



**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
*through the*  
CALIFORNIA  
COMMUNITY  
COLLEGES

# Welcome!

## Inland Empire Medical Device Industry Panel



Center of Excellence  
February 14, 2008  
7:30 - 9:30 AM



**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
through the  
CALIFORNIA  
COMMUNITY  
COLLEGES

110 Community Colleges  
9 Centers of Excellence  
11 Community Colleges in  
Inland Empire

The Centers of Excellence:  
Synthesize Workforce Needs  
Forecasts Emerging Industries  
Convene Strategic Partners





**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
*through the*  
CALIFORNIA  
COMMUNITY  
COLLEGES

# Agenda

- Introductions
- Industry Survey Findings
- Comments from Industry Panel
- Discussion, Q&A





**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
*through the*  
CALIFORNIA  
COMMUNITY  
COLLEGES

## Why Medical Devices?

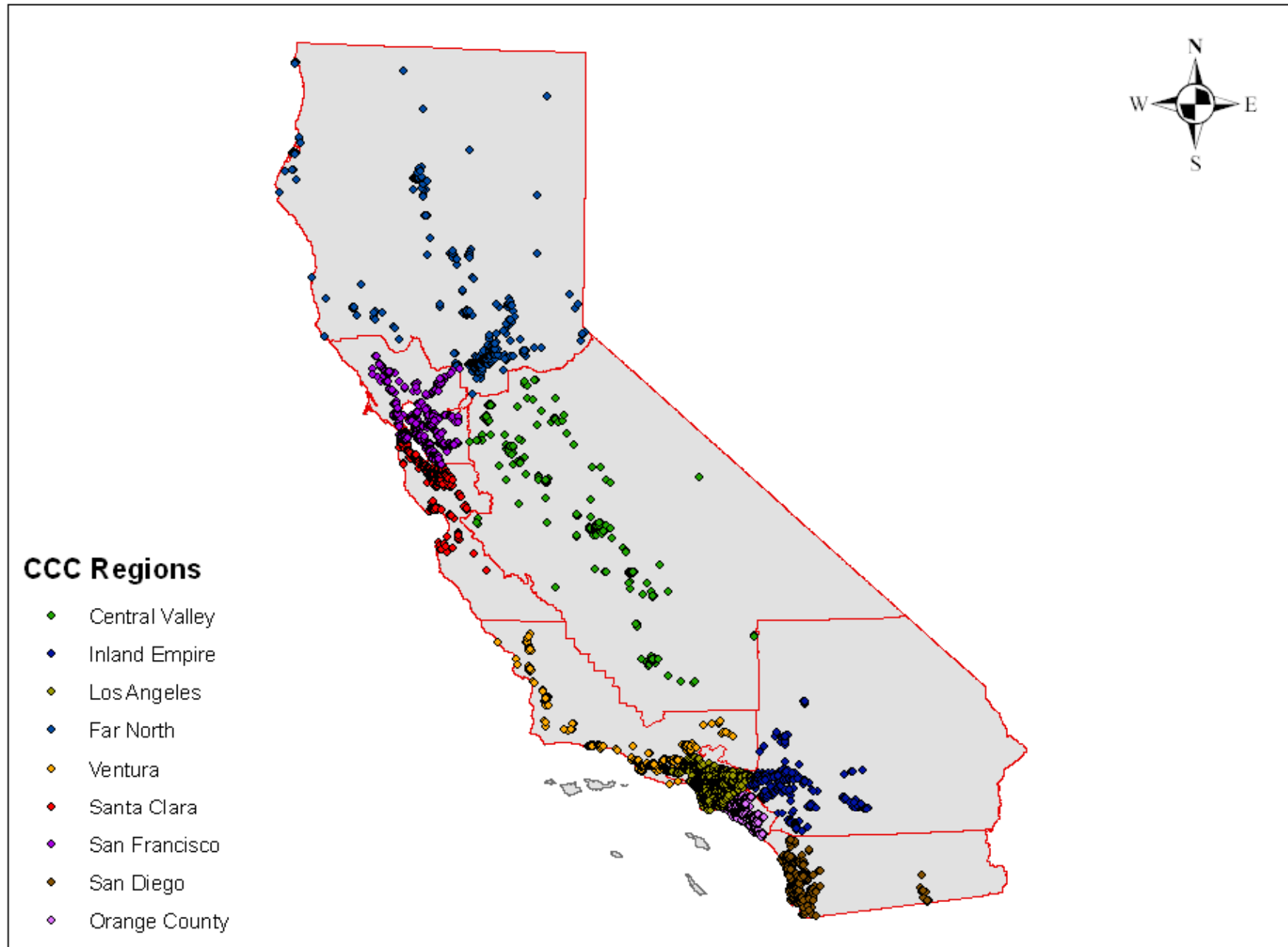
1. *There are very few CCC and ROP programs focusing on this large cluster*
2. *In California, medical device employers expect to increase hiring by almost ten percent in the next 12 months, which would generate almost 10,000 new jobs*
3. *Three out of every four employers have difficulty with “Recruiting employees with appropriate training and education” and nearly one out of every two (55%) have difficulty providing training programs to keep employees up-to-date on changing technology and industry requirements*



# Survey

- BW Research
- 500 Medical Device related employers
  - Advanced Manufacturing
  - Medical and Diagnostic Laboratories
  - Biotechnology Support
- 8 occupations closely examined
- 40 responders in the Inland Empire

# California Medical Device Manufacturing: Employer Distribution





**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
through the  
CALIFORNIA  
COMMUNITY  
COLLEGES

# Medical Devices Industry Employment

	2006 Statewide Employment	Percent of Medical Device Industry Employment
NAICS 327215: Purchased Glass Product Manufacturing	4,036	4.0%
NAICS 334510: Electromedical Apparatus Manufacturing	12,044	12.0%
NAICS 334516: Analytical Laboratory Instruments	11,002	11.0%
NAICS 334517: Irradiation Apparatus Manufacturing	1,008	1.0%
NAICS 339111: Laboratory Apparatus and Furniture	1,248	1.2%
NAICS 339112: Surgical and Medical Instrument Mfg	19,854	19.8%
NAICS 339113: Surgical Appliance and Supplies Mfg	10,327	10.3%
NAICS 339114: Dental Equipment and Supplies Mfg	3,940	3.9%
NAICS 339115: Ophthalmic Goods Manufacturing	4,004	4.0%
NAICS 339116: Dental Laboratories	8,646	8.6%
NAICS 621511: Medical Laboratories	18,081	18.0%
NAICS 621512: Diagnostic Imaging Centers	6,269	6.2%
<b>Total Medical Device Industry Employment</b>	<b>100,459</b>	



## Medical Devices Industry Employment

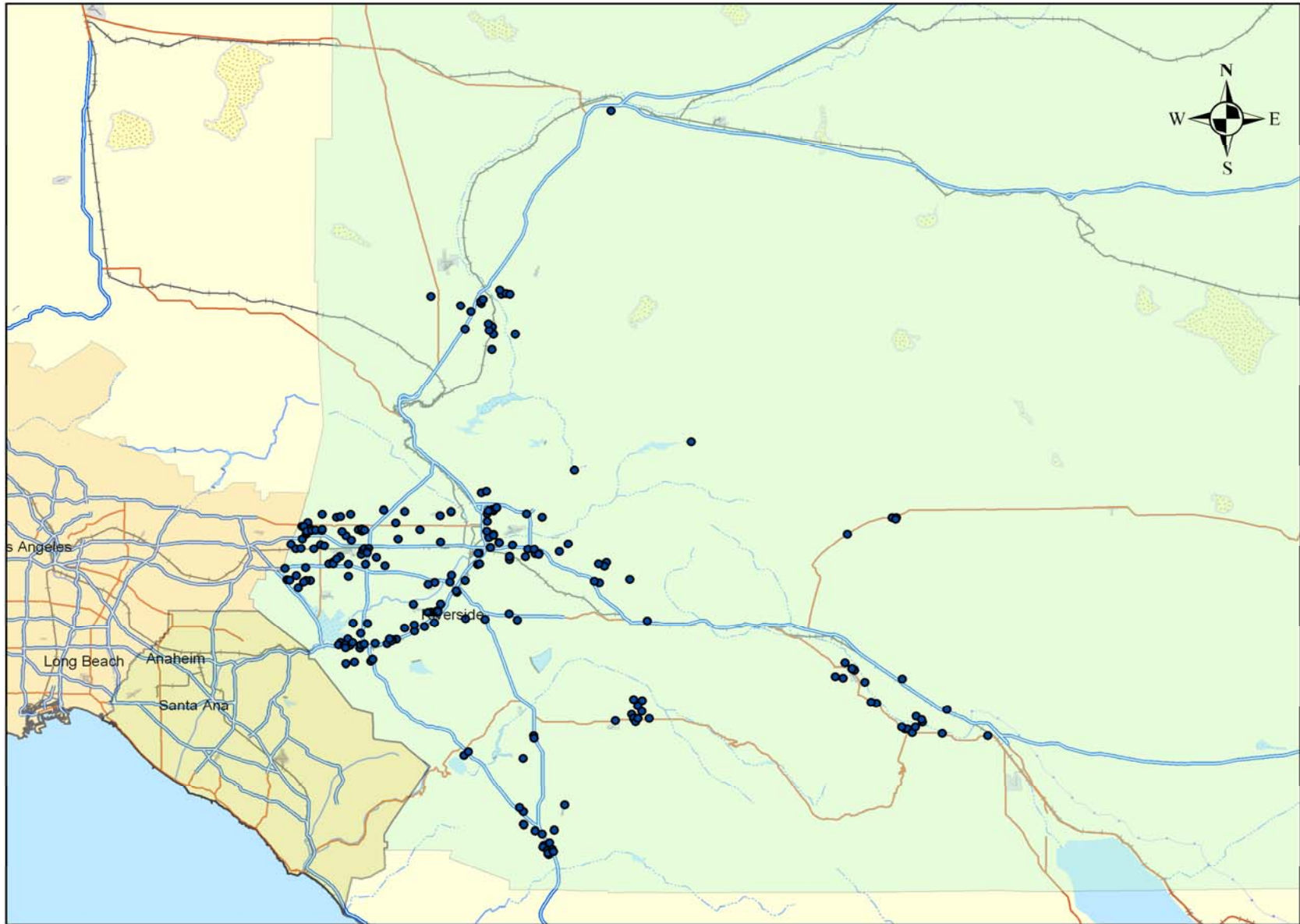
### Statewide:

- 47.8 % advanced manufacturing
- 28.0 % biotechnology support
- 24.2 % medical and diagnostic laboratories

### Inland Empire:

- 71.8 % advanced manufacturing
- 8.7 % biotechnology support
- 19.6 % medical and diagnostic laboratories

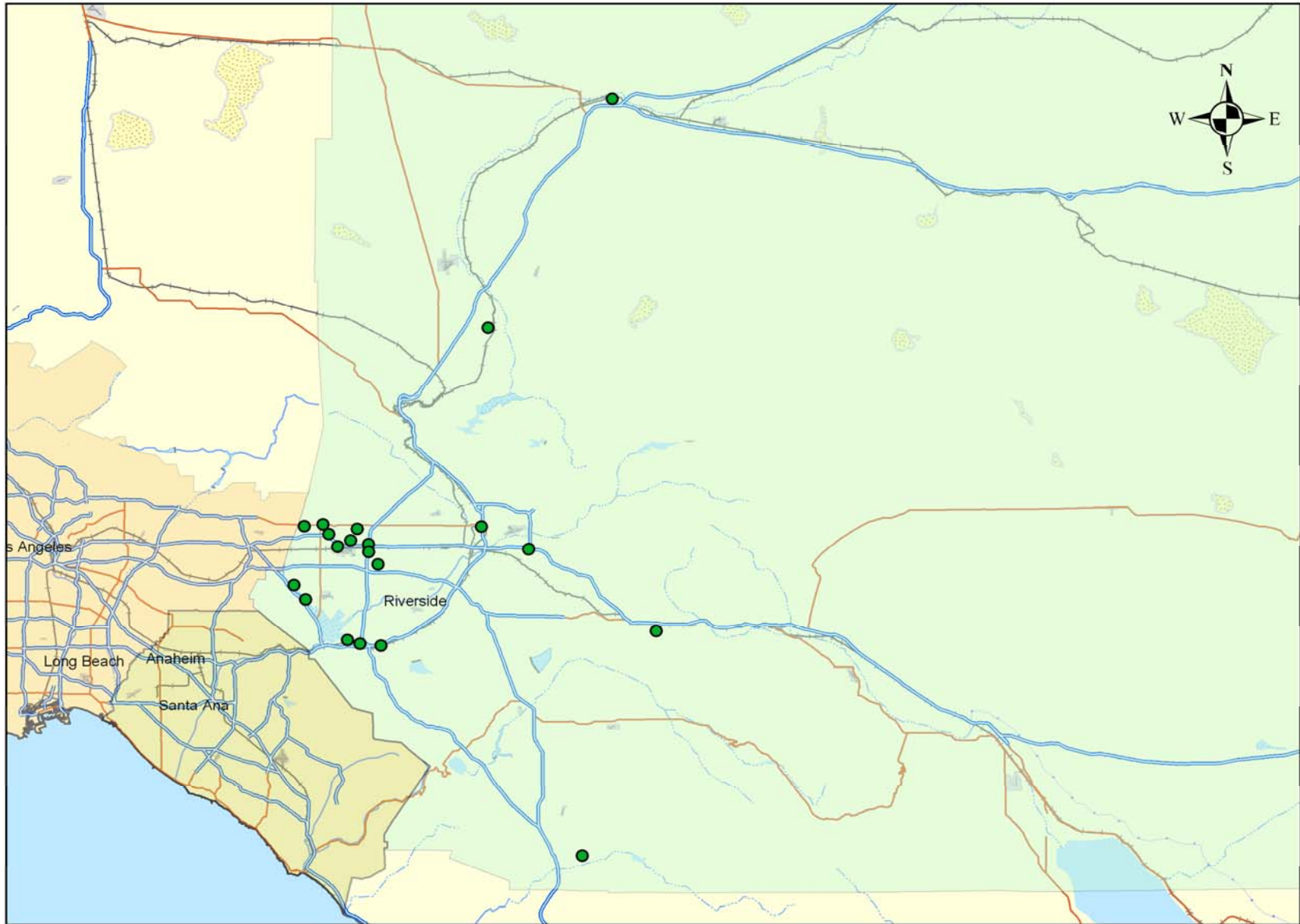
# Inland Empire Businesses 2007: Advanced (Medical) Manufacturing



0 5 10 20 30 40 Miles

● 249 Businesses from NAICS: 339111-339116

# Inland Empire Businesses 2007: Biotechnology Support



0 5 10 20 30 40  
Miles

● 20 Businesses within NAICS: 327215, 334510, 334516-334517

# Inland Empire Businesses 2007: Medical & Diagnostic Laboratories



0 5 10 20 30 40 Miles

• 170 Businesses from NAICS: 624511-621512



**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
*through the*  
CALIFORNIA  
COMMUNITY  
COLLEGES

## Inland Empire Medical Device Industry Employment

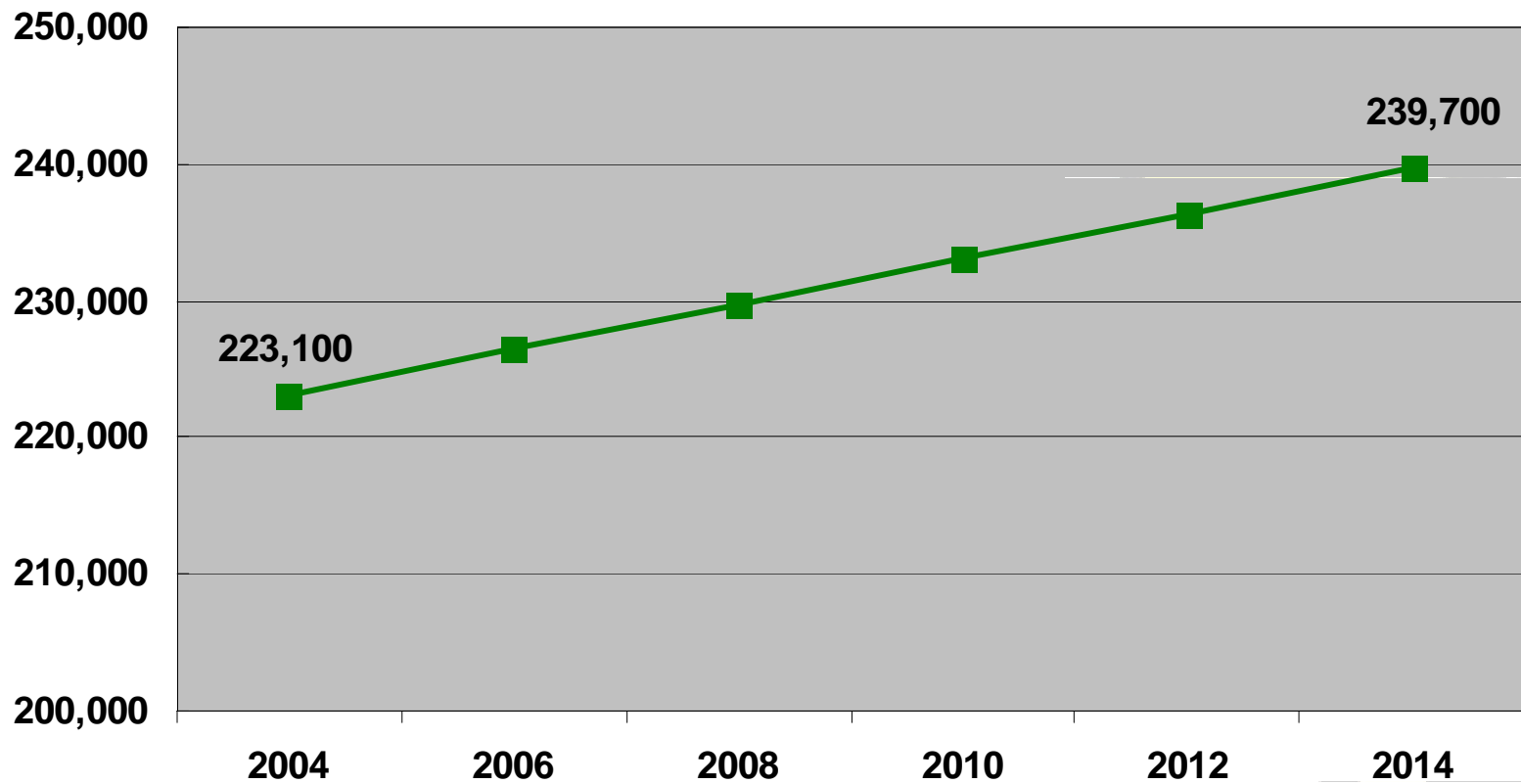
	2006 Employment	%
Advanced Manufacturing	4,943	71.8%
Medical and Diagnostic Laboratories	1,350	19.6%
Biotechnology Support	596	8.7%
<b>Total</b>	<b>6,889</b>	

Change in Medical Devices Industry Employment	California				Inland Empire Region			
	Annual Average Employment		Employment Change		Annual Average Employment		Employment Change	
	1996	2006	Numerical	Percent	1996	2006	Numerical	Percent
<b>Biotechnology Support</b>	<b>27,083</b>	<b>28,090</b>	<b>1,007</b>	<b>3.7%</b>	<b>122</b>	<b>596</b>	<b>474</b>	<b>388.5%</b>
Purchased Glass Product Mfg	5,038	4,036	-1,002	-19.9%	122	404	282	231.1%
Electromedical Apparatus Mfg	12,078	12,044	-34	-0.3%	0	0	0	N/A
Analytical Laboratory Instruments	9,157	11,002	1,845	20.1%	0	192	192	N/A
Irradiation Apparatus Manufacturing	810	1,008	198	24.4%	0	0	0	N/A
<i>Unaccounted on 6-digit level</i>	0	0			0	0		
<b>Advanced Manufacturing</b>	<b>43,443</b>	<b>48,019</b>	<b>4,576</b>	<b>10.5%</b>	<b>2,977</b>	<b>4,943</b>	<b>1,966</b>	<b>66.0%</b>
Laboratory Apparatus and Furniture	620	1,248	628	101.3%	0	0	0	N/A
Surgical and Medical Instrument Mfg	15,877	19,854	3,977	25.0%	142	179	37	26.1%
Surgical Appliance and Supplies Mfg	10,721	10,327	-394	-3.7%	297	847	550	185.2%
Dental Equipment and Supplies Mfg	4,327	3,940	-387	-8.9%	156	233	77	49.4%
Ophthalmic Goods Manufacturing	6,222	4,004	-2,218	-35.6%	0	59	59	N/A
Dental Laboratories	5,676	8,646	2,970	52.3%	172	364	192	111.6%
<i>Unaccounted on 6-digit level</i>	0	0			2,210	3,261		
<b>Medical &amp; Diagnostic Laboratories</b>	<b>17,926</b>	<b>24,350</b>	<b>6,424</b>	<b>35.8%</b>	<b>727</b>	<b>1,350</b>	<b>623</b>	<b>85.7%</b>
Medical Laboratories	15,223	18,081	2,858	18.8%	513	706	194	37.8%
Diagnostic Imaging Centers	2,703	6,269	3,566	131.9%	215	643	429	200.0%
<i>Unaccounted on 6-digit level</i>	0	0			0	0		
<b>Statewide Medical Device Industry</b>	<b>88,452</b>	<b>100,459</b>	<b>12,007</b>	<b>13.6%</b>	<b>3,826</b>	<b>6,889</b>	<b>3,063</b>	<b>80.1%</b>



**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
*through the*  
CALIFORNIA  
COMMUNITY  
COLLEGES

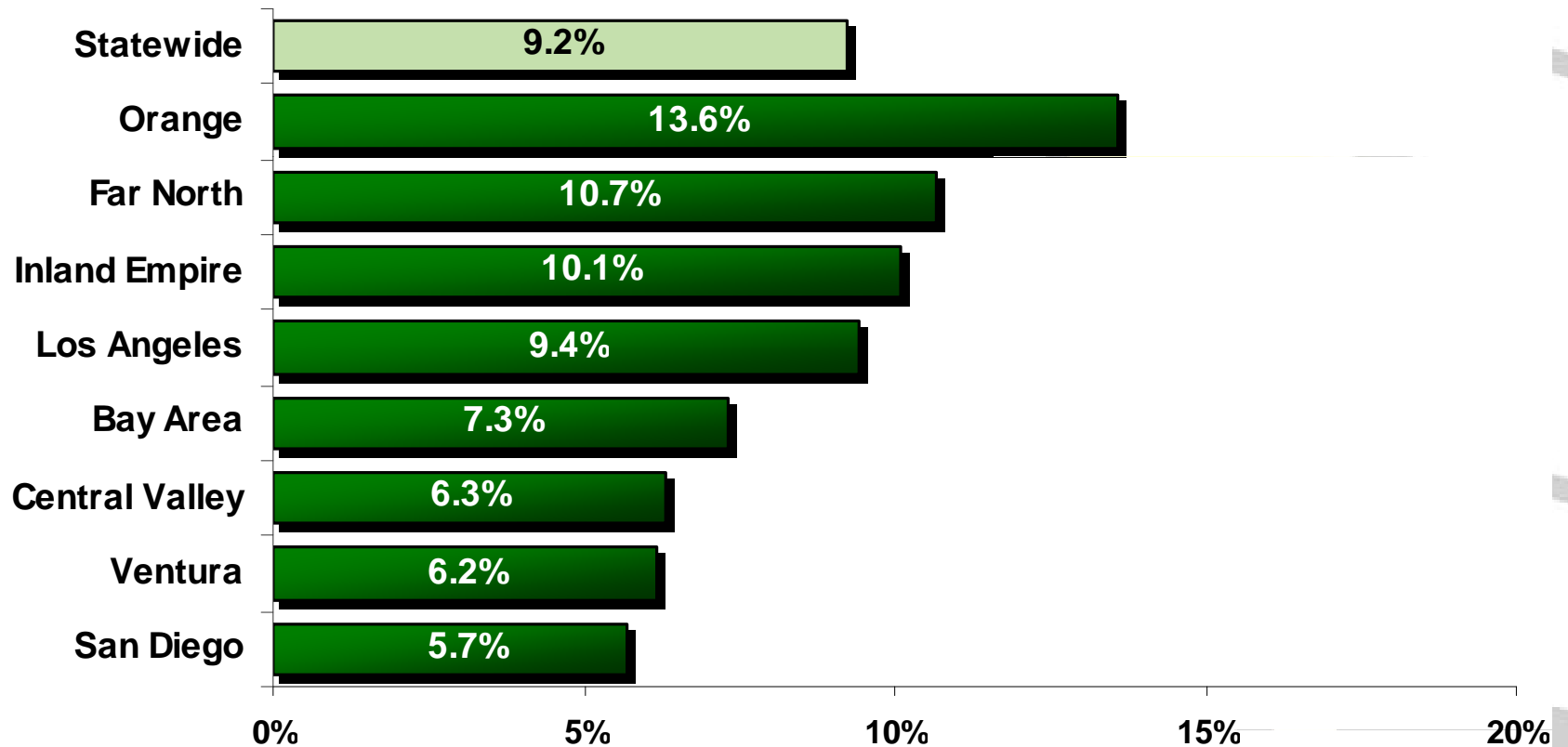
# Employment Projections





**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
*through the*  
CALIFORNIA  
COMMUNITY  
COLLEGES

# Survey: Expected Growth Next 12 Months



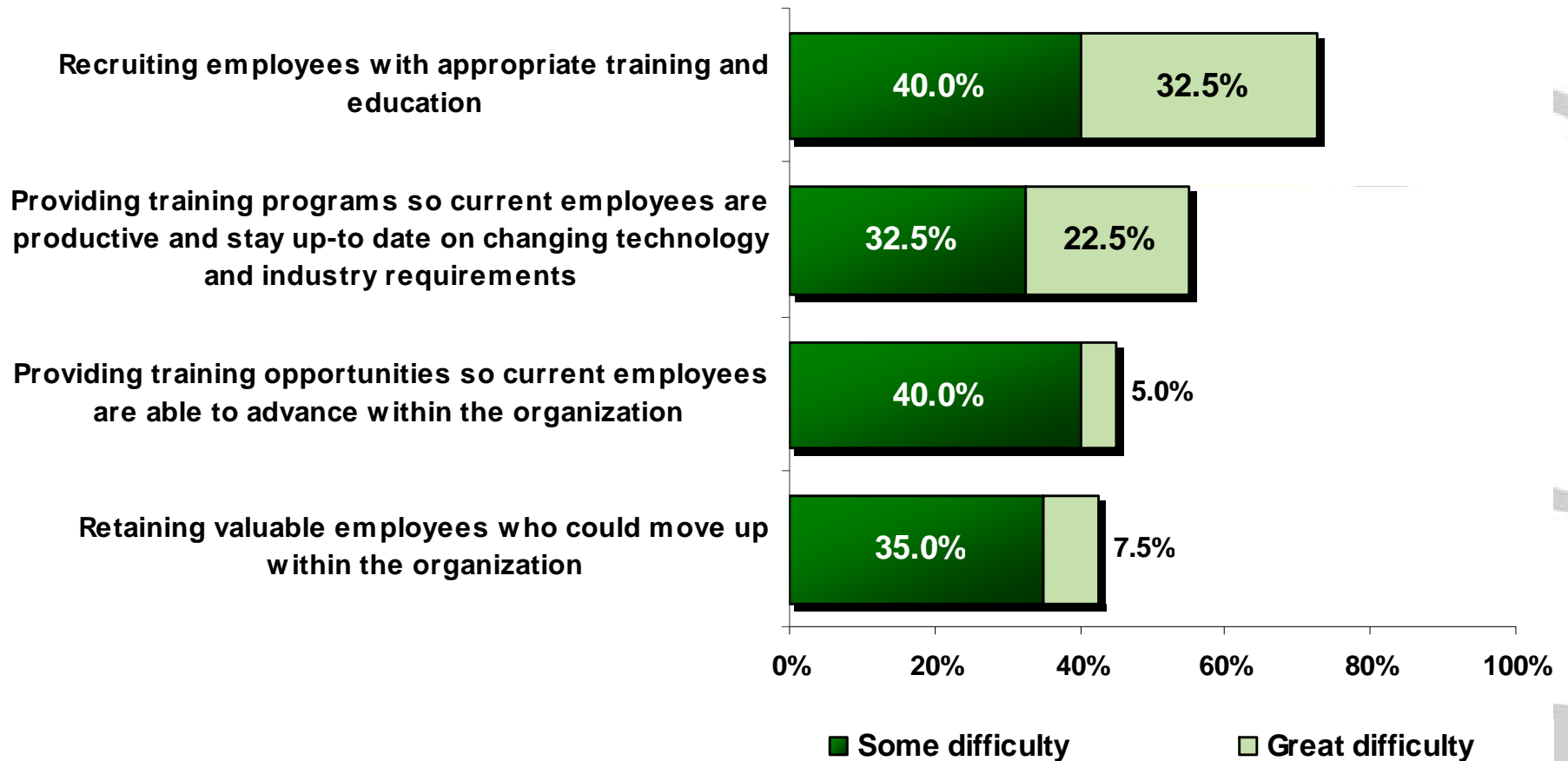


**Jim Budimlya**  
**Vice President, Biomedical**





# Survey: Workforce Issues and Challenges





**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
*through the*  
CALIFORNIA  
COMMUNITY  
COLLEGES

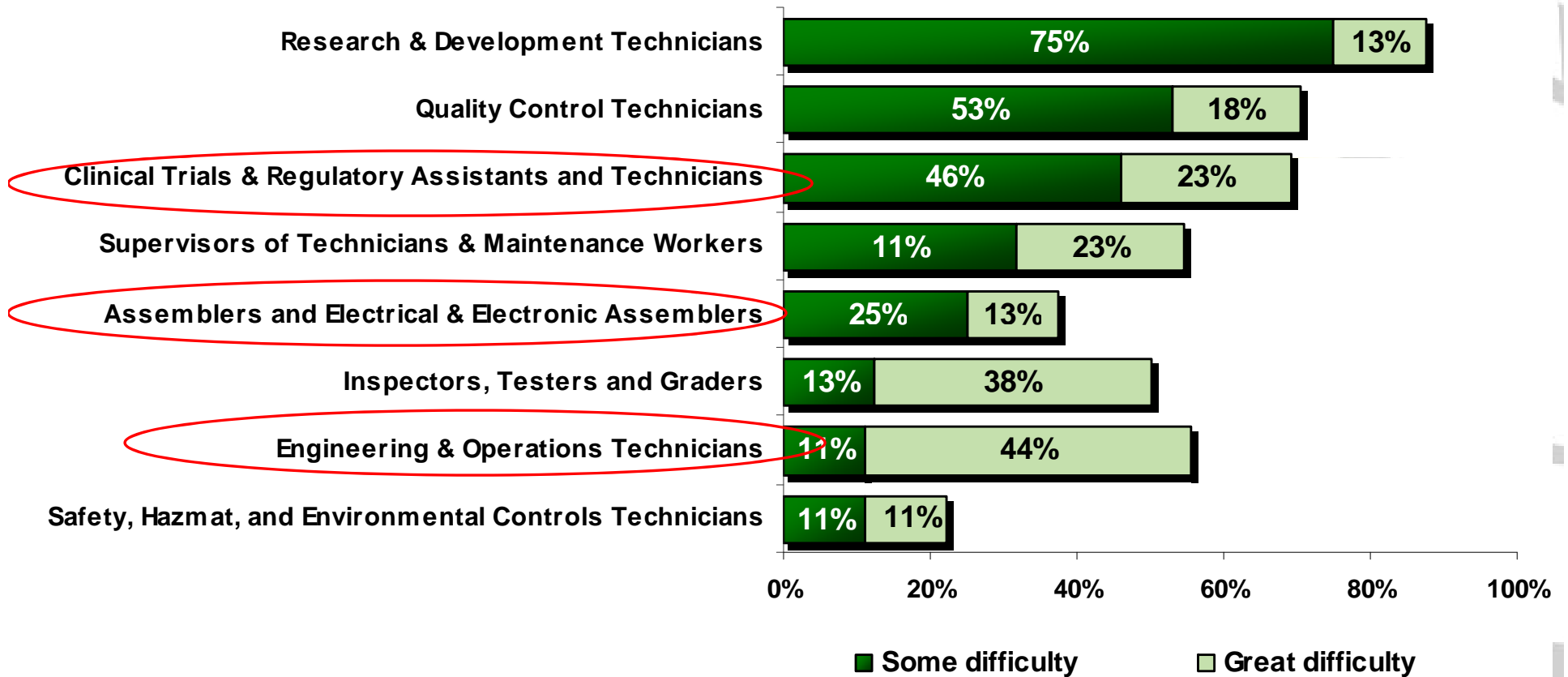
# Survey Focus: 8 Occupations

- Assemblers and/or Electrical & Electronic Assemblers
- Clinical Trials & Regulatory Assistants and/or Technicians
- Engineering & Operations Technicians
- Inspectors, Testers and Graders
- Quality Control Technicians
- Research & Development Technicians
- Safety, Hazmat, and Environmental Controls Technicians
- Supervisors/ Managers of Technicians & Maintenance Workers



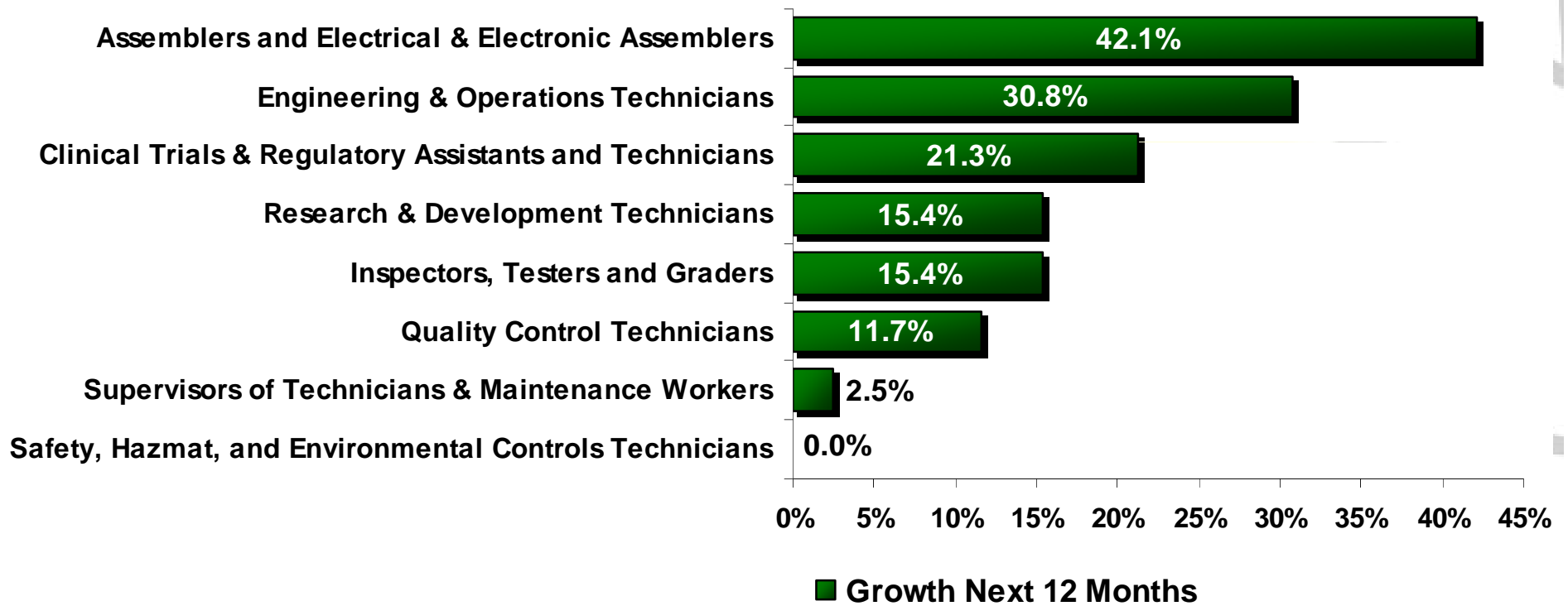
**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
through the  
CALIFORNIA  
COMMUNITY  
COLLEGES

# Difficulty Finding Applicants





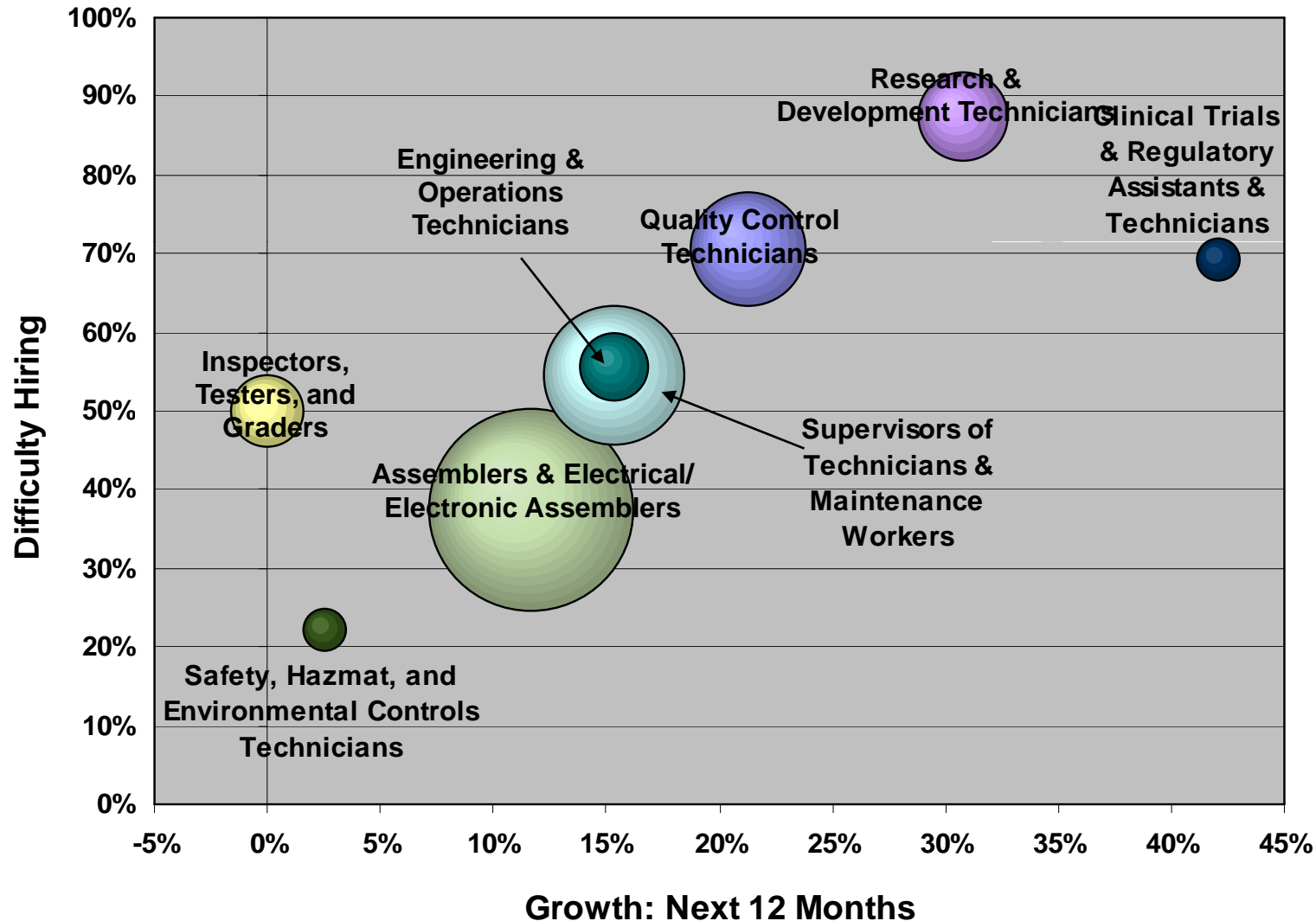
# Estimated Growth Needs





**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
through the  
CALIFORNIA  
COMMUNITY  
COLLEGES

# Occupational Employment, Difficulty Hiring, and Expected Growth





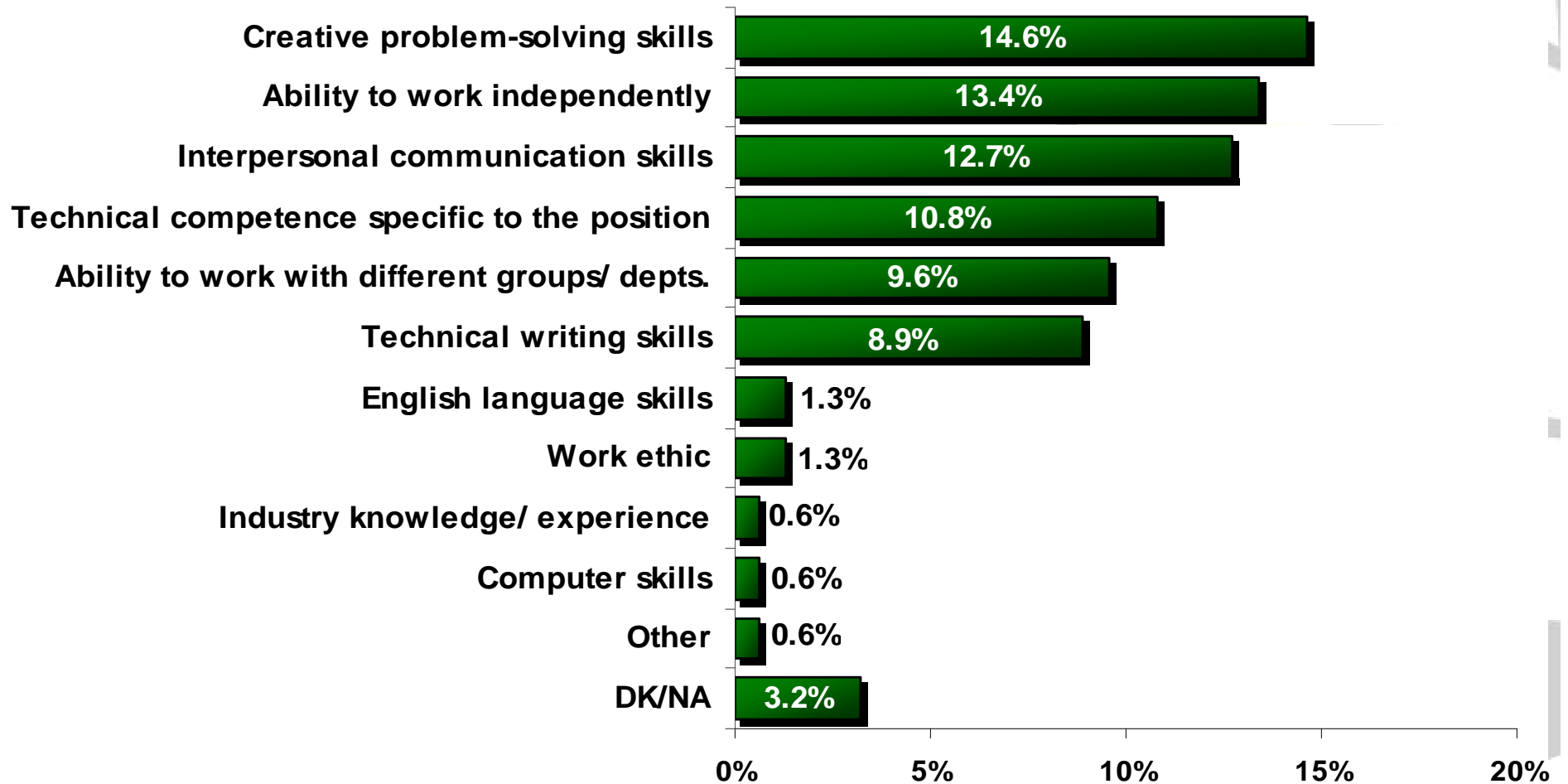
**Tony Casadonte**  
**Account Manager, Talent Acquisition**





**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
*through the*  
CALIFORNIA  
COMMUNITY  
COLLEGES

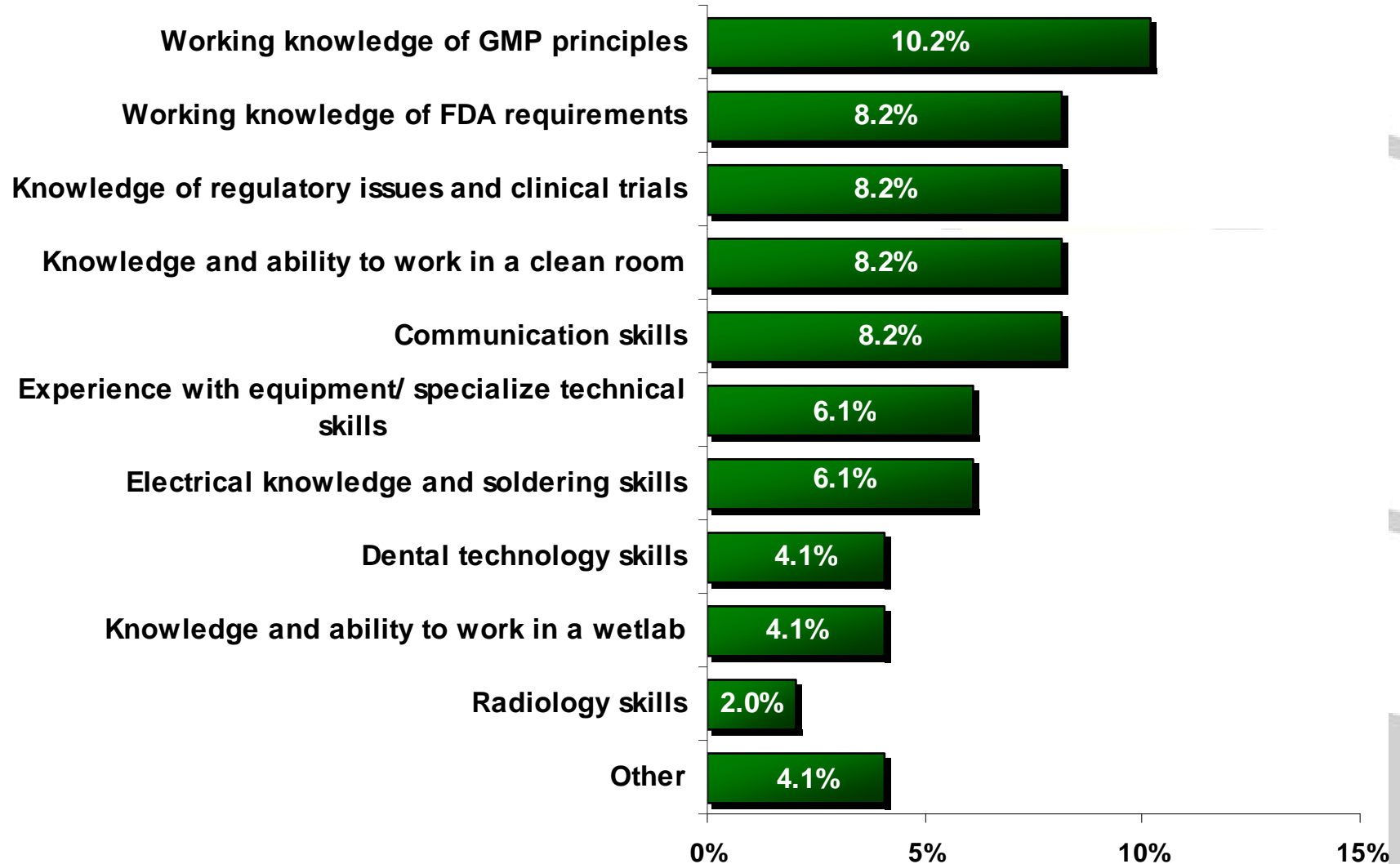
# General Skill Deficiencies Among Recent Hires





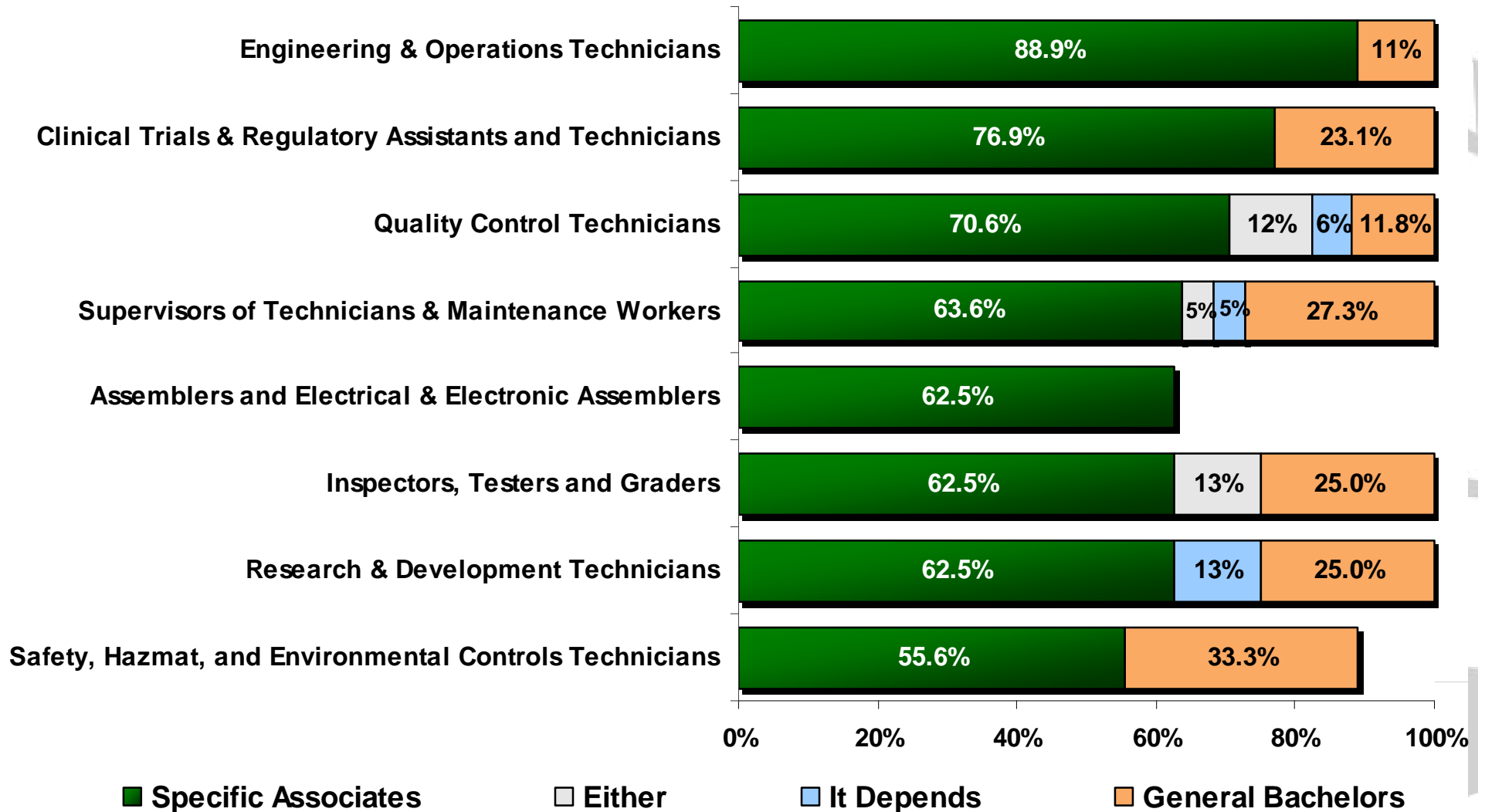
**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
*through the*  
CALIFORNIA  
COMMUNITY  
COLLEGES

# 10 Most Important Skills for Technicians





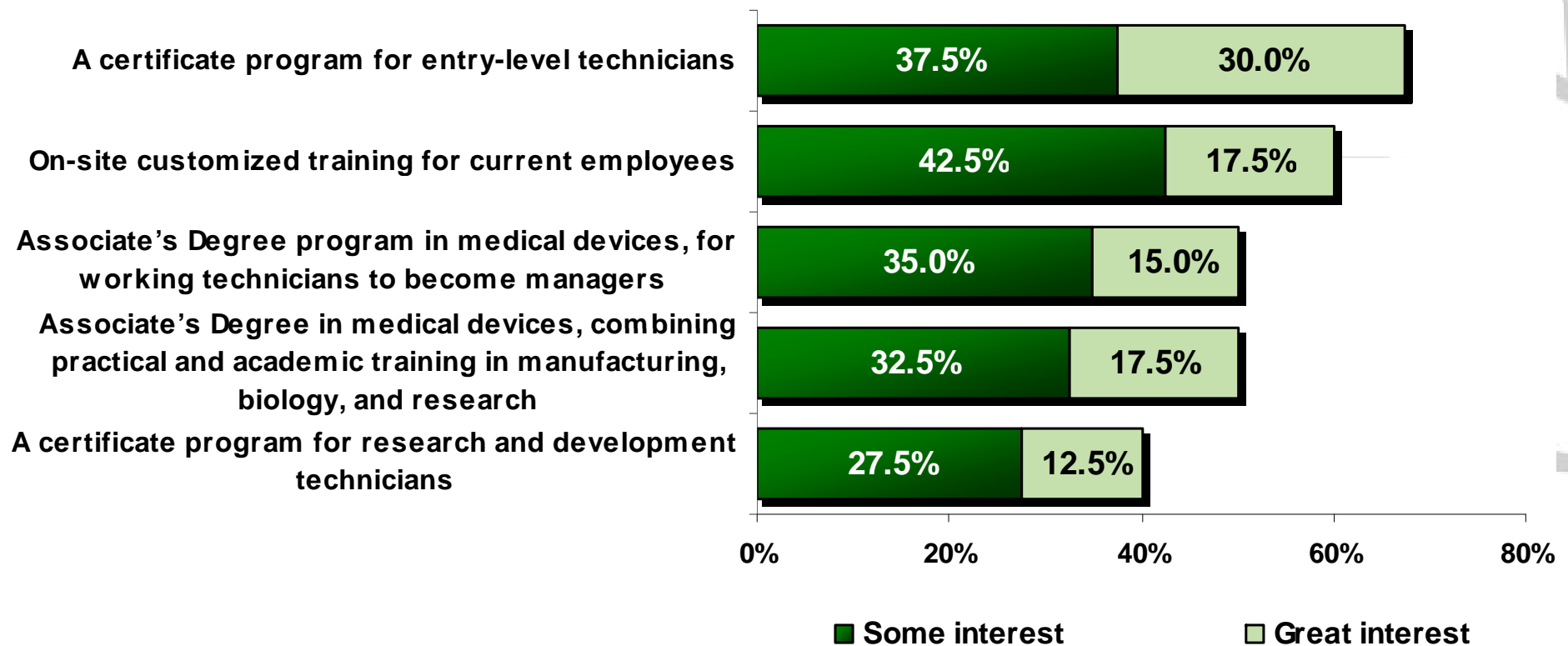
# Educational Preferences





**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
*through the*  
CALIFORNIA  
COMMUNITY  
COLLEGES

# Interest in Potential CC Programs





**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
through the  
CALIFORNIA  
COMMUNITY  
COLLEGES

# Sample Curriculum

UC Irvine

“Medical Product Development” certificate program



Certificate



Jeff Riddell

Innovation & New Business Coordinator





**ECONOMIC & WORKFORCE DEVELOPMENT**  
 through the  
 CALIFORNIA  
 COMMUNITY  
 COLLEGES

Occupation	• Estimated 2006 Medical Device Employment	• Growth Next 12 Months	Openings from Growth	Difficulty Hiring	• 25th Percentile Annual Wage	• Median Annual Wage	• 75th Percentile Annual Wage	Degree preference	
								AA	BA/BS
Clinical Trials & Regulatory Assistants and Technicians	50	42.1%	21	69.2%	\$39,934	\$47,853	\$61,377	76.9%	23.1%
Research & Development Technicians	229	30.8%	71	87.5%	\$36,062	\$45,478	\$58,146	62.5%	25.0%
Quality Control Technicians	368	21.3%	79	70.6%	\$54,868	\$45,478	\$75,656	70.6%	11.8%
Supervisors of Technicians & Maintenance Workers	535	15.4%	82	54.5%	\$38,106	\$48,619	\$57,442	63.6%	27.3%
Engineering & Operations Technicians	125	15.4%	19	55.6%	\$50,248	\$54,408	\$58,559	88.9%	11.1%
Assemblers and Electrical & Electronic Assemblers	1,119	11.7%	131	37.5%	\$19,774	\$23,676	\$26,977	62.5%	0.0%
Safety, Hazmat, and Environmental Controls Technicians	56	2.5%	1	22.2%	\$40,275	\$50,217	\$55,750	55.6%	33.3%



**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
*through the*  
CALIFORNIA  
COMMUNITY  
COLLEGES

# Occupational Dashboard

<b>RED</b>	Occupations that provide the <b>STRONGEST</b> indication that they will be undersupplied in the future
<b>YELLOW</b>	Occupations that provide <b>SOME</b> indication that they will be undersupplied in the future
<b>GREEN</b>	Occupations that provide <b>LITTLE TO NO</b> indication that they will be undersupplied in the future

<b>RED OCCUPATIONS</b>
Engineering and Operations Technicians Clinical Trials and Regulatory Assistants and Technicians
<b>YELLOW OCCUPATIONS</b>
Quality Control Technicians Research and Development Technicians Supervisors/ Managers of Technicians & Maintenance Workers Assemblers and/or Electrical & Electronic Assemblers Inspectors, Testers and Graders
<b>GREEN OCCUPATIONS</b>
Safety, Hazmat, and Environmental Controls Technicians



# Medical Device Industry Environmental Scan Report

## Contents:

- Industry Overview
- Occupation Outlook
- Statewide Comparison of Wages and Earnings
- Statewide Comparison of Employment
- Career Pathways
- Skill Sets
- Existing Curriculum/Training and Industry Involvement
- Employer Needs and challenges
- Implications and Recommendations for Community Colleges
- List of Resources, Reports, Associations



**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**

through the  
CALIFORNIA  
COMMUNITY  
COLLEGES

# Completed Industry Scans

[www.pdctraining.org](http://www.pdctraining.org)

Allied Health  
Bus Transit  
Computer Information Systems  
Construction Industry  
Durable Manufacturing  
Electricians  
Engineering  
Furniture Manufacturing  
GIS Analysis: Food Manufacturing  
GIS Report: Riverside County CCC Service Areas  
Industry & Demographic Report: Palo Verde College  
Industry Concentration Report for Barstow & Victor Valley  
Insurance Industry  
Motorcycle Technicians  
Railway Occupations  
Social and Human Services  
Solar Technicians