CSA Worker Profiling — Resource Guide
Alameda, San Mateo & Santa Clara Counties

WIRED 1.2 Qualitative Report

NOVA Workforce Board
Santa Clara, Alameda & San Mateo Counties

Based upon the 10 interviews conducted within Alameda, San Mateo, and Santa Clara counties, and conducting an objective review of the interview responses, NOVA has developed the following analysis in line with the WIRED 1.2 Qualitative Report Instructions and Outline document.

I. Future of the Industry

Two bioresearch companies interviewed looked to the future of their products in development, citing the hope for future growth as their products come to fruition.

The primary issue for two semiconductor companies is the cost of manufacturing and labor; they have seen much of these functions offshored to countries where labor is much cheaper than in the United States.

Other companies cited issues such as government regulations, dependence on grant funding, and increased competition with other businesses. One company cited the impending knowledge gap as baby boomers retire. This particular company stated that they are not prepared for the mass hiring of replacement workers for these highly skilled individuals.

All companies cited the ever-changing nature of their respective industries, adding that they expect to keep adding to their workforce to adapt to future needs within their industries.

II. Ideal Skills, Education and Experience Needed

All companies cited a need for skilled workers at the technician, professional, and managerial levels. Two large semiconductor companies stated that, while they do use technicians, most of their manufacturing is conducted overseas. The technicians located in Silicon Valley are long-term employees or new professional-level employees creating prototypes

for research and development. Any large-scale jobs are offshored to other areas around the world where cost of labor is much less expensive.

For companies that do manufacturing onsite, technicians are hired from local community colleges, mostly with associate degrees in electronics engineering. These companies report that they are satisfied with the skills of these candidates. A few companies with a focus on research and development, however, cited that they require bachelor's degrees for entry-level technician positions. About half of all companies mentioned the importance of experience in hiring technicians, often allowing higher educational attainment to substitute for experience.

At the professional level, all companies required at least a bachelor's degree, and the research-and-development companies commonly employed workers with doctoral degrees. Again, a certain level of experience is required by all of the companies to be employed at the professional level, and in many cases, this experience allowed workers to eventually transition to managerial positions.

At the management level, all companies stated that a candidate must have at least a bachelor's degree in addition to experience. In many cases a master's or Ph.D. is required. All companies reported that several years of experience are mandatory at this level.

For all levels, technician, professional, and managerial, there was a general sense of the need for soft skills. Several companies cited the need for good communication skills, while another stated the need for employees to be able to "wear multiple hats." One manufacturing company cited the difficulty in finding technicians with the right attitude, who come in on time with a good attitude, which is essential to the success of their production. As one company stated, in addition to appropriate education and experience, an employee needs a willingness to be a team player and to strive to surpass expectations.

As far as shortages in locating appropriate candidates at these three levels, many companies discussed the high cost of living in Silicon Valley and the challenge of trying to attract candidates here. As a result, many companies try to recruit candidates who already live

here, especially for their lower-paid jobs. Two semiconductor companies also discussed their reliance on federal H-1B visas to obtain qualified engineers from overseas.

When asked to profile effective technicians, professionals, and managers, both now and in ten years, all of the companies stated that the skills and requirements that were relevant now would continue to be those most relevant in the future. For technicians, this included years of experience and level of education.

At the professional level, companies currently look for candidates with at least a bachelor's degree, with a preference for master's degrees in most cases. Experience is also essential — the more experience, the better. A few companies cited the importance of individuals being team players and going above and beyond expectations. As with the technicians, companies state that the traits important today are projected to be the same ten years from now.

Finally, when companies were asked how they would profile an effective manager today, many stated that they require at least a bachelor's degree and prefer a master's, in addition to considerable experience. Some companies discussed the importance of a manager being able to see the bigger picture within both the operational and research functions within their company. When asked to profile an effective manager ten years from now, all companies stated that they would look for the same traits that they look for today.

III. Leadership and Skills Gap Analysis

When the ten interviewees were asked about their companies' current leaders and whether they possess broad knowledge of the company, many responded that these are qualities expected of their leaders. When asked to forecast the skills needed of corporate leaders in the future, the responses were similar, with particular emphasis on individuals who can bridge their technical or scientific skills with the broad skills of communication and business operations.

In regard to where businesses search for these leadership candidates, some companies use internet job boards such as Craigslist and Yahoo! HotJobs, while others use more formal methods, such as executive recruiters.

Companies were then asked about if they are able to find individuals with the skills businesses are looking for. Most companies responded with a wary "yes," but cited that they do run into difficulty when recruiting for different levels within their companies. A couple of businesses stated that competition with such tech giants as Intel or Genentech makes it difficult to recruit candidates for essential positions. Another semiconductor company reported that they must recruit engineers from overseas through the federal H-1B visa program, because they are unable to locate enough qualified engineers within the U.S. As far as specific skill shortages, many of these companies cited the need for people with appropriate experience, as these companies require very specific skill sets.

IV. Education Report Card

When asked about the educational institutions that companies target in their recruitment efforts, interviewees' responses were varied. At the technician level, many companies target local community colleges, while others mentioned such private training schools as ITT Tech, Heald, and DeVry as good places to find technicians. For higher-level recruiting, companies cited a number of colleges and universities throughout California, including the University of California system and the California State University system, as well as several private universities, including Stanford and the University of Southern California. No companies reported having had negative experiences with any educational institution. As for future recruiting, most companies projected that they will likely target these same institutions.

Several companies cited the need for hands-on experience in response to what educational institutions need to do to prepare workers for skilled jobs in the future. Many candidates do not currently receive enough practical experience in the classroom and enter the workforce with little or no practical experience in their field. Other companies cited the need for education and industry to be more aligned. One interviewee mentioned that her company needs to stop looking to "top-tier universities" for their candidates and focus instead on community colleges, a great resource that often is overlooked.

V. Primary Concerns and Key Message from Industry

Representatives were also asked about key concerns in ensuring a skilled workforce in the future. Many companies cited education as the primary concern. One semiconductor company hopes that more engineers will be trained domestically to counter the significant need for H-1B visas. Another company stated the need for education to keep up with industry and the importance for employees to engage in lifelong learning. Two other companies cited the need for businesses to become more actively engaged in workforce development, as they see this as crucial to a business's ability to succeed.

Finally, representatives were asked what their key message is to California leadership in regard to workforce development. The most common response was from small businesses, who collectively cited their difficulty in competing with larger businesses in Silicon Valley. Companies with small HR departments find it hard to keep up with the great number of regulations, not to mention the task of recruiting. Federal regulations and the difficulty keeping up with them were also mentioned as a concern by several businesses.

Larger companies cited the high cost of living in Silicon Valley as being the greatest difficulty in regard to recruitment and retention of staff. The possibility of long-distance learning, which would allow people to work and learn from any part of the globe, was mentioned as a potential solution.

Several companies also suggested the importance of government funding to support emerging industries, the responsibility of job seekers in effectively networking and researching prospective employers, and the need for companies to reach out to local community colleges to develop curriculum and programs that better cater to their specific workforce needs.

Conclusions

While the number of interviews we were able to conduct was fairly small within Silicon Valley, the responses were consistent in that the greatest difficulties were in recruiting candidates with the level of skills and experience that are necessary within this high-tech region. We found that companies have little time dedicated to developing their workforce, even though this is essential to their ongoing success. We also learned that companies rarely had any awareness of

the existing workforce development system and what it could provide them. This lack of both time and awareness, we feel, is the primary reason that the number of interviews was so low despite the significant efforts made to contact local companies.

Community Colleges and Universities

Berkeley City College
www.berkeleycitycollege.edu

Merritt College
http://www.merritt.edu

DeAnza College
www.deanza.edu

Cañada College
http://canadacollege.edu

Chabot College
http://chabotweb.clpccd.cc.ca.us

College of Alameda
www.peralta.cc.ca.us/coa/coa.htm

College of San Mateo
www.collegeofsanmateo.edu
• Biotech Technician

CSU East Bay
http://www.csuhayward.edu

Evergreen Valley College
http://www.evc.edu

Foothill College
http://www.foothill.edu
• Biotechnology

Gavilan College
www.gavilan.edu

Laney College
www.peralta.cc.ca.us/laney/index.htm
• Bioscience Career Institute

Las Positas College
www.laspositascollege.edu

Mission College
http://www.missioncollege.org

The Northern California Biotechnology Center
http://biotech.org

Ohlone College
www.ohlone.edu
• Research Associate / Biotechnician
• Bio-Pharmaceutical Manufacturing

San Francisco State University – College of Extended Learning
www.cel.sfsu.edu

San Jose City College
http://www.sjcc.edu
• Biomedical Electronic Technician Program

San Jose State University
www.sjsu.edu

Skyline College
http://www.skylinecollege.edu
• Biotechnology
• Bio-Manufacturing
• Telecommunications & Network Technology

West Valley College
http://www.westvalley.edu

University of California, Berkeley
www.berkeley.edu

UC Berkeley Extension
www.unex.berkeley.edu
• Biosciences

University of California, Santa Cruz - Extension
http://www.ucsc-extension.edu/ucsc/areasofStudy.jsp
• Biosciences Programs

Note: *All colleges/universities listed provide some form of general education in physical sciences and/or engineering. Only relevant specializations are bulleted.*

General Sites

Bio-Link
http://www.bio-link.org

National Center for Biotechnology Information
http://www.ncbi.nlm.nih.gov

Biotech Find
http://www.biotechfind.com

Cato Research
http://www.cato.com

About.com: Biotech/Biomedical
http://biotech.about.com

Saludos
http://www.saludos.com

BioSpace
http://www.biospace.com

Access Excellence
http://www.accessexcellence.org

Bay Area Biotechnology Education Consortium
http://www.babec.org

Industry Organizations

American Electronics Association (AeA)
http://www.aeanet.org

American Engineering Association (AEA)
http://www.aea.org

Association for Computing Machinery (San Francisco Bay Area Chapter)
http://www.sfbayacm.org

BayBio
http://www.baybio.org

Institute of Electrical & Electronics Engineers (IEEE)
http://www.ieee.org

Semiconductor Equipment & Materials International (SEMI)
http://www.semi.org