



GODBE RESEARCH  
Gain Insight



## Nanotechnology Industry Labor Market Study

Conducted for Greater Silicon Valley Center of Excellence,  
Hosted at West Valley College

Presented to the Nanotechnology Forum:  
A Call to Action for the California Community Colleges  
March 24, 2006

# Research Objectives

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- 1. Provide a Summary of the Nanotechnology Industry Cluster**
  - Complete Database of Bay Area Companies
  - Profile of the Nanotechnology Industry at the Global, National, and Local Level
  - Occupational Profiles and Information
- 2. Examine the Current and Future Workforce Needs of Nanotechnology Employers in the Nine-County Bay Area Region**

- **Techniques**                      **Secondary Research**  
**Telephone Interviewing of**  
**Employers**
- **Interview Length**              **15 Minutes**
- **Universe**                          **240 Nanotechnology and**  
**Microtechnology Companies in**  
**the Nine-County Bay Area**  
**Region**
- **Field Dates**                      **December 16 – 28, 2005**

# Definition of Nanotechnology

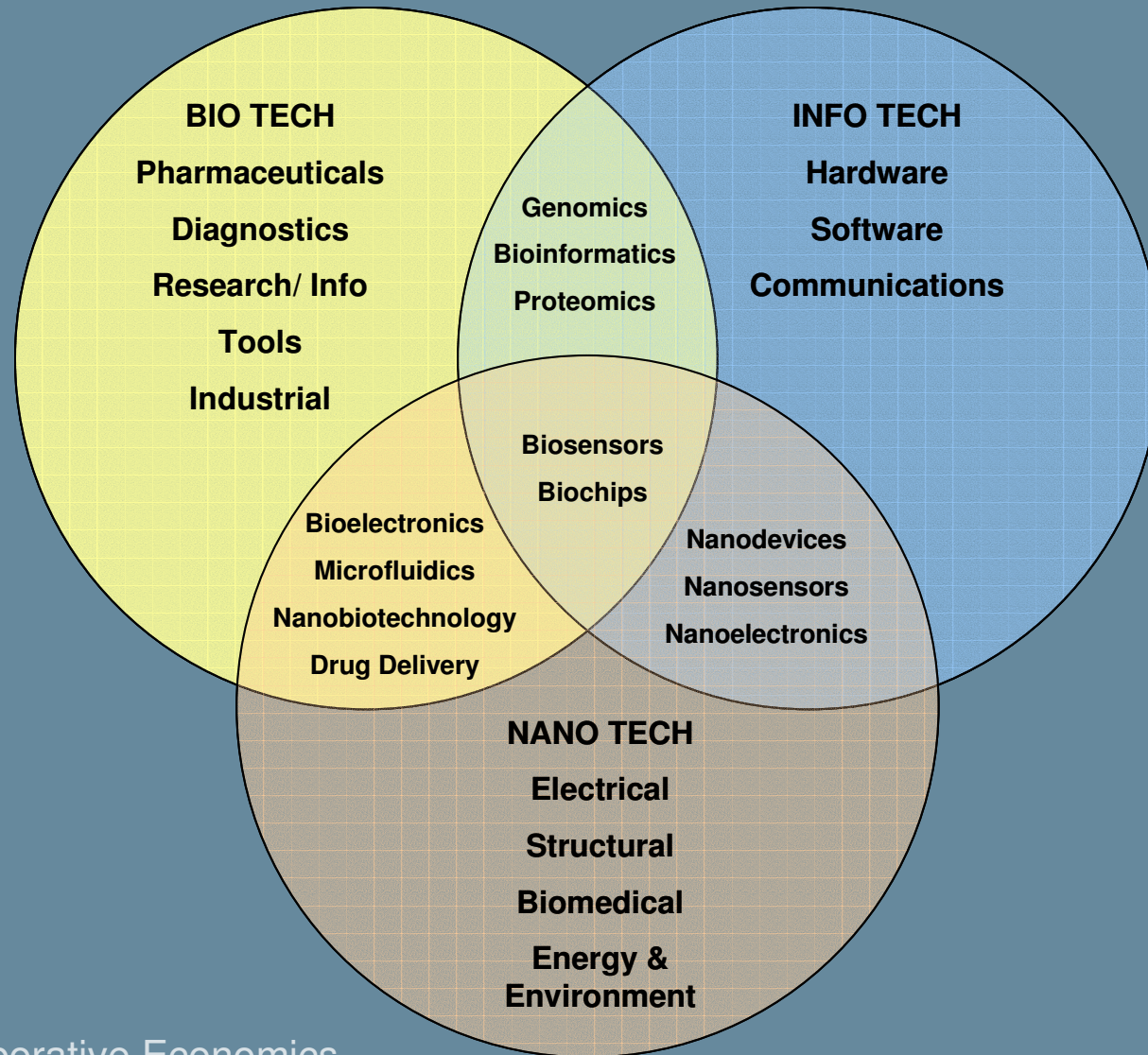
The National Nanotechnology Initiative defines nanotechnology as:

“Encompassing the science, engineering, and technology related to the understanding and control of matter at the length scale of approximately one to 100 nanometers . . .

Nanotechnology is not merely working with matter at the nanoscale, but also involves the research and development of materials, devices, and systems that have novel properties and functions due to their nanoscale dimensions or components.”

# Three Converging Revolutions

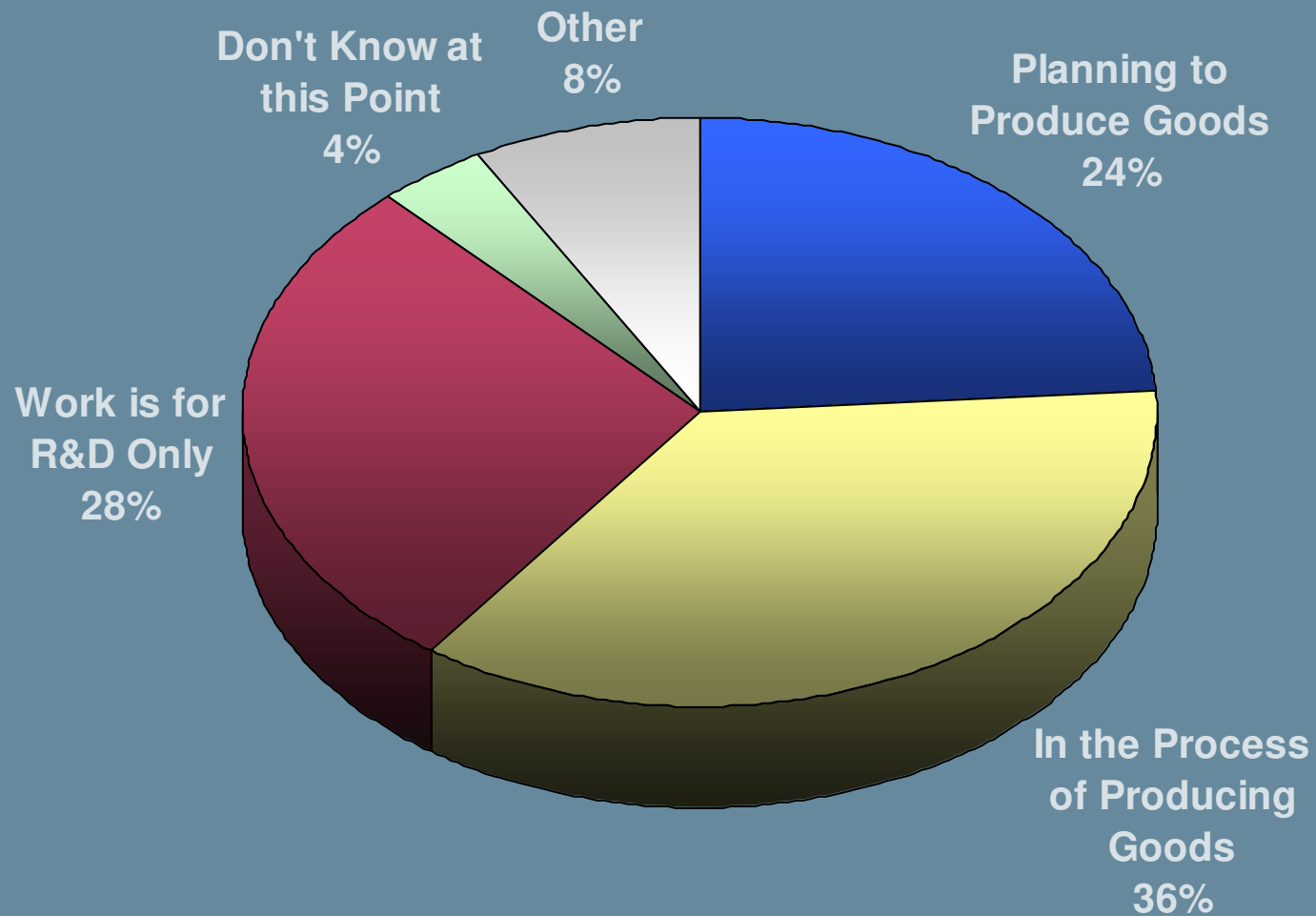
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Source: Collaborative Economics

# Development Expectations for Bay Area Nanotechnology Companies

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# Nanotechnology Industries in the Bay Area Region

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## Planning to Produce Goods:

- Medical devices for drug delivery
- Software for designing semiconductor chips
- Miniature cooling systems for cooling portable electronics

## Already Producing Goods:

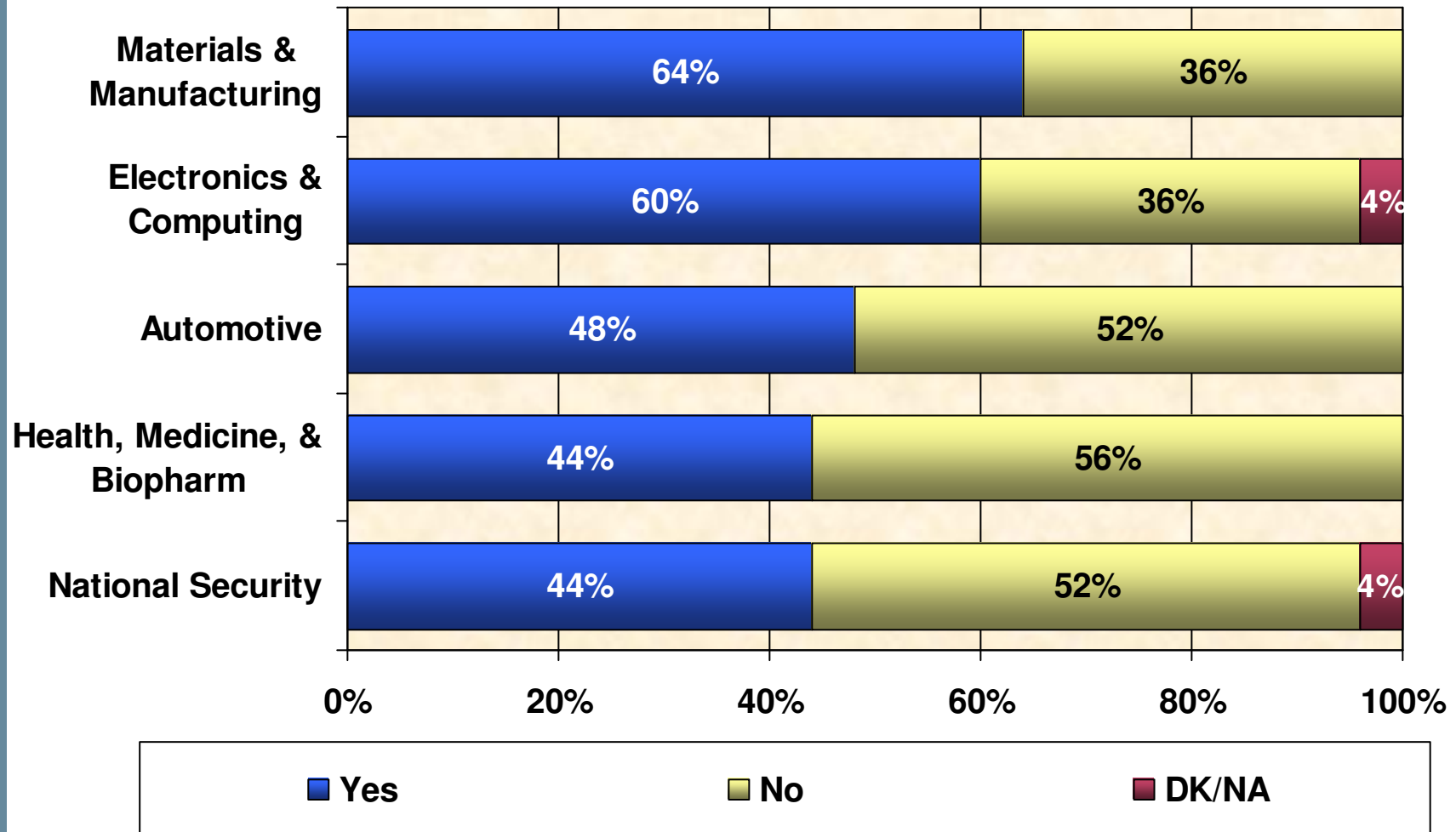
- Thin film technology equipment
- Nanocomposite coatings for the inside of pipes
- Communication semiconductors

## Work is for Research and Development Only:

- Protein therapeutic drugs
- Biomedical testing and telecommunications equipment
- Medical and test devices

# Potential Industry Applications

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# Estimates of the Number of Nanotechnology Companies

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Source	Number of Nanotechnology Companies	Description
Business Week (2005)	600	US Start-Up Companies
Lux Research (2004)	670	US Companies with R&D Plans
Business Week (2005)	1,200	Global Start-Up Companies
Lux Research (2004)	1,500	Global Companies with R&D Plans
Center for Economic Growth (2004)	2,800	Global Companies, Including Start-Ups
Helmut Kaiser (2003)	4,000	Global Companies

# Top Locations of Nanotechnology Companies in the US

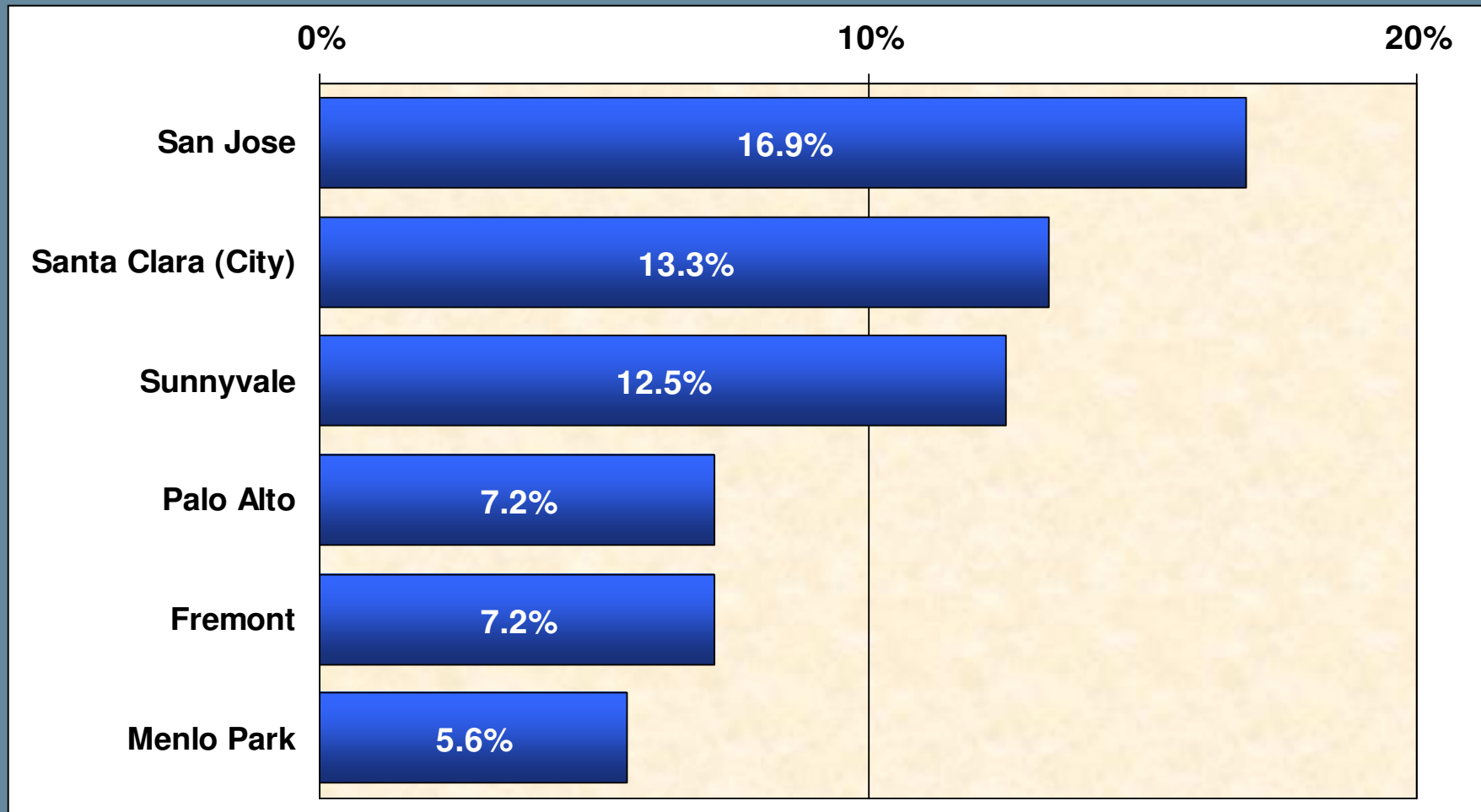
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<b>State/ Region</b>	<b>Manufacturers &amp; Fabricators</b>	<b>R&amp;D</b>	<b>All Companies</b>
California	27.4%	26.4%	26.9%
Bay Area	13.7%	16.2%	15.0%
Massachusetts	11.2%	8.9%	9.4%
New York	6.9%	6.7%	6.8%
New Jersey	5.4%	4.5%	4.9%
Pennsylvania	3.3%	6.3%	4.9%

Source: SmallTimes Directory, 2005

# Locations of Nanotechnology Companies in the Bay Area

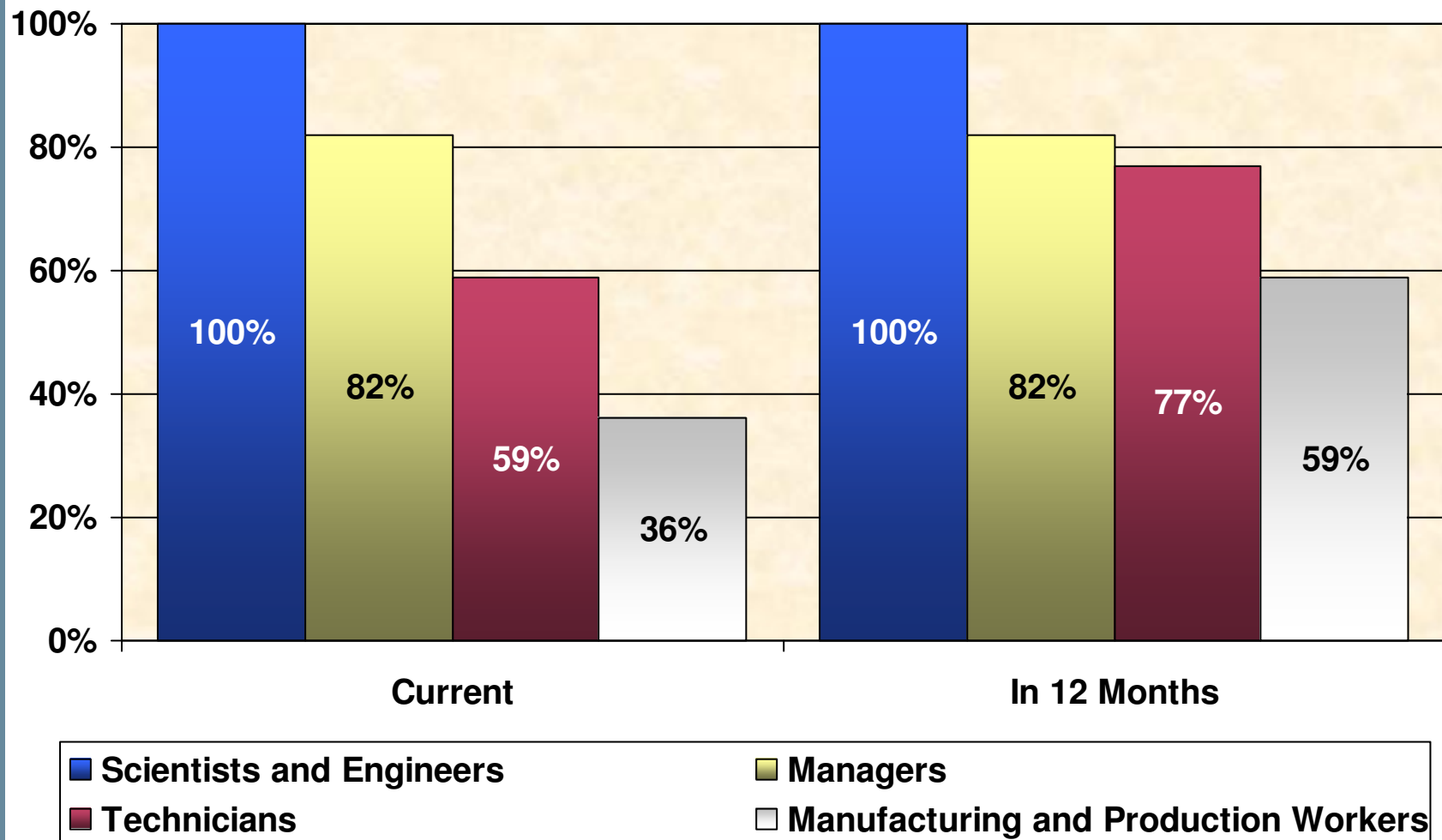
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Source: SmallTimes Directory, 2005

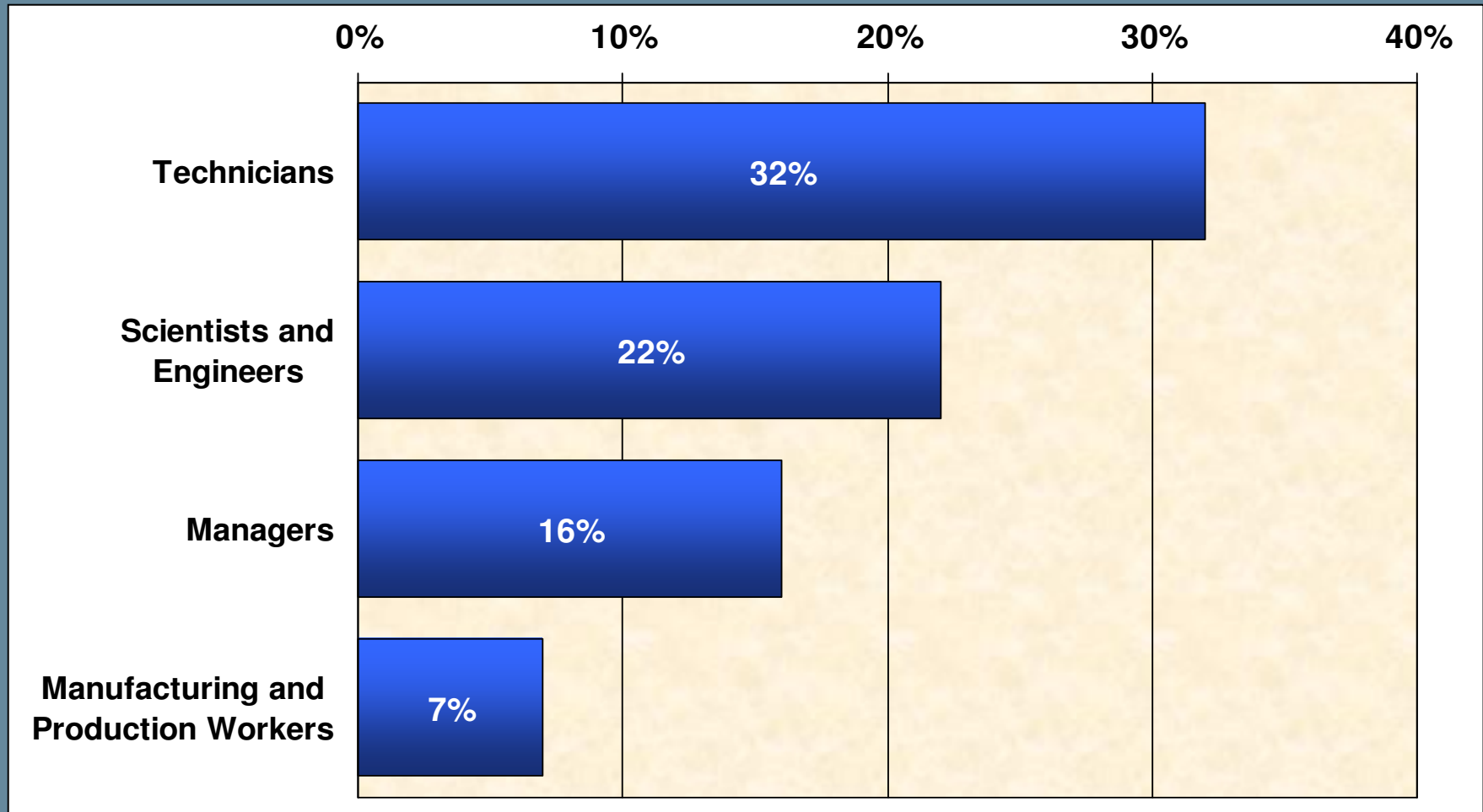
# Proportion of Companies Employing Workers by Occupational Group

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# Expected Increase in Total Employees Over the Next 12 Months

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# Most Important Company Workforce Issues in the Bay Area

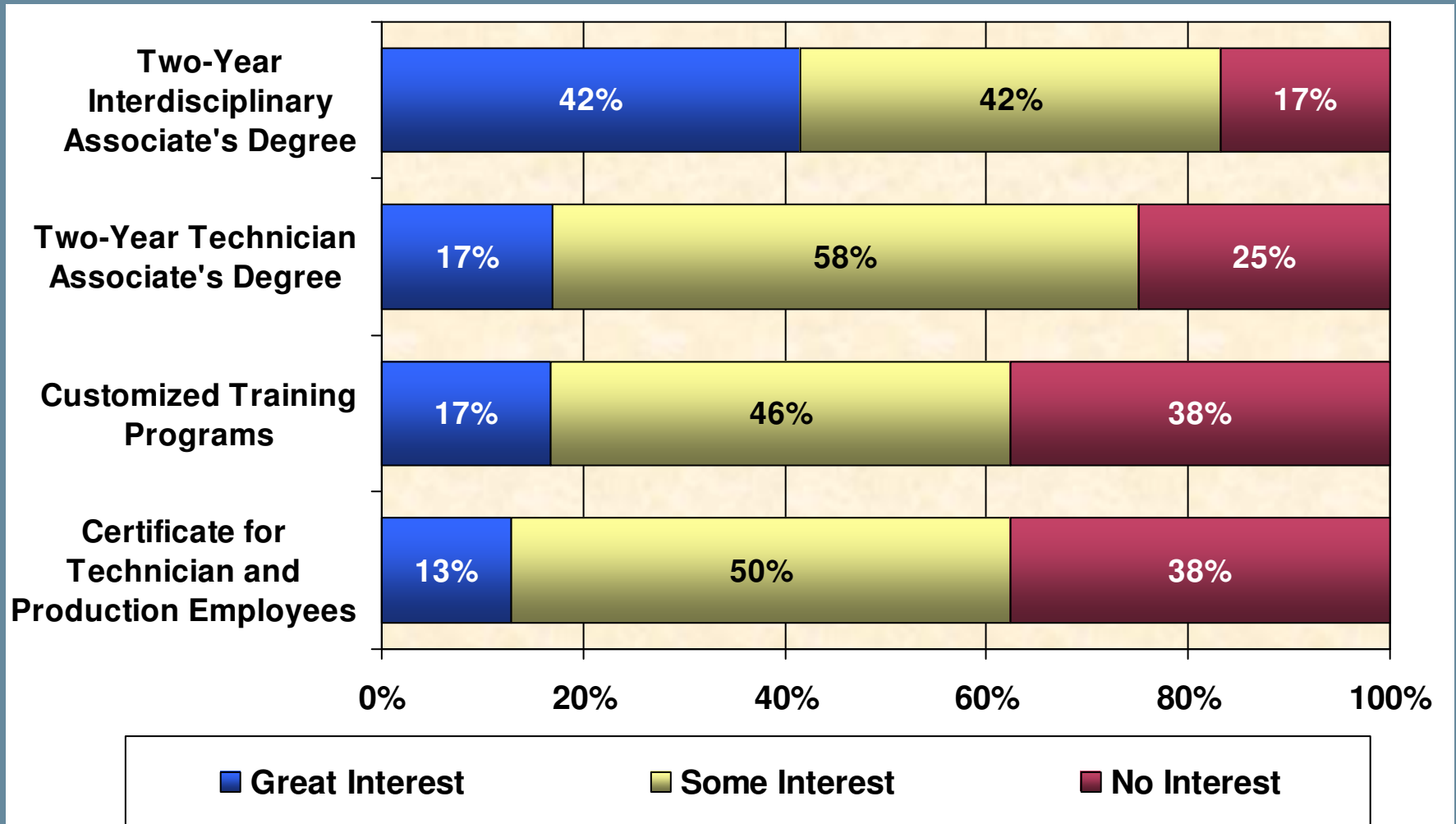
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## Top Four Issues Identified

1. Recruiting Individuals with Enough Education in the Many Disciplines Required for Nanotechnology or Microtechnology
2. Recruiting Employees with Reasonable Salary Requirements
3. Replacing Retired Workers with Qualified Candidates from Outside the Firm
4. Recruiting Non Entry Level Production Employees with Adequate Skills and Experience

# Level of Interest in Educational Programs

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# Conclusions & Recommendations

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- Nanotechnology is an emerging and evolving industry
- Flexible and Interdisciplinary Approach is Key for Education and Training Providers
  - Nanotechnology is an interdisciplinary applied science requiring expertise in multiple fields
  - High level of interest in an interdisciplinary training program
- Growing Demand for Technicians and Manufacturing and Production Workers



# Contact Information

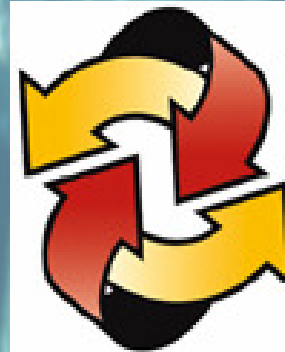
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DEVELOPMENT**

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