development. capital investment in the technology industry rose for the first time since 2000. High-tech venture capital investment totaled \$11.8 billion in 2004, compared to \$10.7 billion in 2