

Situational Analysis

Arizona is host to a diverse and strong manufacturing industry base with more than 5,500 establishments statewide, of which 450 manufacturing facilities are in the aerospace and defense, semiconductor, electronics, and IT industries, commonly referred to as high-tech.¹ The state is developing strengths in the bioscience, software and green industries. Arizona's manufacturing employment exceeds 133,000 and boasts more than 47,500 high-tech manufacturing jobs, ranking it 7th nationally, according to the *Cyberstates* 2008 report. The average wage of all high-tech jobs in Arizona last year was \$74,000.² While studies show that manufacturing jobs have seen a steady decline over the last decade, this can be attributed to the shift from labor-intensive manufacturing methods to high-tech, high-skilled manufacturing processes. Production-level jobs show a modest increase of 2.3% by 2016, but some higher-skill jobs, such as machinists and computer-controlled machine tool operators, show a projected increase of 10% and 12.4%, respectively, by 2016. These projections, though, do not include the anticipated demand for skilled workers generated by the state's business attraction efforts, especially in solar and other emerging technology areas.

National occupation projections indicate significant growth will be seen in higher-skilled manufacturing jobs over the next 10 years. It is also expected that some architecture, technician, and engineering occupations in aerospace, computer hardware, electrical/electronics, industrial and mechanical engineers will see increases as high as 19% by 2016.² This requires a steady pipeline of a high-skilled workforce.

Workforce focus groups were held at the Arizona Department of Commerce in September 2008 to better understand the workforce needs of high-tech manufacturing companies in Arizona.⁷ Attendees shared the following workforce related concerns:

- The use of technology has changed how the industry operates. The high-tech manufacturing industry has fewer jobs, but requires a better-trained workforce.
- Most high-tech manufacturing companies provide job training to individuals to attain the required skills, but they still have difficulty finding interested workers.
- The firms indicated significant job growth projections over the next 5-10 years.
- The required educational attainment varies between firms; a ratio of 1 Bachelor's degree to 5 high school diplomas was noted.
- Major workforce challenges include attracting a labor pool, lack of educated workers and attrition.

Arizona's manufacturing future depends on the quality of its workforce. A highly skilled workforce allows companies to continue rapidly producing goods and services marked by innovation, knowledge and quality. For Arizona to compete and benefit in the high-tech manufacturing industry, it must attract and retain a knowledgeable workforce, provide a continuous stream of qualified workers, and establish career opportunities.

Sources:

1. U.S. Department of Commerce, Bureau of the Census - [County Business Patterns, 2006](#)
2. *Cyberstates* 2008
3. High-Tech Activities in Arizona: [2007 Update](#)
4. Arizona Workforce Informer - [Industry Employment Projections](#)
5. Synopses of Workforce Focus Groups

Objective

Through partnerships, identify and develop a strategy to increase the supply of Arizona’s qualified manufacturing workforce and create awareness of the manufacturing industry using the National Association of Manufacturers’ “[Dream It. Do It.](#)” model.

Proposed Strategies and Recommendations

The following strategies and recommendations identified by industry focus groups are presented for further discussion and development at the Governor’s Manufacturing Summit. A review of global “Best Practices” for potential workforce program alternatives is advisable for a robust strategy.

Strategy #1 - Develop a coordinated response to the immediate job openings in Arizona’s manufacturing industry.

Recommendation	Task	Time Frame
A. Make job postings readily available	<ul style="list-style-type: none"> ○ Create a splash page which provides access to known manufacturing job-posting websites 	Short-term
B. Identify available labor pool	<ul style="list-style-type: none"> ○ Utilize the Arizona Workforce Connection and Trade Organizations to create a seamless job transfer between industries 	Ongoing
	<ul style="list-style-type: none"> ○ Recruit Target Populations, including, but not limited to: <ol style="list-style-type: none"> 1. Youth 2. Disabled 3. Women 4. Recently released inmates 5. Returning soldiers 6. Mature Workers 	Ongoing
C. Industry to create a strong recruitment package	<ul style="list-style-type: none"> ○ Create a “Refer a Friend” bounty 	Short-term
	<ul style="list-style-type: none"> ○ Offer a hiring bonus or a probationary increase to attract personnel 	Short-term
	<ul style="list-style-type: none"> ○ Review compensation/benefits structure for low-cost enhancements 	Short-term
D. Provide skill development training to new and incumbent workers	<ul style="list-style-type: none"> ○ Establish a mentor program utilizing retired and Mature Workers 	Short-term
	<ul style="list-style-type: none"> ○ Encourage business utilization of Apprenticeship, Job Training Grant programs and the Arizona Workforce Connection 	Ongoing

Strategy #2 - Fill the Manufacturing Workforce Pipeline with Qualified Candidates

Recommendation	Task	Time Frame
A. Invest in employee development	<ul style="list-style-type: none"> ○ Create an “Employee Incubator Program” and introduce accelerated training courses for various manufacturing certifications 	Mid-term
	<ul style="list-style-type: none"> ○ Provide mobile and workplace classrooms for basic skills education 	Mid-term

B. Become a mentor	o Adopt a class or school. Teach a related subject.	Short-term
C. Increase work readiness skills	o Review the Central Arizona College scholarship program, " Promise for the Future ", as a motivational model	Short-term
	o Educational institutions guarantee each graduate is proficient and "skill-ready" to work	Long-term
	o Adopt Industry-Based Manufacturing Skills Standards	Long-term
D. Inform the students	o Establish an emissary task force	Ongoing
E. Increase Access to Training in Critical Manufacturing Skills	o Provide flexible, hybrid learning environments	Ongoing

Strategy #3 - Create career awareness and outline a manufacturing career path

Recommendation	Task	Time Frame
A. Rebrand the industry	o Survey educators, parents and students to understand the perception of the manufacturing industry	Short-term
	o Create a booklet similar to San Diego's " Your Pathway to Prosperity ."	Short-term
	o Create marketing materials to communicate the new face of manufacturing	Mid-term
	o Utilize the " Dream It. Do It. " campaign at the state level	Mid-term
B. Encourage career paths through personal experience	o Governor's proclamation of "Manufacturing Week"	Short-term
	o Summer internships for students within manufacturing businesses	Short-term
	o Develop " Manufacturing Camps " to encourage youth to enter the industry	Short-term
	o Student tours of local manufacturing facilities	Mid-term
	o Work with existing career and technical programs in high schools	Long-term
C. Implement an e-Career Planning tool	o Implement a skill assessment tool such as WorkKeys [®]	Long-term

KEY: Time Frames: Short-term (0-12 months), Mid-term (13-36 months), Long-term (37-60 months)

Proposed Outcomes

The development of a comprehensive workforce strategy will enable Arizona to be globally competitive and recognized as a leader in manufacturing.