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Workforce Needs Assessment Analysis for San Luis Obispo County

Workforce Innovation in Regional Economic Development (WIRED) Project 3.1 Workforce Needs Assessment



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Prepared for:



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**WORKFORCE INNOVATION IN REGIONAL ECONOMIC DEVELOPMENT (WIRED)
CALIFORNIA INNOVATION CORRIDOR (CIC)**

Workforce Needs Assessment Analysis: Project 3.1

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Date:	May 28, 2008
Location:	San Luis Obispo County
Number of Companies Surveyed:	10

WIRED 3.1 Project Overview (Project Goal): Conduct a labor needs assessment of 200 entities, to include 100 key space and information technology companies and government employers, 50 space entrepreneurial and small business companies, and 50 manufacturing companies. Workforce composition, current and future skill needs, education and training gaps will be identified and included in the assessments.

Introduction:

The purpose of the survey was to gather information about the skills required for critical positions and to identify future workforce gaps in order to develop a strategy to address future California Innovation Corridor employer needs. To collect the data, a survey instrument was created where employers were asked to rate both the competency and importance of workforce skills. As a participant of the WIRED 3.1 project, the Economic Vitality Corporation and Private Industry Council have collected data from ten San Luis Obispo County employers.

Two survey instruments have been utilized for data collection in San Luis Obispo County. The initial agreed upon survey instrument was conducted in December 2006-January 2007 on ten targeted employers. This survey instrument was deemed incomplete by the partners by mid 2007. In September 2007, a new survey instrument was created for the 3.1 project by utilizing an LMID survey development process. In addition, company, occupation, and staffing pattern data was analyzed to help each county focus in on potential target companies. The resultant survey instrument was utilized by the SLOEVC and SLOPIC in April 2008-May 2008 and conducted on the same ten targeted companies. This summary is the resultant analysis from both surveys, which include data from the ten targeted key space and innovative companies in San Luis Obispo County.

Target Companies:

The San Luis Obispo County Economic Vitality Corporation and Private Industry Council conducted surveys of ten San Luis Obispo County employers in the 541, 32x, 33x, and 517 NAICS codes. Although San Luis Obispo County is not known for manufacturing, a number of smaller sized companies (20-49 FTE) that support the space industry reside in the county. The companies targeted are adept at high precision machining, satellite telecommunication manufacturing, engineering design, software development, silicone component manufacturing, and pharmaceutical manufacturing. The typical growing clusters in San Luis Obispo County (e.g. Utilities, Real Estate, Builders and Contractors, Hospitality, Retail) were excluded as target industries because of their lack of connection with the space industry.

The following tables show the self-identified profile of each surveyed firm.

Targeted Company NAICS Designations

NAICS	Description	FTE
517410	Satellite Telecommunications	20-49
335314	Controls for Adjustable Speed Drives Manufacturing	20-49
325412	Pharmaceutical Preparation Manufacturing	50-99
541511	Custom Computer Programming Services	20-49
332710	Machine Shop	20-49
336411	Target Drones, Aircraft Manufacturing	50-99
54171	Physical, Engineering, and Biological Research	0-4
339112	Surgical and Medical Instrument Manufacturing	250-499
333611	Turbine Manufacturing	20-49
541511	Software Analysis and Design Services, Custom Computing	50-99

Summary of Surveyed Respondents

Type	Service		Manufacturing			Government		Other		Not Stated
Count	1		8			0		1		0
FTE	0-4	5-10	11-19	20-49	50-99	100-249	250-499	500-999	1000+	
Count	1	0	0	5	3	0	1	0	0	
Respondent Position	HR Director		Supervisor/Manager		President/CEO		Other		Not Stated	
Count	0		1		8		1		0	
Background	A: Direct Observe		B: Periodically Observe		C: Discuss with Supervisors		D: Other		Not Stated	
Count	6		0		4		0		0	

The majority of the companies surveyed were manufacturing companies, in which most of these companies do direct work for space and other governmental contracting companies. The surveyed companies tended to be of medium size in general (20-99 FTE), which was expected since most of the targeted companies were manufacturers of some sort. Because San Luis Obispo County tends to be tight knit, feedback was obtained directly from upper management that either directly observe or discuss with supervisors their employee performance. It should be noted that a few companies did not feel comfortable rating their current employees' performance, so that data was not included in the analysis.

Critical Employees:

Occupation	Satellite Telecommunications	Controls for adjustable speed drives manufacturing	Pharmaceutical Preparation Manufacturing	Custom Computer Programming services	Machine Shop	Target drones, aircraft, manufacturing	Physical, engineering and biological research, also 54138	Surgical and Medical Instrument Manufacturing	Turbine Manufacturing	Software Analysis and Design Services, Custom Computer	
Mechanical Engineering	x			x	x	x	x	x			60%
Electrical Engineering	x				x	x	x	x			50%
Manufacturing Engineering				x	x		x	x			40%
Aeronautical Engineering					x	x		x			30%
Materials Engineering							x	x			20%
Systems Engineering	x		x								20%
Chemists (Research)			x								10%
Chemists (Process)			x								10%
Chemists (Analytical)			x								10%
Aerospace Fabricator					x						10%
Computer Engineering								x			10%
Computer Science								x			10%
Engineering	x										10%
Firmware/Software Engineering		x									10%
Machinist				x							10%
Management	x										10%
Manufacturing	x										10%
MIS									x		10%
Other Engineering Disciplines									x		10%
Sales/Administration	x										10%
Software Engineering				x							10%
Technical Support	x										10%
Tooling Engineering							x				10%
Assembly Technician				x							10%
NAICS	517410	335314	325412	541511	332710	336411	54171	339112	333611	541511	

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Type of Employees: Engineering dominated the technical professions with Mechanical Engineering being utilized by 60% of the surveyed companies. Electrical Engineering, Manufacturing Engineering, and Aeronautical Engineers were also utilized by a high number of these companies. Although these results may not be statically relevant, the results may be relevant for sake of discussion. It could be argued that Mechanical Engineers are highly utilized as a technical employee because of the general nature of the Mechanical Engineer education.

Number of Employees: The average number of critical jobs to the surveyed companies is 24.2 employees. The median is 16 with a minimum of 4 and maximum of 63. The average size of the companies surveyed is 66.5, thus the critical employees make up 36.4% of the total employees. Since companies tend to be smaller in San Luis Obispo County, the median of 16 key employees per company is not unreasonable. Again, because of the small sample size and diverse nature of each company surveyed, these numbers are not statistically valid, and they may not accurately reflect the all of the aerospace/innovative companies in San Luis Obispo County.

Typical Education: For the majority of the technical jobs, a Bachelor of Science degree was the most widely reported. Very few technical employees only had a high school or Associates degree. From these findings, we could argue that a BS or higher is required to attain the typical technical position.

Typical Job Experience: The overwhelming majority of the companies reported that greater than two years of experience in a related field is necessary for the technical person to be effective for their

companies. The resolution of this question did not reveal anything surprising. The relevant number of years of job experience is something more than two years, maybe three, five, or seven years, but that question was not asked.

Typical Pay Range: The “Entry Level” and “Some Experience” categories yielded typical salaries expected of the technical salaries of San Luis Obispo County, which were \$45,327 and \$63,040, respectively. The top-level, however, was higher than expected because two of the surveyed companies pay their top employees unusually well. When these companies were excluded from the sample, the average “Top Level” salary was \$87,400 instead of the initially reported \$130,400. Average salaries tend to be lower than other counties because there is a perceived trade-off between salary and quality of life in San Luis Obispo County.

Major Skills Gaps:

Quantitative Results Summary:

WIRED 3.1 Survey					
Part IV: Questions	Part IV Details	Total	Average	Gap Score	Rank Skills Gap Priority Here
2	Rating of Problem Solving Skills	27.7	3.1	0.72	1
Importance	Importance of Problem Solving Skills	34.2	3.8		
3	Rating of Workplace Skills	23.2	2.9	0.48	2
Importance	Importance of Workplace Skills	30.3	3.4		
4	Rating of Occupational Technical Skills	24.4	3.1	0.27	4
5	Importance of Occupational Technical Skills	29.9	3.3		
6	Rating of Additional Technical Skills	34.2	3.8	0.01	6
7	Importance of Additional Technical Skills	34.2	3.8		
8	Rating of Computer Skills	26.3	3.3	0.04	5
9	Importance of Computer Skills	29.9	3.3		
11	Rating of Social Skills	23.3	2.9	0.37	3
Importance	Importance of Social Skills	29.5	3.3		
14	Rating of Education Sufficiency	32.0	3.2	3.2	Rank Education Gap Priority Here
14	Satisfaction with Entry Level	31.0	3.1	3.1	2
14	Satisfaction with Technical	34.0	3.4	3.4	1
14	Satisfaction with Professional	31.0	3.1	3.1	2

Most Important Skills:

The surveyed companies resulted in a variety of skills that they felt were most important. Depending on the job type, answers varied throughout the range. However, the data did show that “Technical” and “Creative Problem Solving” were the two most important skills in aggregate. Both surveys produced identical results. It should be noted that a few companies commented that the most important skills depended on how a certain occupation is being used in their company (i.e. a Mechanical Engineer being used for design would need to be highly technically skilled vs. a Mechanical Engineer being used in Manufacturing would need to be a problem solver).

Largest Skill Gaps:

By comparing the importance of a skill vs. the current performance of that skill allows us to determine the largest skill gap between expectations and actual. From the table, we can see that *Problem Solving* has the largest gap, with *Workplace Skills* a close second. The companies reported that they are satisfied with the technical quality of their employees, but would like to see their creative problem solving improve for the future. By contrast, the smallest gaps are *Other Additional Technical Skills* and *Computer Skills*. From these results, we could argue that workers are receiving a good technical education, but there is still a need to improve their problem solving processes.

For individual occupations, there were three skill gaps observed. In comparing all engineering occupations, *Technical Gap* is largest for Mechanical Engineers. Since Mechanical Engineers are used for many different purposes in the surveyed companies, it could be argued they are unfairly singled out. The general education for most Mechanical Engineers make them appealing for many different jobs, but it also takes away from a highly focused course of study. For Computer Engineering and related fields, the biggest gap is *Problem Solving*. As computers are used more in an artificial intelligence manner, the programming will become more difficult in the future, necessitating improved problem solving skills. For Technical Support employees, the largest gaps come from the lack of technical and workplace skills. As technology advances, the need for the Technical Support employees to keep pace will be vital to the success of these companies. A table of individual occupation ratings can be found in the addendum.

Qualitative Results Summary:

WIRED 3.1 Survey		Trend of Responses					
		Technical Skill	Basic Skills	Trouble-shooting	Customer Service	Problem Solving	
1a	Critical Skills Required	7	3			7	
		Good with People	No Comment	Other	Conceptualization		
12	Other Social Skills		9		1		
		Independent	Certified	Willing to Learn	Hard Worker	Communicator	Technical Knowledge
13b	Describe best employee	2		1	1	2	5
		Professional	Technical	No Comment			
15	Critical Shortage	5	3	3			
		Technical	Multidisciplinary	Problem Solving	Working independently	Social Skills	Robotic Systems
16	Identify Future Skills	3	3	1	1	3	
		Technical	Drafting/Metal/Woodshop	Business Writing	High School Science	No Comment	PhD/Masters Program
17	Identify Desired Training		1	1	1	4	2
		No Comment	Tech Support	Housing Prices	Small Labor Pool	Land Development Difficulties	Employee Entitlement
19	Other Comments	6	1	1	1	1	1

Critical Skills Shortage (Technical or Professional):

Half the companies reported that the critical skills shortage is on the Professional level. Only 3 companies reported that their employees have technical skills shortage.

Best Employees:

It is not surprising that the best employees have excellent technical knowledge and are able to solve problems. A few companies did report that they like independent workers, ones that are able to work with little direction. In addition, a couple of companies stated that they liked employees with good communication skills. Therefore, it could be argued that the best employee would be highly skilled technically, able to solve complex problems on their own, and are able to explain how they solved the problem.

Identification of Future Skills:

All companies forecasted the future growth of their technical occupations as "positive". Because of the open-ended nature of this question, specific answers to the type of growth could not be quantified. A few companies reported that a 10%-20% growth of these occupations would be reasonable. The overall outlook for all critical occupations is good, and will need to evolve to a more interdisciplinary capacity in the future. In addition, the future critical employees will be more technical in nature, but the need to improve social skills will also become necessary. One company discussed the issue of "entitlement" of the most recent graduates. Although only one company brought this up, the possibility of this being a very difficult issue for future employers is real. More study should be performed on this particular topic.

Education Issues:**Desired Training:**

Some surveyed companies utilize Cal Poly graduates for their technical resource, where others believe that the lack of a doctorate program makes Cal Poly graduates unqualified for their higher technical occupations. A few companies expressed their desire to improve the Masters program at Cal Poly or the possibility of creating a PhD program there. However, since Cal Poly is a State University, it will be very difficult to implement a PhD program, but that does not stop the university from improving its Master's program. It was suggested that improvements to the Engineering programs could include more business experience (e.g. Business writing, Business presentation) for technology students.

On the Community College and High School levels, some companies would like to see more computer training courses implemented, specific to their industry, such as robotics and ladder logic controller training. Also, the High School level has gotten away from offering technical courses such as drafting, wood working, and metal shop. If these skills are experienced at an early age, it will help groom future employees to be more "hands on". It should be noted that Cal Poly has a "learn by doing" approach to education. Lastly, it was suggested by one company that High School Science should be made more interesting, to guide students towards the sciences and technology fields in college.

How skills will evolve:

No quantitative results can be reported for this question. However, the move from a single-discipline to a multi-disciplinary employee is highly appealing and necessary for future growth. Cal Poly will continue to be a resource for San Luis Obispo County's technical workforce as well as Cuesta Community College. An improved Master's program that focuses on interdisciplinary education (e.g. Business, Other Engineering and Science Fields) would be a valuable resource to a number of the surveyed companies.

How to Continue their Employees Educations:

The majority of the companies reported that they use a combination of "on the job" and "outside" training as their means for keeping their employees current with technology. Typical outside training included

attending seminars, symposiums, and conferences. Some companies have a mandated training program, but most companies use the self-motivation method.

Regional Investment Strategy:

The educational preparation side of a worker's experience typically provides the fundamental knowledge base needed in the workplace. However, the on-the-job preparation side ("hands on") is seldom accomplished in the academic setting. Instead, employers frequently are left to devise their own solutions to fulfill that practical knowledge requirement, which has the benefit of elevating their workforce productivity level to where it has to be. Systems of well-organized and managed on-the-job training (OJT) and other real-world situations devised in a training setting can have a very favorable impact towards creating the ideal worker.

The PIC has operated programs of this nature in San Luis Obispo County, in which the agency and the employer cooperatively negotiate OJT contracts that suit the needs of the employer, the trainee, and the training organization. Success is most probable in those situations where the PIC, the employer, and the potential trainee are all very clear about the mutual needs, requirements, and details found in such a partnership...as well as any potential pitfalls that can arise...for all parties.

Specific training classes cannot be identified from this small sampling of employers, but it does show that there may be a need for some OJT contracts to fill the gaps in the San Luis Obispo County workforce. A more in depth study may need to be performed to understand the true demand for such an approach.

Summary:

Although this survey tool did not result in statistically relevant results, it does paint a picture of the current technical workforce status in San Luis Obispo County. Engineers dominate the technical workforce, requiring a minimum of a BS and a few years or related experience to be effective as a technical employee of the surveyed companies. The companies surveyed tended to be small to medium sized companies, with 36% of its workforce being deemed critical to the companies' operations. The overall outlook for the occupations is good, and will need to evolve to a more interdisciplinary capacity in the future. A disconnect exists between business and the local university, but the reason for this disconnect cannot be concluded from this survey.

Problem solving skills are the biggest concern for the surveyed companies. The future need for employees to solve problems efficiently is a larger concern than improving their technological skills. The best employee is defined as a highly technical person with the ability to solve problems independently, and later able to explain what they did to solve the problem. Even if this employee exists, the potential difficulty of the future employee "entitlement" and work ethics may be of more concern.

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Addendum:

Survey 2006 Results
Survey 2007 Results
Sample 2006 Survey
Sample 2007 Survey

Survey 2006 Results

Summary of Results

Top Occupations	Number	% of Companies
Mechanical Engineering	6	60%
Electrical Engineering	5	50%
Manufacturing Engineering	4	40%
Aero Engineering	3	30%
Materials Engineering	2	20%
Systems Engineering	2	20%
Chemists (Research)	1	10%
Chemists (Process)	1	10%
Chemists (Analytical)	1	10%
Aerospace Fabricator (Technician Level)	1	10%
Computer Engineering	1	10%
Computer Science	1	10%
Engineering	1	10%
Firmware/Software Engineering	1	10%
Machinist	1	10%
Management	1	10%
Manufacturing	1	10%
MIS	1	10%
Other Engineering Disciplines	1	10%
Sales/Admin	1	10%
Software Engineering	1	10%
Technical Support (customer service rep)	1	10%
Tooling Engineering	1	10%

Total Employees	Ave Company Size
242	24.2
Median	16
Min	4
Max	63

Typical Job Experience	Total
<2 years	3
2 years	2
> 2 years (specific)	4
> 2 years (related)	31

Most Important Skills	Total
Technical	17
Interpersonal Comm	8
Written Comm	2
Work independently	7
Follow Directions	3
Creative problem solving	23

Typical Pay Range	Average
Entry	\$45,327
Some Experience	\$63,040
Top Level	\$130,500
Top Level excluding top 2 companies	87,400

Number of Surveys
10

Typical Education	Total
High School	4
AS	2
BS	26
MS, PhD, MBA	2
Mixed	6

Summary of Questions	
Future Growth	% of companies
positive	100%
How skills will evolve	
interdisciplinary, multidisciplinary	50%
Grad program needs to improve	20%
Cal Poly is a resource	30%
How to continue education	
on the job (internal)	40%
University (getting MS)	30%
Outside training, seminars	80%
Cal Poly needs to improve	20%

Survey 2006 Results

Consolidated Answers to Written Questions

Forecast of future growth

More electronics and integration engineers, also software engineers...2:1 ratio between plane design vs. systems tremendous growth potential. There is a lot of dependence on computers, more computer intelligence is needed
There is a need for more Aero Engineers but there aren't enough Aero Engineers interested in this business
10-20% growth across the board for all positions
Over the next couple of years, there will be a continued rate of growth
Industry is growing rapidly, need for highly innovative chemists
For this company, opportunities are bright; this company hires the "top percentile" employees
Expected 10% annual growth in business, jobs should follow trend
Continued growth of all occupations at the rate of 10-15% per year
Future growth is basically fine, depends on what your company creates. Each employee needs to build and create value

How will skills evolve

There is a push to move to systems integration, multi-disciplinary impacts on each occupation tremendous growth potential. There is a lot of dependence on computers, more computer intelligence is needed
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How to continue education and adaptability

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Professional/Trade/Business associations

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Survey 2007 Results

Part IV Details	Total	# Responses	Average
Critical Occupations and their Basic Skills	148.3		3.4
1. What are some of the core critical occupations that drive your company or make your company able to perform,?			
1.a. For each occupation, what are the most critical skills of these occupations?			
How important is it that employees meet your expectations in those skills when hired?	33.0	9	3.7
2. How do you rate their problem solving skills performance/competency?	27.7	9	3.1
Please rate the importance of problem-solving skills for future entry-level employees?	34.2	9	3.8
3. How would you rate typical new-hire performance/competency in workplace skills such as; judgment and decision making, management of resources and time management?	23.2	8	2.9
How important will these skills be for future employees?	30.3	9	3.4
Technical Skills	178.9		3.4
4. In your company, how well does the new employee typically meet performance/competency expectations set for entry-level workers in terms of technical knowledge related to the job s/he will perform?	24.4	8	3.1
5. Please rate the future importance of occupational knowledge for employees	29.9	9	3.3
6. In the area of technical skills, how important will it be for entry-level employees to be adept in the use/operation of equipment, tools, materials, software, information systems, or more than one specific technologies when hired?	34.2	9	3.8
7. What is the importance of these skills and/or abilities for future entry level employees?	34.2	9	3.8
8. In terms of specific computer skills such as using spreadsheets, databases, word processing, graphics, Internet or giving presentations, etc., how well does the new hire meet entry-level performance expectations?	26.3	8	3.3
9. How would you rate the importance of information technology use and management for future entry-level employees?	29.9	9	3.3
10. Do you look for any other skills that are among your entry-level expectations for present and future employees which I have not mentioned? Please discuss them.		0	Yes
Social Skills	76.1		3.0
11. In the area of social skills, how well does the employee meet entry level performance expectations for team-work, coordination, instructing, relationship-building, cross-cultural understanding, negotiation, persuasion, etc.?	23.3	8	2.9
What level of future importance will social skills have for your entry level employees?	29.5	9	3.3
12. Are there any social skills not mentioned which you include in entry level expectations, now, or will in the future? Please discuss.			
13. In demonstrating good work ethics (initiative, dependability, reliability), how well does the employee meet entry-level expectations?	23.3	8	2.9
13.b In terms of technical abilities and organizational fit, please identify the characteristics, which best describe your most effective, reliable technical employees for each critical occupation:			
Overall Perception of today's workforce	128.0		3.2
14. In general, how satisfied are you with the education of today's worker ?	32.0	10	3.2
Entry level:	31.0	10	3.1
Technical	34.0	10	3.4
Professional	31.0	10	3.1

Survey 2007 Results

Consolidated Answers to written questions:

13b. In terms of technical abilities and organizational fit, please identify the characteristics, which best describe your most effective, reliable technical employees for each critical occupation:

- Strong technical knowledge because customer is getting more technical
- Problem solver, independent worker
- Technical is very important, as well as problem solving skills
- Top 5% technically, willing to learn other disciplines
- Interpersonal communication skills
- Independent, can do attitude, able to solve problems Highly technical, willingness to work hard
- Excellent interpersonal communication skills with excellent technical know how.
- All engineers need the best technical knowledge and the ability to solve problems
- Our business needs creative problem solvers

15. Is there a critical skills shortage, if so, is it more at the Professional Level or Technical Level?

- Professional Level: pay scales are not in line with larger metro areas
- We recruit nationally and therefore compete nationally to attract best candidates
- Both
- Technical Level
- Professional Level
- I think the technicals are continuing to be taught in school at the technical capabilities are strong.
- Just not enough people going into the field
- Technical is professional isn't it?
- Conceptualization and design skills are still not adequately covered in most undergraduate engineering degree programs.

16. Are there any new skills sets that may be required of future workers in this industry?

- Willingness to learn technology
- Independent working and creative problem solving
- Chemists interacting with Biologists, interdisciplinary studies
- The best Cal Poly Grads (top 5%-15%) in Computer Science and software engineering are just fine. We could use more that are willing to settle down permanently in SLO County; also more interdisciplinary work
- Robotic Systems, programming of automated or robotic systems; more diversification in jobs, crossover, interpersonal communication skills becoming more important
- Systems integration, multi-disciplinary impacts on each other
- Teamwork skills in a technical environment could be increased. More aerospace vs. aeronautical
- More social skills, better writing and oral communication ability; more technology, more CAD, more design with Engineering Systems
- Desire to stay in touch with industry
- More computer intelligence development skills

Survey 2007 Results:

Consolidated Answers to written questions: (continued)

17. Are there any classes or training programs you would like to see covered during high school years or offered by the local community college that would better prepare potential employees for employment by your company?

- Computer equipment
- Make science more fun in high school so more students are interested in entering the field in college
- PhD program at Cal Poly
- Not enough available
- Drafting and Metal/Woodworking
- None noticed as of yet
- Business writing, executive summary, analysis, conclusion, and oral presentation
- More resources need to be put into Graduate Program at Cal Poly

18. What types of companies are involved in your supply chain?

- Plastics, metal fabrication
- Manufacturing companies
- Industrial coatings (anodized, plating, etc), raw materials, machining
- Electronics manufacturers, composite material suppliers
- Hobby supply manufacturers, battery suppliers, composite manufacturers, general hardware supplier, ie, McMaster Carr, etc.
- Top medical device companies, high tech raw material suppliers
- Most of our software products are funded by the military (DoD).

19. Are there any further comments you would like to make?

- Technical support: I think the majority of it is us setting the expectations and creating a system. I have no doubt when those are set, they will be followed. Need to improve team building and communication within that department.
- We have a very small pool to draw from for these type of workers. We hire good technical professionals by jumping on them even without an opening. Housing is too expensive for technical positions, so the labor pool is small. Not a good pool to draw from.
- Little uncomfortable answering questions regarding the performance of our employees, even grouped. Will answer future employee answers only
- Local City & County Government make it very difficult to develop a piece of land into a manufacturing facility in a reasonable time frame.
- I think the technical capabilities are strong with incoming employees, but the largest thing lacking is the communication skills/attitudes of current graduating technical students. Nowadays students have a entitlement attitude and communication skills are not good.
- Cal Poly has proved to be an excellent source of technical talent, from interns to new hires. We rarely transfer people into this area.

Sample 2006 Survey

CSA/WIRED 3.1 - Employer Survey Questionnaire 2006

Purpose: As a partner of the California Space Authority WIRED program, I am *Pat Mayeda* representing the Economic Vitality Corporation and the Private Industry Council and I am contacting aerospace related businesses in the area to ask a few questions about your company as a member of the industry. Specifically, I would greatly appreciate having 10 – 15 minutes of your time to inquire as to the top occupations within your company and their relative prospects for evolution they may experience in the future.

Your responses to this survey will provide the California Space Authority with a regional snapshot of the future workforce and the types of experience and training needed that may help you secure future employees.

The survey has been commissioned by the California Space Authority WIRED program, which is committed to developing the space corridor's workforce in thirteen CA counties. The survey is being conducted by the Private Industry Council, the solution to your local business and workforce development needs.

Definition of an Aerospace Company: The aerospace industry cluster includes companies that produce products and systems for commercial, military and space applications. This industry cluster includes companies that manufacture guided missiles and space vehicles, satellite telecommunications and search detection instruments. The aerospace industry also produces planetary spacecraft, space launch systems, ground systems, antennas, satellites and electro-optic instruments.

Questions 1 – 6 are a loop to be repeated for each of the occupations.

Occupation - Related Questions

1. What are your top aerospace related occupations you consider critical to your business operations?

A. Occupation 1 - _____ NAICS/SOC # _____

B. Occupation 2 - _____ NAICS/SOC # _____

C. Occupation 3 - _____ NAICS/SOC # _____

D. Occupation 4 - _____ NAICS/SOC # _____

E. Occupation 5 - _____ NAICS/SOC # _____

2. How many individuals are currently employed in each occupation?

A. Occupation 1 - # of employees - _____

B. Occupation 2 - # of employees - _____

C. Occupation 3 - # of employees - _____

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D. Occupation 4 - # of employees - _____

E. Occupation 5 - # of employees - _____

3. What is the **typical** education-level required within each occupation?

Completion of high school or equivalency = 1
 Certification or Associates Degree = 2
 Bachelor's Degree (B.A., B.S.) = 3
 Professional or Graduate Degree (M.S, Ph.D., J.D., MBA, P.E.) = 4
 Combination = 5

Education Requirements	1	2	3	4	5
A. Occupation 1	1 _____	2 _____	3 _____	4 _____	5 _____
B. Occupation 2	1 _____	2 _____	3 _____	4 _____	5 _____
C. Occupation 3	1 _____	2 _____	3 _____	4 _____	5 _____
D. Occupation 4	1 _____	2 _____	3 _____	4 _____	5 _____
E. Occupation 5	1 _____	2 _____	3 _____	4 _____	5 _____

List as appropriate:

Certificate _____
 Degrees _____

4. What are the **typical** levels of "on the job" work experience within each occupation?

< (less than) 2 years of work experience in the specific occupation = 1
 < 2 years of work experience in a related occupation = 2
 > (more than) 2 years of work experience in the specific occupation = 3
 > 2 years of work experience in a related occupation = 4

Work Experience	1	2	3	4
A. Occupation 1	1 _____	2 _____	3 _____	4 _____
B. Occupation 2	1 _____	2 _____	3 _____	4 _____
C. Occupation 3	1 _____	2 _____	3 _____	4 _____
D. Occupation 4	1 _____	2 _____	3 _____	4 _____
E. Occupation 5	1 _____	2 _____	3 _____	4 _____

5. Which of these skills are **most important** when considering applicants?

A. Technical competence specific to the position = 1
 B. Interpersonal communication skills = 2

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- C. Written communication skills = 3
- D. Ability to work independently = 4
- E. Ability to follow directions = 5
- F. Creative problem-solving skills = 6

Important Skills	1	2	3	4	5	6
A. Occupation 1	1 _____	2 _____	3 _____	4 _____	5 _____	6 _____
B. Occupation 2	1 _____	2 _____	3 _____	4 _____	5 _____	6 _____
C. Occupation 3	1 _____	2 _____	3 _____	4 _____	5 _____	6 _____
D. Occupation 4	1 _____	2 _____	3 _____	4 _____	5 _____	6 _____
E. Occupation 5	1 _____	2 _____	3 _____	4 _____	5 _____	6 _____

6. What is the typical annual pay range for each occupation, from entry level to most experienced employees in that occupation?

- A. Entry level = 1
- B. Some Experience = 2
- C. Top level experience = 3

Annual Pay Range	1	2	3
A. Occupation 1	1 \$ _____	2 \$ _____	3 \$ _____
B. Occupation 2	1 \$ _____	2 \$ _____	3 \$ _____
C. Occupation 3	1 \$ _____	2 \$ _____	3 \$ _____
D. Occupation 4	1 \$ _____	2 \$ _____	3 \$ _____
E. Occupation 5	1 \$ _____	2 \$ _____	3 \$ _____

Questions 7-10 are open ended questions related to future growth.

7. Based upon your experience in the industry, how would you forecast the future growth of these occupations?

8. How do you envision these skills evolving?

9. As changes will inevitably occur in the industry, where or how do you foresee your employees continuing their education and adaptability to the future?

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10. Does your business and/or your employees belong to any professional/trade or business associations?

List as appropriate:

11. How familiar are you with the Economic Vitality Corporation and the Private Industry Council and their complementary services?

In closing; please verify your company information.

12. Company name: _____

13. Company address: _____

14. City: _____

15. Zip: _____

16. Web address: _____

17. Fax number: _____

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WIRED 3.1 Interview Format for Employer Questionnaire

Introduction

Part One: Demographics

Name of Employer _____

Industry (NAICS): _____

Type of Business: Service _____ Manufacturing _____ Government _____ Other _____

Size of Business:

0 -4 Full-time employees or full-time equivalents (FTE) ___ 5 - 9 FTE ___ 10 - 19 FTE ___ 20 - 49 FTE ___ 50 - 99 FTE ___ 100 – 249 FTE ___ 250 – 499 FTE ___ 1000+FTE ___

Interviewee's Title/Position

Pres./CEO/Dir. ___ HR Dir. ___ Supv./Mgr. ___ Other _____

Primary Site of Business _____

Part Two: Background Description

Please indicate which one of the following descriptions best defines your role relating to employees at your company?

___ A. I directly supervise or am able to closely observe the job performance and/or work results of employees.

___ B. I periodically (at least once a month) observe the job performance or see the work results of employees.

___ C. In my position I discuss with direct supervisors, managers and/or management personnel, the job performances of employees as part of my role with the company.

___ D. OR complete the following statement. "My opinions and perceptions of the current workforce are based on

Do you have any questions or concerns before we continue?

(Note comments or observations as needed)

Part Three: Directions for Interview Questions

The purpose of this interview is to gather information about the skills required for positions at your firm and any gaps between your expectations and what is available in the current workforce.

While you are recalling recent new hires in your business, please give an evaluation of how well they meet your *performance expectations*.

Specific skills are grouped in three broad areas:

- A. Basic Skills, i.e., math, language, writing, reading
- B. Technical Skills i.e., skills specific to the occupation
- C. Social Skills, i.e., communication, coordination, team building
- D. Workplace Skills, i.e., reliability, dependability, etc.

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First, I will name specific skills and ask that you discuss the skills of the new hire in terms of *performance/competency expectations*:

- 4 = **Exceeding** your entry-level expectations (E)
- 3 = **Meeting** your entry-level expectations (M)
- 2 = **Nearly Meeting** your entry-level expectations (NM)
- 1 = **Does Not Meet** your entry-level expectations (DNM)
- 0 = **Does not apply (NA)**

Secondly, I will ask you to rate how **important** each attribute is for employees you will hire in the future. Please rate each attribute using one of the following, which best applies.

- A. 4 = **Very Important** in future entry level employees (VI)
- B. 3 = **Important** (I)
- C. 2 = **Somewhat Important** (SI)
- D. 1 = **Not Important** (NI)

You are encouraged to briefly elaborate on your response with any specific examples related to a particular occupation.

Part Four: Interview Questions

Critical Occupations and their Basic Skills

1. What are some of the core critical occupations that drive your company or make your company able to perform,?

- 1.a. For each occupation, what are the most critical skills of these occupations?

For each critical occupation, please answer the following:

How *important* is it that employees meet your expectations in those skills when hired?

Rating_____

2. How do you rate their problem solving skills *performance/competency*?

Rating_____

Please rate the *importance* of problem-solving skills for future entry-level employees?

Rating_____

3. How would you rate typical new-hire *performance/competency* in workplace skills such as; judgment and decision making, management of resources and time management?

Rating_____

How *important* will these skills be for future employees?

Rating_____

Technical Skills

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4. In your company, how well does the new employee typically meet *performance/competency* expectations set for entry-level workers in terms of technical knowledge related to the job s/he will perform?

Rating_____

5. Please rate the future *importance* of occupational knowledge for employees

Rating_____

6. In the area of technical skills, how *important* will it be for entry-level employees to be adept in the use/operation of equipment, tools, materials, software, information systems, or more than one specific technologies when hired?

Rating_____

7. What is the *importance* of these skills and/or abilities for future entry level employees?

Rating_____

8. In terms of specific computer skills such as using spreadsheets, databases, word processing, graphics, Internet or giving presentations, etc., how well does the new hire meet entry-level *performance* expectations?

Rating_____

9. How would you rate the *importance* of information technology use and management for future entry-level employees?

Rating_____

10. Do you look for any other skills that are among your entry-level expectations for present and future employees which I have not mentioned? Please discuss them.

Social Skills

11. In the area of social skills, how well does the employee meet entry level *performance* expectations for team-work, coordination, instructing, relationship-building, cross-cultural understanding, negotiation, persuasion, etc.?

Rating_____

What level of future *importance* will social skills have for your entry level employees?

Rating_____

12. Are there any social skills not mentioned which you include in entry level expectations, now, or will in the future? Please discuss.

13. In demonstrating good work ethics (initiative, dependability, reliability), how well does the employee meet entry-level expectations?

Rating_____

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13.b In terms of technical abilities and organizational fit, please identify the characteristics, which best describe your most effective, reliable technical employees for each critical occupation:

Overall Perception of today's workforce

14. In general, how satisfied are you with the education of today's worker?

Entry level:

4 = Very satisfied ____ 3 = Satisfied ____ 2 = Unsatisfied ____ 1 = Very Unsatisfied ____

Technical:

4 = Very satisfied ____ 3 = Satisfied ____ 2 = Unsatisfied ____ 1 = Very Unsatisfied ____

Professional

4 = Very satisfied ____ 3 = Satisfied ____ 2 = Unsatisfied ____ 1 = Very Unsatisfied ____

We appreciate the time you have taken to share your perceptions. We value your feedback. There are a few final questions that I would like to ask regarding the labor pool from which you have to choose future employees.

15. Is there a critical skills shortage, if so, is it more at the:

1. Technician level
2. Professional Level

16. Are there any new skills sets that may be required of future workers in this industry?

17. Are there any classes or training programs you would like to see covered during high school years or offered by the local community college that would better prepare potential employees for employment by your company?

18. What types of companies are involved in your supply chain?

19. Are there any further comments you would like to make?

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Date _____
Location of Interview _____
Person conducting Interview _____
Duration of Interview _____

Recording Interview Responses

Part One: Demographics

Check response given or record information given under "other".

Part Two: Background description

Check response given or record information given "Complete this statement..."

Part Three: Directions for interview

Please note any need for clarification or concerns expressed.

Part Four: Interview Questions

Suggested abbreviations for ratings:

4 = Ex = Exceeds expectations	4= VI=Very Important
3 = M = Meets expectations	3 = I = Important
2 = NM = Nearly meets expectations	2 = SI = Somewhat Important
1 = DNM = Does not meet expectations	1 = NI = Not Important
0 = NA = Does not apply	

Please transcribe your notes of lengthy responses, with appropriate Interview question numbers.