



## POLICY BRIEF

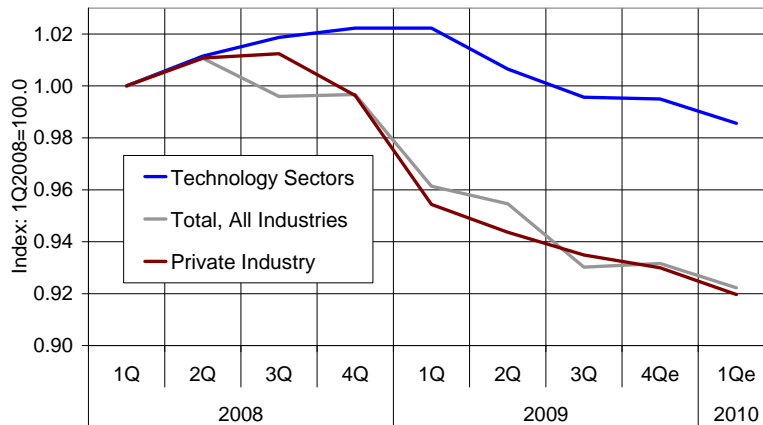
### THE RECESSION'S IMPACT ON SAN DIEGO'S TECHNOLOGY INDUSTRIES

#### TECHNOLOGY EMPLOYMENT IN SAN DIEGO COUNTY

Employment	Actual		Estimate	Change: 2Q'08-1Q'10	
	2Q 2008	3Q 2009	1Q 2010	Number	Percent
	<b>Total, All Industries</b>	<b>1,330,600</b>	<b>1,224,700</b>	<b>1,214,200</b>	<b>-116,400</b>
<b>Total Private</b>	<b>1,101,400</b>	<b>1,018,800</b>	<b>1,002,200</b>	<b>-99,200</b>	<b>-9.0%</b>
<b>TOTAL Technology</b>	<b>140,600</b>	<b>138,400</b>	<b>137,000</b>	<b>-3,600</b>	<b>-2.6%</b>
Biomedical Products	6,600	6,400	6,300	-300	-4.5%
Biotechnology & Pharmaceutical	18,300	19,900	19,900	1,600	8.7%
Communications Equipment Mfg	30,600	29,100	28,700	-1,900	-6.2%
Computer & Electronics	13,800	12,900	12,700	-1,100	-8.0%
Defense and Transportation	27,000	26,200	25,500	-1,500	-5.6%
Environmental Technology	10,200	9,900	9,800	-400	-3.9%
Recreational Goods	2,700	2,500	2,500	-200	-7.4%
Software	25,500	25,500	25,600	100	0.4%
Other Technical Consulting Srvs	5,900	6,000	6,000	100	1.7%

Source: National University System Institute for Policy Research.

#### SAN DIEGO COUNTY INDUSTRY EMPLOYMENT BY QUARTER



Source: National University System Institute for Policy Research e: estimate

#### KEY HIGHLIGHTS

San Diego's Technology-focused companies have fared much better during the downturn than other parts of the regional economy.

The biotechnology, software and technical consulting sectors have actually seen modest growth in employment since Q2 2008.

The largest declines were in computers/electronics (-8.0%), communications (-6.2%), and defense and transportation (-5.6%).

### **Background and Details**

Since Q2 2008 the San Diego economy has experienced one of its most severe recessions since the 1930s. In 21 months, the region lost more than 116,400 jobs and unemployment spiked to 11%. While over the past 3 quarters leading economic indicators have trended mildly positive, the lack of employment growth remains a critical concern.

Responding to an inquiry from CONNECT regarding the number of people employed in the region's technology-oriented industries, the National University Institute for Policy Research (NUSIPR) drew upon recently refined data from the California Employment Development Department (EDD), as well as our own monthly estimating model to focus in on the recession's impact on San Diego's principal technology segments.

Overall, we found that the impact on technology employment has not been as nearly pronounced as the recession's overall effect. Technology employment between Q2 2008 and Q1 2010 has fallen only 2.6% (3,600 jobs). Three segments (biotechnology, software, and other technical consulting services) have actually seen modest increases. Worst hit has been the region's communications (shedding 1,900 jobs) and defense/transportation industry (a decline of 1,500 jobs) since Q2 2008. We also found that job losses were particularly pronounced in Q3 2009.

### **METHODOLOGY**

To derive this data we first utilized the definitions for technology sectors compiled by CONNECT in its Index of Innovation and the San Diego Association of Governments (SANDAG) 2006 "Traded Clusters in the San Diego Region" study. Appendix B of this report lists the detailed NAICS codes used to define the nine technology sectors.

To derive employment figures in each of these categories we used the California Employment Development Department's (EDD) Quarterly Census of Employment and Wages data (QCEW – formerly known as the ES-202 program) for quarterly employment. In some instances, EDD suppresses data when they believe that the data's release compromises the confidentially promised to employers. In those instances we interpolated figures using state-wide estimates for employment, assuming that San Diego's share of employment in those industrial segments is similar to statewide ratios.

Currently, EDD's latest release of QCEW data is for Q3 2009. To bring our estimates forward to Q1 2010, NUSIPR built an econometric model that utilizes more current statewide economic and employment data available for San Diego County. As future data is released by EDD we will continue to refine the model's econometric parameters to increase the accuracy of the estimates. Subsequent to the release of this report, NUSIPR will be publishing these findings each quarter as part of the CONNECT Innovation Index.

## APPENDIX A: Employment by technology sectors

### TECHNOLOGY EMPLOYMENT IN SAN DIEGO COUNTY

Employment	Actual							Estimate	
	1Q 2008	2Q 2008	3Q 2008	4Q 2008	1Q 2009	2Q 2009	3Q 2009	4Q 2009	1Q 2010
<b>Total, All Industries</b>	<b>1,316,600</b>	<b>1,330,600</b>	<b>1,311,300</b>	<b>1,312,200</b>	<b>1,265,800</b>	<b>1,256,800</b>	<b>1,224,700</b>	<b>1,226,600</b>	<b>1,214,200</b>
<b>Total Private</b>	<b>1,089,700</b>	<b>1,101,400</b>	<b>1,103,200</b>	<b>1,085,700</b>	<b>1,040,000</b>	<b>1,028,300</b>	<b>1,018,800</b>	<b>1,013,400</b>	<b>1,002,200</b>
<b>TOTAL Technology</b>	<b>139,000</b>	<b>140,600</b>	<b>141,600</b>	<b>142,100</b>	<b>142,100</b>	<b>139,900</b>	<b>138,400</b>	<b>138,300</b>	<b>137,000</b>
Biomedical Products	6,600	6,600	6,200	6,200	6,500	6,500	6,400	6,300	6,300
Biotechnology & Pharmaceutical	18,000	18,300	18,700	18,800	19,700	19,800	19,900	20,100	19,900
Communications Equipment Mfg	30,400	30,600	31,000	30,900	30,200	29,100	29,100	29,000	28,700
Computer & Electronics	13,100	13,800	13,700	13,600	13,900	13,600	12,900	12,800	12,700
Defense and Transportation	26,700	27,000	27,100	27,100	27,000	26,500	26,200	25,800	25,500
Environmental Technology	10,300	10,200	10,400	10,300	10,200	10,000	9,900	9,900	9,800
Recreational Goods	2,800	2,700	2,600	2,600	2,800	2,600	2,500	2,500	2,500
Software	25,400	25,500	25,800	25,800	25,600	25,700	25,500	25,800	25,600
Other Technical Consulting Svcs	5,700	5,900	6,100	6,800	6,200	6,100	6,000	6,100	6,000

Derived from California Employment Development Department "Quarterly Census of Employment and Wages" (QCEW) program, and monthly employment estimates.

Technology sectors based upon NAICS codes defined, in part, by SANDAG Cluster Analysis and CONNECT technology definitions, with adjustments and estimates by National University System Institute for Policy Research.

Source: National University System Institute for Policy Research.

## APPENDIX B: Technology Sector Definitions

NAICS*	Industry Title
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### Biomedical Products

333314	Optical Instrument & Lens Manufacturing
334510	Electromedical Apparatus Manufacturing
334517	Irradiation Apparatus Manufacturing
339111	Laboratory Apparatus and Furniture Manufacturing
339112	Surgical and Medical Instrument Manufacturing
339113	Surgical Appliance and Supplies Manufacturing
339114	Dental Equipment and Supplies Manufacturing
339115	Ophthalmic Goods Manufacturing
339116	Dental Laboratories

### Biotechnology & Pharmaceutical

325199	All Other Basic Organic Chemicals
325411	Medicinal and Botanical Manufacturing
325412	Pharmaceutical Preparation Manufacturing
325413	In-Vitro Diagnostic Substance Manufacturing
325414	Other Biological Product Manufacturing
325998	Other Miscellaneous Chemicals Manufacturing
541380	Testing Laboratories
541711	Research and Development in Biotechnology

### Communications Equipment Manufacturing

334210	Telephone Apparatus Manufacturing
334220	Broadcast & Wireless Communication Equipment
334290	Other Communications Equipment Manufacturing
517110	Wired Telecommunications Carriers
541712	Research and Development in Physical and Engineering Sciences <sup>1</sup> (33%)
517211	Paging
517212	Cellular & Other Wireless Telecommunications
517410	Satellite Telecommunications
517911	Telecommunications Resellers
517919	All Other Telecommunications
541330	Engineering Services <sup>1</sup> (15%)

### Computer & Electronics

335990	All Other Electrical Equipment/Component
334111	Electronic Computer Manufacturing
334112	Computer Storage Device Manufacturing
334119	Other Computer Peripheral Equipment
334310	Audio and Visual Equipment Manufacturing
334411	Electron Tube Manufacturing
334412	Bare Printed Circuit Board Manufacturing
334413	Semiconductor and Related Devices
334414	Electronic Capacitor Manufacturing
334416	Electronic Coils, Transformer & Inductor
334417	Electronic Connector Manufacturing
334418	Printed Circuit Assemblies
334419	Other Electronic Component Manufacturing
334613	Magnetic & Optical Recording Media Manufacturing
335991	Carbon & Graphite Product Manufacturing
335999	Miscellaneous Electrical Equipment

**Defense and Transportation**

333411	Air Purification Equipment Manufacturing
333412	Industrial & Commercial Fans & Blowers
333611	Turbine Generator & Generator Set Units
334511	Search, Detection & Navigation Instruments
336411	Aircraft Manufacturing
336412	Aircraft Engine and Engine Parts
336413	Other Aircraft Parts and Equipment
336414	Guided Missiles and Space Vehicles
336419	Other Guided Missile/Space Vehicle Parts
336611	Ship Building and Repairing
336612	Boat Building
541712	Research and Development in Physical and Engineering Sciences <sup>1</sup> (33%)

**Environmental Technology**

333319	Other Commercial and Service Machinery
333999	Miscellaneous General Purpose Machinery
334513	Industrial Process Variable Instruments
334514	Fluid Meters and Counting Devices
334515	Electricity & Signal Testing Instruments
334516	Analytical Laboratory Instruments
334519	Other Measuring and Controlling Devices
541620	Environmental Consulting Services
541330	Engineering Services <sup>1</sup> (30%)

**Recreational Goods**

339920	Sporting & Athletic Goods Manufacturing
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**Software**

334611	Software Reproducing
511210	Software Publishers
518210	Data Processing and Related Services
541511	Custom Computer Programming Services
541512	Computer Systems Design Services
541513	Computer Facilities Management Services
541519	Other Computer Related Services
541712	Research and Development in Physical and Engineering Sciences <sup>1</sup> (33%)
611420	Computer Training
541330	Engineering Services <sup>1</sup> (5%)

**Other Technical Consulting Services**

541690	Other Technical Consulting Services
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\*North American Industry Classification System - government system of classifying business establishments according to type of economic activity.

<sup>1</sup>Proportions split among technology sectors. Percentages listed are proportions allocated.