



# Contract Manufacturing

in Silicon Valley



February 2012

[bw] RESEARCH  
PARTNERSHIP

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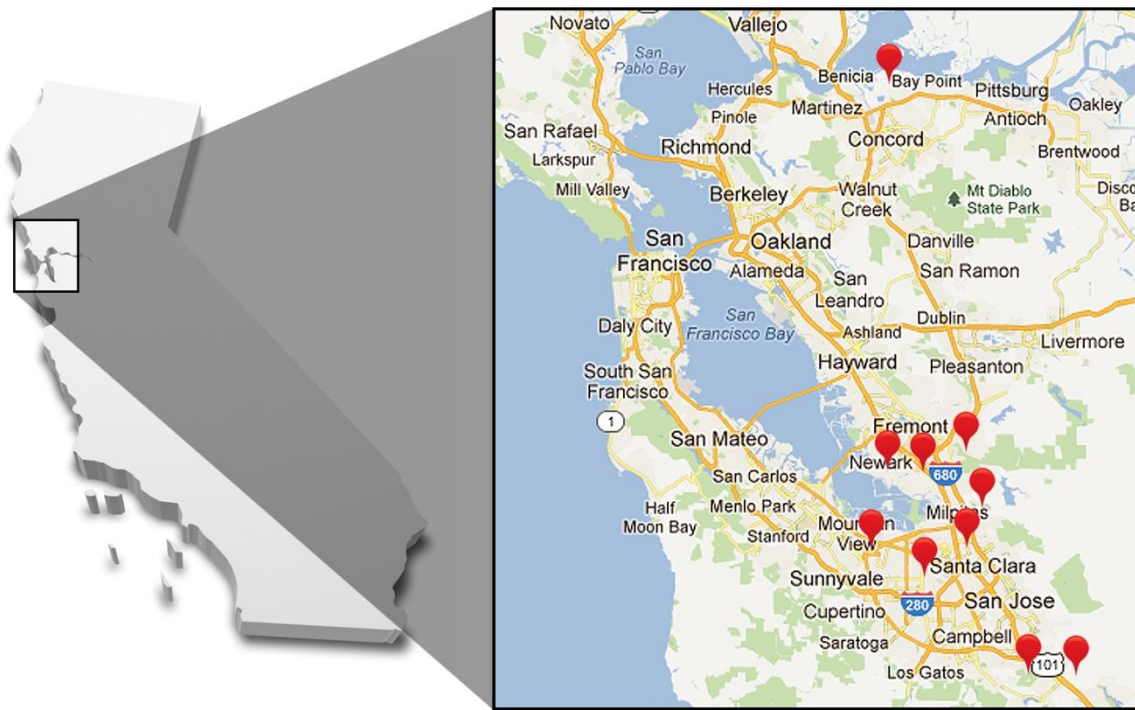


## INTRODUCTION

Silicon Valley is the epicenter of innovation, often considered the world headquarters for new technology and the firms that produce it. Most media attention focuses on emerging new companies, budding technologies, and the engineers and scientists who produce them, but not the firms that support the production and manufacturing of these new emerging products. Recent studies of Silicon Valley's emerging green employers (work2future, 2011) and its technology sectors (NOVA, 2011) have highlighted the importance of the region's ability to take an idea and quickly develop it into a tangible product that is sold in the marketplace. This regional ability to transform ideas into a product is built on Silicon Valley's great research universities, influx of domestic and international entrepreneurs, access to capital, and the manufacturing and design expertise to actually create and produce the products.

Contract manufacturing is a critical component in Silicon Valley's innovation ecosystem and another area where the region remains a global leader in building and producing new emerging products. As the map shows below, all of the top 10 global contract manufacturing firms by revenue<sup>1</sup> in 2010 had at least one location in or near Silicon Valley.

**Figure 1: Top 10 Global Contract Manufacturing Firms with a Location in or near Silicon Valley**



<sup>1</sup> Source: Venture Outsource 2010: Top 10 EMS Providers, Ranked by Revenue.  
[www.ventureoutsource.com/contract-manufacturing/top-10-ems-odm-reviews-and-ratings](http://www.ventureoutsource.com/contract-manufacturing/top-10-ems-odm-reviews-and-ratings)



While Silicon Valley celebrates its great universities, entrepreneurs, and venture capitalists, very little mention is made of the contract manufacturers and product design service firms that fill a critical niche in the region's ability to move products to market quickly and effectively. Though the strength of Silicon Valley's innovation clusters cannot be ignored, their impacts touch many other facets of the regional economy. Contract manufacturing is one of these critical areas.

Contract manufacturing refers to the process whereby companies outsource the production of their prototypes, components, or finished products to manufacturing firms. Typically, companies will provide the product design and will hire the manufacturer to serve as their factory for production, assembly, and shipping logistics. While some have argued that an increasing share of contract manufacturing is being conducted overseas or outside of the region, new opportunities for this industry are growing in Silicon Valley.

BW Research Partnership, Inc. (BW Research) was commissioned by work2future to conduct an assessment of contract manufacturing in Silicon Valley. The research is built upon the recent study of Silicon Valley's emerging green sector and the findings focused on Silicon Valley's specialized suppliers and supporting industries. The goals of the research include identifying characteristics of contract manufacturers, distinguishing trends between firms conducting work for emerging and established products, assessing employment growth and opportunities for the future, developing skill profiles of occupational categories, addressing hiring challenges, reviewing educational programs, and developing recommendations for economic development policy.

To perform its analysis, BW Research conducted a thorough review of existing labor market and educational data, together with interviews of executives from contract manufacturers in San Jose and Silicon Valley. A total of 16 interviews were conducted, drawn from a sample of contract manufacturing firms, some of which had a previous relationship with work2future or the City of San Jose (warm leads) and others that were selected randomly (cold leads). The titles of the interviewees included President/Owner/CEO (44%), Operations and HR VP or Plant Manager (44%), and Marketing/New Business Development (13%). This report is a summary of the findings.



## INDUSTRY PROFILE

The recent study of Silicon Valley's emerging green technology sectors (work2future, 2011) illustrated the importance of the region's contract manufacturers and their ability to support the creation and production of new clean technology products. Silicon Valley's contract manufacturers have historically played – and continue to play – a critical role in the creation and production of the region's other innovation industries, including information technology, medical devices, defense, and other electronic components and products.

The interviewed firms work with various technologies; however, seven of the 16 work with semiconductors or other electronic parts. Medical devices, defense, and clean technology were also noted in the interviews. Overall, 75 percent of the firms reported working with product design and nearly all reported that they get new business from existing customer referrals.

Based on our database of contract manufacturing employers, Santa Clara County is home to over 90 contract manufacturing firms with at least one location in the county. Santa Clara County contract manufacturers employ approximately 7,600 workers – or about five percent of all manufacturing employment in the county. The 40+ product design services firms, which are closely related to contract manufacturers, employ just over 1,300 workers in the county.

In addition to contract manufacturing employment of 7,600 in Santa Clara County, southwest Alameda County and San Mateo County are home to 1,600 contract manufacturing jobs.

**Table 1: Santa Clara County - Contract Manufacturing Profile**

Santa Clara County Contract Manufacturing Firms	91
Santa Clara County Contract Manufacturing Employees	7,591
Average Workers per Santa Clara County Contract Manufacturing Firm	83
Santa Clara County Manufacturing Firms	3,232
Santa Clara County Manufacturing Employees	158,789
Average Workers per Santa Clara County Manufacturing Firm	49
<b>% Santa Clara Contract Manufacturing Employment in Manufacturing</b>	<b>4.8%</b>



## NEW AND ESTABLISHED PRODUCT MANUFACTURERS

Contract manufacturers can be delineated as manufacturers who support new and emerging clients and those that support established firms. Generally speaking, firms that manufacture for traditional, established products tend to think of themselves as producing commodities and are focused heavily on price competitiveness (including foreign competition) and consistency of product. Manufacturers working with new and innovative firms like to be involved earlier in the product development timeline, are more focused on design and engineering, and often promote quality and timeliness over cost concerns.

Based on the relatively small sample of interviews, the contract manufacturers focused on innovative, smaller firms tend to look for workers with more developed soft skills, including communication (spoken and written), computer ability (MS Office Products), and “people” skills. Established firms focus more on technical skills such as machining, assembling, and soldering.

Firms working with new product development also highly value varied industry experience. Not surprisingly, manufacturers working with more established products are more likely to work on mass production.

One of the goals of the research is to determine the connectivity between emerging green firms and contract manufacturing. Though few firms reported working with existing green technology, five of the 12 firms that answered the question cited green technologies as likely to have an effect on their firm going forward.

Historically, contract manufacturing in Silicon Valley has played a critical role in supporting the emerging technologies that are focused on getting a product to market quickly and effectively. The products and technologies that have supported Silicon Valley's innovation economy – such as the development of personal computing, the rise of software and the Internet, and now the emergence of green technologies, including cutting-edge renewable energy and energy efficiency technologies – have all been supported by the region's contract manufacturers.

Perhaps the strongest indicator of the impact that contract manufacturing has on Silicon Valley's emerging green economy can be found in the similarity of components produced for electrical, electronics, and other computer-related devices that are the foundation for many Silicon Valley's contract manufacturers. They are the same or similar technologies that contract manufacturers are using to support renewable energy and energy efficiency firms in the region.



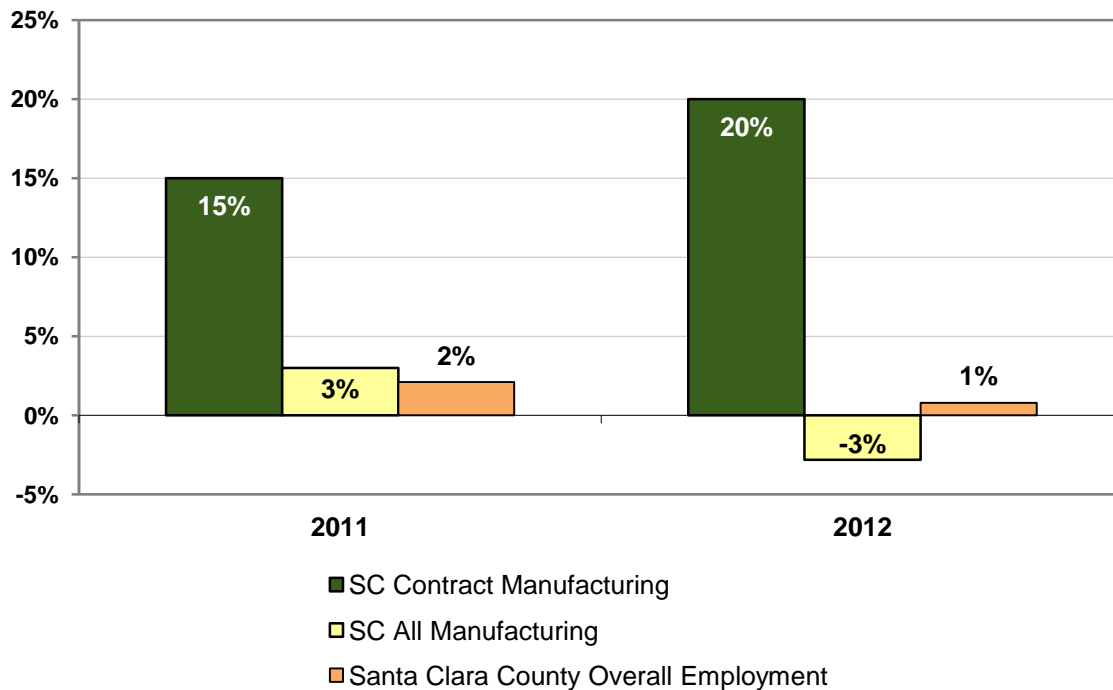
## EMPLOYMENT ISSUES

### EMPLOYMENT GROWTH

Contract manufacturers appear to have recently grown considerably faster than the general manufacturing sector in Santa Clara County. The interviewed employers reported growth of approximately 15 percent in 2011. This compares to two percent employment growth among all workers in Santa Clara County in 2011 and three percent employment growth among all manufacturers in the region over the same period.

These same employers expect continued employment growth to be closer to 20 percent (50% are expecting to grow in 2012, 38% are expecting to stay the same, and 12% are unsure or are expecting to get smaller). This compares to county-wide predictions of less than one percent growth overall and a decline of three percent in manufacturing.

**Figure 2: Comparative Employment Expectations in Santa Clara County**



It should be noted that these figures are based off a relatively small sample size that is not meant to be statistically representative. The overall results were volatile with employment change ranging among the 16 firms from a loss of 120 employees over the past 12 months to the addition of 189 employees at a single firm.



## OCCUPATIONAL CATEGORIES AND SKILLS

The executive interviews provide important clues into the occupational categories of importance to contract manufacturers as well as related education and training preferences and skill deficiencies. Specifically, employers were asked to reveal the occupations for which they have the hardest time sourcing qualified candidates and 14 provided responses. These occupations include, in order of frequency:

- Engineers (electrical and mechanical) (11)
- Designers (6)
- Machine operators and other “on-the-floor” labor (5)
- Quality control technicians (2)
- Assemblers (2)

The related skills for these occupations can be viewed as falling neatly into three categories: technical skills, soft skills, and related experience. Particularly for entry-level employees, soft skills – such as the ability to learn, be flexible, communicate effectively, and be self motivated – are critical for success.

Though technical skills were much less frequently reported as important (as opposed to soft skills and experience), some that were reported include the ability to operate machines, an eye for detail in quality control, soldering skills, and assembly skills.

Industry experience was frequently cited as important, with two key embedded themes. The first theme relates to the importance of manufacturing experience, which includes the understanding of the machinery and other technology and the ability to deal with issues on the floor. The second theme relates to experience with clients’ industries. This was particularly important for design and engineering occupations, as employers reported their need to understand how to solve problems related to their clients’ products, which were often tied to the specific issues within a given industry.

In terms of deficiencies, it is clear that most firms are frustrated with current candidates’ levels of basic skills and soft skills. The ability to use a computer, write clearly, and communicate appropriately were cited frequently. Also noted was machining ability. Though the deficiencies are troubling for many firms, these responses – as well as the desire for enhanced hands-on training and experience – mirror those reported in the emerging green study, suggesting a more global deficiency that could be addressed by industry training and broader exposure to different career opportunities.

There are opportunities for enhanced training in contract manufacturing, though the high incidence of reporting difficulties sourcing engineers and designers suggests few short-term fixes. Clearly, however, soft-skill training would have significant impacts as would incorporating contextualized learning modules into existing training programs to help trainees obtain better understanding of the industry.

Several key occupations were reported by the interviewees, including machine operators (machinists), mechanical and manufacturing (and other) engineers, assemblers, quality





control technicians, project managers, and sales staff. Some of these occupations could be supported by training providers in the region such as Metropolitan Education District (MetroED) and Center for Employment Training (CET). These two training providers offer training programs in visual communications (CET), electrical work (CET and MetroED), machining (CET), and business office technology (CET and MetroED). These training programs could be developed to support training for:

- Electrical technician positions (Electrical: CET or MetroED)
- Machinists and Machine Operators (CNC Machine Setup Operator: CET)
- Technical design work in AutoCAD and related applications (Visual communications: MetroED)
- Project management responsibilities (Business Office Technology: CET).

These training programs at CET and MetroED would need to be refined and developed to serve contract manufacturing directly, but currently provide the foundation for skills that these employers value.

It is interesting to note the similarities among the responses from contract manufacturers and those received from employers engaged in emerging green technologies that were contacted in connection with previous research for work2future. Specifically, industry and hands-on training were reported as important as well as a strong preference for on-the-job training. Experience in the industry and with specific core tools and technology are important for both clusters. When comparing deficiencies, there are several similar concerns, including soft-skill development such as problem solving and communication ability. These similarities suggest that there may be generalized preferences and concerns with regional employers and further research is necessary to determine how to address these concerns.

## OPPORTUNITIES FOR GROWTH

Industries that are important to regional contract manufacturing firms include; medical devices, renewable energy, energy efficiency, defense and aerospace, information technology (software, hardware, information technology security), cloud computing, electronics, and networking.

Contract manufacturing employers consistently identified three key drivers in describing the factors that account for their continued growth.

1. **Proximity to customers.** This is particularly important to those contract manufacturing firms that want to be engaged early and often in the design and initial product development phase. More than one contract manufacturing employer talked about the need to be able to communicate quickly and casually with those OEMs (Original Equipment Manufacturers) that were considering new products and wanted to bounce ideas off of their trusted partners.
2. **Pace of innovation and new product development.** This is the key factor for those contract manufacturing firms that are focused on being involved in the product development process early, working closely with OEMs to bring products



to market quickly, and effectively providing a valuable opportunity to engage in work that is higher value added and not as cost sensitive. This is Silicon Valley's sweet spot and often times once the manufacturing process matures, it is sent to a lower cost area either within the United States or more often outside the US.

3. **Access to talent.** This refers to more than just the ability to find people to work at a company, but also refers to the outside expertise that is often required in developing new emerging technologies. One of the larger contract manufacturing firms that we spoke with revealed they were increasing employment in Silicon Valley because the product design phase was becoming an increasing part of their business and they could not find the talent for design and engineering at their current domestic headquarters.

The interviews also show that firms get their work from both established and new clients. Though a few expect to see a greater percentage of their work come from established firms, the majority expect to see more opportunities from small businesses, startups, and other innovative firms. As a result, many are focusing attention on product design and re-design.

In addition to the policy and economic factors affecting growth, employers also noted several new technologies that could spur growth. These include clean energy technologies, healthcare information technology and medical devices, and computer and semiconductor components.

## HUMAN RESOURCE AND WORKFORCE CHALLENGES

The research indicates that most firms are not facing an imminent brain drain. In fact, almost half of firms expect little to no retirements or replacements in the next three years and only about one in five anticipate 10 percent or more of their workforce to retire or be replaced in the next three years.

At the same time, about one-third of firms do not use temporary or contract employees at all. One-third of employers are not using them now but indicated that temporary or contract employees can account for anywhere from one to 10 percent of their workforce at any given time. For the other one-third of firms, temporary or contract employees currently account for five to 30 percent of their workforce.

Employers noted several important skills and characteristics that they look for in applicants; communication skills, self-motivation, technical ability (particularly assembly), interpersonal skills, and ability to use and understand different types of machines. Most employers did not report deficiencies in their current workforce, but those that did noted writing ability, technical (soldering and machinist) skills, and lack of industry experience.

From a training perspective, the majority of employers (10) prefer to train on the job and some also offer paid courses at a university or use training consultants. This is generally consistent with emerging green employers that wanted hands on training that was largely specific to their given industry or technology.



## EDUCATIONAL ATTAINMENT DATA

According to Economic Modeling Specialists, Inc. (EMSI), many of the most important contract manufacturing occupations – including various assembling, production, and design positions – have training programs in the region. The numbers in brackets in the following paragraphs refer to the total number of completions in the most recent year of data, 2009.

The most general degree is **Manufacturing Technology**. Two colleges, Mission and De Anza, offer programs in this doctrine. However there was a total of only one completion in 2009. Given the other findings in this report, such a completion rate is alarming. De Anza College has a short-term certificate (0) and a longer-term certificate (1) and Mission offers a two to four year certificate (0) and a short-term certificate (0).

Other related programs include:

- **Electrical/Electronics Engineering Technician** – Total of 24 completions in the region in 2009. Heald College in San Jose offers an associate's degree (20) and a certificate program (4).
- **Machinist/Machine Tool Technician** – Total of 32 completions in the region among three awards; associate's degree, short-term certificate, and longer-term certificate. San Jose City College offers an associate's degree (3), a certificate of between one and two years (4), and a certificate of less than one year (20). De Anza College offers a certificate of between one and two years (0) and less than one year (5).
- **Industrial Electronics Technician** – Total of one completion. San Jose City College offers short-term (0) and longer-term (1) certificates.
- **Sheet Metal Technician** – This is the largest of all related programs. Foothill College offers a one to two year certificate (72) and a short-term certificate (2).
- **Quality Control Technician** – San Jose State University offers a master's degree in this doctrine (3).
- **Industrial Design** – This occupational category requires a bachelor's degree, which is offered by San Jose State (12) and a master's degree is offered by Stanford (3).



## CONCLUSIONS AND RECOMMENDATIONS

### STRATEGIES TO SUPPORT CONTRACT MANUFACTURING

Employers talked about two types of strategies to support the continued growth of contract manufacturing in Silicon Valley. One type focused on economic development strategies that expand the ability of contract manufacturers to connect and work with local and regional OEMs. This first type of strategy would provide public forums and/or databases to connect local/regional contract manufacturers with the OEMs that are looking to commercialize new products with those contract manufacturers that have relevant industry and technology expertise. One of the challenges associated with this strategy is the inherent secrecy that often pervades the initial development and creation of new technology products.

The second type of strategy focused on human capital development and providing interns and entry-level employees who are trained and ready to become productive employees within the industry. Many contract manufacturing employers are looking for employees that have the ability to use different machines and assemble products that require strong technical communication skills and the ability to use increasingly complex machines and their related applications. They are also looking for customer service and sales professionals that communicate effectively with clients and potential clients with a working understanding of the industries they are focused on and the technologies that are being used.

### ACTION ITEMS FOR WORKFORCE DEVELOPMENT

The research indicates two opportunities for workforce development in support of Silicon Valley's contract manufacturing community.

1. **Expand foundational training in applied engineering, machining skills, and product design.** Silicon Valley has a broad array of engineering educational programs and degrees; however, employers in contract manufacturing repeated the need for engineers and technicians who had more skill working with machines and design applications and had more experience and knowledge of the industries and technologies that they are focused on. Engineers and technicians who are looking for work in contract manufacturing should understand the need to develop skills and knowledge beyond the academic requirements of their degree. For work in contract manufacturing, that includes the ability to work with the machines and design applications that are often used in this sector. Also important is a working knowledge of the industries and technologies that employers are connected to.
2. **Introduce students and job-seekers to contract manufacturing internships and related entry-level opportunities.** Work experience is critically important for jobseekers in contract manufacturing. Employers reported that an understanding of the tools and technology as well as a firm grasp on the industries that the firm supports, could make the difference in getting a job with the company. Jobseekers interested in working in contract manufacturing should look to find internships with a contract manufacturing firm or a firm in one of the industries that contract manufacturing is focused on; medical device



manufacturing, renewable energy, defense and aerospace, and information technology and security.

### ACTION ITEMS FOR ECONOMIC DEVELOPMENT

The research indicates three clear and immediate actionable items to promote economic development, all related to facilitating relationships and networking.

1. **Create networking opportunities with small businesses.** The majority of contract manufacturers reported a belief that a greater portion of their business will come from smaller firms. At the same time, many believe that the existing industry associations and networking events tend to represent large firms and that there is insufficient opportunity for them to network with smaller firms. The City of San Jose and work2future could provide immediate value by hosting networking events tailored to small businesses or otherwise connecting contract manufacturers and small businesses.
2. **Coordinate industry specific events that highlight the region's contract manufacturers.** One of the key themes of the interviews was contract manufacturers' in-depth knowledge of the industries that they serve and their desire to connect with these industries. Many of the manufacturers believe that overseas competition is problematic and that part of the issue could be that key industries such as electronics and computing, clean technology, and medical products do not recognize the breadth of expertise available locally. Fostering relationships through industry events and coordinating with existing industry associations (such as by developing contact databases and other materials) could prove highly beneficial to the region's manufacturers.
3. **Connect contract manufacturers with incubators, entrepreneur groups, and other start-up supports.** Many contract manufacturers prefer to be on the cutting edge and have early access to innovative new firms. At the same time, one of the well-demonstrated obstacles for entrepreneurs is finding qualified and reliable component and prototype manufacturers. With the number of existing start-up support entities in Silicon Valley, this opportunity may represent the lowest hanging fruit. Networking – virtual or in-person – could show mutual value to new firms and contract manufacturers, improving the chances of success.



## APPENDIX A: EXECUTIVE INTERVIEW DISCUSSION GUIDE



w2f SV Contract Manufacturing  
November 2011  
Version 3.0

### Executive Interview Discussion Guide w2f - SV Contract Manufacturing & New Product Support Services

.....  
**INTRODUCTION:**

Hello, my name is \_\_\_\_\_ and I'm with BW Research, an independent research firm. I am part of a research team that is working for the City of San Jose and work2future a workforce investment board, a Silicon Valley organization this is committed to helping job-seekers find meaningful employment and assist Silicon Valley employers to ensure they have the qualified, productive employees.

San Jose and work2future are interested in hearing from employers in Silicon Valley about the key issues facing their industry and better understand the key issues related to recruiting, evaluating and hiring in Silicon Valley.

**(If needed):** Depending on your input, this discussion could take anywhere from 10 to 15 minutes of your time.

Let's go ahead and begin.

.....

#### **I. Profile & General Information [FILL OUT IN ADVANCE AS INFORMATION IS AVAILABLE]**

Let me begin by asking a few general questions about [NAME OF FIRM]

1. What is your title or position within the organization?

[Record title] \_\_\_\_\_

2. Which of the following services have you provided to technology firms?

[ALLOW MULTIPLE RESPONSE]

- 1 Product design, development and consulting services
- 2 Contract manufacturing services
- 3 Other support for New Product Introductions (describe briefly\_\_\_\_\_)



**FOR EACH OF THE AREAS THEY ARE ENGAGED IN FOLLOW UP WITH Q3 & Q4**

3. Approximately what percentage of your business (gross or net revenue whatever they prefer) is focused on [NAME OF SERVICE FROM Q2 - ASK FOR EACH THEY SAID YES TO]?

- 1 Product design, development and consulting services \_\_\_\_\_%
- 2 Contract manufacturing services \_\_\_\_\_%

4. Thinking big pictures what are the key drivers of growth for your firm in Silicon Valley?

GET INITIAL RESPONSE THEN PROBE ON

- A. Speed and ability to find talented people
- B. Proximity to VC and investment dollars
- C. Proximity to clients/customers
- D. Proximity to vendors and your supply chain
- E. Ability to move through product development quickly
- H. Local or regional policies or incentives (as a benefit)**
- I. State or Federal policies or incentives (as a benefit)**

5. What are the biggest challenges/obstacles for growth of your firm in Silicon Valley?

GET INITIAL RESPONSE THEN PROBE ON

- A. Speed and ability to find talented people - Talent
- B. Domestic competition
- C. International competition
- D. Labor Costs
- E. Succession planning and dealing with changes in staff**
- F. Local or regional policies or regulations (as an obstacle)**
- G. State or Federal policies or regulations (as an obstacle)**
- H. Reduced govt. funding/incentives**



## II. Customer and Client Profile

Next, I want to ask a few questions about your business and customers

6. Approximately what percentage of your business (in terms of gross revenue) is with larger, more established firms and how much is with smaller, emerging firms?

- 1 Large established firms\_\_\_\_%
- 2 Smaller emerging firms\_\_\_\_%

7. In the next 2 to 3 years do you expect these percentages to stay the same or change, if change how so?

### [IF Q2=1 THEN SKIP TO Q10]

8. Approximately what percentage of your work is focused on New Product Introductions and how much is on mass production?

- 1 NPI\_\_\_\_%
- 2 Mass productions\_\_\_\_%

9. In your work focused on New Product Introductions (NPI) do you typically get brought in to the project early in the process before the R & D is completed, as they begin to ramp up and get prepared for production, or after they have already figured out the production process and have brought your firm in as a specialist?

- 1 Early in the process
- 2 As they begin to ramp up for production
- 3 After production process has been established
- 4 Combination
- 5 Depends on the project

10. How do you connect with new customers and find new business opportunities, is it mostly through existing customers and referrals, is it networking through industry/trade associations, is it responding to competitive bid opportunities, is it cold calling and other broad communication strategies or are there other strategies that your use? [PLEASE CHECK ALL THAT ARE MAJOR STRATEGIES FOR THEIR FIRM]

- 1 Existing customers and referrals
- 2 Responding to competitive bidding opportunities
- 3 Networking/connections through industry/trade associations
- 4 Cold calling and other broad communication strategies
- 5 Other (please describe\_\_\_\_\_)





### III. Supply Chain Profile

Next, I want to ask a few questions about the suppliers and vendors that make up your supply chain

11. In general can you describe, the industry, products or services provided by the suppliers or vendors that are important to your firm?

Describe industry and or products and services provided by suppliers/vendors:

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12. Approximately what percentage of your supply chain (in terms of gross costs) is from firms or providers within Silicon Valley, from firms or providers in California but not in SV, from firms in the US but not in CA, or firms outside the US altogether?

- 1 SV firms\_\_\_\_%
- 2 CA firms (Not SV)\_\_\_\_%
- 3 US firms (Not CA)\_\_\_\_%
- 4 International firms (Not US)\_\_\_\_%

### IV. Technology Profile

Next, I want to ask a few questions about the industries and technologies that are most important to your contract manufacturing and new product development support services.

13. Which technologies and/ or industries are most important for the contract manufacturing / new product support services that your firm offers?

[TRY AND PLACE IT INTO ONE OF THE FOLLOWING CATEGORIES]

- 1 Emerging green technologies
- 2 Internet
- 3 Software
- 4 Bio-technology, Pharmaceuticals and Life Sciences
- 5 Hardware and Networking
- 6 Communications
- 7 Cloud computing
- 8 Renewable energy
- 9 Nanotechnology
- 10 Other (specify\_\_\_\_\_)



14. Are there any emerging technologies that you expect to have a growing impact on your industry or your firm in particular, if so please identify. (DO NOT READ, ALLOW MORE THAN ONE RESPONSE)

GET INITIAL RESPONSE IF YES PROBE ON

- 1 Mobile technologies
- 2 Applications development
- 3 Software systems
- 4 new materials
- 5 Cloud computing
- 6 Chip design
- 7 Other (Please specify \_\_\_\_\_)
- 8 DK/NA

### V. Workforce Profile

Next, I want to ask about your workers and the need to find, train and maintain productive employees.

15. Approximately how many employees does [FIRM NAME] have in Silicon Valley?

[Record # of employees] \_\_\_\_\_

16. Over the last 12 months has your firm increased, decreased or maintained about the same number of employees in Silicon Valley?

[IF MORE OR LESS, ASSESS HOW MANY]

- 1 Increased → How many? \_\_\_\_\_
- 2 Decreased → How many? \_\_\_\_\_
- 3 Maintaining about the same number

17. Over the next 12 months do you expect to be increasing, decreasing or maintaining about the same number of employees in Silicon Valley?

[IF MORE OR LESS, ASSESS HOW MANY]

- 1 Increasing → How many? \_\_\_\_\_
- 2 Decreasing → How many? \_\_\_\_\_
- 3 Maintaining about the same number



18. Please tell me how much difficulty your firm faces in addressing the following workforce issues.

Here's the (first/next) one \_\_\_\_\_ (READ ITEM): Please tell me whether your business has no difficulty, some difficulty, or great difficulty in dealing with this issue.

**RANDOMIZE**

	<u>No difficulty</u>	<u>Some difficulty</u>	<u>Great difficulty</u>	<u>(DON'T READ DK/NA)</u>
A. Replacing retiring or other workers that are leaving the firms with equally skilled and talented employees.....	1	2	3	4
B. Recruiting enough entry-level employees with appropriate training and education .....	1	2	3	4
C. Recruiting enough non-entry level employees with adequate skills and industry experience.....	1	2	3	4
D. Keeping current workers properly trained on changing technology and policy requirements .....	1	2	3	4

19. What percentage of your workforce do you expect to have to replace because of retirements or other changes in the workplace over the next 3 years \_\_\_\_\_%

20. Does your firm have a succession plan or any other strategies to deal with employees who will leave or retire in the next 2 to 5 years and take with key skills and abilities?

Succession Plan

- 1 Yes
- 2 No

Other Strategies

- 1 Yes \_\_\_\_\_ describe
- 2 No

21. How does your firm train current employees who need to learn new technologies, processes or skills associated with new product introductions? [WAIT FOR INITIAL RESPONSE AND THEN PROBE ON - CHECK ALL THAT APPLY]

- 1 On the job training
- 2 Paid courses at universities or other specialized training classes
- 3 Training consultants that are brought to the firm
- 4 Mentorship and/or apprenticeship programs
- 5 Other (specify \_\_\_\_\_)

22. Does your firm have temporary or contract (project to project) employees, if yes approximately what % of your employees are temporary or contract. If no, how do you keep employees productive given the variable nature of employment in contract manufacturing/product development?

Temporary and/or Contract employees

- 1 Yes \_\_\_\_\_% of workforce
- 2 No \_\_\_\_\_ how they deal with variable work cycle



Next I want to briefly ask you about occupations and skills that are important to your firm.

23. What are the most important occupations at your firm, both in terms of which are hardest to find qualified applicants for and what represent the majority of the positions you are looking to hire for? [WAIT FOR INITIAL RESPONSE AND THEN PROBE ON]

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[USE THE FOLLOWING AS PROBES IF NOTHING IS MENTIONED AND COLLECT THEIR SPECIFICS.]

- 1 Engineers, designers
- 2 Software engineers, programmers
- 3 Quality Control technicians or engineers
- 4 Assemblers or related technicians
- 5 Customer service representatives
- 6 Project Managers
- 7 Analysts (define)
- 8 Other (specify\_\_\_\_\_)

[DIFFERENTIATE SKILLS BETWEEN PERMANENT EMPLOYEES AND TEMPORARY/CONTRACT POSITIONS]

24. Thinking beyond occupational titles, what are the skills and characteristics you look for when hiring people? [WAIT FOR INITIAL RESPONSE AND THEN PROBE ON]

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25. [USE THE FOLLOWING AS PROBES IF NOTHING IS MENTIONED AND COLLECT THEIR SPECIFICS.]

- 1 Probe on skills related to key occupations
- 2 Industry experience vs. ability to learn quickly and apply
- 3 Areas of expertise that are critical for employment in the industry
- 4 General skill sets
- 5 Importance of 4 year degree and beyond or is industry experience OK
- 6 Other (specify\_\_\_\_\_)

[DIFFERENTIATE SKILLS BETWEEN PERMANENT EMPLOYEES AND TEMPORARY/CONTRACT POSITIONS]



26. What are the skills or hiring requirements that key occupations are most likely to deficient in?

[AFTER INITIAL RESPONSE - ask, is there a difference in deficiencies between permanent employees and temporary/contract employees]

27. Finally, have you heard of work2future the local Workforce Investment Board or WIB?

- 1 Yes
- 2 No
- 3 (DON'T READ) DK/NA

**[IF Q27=2 OR 3 SKIP TO Q30]**

28. Have you had any experience evaluating job-seekers from work2future or any other local workforce investment board?

- 1 Yes
- 2 No
- 3 (DON'T READ) DK/NA

**[IF Q28=2 OR 3 SKIP TO Q30]**

29. Have you hired any job-seekers from a local workforce investment board?

- 1 Yes
- 2 No
- 3 (DON'T READ) Not Sure
- 4 (DON'T READ) DK/NA

30. Next I would like to know your firm's level of interest for the following service that could be developed and run by a local workforce investment board.

Access to qualified interns that have been evaluated and provided entry-level training according your firms specifications

- 1 Great Interest
- 2 Some Interest
- 3 No Interest
- 4 (DON'T READ) DK/NA



On behalf of San Jose and work2future workforce investment board and the research team, thank you very much for your time and expertise in this discussion.

If you have any interest in seeing the findings of this research, please let us know and when it is completed we will make sure you get a copy.

Thank you for your time and commitment to develop better trained more productive workers in Silicon Valley!

A. Name of Respondent \_\_\_\_\_

B. Position of Respondent \_\_\_\_\_

C. Date and time of Interview \_\_\_\_\_

D. Relevant Contact Information

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

E. Company \_\_\_\_\_

F. Segment \_\_\_\_\_