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Joint Venture

Joint Venture is a dynamic new model for regional rejuvenation. Our vision is to build a community collaborating to compete globally. We bring people together from business, government, education, and community to act on regional issues affecting economic vitality and quality of life.

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WHY THE INDEX OF SILICON VALLEY?

Joint Venture's third annual Index of Silicon Valley provides a set of indicators tracking our region's economy and quality of life. The Index is an ongoing effort to track progress toward a 21st century community. The vision of a 21st century community, first outlined in the Blueprint for a 21st Century Community (June 1993), is a region that successfully connects its economy and quality of life.

Joint Venture developed the Index:

- to provide a reliable source of objective information about the economy and quality of life in Silicon Valley, and
- to serve as a catalyst for others to work with Joint Venture and independently to continue to improve all aspects of the Silicon Valley community.

WHAT IS A GOOD INDICATOR?

Indicators are measurements that tell us how we are doing: whether we are going up or down; forward or backward; getting better, worse, or staying the same. Good indicators meet the following criteria.

- They are bellwethers that reflect fundamentals of long-term community health.
- They can be understood and accepted by the community.
- They have interest and appeal for use by the media.
- They are statistically measurable on a frequent basis.

The 31 indicators that follow were chosen in consultation with the Joint Venture Board and an Advisory Board of Bay Area economists. Nineteen of the indicators appeared in the 1996 Index of Silicon Valley. Twelve are new.

HOW TO USE THE INDEX

We hope the Index of Silicon Valley will be used:

- to track progress toward our vision of a 21st century community,
- to increase understanding among decision makers and the public about how the Valley is doing, and
- to identify critical issues that need to be addressed.

WHAT IS SILICON VALLEY?

Joint Venture defines Silicon Valley as Santa Clara County plus adjacent parts of San Mateo, Alameda, and Santa Cruz counties. This definition reflects the geographic location patterns of the Valley's driving industries and its workforce.

With a population of more than 2.2 million people, this region has more residents than 17 U.S. states.

The indicators reflect this definition of Silicon Valley, except where noted as Santa Clara County.

WHAT IS AN INDUSTRY CLUSTER?

Several of the indicators relate to “industry clusters.” An industry cluster:

- is a geographic concentration of interdependent, internationally competitive firms in related industries,
- represents talent and technology capabilities that are more specialized in Silicon Valley than in other regions, and
- includes a significant number of companies that sell their products and services outside the region.

The driving clusters in Silicon Valley are computers/communications, semiconductors, software, bioscience, defense/space, environment, innovation services, and professional services. Appendix B details the specific subsectors constituting each cluster.

Healthy, outward-oriented industry clusters are a critical prerequisite for a healthy economy. Clusters are dynamic; over time, existing clusters will transform and new clusters will develop from our region’s talent and technology base.
# Economic Indicators

**INDEX HIGHLIGHTS:**
- Economy Expands, Capacity Constrained, Quality of Life Progress Mixed

**JOB QUANTITY**
- Silicon Valley Gains More Than 125,000 Jobs Since 1992
- Job Growth Led by Professional Services, Computers, Semiconductors, Software
- Special Analysis: Jobs Grow Rapidly in Computer Networking
- Special Analysis: Temporary Help Services Industry Doubles in 4 Years

**JOB QUALITY**
- Average Real-Wage Growth Accelerates
- Software and Semiconductors Continue to Lead Average Wages
- Valley's Incomes Growing at Upper and Lower Levels
- Special Analysis: Engineers/Technical Occupations Dominate Cluster Employment

**BUSINESS VITALITY**
- Valley Sustains Productivity Edge
- Valley Exports Boom 30%
- Number of Gazelles Nearly Doubles, IPOs Continue Growth
- Women-Owned Businesses Increase, Size Smaller Than Average
- Optimism About Economy at All-Time High

**ECONOMIC CAPACITY**
- R&D Expenditures Decline Slightly, Remain Twice the National Average
- Venture Capital Grows 73% in 1996
- Commercial Vacancy Rates Drop to 5%

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# Quality-of-Life Indicators

**EDUCATION AND WORKFORCE**
- High School Drop-Out Rates Increase
- Valley Lacks School Performance Measure, Students Perform Well in SATs
- Schools Internet Access Escalates
- Post-secondary Enrollment Shifts Toward Continuing Education
- Region Leads Advanced Engineering Education

**LIVABILITY**
- Vehicle Delays Jump Back Up
- Increasing Demand Strains Housing and Rental Market
- Housing Starts Turn Up, But Lag Job Growth
- Federal Bad-Air Days Drop to One
- Toxic Chemical Releases Up 3%
- Violent Crime Low, Juvenile Crime Drops Slightly

**COMMUNITY HEALTH**
- Low-Birth-Weight Infants Increasing
- Youth Tobacco Use Rises, Adult Use Holds Steady
- Poverty Zones Linked to Child-Risk Factors

**CIVIC ENGAGEMENT**
- Corporate Contributions to the Arts Increase 48%
- Private Giving to Nonprofits Accelerating

**APPENDIX A: DATA SOURCES**

**APPENDIX B: DEFINITIONS**
Economy Expands, Capacity Constrained, Quality of Life Progress Mixed

**AN ECONOMY WITH INCREASING JOBS, RISING INCOMES, GROWING EXPORTS**

All major economic indicators for the Valley remain positive: jobs are growing, wages are increasing, exports are booming, and confidence in our economy remains at an all-time high.

- Silicon Valley has added more than 125,000 jobs since 1992. More than 50,000 jobs have been added in 1996 alone.
- Rapid growth in professional services, computer networking, and software has been a key driver of recent employment gains.
- Average wages increased 5.1% in 1996.
- Valley exports surged by 30% in 1995 to $35 billion—38% of California’s total.
- The number of rapid growth “gazelle firms” increased from an average of 40 from 1989–1995 to 73 in 1996.
- Venture capital investment in Valley companies grew 73% from 1995 to 1996, to $1.8 billion.
- Public confidence in Santa Clara County’s economy reached 76% in 1996.

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**Direction of Change**

| ▲ Indicates Increasing |
| ▼ Indicates Decreasing |
| — No Change |

| ▲ | JOBS |
| ▲ | WAGES |
| — | INCOME DISTRIBUTION |
| ▲ | PRODUCTIVITY |
| ▲ | EXPORTS |
| ▲ | GAZELLES/IPOs |
| ▲ | WOMEN-OWNED BUSINESSES |
| ▲ | OPTIMISM ABOUT ECONOMY |
| ▼ | R&D EXPENDITURES |
| ▲ | VENTURE CAPITAL |
A COMMUNITY WITH HOUSING AND TRANSPORTATION CONSTRAINTS

Indicators point to a region facing capacity constraints as job growth accelerates. Traffic congestion and escalating commercial and residential prices affect the Valley’s potential for future employment growth.

- Commercial vacancy rates have fallen from 17% in 1992 to 5% in 1996.
- Between 1992 and 1996, rental rates increased 23%, while median income increased 14%.
- Since 1992, Silicon Valley has added 125,000 jobs but only 26,000 new housing units.
- Following a three-year decline, in 1995 vehicle delay on freeways returned to 1993 levels.

A QUALITY OF LIFE SHOWING MIXED PROGRESS

There have been mixed results in education and the environment. While support for the arts and nonprofits has risen significantly, issues remain about conditions facing our children and families, especially in low-income areas.

- The share of schools with high-speed Internet connections jumped from 31% to 69% in 1996.
- Drop-out rates increased from 3.0% (1994–1995 school year) to 3.4% (1995–1996) of students in a single year. Drop-out rates for White students decreased, but rates for all other ethnic groups increased.
- SAT scores remain 4–5% above national and state averages.
- Toxic chemical releases increased 3% in 1995.
- Low-birth-weight infants, an indicator of health care access, increased from 5.7% of births in 1994 to 6.1% in 1995.
- Corporate contributions to the arts increased from $2.5 million in 1995 to $3.7 million in 1996. Corporate contributions to nonprofits increased from $5.6 million in 1993 to $9.4 million in 1995.
Silicon Valley Gains More Than 125,000 Jobs Since 1992

**WHY IS THIS IMPORTANT?**

Annual net job gains or losses are a basic measure of economic health. This indicator is from a newly developed employment series for the Silicon Valley economic region.

**HOW ARE WE DOING?**

Silicon Valley job gains accelerated during 1995 and 1996. Since 1992, the region has added more than 125,000 jobs. Job gains in 1995 alone were 44,822. The job-gain estimate for 1996 is 50,000. Although job growth slowed in the second half of 1996 due to cutbacks in the semiconductor industry, the annual job growth for the region was 4.7%.

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**Total number of Silicon Valley jobs**

Source: Employment Development Department
*Estimate

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Job Growth Led by Professional Services, Computers, Semiconductors, Software

**WHY IS THIS IMPORTANT?**

This indicator shows how employment in different clusters changed in the most recent annual period. A cluster is a concentration of complementary industries that generates wealth by exporting from the region. The seven clusters tracked account for 38% of all non-governmental employment in the region (See Appendix B for a delineation of each cluster.)

**HOW ARE WE DOING?**

Net employment in Silicon Valley’s cluster industries increased by 58,000 from second quarter 1995 to second quarter 1996.

By far, the biggest job gains were in professional services (22,000). The next largest gains were in computers/communications (10,100), semiconductors (9,600), software (9,000), and innovation services (7,500). The job gains in computers/communications stem from growth of computer networking, and counteract past losses in computer hardware.

Bioscience added 2,630 jobs but has failed to realize anticipated gains. Defense sectors lost 2,000 jobs; losses have slowed significantly from the early 1990’s. Environmental technologies contracted by 300 jobs.
SPECIAL ANALYSIS

One of the fast-growing new industries in Silicon Valley is computer networking, a fusion industry that encompasses computing, communications, and software. The growth of this industry is driven by the Internet boom that promotes new applications of networking. Silicon Valley is home to all of the leading companies. Employment at 30 of the region's computer networking firms in Silicon Valley more than doubled from 1991 to 1996 from 5,700 to more than 12,500 workers. Sales at the top five computer networking firms grew 2,710 percent from 1991 to 1996.

SPECIAL ANALYSIS

Between 1992 and 1996, employment through temporary help service agencies doubled from 17,109 to 36,432. Fueling this increase are employer drives to cut costs, to increase flexibility, and to access specialized skills and assistance with work overloads and special projects.

In Silicon Valley, help service agencies employ administrative support persons (45%) and production workers (31%), as well as managers/technical support (17%), sales and service workers (7%). The proportion of managers/professionals is more than double the national ratio. For some workers, employment through temporary-help agencies is a less-than-desirable alternative to full-time employment by a company. For others, it is a preferred workstyle offering flexibility, variety, and independence.
Average Real-Wage Growth Accelerates

WHY IS THIS IMPORTANT?

Average annual growth in per employee real wages is an indicator of job quality. It is as important a measure of Silicon Valley's economic vitality as job quantity.

HOW ARE WE DOING?

After stagnating from 1992 through 1994, growth in average per employee wages in Silicon Valley continues to outpace the national average. In 1996, average real wages grew 5.1% after accounting for inflation (estimates based on first half). Nationally, average wages increased less than 1%.

In 1996, the average annual individual wage earnings in Silicon Valley were $43,510 (in 1995 dollars), compared to $28,040 nationally. Average earnings in cluster industries were $62,826; average earnings for industries other than cluster industries were $31,274.

The Valley's high productivity and global demand for its products account for the region's high relative earnings.

Software and Semiconductors Continue to Lead Average Wages

WHY IS THIS IMPORTANT?

Average annual earnings increases in cluster industries are an indicator of the wealth-generating impact that export-oriented industries have on our region. Healthy cluster industries should lead to healthy local-serving industries.

HOW ARE WE DOING?

Software and semiconductors average annual earnings continue to lead in 1995, reaching $78,400 and $74,300 respectively. Computers/communications has moved into third place at $62,500, ahead of defense/aerospace ($60,200), bioscience ($59,700) and innovation services ($57,800). Environmental technologies ($37,900) and professional services ($36,000) remain the only two cluster industries that pay below the all-economy average.
WHY IS THIS IMPORTANT?

Successful communities are places of opportunity where lower-income households have a chance to move ahead. There is upward mobility among income groups along with a stable or narrowing gap between the highest and lowest groups. Gains from rising productivity are distributed among income groups.

HOW ARE WE DOING?

National and state research points to growing income disparity between the wealthiest households and the poorest households, as well as real declines in standard of living by the poorest over the last twenty years.

The gaps between rich and poor in Santa Clara County have not grown significantly in 20 years. After adjusting for inflation, income earned by both groups increased at similar rates since 1978.

Valley's Incomes Growing at Upper and Lower Levels

![Graph showing income disparity]

**Average income of top 25% of households and lowest 25% of households, 1993 dollars.**

Source: San Jose Mercury News, U.S. Bureau of the Census

SPECIAL ANALYSIS

The occupational structure of Silicon Valley reflects the high concentration of professional and technical talent employed by the cluster industries. In Santa Clara County's cluster industries 40% of employment is concentrated in professional, paraprofessional, and technical occupations. This compares with 28% of employment in the county overall and 23% in all of California.

Within this professional category, engineers, systems analysts and computer programmers account for 18% of employment in the county's cluster industries. By contrast, these technology professions account for 8% of overall employment in the county and 3% of total California employment.

Engineers/Technical Occupations Dominate Cluster Employment

![Graph showing employment distribution]

**Share of total jobs in professional and technical occupations, 1994**

Source: Employment Development Department
Valley Sustains Productivity Edge

WHY IS THIS IMPORTANT?

To sustain increases in standard of living, 21st century communities must have value-added per worker that increases over time. High and increasing value-added in companies is a prerequisite for high and increasing income for workers.

Value added is arrived at by subtracting the costs of a company’s material inputs and contracted services from the final value of the products manufactured (see Appendix A).

HOW ARE WE DOING?

Between 1987 and 1992 annual value added per Valley employee increased 50% from $76,000 to $114,000. The Valley remains the most productive technology-based region in the country, and is sustaining its productivity edge relative to other regions.

Austin’s value-added grew at a similar pace (48%) and stands at $102,000. The next highest-value region, Colorado Springs at $85,000, demonstrated the strongest increase from 1987 to 1992—67%.

Factors contributing to the Valley’s high value added are its concentration in high-tech industries, high degree of specialization, well-trained workforce, and innovative corporate structure.

Valley Exports Boom 30%

WHY IS THIS IMPORTANT?

Exports generate wealth and jobs for a region and are an important indicator of global competitiveness. Nationally, economists estimate that every $50,000 in overseas sales supports one job.

Serving growing global demand for high-tech goods is key to employment and sales growth for existing and new Silicon Valley firms.

HOW ARE WE DOING?

In 1995, Silicon Valley’s exports grew 30% from $27 billion to $35 billion. Statewide exports grew 18%; nationally exports grew 14%.

Silicon Valley’s share of California export sales has increased steadily from 28% in 1987. With less than 10% of California’s population, Silicon Valley accounted for 38% of California’s export sales in 1995, up from 34% in 1994.

Exports from Santa Clara County, at $27 billion, constitute 77% of the Silicon Valley total.
WHY IS THIS IMPORTANT?

A gazelle is a company starting with at least $1 million in sales that has grown at an annual compounded growth rate of 20% for each of the last four years. By generating accelerated increases in output and jobs, these firms stimulate the development of other businesses and personal spending throughout the region.

The number of initial public offerings (IPOs) is an indicator of future gazelles.

HOW ARE WE DOING?

In 1996, the number of gazelle firms increased to 73 after hovering around 40 from 1989 to 1995.

This year, 20% of the Valley’s public firms were gazelles. Nationally, only 3% of firms sustain this level of growth.

Continuing a decade-long upward trend, the number of initial public offerings by Silicon Valley firms increased to more than 70 in 1996. Historically high IPO levels bode well for future job and revenue growth.

WHY IS THIS IMPORTANT?

Entrepreneurship is a way for people to attain personal goals (to bring an idea to fruition, to increase self-reliance, to create a unique work environment, to gain financial security) while contributing to the regional economy. As an increasing proportion of our workforce, women should share in this opportunity.

HOW ARE WE DOING?

Nationally and statewide, the number of women-owned businesses increased 43% between 1987 and 1992. In Santa Clara County, the number of women-owned businesses increased 33% between 1987 and 1992, to 41,303.

Twelve percent of women-owned businesses in Santa Clara County, 4,880 companies, have employees. Together, they employ 33,669 people. In addition to these businesses, 36,423 women operate sole proprietorships.

The companies average 6.9 employees, compared to 7.6 employees nationally and 8.1 employees statewide. Average sales are $612,000, compared to $673,000 nationally and $741,000 statewide.

Number of Gazelles Nearly Doubles, IPOs Continue Growth

Number of publicly held gazelle firms in Silicon Valley

Number of Valley firms that issued initial public offerings

Women-Owned Businesses Increase, Size Smaller Than Average

Average employment per firm, 1992

Average annual revenue per firm, 1992

Source: U.S. Bureau of the Census
**ECONOMY / Business Vitality**

**Optimism About Economy At All-Time High**

![Graph showing optimism about the economy at all-time high](image)

**WHY IS THIS IMPORTANT?**

In a 21st century community, people have confidence in the economic future of their region. They feel optimistic about the economy’s ability to provide more jobs, increase their standard of living, and transition over time. Public confidence can serve as an indicator of business desire to remain and expand in the region, consumer willingness to make major purchases, and worker interest in staying in the region.

**HOW ARE WE DOING?**

The public’s confidence in the economy is at its highest level since tracking began in 1987. After reaching the low point in 1992, the percentage of people in Santa Clara County seeing good times ahead financially has grown to 76%. This is similar to the Bay Area’s confidence level of 72%.

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**ECONOMY / Economic Capacity**

**R&D Expenditures Decline Slightly, Remain Twice the National Average**

![Bar graph showing R&D expenditures](image)

**WHY IS THIS IMPORTANT?**

Corporate research and development spending is an important indicator of whether companies are investing in their future. Corporate R&D is essential for developing new products and services that help companies stay on the cutting edge, keep growing and producing more jobs.

**HOW ARE WE DOING?**

Silicon Valley-based, publicly held companies invest two times the national average in R&D as a percent of revenue. After leveling from 1992 through 1994, Silicon Valley R&D spending as a percent of revenue declined slightly in 1995, from 13.7% to 13.1%.

As company revenue rapidly increases, it is natural that R&D as a percent of revenues would decline somewhat in the short term. However, a long-term decline in corporate R&D would hurt competitiveness, because company growth depends on a steady stream of new products and services.

Nationally, the R&D-to-revenue ratio has increased consistently since 1988, now standing at 6.6%.
WHY IS THIS IMPORTANT?
Venture capital is one of three main sources of funding used to start and grow new companies. Other sources include personal savings and investment by family and friends. Typically, only firms with potential for exceptionally high rates of growth (25-40% annually) over a five-to-ten-year period will attract venture capital. These firms are usually highly innovative in their technology and market focus.

The amount of venture capital invested in our region and the types of industries supported are predictors of future job and output growth.

HOW ARE WE DOING?
From 1995 to 1996, venture capital investments in Silicon Valley firms increased 73% from $1 billion to $1.8 billion.

More than half of this investment was in two sectors: communications (31%) and software (25%). Biotechnology, the largest recipient in 1995, received 18% of 1996 investment.

WHY IS THIS IMPORTANT?
Vacancy rates are a leading indicator of economic expansion or downturn. Declining vacancies mean lease rates may increase, as may investment in property development. The advent of a tight market could influence young companies to start up elsewhere and growing, established companies to expand elsewhere.

HOW ARE WE DOING?
In 1996, vacancy rates for commercial space—including office, R&D, manufacturing, and warehouse—dropped to 5%. At the same time, average quoted lease rates for R&D space reached an all-time high at $.98 per square foot per month.

Driving these changes are corporate expansions driven by a powerful combination of initial public offerings and increasing global sales of Valley products, both of which provide the cash to hire workers and invest in facilities. This is translating into a strong, unprecedented increase in demand for higher-quality space for offices, R&D activity, and high-end manufacturing and product testing.

The surge in demand paves the way for significant new construction in 1997 and 1998, as well as potential new inflows of real estate capital into Silicon Valley if zoning and permitting processes allow it.

Source: San Jose Mercury News
*Estimate

Average quoted lease rate for R&D space
Source: Cornish & Carey Commercial/Oncor International
*Estimate
**High School Drop-Out Rates Increase**

**WHY IS THIS IMPORTANT?**

Most persons must complete high school and two years of trade school or post-secondary education in order to gain access to a quality job in Silicon Valley. The high school drop-out rate is therefore a risk indicator that warns of lost potential and future societal costs.

In a global economy, a highly multicultural, skilled workforce has unique advantages. Providing a quality education for all ethnic groups should be a critical objective in Silicon Valley; reducing the drop-out rate for all ethnic groups is one measure of success.

**HOW ARE WE DOING?**

Preliminary data for the 1995-96 school year shows that 3.4% of students in grades 9 through 12 dropped out. This is an increase from 3.0% in the 1994-95 school year.

The drop-out rate for White students decreased from 2.3% in 1994-95 to 2.0% in 1995-96, although the rates for all other ethnic groups increased. The drop-out rate for Hispanic students, 29% of the student population and the fastest-growing segment, increased from 5.2% in 1994-95 to 5.9% in 1995-96. The African-American drop-out rate jumped from 3.5% to 5.1%.

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**Valley Lacks School Performance Measure, Students Perform Well in SATs**

**WHY IS THIS IMPORTANT?**

The strength of Silicon Valley's 21st century economy will be determined by the level of skills and knowledge of Silicon Valley's next-generation workforce. The academic performance of today's high-school students is an important indicator of the potential of tomorrow's workforce.

**HOW ARE WE DOING?**

With the recent state elimination of the CLAS test, Silicon Valley lacks a consistent measure of how well schools are performing. Scores from SAT tests, taken by 42% of Valley high-school seniors, are the best available substitute.

Continuing a trend, in 1995 Valley students scored 5.2% higher than the California average and 4.5% higher than the national average on the SAT test. These high relative scores are despite the fact that 42% percentage of our students take the test, compared to 36% statewide. Since 1983, Silicon Valley scores have not changed significantly.
**WHY IS THIS IMPORTANT?**

Modern communications and computing technology help shift the classroom to a new kind of learning environment and offer teachers basic tools available to most professionals. Internet access and network connectivity link classrooms to each other, their districts, their communities, and the world. Internet access through high-speed networks (ISDN, frame relay, T1, or T3) allows students and teachers to access, create, and share information with images, sound, and animation.

**HOW ARE WE DOING?**

Through the SmartSchools NetDay projects in March and October of 1996, more than 11,000 volunteers helped wire Silicon Valley schools. There are 496 schools in Santa Clara and San Mateo counties.

The share of schools with high-speed Internet connections jumped from 31% in 1995 to 52% post March NetDay, to an estimated 69% after October NetDay.

To realize the potential of high-speed networks, schools must have wiring in place to extend network access into classrooms. The number of schools with networking wire to every classroom increased 48% from 110 in 1995 to 163 after March NetDay. An additional 130 schools participated in the October SmartSchools NetDay project.

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**WHY IS THIS IMPORTANT?**

Post-secondary education is critical for students and workers who want to improve their skills as well as to employers who need a skilled workforce. Enrollment in post-secondary education is an indicator of how well the region is preparing the workforce needed for a growing, competitive economy.

In addition to community colleges and public and private universities and colleges, the post-secondary education system includes university extension and continuing education programs and on-site corporate campus programs. This system must stay closely connected to the changing needs of students and employers in the region.

**HOW ARE WE DOING?**

Enrollment in public and private universities, colleges and community colleges ("traditional institutions") declined from 1991 through 1995. Declines may be due in part to increased costs at state universities and community colleges. When extension and continuing education enrollment is added, the total enrollment in higher education increases slightly between 1993 and 1995.

The slow overall growth in enrollments during a time of rapid growth in employment suggests the potential for skilled labor shortages in the future, unless there is adequate in-migration to meet the needs of the region.
**Region Leads Advanced Engineering Education**

**WHY IS THIS IMPORTANT?**

Regions that are well served by post-secondary and continuing engineering education programs have a strong workforce advantage. People with advanced engineering degrees are particularly important for breakthrough innovation.

**HOW ARE WE DOING?**

Universities serving Silicon Valley produce more engineering graduates with more advanced degrees than any region in the United States. In 1995, institutions in the Bay Area granted 4,123 engineering degrees; 55% of those were advanced degrees (1,814 master’s degrees, 434 doctorates).

Engineering programs serving Silicon Valley include San Jose State University, Santa Clara University, Stanford University, UC Berkeley, UC Santa Cruz, Cogswell College, and San Francisco State University.

Boston’s 1,553 master’s degrees and 331 doctorate degrees rank that region second to Silicon Valley in advanced engineering degrees. Austin leads the nation in undergraduate engineering degrees, at 2,312.

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**Vehicle Delays Jump Back Up**

**WHY IS THIS IMPORTANT?**

The more we drive, the more we congest our roads, pollute our air, and consume a non-renewable resource. In a 21st century community, workplaces and communities will provide other options—public transit, carpooling, telecommuting, housing within walking or biking distance from offices.

Vehicle hours of delay measures recurring congestion on our freeways during the weekday.

**HOW ARE WE DOING?**

In 1995, average daily vehicle hours of delay on freeways in Santa Clara County returned to 1993 levels. Each weekday in 1995 an average of 13,000 hours were spent in freeway delay.

Driving this increase are more jobs, and inclusion for the first time of congestion of sections of Highway 237, which was upgraded to freeway status in 1995.
WHY IS THIS IMPORTANT?

The affordability, variety, and location of housing affect a region's ability to maintain a viable economy and high quality of life. Lack of affordable housing in a region encourages longer commutes from outside the region, which diminishes productivity, curtails family time, and increases traffic congestion.

HOW ARE WE DOING?

In the first three quarters of 1996, 41% of Silicon Valley residents could afford median-priced homes compared to 40% in 1995. Though home prices increased, affordability stayed relatively constant due to a 5% increase in median income.

Since 1992, average apartment-rental rates have increased 23%, compared to a 14% increase in median income. The divergence between income and rental rates grew markedly in the last two years. Following annual increases of less than 1.5% from 1990 through 1994, average apartment-rental rates for new tenants increased 8% in 1995 and 20% in 1996.

Rental rate increases are being driven by increased demand due to the job boom, unmatched by increased rental supply. Current rental stock is at capacity with average occupancy rising from 95.9% in 1990 to 98.6% in 1996.

WHY IS THIS IMPORTANT?

A 21st century community plans for a variety of appropriately located housing affordable to people of different income levels. Communities choose either to match increased demand for housing with increased supply, or to accept higher housing costs, longer commutes, and workforce shortages.

HOW ARE WE DOING?

After reaching a peak in 1985 and bottoming out in 1992, housing starts are once again increasing. From 1992 to 1996 Silicon Valley added 25,940 housing units. Jobs in the region, meanwhile, increased 125,000.

Total housing starts in 1996, estimated at 7,000, are half the 1985 peak of 14,000.

The main reasons housing supply lags demand include lack of sufficiently zoned land, resistance to higher-density housing, and some lengthy development approval processes.

Federal Bad-Air Days Drop to One

Why is this important?

Air quality is fundamental to the health of our people, nature, and our economy. In a 21st century community, people will recognize the interdependence of the economy and environment and change behavior to prevent further degradation of our environment.

The number of days Silicon Valley air exceeds ozone standards is an indicator of air contamination. Ozone is the main component of smog and is created when organic emissions are exposed to sunlight.

How are we doing?

In 1995, the number of “bad-air days” in Silicon Valley returned to one day exceeding the federal standard. However, the region exceeded the stricter state standard on 24 days.

The federal standard, at 120 parts per billion (ppb), is set to protect the health of the average person, while the stricter state standard (90 ppb) protects the health of persons with respiratory difficulties.

More than half the toxic air contaminants in the Bay Area comes from vehicles. Reformulated gasoline requirements, which went into effect in 1996, will help reduce state exceedances, as will alternatives to commuting one person per car.

Toxic Chemical Releases Up 3%

Why is this important?

More than 3,000 facilities in Santa Clara County generate hazardous waste. Release of toxic chemicals into our air, land, water, or sewage systems can cause public health and environmental hazards. Approximately 125 manufacturers in Santa Clara County are required to report releases of certain toxic chemicals to the U.S. Environmental Protection Agency.

How are we doing?

Between 1987 and 1995 Santa Clara County industry achieved a 68% reduction in the amount of toxic chemicals released into our local environment. A primary driver of the release reductions was the pollution prevention efforts of companies.

In 1995, toxic releases edged up 3% over 1994. The increase was driven by the offsetting effects of an increase in air pollution discharges and a decrease in toxic discharges to wastewater treatment facilities.
**WHY IS THIS IMPORTANT?**

The level and perception of crime in a community are two of the most significant factors in individuals' assessment of their quality of life. Crime is unique with respect to the wide range of costs it incurs in a community. There is the direct loss of life and property along with the resources expended to fight crime. In addition, the fear, frustration, and anger resulting from crime chisel away at our sense of community.

**HOW ARE WE DOING?**

Santa Clara County has the lowest crime rate of California's seven largest counties. In 1995, the rate of violent crime increased 1.4%, following a 9.7% increase in 1994. Through the first three quarters of 1996, however, violent felony crimes in the city of San Jose fell 7.8%.

Juvenile felony crime leveled off after a dramatic rise over the last decade. The rate of felony offenses per 100,000 juveniles decreased slightly from 627 in 1994 to 622 in 1995. Nearly 1,000 juveniles were arrested in 1995 for felony crimes, 96% for assault or robbery. Violent crime includes homicide, but people in Santa Clara County are much more likely to die from motor vehicle crashes, suicide, firearm injuries, or unintentional injuries.

**Low-Birth-Weight Infants Increasing**

The share of low-weight births in Santa Clara County increased from 5.7% in 1994 to 6.1% in 1995. The state average decreased from 6.2% to 6.1%. Five percent is the national target set by the U.S. Public Health Service.
**Youth Tobacco Use Rises, Adult Use Holds Steady**

![Bar chart showing youth and adult smoking prevalence in Santa Clara County and California comparing 1990 and 1993.

**Why is this important?**

Tobacco is the number one cause of premature death in America—exceeding the combined total number of deaths each year from alcohol, cocaine, heroine, homicide, suicide, motor vehicle crashes, fires, and AIDS. Illness prevention is key to reducing health care insurance costs and productivity losses. According to the Centers for Disease Control, more than 43% of tobacco-related hospitalization costs are paid with public dollars.

**How are we doing?**

Since 1988 California has followed aggressive anti-tobacco policies, resulting in long-term decreases in smoking prevalence among adults. Smoking prevalence is now rising, however, for youth.

At 19.5%, smoking prevalence among adults in Santa Clara County is slightly lower than the rest of California, at 20.3%. Between 1990 and 1993, adult smoking prevalence dropped 1% in Santa Clara County, 9% across California. The 1999 state target for adult smoking prevalence is 6.5%.

Between 1990 and 1993, Santa Clara County’s youth smoking prevalence increased from 8.7% to 9.7%, while the youth rate for California remained constant at 9.2%.

**Poverty Zones Linked to Child-Risk Factors**

![Map of Santa Clara County highlighting poverty zones.]

**Why is this important?**

Successful economic communities ensure that all residents have the opportunity to participate in and benefit from the community’s economic development. Research has shown that growing up in poverty is related to a host of other risk factors that prevent children from becoming contributing members of society. Society in turn incurs significant costs associated with poor nutrition, poor access to preventive health care, high drop-out rates, and adolescent pregnancy.

**How are we doing?**

The poorest 30% of Santa Clara County Census tracts, as defined by the percentage of children under five living in poverty, are concentrated in East San Jose, Downtown San Jose, Alviso, Campbell, and Gilroy. Nearly 40% of the county’s children under five years of age live in these tracts. Median household income here is 64% that of the other Census tracts.

These communities account for 44% of low-birth-weight births and 44% of deaths of children under six. They also account for 59% of births to adolescents and 56% of births to mothers with late or no prenatal care.
WHY IS THIS IMPORTANT?

Through dance ensembles, concert performances, theatre groups, museums, and galleries, the arts bring a vitality and beauty to community life. An active cultural community helps attract new people to the community and builds its reputation. The arts also play a role in bridging different cultures and ethnic groups, and positively impact at-risk youth. In addition, the arts bring direct economic benefits to communities through spending by arts organizations and their clients.

HOW ARE WE DOING?

In fiscal year 1996, nearly 1.3 million people visited Silicon Valley’s 11 largest arts organizations (including multiple visits), up from 635,000 in 1990. In addition to the largest arts organizations, Silicon Valley is home to 12 mid-size arts organizations which reflect local cultures, youth artistry, and other diverse expressions. Attendance at these groups increased from an estimated 544,000 in 1990 to 906,000 in 1996.

In fiscal year 1996, corporate contributions reported by the combined 23 organizations increased 48% from $2.5 million to $3.7 million. Contributions by individuals increased 16% from $3.7 million to $4.3 million.

WHY IS THIS IMPORTANT?

Our nonprofit sector includes organizations that provide products and services in a variety of areas affecting our region’s economy and quality of life: health, housing, social and community development, employment and vocational training, arts and culture.

Citizen and corporate support of the nonprofit sector increases its ability to serve the regional needs not otherwise met by government or business.

HOW ARE WE DOING?

Between 1993 and 1995, giving by individuals, corporations, and foundations to Santa Clara County nonprofits grew at rates more than double those of the nation.

Corporate giving increased 67% from $5.6 million to $9.4 million. This compares to 18% growth nationally. Individual contributions (excluding United Way) increased 46%, from $15.5 million to $22.6 million, compared to 14% nationally. Foundation giving increased 21% locally, 10% nationally.

Nonprofits are relying more on private giving, which in 1995 accounted for 19% of their revenue. Earned income accounts for 37%. Despite cutbacks, government contracts and grants remain important, accounting for 32% of nonprofit revenue.
SILICON VALLEY GAINS MORE THAN 125,000 JOBS SINCE 1992

The California Employment Development Department's Labor Market Information Division (EDD/LMID) and Joint Venture: Silicon Valley Network (JVS) have constructed a unique data set to track employment and wages in the Silicon Valley region based on unemployment insurance filings. This data series begins in 1992 and is updated quarterly. This data set does not cover self employment or employment of military personnel.

JOB GROWTH LED BY PROFESSIONAL SERVICES, COMPUTERS, SEMICONDUCTORS, SOFTWARE

Cluster employment estimates are drawn from the EDD/JVSV data set and are based on federal Standard Industrial Classifications (SIC) Code. These codes track numerous types of industrial activity and have been arranged by JVS to best encompass the employment activity found in Silicon Valley's driving clusters.

JOBS GROW RAPIDLY IN COMPUTER NETWORKING

Data are derived from the EDD/JVS Valley Silicon Valley data set and track local employment activity at 30 of the region's computer networking companies found in 16 different SIC codes: 1731, 3571, 3575, 3661, 3663, 3974, 3825, 5045, 5065, 5199, 5734, 7372, 7373, 873, 8572.

TEMPORARY HELP SERVICES INDUSTRY DOUBLES IN 4 YEARS

Data are derived from the EDD/JVS Valley Silicon Valley data set. Help Supply Services Industry is Standard Industrial Classification code 7363.

AVERAGE REAL-WAGE GROWTH ACCELERATES

Data are derived from the EDD/JVS Valley Silicon Valley data set and the Average Annual Pay Levels in Metropolitan Areas report of the Bureau of Labor Statistics. This information comes from individual firm reporting of payroll amounts in compliance with unemployment insurance rules. All wages have been adjusted into 1995 dollars using the San Francisco Bay Area Consumer Price Index and the All Urban Consumers CPI published by the Bureau of Labor Statistics.

SOFTWARE AND SEMICONDUCTORS CONTINUE TO LEAD AVERAGE WAGES

Mean payroll per-employee wages for each cluster derived from the EDD/JVS Valley Silicon Valley data set.

VALLEY'S INCOMES GROWING AT UPPER AND LOWER LEVELS

Data from a San Jose Mercury News analysis of annual economic surveys by the U.S. Census Bureau. April 8, 1996.

ENGINEERS/TECHNICAL OCCUPATIONS DOMINATE CLUSTER EMPLOYMENT

Data provided by the EDD's Labor Market Information Division for 1994. This information is derived by cross-tabling the EDD's Occupational Employment Statistics series with the EDD employment data for Santa Clara County.

VALLEY SUSTAINS PRODUCTIVITY EDGE

This indicator reflects annual value added per employee in manufacturing industries for Santa Clara County and the nation as a whole. Data come from the 1992 and 1987 U.S. Census of Manufacturers. Value added per employee is the total value added for each company divided by total employees. Total value added per company is derived by subtracting the total costs of inputs, other than direct labor costs, from the stated value of the final goods produced. These estimates are adjusted by the addition of value added by merchandising operations plus the net change in finished goods and work-in-process between the beginning and end-of-year inventories. The Census of Manufacturers is conducted every five years by the U.S. Department of Commerce.

VALLEY EXPORTS BOOM 30%

Data provided by the U.S. Department of Commerce, International Trade Administration, from the Exporter Location Series. Data are sales by exporters in the geographic area with zip codes beginning 940, 945, 950, and 951. Data include manufactured and non-manufactured goods, but not services.

NUMBER OF GAZELLES NEARLY DOUBLES, IPOs CONTINUE GROWTH

Data for deriving the number of gazelle firms are from The San Jose Mercury News, "How Local Companies Fared," a quarterly report which tracks publicly traded firms in the region. The number of IPOs is also tracked throughout the year by the Mercury News.

WOMEN-OWNED BUSINESSES INCREASE, SIZE SMALLER THAN AVERAGE

Data from the U.S. Census Bureau, 1987 and 1992 surveys of women-owned businesses.

OPTIMISM ABOUT ECONOMY AT ALL-TIME HIGH

Data come from the annual “Bay Area Poll” conducted for the Bay Area Council by Field Research Corporation each October. The question asked is, “Turning to business conditions in the Bay Area as a whole, do you think during the next 12 months that financially we’ll have good times, somewhat good times, somewhat bad times, or bad times?” The datapoint reflects the percentage of respondents who responded positively to either of the first two classifications.
R&D EXPENDITURES DECLINE SLIGHTLY, REMAIN TWICE THE NATIONAL AVERAGE

Data compiled by Standard and Poor's Compustat for the Silicon Valley region based on public firm 10K and 10Q reporting with the Securities and Exchange Commission (SEC). In Silicon Valley more than 300 firms report such information with the SEC.

VENTURE CAPITAL GROWS 73% IN 1996

Data come from the quarterly report of the San Jose Mercury News, “The Money Tree,” based on research by Price Waterhouse. For the Index of Silicon Valley, only investments in firms located in Silicon Valley were included. Collaborative Economics estimated the 1996 fourth quarter venture capital funding level.

COMMERCIAL VACANCY RATES DROP TO 5%

Data from Cornish and Carey Commercial/Oncor International, Santa Clara Office. Data cover Santa Clara County plus the southern portion of Alameda County. Data for R&D space are provided “triple net” or “NNN” which is a base lease rate that excludes the costs of utilities, janitorial services, taxes, maintenance, and insurance.

HIGH SCHOOL DROP-OUT RATES INCREASE

Data include the rates for students who drop-out each year in Santa Clara County and San Mateo County. This information was compiled by the Office of Education in each county in accordance with California Basic Educational Data System. Data for the San Jose, Santa Clara, and Mountain View-Los Altos school districts is estimated.

(Note that this indicator measures the number of high school students who dropout each year. The indicator in the 1996 Index measured the derived rate of students dropping out of school between their sophomore and senior years. The single-year rate is comparable to national drop-out statistics compiled by National Center for Education Statistics)

VALLEY LACKS SCHOOL PERFORMANCE MEASURE, STUDENTS PERFORM WELL IN SATS

SAT data from California Department of Education include Santa Clara and San Mateo Counties. Data are combined verbal and math scores. Time series data have been adjusted to reflect the new centering methodology of The College Board.

SCHOOLS INTERNET ACCESS ESCALATES

Data are from a survey of schools in Santa Clara (325 schools) and San Mateo (155 schools) counties conducted by Smart Valley, Inc. The return rate in Santa Clara County was 95%; in San Mateo, 100%. See The Silicon Valley Computing and Networking Survey Report, August 1996, http://www.svi.org/netday.

POST-SECONDARY ENROLLMENT SHIFTS TOWARD CONTINUING EDUCATION

Enrollment data for public and private universities, colleges, community colleges are from the California Post-secondary Education Commission Enrollment Data Systems Reports for Specific Counties. Institutions included are: San Jose State University, Stanford University, Santa Clara University, San Jose City College, Gavilan College, Foothill College, De Anza College, Evergreen College, Mission College, West Valley College, National Hispanic University, Heald Institute of Technology, Palmer College of Chiropractic, Institute of Transpersonal Psychology, Pacific Graduate School of Psychology and Philips Junior College. The enrollment data for extension and continuing education are reported directly by UC Santa Cruz-Extension, San Jose State Continuing Education, National University, and Phoenix University.

REGION LEADS ADVANCED ENGINEERING EDUCATION

Data from the Engineering Workforce Commission of the American Association of Engineering Societies. Engineering programs serving Silicon Valley include San Jose State University, Santa Clara University, Stanford University, UC Berkeley, UC Santa Cruz, Cogswell College, and San Francisco State University. The Engineering programs included for comparative regions are as follows:

Boston—Boston University, Harvard University, Merrimack College, MIT, Northeastern University, Tufts University, University of Lowell, Wentworth Institute of Tech, Worcester Poly Institute; Austin—Prairie View A&M, Texas A&M-College Station, Trinity University, UT-Austin, UT-San Antonio; Research Triangle—Duke University, NC A&T State University, NC State University-Raleigh, U NC-Chapel Hill; Seattle—Cogswell College North, Pacific Lutheran University, Seattle Pacific University, Seattle University, St. Martins College, University of Washington.

VEHICLE DELAYS JUMP BACK UP

Data provided by Caltrans District 04 Highway Congestion Monitoring Program. Vehicle hours of delay are a multiplicative function of three factors. The first factor (v) is the volume, or potential capacity. This is 2,000 passenger cars/lane/hour. The second factor (d) is the duration of the congestion. Congestion is defined as a condition where the average speed drops below 35 mph for 15 minutes or more on a typical weekday. The third factor (t) is travel time. Data are collected via “floating cars” equipped with a computerized program that records car speed and time as it travels.

A2
INCREASING DEMAND STRAINS HOUSING AND RENTAL MARKET

Housing affordability data from the National Association of Home Builders, Housing Opportunity Index. The Index is based on the median price of a home sold in each region. The 1996 figure is the average of the first three quarters.

Apartment data from surveys conducted by Realfacts of all apartment complexes in the county of 40 or more units. Excluded are subsidized housing, Section 8 or HUD housing, and senior complexes. Rental rates are the average of all types of units. Rates are the prices charged to new residents when apartments turn over.

HOUSING STARTS TURN UP, BUT LAG JOB GROWTH

Data on housing starts by city from the Construction Industry Research Board. Silicon Valley dataset created by Collaborative Economics.

FEDERAL BAD-AIR DAYS DROP TO ONE

The Bay Area Air Quality Management District takes daily measurements of air quality monitoring stations throughout Silicon Valley. The indicator reflects the number of days that at least one of these stations exceeds the federal or state standards.

TOXIC CHEMICAL RELEASES UP 3%

Data provided by the Santa Clara County Pollution Prevention Program from the U.S. Environmental Protection Agency’s Toxic Release Inventory (TRI) Program. Approximately 125 facilities in Santa Clara County are required to report to TRI. This analysis is based on on-site releases to the local environment; it does not include TRI data about offsite disposal or recycling. In the past, the TRI list included 316 chemicals and 20 broad chemical categories.

The list was expanded to include additional chemicals for 1995 reports. This had virtually no effect on the Silicon Valley dataset, as many of these chemicals were agricultural in nature. Note that the pounds of chemicals released does not necessarily correlate with the public health or environmental impact because hazard varies between chemicals.

VIOLENT CRIME LOW, JUVENILE CRIME DROPS SLIGHTLY

Violent crime data from the FBI’s Uniform Crime Reports. Arrest data from the California Attorney General’s Office, Department of Justice, “Juvenile Felony Arrests.” Violent offenses include homicide, forcible rape, robbery, assault, and kidnapping.

LOW-BIRTH-WEIGHT INFANTS INCREASING

Data from the State of California, Department of Health Services, Birth Records. Babies weighing under 2,500 grams are considered “low birth weight.”

YOUTH TOBACCO USE RISES, ADULT USE HOLDS STEADY

Data on tobacco use from Tobacco Use in California: Regional vs. State Level Changes, 1990–93, a report to the California Department of Health Services by the Cancer Prevention and Control Program, University of California, San Diego. Adolescent means youth between the ages of 12 through 17 years. Smoking prevalence is the proportion of respondents who smoked in a given month.

POVERTY ZONES LINKED TO CHILD RISK-FACTORS

Data from the Santa Clara Valley Health and Hospital System, Public Health Department, Disease Control and Prevention, Data Management and Statistics. Data featured in Health Status of Santa Clara County published by the Santa Clara Valley Public Health Department in June 1996.

CORPORATE CONTRIBUTIONS TO THE ARTS INCREASE 48%

Data from a survey conducted by Collaborative Economics of the 11 large arts organizations and 12 mid-size arts organizations in cooperation with the Arts Roundtable and the Arts Council of Santa Clara County. Surveyed large organizations include the American Musical Theatre, Community School of Music and Arts, San Jose Children’s Discovery Museum, Opera San Jose, San Jose Cleveland Ballet, San Jose Symphony Orchestra, San Jose Museum of Art, San Jose Repertory Theatre, Tech Museum of Innovation, Theatre Works, and Villa Montalvo. Mid-sized organizations surveyed include Palo Alto Cultural Center, Tapestry in Talent, San Jose Children’s Musical Theatre, San Jose Dance Theatre, San Jose Taiko, Stanford Jazz Workshop, San Jose Stage Company, California Youth Symphony, San Jose Jazz Society, Young Audiences of San Jose, Chinese Performing Artists of America, and Los Lupeños de San Jose.

Contributions are financial contributions to operating budgets, excluding ticket sales. Clients are number of visitors, including multiple visits by one person.

PRIVATE GIVING TO NONPROFITS ACCELERATING

Data on giving to nonprofit organizations and nonprofit revenue sources are from the Community Foundation’s The Status of the Nonprofit Sector in Santa Clara County (October 1995.) The report includes results of a survey of 98 leading nonprofit organizations in the county. National giving to nonprofits data are from the American Association of Fund-Raising Counsel’s Giving USA 1996 report.
DEFINITIONS

Where possible, The Index includes data for the economic region of Silicon Valley. This includes Santa Clara County as its core and extends into the following adjacent zip codes:

City Zip Code
Alameda County 94536-39, 94555
Fremont 94536-39, 94555
Union City 94587
Newark 94560
San Mateo County
Menlo Park 94025
Atherton 94027
Redwood City 94061-65
San Carlos 94070
Belmont 94002
San Mateo 94400-03
Foster City 94404
East Palo Alto 94303
Santa Cruz County
Scotts Valley 95066-67

SEMICONDUCTOR INDUSTRY
3559* Special industry machinery
3674 Semiconductors and related devices
3825 Instruments for measuring and testing electricity and electrical signals

COMPUTERS/COMMUNICATIONS INDUSTRY
3571 Electronic computers
3572 Computer storage devices
3577 Computer peripheral equipment, n.e.c.
3672 Printed circuit boards
3679 Electronic components, n.e.c.*
3695 Magnetic and optical recording media
3661 Telephone and telegraph apparatus
3663 Radio and television broadcasting and communications equipment
3669 Communications equipment, n.e.c.

BIOSCIENCE INDUSTRY
283 Drugs
384 Surgical medical and dental instruments and supplies
8071 Medical laboratories
382 Laboratory apparatus and analytical, optical, measuring, and controlling instruments (except 3822, 3825, and 3826)

DEFENSE/AEROSPACE INDUSTRY
348 Small arms ammunition
3671 Electron tubes
372 Aircraft and parts
376 Guided missiles and space vehicles
3795 Tanks and tank components
381 Search, detection, navigation, guidance, aeronautical, and nautical systems, instruments, and equipment

ENVIRONMENTAL INDUSTRY
3564 Industrial and commercial fans and blowers and air purification equipment
3589 Service industry machinery, n.e.c.
495 Sanitary services
5093 Scrap and waste materials

SOFTWARE INDUSTRY
7371 Computer programming services
7372 Prepackaged software
7373 Computer integrated systems design
7374 Computer processing and data preparation and processing services
7375 Information retrieval services

INNOVATION/MANUFACTURING RELATED SERVICES
5045 Computers and computer peripheral equipment and software (wholesale trade)
5065 Electronics parts and equipment, n.e.c. (wholesale trade)
7376 Computer facilities management services
7377 Computer rental and leasing
7378 Computer maintenance and repair
7379 Computer-related services, n.e.c.
8711 Engineering services
873 Research and testing services

PROFESSIONAL SERVICES
275 Printing
276 Manifold business forms
279 Service industries for the printing trade
731 Advertising
732 Consumer credit reporting agencies
733 Mailing, reproduction, commercial art and photography, and stenographic services
736 Personnel supply services
81 Legal services
8712 Architectural services
8713 Surveying services
872 Accounting, auditing, and bookkeeping services
874 Management and public relations services

*The numbers correspond to federal Standard Industrial Classification (SIC) codes.

**n.e.c. means "not elsewhere classified"
Sponsors

Adobe Systems, Inc.
Applied Materials, Inc.
Arthur Andersen
Aspect Telecommunications
Bank of America
Booz, Allen & Hamilton
EDS
Hewlett-Packard Company
Integrated Device Technology, Inc.
Morgan Stanley & Co.
Robertson Stephens & Co.
Rudolph & Sletten, Inc.
Silicon Graphics Computer Systems
Tencor Instruments
Therma

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