



Workforce Challenges & Opportunities For Orange County's Computer Cluster Collaborative Revisited

July 31, 2008



- **Describe the computer cluster in Orange County**
- **Examine the past, present and future workforce within the computer cluster in Orange County**
- **Determine which occupations within the computer cluster are likely to be undersupplied in the future**
- **Identify what can be done to better prepare students, dislocated workers, and other individuals for employment in Orange County's computer cluster**

The Computer Cluster in Orange County



Orange County's Computer Cluster

Computer & Comp. Parts Manufacturing

- Semiconductors
- Computer & Peripheral Equipment
- Components
- Software Reproduction

Computer Services

- Internet Services
- Data Processing, Hosting & Related
- Research & Development

Software Products & Design Services

- Software Publishers
- Computers Systems Design & Related

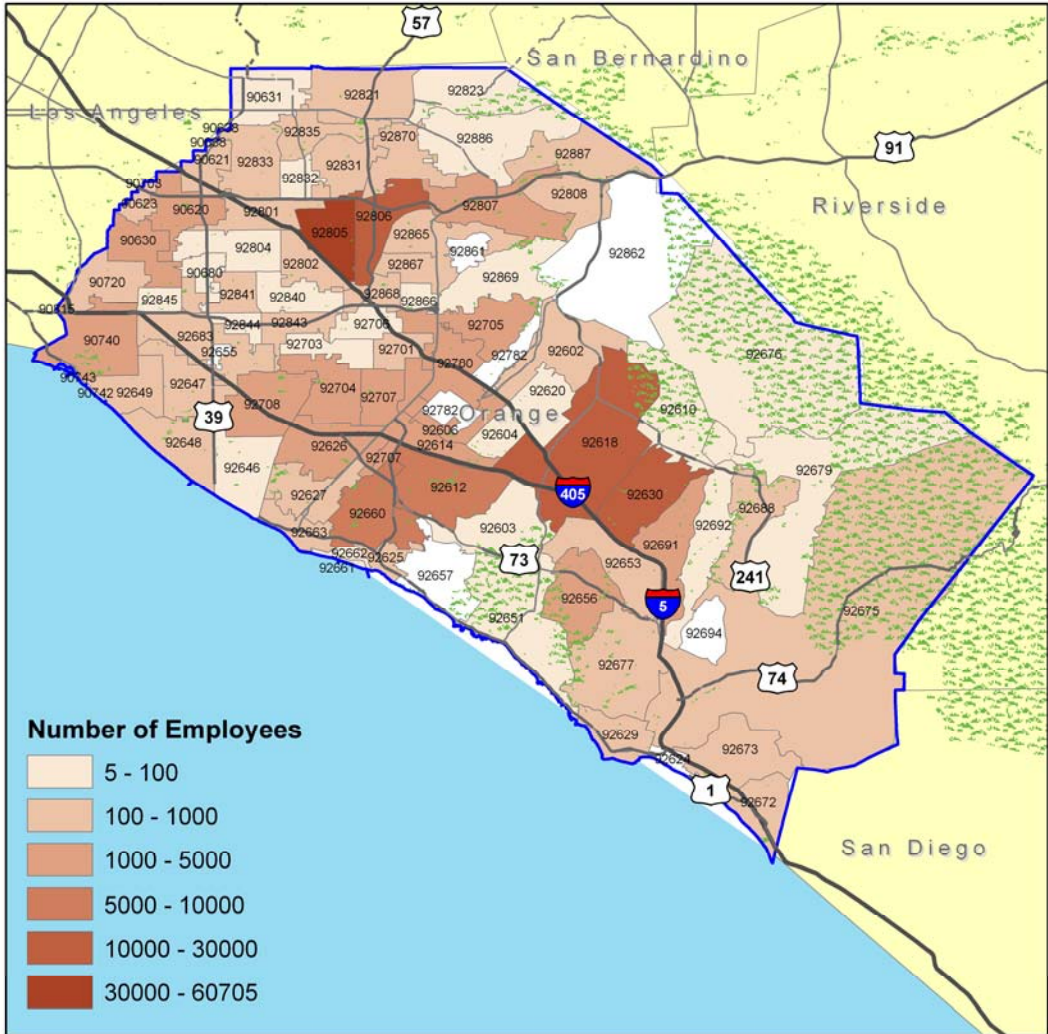
Computer Cluster in Orange County Currently:

- Employs 50,470 people, distributed across 3,314 establishments within the County, averaging 15.2 employees per establishment
- Serves industries throughout the entire economy

Breakdown of Employment by Sector:

- Computer and computer parts manufacturing (21,392)
- Software products and design services (19,958)
- Computer services (9,120 employees)

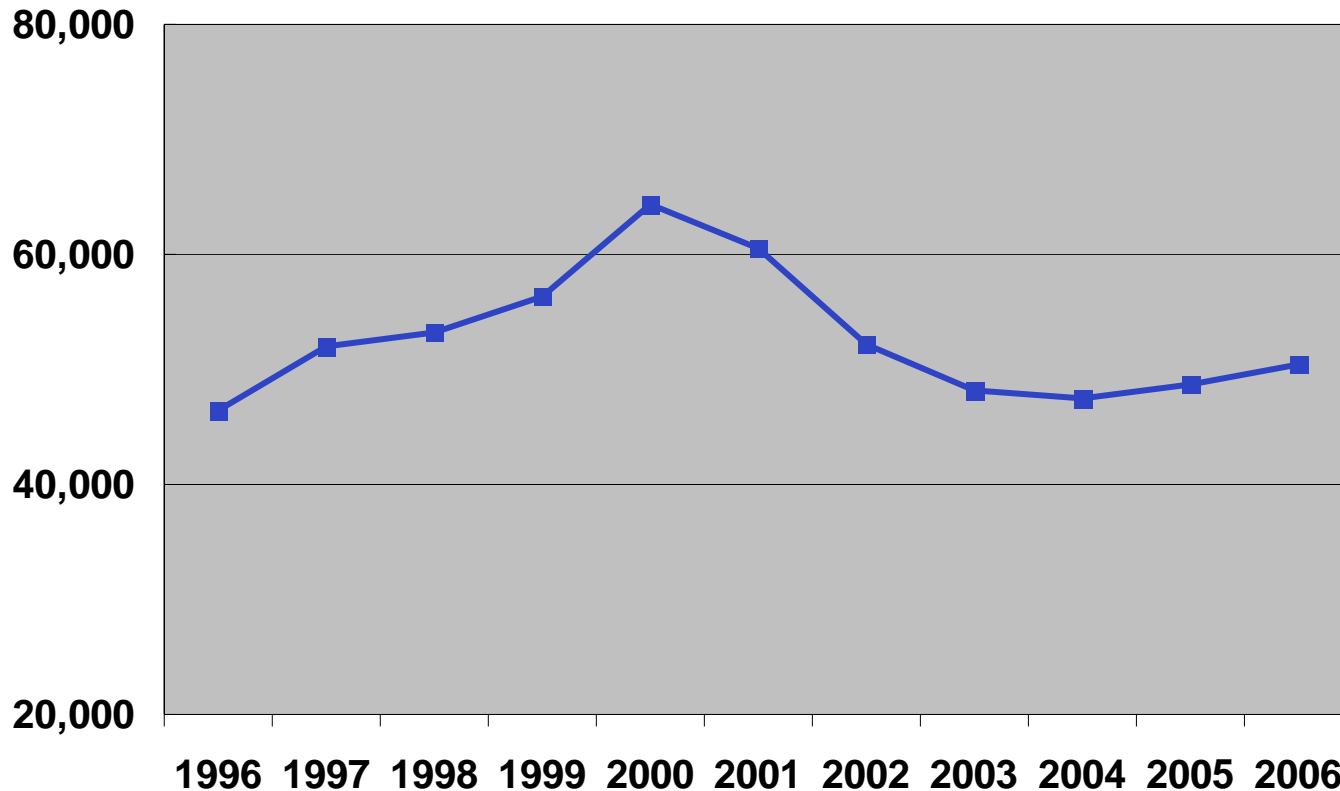
Computer Cluster Employment - Map



Historical Employment



Employment Peaked in 2000 at 64,310, declined to 47,431 in 2004, and increased to 50,470 in 2006



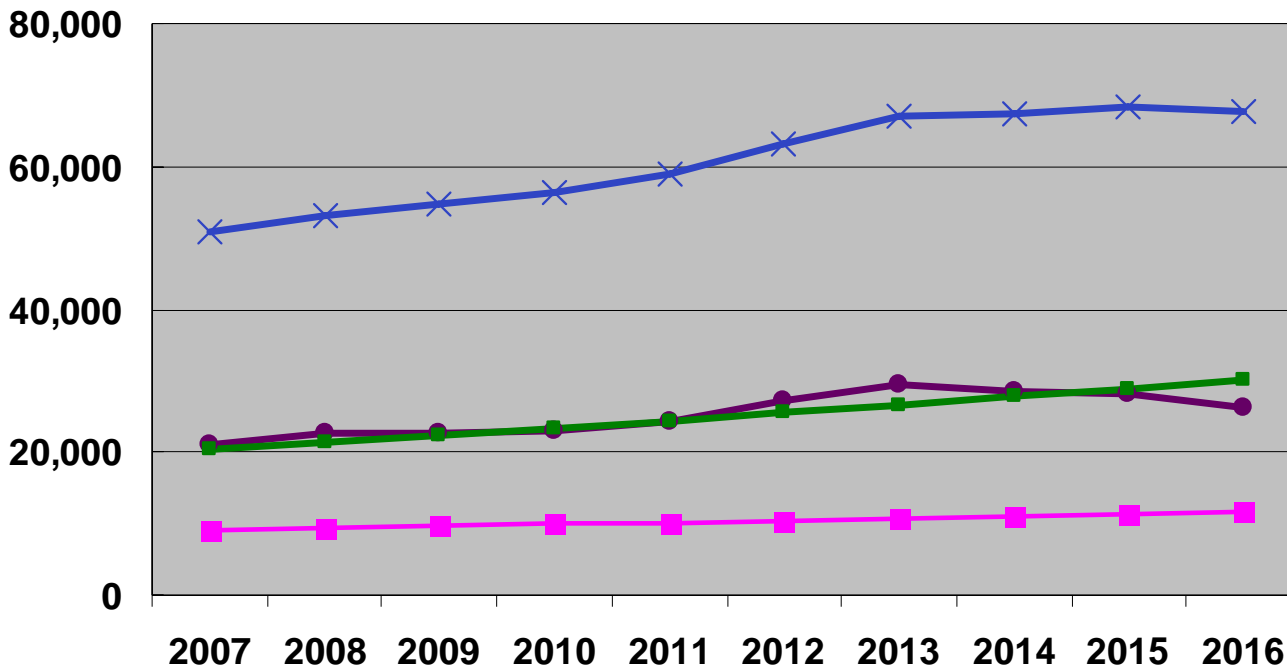
Over the 10 Year Period, Computer Cluster Employment Increased 8.6%, Resulting in 4,005 New Jobs

	Average Employment		Employment Change	
	1996	2006	Numerical	Percent
Orange County Computer Cluster Total	46,465	50,470	4,005	8.6%
Computer & Computer Parts Manufacturing	24,902	21,392	-3,510	-14.1%
Computer Services	6,863	9,120	2,257	32.9%
Software Products & Design Services	14,700	19,958	5,258	35.8%

Projected Employment through 2016



33% Growth is Projected from 2007 to 2016, Resulting in 16,790 New Jobs



Overall Computer Cluster
33.0% increase, 16,790 jobs

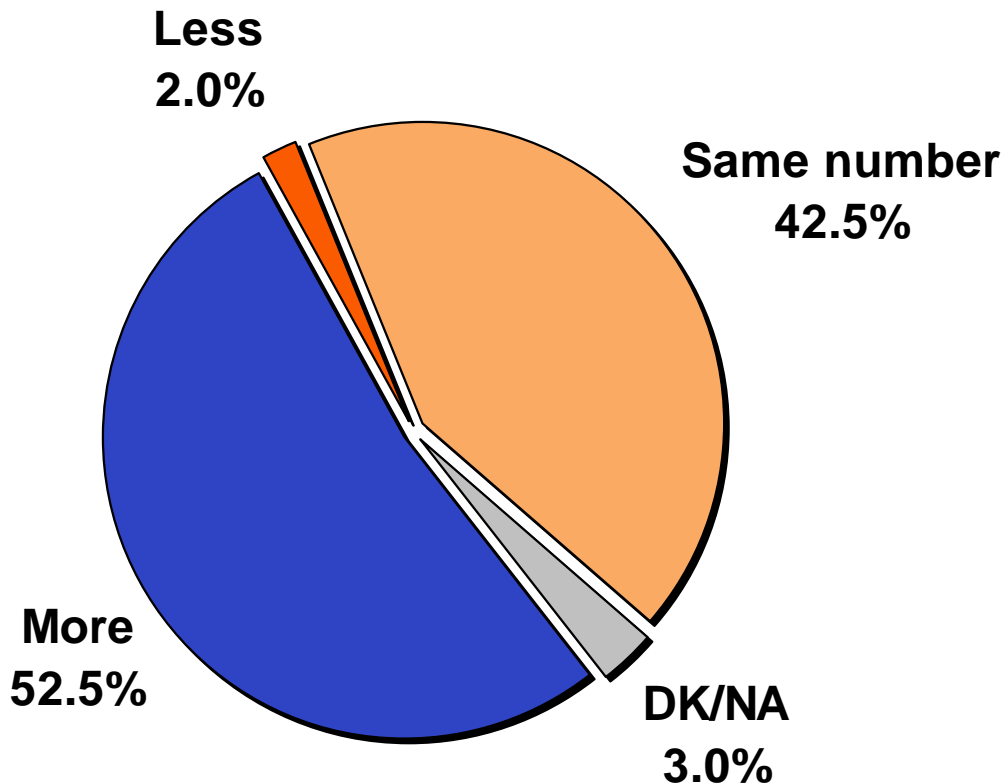
Software Products & Services
46.3% increase, 9,502 jobs

Computer & Computer Parts Manufacturing
23.4% increase, 4,963 jobs

Computer Services
25.3% increase, 2,325 jobs

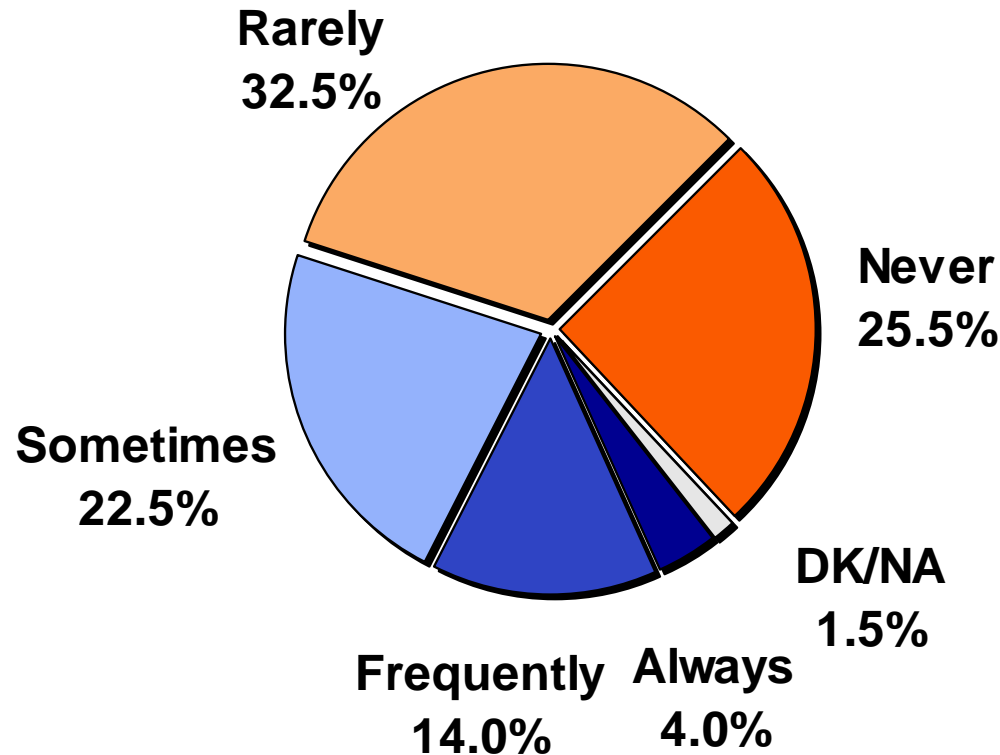


52.5% of Employers Expect to Hire More Permanent Employees Over the Next 12 Months

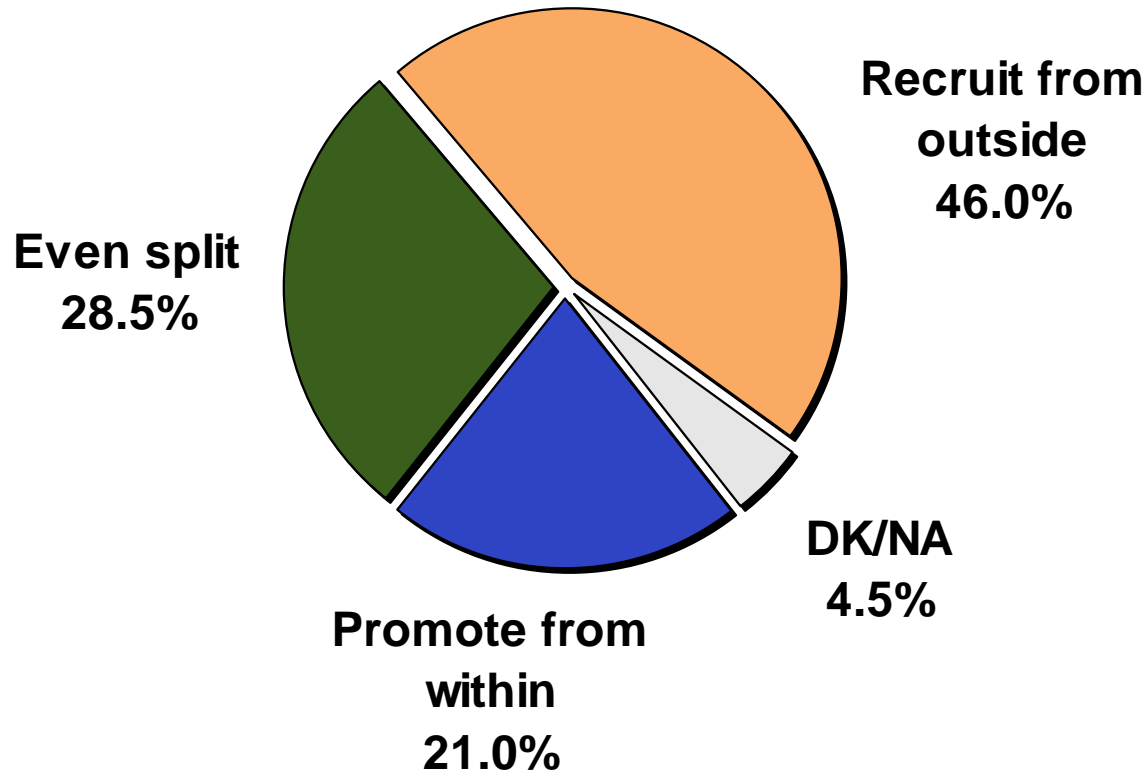


2007 Estimated Cluster Employment	Expected Growth Next 12 Months	
	%	#
50,884	7.6%	3,879

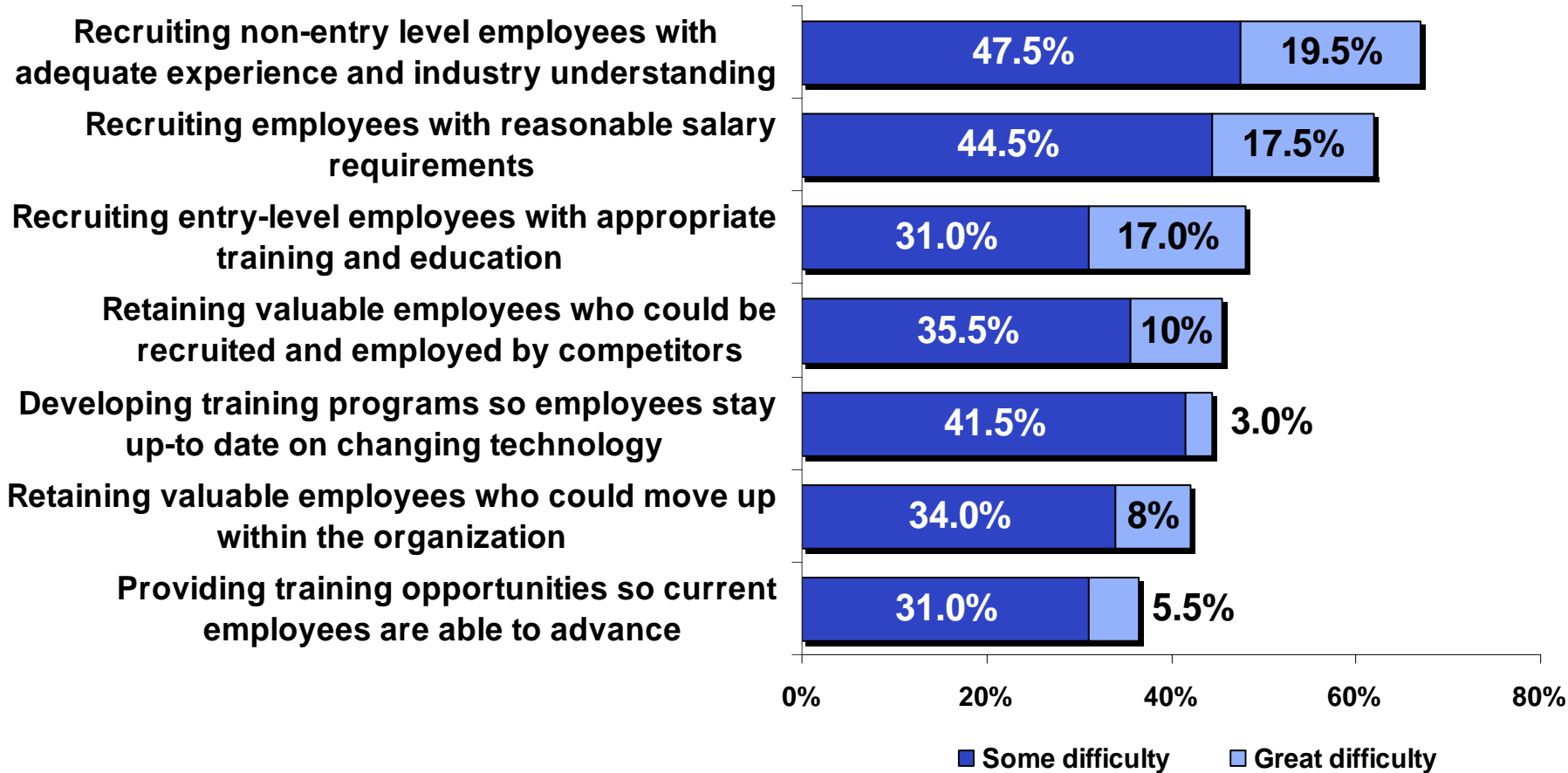
41% of Employers Recruit Individuals from Outside the County at Least 25% of the Time



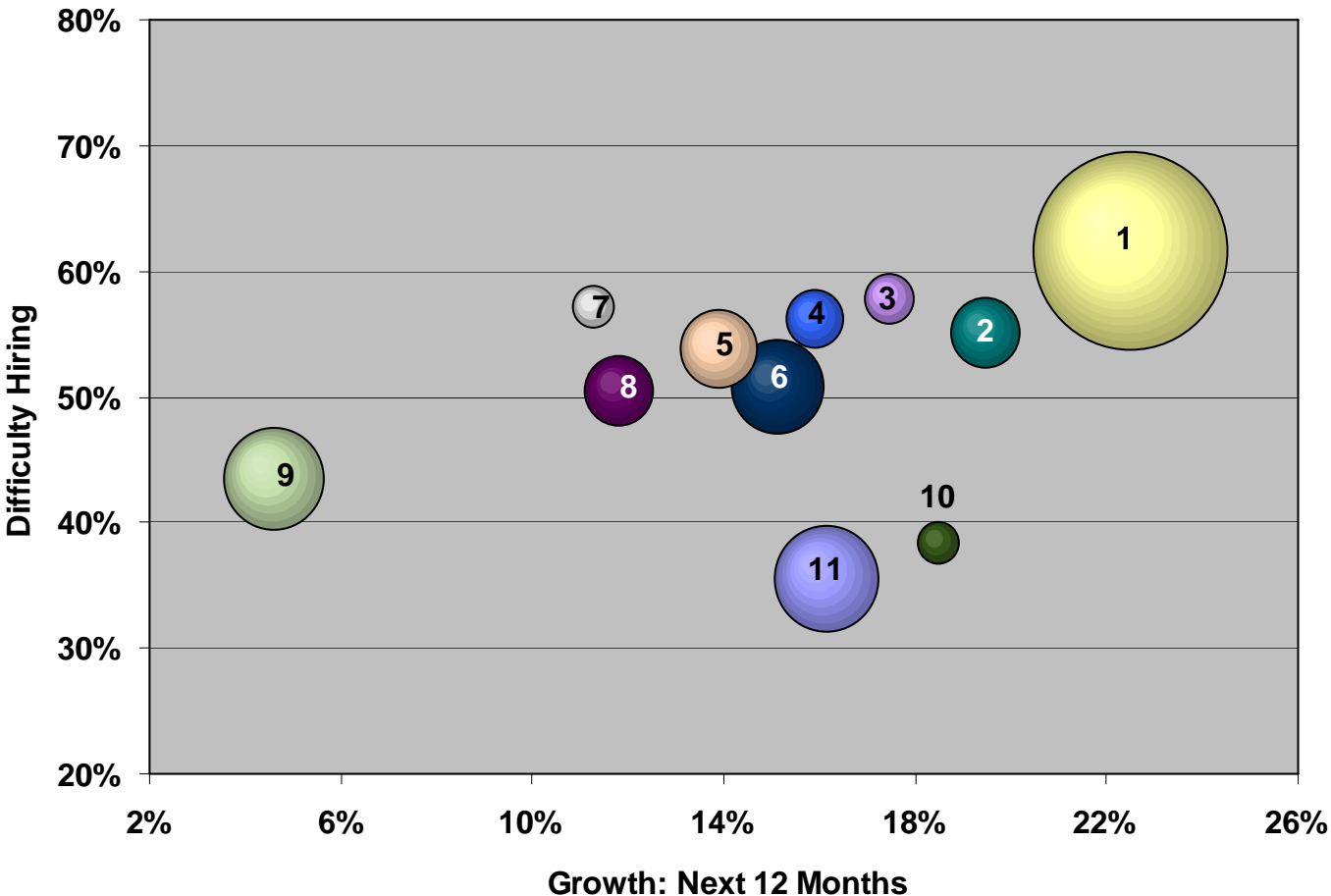
More Employers Recruit from Outside to fill Non-Entry Level Positions than Promote from Within



Workforce Challenges

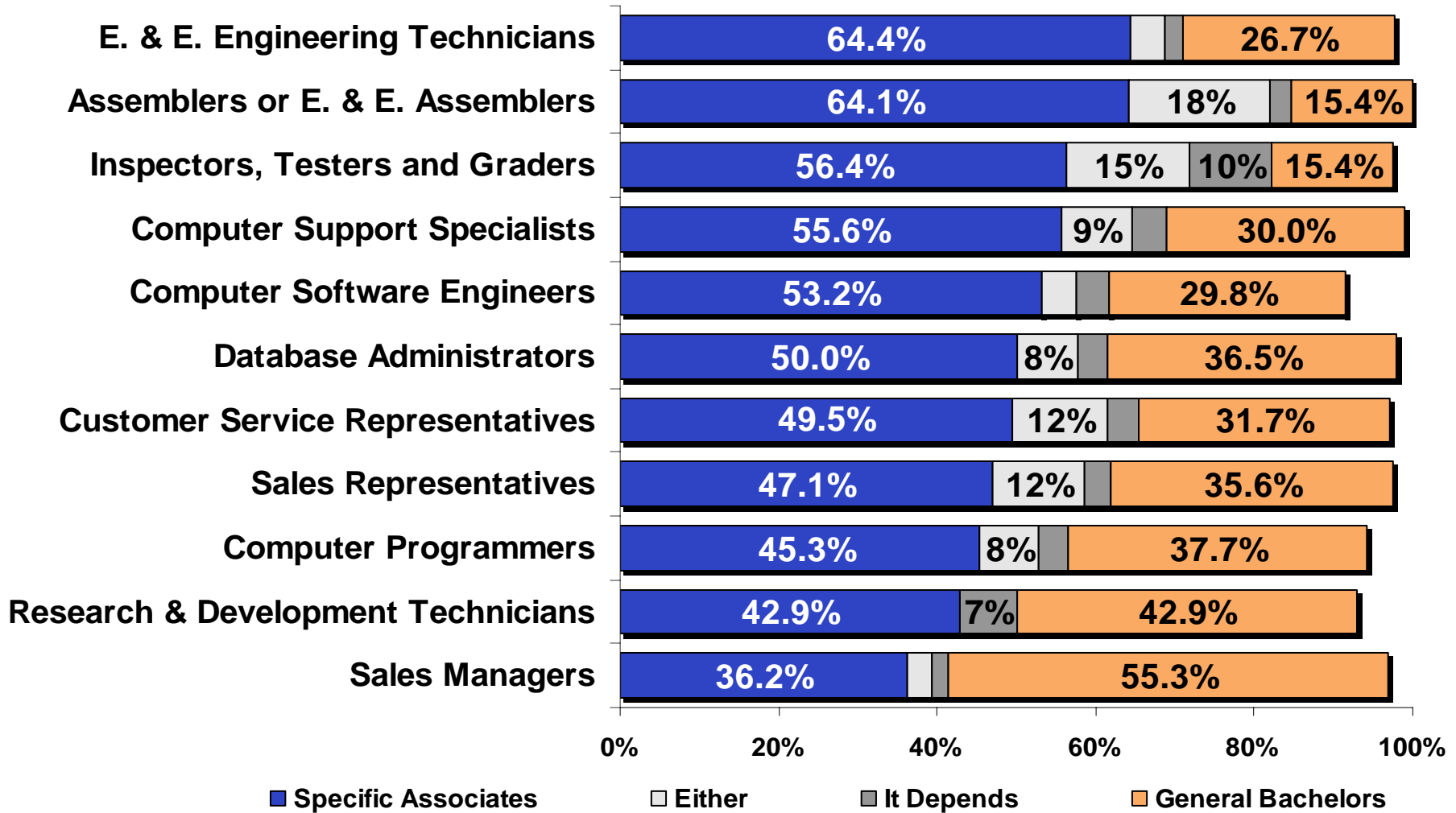


Expected Growth & Current Difficulty

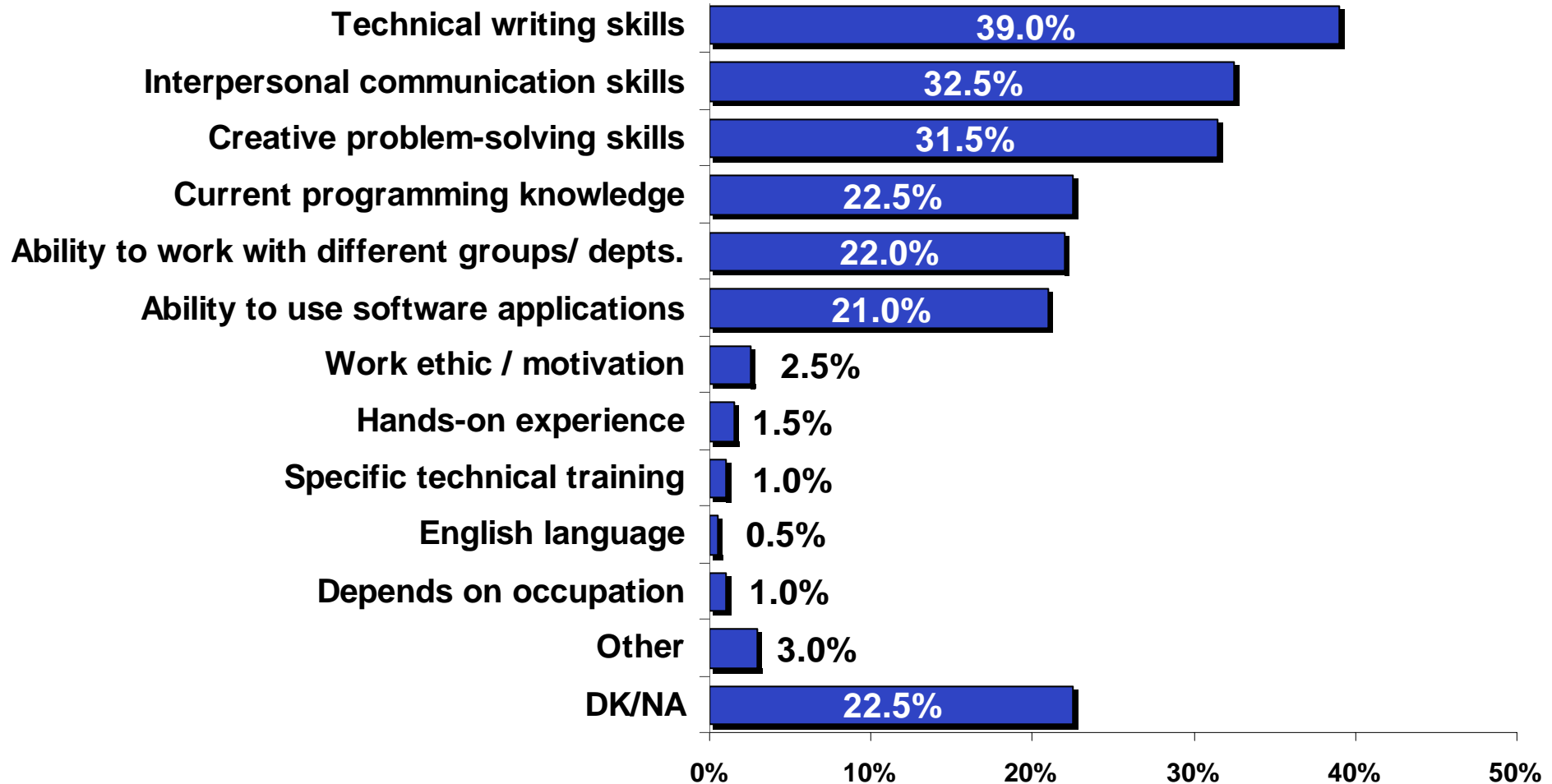


Occupation	Key
Computer Software Engineers	1
Sales Representatives	2
Electrical & Electronic Engineering Technicians	3
Sales Managers	4
Inspectors, Testers and Graders	5
Computer Programmers	6
R & D Technicians	7
Customer Service Representatives	8
Assemblers or Electrical & Electronic Assemblers	9
Database Administrators	10
Computer Support Specialists	11

General Bachelor's vs. Specific Associates



Skill Deficiencies



The national discussion about the technology workforce is rightly focused on science and mathematics but the results of the employer survey reveal that communications skills also should be developed, with a focus on technical writing

- Writing across the curriculum needs to be incorporated into the high schools, vocational schools, community colleges and universities
- In general a more inter-disciplinary approach is needed for students interested in entering the computer cluster

- **Experience and the ability to see the big-picture are critical attributes to moving forward in a career in the computer cluster.**
- Internships and apprenticeships are easier to find in the hardware industry where there are larger companies and a stronger commitment to mentorship
- Developing opportunities for industry experience should be a priority, especially for those individuals that do not have a bachelor's degree or higher

Key Objectives for preparing tomorrow's leaders in the Computer industry

- Increase **IT literacy** among all students, especially among those students that are not moving towards a technical degree
- Provide a more **inter-disciplinary** approach to education, and expose students to problems where they use diverse skill sets
- Introduce students to the concept of **self-teaching** and emphasize the importance of this skill



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For a more detailed examination of Orange County's Computer Cluster and a current assessment of the region's technology workforce, please see;

Computer Cluster Collaborative Labor Market Research, December 2007.

Conducted for the Orange County Workforce Investment Board

Computer Cluster Employer Telephone & Internet Survey

Survey Length: 15 - 20 minutes

Universe: 1,453 Employers with at Least 5 Employees

Sample Size: n=200, Stratified by Sector, Size & Geography

Margin of Error: +/- 6.4%

Executive Interviews with Computer Cluster Industry Experts, Employers and Academics

Secondary Research on the Industry using Data from California's EDD, Occupational Information Network, Bureau of Labor Statistics, Economy.com, & Industry-Specific Literature