

ADVANCED MANUFACTURING

WORKFORCE STRATEGIES TOOL KIT

This tool kit is designed to address the workforce challenges facing unionized advanced manufacturing and to familiarize the reader with a comprehensive set of resources. The tool kit includes: an introduction to labor market research with a manufacturing focus; detailed case studies of labor-management partnerships that address common workforce challenges in the sector; “how-to” steps for partnerships that want to address those challenges; and a guide to resources that can be used to adapt promising practices to new settings.

**This is a combination print and online publication.
For additional information, please visit the Tool Kit website:**

www.workingforamerica.org/toolkit

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The principal authors of the tool kit were Teri Bergman (Director for Public Economic and Workforce Development Strategies), Tom Gannon (Manufacturing Field Specialist) and Jeffrey Soth (Program and Economic Analyst). They were aided by extensive contributions from other Institute staff: Tom Burress, Beatrice Edwards, and Shea Shackelford. Also assisting on the production of case studies and development of the resources guide were our AFL-CIO colleagues Matthew Bates and Joel Yudken. We also thank our administrative staff, Evangeline Ganuelas and Shelia Marion, for their help on this project.

We also want to acknowledge the many people who contributed to our understanding of the promising-practice programs featured in this tool kit. Our interviews with union leaders, employers, workforce and educational practitioners and the administrators of the specific programs featured in the case studies were critical to both the success of the Forum and the development of this tool kit. We thank them for the time and expertise that they shared with us and for the inspiring work they do everyday to help workers and employers succeed in today's economy.

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TABLE OF CONTENTS

Economic Overview of Manufacturing	5
Sector-Based Initiatives	9
Finding and Using Labor Market Information for Workforce And Economic Development	11
Workforce Challenges in Advanced Manufacturing	13
Case Studies	17
Challenge 1 CWA-IUE/Visteon Systems “Knowledge is Power” Program Greater-St. Lewis Automotive Training Consortium	19
Challenge 2 The Supplier Excellence Alliance/Labor Education and Training Center (LETC) California Training Partnership Wisconsin Regional Training Partnership (WRTP)	33
Challenge 3 Community Learning Center, Inc. and its Aerospace Industry Training Program	49
Challenge 4 IAM-Boeing Joint Apprenticeship: The Quality Through Training Program (QTTP) United Steelworkers/US Steel-Fairfield Works	57
Challenge 5 RWDSU/UFCW Local 224—Hasbro, Inc. “English for Speakers of Another Language” Training Program	69
Challenge 6 Gulf Coast Shipbuilding Partnership’s Transitions Program International Brotherhood of Teamsters/Sikorsky Aircraft Corporation School-to-Career Mentoring Program Lansing Area Manufacturing Partnership (LAMP)	77
Checklists for Action	95
Checklist #1: Engaging in a Labor-Management Occupational Training Program or Initiative (for unions and employers)	96
Checklist #2: Connecting Joint Training and Education Initiatives to the Public Workforce System (for partnerships)	100
Checklist #3: WIBs and Sector Initiatives (for the public workforce system)	103

(continued on page 4)

Government Programs and Resources	107
Competency Models and Skill Standards	115
Unions in Manufacturing	121
Other Online Tools and Resources	123
Glossary of Terms	125

THE ECONOMIC OVERVIEW OF MANUFACTURING

Manufacturing has long been a cornerstone of our national economy. This crucial sector is central to the creation and retention of good jobs and a good standard of living for working families. In both larger cities and smaller communities, manufacturing jobs – especially unionized jobs – offer powerful economic benefits. As a sector, manufacturing firms are especially valuable to the economy because, when they export goods, they bring back to their communities much of the wealth earned from sales around the country and the world.

The positive effects of a healthy industrial sector spread far beyond manufacturing itself. Reports from the National Association of Manufacturing (NAM) indicate that each dollar's worth of invested in manufactured goods creates another \$1.43 of activity in the local economy, twice the \$.71 multiplier for services. Also, two thirds of U.S. research and development capacity is concentrated in manufacturing. Manufacturing has long been a dynamic economic sector, registering remarkably sustained productivity growth. The Industrial Union Council of the AFL-CIO points out that, "Annual labor productivity growth in manufacturing averaged 2.57 percent in the 1980s and 3.51 percent in the 1990s, compared with .57 percent and .71 percent, respectively, in non-manufacturing sectors."

For regional economies, manufacturing firms – and unionized firms in particular – are an essential building block. In the communities where these firms are located, manufacturing has tradi-

tionally been one of the better-paid economic sectors: Average hourly earnings of production workers in manufacturing were \$16.14 in 2004 – markedly higher than the average of \$15.67 for production workers in all private industry. In certain important manufacturing sub-sectors with greater-than-average union densities, these wages are even higher. The 2004 national average production worker's wage in Aerospace Products and Parts, for example, was \$23.93; in Motor Vehicles it was \$ 28.35, and in Iron and Steel Mills it was \$23.12.

In addition to the productivity levels, the good wages and the value multipliers, high-wage manufacturing is critical to communities in other ways. This sector has been a core contributor to tax revenues, responsible throughout the 1990s for over one third of all corporate taxes collected by state and local governments.

Manufacturing – despite the job losses it has recently sustained – is still a vital and important sector for regional economies throughout the nation. More than 14 million people are working in manufacturing today, and many firms report that they are hiring. Nationwide, manufacturing hiring projections for the second quarter of 2006 are outpacing last year's numbers, according to the Bureau of National Affairs' latest quarterly survey. Prospects are especially bright for manufacturing workers looking for jobs in smaller firms, over one third of which report that they expect to hire in the spring and summer.

Calculating Multiplier Effects

Manufacturing has direct links to other sectors of the economy. These relationships can be both backwards (such as mining or construction), or forwards (such as warehousing, transportation, and the wholesale and retail trade of the finished products to consumers). Growth in manufacturing therefore fuels other sectors, creating jobs and investment in non-manufacturing sectors. The NAM study cited in this overview uses this estimate of a manufacturing multiplier to demonstrate how much additional output is generated by a dollar's worth of demand for manufactured products. Manufacturing has the highest multiplier of all sectors, while the wholesale and finance sectors have the lowest multipliers.

Calculations of the multiplier effect can also be effective when determined for a specific regional economy. Starting in the 1970's, the Bureau of Economic Analysis of the Department of Commerce (BEA) developed a method for estimating regional input-output multipliers known as the Regional Industrial Multiplier System (RIMS). To effectively use the multipliers for impact analysis, users must provide geographically and industrially detailed information on the initial changes in output, earnings, or employment that are associated with the project or program under study. The multipliers can then be used to estimate the total impact of the project or program on regional output, earnings, or employment. This system now widely used in both the public and private sector. In the public sector, for example, the Department of Defense uses RIMS to estimate the regional impacts of military base closings, and State departments of transportation use it to estimate the regional impacts of airport construction and expansion. In the private sector, analysts and economic development practitioners use RIMS to estimate the regional impacts of a variety of projects, such as the development of industrial parks or shopping malls.

Union Members' Earnings in Manufacturing Sector

Because the manufacturing sector tends to be more unionized than other economic sectors (second only to the public sector), the higher wages paid may be partly due to the positive impact of labor unions on wages. But even within manufacturing there is a "union difference" — a wage differential between union and non-union jobs. In 2005, this union difference equaled \$55 per week. Union members in the sector earned a median weekly income of \$722 — 8.2% more than the \$667 median weekly earnings of their non-union counterparts.

This union difference is not limited to wages: Unionized manufacturing workers are more likely to have affordable health insurance and real retirement security benefits as well.

Median Weekly Earning (in dollars) of Full-time Workers in Manufacturing Industry

	2004			2005		
	Total	Union	Non-Union	Total	Union	Non-Union
Manufacturing	662	694	654	676	722	667
Durable goods	691	707	687	704	751	695
Nondurable goods	611	670	602	624	676	618

The U.S. manufacturing sector today faces serious challenges that cannot be ignored and should not be minimized. At the same time, unions and their manufacturing employers are fighting to build and keep these important jobs here at home. And the public workforce system can be an important contributor to this fight. The National Association of Manufacturers predicts, for example, that if current trends continue, America will face a shortage of 13 million skilled industrial workers by 2020; manufacturing unions, their employers, and training and public partners are taking steps to guarantee that this gap in our country's economy does not develop.

At the AFL-CIO Working for America Institute, we have found that innovative strategies can enable employers, unions and the public workforce system to collaborate and ensure that this critical sector keeps growing. Together, manufacturers, manufacturing unions, and the economic and workforce development advocates who support them can create and improve the programs in education and training necessary to guarantee that manufacturers are able to recruit, retain and advance the skilled employees they need.

The importance of education and training programs to unionized manufacturers and their workers cannot be overstated. To remain competitive in a hostile trade environment with a relatively high-wage workforce, manufacturing firms need to maintain a high level of technological innovation. This imperative makes programs in education and training a priority for action. In today's global economy, U.S. manufacturers cannot hope to compete on cost alone; rather they must expand and exploit their advantages in such areas as product design, productivity, flexibility, quality and responsiveness to customer needs. Because technological changes have impacted every phase of manufacturing, there is a critical need for highly skilled, technically compe-

tent workers who can use new technologies, create more complex products, and adapt to new production processes and work organization models. Whereas U.S. firms may lose large orders based on cost alone, they can retain and grow smaller, specialized orders. This is where a highly trained, highly motivated worker, who understands the business needs of the employer as well as the realities of the market place, can use his/her knowledge and skills to participate in making the improvements necessary to compete. Unions, working with their employers, can build high performance work organizations that can put lean manufacturing techniques to work in order to become more efficient and to use the savings achieved to improve or expand product lines. Such a high performance work organization motivates employees who can self-manage and thus reduce costly supervisory overhead. The specialized knowledge and skills possessed by those directly performing the work are required for long-term continuous improvements.

Targeted workforce strategies and training programs with unionized manufacturers and their unions can coordinate the training necessary to respond rapidly and flexibly to changes in the demand for skills and, frequently, achieve economies of scale – saving valuable time and resources – through multi-employer, multi-union initiatives. Workforce investments in incumbent worker training should be tied to the necessary technological and production changes needed by employers. Workforce strategies should also make use of existing skill standards and credentialing programs in order to ensure that the necessary foundational and specialized skills are being taught by the education and training community.

Workforce strategies need to take into account that not all manufacturing is equal. Successful partnerships should look to assist

those firms (both big and small) that pay good wages, have high productivity and are closely linked to the regional economy. They can be identified by looking at pay and benefits, efforts to improve the performance of their local facilities, and their exports from the regional economy and purchases from within it.

Unions are particularly important to creating programs with a multi-employer reach. By providing the structure needed to identify and coordinate the changing training needs of employers and workers across an industry, unions can contribute to their firms' bottom line while ensuring that their members have secure high-wage jobs. In Dallas, for example, the IAM and the UAW work with a consortium of aerospace employers to guarantee that their members are trained and able to respond quickly to the demand for specialized skills in a volatile labor market. And in Milwaukee, the USW and the IAM play a similar role, benefiting their members, their employers, and their industry. You will read more about these efforts in the Case Studies section of this Tool Kit.

Such partnerships promote inter-regional cooperation among companies in key sectors of the economy and, by virtue of their existence, help shape public investments and encourage inter-regional purchasing practices. Thus, investments are targeted to those employers who pay good wages and invest in the local/regional economies.

By showcasing successful joint labor/management training programs, this Tool Kit can help unionized employers, unions, and

their public and training partners enhance the competitiveness of this vital part of our nation's economy. The Tool Kit outlines the steps necessary to establish or replicate training partnerships, as well as the basic considerations required to sustain and expand them. We also include checklists to identify resources that can contribute to a successful joint strategy.

We urge the labor-management partners, and their public workforce and economic development counterparts who use this guide, to think boldly about their common interests in building a high road economy in their regions and communities. Our objective is to help preserve good jobs by continually modernizing the plants and factories fundamental to the economies of our nation's cities and regions: by keeping vital firms at the top of their industries; by channeling young workers and other job-seekers into high-wage jobs; and by moving incumbent workers up into rewarding careers. Using joint approaches to the challenges of change, manufacturing firms, unions and their public partners can help make sure that we continue to maintain the highly-skilled men and women needed to sustain America's families and strengthen our country's economic foundation.

Dan Luria, the Research Director of the Michigan Manufacturing Technology Center, delivered a well-received Power Point presentation entitled "Manufacturing Matters and You Matter to Manufacturing!" which covered much of the content above at the Institute's Advanced Manufacturing Workforce Strategies Forum in Dallas, Texas. To view the presentation, visit this chapter in the Online Tool Kit at www.workingforamerica/toolkit.

SECTOR-BASED INITIATIVES

The Working for America Institute advocates that workforce development take place through sector-based workforce initiatives. This tool kit deals with how partners should approach these initiatives in the advanced manufacturing sector, but we thought it would be helpful to review some **basic definitions** of sector initiatives and the elements that are common to these approaches across sectors.

Those basic definitions are:

- **Sector initiative** is a term that refers to a *variety* of initiatives that focus on improving the competitiveness of a particular economic sector, i.e., healthcare, manufacturing, finance, etc. **For the purpose of this tool kit, the term sector initiative refers to industry-specific, dual customer workforce development programs involving multiple employers, in a particular regional labor market.** Thus, these initiatives focus attention on the needs of multiple employers in a specific industry in a specific community or economic region.
 - **Cluster Initiatives:** Sector initiatives and “cluster initiatives” are related but slightly different. Cluster approaches focus on the vertical and horizontal relationships among firms in a particular regional economy. Cluster initiatives employ a targeted strategy to maintain or enhance the regional advantage of particular economic activity. A biosciences cluster approach, for example, may focus on pharmaceutical and medicine manufacturing; research and development in the physical, engineering, and life sciences; and medical and diagnostic laboratories.
 - **Dual Customers:** The best sector-based initiatives operate on both the supply and demand side of the economy. Employing a “dual customer” approach, they are designed to deliver new solutions to employers in the target industry, while providing for interventions that will improve the skills of incumbent workers, jobseekers or both. A sector-based initiative should improve both the economic status of the workforce and the competitiveness of the area’s employers. In the words of the National Network of Sector Partners (NNSP), the dual customer approach “result[s] in companies that are more competitive, while employees obtain improved income, benefits, and employment security.”
 - **Multiple Solutions:** Through the engagement in a sector initiative, the partners and public workforce system will build a shared knowledge of the workforce challenges facing the target industry and will likely integrate multiple solutions to the skills and competitiveness challenges facing the industry. The partners in a sector or initiative will likely utilize an array of resources to meet these challenges over the course of the initiative.
- **Community Change:** Successful sector initiatives can affect much more than employers’ recruitment and training practices. The National Association of Workforce Boards (NAWB) promotes sector-based initiatives that achieve win-win solutions for employers and workers in the industry through actions such as: shifts in industry practice; reform of local education and training systems; improvement in recruiting and support systems for entry-level employees; the institution of career ladders; and/or productivity enhancements throughout the industry. This is the type of community change that the Working for America Institute has tried to articulate in our vision of a “high road economy” – an economy that competes in today’s global marketplace on the basis of innovation, quality and skill rather than on low wages and benefits.
 - **Use of Intermediaries:** The U.S. Department of Labor (USDOL) emphasizes that sectoral interventions require an in-depth knowledge of, and extensive work with, a particular industry, as well as a substantial knowledge of, and commitment to, assisting targeted populations needing improved employment opportunities. Rarely can individual employers or even industry groups manage the knowledge of the worker/job-seeker customer; and rarely can training providers manage the specific industry knowledge necessary to meet the employers’ real needs. That is why intermediary organizations, such as the Institute, are often partners in these initiatives. Unions or union-sponsored organizations can also serve as intermediaries, as they cross employers and have a broad knowledge of the target industry and its workforce.
 - **Economies of Scale:** Cross employer efforts should produce economies of scale, saving employers from each making individual investments in similar training. This can be accomplished by using a training provider outside the firms, such as an area community college or Manufacturing Extension Partnership. This approach also benefits workers by providing industry-recognized credentials.

FINDING AND USING LABOR MARKET INFORMATION FOR ECONOMIC AND WORKFORCE DEVELOPMENT

The Working for America Institute developed the Action Brief "Finding and Using Labor Market Information for Economic and Workforce Development" as a guide for Workforce Investment Board (WIB) Labor Representatives. To download a copy, visit this chapter in the Online Tool Kit website at www.workingforamerica.org/toolkit. This brief was designed to acquaint labor representatives with finding and using labor market information to develop workforce and economic development strategies.

This information is critical in defining the challenge that you want your partnership to address, both in terms of the **demand side** – the needs of the industry and the specific firms that are members or potential members of the partnership – and the **supply side** – the needs and attributes of the target workforce.

In the case studies featured later in this guide, you will see a section on *Understanding the Demand and Meeting It*. In most cases, the partners prepared an analysis of their industry, and used that analysis to focus on the workforce challenges they needed to address.

Labor markets are regional in nature. They tend to have specific characteristics that, to some degree, contribute to the significance of the industry in the local economy and the advantage that the industry or the employer maintains relative to competitors. Identifying those competitive advantages may allow a partnership to foster those features that give it a boost in relation to other parts of the country – or other parts of the globe.

This type of analysis is important in helping your partnership understand the workforce challenges that must be addressed, and it is also an effective way to engage other partners – including potential funders – in your project. Understanding the economics of your industry is essential to setting your performance goals in the types of measurable terms (increased wages, decreased turnover, etc.) that will be necessary in applying for grants to support your partnership's project.

In our work since the preparation of this Action Brief, the Institute has also employed additional techniques that we believe can be especially useful to labor-management partnerships:

I. Location Quotients

A location quotient is a measure that enables regional labor economists to readily compare employment levels among dif-

ferent regions of the nation. Location quotients are ratios that compare the concentration of employment in a defined area to that of a larger area or base. Location quotients can be used to compare local or regional employment by industry to that of the nation. A location quotient greater than one indicates a concentration of employment in the local area that is greater than the national average, or base.

Determining a location quotient is a concise way to demonstrate the importance of a particular industry to your community. Many Workforce Investment Boards use these data to determine within which sectors they want to work with – because those sectors or industries are critically important to the health of the local economy to ignore. The targeted sectors are often identified as the "clusters" or "centers of excellence" the boards want to support through their initiatives. While WIBs are also interested in attracting new industries and employers, they should also invest in maintaining the higher wage industries that have made their communities strong. Because unionized manufacturing firms often pay some of the highest wages in the community, projects to maintain the competitiveness of those firms should be of interest to your board.

Included in the resources section, the **Location Quotient Calculator** is a new labor market analysis tool the Bureau of Labor Statistics (BLS) recently added to its online services. The calculator generates location quotients and allows users to compare employment in a city, county, metropolitan statistical area (MSA), or other defined geographic sub-area to that of the state. The location quotient calculator uses data from the BLS's Quarterly Census of Employment and Wages (QCEW), a timely data source especially rich in comprehensive industry and area detail. Visit this chapter in the Online Tool Kit at www.workingforamerica.org/toolkit to view the location quotient calculator's URL.

2. Community Audits

The most comprehensive approach to Labor Market Information is a community audit. Community audits are often used by Workforce Investment Boards to prepare their annual strategic plans or to develop "State of the Workforce" reports. In some cases, these audits will focus on a particular sector

rather than the economy as a whole. While this type of research is not something a labor-management partnership would do alone, the partners should know whether their local workforce board has conducted such an audit, and what it showed about the manufacturing sector in the region.

The term “community audit” can be used to describe a variety of economic surveys. Some workforce areas use only one aspect of the audit – an employer survey – to shape their strategies. The Institute has advocated that WIB labor representatives push for a comprehensive audit that looks at the supply (skills and needs of the workforce) as well as the demand (industry needs) issues in the region. The comprehensive high road community audit offers WIBs the opportunity to identify concrete problems in the economy that are obstacles to retaining or creating good jobs in the economy. It also allows them to set workforce priorities based on sound data and a full picture of the regional labor market, rather than focusing only on the needs of employers looking to fill entry-level jobs. For example, a community audit that includes a focus on retention of high-wage jobs in manufacturing will have more impact on good jobs and strong communities than one that simply surveys employers and reports a need to train workers for jobs with big-box retailers as part of an economic development strategy to attract new, but relatively low-wage businesses.

Comprehensive high road community audits also reveal obstacles that prevent workers from accessing good jobs and, as a result, create opportunities for alliances with a broad range of community stakeholders. Many WIBs contract with an outside group to conduct the technical aspects of a community audit. The Institute can help connect a board interested in embarking on this kind of audit to worker-friendly, credible research organizations that perform high quality research and understand the issues important to labor unions. One such list of labor-friendly research organizations is the Economic Analysis and Research Network (EARN) of the Economic Policy Institute (EPI), available at <http://www.earncentral.org>.

The Institute urges Workforce Investment Boards to conduct comprehensive community audits and encourages union and labor partnerships to become familiar with the audits and other labor market research that has been conducted in their region as part of their engagement with the public system.

*The Department of Labor has valuable information on each of 14 sectors targeted as part of the **President’s High Growth Job Training Initiative**. One of those sectors is **Advanced Manufacturing**. Information on the Initiative, including a profile of the sector, can be found at: <http://www.doleta.gov/BRG/Indprof/Manufacturing.cfm>.*

The Alabama High Road Community Audit: Focus on Manufacturing

In 2002, the Alabama Labor Institute For Training (LIFT), with technical assistance from the Working for America Institute and funding from the U.S. Department of Labor and the Alabama Department of Economic and Community Affairs, began work on a community audit for the state and its major metropolitan areas. This report focused on the state of workers in key labor markets, the condition of the state’s key industries, and the workforce and economic development system that supports them. The study is helping employers and unions in these key industries develop a strategy for the future.

Like many other states, Alabama’s workforce and economic development systems focus on attracting new jobs to the state. In contrast, this community audit focuses on those industries that already operate in the state, that have driven the state’s economy, and that have provided good jobs to the state’s workers. The audit pays special attention to the steel, rubber, aerospace, aluminum, automotive, paper, and telecommunications industries.

The purpose of the Alabama High Road Community Audit is to stimulate an economic development program that focuses as much on retaining the good jobs in the state as it does on attracting new ones. In doing so, the community audit will help LIFT create a strategy that supports unionized sectors of the economy that have been largely left out of economic development efforts.

For a copy of the community audit, see: <http://www.workingforamerica.org/documents/ALReport/ALReport.htm>.

WORKFORCE CHALLENGES IN ADVANCED MANUFACTURING

The Institute, in consultation with unions and labor-management partnerships in advanced manufacturing, developed a list of the most pressing workforce challenges affecting the unionized segment of the sector. The case studies featured in this Tool Kit address at least one of these challenges. The workforce challenges are:

Challenge 1: Increasing firm/facility competitiveness and employee employment security through incumbent workers' skills upgrading:

The nature of work in the manufacturing sector is changing. Increasing use of both advanced technology and new work processes has added to the skill requirements of most manufacturing occupations. Consequently, employers seek affordable ways to finance training for incumbent workers, and workers need specialized training to help them retain the better paying jobs within their firms and industries.

Challenge 2: Responding to small and medium size firms' and/or facilities' (those with less than 500 employees) recruitment and training needs:

In recent years, large, formerly vertically integrated firms have aggressively embraced the outsourcing and subcontracting of many of their component parts. In the process, they have made their own operations leaner and meaner, while pushing significant parts of the production process to firms that are typically smaller. These smaller firms generally have fewer resources to commit to training and education programs and/or new employee recruitment. Many small and mid-sized firms have no full-time human resources managers, and their education and training programs often consist of tuition reimbursement policies, where individual workers must take the initiative to obtain additional education and training on their own. To promote cost-effective new worker recruitment (see the potential link to # 3 below) and incumbent worker training within these smaller firms, initiatives that facilitate common training, assessment, screening, etc. for jobs at small and medium size manufacturers are especially important. Cross-employer skills training – while always desirable – can help ensure, in a cost-effective way, that workers in smaller firms get the skills they need to compete in the global economy. Training and education programs should link to economic development policies that respond to the needs of sectors, industries and local or regional economies.

Challenge 3: Meeting employer demand while minimizing the deleterious effects of layoffs:

While layoffs are a part of the manufacturing landscape, employment opportunities exist in the sector for those with relevant skills. To address this challenge, workers and employers need: a) apprenticeship or skills standards programs that provide portable, industry-recognized credentials to help workers access available jobs and help employers find skilled workers; and b) mechanisms to assure that laid off manufacturing workers can promptly identify good manufacturing jobs still available in their regional labor markets.

Challenge 4: Assuring a pipeline of specialty-skilled workers:

Apprenticeship programs that prepare specialty-skilled workers in manufacturing have decreased dramatically in number and size during the past 20 years. Employers have been reluctant to invest in training workers whom they might not need in the future. This development has reduced the number of qualified workers able to replace the soon-to-be retiring skilled trades employees in manufacturing. The sector urgently needs specialty occupation training programs, including revitalized and updated apprenticeship programs, that provide industry-recognized, portable specialty skill credentials.

Challenge 5: Integrating workers with limited English proficiency

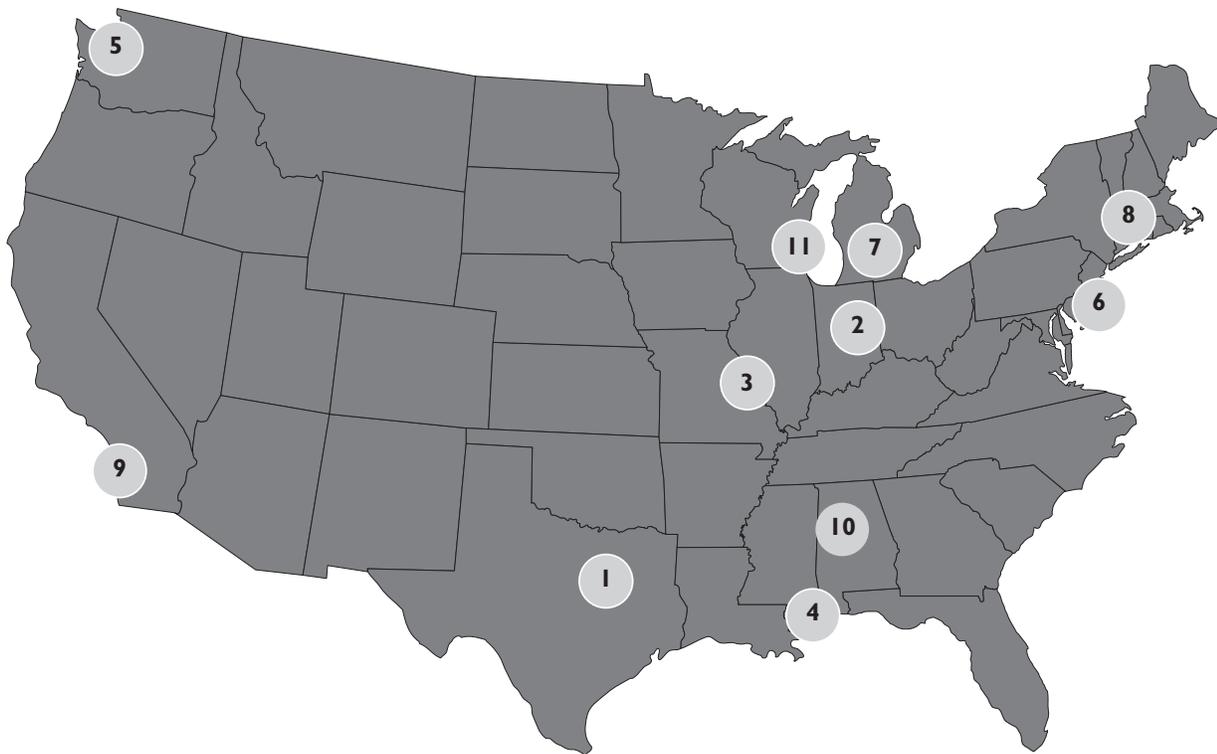
The manufacturing workforce is increasingly foreign-born, and as a result, the need for English language skills represents a growing challenge for the sector. Employers have difficulty finding programs that address the needs of limited English proficient workers in a manufacturing context.

Challenge 6: Maintaining the pipeline that channels young workers into manufacturing:

Employers and unions share a concern about the future of manufacturing in the US, particularly as the workforce in the sector ages. Both workers and employers call for the K-12 education system to inform students about the changing nature of manufacturing and the wage potential manufacturing jobs provide, while preparing them for careers in this sector.

WORKFORCE CHALLENGES IN UNIONIZED MANUFACTURING

- ▶ **Challenge 1:** Increasing firm/facility competitiveness and employee employment security through incumbent workers' skills upgrading
- ▶ **Challenge 2:** Responding to small and medium size firms' and/or facilities' recruitment and training needs
- ▶ **Challenge 3:** Meeting employer demand while minimizing the deleterious effects of layoffs
- ▶ **Challenge 4:** Assuring a pipeline of specialty-skilled workers
- ▶ **Challenge 5:** Integrating workers with limited English proficiency
- ▶ **Challenge 6:** Maintaining the pipeline that channels young workers into manufacturing



Selected Case Studies

- 1 The Community Learning Center, Inc. and its Aerospace Industry Training Program
- 2 CWA-IUE/Visteon Systems "Knowledge is Power" Program
- 3 Greater-St. Louis Automotive Training Consortium
- 4 Gulf Coast Shipbuilding Partnership's Transitions Program
- 5 IAM-Boeing Joint Apprenticeship: The Quality Through Training Program (QTTP)
- 6 International Brotherhood of Teamsters/Sikorsky Aircraft Corporation School-to-Career Mentoring Program
- 7 Lansing Area Manufacturing Partnership (LAMP)
- 8 RWDSU/UFCW Local 224 Hasbro, Inc. "English for Speakers of Another Language" Training Program
- 9 Supplier Excellence Alliance/Labor Education and Training Corporation (LETC) California Training Partnership
- 10 United Steelworkers/US Steel-Fairfield Works Electro-Mechanical Maintenance Career Development Program
- 11 Wisconsin Regional Training Partnership (WRTP); With a focus on three company/union partnerships

Tool Kit Case Studies

The Case studies in this tool kit are examples of labor-management partnerships that have addressed one or more of the workforce challenges facing the unionized segment of the manufacturing sector. This chart shows which challenges were faced by each of these partnerships.

Case Study	Challenge 1: Incumbent Workers	Challenge 2: Small and Medium-Sized Firms	Challenge 3: Dislocated Workers	Challenge 4: Specialized Skills Pipeline	Challenge 5: Limited English Proficiency	Challenge 6: Youth
Community Learning Center, Inc. and its Aerospace Industry Training Program	■	■	■			
CWA-IUE/Visteon Systems “Knowledge is Power” Program	■			■		
Greater-St. Louis Automotive Training Consortium	■					
Gulf Coast Shipbuilding Partnership’s Transitions Program						■
The IAM-Boeing Joint Apprenticeship: Quality Through Training Program (QTTP)				■		
Int’l Brotherhood of Teamsters/ Sikorsky Aircraft Corporation School-to-Career Mentoring Program						■
Lansing Area Manufacturing Partnership (LAMP)						■
RWDSU/UFCW Local 224 – Hasbro, Inc. “English for Speakers of Another Language” Training Program					■	
Supplier Excellence Alliance/Labor Education and Training Corporation (LETC) California Training Partnership	■	■				
United Steelworkers/US Steel-Fairfield Works Electro-Mechanical Maintenance Career Development Program				■		
Wisconsin Regional Training Partnership (WRTP)		■				

Addressing the Challenges: Promising Practices

There are many mature – as well as emerging – labor-management partnerships in the manufacturing sector that have addressed one or more of the identified workforce challenges. *The Advanced Manufacturing Workforce Strategies Forum* was designed to showcase the promising practices of a number of these partnerships so that they can share their successes with others in their industries and with the public workforce system.

The case studies prepared for the Forum are presented in this tool kit so that others can learn from their example and may find elements of the programs to adapt in their own communities. The cases are presented in a common format to allow readers to focus on the key elements for replication.

CASE STUDIES: CHALLENGE 1

Challenge 1: Increasing firm/facility competitiveness and employee employment security through incumbent workers' skills upgrading:

The nature of work in the manufacturing sector is changing. Increasing use of both advanced technology and new work processes has added to the skill requirements of most manufacturing occupations. Consequently, employers seek affordable ways to finance training for incumbent workers, and workers need specialized training to help them retain the better paying jobs within their firms and industries.

Addressed as a primary challenge:

CWA-IUE/Visteon Systems "Knowledge is Power" Program

Greater-St. Louis Automotive Training Consortium

CWA-IUE/Visteon Systems “Knowledge is Power” Program

Program Synopsis

The Knowledge is Power program in Connersville, Indiana represents an example of a successful partnership between a union, its employer and local training providers, designed to improve a company’s competitiveness by enhancing the skills of its workforce. This partnership between the International Union of Electrical Workers - Communications Workers of America Local 84919 (IUE-CWA) and Visteon Systems has developed a training program – “Knowledge is Power” – that focuses on lifelong learning initiatives to advance its mission. The program not only provides needed skills to the workforce, but also develops a culture that values education as a way of preserving good paying jobs at the Visteon facility. The partnership also works effectively with the public workforce, economic development and educational systems in the state to achieve its goals.

The Knowledge is Power program continuously upgrades the skills and education of Visteon workers/IUE-CWA members in a comprehensive manner. The training and education programs address the needs of long-term and newly-hired production workers, as well as the requirements of both incumbent workers and new entrants (apprentices) to the skilled trades positions. In addition to receiving training in the skills essential to the future of their employer, workers can also get a state-issued Certificate of Technical Achievement (CTA) in Advanced Manufacturing while earning up to 15 credits toward an associate’s or bachelor’s degree program.

Workforce Challenges

This project addressed two of the identified challenges:

- **Increasing firm/facility competitiveness and employee employment security through incumbent workers’ skills upgrading:** The nature of work in the manufacturing sector is changing. Increasing use of both advanced technology and new work processes has added to the skill requirements of most manufacturing occupations. Consequently, employers seek affordable ways to finance training for incumbent workers, and workers need specialized training to help them retain the better paying jobs within their firms and industries.

- **Assuring a pipeline of specialty-skilled workers:** Apprenticeship programs that prepare specialty-skilled workers in manufacturing have decreased dramatically in number and size during the past 20 years. Employers have been reluctant to invest in training workers whom they might not need in the future. This development has reduced the number of qualified workers able to replace the soon-to-be retiring skilled trades employees in manufacturing. The sector urgently needs specialty occupation training programs, including revitalized and updated apprenticeship programs, that provide industry-recognized, portable specialty skill credentials.

Understanding the Demand and Meeting It

The facility in Connersville that is now Visteon Systems has successfully adapted to change throughout its 85-year history. Opened originally as the Rex Buggy Company making horse drawn carriages, it later shifted to the manufacture of Empire automobiles. From there, the company transitioned to producing refrigerators and freezers, eventually under the Ford-owned Philco brand. In the late 1970s, it shifted again into the manufacture of radiators, condensers and other automobile components. In 2000, the facility separated from Ford and became part of an independent company, Visteon Systems, LLC, which manufactures complex climate control products such as radiators, condensers and compressors.

After separating from Ford, the company saw a need to increase its non-Ford generated business – both with other auto companies, such as Nissan and Saturn, and with smaller businesses, such as non-Ford automobile dealers and parts distributors. To capture that business, the plant needed to become leaner and more flexible so it could handle limited production runs for these smaller customers. The company also had to plan for low volume production of specialized aluminum radiators (used by NASCAR racing cars). Whereas previously the facility did production runs in the thousands, it now needed the ability to switch quickly to runs in the hundreds.

The introduction of computer literacy into the plant (when Ford still owned the operation) shows the continuing evolution of Visteon’s creative culture. For its part, the company actually issued a free computer to every employee for home use! Managers recognized that, if employees used computers in their personal lives, they would integrate those skills into the workplace as well, improving the flow of information concerning the manufacturing operations. Under a separate but related program, IUE/CWA initiated training for 100 members as Microsoft Office User Specialists, so that they could serve as shop floor

“experts” in the facility. Training took place at the IUE-CWA union hall. State funds, with matching employer-paid tuition assistance financed the program.

This history of adaptation to change has helped both the company and the union to understand what it takes to compete effectively in the 21st Century. As part of Ford, and subsequently as Visteon, the facility made continuous improvements in the production system in order to become leaner and more flexible. The new strategy for diversifying the customer base in the automotive products after-market has made these practices even more important and pushed the company and the union to ramp up and mainstream their education and training programs.¹ Out of this capacity for cooperation, the Visteon training department embarked on the Knowledge is Power program, focusing on continuous skill enhancements that would ensure the long-term competitiveness of the company and thus the employment security of its workforce.

The search for effective programs led them to work with Ivy Tech, Indiana’s vocational and technical college, to customize the CTA in Advanced Manufacturing coursework around specific core competencies needed at Visteon. Together, they decided that providing the opportunity to earn college credit for CTA courses would help to encourage an attitude of life-long learning in the Visteon workforce.

Because the company has facilities in Europe and Asia and operates in an increasingly global economy, it has an awareness of workforce skills in competing labor markets. The Visteon plants in Europe and Asia – many of which national union representatives had also seen – served as benchmarks for enhancing the skills of its U.S. workforce.

In addition to guaranteeing that workers understood the changing technology of the workplace, the adoption of common terminology would become a key to competitiveness. This clarity in communication would allow small employee work groups to address production, quality, safety, cost and other concerns effectively. The training department assumed responsibility for developing the common language necessary, and ensuring the mastery of the tools required to identify and solve problems such as these.

Program Partners

In addition to the company and the union, a number of other partners, including the public workforce system, have been critical to

the project. Assistance in connecting to the public system came from the Indiana AFL-CIO Labor Institute For Training, a non-profit established by the state labor federation to address the workforce needs of affiliated unions and their employers. Many parties worked with representatives of the joint training department to adapt Indiana’s Certificate of Technical Achievement (CTA) in Advanced Manufacturing (explained below) to the specific needs of the Visteon Connersville plant’s production workers, including the local Workforce Investment Board and its Incumbent Worker Council, and staff from Ivy Tech. Most of these same parties worked together to design and deliver a program that would upgrade the skills of the already higher-paid skilled-trades Visteon workers, while allowing them to earn academic credit for their studies.

Program Activities and Methods

Responsibility for planning and conducting the various education programs falls to the joint training department mentioned above. The programs themselves target two different populations for instruction: **general production workers and current and future skilled tradespersons.** With respect to both of these target groups, the programs share three training and education achievement objectives:

- helping workers adapt to, and understand, the changing technology of manufacturing processes in the facility
- giving workers the tools to identify and solve important production problems in the plant,
- enabling workers to achieve portable, industry recognized credentials
- encouraging workers to earn college credits.

General Production Worker Education and Training

Indiana Certificate of Technical Achievement (CTA) in Advanced Manufacturing

The Indiana Certificates of Technical Achievement (CTA) program grew out of Indiana Public Law 19, the Indiana Essential Skills and Technical Proficiencies Initiative (IESTPI) in 1992, which defines a common set of essential and technical skills for key occupational areas. In 1996, a voluntary partnership of industry, organized labor and various public education and workforce and economic development agencies came together to

¹ *This ability of the company and the union to collaborate, when in the best interests of both Visteon and IUE-CWA, has produced a unique training arrangement that supports innovations designed to enhance competitiveness. Both union and management personnel staff the Visteon training department, which is funded according to a negotiated contractual agreement between the union and the company. This arrangement gives labor as well as management a voice in the allocation of funds for training and in the decision-making about curricula and terms of participation.*

develop a portable certificate of competency in manufacturing. The state's certification framework includes four manufacturing career areas: Production, Production Planning & Control, Manufacturing Engineering and Industrial Maintenance. Scenarios that represent the performance level employers expect constitute the basis of the assessment for each of these credentials. Since the passage of the IESTPI, the CTA has been embraced by labor unions, training organizations and both secondary and post secondary schools as a way to recognize the ability to perform to standards expected by industry in a real world setting.

With staff of the Ivy Tech State College Corporate and Community Services division, Visteon and IUE/CWA worked to adapt the CTA to their particular needs.

Academic Credit for Technical Training

Although workers in the CTA for Advanced Manufacturing Program automatically earn academic credit for their studies, Visteon and IUE-CWA wanted to make sure that the skilled trades workers could also get such credit for their advanced studies. As a result, not only did they allow their current skilled tradespersons to enroll in the CTA program if they desired, but they also moved their journeyperson upgrading and new apprenticeship training to Ivy Tech so that participants could earn credits toward an associate's degree.

General Production Worker Education and Training Program Curriculum

Visteon currently employs about 1,400 production workers at the Connersville facility; they earn between \$18.00 and \$20.50 per hour.

Although the joint training department sponsors a variety of classes and educational opportunities, this case study focuses on the offerings related to the Certificate of Technical Achievement in Advanced Manufacturing. The company operations and training staff and the union decided to base their production worker skill training program on the CTA curriculum so that workers could achieve this statewide, industry-recognized skills credential. But rather than simply replicate the curriculum, they customized it. In doing this, Visteon became the first company to adapt the CTA curriculum to the specific needs of an actual company.

Two core manufacturing technical areas of knowledge were identified: **Production** and **Product Realization**. The courses for the **Production** core were: Participate in Performing Production Planning; Materials Planning and Control; Participate in Maintaining and Optimizing Equipment and Machines; Participate in Managing Quality Systems; Participate in Improving the Manu-

facturing Process; and Provide for Health, Safety, and Environmental Concerns. For the core area of **Product Realization** the core courses were: Participate in Establishing Customer Needs; Participate in Design for Manufacturing; Participate in Design of Production Systems; Participate in Design of Support Systems; and Participate in Development of Prototype. These ten courses each have specific learning objectives and activities built into practice scenarios and worksheets.

Workers volunteer for these courses. The classroom training is offered at the Ivy Tech Community College of Indiana's Connersville Instructional and Technology Center and until this year, was offered on company time (See Barriers Overcome section below). Hourly workers are offered the chance to participate based on seniority.

After successful completion of the Visteon/IUE-CWA parts of the CTA curriculum, students have a foundation on which to construct a career in manufacturing. A student may use this foundation to go on to earn a Technical Certificate (CTA), Career Development Certificate (CDC), an Associate Degree, a Bachelor's Degree, or prepare for a specialty certification. To date, approximately 600 production workers have completed the Visteon manufacturing core curriculum and have received their CTAs.

For production workers, this comprehensive training enhances their flexibility as employees and their overall skills in manufacturing. Together, these achievements make program graduates more valuable at Visteon, as well as more marketable in today's volatile labor market.

Specialty Skills/Skilled Trade Education and Training Program

There are approximately 180 skilled tradespersons at the Connersville Visteon facility. Once fully trained, skilled tradespersons at Visteon earn between \$20.00 and \$23.00 per hour.

Becoming a Skilled Tradesperson:

Joint Apprenticeship Training Program

Almost every manufacturing facility employs a percentage of its workforce in the higher-skilled, higher-paid categories. These positions are often referred to as skilled trades and, until relatively recently, workers who have gone through a registered apprenticeship training program filled them.² Apprenticeship programs have certain common features. Typically, they combine classroom train-

² These programs are registered by the federal government or the state. In this case, the state of Indiana registered the training program.

ing and on-the-job training, and the length of the program varies according to the specific trade for which it prepares workers. Three to four year programs are not unusual. Trainees are usually paid while they are working and training, and they earn wage increases as they progress up the training ladder. Once a worker reaches the end of the training program, he/she is deemed a journey person or master in his/her trade. Until then, he/she is referred to as a first year or second year apprentice. In unionized firms, the union and the company jointly run the apprenticeship program.

IUE-CWA has had a formal, state-registered skilled trades apprenticeship program with the Visteon facility since 1965. The joint training department (mentioned above) and a Local Union Skilled Trades Chairman oversee the program, which includes a full range of trades. The skilled trades occupations at the facility are: Machine Repairer, Electrician, Plumber, Gage and Layout Technician, Charge Board Technician, Instrument Repairer, Service Garage Hi-Lo Operator, Carpenter, Tool and Die Maker, and Cutter-Grinder. All the training takes place at Ivy Tech with Ivy Tech instructors (many of whom are journey level union members). Funds negotiated from the company pay for the entire program; apprentices pay nothing.

Apprentices are selected after a two step process: 1) the submission of a formal application and an aptitude test that is administered by a third party; and 2) an interview by the Apprenticeship Committee, comprised of both union and salaried employees. The results of the aptitude test trigger a “go-no go” decision and the successful applicants are referred to the committee for an interview. Those receiving the highest scores in the interviews are offered a placement for openings. Approximately 80% of the successful candidates have been production workers who have bid for an upgrade to the skilled trades and received it. About 20% of the candidates come from the outside, many of whom are unemployed and are nominated by local groups.

As mentioned above, the program updated the curricula for the skilled trades apprenticeship training at the same time that Visteon and IUE-CWA offered production workers the new CTA-based training opportunities. Since this program began, 25 apprentices have gone through the enhanced apprenticeship program, 15 of whom have earned their journey cards.

These steps to revitalize the company’s apprenticeship program help to meet a growing need to replace soon-to-be retiring skilled workers at the plant.

Upskilling of Incumbent Skilled Tradespersons

The training department also identified the specific skill upgrading needs for journey level skilled tradespersons in order to adopt

new technology and processes in the plant. Once again, the department worked with Ivy Tech to develop new continuing education curricula for these already skilled workers. Journey level upgrading training included such courses as Introduction to Vibration Technology, EMonitor Odyssey Basics, and Vibration Analysis. Some of the courses are equipment specific (e.g. Adept Robot) to the plant, other courses such as Vibration Analysis are generic to facilities in the industry.

Connections to the Public Workforce and Economic Development Systems

The Workforce Investment Act (WIA) limits local workforce area funding for incumbent worker training to helping workers below the area’s self-sufficiency standard, a wage level set by local workforce boards. Visteon workers earn too high an hourly wage to qualify for funding support from the local workforce system. Incumbent worker training is an allowed activity, however, for the WIA funds controlled by the governor of each state – what is called the governor’s 15% account. Moreover, other state sources of funding to support incumbent worker upgrading and training are also available.

The facility has therefore worked with the Southeastern Indiana Workforce Investment Board to obtain multiple grants for its training programs from an array of state sources. These grants have been awarded under the State’s “Advance Indiana” grant program that began in 1998. The Governor developed a “Skills 2016” initiative focused on four industry sectors that were critical to Indiana’s economy. The initiative combines resources from both the workforce and economic development systems to address needs in these industries. The sectors relevant to Visteon included advanced manufacturing and information technology.

The state has made workforce development, and particularly incumbent worker training, a priority in recent years and now has an array of programs that support workforce training. Four major programs make up Skills 2016:

1. **Advance Indiana**, administered through the Department of Workforce Development (DWD), provides funds to companies and organizations that enroll incumbent workers in training programs and enable them to earn industry recognized credentials.
2. **The Skills Enhancement Fund** (previously Training 2000) provides funding to new and existing companies that commit to training new and incumbent employees. It is administered by the state’s Department of Commerce.

3. **The Technology Enhancement Certification for Hoosiers Fund**, also administered by the state Department of Commerce, provides funding to companies that train their workers in the up-to-date information technology skills.
4. A new program, **Indiana At Work** began in 2004. This program uses WorkKeys, a tool that evaluates employee skills against job profiles. WorkKeys identifies skills gaps and devises training to fill them. This initiative will complement other programs to insure that worker skills match employer needs.

Financing from the Indiana Incumbent Worker Training Fund complements Indiana Department of Workforce Development and Department of Commerce dollars. The state created the Fund in 2001 through a tax levied on manufacturing employers to improve manufacturing productivity and competitiveness.

As a result of tapping these various state sources, the Visteon Automotive Systems plant in Connersville, Indiana has received grants totaling \$1,166,331.

Program Funding Sources

The state grants received by Visteon require matching contributions. Therefore, in addition to the public dollars cited above, considerable other matching resources are devoted to the Knowledge is Power program. Thus the employer's own contributions to the program supplement public funds. The company provides funds to support the administration of its training department and specific training programs, reporting that it has contributed twice the amount of public funds received as matching dollars to the overall cost of training. The company also contributes all the costs associated with conducting classes on-site. Until recently (see the section on Barriers Overcome below), the company's contribution included the provision of paid work-release time to employees during the time they participate in the training.³ While there is a joint labor-management training department funded by a negotiated amount of dollars, Visteon's policy requires the plant, not the parent corporation, to provide training funds from its own facility budget. Thus, state funding for the expanded training initiatives was essential to help defray the costs of the program. The money has been well spent: 2,626 employees to date have availed themselves of the training opportunities.

Barriers Overcome

Although the company, union and workers had adapted to product change in the past, the company and the union knew they had to change the company culture to one that accepted and valued the need for continuous education and training in order to ensure the competitiveness of the facility and retain the jobs of its employees and members. When the training was first offered there were numerous empty seats. Employees were suspicious of the company and its motivation for the program, and worried that their participation – especially if not immediately successful – might affect them adversely. Despite the union's support for and leadership of the program, stewards heard comments like "what are they up to?" and "how are they going to mess with me?" on the shop floor. However, once the initial group started the CTA program and gave positive feedback to their co-workers, a great number of employees expressed interest in attending.

Ironically, the popularity of the program became a problem for the company. So many workers wanted to take the courses that maintaining staffing on the lines was becoming too difficult and costly. As a result, in the last round of negotiations, the union and the company agreed that, in the future, workers would have to take the coursework after their regular work shifts. The student-employees nevertheless continue to get paid for their time in class at straight time wages.

Program Results and Returns to Stakeholders/Partners

Benefits to the Company:

The Advanced Manufacturing Core Curriculum focuses on the principal processes that make up an advanced production system. After completion, a worker knows not only about his/her individual portion of the production process, but also about the ways in which processes relate to each other. Companies working on continuous improvement can capitalize on workers who understand the overall system to make implementation more effective. The course work provides a basic overview of manufacturing activities and shows how each activity fits into the overall production environment. Course work also provides a general understanding of the system, so that the worker can help to improve the manufacturing process. For example, CTA graduates understood International Organization for Standardization (ISO) quality requirements and Occupational Health and Safety Administration (OSHA) regulations and were able to effectively participate in resolving quality and safety concerns. Workers also participated in designing improvements in ergonomics and safety to reduce accidents

³These programs are registered by the state. In this case, the state of Indiana registered the training program.

and repetitive injuries. The retention of a production line scheduled for closure by the company due to inefficiencies serves as another example of the success of the training. The facility used small groups to develop solutions to identified problems and saved the line, as well as 28 of the 32 jobs involved. While the company has not quantified the results of the training per se, it does know that, over the years, operating costs in the plant have been reduced by millions of dollars. New production lines have been brought into the facility, designed with the input of production and maintenance personnel. This participation has made operations leaner and more cost effective and allowed the facility to compete, not only with outside competitors, but also with other Visteon plants throughout the world.

Benefits to the Employees:

The program has made possible a career ladder for workers at the plant. The CTA in Advanced Manufacturing provides: a recognized, statewide, portable credential for manufacturing production workers; training that may lead to career advancement; and the skills to retain existing jobs or find new ones. The CTA in Advanced Manufacturing curriculum was recently aligned with the Manufacturing Skill Standards Council's Production Skill Standards. Thus, the CTA curriculum will help prepare workers who want to become certified in the MSSC Production Skills – a nationally recognized credential.

Approximately 85% of the employee participants in the various educational offerings are production workers, 8% are skilled trades maintenance employees and 7% are salaried personnel. To date, the production worker and skilled trades training initiatives have produced over 630 CTA recipients. In addition, 12 employees earned Associate degrees, 8 earned Bachelor degrees and 32 earned Masters degrees. The company and its workforce have experienced a total culture change – one that now values education and lifelong learning

Benefits to the Union:

Widespread participation in the program is one sure sign that IUE/CWA members support their union's embrace of the program. The union benefits by being able to help provide its members with advanced skills enhancement opportunities that make them more employable – and with a portable skills credential that helps workers advance in their existing companies or assists them in finding new employment. The union also benefits by retaining the jobs of its members.

Benefits to the Educational System:

Ivy Tech has benefited by providing students with training and receiving fees for instruction and training-related expenses. Further, the college benefits by interacting with the employer and

employees, thereby increasing its visibility in the community as a provider of education and training that is relevant to workers trying to retain their jobs and careers in manufacturing. As a result of this activity, The Ivy Tech State College built a technology training center (The Ivy Tech Community College of Indiana Connersville Instructional and Technology Center) within a mile of the plant to support the training initiatives. The center is utilized today by the surrounding counties and their businesses.

The culture of knowledge as power has permeated the greater community of Connersville as well. The Technology Center has expanded its evening classes for A+, MOUS computer certification and other courses to meet the demands of the community for additional educational opportunities. The parents and grandparents who attend these classes are demonstrating to their children and grandchildren the importance of education in their lives. The schools report that this emphasis on education has filtered down to influence youth in the primary and secondary schools.

Benefits to the Community:

The community benefits from the increased likelihood of retaining an important local employer, as well as from the jobs and tax benefits that accrue from the employees who work at the plant. The presence of this employer attracts other related businesses; the Visteon plant has numerous suppliers and vendors in the community. In addition, the continued presence of Visteon, with its reputation for continuous workforce development, generally enhances the reputation of Connersville vis a vis other prospective employers.

Next Steps for the Program and/or for the Partnership

As mentioned above, the partnership intends to pursue MSSC certification for its employees on a voluntary basis. The Ivy Tech curriculum was aligned with the MSSC skill standards so the training provided in the CTA coursework can help workers to achieve positive MSSC assessments and receive that national credential. The company will use the newly developed Indiana LIFT Skill-MAP tool to enable workers to benchmark their training and skills to the MSSC Standards and Assessment Tool in order to determine whether they are ready to test for the MSSC certifications. The company will also use the McGraw-Hill textbook and materials to prepare workers for the MSSC assessments.

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The Greater-St. Louis Automotive Training Consortium

Program Synopsis

To ensure an adequate supply of skilled labor, competing automakers (Daimler-Chrysler, Ford and General Motors) in the Greater-St. Louis region recently formed an unusual cooperative training program involving the United Auto Workers (UAW), local educators and public officials. The collaborative effort seeks to satisfy the automakers' common (and pressing) need to ensure that their skilled workers are trained in the latest technologies to install and troubleshoot advanced equipment and maintain their highly-automated production lines.

Even for large corporations, the cost of providing in-depth training for relatively small numbers of skilled employees is substantial. By training larger groups, drawn from several employers and sharing instructors, equipment and materials, the program creates economies of scale that make continual in-depth skills training (classroom and hands-on) more practical and affordable. This use of shared capacity to train incumbent workers presents unique issues but substantial rewards for participating employers and unions. And doing so in a way that gives participating workers industry-recognized credentials better prepares them to succeed in the highly competitive automotive manufacturing sector.

Though the Consortium is in its infancy (training began in June 2005), experience gained through this program could have great value to other manufacturers, in and out of the automotive industry.

Workforce Challenge

- **Increasing firm/facility competitiveness and employee employment security through incumbent workers' skills upgrading:** The nature of work in the manufacturing sector is changing. Increasing use of both advanced technology and new work processes has added to the skill requirements of most manufacturing occupations. Consequently, employers seek affordable ways to finance training for incumbent workers, and workers need specialized training to help them retain the better paying jobs within their firms and industries.

While the training undertaken by the Greater St. Louis Automotive Consortium is in the area of specialty skills, it is not directed at the pipeline of new apprentices, but rather is designed to ensure that the incumbent skilled craft workers at these plants have the state-of-the-art skills they need for today's production methods.

Understanding Demand and Meeting It

Automotive manufacturing helped stabilize the St. Louis economy despite heavy job losses during the past five years, according to the Federal Reserve Bank of St. Louis. Collectively, St. Louis manufacturers eliminated more than 25,000 jobs, or roughly 15% of their payrolls, between March 2001 and July 2005, according to bank economists. Still, bank economists point out that the region was buoyed by the fact that, compared to rest of the country, it has a larger share of jobs in motor vehicles and motor vehicle parts, both of which saw relatively modest job losses.

The St. Louis Workforce Investment Board (WIB) and the St. Louis Community College (STLCC) have long recognized the important role of the auto industry in the region. Their enthusiastic support for this project was based on compelling facts about the importance of the automotive industry to the regional economy:

- More than 18,000 people – fully 11% of Missouri's total manufacturing workforce – produce cars, trucks, vans and auto parts in the Greater St. Louis region.
- Wages paid to automotive manufacturing employees average \$75,000 per year. Auto manufacturing is the single largest source of manufacturing jobs in the state, and the source of many of the regions best-paid jobs.
- 10.7% of the nation's total automobile production occurs in the Greater St. Louis region, which is home to four major assembly plants: Ford (producing the Explorer SUV), General Motors (producing conversion vans) and two Daimler-Chrysler facilities (one producing minivans and another manufacturing Ram pickup trucks).
- The four large plants directly support a network of some 34 small and medium-sized businesses in Missouri that employ another 8,000 people who provide the automakers with an array of services and supplies.

Maintaining Skill Levels in a Capital-Intensive/ Hyper-Competitive Industry

Since the 1970s U.S. automakers have faced intense competition from foreign manufacturers using modern plants and equipment to produce low-priced, high-quality cars, trucks and vans.

Success in this industry, or even survival, requires having products ready for market that meet the highest standards of customer satisfaction in terms of cost, reliability, safety, style, fit and finish. It requires companies to invest continually in the latest technologies on the production lines and in the vehicles themselves. This, in turn, requires an adequate pool of workers, armed with up-to-date skills and training, to install, maintain, and operate the new, advanced systems.

Collaborative training made great sense because the region has such a high concentration of auto manufacturing companies that tend to employ similar or identical technologies, and because one union (the UAW) represents employees at the four competing plants. In fact, the UAW Labor and Employment and Training Corporation (LETC), a labor-management program headquartered in Long Beach, California, initiated the program. The LETC contacted UAW Region 5 to convene teams of UAW and management training coordinators from St. Louis' four large automotive manufacturing facilities (Ford, General Motors and two Daimler-Chrysler plants) to develop this regional approach to the skills upgrading of incumbent workers.

The companies recognized that simultaneously training pools of skilled workers drawn from several employers and sharing instructors, equipment and materials makes that training far more practical and affordable.

Training to Upgrade Even the Highest-Skilled Workers

The production methods used in the automotive industry are becoming ever more sophisticated. While the apprenticeship programs in the industry are constantly adapting to these changes, many of the most experienced workers in the industry went through their apprenticeship training decades ago, and do not have the same access to the newer skills and methods of the industry. While the industry has upgrade training available at national centers, release time for workers to attend national training often interferes with production and companies often send only one worker, hoping that he or she will return to share new knowledge with other workers. But in many cases, the more senior workers may find themselves falling behind the younger workers in specialty skills.

The companies in the partnership all faced the challenge of providing affordable, high-quality job-specific training, particularly training in new skills and technology, to workers who were

already among the most highly skilled at their facilities. Doing so in a way that also allowed workers to earn academic credits towards portable, industry-recognized certificates and degrees, meant not only focusing on the immediate needs of the participating employers, but also designing the training for workers who wish to build and advance their careers overall.

The four technical skill areas addressed by the program are among the most critical in today's auto industry. For example, there is a great demand for the newest methods in electrical trade skills. Production is reliant on more sophisticated set-up using techniques and equipment that were probably not part of the landscape when many of the plants' skilled workers received their training years ago.

Program Partners

The program partners are:

- St. Louis Workforce Investment Board (WIB)
- St. Louis Community College (STLCC)
- United Autoworkers International Union - Region 5
- Daimler-Chrysler North and South Assembly Plants
- Ford Motor St. Louis Assembly Plant
- General Motors Truck Group Wentzville Assembly Plant
- UAW LETC

The Grant Recipient is the St. Louis WIB and the Fiscal Agent is the St. Louis Agency on Training and Employment (SLATE). The Automotive Training Consortium Board, consisting of the labor and management training coordinators of each plant, meets regularly to review and select curriculum, schedule classes, select instructors, and provide inter-plant oversight of the entire project.

The UAW Region 5 Director conceived the joint effort in St. Louis. The UAW LETC, a national labor-management program affiliated with the UAW, assisted the Director to convene teams of union and management training coordinators from the region's four large automotive manufacturing facilities to develop this approach to the skills upgrading of incumbent workers.

The Project Implementation Team meets at least twice a month and implements the training as directed by the consortium. The team is comprised of the UAW LETC Labor-Management Coordinator, the Project Coordinator for STLCC's Center for Business Industry and Labor (CBIL), the Dean of the STLCC School of Engineering and the labor and management training coordinators representing the four auto plants. The team reviews the status of the program, considers changes, prepares for upcoming events and conducts on-site visits and evaluations.

The Education Provider, STLCC School of Engineering, designs and provides courses, training material and instructors. STLCC also counsels participants seeking Associates and Bachelors Degrees, helps plan their studies and, when possible, identifies credits earned through previous studies and applies them toward achievement of their degrees.

Program Activities and Methods

Training Focused on High-Skilled Workers

The program provides advanced technology training to incumbent workers who are graduates of certified four-year registered apprenticeship programs with at least seven years work experience in their trade (“Journey-people”) and to high-skill production workers enrolled in related programs leading to attainment of “skilled trade” status. The courses of study provide critical information on the newest techniques and equipment used in the automotive industry.

The program does not provide general “shop skills” or entry-level training. By specifically targeting the most highly skilled workers in the industry, the program aims to allow domestic automakers to efficiently adopt the latest technologies needed to compete successfully in world markets.

Participants are selected for training through consultation between management and labor training coordinators at the individual manufacturing plants. Criteria include: technical challenges or needs for particular skills in the plants, course schedules, and the interest, availability and skill levels of individual employees. Employees view their selection as an honor, with the company paying for their release time for course work and facilitating not only their skills upgrade, but also the opportunity to earn an associates degree, or credit toward an engineering degree.

Focus on Four Areas of Advanced Manufacturing Technology

Employees are paid at their normal hourly rate to attend classes at STLCC School of Engineering (and occasionally in-plant training at one of the four facilities). Classes are small and intensive. All are accredited courses and are focused on four areas of advanced technologies selected by the stakeholders based on the needs of the industry:

- **Integration of Advanced Automated Systems:** Training to install, operate, maintain, troubleshoot, diagnose and repair automated systems. Electrical Skilled Trades workers and highly skilled production specialists will study Electrical Repair and Diagnostics, Diagnostic Tools and Electrical

Schematics - Design & Application. (120-200 hours per employee)

- **Predictive Maintenance for Advanced Manufacturing Systems and Technology:** Training to set-up, operate, maintain, troubleshoot, diagnose and repair advanced manufacturing systems. Electrical Skilled Trades workers and highly-skilled production specialists will study: Planning and Scheduling Techniques for Advanced Manufacturing Design and Diagnostic Tools, including infrared, vibration analysis, ultra-sound and laser equipment. (120 – 200 hours per employee)
- **Enhanced Mechanical Technology:** Training to setup, operate, maintain, troubleshoot, diagnose and repair advanced mechanical systems. Skilled Trades workers, including Toolmakers, Pipefitters and Millwrights, will study: HVAC; Fluid Fills and Pressure Technology (radiators, brakes, power steering, gas, air conditioning, back flow and sealers); Robotics Maintenance and Repair; Metal Applications (including welding); Conveyor Systems; Hoist Operations (techniques for equipment movements) and Mechanical and Electrical Maintenance, including air logics, pneumatics and hydraulics. (200-336 hours per employee)
- **Advanced Electrical Technology:** Training to install, program, operate, maintain, troubleshoot, diagnose and repair advanced electrical systems. Electrical Skilled Trades workers will study: AutoCad, Programmable Logic Controllers, or PLCs (including PLC-5, SLC 500, Panel View, RS Logic/ICOM/AB 6200, Device Netcode and Control); Robotics, including programming maintenance and repair; Communications and Networking, including equipment integration, barcode reading and printing, fiber optics, CAT 5, servers and advanced systems, SCC display, Ethernet networking, topology and systems. (200-336 hours per employee)

Connections to Public Workforce and Economic Development Systems

Public sector involvement was key to the creation of the Consortium and plays a central role in its regular administration and operations.

The State of Missouri Division of Workforce Development assisted UAW LETC in writing the grant application and endorsed the program.

Tom Jones, Executive Director of the St. Louis WIB and SLATE, serves on the Consortium Board* and helped found and secure grant money for the Consortium. The St. Louis WIB is the recipient of the federal grant that supports the program.

The local community college, STLCC School of Engineering also serves on the Consortium Board*and the Training Team. STLCC organizes and provides all instruction for the program, and plays a central role in the day-to-day administration and oversight of the program.

Finally, principal funding for the Consortium comes from a 2004 grant from U.S. Department of Labor's Employment and Training Administration (DOL/ETA), through the President's High Growth Training Initiative (HGJTI).

Program Funding Sources

The only specific government support for the program is the \$1.5 million grant from the Department of Labor, which pays for instructional costs and program coordination. While the WIB and STLCC receive state and federal funds (and the four automotive companies receive some combination of state and federal funds for training) the funds were not specifically earmarked for the Consortium.

In-kind contributions of the stakeholders support significant program activity, including: equipment, training space, release time pay for participants (provided by the employers), and STLCC's work designing courses and counseling students. Over \$2.4 million from the business partners was leveraged by the federal investment.

Barriers Overcome

- **Scheduling training for multiple employers must take their needs into account.** While the program focuses on advanced technologies common to the automakers, the needs and resources of the participating employers do not always mesh. At any given time, there are differences in the numbers of employees participating companies need to train or are willing to "take off the line" and assign to training. Scheduling is done in unison, and all parties must agree and adapt to the schedule. Fortunately, many of the target workers, because of their seniority, are on the first shift at each of the plants, and this makes it easier for the college to plan courses.
- **Employer technological needs differ as well.** The need to have workers trained on different technology has caused some difficulty in taking full advantage of the economies of scale provided by joint training. A relatively straightforward exam-

ple involves one company's use of control hardware manufactured by Allen Bradley and another's use of ABB company controls for a particular production process. In this case, the relevant training group split after three days at STLCC and continued their studies in the respective factories.

- **Tension between job-specific training and academic credit.** There are built-in tensions between training to meet the job-specific needs of the employers and training to provide employees with academic credits and a path to earn college and university degrees. The academic partner is particularly sensitive to both meeting the needs of the plants to upgrade the skills of workers to handle new equipment, and the grant requirement for academic credit. The balance between the immediate needs of the production process and the theoretical course work had to be struck.

While partners recognize that the maximum number of academic credits and the portability they bring are a great advantage to the workers, the tension between training for the immediate needs of the employer and the grant requirement for college credits and degrees remains an issue. While the tensions are not severe enough to threaten the program, they do affect the way courses are planned and presented, and even the manner in which people are selected for training.

Program Results and Returns to Stakeholders/Partners

This program marks the first time each of the four automotive plants and their local unions have planned training on an area-wide basis.

- It was established in response to a serious problem facing many companies, large and small, in the service and goods-producing sectors today: How to provide affordable, high-quality job-specific training, particularly training in new skills and technology needed by already highly skilled workers?
- It was also designed so participating workers could earn academic credits towards portable, industry-recognized certificates and degrees. Instead of simply meeting the immediate needs of particular employers, the training would allow workers to build and advance their careers with their current employer, or elsewhere.

The "St. Louis response" – labor, government and competing employers cooperatively providing common, tailored, accredited training to pools of skilled workers – is a ground-breaking approach that warrants careful observation.

* non-voting members

Benefits to Employers:

Enhanced high-technology capabilities on shop floor

Barely one-half year after inception, the program is creating a cadre of valuable skilled labor for the regional automakers and the effects are already visible on the production lines. A Training Coordinator at the Ford factory reported that the program has been successful in upgrading skilled trades people to handle AutoCad. These workers can go straight to the floor with diagrams, layouts and a planned approach to an assigned task. He cited people skilled in RSLogix who can use programming skills to troubleshoot equipment, and others who have acquired the predictive maintenance skills necessary to create schedules and procedures to identify problems before they can occur.

Training that is affordable and practical

The Consortium's multi-employer collaborative approach creates economies of scale, permitting companies to assemble groups for training that would have been cost-prohibitive for a single company. A Management Training Coordinator at Daimler-Chrysler's North Plant reported the value of having workers participate in shared training on variable frequency drives, used for precision positioning and holding body assemblies. Before this program, he needed to wait until he had enough workers at Daimler-Chrysler alone before scheduling this training.

Innovation through cross-fertilization

Training alongside workers from other companies provides skilled workers with a depth of experience they would not otherwise have had. One of the plant training coordinators praised the fresh approaches that their people were learning as a result of exposure to workers from other shops.

Benefits to the Employees:

Autoworkers who receive accredited skills training enhance their economic security by becoming more proficient at their current jobs and by becoming more attractive to other employers. Accredited certificates in various skills and technologies and academic degrees are portable and industry-recognized – a major benefit in an increasingly mobile and knowledge-based economy.

While it is early in the program, there are some quantifiable outcomes to report:

- As of the end of June 2006, 161 participants had completed courses in Enhanced Electrical Technology subjects.

- In addition, 35 participants have completed courses in Predictive Maintenance for Advanced Manufacturing Technology, and 17 have completed courses in Enhanced Mechanical Technology.
- 207 of the 213 students have earned certificates by demonstrating mastery of course competencies. Fifty-three have received two certificates, and 15 have received three or more certificates.
- College credit earned to date: 19 participants earned five to 12 credits, 41 participants earned four credits; and 73 participants earned one to two credits towards an Associates degree or higher.

The educational profile of the 213 participants is as follows: 49 entered the program with no previous college credits; 98 had some college credits; 38 entered holding an Associates degree; 23 had already earned their Bachelors and five entered holding a Masters degree.

Benefits to the Union:

Stronger union presence and capabilities

The St. Louis Consortium, which was initiated by the UAW, represents a major innovative step in worker training. By launching and supporting this new initiative, the UAW has demonstrated to its membership its determination to explore new ways to keep its members and the automakers at the leading edge of technological change.

The program has also strengthened the UAW's working relationships with regional education providers, public workforce and economic development agencies, and the "Big Three" management.

Members feel that the program is a good one, providing them with training options that were unavailable prior to its inception, and that reflects well on the union.

Benefits to economic and workforce development partners:

The Consortium fulfills, in major ways, the vision statement of the City of St. Louis Investment Board: "To provide ongoing opportunities and resources to develop and improve skills to be competitive and productive in today's job market."

Auto manufacturing is a highly competitive industry and a crucial component of the regional economy. Through the Consortium, the St. Louis WIB and SLATE are able to explore innovative approaches to preserving and creating high-wage, high-skilled jobs by maintaining the competitiveness of these large regional manufacturers. Experiences gained by the WIB and SLATE through this program may serve as models for other regional (and national) initiatives.

Next Steps

With the program in its first year, the stakeholders are focused on continuing to roll out the planned first courses and on working out bugs in the program. No expansions of the program to encompass other companies or work sites are contemplated at this time and, with the announced closure of the Ford plant in early 2006, attention is mainly fixed on maintaining current programs.

However, the December 2005 announcement by Daimler-Chrysler to make a \$1 billion investment in retooling their two St. Louis area plants is a great boost to the program and the

region. In the case of the South Plant, the investment will transform the facility into one of the country's most modern and flexible plants, allowing workers to assemble as many as four different models at that site. The investment is seen as a positive reflection on the skills and productivity of the workforce.

The stakeholders are universally enthusiastic about what has been achieved by the program to date and are even more excited about the potential gains they can realize through this innovative approach.

For more information, contact Tom Burress at tbures@workingforamerica.org or info@workingforamerica.org.

Challenge 2: Responding to small and medium size firms' and/or facilities' (those with less than 500 employees) recruitment and training needs:

In recent years, large, formerly vertically integrated firms have aggressively embraced the outsourcing and subcontracting of many of their component parts. In the process, they have made their own operations leaner and meaner, while pushing significant parts of the production process to firms that are typically smaller. These smaller firms generally have fewer resources to commit to training and education programs and/or new employee recruitment. Many small and mid-sized firms have no full-time human resources managers, and their education and training programs often consist of tuition reimbursement policies, where individual workers must take the initiative to obtain additional education and training on their own. To promote cost-effective new worker recruitment (see the potential link to # 3 below) and incumbent worker training within these smaller firms, initiatives that facilitate common training, assessment, screening, etc. for jobs at small and medium size manufacturers are especially important. Cross-employer skills training – while always desirable – can help ensure, in a cost-effective way, that workers in smaller firms get the skills they need to compete in the global economy. Training and education programs should link to economic development policies that respond to the needs of sectors, industries and local or regional economies.

Addressed as a primary challenge:

Supplier Excellence Alliance/Labor Education and Training Corporation (LETC) California Training Partnership

Wisconsin Regional Training Partnership (WRTP)

Addressed as a secondary challenge:

Community Learning Center, Inc. and its Aerospace Industry Training Program (see challenge # 3 for case study)

The Supplier Excellence Alliance/Labor Education and Training Center (LETC) California Training Partnership

Program Synopsis

This partnership is a complex example of a demand-driven, multi-employer, incumbent worker training program that involves prime aerospace manufacturers, supplier firms, local unions and a labor intermediary organization. The purpose of the partnership is to improve supplier performance in the aerospace industry. It is not a typical workforce development program in that its focus is to improve its supplier capabilities, performance and competitiveness by providing performance consulting services, trainers, training materials, and sources of funding to participating companies. The Supplier Excellence Alliance (SEA) Lean Enterprise System (LES) is a unified, industry-wide approach that avoids duplication of efforts and provides a set process for achieving operational excellence. The LES approach emphasizes leadership and culture, workforce development and operational excellence improvements in its supplier firms.

A key component of this model is to ensure that workers have the technical and participatory skills necessary to identify and implement activities to achieve the desired operational excellence improvements. The goal of the workforce development component is to prepare the supplier to plan and implement job skills training with the involvement of their employees that will result in improved processes, cross-training and job skills certification.

The Supplier Excellence Alliance (SEA) is a California-based, non-profit, 501c3 organization created by the leading aerospace companies. Union involvement to date is through the UAW LETC program and the local unions at each company. The UAW Labor Employment Training Corporation was created in 1984 in California under the auspices of the UAW Region 5. UAW Region 5 includes all of the Western and Southwestern states. LETC subsequently expanded nationally and currently operates programs in Kentucky, Missouri, Utah and New Jersey in addition to those states listed above. The mission of LETC is to serve the education and training needs of the workforce in participating states. As part of that mission, LETC helps small employers design and administer programs to meet their training needs and enhance their competitiveness. In its role with the SEA, LETC is also responsible for the outreach activities to the

unions and their SEA signatory employers. LETC's relationship to the unions and signatory employers is key to achieving union support for the program.

To understand how the model works at a particular supplier, the case study focuses on one supplier – Hitco Carbon Composites, Inc., and its unionized workforce – GMP Local 19 – which, together, have been engaged in the SEA process for the past two years.

Workforce Challenge

- **Responding to small and medium size firms' and/or facilities' (those with less than 500 employees) recruitment and training needs:** In recent years, large, formerly vertically integrated firms have aggressively embraced the outsourcing and subcontracting of many of their component parts. In the process, they have made their own operations leaner and meaner, while pushing significant parts of the production process to firms that are typically smaller. These smaller firms generally have fewer resources to commit to training and education programs and/or new employee recruitment. Many small and mid-sized firms have no full-time human resources managers, and their education and training programs often consist of tuition reimbursement policies, where individual workers must take the initiative to obtain additional education and training on their own. To promote cost-effective new worker recruitment and incumbent worker training within these smaller firms, initiatives that facilitate common training, assessment, screening, etc. for jobs at small and medium size manufacturers are especially important. Cross-employer skills training – while always desirable – can help ensure, in a cost-effective way, that workers in smaller firms get the skills they need to compete in the global economy. Training and education programs should link to economic development policies that respond to the needs of sectors, industries and local or regional economies.

Understanding the Demand and Meeting It

The SEA/LETC California Training Partnership is part of a larger effort to transform the supply chain in the U.S. aerospace industry into a more responsive, lower-cost provider of components. Faced with competition from abroad, and demands by the U.S. Defense Department and other major customers to produce better quality products at cheaper costs and shorter production times, the prime aerospace contractors are under tremendous pressure.

The DOD has moved the industry from “cost plus” contracts to “firm, fixed price” contracts. Added to that pressure is the industry’s desire to change from vertically integrated manufacturing to a systems integration approach. The prime contractors have adopted a strategy to source approximately 80% of their future contracts for civilian and defense-related work to their suppliers. These orders will be for new aircraft or space systems. Thus, many firms in the chain will no longer deal directly with the prime contractors but with Tier 1 and Tier 2 suppliers. This strategy means that prime contractors such as Boeing, Lockheed Martin and Northrop Grumman will become “systems integrators,” in which they assemble components produced by suppliers, whereas before, they did most of the actual manufacturing with components provided by suppliers.

When this strategy is fully implemented, companies that cannot adapt to this alignment of the supply chain may go out of business. That pressure is intensified because of the tremendous variation in the capacity of current supply chain companies: Some are small family-owned companies that specialize in one product; others are larger firms that produce multiple components. Many of these companies must learn to team with others to produce components or whole systems for the prime manufacturers and Tier 1 suppliers in order to reduce costs and compete with foreign suppliers. As suppliers take on new roles, they take on new responsibilities in design and more risks in creating value added production capabilities. These new roles also require them to improve their ability to partner with other firms in the supply chain so that they can operate in new “demand-driven”, collaborative supplier networks. These firms must do all this while providing close to 99% on-time delivery on low “ship set” volumes of parts and kits that are ready to use at a given point in the production process. The key characteristics of the new system are:

- Design for performance
- Low inventory and capital requirements across the entire chain
- Dependency on very short lead times with near perfect on-time delivery.

Underlying the SEA approach is the belief that many of the smaller suppliers lacked the organizational maturity to participate in such advanced, demand-driven networks and the capacity to meet cost reduction goals without assistance. While some suppliers have so far been successful in making improvements, it is estimated that many cannot keep up with the pace of change and competition from abroad without comprehensive and standardized assistance from the prime contractors. The industry average rate of 80% on-time delivery will not suffice in the near future. The anticipated need of providing assistance to suppliers to make these changes led

the prime aerospace companies to form the SEA. Founding members of the SEA include many of the top aerospace firms in the country (see program partner section below).

At the same time, many aerospace production workers found themselves in jobs in the industry that, although highly skilled, have no formal industry-wide recognized certification. The industry also saw a need to develop commonality in skills learned on the job and certifications for them. As suppliers begin partnering, the need for standard work processes and cross-training also becomes necessary. The shared needs for a leaner aerospace supply chain to improve employment security and industry-recognized certification for the industry’s workers led to union support for the SEA-sponsored training and operational improvements.

The SEA began its work in California because that is where 50% of its suppliers are located. The supply chain contains both union and non-union employers. Among unionized employers who decided to participate in 2004, were firms represented by locals of the International Association of Machinists (IAMAW), the International Brotherhood of Teamsters (IBT), the United Automobile and Aerospace Workers (UAW), the International Union of Painters and Allied Trades – District Council (IUPAT) and the Glass, Molders, Plastics and Pottery Workers Union (GMP). To recruit employers, SEA holds Executive Forums and invites management from suppliers to attend. Suppliers then decide whether they want to participate in the program. The LETC solicits the participation or approval of the local unions who represent participating supplier firms. LETC also administers the training funds for all firms involved in the ETP funded program.

Program Partners

The Supplier Excellence Alliance (SEA) is a California-based, non-profit, 501c3 organization created by the leading aerospace companies. The founding members include: BAE Systems; the Boeing Company; Bombardier; Cessna; Hamilton Sundstrand; JPL-NASA; Lockheed Martin; Northrop Grumman; Parker Aerospace; Pratt & Whitney; Rockwell Collins; Sikorsky; Textron, United Technologies, and HITCO Carbon Composites, Inc., a division of the SGL Carbon Group. Many smaller companies are also part of the alliance.

The SEA/LETC California Training Partnership is subset of this larger effort to transform the supply chain in the U.S. aerospace industry. Union involvement in the partnership is obtained through the UAW Labor and Employment and Training Corporation (LETC).

The aerospace supply chain contains both union and non-union employers. Among unionized employers who decided to participate in 2004, were firms represented by locals of the International Association of Machinists (IAMAW), the International Brotherhood of Teamsters (IBT), the United Automobile and Aerospace Workers (UAW), the International Union of Painters and Allied Trades – District Council (IUPAT) and the Glass, Molders, Plastics and Pottery Workers Union (GMP).

This case features a specific partnership at HITCO Carbon Composites Inc, where the union is the Glass, Molders, Pottery, Plastics and Allied Workers International Union (GMP) Local 19.

Program Activities and Methods

The SEA approach was to “create a unified version and a collaborative, industry-wide approach to supplier development that eliminates duplication and aligns existing resources to lead the deployment of lean manufacturing throughout its supply chain.” The approach is called the SEA Lean Enterprise System and was developed by a team of experts with input from 25 prime manufacturing companies; it was further refined with the feedback of the 34 supplier manufacturing companies that participated in the pilot program. The strategy is designed to address four key realities in the aerospace supply chain:

- The prime contractors have adopted strategies to source more of their production and design functions to supplier firms.
- Progress in achieving lean operations in the supply chain is slower than desirable.
- Suppliers are having problems developing value added capabilities to improve services and reduce costs.
- The cost of time is becoming more valuable, driving procurement decisions to the most reliable and capable suppliers who can meet on-time delivery and quality requirements, as opposed to those that are cheaper or nearer.

Thus, the goal is to assist these suppliers to, “become part of this new integrated supply chain that is capable of combining its resources in new models that can support kitting, point-of-use delivery and rapid, small-batch deliveries.” It is believed that this “mass customization” model can help entire supply chains work together to remain competitive in the global marketplace.

The SEA Lean Enterprise System focuses on three tracks: leadership and culture, workforce development, and operational excellence. The Alliance promotes the process through its Supplier

Outreach Program that consists of executive briefings and management workshops. The Supplier Executive Briefings are two-hour workshops that can involve as many as 20 companies and focus on explaining key changes in the industry and their potential impact on these suppliers. Generally, there are two sessions per day. These sessions are followed by one-day Lean Enterprise System Workshops for members of suppliers’ management teams to learn more about the SEA LES model and to develop plans for implementing it in their respective companies. If adopted, the SEA conversion plan is implemented through a series of 14 workshops that address the three tracks of leadership and culture, workforce development and operational excellence. This case study is focusing on the workforce development aspects of the change process, although it is important to note the interdependencies among the three aspects of the SEA program. To understand how the model works at a particular supplier, this case study will focus on **HITCO Carbon Composites Inc.**, a division of the SGL Carbon Group – and its unionized workforce – that has been engaged in the SEA process for the past two years.

SEA Workforce Development Model

In order to promote improved manufacturing processes, including the implementation and sustaining of lean production processes, standard work, and workforce flexibility, the work force development objectives of the SEA model focus on job skills, certification, and cross-training. The process for achieving these goals is defined in the SEA engagement process and consists of a series of workshops that cover the following activities: job skills assessments, training objectives, master trainer certification, advanced planning, and training materials development. The *job skills assessment workshop* employs cross-functional teams to: develop consensus on key processes; identify potential improvements and clarify known job skills training needs; identify key process owners, subject matter experts and trainers; and establish metrics for measurable results. The *master trainer workshop* is a three-day workshop that teaches trainers how to: plan and conduct effective job skills training; evaluate trainee knowledge and skills; implement standard work on any process; prepare visual work instructions; and help others reach standard work. The *job skills advanced planning workshop* is also a three-day workshop that enables participants to: examine the flow process and how to identify improvements to it; develop a master training plan; plan for cross-training where applicable; create a job skills curriculum; prepare a task analysis and training outlines; and identify trainees. The *job skills training materials workshop* involves trainers and subject matter experts to: document the process using visual work instructions; identify and/or create training materials; develop job skills certification tests; and develop job skills training aids.

SEA/LETC California Training Partnership in Action: HITCO Carbon Composites Inc. and the Glass, Molders, Pottery, Plastics and Allied Workers International Union (GMP) Local 19

Located in Gardena, California, HITCO is a major supplier of composite structural assemblies and high temperature materials to the aerospace industry. Founded in 1921, it is the oldest, continuously operating composites provider in the United States. It is also one of the largest integrated manufacturers of high-temperature materials including carbon/carbon and advanced engineered composite structures. HITCO designs, develops and manufactures a wide array of products, including nozzle components and assemblies for the Delta IV rocket, the Boeing C17 tail assembly, and fairings for the Boeing 767.

HITCO has over 335 hourly and salaried employees who engineer, fabricate, assemble and inspect aerospace composites. The average tenure of its employees is 10 years. The workforce is approximately a 50/50 mix of hourly and salaried employees. Hourly workers represented by GMP Local 19 earn an average of \$17.00 per hour plus benefits. Many of its technical salaried employees have college and advanced degrees.

Workforce Development Activities

The workforce development activities at HITCO Composites were focused on training and involving front-line employees in the operational improvements listed below. Employees participated in train the trainer activities and the development of training materials and assessment and evaluation tools. The process for making composite materials is labor intensive and involves a great deal of hand lay-up work. Therefore, the process can vary according to the individual performing the work. The business has grown at a 5-10% rate over the past few years, and thus there is a need to train new workers and identify the most effective lay-up techniques. In as much as the process depends on individual techniques, the company was eager to capture the best practices of its workers in making specific parts, in order to be able to replicate them in the shop and to teach them to new hires. Hourly workers volunteered to become part of teams that would develop strategies to standardize hand lay-up procedures using composite materials, which in turn, would reduce scrap and identify the best techniques to be taught to other employees. The company targeted areas or departments for improvements and asked for hourly volunteers.

Work teams also examined these techniques for process capabilities and replicability. The improvements were designed around the team, the process, and the product line. Before engaging in this work, the participants received training in problem-solving, statistical process control, Pareto analysis, cause and effect dia-

gramming, and standard work definition. Other improvements focused on improving the cutting operations for carbon ply materials to eliminate the need for lay-up operators to trim those materials before making the parts.

Operational Excellence Improvement Activities

Operational Excellence Improvement activities were centered on five Kaizen events in the first year. *The Kaizen 1 Receiving Event* involved 10 employees in three sub-teams, who identified material receiving, and inside and outside material inspection issues for action. They developed strategies to reduce the backlog of materials in receiving, modify and standardize the receiving process, including procedures and reports and improving its process for expediting priority materials. *The Kaizen 2 Shipping Event* involved 13 employees in three sub-teams over four days that focused on scheduling/planning and program flow down requirements. The result of this event was the creation of an improved, dedicated workspace with all necessary equipment for the source inspectors; this has significantly reduced the amount of time that the documentation staff has to spend with source inspectors. *The Kaizen 3 Machining Process* was a four-day event held with 10 employees to focus on the machining process as it relates to customer demand and bottlenecks in the overall process. The goals of the event were to eliminate queues, reduce set-up time, and provide a better flow into and out of machining to improve productivity. As a result, work boards showing work priorities were created, which allows workers to begin set-up for the next job while the machines are still operating, thereby reducing set-up time. *Kaizen 4 Atlas Fairing* focused on the Atlas V fairing process and involved 12 employees to improve the core forming process and reduce cycle time. *The Kaizen QA Lab Event 5* also involved 12 employees and focused on eliminating roadblocks in the process: reducing or eliminating queues, improving the flow of parts, and improving documentation procedures and the prioritization of work.

Connections to the Public Workforce and Economic Development Systems

SEA/LETC California Training Partnership is connected to both the public workforce and economic development systems. Because of its emphasis on training incumbent workers, the **State of California's Employment Training Panel (ETP)**, a state training fund financed by employer contributions, granted the SEA \$1,598,500 to improve the skills of 1,150 employees of small aerospace firms that supply the major prime contractors who comprise the SEA. The ETA dollars were used by HITCO to help fund its improvement activities.

Program Funding Sources

The SEA approach is to match public funds with contributions from the prime contractors and investments from the supplier firms to fund the conversion programs. Supplier firms are expected to also invest time in learning and implementing the Lean Enterprise System. California's Employment Training Panel contributed \$1,598,500; that was matched by investments of over \$2,200,000 by participating aerospace companies and suppliers. SEA and LETC are also considering other sources of funding for their work. They may apply for statewide Workforce Investment Act incumbent worker training dollars, for example. They are also considering embarking on a new employee recruitment and training program for their participant companies. If they do so, they will pursue Workforce Investment Act funding, more likely at the local level, for those activities as well. The SEA also hopes to replicate the California example in additional states with a significant aerospace presence. Those states may not have a training fund similar to the California ETP, making WIA funding more critical. In May, the Governor of Connecticut announced a two million dollar, two-year initiative that will strengthen the state's aerospace and defense industry supplier base by using lean manufacturing techniques to boost productivity and efficiency.

Barriers Overcome

The prime contractors knew where they wanted to take the U.S. supply chain, but getting it there was another matter. The aerospace industry is comprised of thousands of suppliers that range from small, family owned businesses to subsidiaries of larger companies; this traditional structure would not meet future needs in the face of demands for cheaper, faster, better products. As a result of these pressures, it is estimated that California lost 65% of its aerospace jobs in the past 12 years to other states and offshore producers – even though the prime manufacturers were individually demanding that their suppliers adapt lean manufacturing techniques in order to improve efficiency. Many of these supplier companies had already attempted to respond to the process improvement demands of the prime companies. However, each prime was demanding that suppliers adopt what turned out to be multiple approaches to lean manufacturing that were costly and complicated for the suppliers. In addition, many of the smaller suppliers lacked the resources to implement these changes. As a result, although many initiatives were implemented, they were not resulting in the desired efficiencies and on-time delivery goals. Many suppliers sought a more unified, consistent approach. The prime contractors sought methods that would transfer the necessary

training to achieve the desired improvements in a quicker time frame. Developing such a unified method was the first barrier. SEA responded by creating the SEA Lean Enterprise System. SEA brought together experts from 25 prime manufacturers to develop an approach that incorporates best practices from those firms into a unified, three-part approach that focuses on leadership and culture, operational excellence, and workforce development. This approach contains a process for conversion into the Lean Enterprise System. The system also encourages suppliers to partner with others in the supply chain to meet results unachievable on their own. Getting suppliers to buy in and participate is an ongoing process. SEA began in California with a small number of suppliers and is rapidly expanding from there. SEA has an ambitious schedule and seeks to expand into a number of states by the end of 2006. It held workshops throughout the country in 2005. Participating companies are expected to commit to the entire process, lasting from six to 36 months. The process requires the successful completion of each phase before moving on. Companies are also expected to invest an average of \$120,000 of their own funds into the program. These have been significant barriers that must be overcome in order to promote the program. Union locals had to understand and support the training program for their members and send a letter to LETC indicating that support.

Program Results and Returns to Stakeholders/Partners

Benefits to Employers:

As indicated above, we are focusing on one unionized employer's experience with the SEA/LETC California Training Partnership's Lean Enterprise System. Most of the reported outcomes are related to that company's experience. However, in the first six months of the California program, the following improvements listed by four suppliers provide an overview of the early results of the SEA/LETC program.

- A connection supplier with 265 employees reported a 46% reduction in set-up time and a 50% reduction in tooling change.
- An aircraft cabin refurbishing company with 190 employees reported a 95% reduction in re-work, a 25% reduction in the number of past due orders and an 18% improvement in upfront response time.
- An electro-mechanical switch supplier with 100 employees reported a 36% improvement in on-time delivery, a 63% improvement in inventory turns and a 100% reduction in the number of past due units.

Benefits to the Company:

The HITCO management team launched its Lean Enterprise planning in 2003 and set its operational excellence goals as: improving its receiving inspection process; improving its shipping reports accuracy; and improving its manufacturing processes for brake machining and Atlas V nose fairing, in order to improve response time throughout the factory and reduce the past due backlog and costs. In 2004, the company held 5 Kaizen improvement events directed at achieving those goals. The anticipated results of the five Kaizen Events over a two-year period were: a 48% reduction in dock to stock cycle time; a 64% reduction in customer past due backlog; a 20% reduction in cycle time; and a 10% reduction in yearly inventory carrying costs. Partial results to date have been impressive. Sales increases at HITCO are in the range of 15 to 20% since engaging in SEA. While the program cannot attribute a direct cause-and-effect relationship to the increase, managers assert that SEA is a key success factor.

At HITCO, the effects on the employees who participated in the training and the ongoing process improvement activities were immediately noticed. A company spokesman reported: “this program has had a significant impact on employee morale. The empowerment to change the work environment for the better and to see the change implemented has been highly motivating.”

As previously mentioned, one of the goals of the SEA engagement process is to change the company culture into one that consistently seeks to enhance the knowledge and skills of the workforce while involving them in specific process improvements so that each participant is considered an owner of the change process and will help lead the process. HITCO’s projects for 2004 focused on improving individual processes in receiving inspection, shipping, and manufacturing machining, and reduction in labor hours. The focus for 2005 was to improve integrated business functions, such as resource planning systems, shop metrics, job estimating, and process flow for the C-17 tail cone.

The Company also notes longer-term, positive cumulative effects of the program:

- Overhead rates (per product) have dropped from 330% to 240% and continue downward.
- Unit production costs and defect rates have dropped significantly – more than 15% in many cases.
- HITCO reported its best financial performance since 1998 in 2005, and SEA is a key factor.

Benefits to the Unions:

SEA/LETC is all about retaining work and thus retaining jobs. There is no higher priority for a U.S. manufacturing union. This program enables union members to participate in designing solutions to real-world manufacturing problems. That in turn enables signatory employers to lower costs and increase productivity, thus increasing competitiveness vis-à-vis global competitors. Any effort, which encourages competitiveness on something other than labor costs, is a win for manufacturing unions. Another benefit to the union is that the industry-recognized certification of training and increased skills of its members as a result of participating in the program is directly attributable to the union’s engagement with SEA/LETC. A union staff representative said the he was in favor of any training that would increase the skills of his members and enhance their long-term job security.

HITCO has avoided layoffs and uses slow times to provide cross-training to hourly employees. The business is growing and the workforce has grown proportionately at a rate of 5-10% a year.

Benefits to the Participants:

The employees gain important skills that enable them to do their jobs, better perform their jobs, and to have a say in how they do their jobs. At HITCO, employees learn new skills in lamination, assembly, teamwork, shop metrics, lean manufacturing, statistical process control, and 6 Sigma. In addition, the participants achieve a skills certification at the end of each of the three phases of the Lean Enterprise System. This certification will be recognized by all of the SEA participating prime contractors and suppliers throughout the industry. The industry in general is seeking greater commonality in the way it does business, and there is an initiative to create common certifications across the aerospace industry. LETC and HITCO are also interested in incorporating the Manufacturing Skill Standards Council Assessments into the program. HITCO is working to achieve community college credit for the SEA certifications. HITCO will be partnering with a local community college to offer for-credit courses in composite subjects for structure laminators and assemblers. Wage gains are realized when employees complete the required “skills sets” for their positions. Each skill set completion results in incremental increases to their hourly wage.

Benefits to other stakeholders:

Among the major stakeholders in this program are the prime contractors themselves, who benefit from a more efficient, cost effective and reliable supply chain. Those firms who cannot adapt are likely to go out of business or be bought out by more

successful competitors. As a result, the communities in which the suppliers are located are indirect stakeholders who stand to benefit if the participating employers survive or expand their businesses during this transformation.

Next Steps for the Program and/or the Partnership

Expanding the California program to a national one is crucial to the long-term success of the SEA program. SEA has an ambitious schedule to expand to approximately 22 states and to engage 2,000 suppliers by the end of the year 2006. In order to accomplish this, SEA will need to – among other tasks – promote the awareness of, and support for, the program among the

major unions representing aerospace workers. In California, the UAW LETC program was able to do the necessary outreach and gain approval of the local unions representing interested suppliers. However, there is a need to involve staff from the international unions and leaders and staff from the various districts and regions where SEA hopes to expand. LETC is not in a position to facilitate such buy-in or administer grants in all of the targeted states. Thus, there is a need to expand the number of labor unions and intermediary organizations who are aware of, and support, the program in the targeted areas, in order to build local capacity to support and administer the programs.

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The Wisconsin Regional Training Partnership (WRTP)

With a focus on three company/union partnerships:

**Milwaukee Brush/ United Steelworkers (USW)
Local 9040**

**Milwaukee Cylinder/ International Association of
Machinists (IAM) Local 908**

Oilgear Company/ IAM Local 1845.

Program Synopsis

WRTP is a non-profit membership organization that helps small and medium-sized enterprises expand employment and advancement opportunities, upgrade the skills of incumbent workers, and recruit and retain qualified job candidates. Some 150 Milwaukee-area employers, including 80 manufacturing companies, are currently members of WRTP.

The Wisconsin AFL-CIO and its affiliated unions created the WRTP in the early 1990s, in cooperation with the Greater Milwaukee Committee (representing area employers), in response to waves of layoffs and plant closings in the region's large manufacturing sector. WRTP has since expanded its projects into other sectors, including construction, health care and services.

WRTP provides its members specialized products and services spanning four general areas:

- **Consulting:** to facilitate the implementation of new technologies and work processes designed to improve quality, productivity and other bottom-line measures of performance
- **Training:** to facilitate access to external resources and services that enhance the education, training, advancement, and employment security of incumbent workers
- **Staffing:** to assess, prepare and place a diverse pool of qualified workers for job openings
- **Retention:** to improve retention and advancement of incumbent employees.

This case study examines WRTP's recent work in these four content areas with three, small- to medium-sized, Milwaukee-area, unionized manufacturers:

- **Milwaukee Brush's** goal was to maintain domestic production in the face of low-wage overseas competition by cutting costs and boosting quality and delivery times.
- **Milwaukee Cylinder's** goal was to compete in an increasingly competitive domestic market for hydraulic equipment by developing new products for specialized applications.
- **Oilgear's** goal was to absorb new work from Texas, increase output, slash lead times and maintain (or lower) costs.

This case study examines the ways in which WRTP helped these companies and unions work together to meet these goals and describes the outcomes achieved for each of the companies.

Workforce Challenge

- **Responding to small and medium size firms' and/or facilities' (those with less than 500 employees) recruitment and training needs:** In recent years, large, formerly vertically integrated firms have aggressively embraced the outsourcing and subcontracting of many of their component parts. In the process, they have made their own operations leaner and meaner, while pushing significant parts of the production process to firms that are typically smaller. These smaller firms generally have fewer resources to commit to training and education programs and/or new employee recruitment. Many small and mid-sized firms have no full-time human resources managers, and their education and training programs often consist of tuition reimbursement policies, where individual workers must take the initiative to obtain additional education and training on their own. To promote cost-effective new worker recruitment and incumbent worker training within these smaller firms, initiatives that facilitate common training, assessment, screening, etc. for jobs at small and medium size manufacturers are especially important. Cross-employer skills training – while always desirable – can help ensure, in a cost-effective way, that workers in smaller firms get the skills they need to compete in the global economy. Training and education programs should link to economic development policies that respond to the needs of sectors, industries and local or regional economies.

Understanding the Demand and Meeting It

Wisconsin's manufacturing economy is still reeling from the economic upheavals of the 1980s, which wiped out, in one decade, fully one-third of Milwaukee's manufacturing jobs.

The 1990s and early 2000s saw continued erosion in Wisconsin's industrial base. Heightened global competition caused many Milwaukee-area plants to close or move production to facilities outside the United States. According to the Small Business Administration, 40% of manufacturing workers in Wisconsin work in firms of less than 500 employees. The median salary in manufacturing in Wisconsin is \$55,000, topped only by engineering.

The companies examined in this study were under severe economic pressure when they began to partner with WRTP in 2002 and 2003.

- Milwaukee Brush – a manufacturer of wire brushes for various industrial and commercial applications – was losing \$1 million a year and facing tremendous cost and quality pressures from overseas producers.
- Oilgear Co. – a manufacturer of hydraulic pumps, motors, valves and servo-electric controls – had laid-off 20% of its workforce and was staging periodic plant shutdowns.
- Milwaukee Cylinder – a producer of specialty-application hydraulic cylinders – saw its revenues decline by 33% and its employment levels drop 30% between 1999 and 2003.

The overall average wage for the three companies is \$17.00/hour. All three companies provide health care, pension, vacation and sick leave benefits.

All of these partnerships were initiated at the suggestion of union business agents who recognized the need for change in the way they related to the companies. Because they have such a good relation with WRTP, they recommended that the Partnership facilitate these changes. WRTP develops and maintains close relationships with the business agents of member companies. The Partnership's experience demonstrates that technical training alone has limited value in boosting productivity without a change in relations inside the shop, and that achieving this change sets the stage for the delivery of training by the Wisconsin Manufacturing Extension Program, one of the partners in WRTP's work in the manufacturing sector.

Program Partners

WRTP served as the intermediary, working with three firms and their unions:

- Milwaukee Brush and United Steelworkers (USW) Local 9040
- Milwaukee Cylinder and International Association of Machinists (IAM) Local 908
- Oilgear Company and IAM Local 1845.

Much of the technical training was provided by the Wisconsin Manufacturing Extension Program (WMEP). WMEP is part of a nationwide network of not-for-profit centers, linked together through the Department of Commerce's National Institute of Standards and Technology. Using WMEP created considerable capacity sharing, as companies did not need to start from scratch in developing a curriculum for the training.

Program Activities and Methods

Since the role of WRTP as an intermediary is critical to this case, a focus on how the Partnership operates is important. It is also important to note how the WRTP approach was adapted to meet the needs of each of the target companies.

WRTP Internal Structure

A "Leadership Team," overseen by a Board of Directors, manages the day-to-day operations of WRTP. The Team consists of an Executive Director, Program Manager, Administrative Manager, Union Representative, Director of Special Programs and the Director of BIG STEP, a construction apprenticeship program.

Three teams work under and report to the Leadership Team:

- **Industry Coordinators** — direct contact with unions and companies, conduct needs assessments and negotiate creation of programs
- **Administrative Team** — manages WRTP finances, grant reporting and grant administration
- **Employment and Training** — works with community based organizations, employers and unions on programs including displaced workers, recruitment, pre-employment training and incumbent worker training.

WRTP Mission: Family-Supporting Jobs

Employers must meet certain criteria to become members of WRTP. They must not depend heavily on temporary employees, and there must be a clear path and demonstrated commitment to transition temporary employees to permanent employee status.

WRTP's stated mission is to promote "family-supporting jobs." Member companies must pay at least a "living wage," defined as \$8 an hour with benefits or \$13 an hour without benefits. Workplace conditions must be safe and healthy, and turnover must be low. The majority of WRTP members are unionized companies.

Fitting Programs to Company Needs

Every two years, WRTP surveys its membership, conducting a needs assessment, a demographic survey of the work force and a review of work place conditions.

When a member company or union requests WRTP assistance, program staff immediately contact both management and the union to ensure that both parties are ready and willing to work together. If a potential partnership is deemed viable, WRTP helps the parties identify their needs in terms of future workforce requirements, incumbent worker training, and modernization and process improvement.

The companies are asked a series of questions about their workforce needs, including whether they are looking to hire or to upgrade the skills of their current workforce.

From the start, however, WRTP aims to create a genuine, functioning labor-management partnership to oversee the programs. The Partnership's philosophy is that if the workers are not equal partners in workforce change right from the start, the program will not succeed.

WRTP pursued this standard approach in its work at Milwaukee Brush, Milwaukee Cylinder and the Oilgear Co., creating joint labor-management leadership teams and small, focused discussion groups involving management and labor, from the shop floor, up. However, the work sites differed in terms of the composition of the work force, the relations within and between labor and management, and the business needs of the enterprise. While many of the activities WRTP guided and helped implement at the work sites appear similar, they unfolded in different ways and led in different directions.

The three workforces are similar in age and size:

- 65 USW members at **Milwaukee Brush**
- 65 IAM members at **Milwaukee Cylinder**
- 99 IAM members at **Oilgear**
- Average seniority at **Milwaukee Brush** and **Milwaukee Cylinder** is between 20 and 25 years; at Oilgear the average is 17.5 years.

They differ sharply by race and gender:

- At **Oilgear** and **Milwaukee Cylinder**, 99% of the workforce is white, male and English-speaking, with only a few African-Americans, Hispanic workers and women.
- At **Milwaukee Brush**, 50% of the work force is Hmong or Laotian and the remainder is mainly African-American, with

some Russian, Hispanic and native white Caucasians. The **Milwaukee Brush** workforce speaks eight different languages and is evenly divided between men and women.

WRTP involvement began very differently at the three locations.

- At **Milwaukee Brush**, labor-management relations until quite recently resembled “open combat,” according to a USW representative. The German-based parent company, Pferd, terminated all but one local manager in the strife-torn shop. Instead of proposing to shutter the money-losing facility, Pferd proposed to extend its the lease on the shop for five years, and they offered the USW a new five-year contract that included annual raises plus a ‘gain sharing’/pay-for-knowledge plan to reward employees for mastering new skills. (The company also committed to spending \$50,000 of its own money on work-related English language training for its workers.) While Pferd Milwaukee Brush and the USW had joined WRTP in 1997, they had never initiated any partnership activities. In agreeing to the new five-year contract in 2002, the USW joined management in inviting WRTP into the shop to help restructure the business.
- At **Oilgear**, management made a novel proposal to IAM District and Local leaders in 2002. The company offered to address its overcapacity problems by closing a non-union plant in Texas and consolidating production at its unionized Milwaukee facility. The offer hinged on the union's willingness to negotiate work rule changes and adopt other measures to promote “lean production” and improve product delivery times. (Labor costs were 15% lower in Texas, but Oilgear needed to maintain or lower production costs, even while paying Milwaukee's higher union pay scales.) The IAM, which had a decent working relationship with Oilgear, responded by asking management to meet with the WRTP.
- In 2002, at **Milwaukee Cylinder**, the union and management realized the need to change. Inefficient scheduling, poor planning, and a decline in customer satisfaction made change an absolute must in order to have a viable long-term business. IAM leaders invited WRTP to address their local union meeting. After meeting the WRTP staff, IAM members voted overwhelmingly to agree to a new cooperative work relationship with management. Milwaukee Cylinder, which historically has had a decent working relationship with the IAM, agreed.

Building consensus/building trust

The change from top-down management to a collaborative working relationship is stressful and difficult, even at shops like Milwaukee Cylinder and the Oilgear Company, where management and

the union agree that “decent labor relations” historically prevail. As WRTP experience shows, in this process, people on both sides, at all levels, are asked to give up traditional prerogatives and learn new roles, a change that can be very threatening.

It is inside the joint leadership teams and small shop floor focus groups that workers and managers learn to debate and pinpoint problems and possible solutions. It is here – in the very earliest stages of the process – that people who have never collaborated, who sometimes have fought for years and may be deeply skeptical of the need for (or possibility of) workplace change – are gradually convinced.

The labor-management team must identify participants’ skills, commitment, trust levels and needs. The team can then build trust and buy-in by involving people in the discussions and actual implementation. Participants with experience on these teams caution, however, that when team leaders ask for help in changing a practice, they must be prepared to accept advice.

Accountability and producing visible results are also vital to building trust and buy-in. In WRTP projects, participants learn to set deadlines, define processes and create plans and schedules. The union credits WRTP for teaching how to run meetings, elicit commitments and produce results.

Transparency in the process is also important. Charts are often posted in prominent places in the shop, so everyone can see the decisions that were made, the target dates for each step of the projects and the actual progress of the work.

Similar programs/Different directions

WRTP-guided training and education programs at each location are tailored to meet the needs and objectives of the particular worksite.

Training at all sites was on-site and company-paid and included certificates for technical training, including set-up, electrical work, hydraulics and machine operations. Most of the technical training was provided by WMEP, which makes available the technical assistance of specialists who have had experience on manufacturing floors and in plant operations in the development and delivery of training and process improvement for manufacturers.

Workers receive certificates from plant managers showing that they completed training in such skills as set-up reduction, blueprint reading, and set-up and operation of various machines.

While none of the training was for academic credit, or performed outside of the shops, certificates documenting proficiency in various manufacturing skills and equipment clearly have value in applying for jobs in other manufacturing settings.

Training and education activities, which differed based on the needs of the companies, included¹:

- Contextual reading skills, using shop forms, safety labels, etc.
- Shop Math skills
- Set-up Reduction
- 5-S Quality Improvement
- Value Stream Mapping, leading to reorganization of shop into work cells
- Total Production Maintenance
- Blueprint reading
- Production and Quality Metrics
- Problem Solving
- Leadership skills

All the workers benefited from these improvements through their Profit Sharing Plans and the Pay-for-knowledge programs. Their bonuses were increased as a result of improved productivity. An example is Milwaukee Brush, where 23 job classifications were reduced to six. To perform the new job descriptions, workers had to be trained. While there was no certificate for the training, it did qualify workers for the Pay-for-knowledge program. The wage increases across the companies ranged from a low of \$.10 to a high of \$.70 per hour.

Connections to Public Workforce and Economic Development Systems

While WRTP participates on state and local workforce and economic advisory boards, the primary public involvement in the three featured companies was provided by WMEP. Manufacturing Extension Partnerships (MEPs) are a nationwide network of not-for-profit centers linked together through the Department of Commerce’s National Institute of Standards and Technology Centers and are funded by federal, state, local and private resources to serve manufacturers. Using the services of the MEP program makes it possible for even the smallest firms to tap into the expertise of knowledgeable manufacturing and business specialists all over the United States.

¹ For example, Milwaukee Brush included an ESL program for Asian language speakers and trained 70 workers on three shifts, doubling shop-related reading comprehension of the participants. Brush workers also increased their shop math comprehension from 49 to 70 percent and Cylinder workers raised their shop math comprehension from 55 to 87 percent. Oilgear’s approach concentrated on training in set-up reduction process, 5Sigma and Value Stream mapping, with an eye toward increasing productivity and cross-training among product lines. See Program Results and Returns to Stakeholders for further details.

Public funds from the Wisconsin Governor's Council on Workforce Investment are often tapped by WRTP, and in the three projects in this case study, those funds were made available for training (see Program Funding below). In the case of Milwaukee Cylinder, a \$44,000 Federal Mediation and Conciliation Service (FMCS) grant was also used to fund a move into a High Performance Work Organization.

Program Funding Sources

WRTP funding

A combination of public funds and grants supports WRTP. In addition to the public workforce development funding mentioned above (Manufacturing Extension Program; Federal Mediation and Conciliation Service; and Wisconsin Governor's Council on Workforce Investment), WRTP receives funding from the City of Milwaukee (Community Block Development Grant), Milwaukee Public Schools, Milwaukee Sewerage District and the Wisconsin Department of Transportation. Grantors include the Anne E. Casey Foundation, Charles Stewart Mott Foundation, Forest County Potawatomi Community Foundation, Greater Milwaukee Foundation, Harley-Davidson Foundation and the Helen Bader Foundation.

Program funding

In the case of the three companies in this case study, state training grants of \$17,000 to Milwaukee Brush, \$21,000 to Milwaukee Cylinder and \$30,000 to Oilgear Co., as well as the assistance of the WMEP in delivering the training were the primary sources of support. As indicated above, in the case of Milwaukee Cylinder, a \$44,000 FMCS grant was also used to fund a move into a High Performance Work Organization.

In-kind contributions for these particular programs were also substantial. In each of the three companies, the employer paid employees' wages during their participation in training and labor-management relations committees. The three companies also paid a fee to WRTP related to the administration of the state incumbent worker grants

Barriers Overcome

The small and medium sized employers all stressed how difficult it is for small shops to take people off the job and devote time and money to meetings during working hours, or to work-

site visits to other firms to inspect and learn from different practices. The low cost of WRTP (and WMEP) training, and the emphasis on well-run, results-oriented meetings, mitigated this problem. The key, managers said, is learning that the time and money taken from production today produces permanent changes that yield higher productivity and earnings, improved labor relations and enhanced worker motivation.

Union leaders emphasized how difficult it can be to adjust to new roles in the workplace. Members may be uncertain about how far their new jurisdictions extend and what kind of new authority they have. Adjustments may be difficult and confidence may have to be built. For example, requests to engage in cross-training can trigger fears of job elimination and layoff. Requests to partner with management can cause fear that managers will attempt to co-opt or to trick the union. The fact that WRTP staff members (and WMEP instructors) are former union workers with shop floor experience was key to overcoming many of these fears. Benchmarking trips to other union work sites helped show union members that collaborative efforts could work without eroding union protections. Union concerns were also calmed by company moves to bring new work to the shop (at Oilgear and Cylinder) or to install new managers and sign new contracts providing pay raises (at Milwaukee Brush).

These barriers at the three companies mirror problems that WRTP and WMEP have had to overcome in their efforts to facilitate workplace change at other companies:

Adjusting the expectations of managers and labor leaders.

Both managers and union leaders must alter their traditional roles and collaborate more effectively to reach common goals. Managers must abandon their customary role of giving orders, and union leaders their more reactive roles. Both sides must also guard against transforming their "team" into yet another layer of management, hobbled by a rigid structure and disconnected from shop floor workers and managers. Leadership team members must be accountable to shop floor personnel, with whom they should meet regularly. Those on the shop floor, in turn, can generate ideas and plan and carry out tasks, but they need to hold themselves accountable for results. Similarly, WRTP staff has had to learn to be flexible enough to allow workers and managers to take ownership of the process, yet also able to provide guidance when necessary.

Getting "buy-ins" from shop-floor workers and line supervisors. Paradoxically, those who have traditionally had the least power in the work place often feel they have the most to lose when confronted with change. Because many shop floor workers and managers have witnessed top-down, short-term efforts to "transform the workplace" that created as many problems as they solved,

these participants may have to be convinced of the program's seriousness. Steady, one-on-one-work, emphasizing visible results and genuine participation of workers and line supervisors, is the best way to secure the commitment of those affected and involved.

Overcommitment. WRTP strives to assess available resources, and to search for viable alternatives, before committing to members' requests for assistance. For example, several member companies wanted WRTP to organize a pre-employment training program for welders. On closer examination, WRTP discovered there were not enough training sites available with the proper equipment, nor was there an adequate pool of potential trainees with the required skills and background. Committing under these circumstances would have frustrated the students and short-changed the employers. In this case, WRTP is exploring an on-the-job training program, developed with the union and management, with partial funding through Commerce or WIA grants.

Program Results and Returns to the Stakeholders

All three locations have created empowered, self-directed work teams in which shop-floor workers and managers collaboratively plan and schedule work, training, and the ordering of machinery, tooling and supplies. For the 2003-2004 time frame:

Milwaukee Brush reports:

- 30% reduction in scrap
- 95 -100% on-time delivery rates (up from 70% in 2004)
- Lead times on some jobs cut to 40 minutes (down from 11 – 12 days)
- 70% basic math comprehension levels (up from 49%)
- Doubling in shop-related reading comprehension among Hmong, Laotian and other non-English speaking employees
- \$50,000 profit in 2005 (up from \$250,000 deficit in 2004)
- Improved labor relations (no grievances filed in past 8 months)
- The addition of a third shift, with six new hires.

Milwaukee Cylinder reports:

- 20–30% higher productivity
- Lead times reduced by 60-72%
- 88% on-time deliveries (up from 27% in 2000)
- New hiring
- Domestic production for a sister company abroad, now accounts for 8% of shop's business and created five new hires

- A move into High Performance Work Organization, with a \$44,000 FMCS grant administered by WRTP.

Oilgear Company reports:

- 25–30% reduction in set-up times (saving the company some \$100,000 annually)
- New work and product lines coming into shop
- New capital investments in shop
- Stabilized employment.

Benefits to the Employers:

- **Increased productivity** due to higher worker motivation and enhanced skills, particularly in cross-training and teamwork.
- **Lower supervisory costs** due to fewer grievances and a flattened internal structure. At Milwaukee Brush, for example, there is now one supervisor on first and second shift, and no supervisor on third shift because the work team leader manages at night.
- **Lower training costs:** Rather than relying on outside consultants or off-site instruction, WRTP stresses on-site, low-cost training and teaches the labor- management teams to formulate and implement their own solutions. As one plant manager said, "We're developing our own in-house capabilities, not becoming dependent on consultants."
- **Improved quality, customer satisfaction and higher sales:** All three companies report higher levels of production, with faster turn-around times and new orders and business.

Benefits to Employees:

- **Job security:** Prior to the WRTP-guided partnerships, all three companies were laying off workers and in danger of closing. Employment is now either stable or growing at all three locations.
- **Higher wages:** Labor agreements at all locations include pay-for-knowledge plans that compensate employees who master new skills. At Milwaukee Brush the plan was developed subsequent to the labor/management partnership. The company had 23 job classifications that they reduced to 6. With that new flexibility they were able to institute pay-for-knowledge. Pay for knowledge was already in place at Milwaukee Cylinder and Oil Gear, and both companies were able to enhance the provision through productivity increases. At Milwaukee Cylinder, "Process Cell Lead" positions were created and pay was linked to performance reviews.

- **Portable certificates/Enhanced career opportunities:** Employees at all three locations receive company-paid training, on company time and receive certificates for mastering various technical skills.
- **Greater job satisfaction:** Rather than taking orders and pushing buttons, employees at all locations are involved, on an equal basis with managers and engineers, in creative thinking, problem solving, planning and decision-making. Workers feel a genuine sense of ownership, participation, responsibility, empowerment and respect.

Benefits to the Unions:

- **Enhanced capabilities:** Beyond negotiating contracts and processing grievances, union leaders at the three locations are now responsible for a broader range of challenging activities. Union leaders at all levels must now understand and effectively participate in the day-to-day operations of the shop and in helping plan the future of the enterprise. Union leaders have had to master new areas of knowledge and develop new capabilities. As one union leader pointed out, “We keep our contractual work separate from our partnership activities, but the professionalism and skills you develop in one area definitely carry over to your work in the other.”
- **Stronger standing with union members:** As a result of the English language training at Milwaukee Brush, Hmong and Laotian members (who comprise 50% of the bargaining unit) are now attending union meetings and becoming active in the life of the union. Every day, union members of all nationalities, at every shop, can see how the union’s work with WRTP and plant management is improving job security, job quality and the overall health of the business.
- **Greater stature in the community:** The program has allowed the companies to maintain their operations and the communities in which they are located. While layoffs and plant closings are happening elsewhere, the communities benefit from sustainable employment at relatively high wages in a union environment.
- **Greater stature in the community:** Increased likelihood of membership retention: Keeping jobs in the state means less likelihood that the unions will lose members in layoffs.

Next Steps for the Stakeholders and/or for the Participants

Milwaukee Brush:

- Aims to create a permanent third shift, with six new permanent, full-time employees. (It recently added a third shift with six temporary workers).
- Is considering buying a new building with an additional 25,000 square-feet of floor space. (It leases its current building).
- Plans to invest some \$3.7 million on new machinery.

Milwaukee Cylinder:

- Is pressing forward with intensive HPWO training, including weeklong off-site sessions at the IAM’s national education center.
- Is considering beginning computer training at a regional technical college.
- Milwaukee Cylinder is the only IAM union shop of its parent company, Actuant. In 2003, Actuant selected Milwaukee Cylinder as the site of a new product line due to their commitment to a three week lead-time. This selection was also based, in part, on the cooperative teaming of management and labor, resulting in the improved training and productivity of the workforce. This has resulted in \$180,000 capital improvements and due to the lead-time being reduced from 12 weeks to 3 weeks. This allowed Actuant to double sales on this product line. This product added to the stabilization of the workforce, as well as the possible addition of at least 2 new positions in 2006.

Oilgear Company:

- Is “closely considering” adopting the HPWO model of operations.

For more information, contact Tom Burress at tbures@workingforamerica.org or info@workingforamerica.org.

CASE STUDIES: CHALLENGE 3

Challenge 3: Meeting employer demand while minimizing the deleterious effects of layoffs:

While layoffs are a part of the manufacturing landscape, employment opportunities exist in the sector for those with relevant skills. To address this challenge, workers and employers need: a) apprenticeship or skills standards programs that provide portable, industry-recognized credentials to help workers access available jobs and help employers find skilled workers; and b) mechanisms to assure that laid off manufacturing workers can promptly identify good manufacturing jobs still available in their regional labor markets.

Addressed as a primary challenge:

Community Learning Center, Inc. and its
Aerospace Industry Training Program

The Community Learning Center, Inc. and its Aerospace Industry Training Program

Program Synopsis

The Community Learning Center, Inc (CLC) was founded by the Tarrant County Central Labor Council as a workforce development and job placement organization to assist area workers who are unemployed, underemployed, or in need of career advancement opportunities. The CLC has administered two primary programs serving the needs of the local aerospace industry and its workers. The Aerospace Industry Training Partnership Program (CLC AITP) trained and matched dislocated workers to good jobs in the region's aerospace industry. Its successor program – the Aerospace Industry Training Partnership Technically Advanced Proficiency Program (AITP-TAPP) – continues and expands this service to job-seekers and employers. It also assists aerospace firms such as Lockheed Martin, Bell Helicopter, Vought Aircraft Industries, Aerospace Technologies, Inc., Hampson Aerospace, Inc., and EFW in upgrading the skills of their incumbent workers. For the purpose of this case study, we refer to these two programs under one name – CLC-AITP-TAPP – when we are describing elements that are common to both initiatives.

CLC-AITP-TAPP is a multi-employer, multi-union initiative in aerospace, designed to develop an industry-led workforce preparation model that will reduce the present and projected shortage of qualified workers in the Dallas-Fort Worth, Texas region. Both the International Association of Machinists (IAM) and the United Auto Workers (UAW) are full partners in this important effort. The programs assist the employer partners – including those with fewer than 500 employees – by providing cost-effective employee recruiting, screening, training, assessment, and case management services. In addition, CLC-AITP-TAPP offers job-seekers – drawn from the ranks of local dislocated workers and the long term unemployed – training, job placement and retention services. This support, in turn, enables job-seekers to meet industry skill and performance requirements for area electrical, electronic, composite bonding, mechanical assembly and/or fabrication positions. The combination of services contributes to improved wages and retention rates for new hires. CLC-AITP-TAPP also promotes industry competitiveness by providing specific skills upgrading for incumbent workers to support the expanded and enhanced use of new technologies, materials, and methods in assembly and fabrication.

The CLC-AITP Consortium that serves as the governing body for the project consists of representatives of the aerospace industry (both unions and employers), area Workforce Investment Boards, the Fort Worth Chamber of Commerce, Tarrant County College, and others, and focuses the effort on maintaining the competitiveness of the industry in the Dallas-Forth Worth area, while increasing the overall stability of the region's economy.

Workforce Challenges

The partnership addressed two of the identified challenges:

- **Meeting employer demand while minimizing the deleterious effects of layoffs:** While layoffs are a part of the manufacturing landscape, employment opportunities exist in the sector for those with relevant skills. To address this challenge, workers and employers need: a) apprenticeship or skills standards projects that provide portable, industry-recognized credentials to help workers access available jobs and help employers find skilled workers; and b) mechanisms to assure that laid off manufacturing workers can promptly identify good manufacturing jobs still available in their regional labor markets.

Although, AITP started with a partnership among the larger aerospace firms, its recruitment, training and placement services were soon successfully marketed to smaller aerospace employers in the region as well. Because of their size, these employers would have found it difficult or impossible to address their human resources needs efficiently on their own thus meeting a second common challenge in the manufacturing sector:

- **Responding to small and medium sized firms' and/or facilities' (those with less than 500 employees) recruitment and training needs:** In recent years, large, formerly vertically integrated firms have aggressively embraced the outsourcing and subcontracting of many of their component parts. In the process, they have made their own operations leaner and meaner, while pushing significant parts of the production process to firms that are typically smaller. These smaller firms generally have fewer resources to commit to training and education programs and/or new employee recruitment. Many small and mid-sized firms have no full-time human resources managers, and their education and training programs often consist of tuition reimbursement policies, where individual workers must take the initiative to obtain additional education and training on their own. To promote cost-effective new worker recruitment and incumbent worker training within these smaller firms, initiatives that facilitate common training,

assessment, screening, etc. for jobs at small and medium size manufacturers are especially important. Cross-employer skills training – while always desirable – can help ensure, in a cost-effective way, that workers in smaller firms get the skills they need to compete in the global economy. Training and education programs should link to economic development policies that respond to the needs of sectors, industries and local or regional economies.

Understanding the Demand and Meeting It

There are approximately 34,000 aerospace products and parts manufacturing jobs in the Dallas-Fort Worth area. The aerospace location quotient is 3.7, a high ratio, indicating the significance of this industry in the regional economy.¹ Average wages for aerospace workers in the region are close to \$20 per hour. Together, the figures demonstrate that these are high-skilled/high-wage jobs in a highly desirable industry for the local economy. Moreover, the multiplier effect of these jobs is considerable: every aerospace job supports 1.61 additional jobs in indirect and induced production. As a result, aerospace employers and the unions representing their employees shared concerns about retaining and growing this important industry in the Dallas-Fort Worth area. They recognized a present and future shortage of qualified workers in the industry and sought to address it. In recent years, Lockheed Martin, a key employer, had moved workers from the F-16 fighter jet production line to meet its F-22 production needs. Other employers also had actual, or anticipated, needs for additional workers. The smaller facilities, many of which are Tier 1 suppliers to larger original equipment manufacturers, were particularly concerned about how they would cost-effectively train workers to fill vacant positions.

This generalized demand for skilled aerospace workers, as experienced by Lockheed Martin Aeronautics Company-Ft. Worth, Bell Helicopter Textron, Vought Aircraft Industries, Aerospace Technologies, Hampson, and Interconnect Wiring ultimately brought a range of organizations together to work on training and job placement for the industry. These companies, the unions representing the companies' workers, and local training program operators, recognized the need to establish a joint program in order to avoid costly duplication of efforts and to benefit from a collaborative initiative.

Program Partners

Because of its existing collaborative structure, the Community Learning Center, Inc. (CLC, Inc.) was a good home for this new initiative. The CLC was established by the Tarrant County Central Labor Council in 2000 as a workforce development organization to assist area job-seekers. A board of directors, consisting of representatives from industry/business, labor, as well as educational, community, and faith-based organizations, governs the CLC. It operates a number of programs that serve individuals with special needs and barriers to employment, including the unemployed, underemployed, workers seeking career advancement opportunities, at risk youth, youth offenders, poor and excluded job-seekers, and people with disabilities.

In 2001, CLC, Inc. launched the Aerospace Industry Training Partnership (AITP) with the initial participation of Lockheed Martin; Bell Helicopter; the International Association of Machinists & Aerospace Workers (IAM&AW) District Lodge 776; United Automobile, Aerospace, Agricultural Implement Workers of America (UAW) Local 218; Workforce Solutions for Tarrant County (Tarrant County Workforce Development Board); Tarrant County College; the Fort Worth Opportunity Center; and the Tarrant County Central Labor Council. Later, WorkSource for Dallas County (Dallas County Workforce Development Board), North Central Texas WorkForce (North Central Texas Workforce Development Board), and the Fort Worth Chamber of Commerce joined the project. These parties serve as the AITP Consortium and are a key to the operation's success. There are quarterly meetings of this industry-led consortium that serve as a project steering group to sort through tough issues and propose workable solutions for the operation of the program.

The 2001 Department of Labor Skills Shortage II demonstration grant that funded the AITP program allowed the partnership to focus on increasing the skills of dislocated workers in order to meet local industry needs. The resources provided by the grant substantially reduced employment-related costs for the participating companies. The success of this collaboration and the identification of additional training needs prompted the partners to seek – and win – additional DOL funding two years later to continue the program. At that time, the Board re-named the program the Aerospace Industry Training Partnership Technically Advanced Proficiency Project (AITP-TAPP) and expanded it to incorporate new technology-related training and skills upgrading for incumbent workers. The CLC also created a Bridges Program to help participants from

¹ The industry's location quotient represents the ratio of local employment in the industry to total employment, divided by the ratio of employment in the industry nationally to total employment nationally. Anything over 1 means that employment is somewhat more concentrated in that region than in the country as a whole.

a foundation-funded project that serves poor and excluded job-seekers in Fort Worth to qualify for the AITP-TAPP program.

Program Activities and Methods

Effective Placement of Dislocated Workers in Entry-Level Aerospace Jobs

To assist its employer partners with new employee placement as well as to ensure that the new placements meet industry performance requirements, the program provides the following services to dislocated workers and long-term unemployed workers seeking aircraft assembly jobs: recruitment, screening, training, assessment, job placement, retention, case management, and support services.

Although the program does not require previous manufacturing experience, a number of dislocated workers come from other smaller manufacturing plants in the region. Eighty-eight percent (88%) of the AITP project participants had a high school diploma or GED, and 12% had some post-secondary education. Over 50% of the job-seekers served by the subsequent AITP-TAPP program, however, had some post-secondary education, as screening was tightened up in response to the needs of the industry partners for more qualified workers.²

This relatively uniform educational level, together with the involvement of many industry and labor representatives, allowed the partners to develop a single curriculum that serves the needs of many area employers seeking to hire entry-level aircraft assemblers. Although the majority of program graduates have hired on at the larger area employers – Lockheed Martin, Vought, and BHTI – CLC-AITP and TAPP graduates have also found jobs at Lear, Gulfstream Aero, Spirit Avionics, L3 Communications, Interconnect Wiring, Aerobotics Industries and others – most of which have fewer than 500 employees.

The job-seekers' training program provides both classroom and hands-on training within a **virtual/simulated factory laboratory environment** located in the Fort Worth Opportunity Center. Together, the CLC and the AITP Consortium partners developed the Laboratory through ongoing, coordinated efforts. Industry representatives, especially from Lockheed Martin, BHTI and Vought, have been extensively involved in developing the training curriculum, ensuring that the program responds to true employer needs for aircraft frame assembly skills.

While the Tarrant County College provides instructors to the pro-

gram, the use of retired journey-workers who serve as mentors to trainees has been a key component of the training. The mentors help workers gain an understanding of the attitudes and behaviors needed for teamwork in high performance organizations. These retired journeymen aircraft mentors also teach the occupational skills necessary to work in the ever-changing aerospace industry.

The original AITP participants received 240 hours of training over a six-week period for eight hours each day³ (During the course, CLC provides participants with all necessary tools, thus saving them the costs often associated with this kind of program.)

The course work requires trainees to clock in and out just as they would on the job; their attendance record becomes part of their training portfolio. The curriculum covers such topics as: manufacturing math, basic engineering drawing, layout, electrical bonding, plumbing, precision measurement, measuring torque, reaming, countersinking, riveting, blind fasteners, and shop floor safety. In addition, participants must pass skills-based practical assessments in which they produce a part to specification.

Total achievement scores are based on practical exams that test trainees' knowledge based on required course work. In addition, participants undergo identical testing in manufacturing mathematics and precision measurements on their first day of the training and on their final day.

As each training sequence nears completion, the program prepares graduates for immediate as well as subsequent employment. Personal achievement portfolios that accompany participants to job interviews contain their attendance records and clock-in times, as well as their skills-based practical scores and course work scores. Moreover, those workers who successfully complete the program qualify for preferential interviews with participating companies and can earn up to thirty continuing education units toward a college degree.

Skills Upgrading for Incumbent Workers at Lockheed Martin

As cited above, the partners soon realized that the industry's current workforce could use the virtual factory laboratory environment to obtain specialized training defined by company needs. The LM Aero Incumbent Worker Electrical Assembly Training Program began in January 2004 and now includes certification in methods of soldering for electrical harnesses, as well as courses in plumbing, electrical installation and structural hydraulics. In the incumbent worker program, workers must first complete classroom training before they go to shop floor/on the job training (OJT). OJT

² Two-thirds of the participants are male; one-third are female. Roughly half of the participants are white, with nearly half identified as African-American, Hispanic, Asian or Native American.

³ The course was restructured in 2004; Trainees now complete 200 hours of training over a five-week period.

requires workers to integrate what they learned in the classroom and demonstrate their knowledge and skills by performing actual work tasks. Upon completion of OJT, workers receive a certificate and can then apply their new skills as necessary in their jobs.

The CLC recognizes that different employers have different priorities for skills upgrading, but has also determined that some skills will be useful to many different employers. The fact that many of the smaller companies are Tier 1 suppliers of the same parts to different customers made classroom instruction on common aspects of production possible.

Connections to the Public Workforce System

Both the state and federal workforce systems have been deeply involved in this endeavor. A 2001 Department of Labor Skills Shortage II Secretary's Reserve Fund grant of \$2.8 million enabled the Community Learning Center to leverage the AITP Consortium partners' investments into an innovative dislocated workers' training and placement program to fill available and future aerospace jobs. Because of the project's initial success, DOL extended it with a grant of over \$1.1 million under the President's High Growth Job Training Initiative for the successor AITP-TAPP project—this time supporting training for both dislocated workers and other job-seekers and incumbent workers.⁴

Three Workforce Investment Boards (WIBs) are now part of the enhanced program: Workforce Solutions for Tarrant County, WorkSource for Dallas County, and North Central Texas WorkForce. They serve primarily to refer dislocated and long-term unemployed workers to the program. North Central Texas WorkForce and Workforce Solutions for Tarrant County have a written memorandum of understanding with the Community Learning Center, the fiscal agent and host organization for the project, and have been active members of the AITP Steering Committee. Moreover, the Dallas Board has recently become more active, referring WIA-enrolled dislocated and long-term unemployed workers to the program. Representatives from all three WIBs also serve on the AITP steering committee. The WIBs are able to provide support for services such as transportation and child care costs when the participants are determined to be dislocated workers eligible for assistance under WIA.

CLC recently received a short-term contract from Workforce Solutions for Tarrant County to continue operations of the

AITP-TAPP Aircraft Structural Assembly Training Program for three months beyond the end of the DOL grant funding period. In addition, CLC has secured certification of this training program from the Texas Workforce Commission Training Provider Certification System (TPCS). CLC is currently working with the area WIBs to market the program to workers with Individual Training Accounts (ITAs). CLC will also be seeking certification of its new Basic Composite Bonding Training Course with the Texas Workforce Commission.

Program Funding Sources

To complement the public dollars, the program partners have themselves made more than one million dollars worth of in-kind contributions to the program. Employers donated tools and equipment and provided other materials for both of the training programs. In addition, Lockheed Martin loaned the AITP program a consultant's time to revise the original dislocated worker training curriculum. LM Aero has also provided personnel to grade the "final practical" of the AITP-TAAP Aircraft Structural Assembly Training program. Based on this grade alone, the program determines whether a participant has passed or failed. For its part, BELL Helicopter has provided a Basic Composite Bonding Training Course Curriculum and has assigned a company trainer to work with the other composite bonding partners and staff. Together, the team customized the curriculum for this course, which began in the fall of 2005.

Other employers have also contributed staff to provide consultation, oversight and other services to the program. Industry and labor representatives monitor the curriculum and the operations through participation on the consortium steering committee and in the recruitment of union mentors.

Barriers Overcome

In the volatile manufacturing labor market of Dallas-Fort Worth, matching the supply of successful trainees to employers' current hiring demands is a serious challenge. Initially, the program focused only on meeting the employment needs of its original employer partners as the CLC expected that Lockheed Martin would absorb virtually all graduates. In fact, the company hired just over 50% of the graduates in the first year, and hired over 500 graduates during the first two years of the program. When Lockheed Martin hiring

⁴ This grant was awarded in September of 2003 and was due to expire in September of 2005. However, the center received a no-cost extension from DOL to expend funds through March 2006.

slowed and eventually stopped in 2003, however, the program made a concerted effort to expand its contacts with other area employers for the purpose of referring graduates, even while continuing to train new job-seekers. As a result of this outreach, other aerospace employers became interested in CLC program operations and agreed to provide preferential interviews to graduates.

The transition was possible because the curriculum included general technical training in aircraft assembly, which was readily transferable to these other employers.

The consortium of CLC participants, therefore, collectively addressed the uneven and intermittent demand of individual – and mostly smaller – employers. As a collaborative effort, the AITP programs produce a steady flow of trainees, so that each employer can be assured of a highly-qualified pool of applicants at relatively short notice, while job applicants can be assured access to a preferential interview and probable employment at the end of their training period.

The program also addressed a barrier presented by industry-defined criteria for admission to training that included reading and math skills at least at the 8th grade level. To help applicants meet these standards, the program developed an academic/ remediation program that provided a second chance for those who could not perform at this level on their first test. As part of their Academic Remediation Course, Bridges Program participants could also practice taking the Tests of Adult Basic Education (TABE). The program successfully qualified additional participants through these interventions, at the same time that it helped other participants, unable to perform at the required reading and math levels, find employment elsewhere. While this program has not been the sole source of company new hires over the past few years, management from the participating firms report that workers hired from the program generally out-perform other new hires and have better-than-average retention rates.

Program Results and Returns to Stakeholders/Partners

The program has had a significant impact for all of the partners:

Benefits to Companies:

- As of July 2006, the CLC AITP Aircraft Structural Assembly and Basic Composite Bonding Training Programs had successfully trained 1,175 dislocated workers and placed 1,085 into a total of 1,194 jobs, 774 (65%) within the aerospace industry. Six-month retention rates with the two companies

hiring the most workers, Lockheed Martin (n=527) and Vought (n=151), have been 89% and 78%, respectively.

- Because the average age of an aircraft assembler in the DFW area is approximately 55, many employers can replace their retiring workers with the qualified workers provided by the program. The average age of the dislocated workers trained and employed by the program has been approximately 40 years.
- The shared training capacity helps employers fill new job openings in a cost effective manner.
- Efficiencies in training lead to greater competitiveness for the participating firms and greater employment security for the workers.
- Participating companies gain the opportunity to interview potential employees who have been trained as aircraft assemblers through a course that these companies helped to design.
- The program provides employers – especially those smaller facilities with fewer recruitment and training resources – with a steady stream of trained job applicants regardless of the hiring schedule of each individual employer. The training schedule is not interrupted simply because no jobs are available with one potential employer, and as a result, trainers, trainees and employers can avoid lengthy periods of searching for jobs, on the one hand, or for workers, on the other.
- The joint initiative guarantees a standardized, skill quality for employers throughout the DFW area.
- The Incumbent Worker Training Programs provide participating firms with a better- skilled and more flexible workforce, so that they can respond more efficiently to modifications in products or contract demands, and advances in manufacturing techniques.

Benefits to the Participants:

Dislocated workers and long term unemployed job-seekers:

- The CLC AITP training programs have demonstrated their usefulness to job-seekers interested in manufacturing jobs in the Dallas-Forth Worth area. Since its inception, 1,370 workers have enrolled in these programs, of whom 1,175 (86%) have successfully completed training. In addition, the program has placed 1,085 dislocated workers into a total of 1,194 jobs; 65% within the aerospace industry, with many of the others employed in related industry sectors.
- Job-seekers who successfully pass the training course receive a preferential interview with key aerospace employers. Most of the dislocated workers have no previous employment in the aero-

space industry and would not have qualified for these jobs. This is also the case with participants from the Bridges Program.

- Participant job-seekers learn skills that are identified by the local industry as requisite for entry-level assembly positions in aerospace companies. Successful participants master the basics of manufacturing mathematics, engineering drawings, precision measurements, drilling/reaming/countersinking, fastener applications, and basic computer operations. The training is delivered in a virtual factory environment that replicates the on-the-job experience future workers will face in the industry. This experience helps them determine whether or not they want such a career and prepares them to transition successfully into their new jobs. Those who graduate from the program receive thirty continuing education units toward an Associate's or Bachelor's degree – a benefit that helps broaden future job prospects.
- Wage gains are clear. Fifty percent (50%) of the participants in the original AITP Program, who were unemployed prior to entering training, secured higher wage rates from an aerospace industry placement than from their previous job. Nearly 76% of those employed at the time of project application (dislocated workers can participate in programs from the time of the notice of their layoffs) secured higher wages in new jobs in the aerospace industry.

Incumbent workers:

- Incumbent workers gain the additional training necessary to adapt to changing jobs or processes in their companies, thus increasing their employment security. The trained workers place themselves on a career ladder that makes them eligible for future income gains. The additional training also enables some incumbent workers to bid on new job openings and advance their careers within the company.
- In the new Composite Bonding Incumbent Worker program (see below), a union contract provision stipulates that Bell Helicopter Textron Bonder B Workers who complete training will be promoted to Bonder A positions and gain an average wage increase of \$1.50 per hour.

Benefits to the Unions:

- Participating unions gain a role in insuring the availability of the training necessary for present and future aerospace jobs. They participate in an industry-led program that reduces the costs and insures the quality of new hire and incumbent worker training for the local aerospace industry, thus helping to guarantee the continued presence of high-skilled/high-wage jobs in the region. The savings produced by this recruitment, training and assessment consortium frees up scarce

resources, which unions and employers can then allocate to other priorities in a highly competitive industry.

- The incumbent worker training program benefits the union by advancing career opportunities for skilled workers.
- The program enhances the unions' reputation in the community. Increasingly, job-seekers and the broader community recognize labor's role in this collaborative effort. Moreover, through the involvement of retired UAW and IAM mentors, the program showcases the skills and expertise of journeymen union members.

Benefits to other Stakeholders:

- Participating Workforce Development Boards benefit by achieving increased placement and wage rates for their clients. At the same time, they provide services to meet the workforce demands of important area employers in a way that builds greater confidence in the public workforce system.
- The Tarrant County Community College gains a new student base, and, through the use of its facilities at the Fort Worth Opportunity Center (FWOC) for CLC-AITP training of dislocated workers, is further able to demonstrate its relevance to the community's needs. [NOTE: TCC took over operation of FWOC in 2005.]
- The Fort Worth Chamber of Commerce and economic development authorities benefit by insuring that workforce development programs and dollars are tied to real economic development needs in the area. This collaborative mechanism guarantees that employers, labor, and educational institutions all understand the education and training needs necessary for retaining these important jobs in the Dallas-Fort Worth area. The entire community benefits by retaining its well-paid manufacturing base, a base that is a pillar of the continuing prosperity in the region and an important generator of additional manufacturing and service jobs.

Next Steps for the Program and/or the Partnership

Through a no-cost extension of its DOL grant, AITP-TAP as described in this study, operated through May 2006. Prior to the end of the DOL grant period, CLC had the Aircraft Structural Assembly Training Program certified by the TWC Training Provider Certification System and secured a short-term contract with Workforce Solutions of Tarrant County to continue operation of the training program with dislocated workers through

August 2006. This has provided CLC and the three WIBs with additional time to market the training program to Workforce Center Customers with Individual Training Accounts, which is the standard mechanism for public funding for dislocated workers' training.

As evidence of the program's general utility to its industry and community partners, CLC and the AITP last year secured a Wagner-Peyser 7(b) grant from the Texas Office of the Governor and the Texas Workforce Commission (TWC) to develop and implement a demonstration aerospace composite bonding training program for dislocated and incumbent workers. Composite bonding is an emergent technology in aircraft assembly that uses stronger, but lighter-weight materials in the construction of helicopters and airplanes, and, thus, represents a new career path for workers in the aerospace industry. This Project recently concluded its first year of operations, and has been funded for a second. During its first year, the Project successfully trained 68 dislocated workers through its Basic Composite Bonding Training Course, and has thus far placed 31 into jobs (21 within aero-

space), and successfully piloted an Advanced Composites Fabrication Course for incumbent workers at Bell Helicopter Textron, intended to advance them from Level B to Level A Bonder positions. Wage rates for these positions vary by company. The project had targeted entry level positions at Bell Helicopter Textron that range from \$10.86 to \$12.00 per hour, and entry level wage rates at Vought Aircraft Industries that range from \$10.00 to \$15.00 per hour, both accompanied by full benefit packages.

It is important to note that this evolving component of the program demonstrates the advantages of the flexible, multi-union, multi-employer approach to training for this type of industry. As technologies change, as companies grow or contract in response to their own business cycles, and as workers seek new skills and broader opportunities, this program structure remains able to accommodate new needs and demands from the entire range of clients and participants.

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CASE STUDIES: CHALLENGE 4

Challenge 4: Assuring a pipeline of specialty-skilled workers:

Apprenticeship programs that prepare specialty-skilled workers in manufacturing have decreased dramatically in number and size during the past 20 years. Employers have been reluctant to invest in training workers whom they might not need in the future. This development has reduced the number of qualified workers able to replace the soon-to-be retiring skilled trades employees in manufacturing. The sector urgently needs specialty occupation training programs, including revitalized and updated apprenticeship programs, that provide industry-recognized, portable specialty skill credentials.

Addressed as a primary challenge:

CWA-IUE/Visteon Systems “Knowledge is Power” Program
(see challenge #1 for case study)

The IAM-Boeing Joint Apprenticeship:
Quality Through Training Program (QTTP)

United Steelworkers/US Steel-Fairfield Works
Electro-Mechanical Maintenance Career
Development Program

IAM-Boeing Joint Apprenticeship: The Quality Through Training Program (QTTP)

Program Synopsis

The Quality Through Training Program (QTTP) of the Machinists Union and The Boeing Company is part of the more comprehensive International Association of Machinists and Aerospace Workers (IAM)/Boeing Joint Programs. It represents a promising approach to solving a serious challenge facing both manufacturing businesses and unions: assuring a pipeline of specialty-skilled workers to fill the manufacturing jobs of today and tomorrow.

While the joint IAM/Boeing manufacturing skilled trades' apprenticeship program has been in place since 1935, two recent innovations are likely to make it more vital and relevant to the needs of the 21st century manufacturing workforce. First, the union and the employer made changes to match the training content of these apprenticeship programs more closely to the operational needs of the company. An important step in achieving that objective was the 2005 collective bargaining agreement between the Machinists and Boeing that moved responsibility for all apprenticeship programs to QTTP. Secondly, the Joint Apprenticeship Committee, the labor-management governing body for IAM-Boeing's program, has developed an apprenticeship program for a new job classification – a classification that is likely to be in demand as Boeing's operations evolve and new technologies are introduced.

Workforce Challenge

- **Assuring a pipeline of specialty-skilled workers:** Apprenticeship programs that prepare specialty-skilled workers in manufacturing have decreased dramatically in number and size during the past 20 years. Employers have been reluctant to invest in training workers whom they might not need in the future. This development has reduced the number of qualified workers able to replace the soon-to-be retiring skilled trades employees in manufacturing. The sector urgently needs specialty occupation training programs, including revitalized and updated apprenticeship programs, that provide industry-recognized, portable specialty skill credentials.

Understanding the Demand and Meeting It

The apprenticeship programs of the Machinists and Boeing, offered in over 10 different classifications, have long been recognized as among the best in the manufacturing industry. Nevertheless, many practitioners and participants felt that the programs had failed to adapt to Boeing's new production model where it becomes "an integrator of complex systems." In particular, the demand for the skilled trades and classifications offered through the apprenticeship program has declined as The Boeing Company has downsized and evolved, focusing its domestic operations on assembly only, rather than fabrication and assembly.

This transformational shift has had a major impact on the Boeing workforce, resulting in a smaller workforce and a smaller percentage of the workforce engaged in the specialty trades. This shift, combined with the downward trend in the business cycle and the fall-off in demand for Boeing commercial aircraft, had a deleterious effect on the graduates of the apprenticeship program and, consequently, the investment the company had made in their training. A perverse dynamic, in fact, made trainees particularly vulnerable to layoff just as they completed their apprenticeships. Workers receiving on-the-job training were insulated from layoffs so long as they were *enrolled* in the apprenticeship program. Upon completing the program, however, the new graduates would lose their exemptions and, oftentimes, be laid off because they lacked seniority in their new journey-level classifications. Both the company and the union are seeking to revitalize their apprenticeship programs by exploring a new classification that is likely to be in demand now and into the foreseeable future, more closely aligning its training investments with demand occupations. The Joint Apprenticeship Committee developed new standards for the position of Composite Technician. The Washington State Apprenticeship and Training Council (SAC) approved those new standards at their meeting on July 20, 2006. The new collective bargaining agreement that went into effect in September 2005 also calls for an important organizational change: The apprenticeship programs, while still administered by the Joint Apprenticeship Committee, are now part of the broader QTTP. This new administrative structure is expected to integrate the apprenticeship program into assembly operations and update its curriculum and training approach to meet the Company's needs – and the needs of the Machinists.

With previous collective bargaining agreements, Boeing invested substantial time, energy, and money in apprentices' training, only to see some of those same apprentices laid off at the completion of their training program. The classifications more closely associated with fabrication of an aircraft were no longer in demand in the commercial division of Boeing. Throughout Boe-

ing's Washington State operations, where thousands of workers are employed, only eight workers are currently indentured as apprentices. Out of over 200 applications that the apprenticeship committee received from the Machinists' current workforce at Boeing in June 2005, only fifteen will be accepted into the apprenticeship program this year. A decisive majority of those apprentices will be for industrial electronic maintenance technicians and machine tool maintenance mechanics. The remaining five apprenticeship opportunities will include only three different skilled trades. No longer in demand are the traditional fabrication-oriented classifications of the Machinists Union, such as tool and die maker and fixture tool maker.

The apprenticeship regimen lasts four or five years, depending on the classification and grade level of the apprentice; it requires significant classroom instruction and major administrative capacity, all furnished by Boeing. The failure to revitalize and update the apprenticeship program realized one of the worst fears of many employers: after a major training investment in an individual worker, that worker becomes employed elsewhere, with no benefit to the company that funded the training. In this case, the lost investment was a result of Boeing's downsizing and transformation of the production process, in addition to a downturn in the demand for commercial aircraft, which dramatically reduced employment in Washington State and throughout the company. The situation demanded a solution.

“Demand-driven Training”

Boeing, after several years of downsizing and weak economic performance in its commercial division, is booming. The company took more orders for planes in 2005 than in any year since 1988. The new 787, to be assembled in Everett, Washington, has jump-started employment, particularly in the Pacific Northwest. Boeing is recalling laid-off workers, including some of the apprentices that had been laid off, and hiring new employees. The assembly chain for the 787 will be at capacity for three years. One of the key features of the new 787 is its “composite” construction, making the plane lighter and 20% more fuel-efficient than a similar-sized aircraft.¹ Boeing's timing – with its innovative, fuel-efficient design – has positioned the company well in relation to its primary competitor, Airbus, and other rivals. Assembly of the new plane will begin in 2006, with the first 787s rolling off the assembly line in 2008.

The new apprenticeship classification relates directly to the new material that will be used to build the 787. Fifty percent of the material in the plane will be composites². The newly developed

apprenticeship opportunity as a composite technician is specifically designed to meet the company's demand for workers skilled in the use of this cutting-edge material. Matching the training program with the new technology at Boeing will ensure a steady stream of in-demand apprentices qualified to build the new aircraft.

“The changes to the apprenticeship program made in our most recent contract are critical to the success of our members and the Boeing Company. We are exploring new directions that reflect changes in our workplace. It's a win-win for both management and labor,” said District Lodge President Mark Blondin.

Program Partners

The Boeing Company and the International Association of Machinists and Aerospace Workers District 751 (Puget Sound), District 70 (Wichita), and District 24 (Portland) together created “Joint Programs” in 1989. Joint Programs includes two separate entities: the Health and Safety Institute and the Quality Through Training Program (QTTP). The apprenticeship is only one small piece of the large, successful training entity, QTTP. Because this particular apprenticeship program exists in Washington State alone, the Washington State-based local union of the Machinists, IAM 751, is a partner on the apprenticeship program. The partnership also involves the Washington Apprenticeship and Training Council and South Seattle Community College.

Governance – “Senior Leaders Guide the Partnership”

The National Governing Board sets policy for “Joint Programs.” QTTP is but one side of the broader labor-management partnership; The Health and Safety Institute is the other. The Governing Board is comprised of five members of senior leadership from both management and labor: The union side includes the “Boeing Coordinator” from the International Union, the three principal officers of the Machinists' districts at Boeing, and the Executive Director of Joint Programs from the union, who is a non-voting member. The management side of the Governing Board includes four Senior Executives and the Company's Executive Director of Joint Programs, who, again, is a non-voting member.

¹ High energy costs have put a premium on fuel efficiency in the airline industry.

² In contrast, 50% of the material in the Boeing 777 is aluminum.

Program Activities and Methods

The Apprenticeship Model

Through this apprenticeship program, existing employees, who are searching for a career path to higher earnings within Boeing, receive wages while training on the job (OJT), usually under the tutelage of master craftworkers. Apprenticeship combines this OJT with traditional classroom instruction, much of it delivered through South Seattle Community College, part of the state's extensive network of vocational and community education institutions. Over the course of either a four- or five-year program, depending on the trade, apprentices take advancement tests and proceed through various levels of training, receiving an increase in pay after each 1,000-hour increment of OJT. The pay scale in the new 2005 collective bargaining agreement (Article 17) for all apprentices is as follows:

Time Period	Grade 8	Grade 9	Grade 10
1st six months	\$21.60	\$22.27	\$22.89
2nd six months	\$22.75	\$23.47	\$23.87
3rd six months	\$23.91	\$24.66	\$24.85
4th six months	\$25.07	\$25.85	\$25.83
5th six months	\$26.22	\$27.05	\$26.81
6th six months	\$27.38	\$28.24	\$27.80
7th six months	\$28.54	\$29.43	\$28.78
8th six months	\$29.69	\$30.63	\$29.76
9th six months*	NA	NA	\$30.74
10th six months*	NA	NA	\$31.72

**Applicable only to programs that require 10,000 hours or five years.*

The joint apprenticeship committee (JAC) pays the costs from an employer-provided funding stream. This “earn while you learn” feature of apprenticeship makes it affordable for trainees. The committee is comprised of equal numbers of labor representatives and employer representatives. Mark Blondin, President of District Lodge 751, appoints six trustees to the joint apprenticeship committee.

Apprenticeship programs operate under standards registered and certified by the Office of Apprenticeship Training, Employer and Labor Services (OATELS) of the U.S. Department of Labor or by a state apprenticeship agency. In this case, OATELS delegates its authority to the Washington State Apprenticeship and Training Council (SAC). Apprenticeship programs sponsored by Boeing and the Machinists exceed the minimum requirements for selection procedures, training content, wage progressions and completion requirements. Their program encourages women and minorities to apply. The number of apprentices accepted for training can vary according to the trade or craft and market conditions, but typically this program maintains about 60 apprentices at all levels of training.

Industry-recognized Credentials

Once an apprentice receives the designation as a journey-level worker, the industry has conferred on the individual a significant credential: That journey-level worker is recognized as a master of the craft within the manufacturing industry. This designation documents skills in the industry and is also transferable. As the table above indicates, the worker's wages are in the range of \$30 an hour, excluding benefits. Even if a worker is laid off after becoming a journeyman, the many years of on-the-job training and classroom instruction will have prepared the worker for employment elsewhere in the skilled trades. Moreover, many apprentices will voluntarily pursue other credentials as they progress in their training. Many apprentices pursue Associate's degrees, or certifications issued by the Federal Aviation Administration of Federal Communications Commission during their course of work.

Connections to the Public Workforce System

The apprenticeship program's primary connection to the public workforce system is through the Washington State Apprenticeship and Training Council. The SAC governs apprenticeship programs, approving curriculum, establishing wage progressions, monitoring program performance, and evaluating the apprentices' progress. The actual training delivered through the apprenticeship program receives no public funding.

The program also connects to the public system through its educational dimension, coordinated by the South Seattle Community College (SSCC), where most of the classroom instruction is delivered. Instructors are approved by the community college, though the instruction itself is typically delivered by master craftworkers from Boeing.

Program Funding Sources

QTTP is funded through the collective bargaining agreement (Article 20) between the two parties. The employer makes a 14-cent per hour contribution for every member of the bargaining unit to a fund that covers the cost of training for the apprentices, including everything from books to tools. More importantly, embedded in the collective bargaining agreement is a minimum funding level for joint programs that must be maintained regardless of staffing levels at the company. Because of the substantial workforce reductions at Boeing over the last decade, the mini-

imum contribution of \$21 million for all joint programs is consistently triggered.³ The floor for investment in QTTP is \$10 million, and the annual cost of the apprenticeship program is approximately \$285,000.

Barriers Overcome

In order to develop new apprenticeable trades at Boeing, participants and practitioners had to overcome both administrative and attitudinal obstacles. These two types of barriers were, in many ways, connected. First, a “constituency” had developed around the existing apprenticeship program, and graduates of the “old” classifications rightfully took pride in their achievements. Many journey-level workers – and Boeing executives, for that matter – who had come through the apprenticeship program, naturally wanted to see the program continued. Long-time journey-level workers often served as program instructors or as trustees on the

joint apprenticeship committee that administered the program. At the same time, they observed the unemployment problems of recently graduated apprentices.

Secondly, leaders of the Machinists District 751 and the Boeing Company identified the need for an administrative change and therefore, in this most recent contract, brought the apprenticeship program into the QTTP program. New trustees of the joint apprenticeship committee, in some cases, had not participated in the apprenticeship program, so they were more willing to consider the changes necessary to adapt it to the new, lean workplace at Boeing, including changes in the classifications offered.

The State Apprenticeship and Training Council, which must approve program standards before any new apprentices are accepted into a new classification, could represent a third barrier to implementation. The committee hopes, however, that the administrative changes incorporating the program into the multi-million dollar QTTP will facilitate shepherding any new apprenticeship standards through the SAC.

³ Membership of the Machinists union at Boeing has dropped by about one third from its peak in 1995.

QTTP

The Quality Through Training Program (QTTP) offers a diverse range of programs for training, re-training, and personal growth, to support the continuous improvement process in both the company and individual employees. Since it began in 1989, QTTP has helped many thousands of IAM-represented employees in Washington, Oregon, and Kansas cope with workplace change and achieve their individual goals.

- Through QTTP, the union and company are working together to assist employees affected by technology change, job combination or redeployment.
- Professional Career Advisors at each of the seven Quality Through Training Program sites offer skills assessments and educational and career guidance.
- Learning labs at each site host an array of computer, skills, and individual development classes, and QTTP instructors go into the factory areas with customized training to meet specific needs of an area.
- The QTTP has in-plant skill centers located near the workplace in Auburn, Everett, Plant II, Renton, and Wichita, offering advising, computer learning, and classes to employees.
- QTTP Career Guides and a new hourly Employee Requested Transfer (ERT) process provide an effective way for employees to select, apply for, and document that they have met the entry level requirements for a new job.
- QTTP has partnered with Learning, Training and Development (LTD) and BCA Manufacturing & Quality to develop the Production Systems Improvement (PSI) training system.
- In partnership with local colleges and the American College Advisory Service, a national clearinghouse for prior learning assessment, QTTP helps IAM-represented employees document prior learning and work experience to gain college credit for knowledge gained over their career. This service can substantially reduce the time required for Machinists to earn their college degrees

QTTP provides services to both active and laid-off IAM-represented employees of The Boeing Company, and helps workers who have been given notice that they will be laid off under the Worker Adjustment and Retraining Notification Act and laid-off employees of all pay codes to obtain employment in equivalent jobs, through their leadership role in the Joint Boeing Labor Management Committee.

Program Results and Returns to Stakeholders/Partners

The apprenticeship program has historically maintained about 60 apprentices at any given time, while approximately ⁴ “graduate” to the journey level every year. The program, however, has become smaller over time, as Boeing moves away from fabricating commercial aircraft. Currently, only eight apprentices are indentured. Retention of those graduates, as mentioned above, created the need to develop a new classification and a new apprenticeable trade. The benefits of the program, however, are clear:

Benefits to the Company:

- Skilled workers trained precisely to company specifications and industry needs
- Relief from substantial training investments in workers, who are occasionally laid off at the completion of training
- Reduction of the turnover rates that affected the company prior the apprenticeship program.

Benefits to the Apprentices:

- Industry-recognized credentials through the designation as a journey-level worker
- Documented, transferable skills
- Higher earning potential and “earn while you learn” opportunities
- Defined wage increases associated with increased training and skill levels.

Benefits to the Union:

- Increased job security for members as a result of increased knowledge, skills, and the industry-recognized credential

- Key role in workforce development, workplace change, and company operations
- Expanded career path and opportunity for members
- Identified value and role in the workplace for members.

Benefits to the Community:

- “Good jobs build strong communities.”
- Increased tax base through worker spending⁴
- Improved skill levels and higher educational attainment for the local workforce.

Next Steps for the Program and/or for the Partnership

The employer and the union are currently working to identify the specific number of apprentices that will be indentured as new Composite Technician apprentices at The Boeing Company. During the first six months of 2006, labor and management jointly developed standards for the new apprenticeship classification. In late July, the program’s standards were approved by the state agency with regulatory oversight of the program – the Washington State Apprenticeship and Training Council. These recent innovations, led by the Machinists Union, ensure that the apprenticeship model will be relevant to Boeing’s needs, now and into the future. The recent administrative change – incorporating apprenticeship into QTTP – helped facilitate the process of securing SAC approval. The change will also guarantee adequate resources and leadership from top leaders at both the company and the union.

For more information, contact Tom Gannon at tgannon@workingforamerica.org or info@workingforamerica.org.

⁴ Washington is highly dependent on sales tax (there is no state income tax), and is therefore dramatically affected by the ebbs and flows of the business cycle.

The United Steelworkers/ US Steel-Fairfield Works Electro-Mechanical Maintenance Career Development Program

Program Synopsis

In 1996, United Steelworkers of America and U.S. Steel Fairfield Works, through their local USWA/U.S. Steel-Fairfield Works/Fairfield Southern Company Career Development Program, designed a special maintenance training program for employees. The USWA/USS/Fairfield Southern Company Career Development Program is the U.S. Steel Fairfield Works' local embodiment of the Institute for Career Development (ICD), a joint education and training program of the United Steelworkers union and the nation's four largest steel companies. This open enrollment, very flexible, free-to-the-student program was designed to prepare both new hires and incumbent workers at the US Steel-Fairfield Works in Fairfield, Alabama for a pathway to higher-skilled, higher-paid jobs. Funded through a negotiated set-aside based on hours worked by all union members, this particular ICD program provides initial training in electro-mechanical maintenance, a specialty skill set that was previously in short supply. Workers who complete the program receive a certificate of completion and qualify to enter a two-year on-the-job training position to become fully-certified "Maintenance Utilitymen."

Maintenance Utilitymen earn wages that are among the highest in the industry. At the same time, the program guarantees the company a steady supply of workers with specialty skills that equip them for advanced training. The companies recognize that without the program, the recruitment and training of these workers would be much more costly.

Workforce Challenge

- **Assuring a pipeline of specialty-skilled workers:** Apprenticeship programs that prepare specialty-skilled workers in manufacturing have decreased dramatically in number and size during the past 20 years. Employers have been reluctant to invest in training workers whom they might not need in the future. This development has reduced the number of qualified workers able to replace the soon-to-be retiring skilled trades employees in

manufacturing. The sector urgently needs specialty occupation training programs, including revitalized and updated apprenticeship programs, that provide industry-recognized, portable specialty skill credentials.

Understanding the Demand and Meeting It

With advancing globalization, the U.S. steel industry faced new competitive realities in the 1980s. Foreign steel producers paying wages well below U.S. standards and using state-of-the-art plants and equipment presented steel managers and their remaining employees with a closely related set of demands.

- U.S. steel makers had to adopt new advanced technologies rapidly.
- Incumbent steelworkers (who tended to be older and more senior) required education and training to use new technologies successfully.
- Management needed a steady pool of workers, including new hires, with adequate skills, or at least the necessary preparation, to successfully undergo advanced skills training.

In response to heightened global competition, U.S. steel producers have "downsized" dramatically, investing heavily in smaller mills using advanced new technologies and focusing on the production of steel alloys for "niche" markets and specialized applications. Predictably, the industry-wide shift has created a heightened demand for skilled manufacturing labor.

However, such workers are now in very short supply. A 2005 survey by the National Association of Manufacturers reported that over 80% of respondents anticipated shortages of skilled production workers over the next three years – a figure over twice the severity of the expected shortage of scientists and engineers. In Fairfield, Alabama, this shortage has become especially acute because the arrival of large automobile manufacturers – Mercedes Benz, Hyundai and Honda – significantly increased demand for skilled manufacturing workers in the region. And among the skill sets in short supply was Electro-Mechanical Maintenance in the steel industry.

At the same time, the United Steelworkers (USW) recognized that its members needed to secure a future in a volatile industry. During the previous 10 years at the US Steel Fairfield Works, employment levels had varied by as much as 23%, from a low of 1,683 to a high of 2,076. According to company spokesmen, the industry continues to experience marked ups and downs, to which the 1,703 current workers and the companies must rapidly adjust.

Program Partners

The Institute for Career Development was founded in 1989 as part of the national contract between the U.S. steel industry and the USW. A Governing Board, an Advisory Board, an ICD National Office and local joint committees (LJCs) were established to administer the programs. The following year, the ICD opened one of its first Career Development Programs (CDP) at the combined work site of US Steel-Fairfield Works and the Fairfield Southern Company railroad in Fairfield, Alabama. This is one of 60 worksites around the country with functioning CDPs. The training program in Electro Mechanical Maintenance is one of the centerpieces of the Fairfield CDP.

The Fairfield, Alabama E-M CDP operates with US Steel as the employer partner and United Steelworkers Locals 1013, 2122 and 2210 as the participating unions.

The training in this case is provided through the Career Development Program's own instructors. Instructors at CDP are hired from among retired employees. Though not directly involved with the Fairfield Works Local Joint Committee, prominent ICD education partners include Empire State College, State University of New York and Swingshift College, Indiana University Northwest. Both colleges are ICD national partners and provide accredited distance learning to Fairfield Works employees.

Program Activities and Methods

Comprehensive Self-Paced Training for Highly Skilled Positions

The Fairfield Steel Works Electro-Mechanical Maintenance CDP provides new hires and incumbent workers with 507 hours of training and awards them a certificate in Electro-Mechanical Maintenance. The CDP training takes place off hours, at the employees' expense ("off-time, own-dime"). It consists of 267 hours of self-paced study at the local CDP offices, which include a multi-media training lab, library, two computer labs (one with 10 machines and a second with 15), seven classrooms and a welding area. The self-paced course of study is followed by four 60-hour sessions of hands-on classroom instruction.

The CDP office, located within one-half mile of the Fairfield Works, is open five days a week, from 8:30 am – 4:30 p.m. and the multi-media lab is open 8 a.m. – 7 p.m. three days a week and from 8 a.m. – 5 p.m. two days a week. Eligible steelworkers can stop in at any of those times and enroll in the Electro-Mechanical Certificate program. The CDP conducts an interview, explains the training, and determines whether the applicant

has prior training or experience that might qualify him or her to "test out" of portions of the course.

For the course of study, no one is explicitly either chosen or rejected. On the contrary, the CDP makes every effort to interest both incumbent workers and new hires in the E-M program. At new employee orientations, where the entire CDP program is presented, CDP explains that it behooves those who envision a long-term stay at the company to consider this course of study and training.

Over the course of the training, no one is dismissed or expelled. Because the program requires such a significant investment of effort and personal time, experience shows that those not especially committed to it will eventually "self-select out."

The E-M CDP curriculum includes technical and shop-related reading and writing; industrial mathematics; electrical theory; AC and DC motor drives; servo-hydraulic systems; Programmable Logic Controllers (PLCs); electrical and electronic components; wiring; pneumatics; blueprint reading; mechanical and electronic troubleshooting; rigging; lockout/tagout procedures; gears and gear systems; belt, shaft, and chain drives; seals and lubricants and precision alignment.

At any point in the self-study program, students may opt to take a test. To pass, however, they must receive a grade of 85 or higher.

Upon successful completion of the CDP self-study and instructor-led courses, participants take an Electro-Mechanical Exam administered by US Steel. Those who pass the exam qualify to enter a two-year, company-paid training program to become fully-certified Maintenance Utilitymen. This certification allows them to earn between \$20.52 and \$21.75 per hour, among the highest wages paid to union-represented employees at the Fairfield Works.

The numbers of enrollees and graduates attest to both the strengths and challenges of the program. Since 1997, 230 people have enrolled for the training. Of these, 52 have graduated, and 70 are currently actively enrolled. Ninety-one trainees dropped out of the E-M program, and the remaining 18 left the company. According to company spokesmen, however, *all* of the 52 graduates of the CDP qualified for the follow-on company-sponsored training for Maintenance Utilityman.

In addition, the **E-M certificate is portable** – respected and recognized by other area manufacturers.

ICD Strategies for Adult Learning

Electro-Mechanical Maintenance is but one of nearly 100 courses offered annually by the Fairfield Steel Works CDP to workers and their families. Each year, on average, 35% of the Fairfield union

membership participates in at least one CDP course from a curriculum that includes computer applications, foreign languages, and business and technical writing. In addition, over 500 on-line courses are also available through the CDP

Key to these high participation rates is ICD's philosophy about what it takes to help adult learners conquer a fear of classrooms and learning after having been away from school for many years. To address this issue, ICD offers its so-called "Bridge Classes," which are designed around employee requests for training in everything from landscaping to music lessons. To prepare trainees for more technical subject matter, however, every course includes at least four of the basic learning elements mandated by the ICD: writing, learning to learn, reading, computation, oral communication, listening, problem solving, creative thinking, motivation, interpersonal skills, negotiating skills, teamwork, leadership and information technologies. This background has proven relevant to the success of the E-M program – CDP Coordinator Whitney Norris estimates that at least half of all E-M enrollees have taken at least one bridge class or other CDP course, many of them prior to enrolling for E-M.

Connections to Public Workforce and Economic Development Systems

There is no formal relationship with the public workforce system. The E-M training program is an internal training program. For the full range of career development program, like other ICD CDP programs across the country, the program enjoys access to community colleges, state- and municipally-supported adult basic education programs and university and college programs.

Program Funding Sources

ICD programs are financed exclusively through a "set aside" of between 10 cents and 15 cents "per-actual hour worked" by USW employees, as negotiated in labor agreements between the USW and the participating employers. Specifically, the Fairfield Works/CDP program operates on an average annual budget of \$450,000, supported by a 15 cent/hour set-aside by US Steel. Financing for ICD overall has been reliable and increasing. Contributions to the national ICD totaled \$207.9 million in 2004, a 6.7% increase over 2003, and expenditures totaled \$185.1 million, an increase of 5.7% over the previous year.

Barriers Overcome

When the ICD program began, it faced barriers that had to be overcome at the local level. First, it had to develop its own identity as a learning program for the workers, outside of the company training programs. Second, it had to convince the workers that its purpose was to provide a safe, confidential learning program designed to help them re-enter a formalized learning environment on their own time. It was essential that workers be made comfortable with this program. Many workers had not been in a formalized learning environment for many years and were naturally suspicious and nervous about such a program. The ICD had to create learning advocates to function as the eyes and ears of the program. These people provided encouragement to workers on the shop floor about the program and provided feedback to the program operators. In addition, the program had to design a process for selecting vendors who would be appropriate for this unique setting, and structure their contracts to ensure the appropriate teaching methods. It also had to provide orientation to vendors who had not previously provided instruction in a joint company/union program. It also had to structure the individual programs in settings at the mills or union halls that would increase accessibility for workers who would participate on their own time. Finally, it had to identify and disperse examples of best practices for staff throughout the country.

Current Challenges for the E-M Program

One of the biggest problems for the Fairfield Works CDP Electro-Mechanical training program has been achieving a balance between the number of graduates produced and the effects of business cycles and decisions made by national leaders of US Steel – both of which affect the Fairfield Works' need for Maintenance Utilitymen. This problem has not been resolved and, in fact, is currently the focus of intensive discussions between the US Steel/Fairfield Works and the USW.

Difficulties have arisen because those who graduate from the CDP E-M training and pass the company test are to be placed in company-paid trainee slots within six months. After six months, as stipulated in the US Steel/USW contract, they must re-take the qualifying exam. Although the company has never enforced that requirement, there have been times when US Steel did not have training spots available to place program graduates. Word spread quickly through the shop that certificate holders were not being placed in training positions and, after two years of work, would have to wait six months and re-take the difficult exam. This situation created a backlash that cut deeply into the number of people willing to enter CDP E-M training.

For example, eight people graduated from the CDP E-M course in 2000 and eight more in 2001. However, due to business conditions, many graduates had to wait to enter company-paid training positions. Consequently, enrollments in CDP E-M courses plummeted. Only four people graduated in 2002 and only two graduated in 2003.

By 2006, the numbers had climbed back up, and the program produced 18 graduates. Another development in the industry, however, has created demand that far exceeds supply. Currently, local management predicts that an early retirement program will create a sudden need for as many as 200 to 250 Maintenance Utilitymen, although, at best, the CDP program can graduate only 50 each year.

National decision-makers in the steel industry and at the USW are exploring ways in which the E-M CDP can play a central role in such a volatile supply/demand situation. National US Steel leaders want to take over all E-M training, create a test to select trainees, and pay them to enter one of two tracks: Electrical Maintenance and Mechanical Maintenance. The USW (and many in local US Steel management) feel the CDP program has been extremely successful and, at minimum, could offer pre-test “prep courses” to help both new hires and more senior employees prepare for the new company exam.

Program Results and Returns to the Stakeholders

Benefits to the Company:

The CDP program has provided the company with a badly needed pool of highly-trained skilled laborers ready to enter even more advanced company-provided training to become fully-certified Maintenance Utilitymen. According to the company, it is impossible to find people with the requisite skills in the region and, without this program, the company “would be desperate.”

Since 1996, 52 employees have successfully completed and received certificates from the CDP’s two-year Electro-Mechanical Maintenance training course. Another 70 workers are currently enrolled in the CDP Electro-Mechanical Training course. “Nearly 100 percent” of workers who have earned the CDP Electro-Mechanical Certificates have entered and been successful in the US Steel-sponsored training program for skilled Maintenance

Utilitymen, according to Fairfield Works’ Manager of Employee Relations Bernard Borman.

Given that the size of the Fairfield Works bargaining unit has averaged 1,913 people for the past 10 years, the 52 people who earned certificates and the 70 people currently enrolled in the CDP Electro-Mechanical certificate program represent 6.37 percent of the total Fairfield Works union-represented workforce.

Benefits to Employees:

The Fairfield Works CDP provides between 80 and 100 instructor-lead courses a year; many of these courses are designed to help people qualify for promotions in the mill or for portable, industry-recognized certificates and degrees, and to gain other skills that will increase their ability to secure jobs outside the steel works. Skill upgrades, of course, benefit US Steel as well as the employees.

The Electro-Mechanical certificate program, in particular, has had a pronounced effect on job creation through “backfilling,” resulting in some 100 new hires to fill the slots vacated when current workers promote to Maintenance Utilityman. When the company slots a graduate into a training position, once he or she completes the E-M CDP, another worker typically moves up or over. Moving people around inside the shop eventually creates a vacancy that brings someone in off the street. In addition, graduates occasionally take their certificates and go work somewhere else, a move that creates openings as well.

Benefits to the Union:

The CDP E-M training has helped local management meet a critical need for skilled labor. Local USW leaders believe the trust and mutual respect generated by establishing and running that program in collaboration with US Steel has strengthened the union’s ability to work constructively with the company across a whole range of areas.

The E-M training has also increased the union’s visibility among its members and strengthened member support for, and loyalty to, the union. Members have come to see that this program is the path to some of the best-paid, most technically challenging and desirable jobs at the Fairfield Works – and that the local union played a leading role in creating that program and remains central to its daily operation.

Next Steps for the Stakeholders and/or for the Participants

The Fairfield Works Local Joint Committee is discussing the potential impact of the new Basic Steel Contract that reduces some 35 job classifications to only five. This radical restructuring will mainly affect training and apprenticeship programs run by US Steel. However, the LJC sees this as a clear sign that the rate

of technological change is accelerating, and they are determined to make all necessary adjustments to ensure their programs help steelworkers keep pace with those changes, both inside and outside the shop.

For more information, contact Tom Gannon at tgannon@workingforamerica.org or info@workingforamerica.org.

CASE STUDIES: CHALLENGE 5

Challenge 5: Integrating workers with limited English proficiency:

The manufacturing workforce is increasingly foreign-born, and as a result, the need for English language skills represents a growing challenge for the sector. Employers have difficulty finding programs that address the needs of limited English proficient workers in a manufacturing context.

Addressed as a primary challenge:

RWDSU/UFCW Local 224 – Hasbro, Inc. “English for Speakers of Another Language” Training Program

The RWDSU/UFCW Local 224 – Hasbro, Inc. “English for Speakers of Another Language” Training Program

Program Synopsis

Hasbro, Inc., the oldest and last remaining game and puzzle manufacturer in North America, is committed to continuing domestic production by modernizing its facilities in Longmeadow, Massachusetts. In many cases, however, introducing advanced technologies and work processes first requires upgrading employee language skills. Like many communities, the Longmeadow/Springfield region is home to many people whose primary language is not English. Hasbro's is a polyglot workforce, with first languages including Russian, Portuguese, Spanish, Polish, Vietnamese and Chinese.

Three and a half years ago, Hasbro Games, the United Food and Commercial Workers/RWDSU, the Massachusetts AFL-CIO and the University of Massachusetts launched a collaborative program of English proficiency training. The classes have enabled scores of workers to pass mechanical aptitude tests, advance into more skilled positions at the company, and to participate in the sorts of technically-difficult training needed for Hasbro to fulfill its business objectives and survive as a domestic manufacturer.

Workforce Challenge

- **Integrating workers with limited English proficiency:** The manufacturing workforce is increasingly foreign-born, meaning that English language skills are becoming a prominent challenge for the industry. Employers have difficulty finding programs that address the needs of limited English proficient workers within a manufacturing context.

Understanding the Demand and Meeting It

Hasbro Games, Inc. and its divisions, Parker Brothers and Milton Bradley, have deep roots in New England. The Milton Bradley Company (acquired by Hasbro in 1984) was founded in 1860 in Springfield, Massachusetts, less than 10 miles from Hasbro's East

Longmeadow facility. Parker Brothers Games (acquired by Hasbro in 1991) was founded in 1883 in Salem, Massachusetts and Hasbro, itself, was established in 1920 in Providence, Rhode Island.

Hasbro is an unusual company in several respects.

- With \$2.9 billion in sales in 2004, Hasbro is, in terms of revenue, the second largest U.S. toy company.
- With 1,700 – 2,000 employees (employment varies in the seasonal toy industry) Hasbro is unusually large. Of 742 U.S. toy manufacturing establishments, 78% employ fewer than 20 people.
- Hasbro is the largest remaining U.S. manufacturer of games and puzzles, with a stated commitment and strategic plan to continue domestic production by collaborating with its unionized workforce to enhance skills and introduce advanced technologies and work processes.

Hasbro is committed to continuing toy and game production in western Massachusetts, in a unionized facility paying hourly wages of \$14 - \$20, and providing good health care, retirement, sick leave and vacation benefits. Working with the employees' union and public agencies specializing in workforce and economic development, Hasbro is executing a strategic plan that includes significant investments in worker language and skills training, advanced manufacturing technologies, and high-skill/high-productivity forms of workplace organization.

“We are the largest game manufacturer left in the United States. The toy industry is gone,” says Hasbro's Senior Vice President of Operations Pedro Caceres. “But we have found a strategy to compete: the ‘Total Value Chain’ concept that includes quick reaction to customer need, lean production and extremely high quality. Ours is the best in the industry.”

Language is Key: Union Prompts Focus on English Proficiency, and Company Agrees

In 2001, Hasbro sought the union's help in obtaining state funds for a range of workforce training initiatives and, at the union's urging, the company added a program for English proficiency training to the 2002 grant application.

Although Hasbro hires without regard to English proficiency, the company will typically assign a non-English proficient employee to work alongside a more experienced person who speaks the same language. This way a new hire with an English deficit can ask questions and learn the job(s). The company notes that it has no difficulty assigning these pairs because it generally hires many people from a particular language group.

Hasbro Bucks “Offshore” Trend

The U.S. is the world's top consumer of games and toys, and imports virtually every toy and game purchased. According to the Department of Commerce, U.S. toy and game imports topped \$14.2 billion in 2004, while exports totaled only \$880 million.

“Toy manufacturers have shifted production away from domestic markets to subcontracted or wholly owned subsidiaries located in low wage economies, primarily Hong Kong, Taiwan and, to a larger extent, China ... They also purchase components, accessories and various finished products from international sources,” according to the Department of Commerce.

In this sector, domestic employment plunged as toy and game manufacturing moved overseas. The U.S. toy and game industry employed 42,300 people in 1993. It employs only 18,600 people today, overwhelmingly in small establishments with fewer than 20 workers. Fully 57% of the industry job loss occurred since 1997, according Commerce Department figures.

According to the company, 35% of its current workforce has moderate to severe problems with English proficiency.

The Company's Vice President acknowledges how vital language is to efficient production, and describes their overall three-pronged strategy based on people, process and technology. In order to succeed with this approach it is essential to maximize the knowledge and skills of the people in the company, so that they can use the new technologies and processes. Both management and the union understand that, in order to acquire knowledge, people must comprehend procedures and understand each other. In a multilingual plant, that means a high level of English comprehension.

“Hasbro is turning more and more to robotics and automated equipment for most manual functions. This is technical work and you need effective communications on the line, between trades, between shifts, and when you are trying to show someone something new,” explained Kevin Hand, President of the Retail, Wholesale, Department Store Union/United Food and Commercial Workers (RWDSU/UFCW) Local 224.

The union president believes that workers must speak English as a matter of efficiency, safety and skills, as well as to facilitate advancement for the worker. Advanced technology requires more advanced communication and Hand recognizes that “the days of people sitting on the line putting parts into boxes are pretty much gone.”

Employees also need English proficiency to read job postings and to be promoted inside Hasbro, to qualify for rapid recall after seasonal layoffs and, if they choose, to leave Hasbro and seek education or employment elsewhere.

In the Human Resources (HR) Department at Hasbro, which coordinates the Company's English Proficiency Training, management sees a link between job security and communications skills. From the company's point of view, the more technical a job, the

more valuable the worker who performs it, and the more rapidly he or she is recalled from layoffs that are part of the landscape in a company with seasonal products. And from the worker's perspective, an employee with the skills to handle technical challenges can also choose to go to another company and make a career there.

Program Partners

The English for Speakers of Other Languages (ESOL) training program is a collaborative effort involving:

- Hasbro Games, Inc. management
- RWDSU/UFCW Local 224
- The University of Massachusetts Labor Management Workplace Education Program (UMass/LMWEP)

A Planning and Evaluation Team, consisting of Hasbro executives, the union and the training provider meets at least twice a month to assess and manage the program.

The Massachusetts AFL-CIO's Workforce Development Program has also been instrumental in helping the parties formulate their plans, in writing and submitting the initial grant, as well as a second grant recently awarded by the state to broaden training at Hasbro to include Adult Basic Education (ABE).

Program Activities and Methods

Sequential Strategy

- Hasbro's overall training strategy consists of three main elements:

- **Survival Training:** providing basic language training, “shop math” and machine operations skills
- **Technical Skills:** providing more advanced, “trades-oriented” training, and operation of advanced equipment, including robots and injection molding
- **Creating the Future:** developing a workforce with language and technical skills that will allow Hasbro to quickly introduce technological advances or technologies still on the drawing board.

These elements represent a sequential process, from the basic training at step one, to more advanced language capability linked to production, and finally to mastering skilled work.

Both Employees and the Company Share Responsibility for Training

English proficiency classes (basic and advanced) are offered at the Local 224 union hall twice a week, in two-hour sessions: 2 p.m. – 4 p.m. for first and second shift employees, and 6 a.m. – 8 a.m. for third shift employees. One hour of each session takes place “on company time”; employees are excused from work and paid at their normal hourly rate. The other hour of each session occurs on the employees’ personal time and is uncompensated.

Everyone wishing to enroll in ESOL is encouraged to do so and is accepted in the first available class. No conditions or questions asked. Since the ESOL program at Hasbro stresses spoken English proficiency, there are no literacy tests for entry, although the coursework does include some writing and computer literacy content.

Employees are recruited to the program through postings and notices in the shop and by word-of-mouth recommendations from line supervisors and union stewards. Postings and notices appear on specially-created letterhead displaying the logos of both Hasbro Games and RWDSU/UFCW Local 224. They stress the importance of English language proficiency throughout the workplace.

Contextualized, Personalized Learning

To create useful, relevant course materials and curricula, Hasbro and Local 224 provided the educators with a “lexicon of terms” and descriptions of common work-related tasks and situations. Because the training is designed to be immediately useful and applicable, the trainers used by Hasbro first meet with management and the union at every worksite they visit. According to Joe Connolly, EdD, program director for the UMass/LMWEP (see side-

bar), they ask for materials related to the workplace, and encourage company and union representatives to sit in on the classes.

The programs are participatory in nature, with an *empowerment* focus so that training sessions may include a simulated workplace situation, such as a safety meeting. Instructors may then ask trainees to talk about it or write about the experience.

Trainers make use of techniques such as role play, in which a participant might role-play a conversation with a supervisor, a meeting between a learner and her children’s teachers or a doctors’ visit. These scenes must meet the learner’s needs and strengthen language skills outside the work environment, thus strengthening them inside the work environment. Role-play may also be used to simulate filling out different factory forms or new reports.

Use of a Unique Training Provider

While the Hasbro ESOL program serves a single employer, it benefits from the shared capacity provided by a unique, union-sponsored training program serving western Massachusetts – the Labor Management Workforce Education Program at the University of Massachusetts, Amherst.

The program originated as a joint venture between the University and the American Federation of State, County and Municipal Employees (AFSCME). In 1991, the program gained a third partner, the University Staff Association/Massachusetts Teachers Association (USA/MTA).

Needs assessments, development of instructional materials and curricula, instruction and oversight are provided by the UMass program, which has served the region since 1987.

Connections to Public Workforce and Economic Development Systems

The collaborative training efforts of Hasbro Games and RWDSU/UFCW Local 224 were made possible by a sophisticated network of services supported by two principal agencies of the Commonwealth of Massachusetts.

The initial \$250,000 grant (and the subsequent \$10,800 grant to add Adult Basic Education (see next steps) are funded through the state’s Unemployment Insurance Fund under the auspices of the Massachusetts Workforce Training Fund (WTF), a department of the Division of Unemployment Assistance. The basic WTF grant also supports training in Advanced Skills (general machine and technology-specific training) and Strategic Projects (high productivity and environmentally-responsible workplace organization).

University-based Program Aids Private and Public Sector Worksites

An innovative program based at the University of Massachusetts/Amherst serves the economic development and worker training needs of Western Massachusetts. Founded in 1987, the Labor-Management Workplace Education Program is a collaborative effort by the University and two of its largest employee unions, the American Federation of State, County and Municipal Employees (AFSCME) and the University Staff Association/Massachusetts Teachers Association.

Since its inception the program has received more than 100 grant awards and initiated more than 25 major programs to provide workplace training to a diverse range of public and private employers throughout the region, including:

- Amherst, Westfield and other town and city governments
- The Massachusetts Department of Public Works and other state agencies
- Smith & Wesson, Hasbro and other manufacturers, large and small
- Smith College, Mount Holyoke College and other universities, colleges and community colleges

The program helps managers and unions reach consensus around workplace training needs and helps the partners develop appropriate curricula, course materials, schedules and budgets. The program also provides instructors and administrative oversight.

In FY 2004, the WFT awarded 1,203 training grants with a total value of \$81.4 million to train 125,811 employees at private sector firms across Massachusetts, ranging from banks and biomedical research companies to machine shops and warehouses. The number of employees targeted for training at individual companies ranged from as few as four to as many as 1,364 (at Hasbro).

The WTF also awarded 87 Technical Assistance grants, with a total value of more than \$1.8 million, to assist Workforce Investment Boards, community colleges and other training providers across the state in assessing needs and developing programs.

Hasbro's senior management identifies the intense involvement of the public sector as crucial to the success of the program, together with the commitment of the education providers, the union and the company.

Program Funding Sources

Program costs, including instructor salaries, instructional materials and curriculum development, are paid for out of the \$248,635 WTF training grant, which, in turn, is financed by the state of Massachusetts Unemployment Insurance Fund.

Hasbro Games, Inc. pays participating employees one hour's regular wages per session (i.e. two hours per week) while they are in training.

The Massachusetts AFL-CIO Workforce Development Program, financed by its affiliated unions, researched and wrote the grant

applications and contributed many hours of staff time helping the stakeholders clarify their goals and create the program.

RWDSU/UFCW Local 224 stewards and officers contribute time to recruit participants and to oversee the program, and contribute the use of the local union hall. Union funds come from membership dues.

Barriers Overcome

The stakeholders report that the main barrier the program has had to overcome involves the employees' reluctance to admit difficulties understanding English. For workers, this admission can be intimidating, as they are essentially confessing that they may not have adequately understood job instructions or forms that must be filled out at work. They do not want to embarrass themselves in front of their coworkers by stepping forward for help, and they do not want to do anything that could jeopardize their jobs.

Local 224 President Hand said part of the solution involves the manner in which the training is presented to employees: It should not seem too basic or too simple because people might feel patronized. At the same time, however, the training must not seem so high-level and advanced that potential learners are reluctant to enroll for fear of failure.

Hasbro's Program Coordinator says that the company makes it very clear to both employees and supervisors that participation is

encouraged and that Hasbro's management stands 100 percent behind this effort.

Program Results and Returns to the Stakeholders

Quantitative results demonstrate clear, measurable gains from the ESOL training at Hasbro Games.

During the past two years:

- 50 employees (roughly 3% of the Hasbro workforce) have enrolled in basic and advanced ESOL classes. Of the 50 students who enrolled in the two years, only two dropped the course. Of the four courses offered, (two courses are offered per year), two have been provided at the beginning level, one at the advanced beginning, and one at the intermediate level.
- All 50 participants were assessed using the Basic English Skills Test (BEST), a tool used by the Massachusetts Department of Education throughout the state, and all were found to have advanced at least one "speaking level."
- All 50 participants took the Bennett Mechanical Comprehension Test (BMCT) and 27 passed, earning an important portable certificate that is critical to employment in the higher wage machinist jobs at the company. The test includes problems in basic physics, math, and mechanical systems, and is given in English only. It is essential for promotion at Hasbro. The Bennett tests are administered by the company, and employees may take the test once a year. Those enrolled in the ESOL program may take it three times during the period they are in training. Hasbro does not maintain records on average "pass rates" for Hasbro employees, although Hasbro's HR Director states that the 54% pass rate for ESOL trainees is quite high.

Benefits to the Company:

Hasbro is quite explicit: The success of its strategic business plan rests on the expanded English language proficiency of its workforce. The steady gains outlined above are allowing Hasbro to unfold the "sequential strategy" on which the Company depends.

Senior management is committed to its workforce and sees its employees as a strategic tool for operational success. According to V.P. of Operation Caceres, "With this program, people who never had the opportunity to advance can now do so, and we are able to continually increase our efficiency, productivity and quality."

Benefits to Employees:

ESOL training enables Hasbro employees to raise their skill levels and job performance, equipping them to advance inside the company, to be recalled from layoff more quickly, to more easily convert from seasonal to full-time employees, and, if they wish, to find work outside Hasbro.

Testimonies from Hasbro production workers show ESOL training has enhanced participants' abilities and value to the company by allowing them to communicate clearly with supervisors, coworkers and other shifts. As a result of the training, they can quickly and accurately understand production schedules, written instructions and job-related paperwork.

Workers also report greater feelings of confidence in dealing with their English-speaking children and people in the wider community, and their feelings of excitement and self-confidence spill over into their feelings of self-worth on the job. "Every day I use better words and understand more words," one worker wrote. "I never thought I could do the things I do now," wrote another, "This is very important to me."

Benefits to the Union:

RWDSU/UFCW leaders say the success of the ESOL program allows employees (and management) to see the union in a broader more proactive light. The union helped develop the ESOL training and, by holding the ESOL classes at the union hall and actively promoting the program on the shop floor, the members see their union as empowering them and helping them advance in meaningful ways at work, at home and in the community. Through this program, the union also has established itself as a critically important partner with the company, as Hasbro pursues its strategic plan to modernize and maintain domestic production.

The popularity of the program led union members (many of them non-immigrant English speakers) to ask their local to add an ABE component to their training. With the addition of ABE classes, the union will be delivering valuable skills and training to an even larger section of its membership.

Benefits to Training Provider:

At Hasbro, the UMass/LMWEP has been able to successfully design courses and provide instruction under one the largest WTF grants ever awarded by the state of Massachusetts. This high-profile program is now expanding to include ABE training, which UMass will also provide. "This has been a really good experience in collaboration and cooperation," said Amy Brodigan, who oversees UMass' work at Hasbro. "Very productive, tension free and beneficial to everyone."

Next Steps for the Stakeholders and/or for the Participants

The ESOL classes are so well-known and popular in the shop, that non-immigrant Hasbro employees recently approached the union and the company and persuaded them to expand the courses to include Adult Basic Education.

The Massachusetts AFL-CIO helped write and win state approval of a \$10,800 grant to finance that expansion. ABE instruction will also be provided by UMass/LMWERP.

As English proficiency spreads and deepens within the Hasbro workforce, the company intends to press forward with their three-phase strategic plan by offering increasingly complex technical training, general education and skill development.

For more information, contact Tom Burress at tburress@workingforamerica.org or info@workingforamerica.org.

CASE STUDIES: CHALLENGE 6

Challenge 6: Maintaining the pipeline that channels young workers into manufacturing:

Employers and unions share a concern about the future of manufacturing in the US, particularly as the workforce in the sector ages. Both workers and employers call for the K-12 education system to inform students about the changing nature of manufacturing and the wage potential manufacturing jobs provide, while preparing them for careers in this sector.

Addressed as a primary challenge:

Gulf Coast Shipbuilding Partnership's Transitions Program

International Brotherhood of Teamsters/Sikorsky Aircraft Corporation
School-to-Career Mentoring Program

Lansing Area Manufacturing Partnership (LAMP)

Gulf Coast Shipbuilding Partnership's Transitions Program

Program Synopsis

An industry-led consortium in the shipbuilding industry in Pascagoula, Mississippi prepares today's youth for employment in tomorrow's world of advanced manufacturing. In the process, the program offers the industry a promising approach to dealing with a serious challenge: recruiting young people into the region's manufacturing labor market.

The "Transitions Program" offers a five-week training curriculum designed to streamline recruitment of youth with employment barriers into entry-level jobs that are in demand in the shipyard. The partnership takes on a unique aspect of the challenge of recruiting youth into manufacturing: It focuses on youth with developmental disabilities. The program combines classroom instruction and on-the-job mentoring for the students – while they are actually employed at Northrop Grumman Ship Systems. The trainees earn \$7.88 and receive full benefits, including health care and retirement. At the same time they are making their way into the world of work – an important transition for all young people but especially important for youth with disabilities. Once students complete their training, employment is at wage rates significantly higher than the median wage in the state, eventually reaching as high as \$14.22 an hour for an experienced Rust Machine Operator, or \$16.03 an hour for an experienced Cableman.

The International Union of Painters and Allied Trades (IUPAT or Painters) Local 1225 and the International Brotherhood of Electrical Workers (IBEW) Local 733, with the support of the Pascagoula Metal Trades Council, are full partners with the company in the design and delivery of this program.

Workforce Challenge

- **Maintaining the pipeline that channels young workers into manufacturing:** Employers and unions share a concern about the future of manufacturing in the US, particularly as the manufacturing workforce ages. Better preparation by the K-12 education system is essential for incoming workers if they are to understand the changing nature of manufacturing, the wage potential these jobs provide and the requirements of the volatile manufacturing labor market.

Understanding the Demand and Meeting It

Northrop Grumman Ship Systems, the largest employer in both Louisiana and Mississippi, identified a serious workforce problem: The company had an aging workforce. The average age was over 42, with many workers nearing retirement. At the same time, employment in the shipbuilding industry was growing: In the two-year period between July 2003 and July 2005, the industry grew by over 10,000 workers. (In August, 2005, Hurricane Katrina dramatically reduced employment in the industry, which has still not rebounded to its pre-Katrina levels.) Tapping into the experience and skills of a wide range of community partners, however, has allowed NGSS to offer employment training, which increases its competitiveness through streamlined recruitment of new workers and reduced turnover.

The Transitions Program also meets two other needs of Northrop Grumman's. First, it ensures that the community recognizes the ways in which this, the state's largest employer, is working pro-actively to open its doors to a wide cross-section of the potential Pascagoula workforce. Secondly, the program helps NGSS meet its own employment diversity goals. "This initiative and others like it support community and economic development by providing high paying careers... as well as supporting our internal diversity goals," said Dr. Larry Crane, director of Training and Workforce Development at Northrop Grumman Ship Systems.

Metal Trades Council

The Metal Trades Department, chartered in 1908, is part of the AFL-CIO. The Department is responsible for negotiating and administering collective bargaining agreements for its 20 affiliated unions. The Department accomplishes its mission through chartering local Metal Trades Councils in areas throughout the country where its affiliates need and want that collective voice. There are over 100,000 workers employed under agreements negotiated and maintained by Metal Trades Councils. Metal Trades Councils are common in the maritime and defense industries, and they represent the majority of workers at nuclear facilities across the nation. The Council's activities are financed by a per-capita tax paid by its member organizations. Both the Department and its Councils elect officers to make policy and adopt constitutions and bylaws to govern the respective bodies.

The program is one of several workforce efforts operated jointly by the company and its unions, including an incumbent worker training program and active apprenticeship programs in a number of different crafts.

Program Partners

Program Partners include: Northrop Grumman Ship Systems in Pascagoula (Ingalls Shipbuilding); the Center for Administering Rehabilitation and Employment Services (CARES) of Mississippi; the International Union of Painters and Allied Trades Local 1225; the International Brotherhood of Electrical Workers Local 733, with the support of the Pascagoula Metal Trades Council (see text box below) and the Mississippi Department of Rehabilitation Services.

In addition to the four major partners, George County High School and the nine public high schools of Jackson County are researching ways to streamline young adults with learning disabilities into entry-level high-paying jobs in the shipbuilding industry.

CARES of Mississippi works with the public schools in this effort. The Mississippi Gulf Coast Community College and the Louisiana Community and Technical College system are also partners in the project, providing training facilities, instructors, and other resources. The unions provide worker-to-worker mentoring services as a key component of the project. The responsibility for the classroom instruction, while distributed among the partners, is the primary training responsibility of Northrop Grumman Ship Systems.

Program Activities and Methods

The program begins with recruitment of young people from the area's public high schools. CARES of Mississippi disseminates information to high school students with disabilities at ten public high schools. Because of the nature of their disabilities, students in the program receive "certificates of completion," rather than diplomas or Graduation Equivalency Diplomas (GEDs) from their public high schools. These certificates simply acknowledge that the students have spent twelve years in school. Students who receive certificates of completion and who require minimal accommodations and job modifications are specifically targeted for the Transitions Program. Outreach and recruitment efforts use the existing relationship between NGSS, CARES of

Mississippi's Projects With Industries (PWI) program, the State Department of Rehabilitation Services (DRS), and George and Jackson County high schools. Like any other employee at NGSS, trainees must be at least 18 years of age, meet the physical requirements for the work, and must pass drug tests.

This initiative has developed methods of recruiting, screening, hiring, and training individuals that encourage employment success. Students are admitted into the program only after all the partners conduct screening. A labor-management committee screens prospective trainees for the company – an arrangement similar to, but separate from, the process used for screening apprentices.

Since the inception of the program, four groups of trainees (28 total) have completed the five-week course. The first class of trainees in 2003 trained for the Rust Machine Operator job classification, represented by the IUPAT. The next two groups of trainees were trained as Cablemen. The fourth class focused again on Rust Machine Operators, based on the occupational needs of Northrop Grumman.

The training model of the program provides a phased-in approach, with gradual assimilation into the shipyard environment. The training plan includes classroom instruction, job shadowing, practical lab application, and on-the-job training (OJT). Initially classroom environment is emphasized, with more time gradually spent in the field. The classroom instruction focuses on basic safety, familiarizing the trainees with shipyard facilities and terminology, and orienting trainees to the collective bargaining agreement and unions.

Other classroom training includes foundational skills and soft skills, such as: the expectations of Northrop Grumman Ship Systems as an employer; using mentors; and teamwork in the shipyard environment.

Once practical laboratory and OJT activities begin, students are provided training in additional subject areas, such as craft safety, blueprint reading, and tool recognition. As part of the training, all students receive a Fire Watch Certification credential (See below).

One of the main reasons for the success of the program is the use of workplace mentors, and mentoring is precisely where the union makes its primary commitment to the program. The union, along with other partners, screens its own members and makes recommendations to the company about the most appropriate personnel to use in this sensitive role as a mentor. The program matches each student with one craftsman from the IUPAT in the paint department for the Rust Machine Operator positions; IBEW members guide the OJT for the Cableman position. Mentors are screened and selected based on their per-

sonal attributes, communication skills, patience, teamwork skills, etc. The program also provides them with training on mentoring techniques and appropriate workplace mentoring activities. Throughout the training period and beyond, agency partners and case managers have weekly access to the students. This level of involvement facilitates a proactive approach to issue resolution, which assists in meeting the retention goals of the program. In keeping with best practices for a program of this type, the students' stakeholders (family and support groups) are highly involved throughout the program.

The graduates of the program are then assessed and placed into traditional employment in the company, with step increases and pay rates consistent with the union collective bargaining agreement for the position. The graduates are typically placed at a wage rate around \$12 an hour, with the potential of making \$14.22 for Rust Machine Operators or \$16.03 for Cablemen. Graduates, even during their OJT, receive full company benefits, including health care and retirement.

Industry-recognized credential: Fire watch certificate

The shipbuilding industry relies heavily on skilled welders performing their work in cramped, enclosed quarters. The risk of fire is extreme in these circumstances; "normal" fire prevention techniques are simply not adequate to ensure the safety of workers. Workers performing hot work are at risk of fires from the ignition of combustible material and from leaks of flammable gas from the welding equipment. The industry has, consequently, developed a credential for workers who support the skilled craftspeople actually performing the welding operations. Over the course of the training program, the students receive the training necessary to secure this portable, industry-recognized credential. The credential certifies that the recipient has been trained in the fire safety methods necessary for welding in cramped quarters, including the appropriate use of fire-extinguishing equipment.

Public Workforce System

The program connects to the local public school system, the United States Department of Education's Projects With Industries (PWI) grant program, the state of Mississippi's Department of Rehabilitation Services (DRS).

Program Funding Sources

Funding for the program includes a federal Department of Education's PWI Program grant, as well as resources from the Mississippi Department of Rehabilitation Services. CARES of Mississippi and its predecessor organization have been receiving PWI grants since 1990, and this particular program component started in fall 2003. In its most recent grant, CARES of Mississippi received over \$400,000 in October 2005 for their continued work with youth. Those resources go beyond the Transitions Program at Northrop Grumman Ship Systems, and have helped launch the program in other industry sectors, particularly the hospitality industry, which is equally critical to the region's economy.

The Department of Rehabilitation Services provides funding for tools and other support services (transportation, etc.), as well as a 50% wage subsidy to the students during their training course. DRS and PWI case managers provide technical assistance. They also provide an invaluable contribution to the design of the program, tailoring it for the special requirements of this youth population. The unions contribute mentors, some safety equipment, and technical expertise to the program. The IUPAT, for example, invested in safety and training equipment for the Rust Machine Operators, including earplugs, safety glasses, scrapers, and other

Projects with Industry Program (PWI)

The Projects with Industry Program creates and expands job and career opportunities for individuals with disabilities in competitive labor markets by engaging the participation of business and industry in the rehabilitation process. PWI projects promote the involvement of business and industry through Business Advisory Councils (BACs) that identify jobs and careers in the community and provide advice on appropriate skills and training. BACs are required to identify jobs and career availability within the community, consistent with the current and projected local employment opportunities identified by the local workforce investment board (WIB). The program provides job development, job placement, and, where appropriate, training services to assist individuals with disabilities to obtain or advance in employment in the competitive labor market.

Grants are awarded to agencies and community organizations, including business and industrial corporations, labor organizations, trade associations and foundations, for a period up to five years (with demonstrated compliance and performance). Although funding has been reduced slightly in the program over the last several years, the PWI budget is close to \$22 million spread across the country.

basic painting tools. The union employees of NGSS are compensated by the company while mentoring the students.

Barriers Overcome

This population has unique barriers to employment. Some of the students, for example, do not possess driver's licenses. Through the assistance of the State DRS these barriers were overcome and transportation was provided to the trainees, even after the training period.

Program Results and Returns to Stakeholders/Partners

Twenty-eight students have been trained in the program, and Transitions has had a 90% completion rate. Completion of the program guarantees employment at the company. Eighty percent of the trainees were still employed by Northrop Grumman before Hurricane Katrina ravaged the Gulf Coast.

Benefits to the Company:

The company has successfully built a streamlined method of recruiting new young workers, lowering the direct cost of new employee recruitment and screening new hires to increase the likelihood of success on the job. The program also helps NGSS to meet its own diversity criteria. Maintaining a diverse workforce is part of NGSS's commitment to the communities where it operates. The company views the 50% wage subsidy it receives from the State Department of Rehabilitation Services for this on-the-job training program as a significant benefit and an incentive to engage in the program.

Benefits to the Trainees:

The trainees receive a real-life introduction to the world of work. The six-week training course provides opportunities leading to direct employment at the largest company in the state. The beginning training wage is \$7.88 an hour, with medical coverage and retirement benefits. After the initial training, students are placed at a wage level commensurate with their skill attainment; eventually the trainees become First Class Rust Machine Operators with a wage of \$14.22 an hour, well above Mississippi's median hourly wage (\$10.73 in 2003). After four years in the Rust Machine Operator program, the employees are offered a career ladder into the Painters' apprenticeship program. They are

offered a certification test where, if they pass, they are admitted into the journey-level painter classification. Under the current collective bargaining agreement, journey-level painters earn \$18.32 an hour. The other classification for which the on-the-job training prepares the students, Cableman, receives \$16.03 after several years of experience at the company.

Benefits to the Union:

Transitions gives the union a unique opportunity to educate young people about the role of the union in the workplace and in society before they become members. The mentoring process allows individual union members the opportunity to develop relationships with the trainees – relationships that are rewarding to the individual union members and enhance the role of the union within the broader community. The recognition by stakeholders (family and support groups) – and the trainees themselves – of the positive role played by individual union members and by the union in the program, enhances the likelihood that labor organizations will be perceived in a positive light. This is especially important to participating unions in Mississippi, a state with one of the lowest union density rates in the nation. The program has provided a cost-effective way for its employer to fill vacancies, which saves money that can be made available for other union priorities in negotiations. Reducing the cost of finding skilled workers contributes to NGSS's competitiveness, which increases the employment security of the Pascagoula Metal Trades Council's current membership. Grady Bryant, business representative for the Painters, said, "Let's give these folks a real opportunity and help the company at the same time."

The International Brotherhood of Electrical Workers Local 733 and the International Union of Painters and Allied Trades Local 1225 are rightfully proud of being recognized as leaders in workforce development at their workplace. The project has received attention from the local news media, demonstrating the constructive role that labor and management can play together in community and economic development.

Benefits to the Community:

The community investment in this training regimen is repaid through high-quality job placements for individuals who possess challenges to gainful employment. Placing this special population in high-paying union jobs has a broad, diffuse benefit for the community. Some of the students actually had been recipients of Supplemental Security Income (SSI) prior to their involvement in the program. SSI is a federal program, run by the Social Security Administration that delivers monthly benefits to people with disabilities and who have few resources. The Transitions Program's ability to place these young people in productive,

high-paying, in-demand jobs ensures that they are not in need of public financial assistance.

Next Steps for the Program and/or for the Partnership:

In the aftermath of Hurricane Katrina, the Pascagoula shipyard of Northrop Grumman has focused on hiring over 1,000 new workers to replace those individuals who chose not to return the

Gulf Coast. As a consequence, the Transitions Program has been temporarily suspended. This promising practice, however, will be restarted in March, offering exceptional training and job opportunities to another group of young people with disabilities on the Gulf Coast.

For more information, contact Tom Gannon at tgannon@workingforamerica.org or info@workingforamerica.org.

The International Brotherhood of Teamsters/Sikorsky Aircraft Corporation School-to-Career Mentoring Program

Program Synopsis

The International Brotherhood of Teamsters/Sikorsky Aircraft Corporation School-to-Work Mentoring Program represents a promising approach to solving a serious challenge facing both manufacturing employers and manufacturing unions – that of renewing the supply of skilled workers to fill the manufacturing jobs of today and tomorrow. This program – begun in 2002 and continuing to date – provides high school students with a positive introduction to manufacturing work under cost-effective conditions, thus increasing the supply of needed skilled workers to the company. The union, in turn, gains an opportunity to hand down its members' skills and knowledge; train young workers interested in in-demand manufacturing jobs; and keep the community's employers competitive – while introducing tomorrow's workforce to the rights and responsibilities available to them under collective bargaining agreements.

Based on a program piloted in the other five New England states by the International Brotherhood of Electrical Workers (IBEW), the program began under the auspices of the state's Central Labor Councils' Union Mentoring Project, with the enthusiastic support of the Connecticut AFL-CIO. Similar programs have been launched throughout the state of Connecticut by the Union Mentoring Project and collaborating union-employer partnerships at a number of unionized workplaces in both the public and private sector. These include Electric Boat (a division of General Dynamics); several public and private utilities; local housing authorities; woodworking and fabrication shops; and theatrical production companies. The union-led Union Mentoring Project actively promotes the IBEW model as a way to help unionized employers from a variety of industries and sectors who will be losing skilled workers to retirement in the next decade, while giving local schools a more effective way to introduce young people to high-skill, high-wage careers. Other Connecticut employers – and their unions – report similar success with their mentoring programs and have praised the role of the state's labor federations in supporting their school-to-career efforts.

Workforce Challenge

- **Maintaining the pipeline that channels young workers into manufacturing:** Employers and unions share a concern about the future of manufacturing in the US, particularly as the workforce in the sector ages. Both workers and employers call for the K-12 education system to inform students about the changing nature of manufacturing and the wage potential manufacturing jobs provide, while preparing them for careers in this sector.

For a period of years, International Brotherhood of Teamsters (IBT or Teamsters) union officials in Stratford, Connecticut had observed that area youth were often confined to relatively low-paying jobs in the region's retail and restaurant establishments. At the same time, one of their signatory employers, the local Sikorsky Corporation helicopter plant, reported that it had difficulty filling vacancies for skilled workers due to the high cost of labor market research, recruitment and training. While Sikorsky already operated an internship program for its salaried positions – such as engineers – it lacked a mechanism for introducing prospective employees to its hourly occupations represented by IBT Local 1150. When the Connecticut Central Labor Councils came together to promote a successful school-to-work program based on the achievements of the IBEW model employed throughout New England, they were able to secure funding through Workforce Investment Boards for launching their Union Mentoring Project in Connecticut. Sikorsky and the Teamsters – as well as other unions and their employers – recognized a chance to address the needs of the company, the community, and the workforce through a high road mentoring program.

Understanding the Demand and Meeting It

As a project initiator with an extensive knowledge of the industry, the company, and the labor market, the IBT could rapidly identify and confirm the company's training and recruitment needs, without costly formal research. The Teamsters knew that Sikorsky Corporation's helicopter manufacturing facilities in Connecticut employ 7,500 people, about 4,000 of whom are hourly workers and members of the Teamsters union. The median age of these workers is currently 50. The local union knew that, at the time the project was initiated, the helicopter plant needed to replace a significant number of hourly workers annually due to retirements. These departing employees were highly skilled, and the flow of younger workers to fill their positions had slowed to a trickle. With targeted, on-site training, the

union hoped that a school-to-work project could fill the gap between a demand for skilled workers and a supply of young people not yet equipped to handle the requirements of advanced manufacturing. The Teamsters therefore proposed to Sikorsky management a school-to-work program based on the Union Mentoring Project. The company apparently shared the union's enthusiasm for the approach, as Sikorsky agreed to give it a try.

Program Partners

Although the International Brotherhood of Teamsters Local 1150 and Sikorsky Aircraft Corporation were the primary stakeholders in this effort, they knew that the actual project would require the active commitment of other partners, most notably the area's secondary school system. Participating high schools include Bullard-Haven Vocational-Technical High School in Bridgeport, Platt Technical High School in Milford, Emmett O'Brien in Ansonia, and Kaynor Technical High School in Waterbury, Connecticut, all chosen for their proximity to Sikorsky's Stratford and Shelton facilities. The school systems' Cooperative Work Program personnel were also integral to the project's team.

The Union Mentoring Project, a collaborative of all the Central Labor Councils in Connecticut, provided vital staff and volunteer support to the Teamsters to develop and expand their partnership with Sikorsky and the schools. The CLC presidents designated a statewide director for the Union Mentoring Project, and, with state and local Workforce Investment Act funding, they were able to hire a school-to-work "Partnership Facilitator" who was housed in the John J. Driscoll United Labor Agency, the labor movement's service agency in the state. Assistance on mentor recruitment and training, parents' night, student/mentor evaluation, Labor History Day, and graduation ceremonies were just some of the services offered to the partnership by the Union Mentoring Project.

Similar mentoring partnerships to the one profiled in this case have operated at employers in other sectors, along with an additional manufacturing project at Electric Boat. These partnerships include other unions, such as the United Auto Workers, the unions of the Metal Trades Department of the AFL-CIO, the United Steel Workers of America, the United Brotherhood of Carpenters, UNITE (now UNITE/HERE), the American Federation of State, County and Municipal Employees, and the International Alliance of Theatrical and Stage Employees. And more are being developed each year.

Program Activities and Methods

In adopting the IBEW School-to-Work Mentoring approach, the Teamsters had to accept a critical program component: The young interns would be full union members while on the job. Consequently, they first secured project approval from their membership at the plant before initiating the project.

The model also required that experienced workers and union members would participate in the project as mentors to the students, who would intern for the summer after their junior year, with an option to also return after their senior year. Program organizers then enlisted the participation of selected high schools and vocational schools. The role of vocational schools was especially important to the success of the project because Sikorsky wanted interns with training in skills taught by the schools, such as machining and electronics. Moreover, the schools' Cooperative Work Program served as the legal vehicle that enabled 16- and 17-year-olds to work in the plant.

Next, the roles of each party were defined, and the process for selecting interns and mentors determined. The parties decided on a three-part process, working with cooperating coordinators named by Sikorsky, the Teamsters, and the participating schools. First, the company determines what specific jobs need to be filled and notifies the union of these openings. Interns work as machinists, electronic technicians, carpenters, pipe fitters and more. Secondly, the union informs the schools of the positions to be filled, and nominates the appropriate mentors and alternate mentors from among its membership. The high schools then forward this information to the junior and senior classes and invited students to apply. Finally, interns are selected based on their interests, grades, attendance records, aptitude, behavior, and prior community service activities. The selection committee, comprised of the three above-mentioned coordinators, make the final acceptance decisions.

As interns at Sikorsky, students receive: full union membership; an introduction to the aircraft industry; an introduction to the trades and crafts jobs at the worksite; an introduction to labor management-relations; an introduction to labor history during a special Labor History Day; and an eight-week entry-level salary for work performed. In addition, students receive a plant orientation, safety training, and guidance and mentoring from a union mentor, who is also a co-worker, throughout the program. The company assigns interns to fill in for vacationing workers and to increase the productivity of the mentors by giving them extra help. At the end of each summer, the interns, their mentors, employer, and educational partners attend a dinner in which the interns receive participation awards and recognition.

In promoting school-to-work mentoring programs across the state, the union-led Union Mentoring Project identifies the following key ingredients for success:

- A solid labor-management partnership
- A commitment to work-based learning
- An existing or anticipated need for skilled workers
- A willingness to invest in the workforce of tomorrow
- The ability to build a solid tripartite working partnership involving union, employer and school/community.

Connections to the Public Workforce System

Both the Connecticut Governor's Office of Workforce Competitiveness and various local Workforce Investment Boards (WIBs) have contributed to the funding of a Union Mentoring Project staff position at the United Labor Agency to promote school-to-work programs for unionized employers throughout the state, including the manufacturing mentoring projects at Sikorsky and Electric Boat. The public workforce system therefore contributes indirectly to fostering the project at Sikorsky, but no direct WIB funding has been allocated to the Sikorsky/Teamsters School to Work project. Because the partnership depends on contributions from all participants, rather than grant funding, its structure encourages a long-term systemic relationship between the employer, its workforce and the schools.

Program Funding Sources

The employer pays the cost of salaries for the interns and the work time lost by mentors during their training and participation in the Labor History Day. The company also shares the cost (with the union) of the Recognition Ceremony at the end of the eight-week in-plant internship period. The local union and the CLCs (through project funding) share the costs of the university professors and other resource people who serve as the program's mentor trainers and labor history teachers. The union also funds "Parents' Night" at the beginning of the program. For their part, the schools fund the salary of the Cooperative Work Program staff and other educators who oversee intern recruitment and placements.

Barriers Overcome

The presence of potentially hazardous conditions in the plant represented a special problem the project had to address. Before work could begin, the project needed to obtain permission for minors (students ages 16 and 17) to work in the Sikorsky Aircraft facility. The participating vocational schools' Cooperative Work Program provided the solution to this problem. Only under this program can designated schools enroll student interns and apply for waivers from the Department of Labor's Wage and Hour Division work rules for minors. In order to obtain the waivers, the Cooperative Work Program staff had to visit the job site and approve each occupational assignment. Since the interns became Sikorsky employees, Sikorsky remained liable for Workers Compensation in the event of an accident. The strength of the partnership among the educational system, the company and the union enabled the parties to address the liability issues to the satisfaction of each of their respective constituencies, as well as the state.

Program Results and Returns to Stakeholders/Partners

The expansion of the program over time is clear evidence of its success. In 2002, the program only placed three interns at Sikorsky. In the second year it expanded to 12 interns; in the third to 24; and in 2005 to 46(35 high school juniors and 11 seniors). In 2006, Sikorsky and the Teamsters expanded the program again: 60 high school students participated, 31 of whom are seniors.

Only those interns who perform satisfactorily during their internship and graduate from high school are eligible to become full-time permanent Sikorsky employees. In 2005, Sikorsky offered jobs to nine of the 11 graduating interns, seven of whom accepted. Two declined employment offers: One went on to college and one moved out of the area. To date, a total of 15 interns have started to work full time as Sikorsky employees and Teamster members. A few more students were offered full-time employment but chose to pursue other opportunities, including college or the military. As of the publication of this case study, 31 graduating seniors were scheduled to complete the program in 2006 and the program expects the majority to be hired this fall.

Benefits to the Company:

Sikorsky has gained: a new source of trained, skilled workers while reducing recruiting and retention costs; a closer relationship with the public education system; and a collaborative, positive relationship with the community. The program ensures that participants are not performing menial tasks but are fully integrated into the skilled production process. Thus, these workers are often able to fill in when full time workers go on vacation during the summer months. The company is able to assess these workers over the two-year period, enabling it to hire many of them for full-time work upon graduation. As new employees, the former interns come to the company with occupational skills, work experience, and knowledge of the Sikorsky plant, its products, process and culture. By hiring these former interns, the company has both reduced its new employee recruitment costs and reduced the “learning-curve” usually required for new hires to reach full productivity. The fact that local management has enthusiastically continued to support the program is further evidence of its true value to the company. The company was interested in using internships with hourly employees and this program allows them to do so.

Benefits to the Interns:

Interns in this program (juniors and seniors in high school) enjoy average earnings of \$15.00 - \$17.00 per hour, which is considerably higher than most high school students earn in a summer job. In some cases, the interns also have a higher hourly wage than their parents. Interns get priority hiring consideration for some of the best jobs in the local labor market – jobs with good wages and good benefits. Once hired on a full-time basis, the former interns earn \$17.00 to \$20.00 per hour with good health and retirement security benefits. They are also eligible for tuition reimbursement for college courses and three hours per week of paid leave to attend classes. (They must maintain at least a C average to receive this tuition reimbursement.) There is little danger that successful interns who want to work at Sikorsky after graduation won't be able to do so. In the current year, the company will need to replace approximately 300 hourly workers and is eager to hire graduates of its joint company/Teamster School-to-Work Mentoring Program.

Benefits to the Union:

The Teamsters have benefited in a number of ways from this project. The program has provided a cost-effective way for its employer to fill vacancies – thus saving dollars that can be made available for other priorities. The fact that the company can more easily find skilled workers in the community also contributes to its competitiveness – thus increasing the employment

security of its current membership. Through the work of the program, more than 2,500 students have been exposed to the positive role of unions in America's workplaces. Former interns who become Sikorsky permanent employees and union members, grateful to both the company and the union for the opportunity, become stronger union members. Union members who become mentors in the program also report high levels of enthusiasm for the program and their union. Mentors receive training in counseling, tutoring and advising young workers, while taking pride in imparting the lessons they have learned over the years about how to succeed at work and about the advantages of union membership. The union is pleased that the attention the project has received locally, including the praise for it as an example of the constructive role that labor and management can play together. The union also reports that its relationship with Sikorsky on other labor relations matters has improved as a result of the program.

This featured program, and the similar efforts at other Connecticut employers, also reflects favorably on the state's AFL-CIO-affiliated Central Labor Councils, which took the initiative to introduce the concept to unionized firms in the state.

Benefits to the School System:

Connecticut's high schools are able to provide their students with rewarding vocational learning experience through this program. Students considering the vocational education track in participating high schools can see that they will be able to find good paying jobs in their community upon graduation. (In programs other than the Sikorsky-IBT program, students were recruited from general education high schools as well as vocational schools.) That knowledge encourages students to choose the learning environment that best suits their learning styles and their interests without fear that it will doom them to a sub-standard quality of life. Offering that choice to high school students contributes to greater success for both the academic and the vocational programs in the schools. A less anticipated benefit to the schools, however, was the finding that the project has led Teamster members and Sikorsky supervisors and managers to become more knowledgeable about, and more involved with, their local school system.

Benefits to the Community:

Greater corporate and taxpayer investment and involvement with the local schools is certainly a significant benefit to the wider community. Being able to connect the community's non-college-bound youth to good jobs nearby prevents losing them to other communities and/or to potentially less positive pursuits. The greatest benefit to Sikorsky's communities, however, is that

which motivated both the union and the employer to initiate the project. Both Sikorsky and the Teamsters recognized that finding qualified workers for the helicopter plants in Stratford and Shelton would contribute to the viability of those plants and their good, family-sustaining jobs and thus to the long term economic vitality of the region itself. To the extent that the project has met that goal, the community is the better for it.

Next Steps for the Program and/or for the Partnership

The partners are eager to substantially expand the program. To achieve this goal, however, the program has identified two key issues that it should address. First, program operators must inform prospective interns that, if they are planning to enroll in college full-time upon graduation, this program is not for them. Secondly,

to fill the growing number of vacancies that will occur as the result of upcoming retirements, the union and the company must expand the program rapidly. The union regrets not having started the program earlier to stay ahead of hiring needs, as this has become the preferred method of recruitment by the company. It is not the only method, and the company hires outside when necessary, but if the program can expand sufficiently, it can demonstrate the responsiveness of such joint labor-management training initiatives.

The program has submitted a funding request to the local WIB for the next program round and is hopeful about the prospects. One of the WIB labor representatives is a member of IBT Local 1150 who has been a driving force in the school-to-career program.

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Lansing Area Manufacturing Partnership (LAMP)

Program Synopsis

This program seeks to re-align a segment of the Lansing, Michigan-area local school district's curriculum to better prepare students for some of the best jobs in the community: employment as a UAW member with General Motors.

The United Automobile Workers (UAW) and General Motors Company (GM), through their joint program, the Center for Human Resources (CHR), and in partnership with the **Ingham Intermediate School District (IISD)**, offer a promising approach to solving a serious challenge facing the manufacturing industry: recruiting youth into the automobile industry and, in the process, ensuring that young workers possess the requisite skills to meet the needs of tomorrow's advanced-manufacturing workforce. This program, inaugurated in 1997, provides young people with a positive introduction to the manufacturing workplace throughout their senior year in high school. The LAMP program is characterized by an employer-driven curriculum, a team-teaching approach, and the active involvement of union members, who pass along their expertise to students through a mentoring system. The program helps prepare young workers for careers in the advanced manufacturing industry.

Workforce Challenge

- **Maintaining the pipeline that channels young workers into manufacturing:** Employers and unions share a concern about the future of manufacturing in the US, particularly as the manufacturing workforce ages. Better preparation by the K-12 education system is essential for incoming workers if they are to understand the changing nature of manufacturing, the wage potential these jobs provide, and the requirements of the volatile manufacturing labor market.

Understanding the Demand and Meeting it

For many years, the General Motors Company had observed that youth graduating from the local public school system and entering its employ were poorly prepared for the challenges of

the workplace. Many of the skills needed by GM revolve around the techniques of lean manufacturing. These skills depend on the application of the concepts of teamwork, problem solving, and effective communication. Because the public educational system tends to be more oriented toward college preparation, these concepts are not necessarily taught directly in the schools.

When the UAW and GM assessed the future, they recognized that "traditional" approaches to secondary education were failing the automotive industry. Consequently, they developed this program to meet their workforce needs. Through the program, they sought to address the mismatch between the aspirations of graduating high school students, the demands of post-secondary education, and the needs of manufacturers in their community.

In the Lansing area, a majority of graduating seniors enrolled in some sort of post-secondary education, yet less than half of those entering post-high school programs completed their degrees or obtained their certificates. At the same time, local manufacturing employers continued to experience skill shortages in key occupations. An undesirable situation for the student, the community, and the employer developed: The students lacked the academic credential they sought; the community suffered the effects of a low return on a large investment in its public schools, including public colleges and universities; and local, high-paying employers continued to have trouble filling their vacancies.

This initiative partially remedies all of these problems.

Program Partners

LAMP is managed by an Operations Supervisor and governed by a Policy Board, comprised of the three partners: **United Automobile Workers (UAW)**, **General Motors Company (GM)**, and the **Ingham Intermediate School District (IISD)**.

- The United Auto Workers Locals 602, 652, 1618, and 1753 are the union partners.
- The employer, GM, has instated the program in a number of their facilities: Lansing Grand River, Lansing Delta Township, Lansing Service Parts Operations, Lansing Delta Stamping, Lansing Area Metal Fabrication, Lansing Craft Center.
- The educational associate involved in the partnership is the Ingham Intermediate School District. Since its inception, LAMP has expanded to include Eaton Intermediate School District, which covers Eaton County, Michigan, and the Clinton Regional Educational Service Agency, covering Clinton County, Michigan. Now all of the local school districts within each of

Center for Human Resources

The UAW-GM Center for Human Resources (CHR) is a nonprofit organization that develops and administers joint education, training and retraining activities, as well as specific services for UAW-represented employees throughout the U.S.

Established in 1984 contract negotiations between the UAW and GM, the CHR staff includes UAW-appointed International representatives and GM-appointed salaried representatives. They work with CHR-employed staff for clerical, technical and professional employees to develop, support, and deliver a wide range of programs and activities in four general areas:

- Health and Safety
- Skill Development and Training
- Work and Family
- Product Quality Improvement and Promotion

UAW-GM CHR programs and services are dedicated to meeting employee needs, be they work-related, family-related, or for the employee's own educational development. The CHR also provides education and professional development training for UAW and GM joint program representatives at the local level.

All joint activities and programs, including the UAW-GM CHR, are provided through the national collective bargaining agreement between GM and the UAW.

these three counties are able to see their students placed in LAMP. The other two school districts, however, are not involved in the grant administration; IISD is the fiscal entity.

Program Activities and Methods

Launched in 1997, the LAMP program provides “career exploration for high school seniors interested in exploring the world of manufacturing.” A rigorous application process that begins in the spring of a student’s junior year ensures that applicants to the program are committed to it. The process includes a written essay, an interview, an informational meeting with parents, and a GM-administered drug test. Sixty seniors from 25 area high schools in three counties (Ingham, Eaton, and Clinton) are accepted annually into the program.

The partnership, which integrates classroom instruction and workplace learning, requires that students invest 2 ? hours of their normal school day in LAMP. The student receives approximately 500 hours of instruction in a workplace environment that provides for the delivery of both academic content and manufacturing concepts.

The model also relies on experienced union members to serve as mentors, advisors, and subject matter experts (SMEs) to the students. Mentors receive training on counseling, tutoring and advising young workers, while imparting the lessons they have learned over the years about how to succeed at work and realize the benefits of union membership.

LAMP delivers six units of instruction:

- **Shifting Gears** (an introduction to the manufacturing system model),
- **People Systems** (communications and career awareness, with an emphasis on the labor movement’s role in the automotive industry),
- **Business Principles** (an introduction to financial aspects of manufacturing – prices, production processes, marketing, etc.),
- **Manufacturing Systems** (an introduction to production concepts, including quality, safety, cost, delivery, and personnel issues),
- **More than Design** (provides a “system view” of design processes and techniques), and **Quality Improvement** (an introduction to quality standards, quality tools and metrics, and continuous improvement processes).

Throughout the program students are assessed in terms of both traditional academic rigor and their employment competencies. Evaluations are performed jointly by teachers and students. Students receive an A grade when their work is determined to be “quality”. When students fall short of that designation, they continue to work on their project until it meets the quality standard and receives an A.

The LAMP course of study concludes with the “Capstone Experience,” where student-teams face real workplace problems and develop solutions to those problems based on their year of experience.

rience in manufacturing. The students then present their research findings to an audience of parents, educators, UAW members, and GM personnel.

LAMP graduates are given special access to Kettering University, formerly known as the General Motors Institute, a prestigious, integrated work-study higher education program focused on math, engineering, and the sciences. LAMP graduates are also given unique access to the highly regulated hiring process at GM. (See the Program Results section for more on these aspects of the program.)

LAMP has been developed using national and state content standards, including those formulated by the National Council for Advanced Manufacturing (NACFAM) the Michigan Curriculum Framework (Michigan Department of Education), the Michigan Department of Education Technology Standards, the Secretary's Commission on Achieving Necessary Skills (SCANS), and National Career Development Guidelines.

The jobs that graduates get are among the best in the region. For those who are employed at GM on the production line the base wage rate for an assembler is \$25.58 an hour, with excellent benefits.

Connections to the Public Workforce System

The LAMP program makes the most fundamental and basic connection possible to the public “workforce” system; it connects to the nation’s public schools. By virtue of this fundamental connection to the lynchpin of the national workforce system, the program is guided by standards from the State of Michigan’s Department of Education, among others.

The program also connects to Lansing Community College (LCC) through the use of its facilities. As an example, through the partnership between GM and LCC, LAMP students have the opportunity to use resources at LCC’s new Michigan Technical Education Center (M-TEC)

LAMP Mission Statement

The UAW, GM, and the IISD, in partnership with the public education community, will develop and implement a unique career preparation program, which prepares high school students to enter the workforce of the 21st Century. This will be accomplished by providing an integrated curriculum (classroom instruction and work-based learning experiences) that equips students with lifelong learning skills, employability skills, and manufacturing proficiencies.

Program Funding Sources

The program was initiated and funded by the UAW-GM Center for Human Resources (CHR), the jointly administered training partnership for the union and the company. CHR invested about \$500,000 in the program through a grant to the IISD in its first year. The project was clearly defined as a six-year pilot project. The strains on the auto manufacturer and the union have led CHR to reduce its investment in the program. This academic year (2005-2006), the investment from CHR was around \$400,000. The joint program informed the educational partners last year that, because of lost revenue and declining employment in the industry, there will be no funding for the next academic year from CHR. The IISD is pursuing other sources of private and public funding to sustain the successful model – a model that has been replicated in Detroit.

In addition to the time spent governing and overseeing the program, each of the program partners makes in-kind and direct contributions to its success:

Ingham Intermediate School District – IISD’s Career Services and Technical Education Department provides the expertise necessary to develop and implement the integrated curriculum, student materials, and teacher manuals. The two certificated teachers for the program are employees of IISD, with the grant to the school district from CHR covering the costs of the educators.

United Auto Workers – The four local unions of the UAW provide mentors, subject matter experts, and advisors, who interact with students on a regular basis in the context of the workplace.

General Motors Corporation – The employer partner provides access to the workplace, which is an absolutely essential piece of the work-based learning environment. The LAMP classroom is at the UAW-GM Training Center in Lansing. GM’s management personnel are also dedicated to the project through mentoring and advising the LAMP students.

Eaton School District and Clinton School District – The two other school districts that are able to send their students to the program pay \$1,000 per student for their participation in the year-long training program.

Barriers Overcome

An early and significant barrier to the success of the program was the fear among parents, educators, and the students themselves that participation in a school-to-career program would ultimately

limit a participant's educational and career options – a problem common to many “work-study” programs.

The program developers had done a lot of thinking about how to design and structure the program to minimize this outcome. And they succeeded. At a number of different stages, the variety of different opportunities available to young people, including LAMP students, is emphasized. The Program Results section, including privileged access to the higher education opportunities at Kettering University, corroborates the effective resolution of this concern about LAMP. Exposure to the industry simply does not predestine the program's students to careers in the industry. Unfortunately, with the recent declines in employment in the industry, employment opportunities are not even necessarily available in the automotive industry. Employment in the motor vehicles industry hit a 15-year low in July 2005, with only 224,000 jobs (not seasonally adjusted). By way of comparison, there were nearly 300,000 jobs in the industry at the end of 2000 – a 25% drop in less than five years, according to data from the Bureau of Labor Statistics.

The Academy for Educational Development (AED) determined through extensive analyses that the LAMP experience actually translates into better performance in higher education and other post-secondary education for students. (For more on the AED see below.) Far from limiting participants' choices, the program opens new doors for students, exposes them to real-life workplaces, and better prepares them for whatever career or educational option they choose. While the manufacturing industry demands results from its investment – and it gets them from LAMP, where graduates tend to enter the world of manufacturing – balance must be maintained when other programs seek to replicate the LAMP model between career exposure and career obligation. The LAMP experience suggests that careful management of school-industry partnerships can be beneficial to both high school students and participating firms. Such a partnership can successfully offer students work exposure and experience without limiting their career options, while creating a reliable pipeline for new workers into advanced manufacturing careers.

Program Results and Returns to Stakeholders/Partners

The benefits of the program have been quantified in a longitudinal study, conducted over a five-year period by the Academy of Educational Development (AED), an independent, non-profit organization founded in 1961, which is part of the National Institute for Work and Learning. The AED study, funded by CHR and published in the summer of 2002, investigated virtu-

ally every aspect of the program: its method, its results, and its efficacy. The data presented herein are derived from this study, one of the most comprehensive analyses conducted on virtually any school-to-career program.

The study's findings are clear: LAMP has flourished since its inception in 1997, producing positive outcomes for all the partners, the participants, and the people of Lansing. The sections below discuss the specific benefits derived by the parties in more detail:

Benefits to the Company:

LAMP assists General Motors by lowering recruitment costs, reducing turnover, and increasing productivity. The program provides a supply of young workers oriented to the challenges of the advanced manufacturing workplace; many IISD seniors find employment at General Motors. Twenty-five percent of the 1999 and 2000 graduates of the LAMP program are working at GM. This figure is particularly interesting in light of the fact that no non-LAMP graduates of IISD from those two graduating classes found employment at GM. The company has also identified other benefits to its broader workforce, such as increased morale. Opportunities to interact with the manufacturing workers of tomorrow connected the existing GM workforce, from both management and the union, with parents, students, and teachers, increasing their sense of the community's educational needs and their own sense of worth to the community. Additionally, General Motors has adopted part of the LAMP curriculum for its other personnel, borrowing training content from the program (basically from the IISD) and incorporating it into its operations.

General Motors, and the manufacturing industry more broadly, clearly benefit from the positive introduction to manufacturing given to the students from the program. In LAMP's own internal research, essentially updating the AED data, they discovered that 65-70% of the LAMP graduates are connected to the manufacturing industry, whether that means higher education coursework connected to the industry or actual employment in it. Another element of that updated research revealed that approximately 50 LAMP graduates are employed today at General Motors.

Benefits to the Students:

Students in this program receive a wide array of benefits from their participation. Perhaps most importantly, after 12 to 18 months of employment, LAMP graduates were receiving, on average, \$2.26 more an hour than a non-LAMP comparison group. Eighteen months after graduation from high school, LAMP graduates had substantially higher employment rates (82%) than the local employment rate for this group (72%). The program apparently

provided an important career path into manufacturing, evidenced by fact that twice as many LAMP graduates were working in the manufacturing sector than their non-LAMP counterparts.

Probably most surprising, however, is the fact that LAMP graduates tend to pursue post-secondary education at higher rates than their non-LAMP counterparts. They also tend to continue in their pursuit of higher education at greater rates. Moreover, academic achievement (cumulative grade point averages) for LAMP graduates is similar to the control group members, although LAMP graduates are more likely to be working while going to college.

Graduates of LAMP are also given privileged status in the highly regulated hiring process at GM. LAMP graduates automatically become part of the eligible pool of applicants for testing for new positions at the manufacturer.

Similarly, LAMP graduates are given special access to higher education opportunities at Kettering University. Kettering University, formerly General Motors Institute (GMI), is a unique program of higher education, offering alternating 12-week work terms with 11-week study terms. The integrated work-study schedule allows a student to earn around \$65,000 while obtaining a Bachelor of Arts degree. (The University also offers Master's degrees.) The highly competitive program of higher education focuses on engineering, math, and the sciences. In 2005, only five applicants were accepted into the program. Two of the five positions were granted to graduates of LAMP. Kettering University accepts, for transfer, some of the articulated credit earned by LAMP students at LCC.

As mentioned above, about 50 LAMP graduates are employed at GM today. Most of them are employed as UAW members on the production line, where an assembler makes a base wage rate of \$25.58 an hour. A small percentage of the LAMP graduates have moved into the skilled jobs at the company or into management.

Benefits to the Union:

The UAW has benefited in a number of ways from this partnership. First, the program has provided a cost-effective way for GM to recruit new employees to begin careers in the auto industry – where the workforce, as in other manufacturing industries is aging – in the process saving dollars that can be made available for other union priorities. Secondly, increased competitiveness for the company by virtue of the cost savings is a clear result. In the global marketplace for automobiles, every dollar saved can mean a more secure job for a union member, decreasing the likelihood that more of GM's domestic employment will be sent offshore or outsourced.

Union members who become mentors in LAMP also report high levels of enthusiasm for the program. The union is pleased that the program has received attention from the local news media as a demonstration of the constructive role that labor and management can play together in community and economic development. The union also reports that its relationship with GM on other labor-relations matters has improved as a result of the program.

Finally, a more subtle benefit of the program accrues to the UAW – and to the labor movement more generally. The program has exposed hundreds of students to an unfiltered view of unions in the workplace. LAMP students are more inclined than their non-LAMP counterparts to view unions in a positive light. That fact is borne out in the Academy for Educational Development's longitudinal study of the program, which determined that 93% of LAMP graduates who had access to a union job actually became members, compared to only 40% of the comparison group in similar circumstances.

Benefits to the School System:

IISD vocational high school programs are able to provide their students with a rewarding vocational learning experience through this program. Students considering the vocational education track in IISD can see that they may be able to find family-sustaining jobs in their own community upon graduation. That knowledge encourages students to choose the learning environment that best suits their aptitudes and interests without fear that it will doom them to a lower standard of living. Offering that choice to high school students contributes to greater success for both the academic and the vocational programs in the schools.

The program has also led UAW members and GM supervisors and managers to become more knowledgeable about, and more involved with, their local school system. This collaborative labor-management partnership within the Ingham Intermediate School District resulting from IISD's involvement with LAMP has been a clear benefit for the public school partner. Once exposed to LAMP's positive interaction between the UAW and GM, the teachers union and the school-district management have embarked on their own methods of improving their relationship, collaborating on a wider range of issues than ever before.

Benefits to the Community:

Greater corporate and taxpayer investment and involvement with the local schools is certainly a significant benefit to the community beyond the confines of GM factories. Being able to connect the community's youth to good jobs in the local labor market

prevents a brain drain and ensures local opportunities for the community's young people. The greatest benefit to the community may be that which motivated the union and the employer to initiate the program: both GM and the UAW recognized that finding qualified workers for auto manufacturing operations contributes to the viability of the industry locally and its good, family-sustaining jobs. Because of the training LAMP delivers, the communities within Ingham County are stronger and better able to withstand the pressures of the global marketplace in automobiles. LAMP has highlighted the critical role that public schools play in economic development and retaining the region's precious manufacturing jobs.

Next Steps for the Program and/or for the Partnership

The program is exploring closer relationships with institutions of higher education in addition to Lansing Community College. Specifically, LAMP is exploring partnerships with the teaching programs at Olivet College and Michigan State University.

The partners are eager to improve the program by more effectively developing public school personnel for school-to-work strategies. Lastly, LAMP wants to connect its learning strategies more effectively with the students' home schools, ensuring that the other hours of the school day outside of LAMP re-enforce the lessons learned while at program.

The program has been replicated by UAW and GM in the Detroit area. The IISD is also pursuing other sources of private and public funding to replace the UAW-GM Center for Human Resources investment that was essential to getting the project started.

For more information, contact Tom Burress at tburress@workingforamerica.org or info@workingforamerica.org.

This section contains a series of checklists that can help users identify other organizations or firms with a vested interest in the outcome of a sectoral initiative (such as unions, employers, the workforce system, education, training providers, economic development, community based organizations, and others). The first two checklists provide a step-by-step guide for unions and employers seeking to form a partnership and engage other organizations critical to a successful workforce initiative. The final checklist serves as a guide for Workforce Investment Boards interested in engaging labor unions – and/or unionized employers – in their area in a sector-based workforce initiative.

Checklists

- ▶ Forming a labor-management training partnership
- ▶ Connecting a labor-management partnership to the workforce system (for partnerships)
- ▶ Working with a labor-management training partnership (for WIBs)

Checklist #1: Engaging in a Labor-Management Occupational Training Program or Initiative (for unions and employers)

Joint labor/management workforce education and training programs vary greatly in the manufacturing sector. Whether you are embarking on a new training partnership, reactivating a dormant education and training committee, or starting a new training initiative as part of an established program, the following checklist should be helpful.

Joint labor/management training and workplace education programs can be designed to meet a variety of objectives, ranging from programs to address specific, employer-defined, work-related skill gaps to those that encourage individually-directed personal development and career enhancement through life-long learning. As an initial step, the union and the company must agree on the purpose of a new or revitalized training program and develop the structure and focus to achieve that goal.

For the purpose of this project, the Institute focused on those joint labor-management training programs that strive primarily to meet the employer-defined or jointly-determined skill gaps for both incumbent workers and new hires. However, a few featured programs (such as the Fairfield/ICD case) are sponsored by joint programs that define their overall mission primarily in terms of worker-directed personal development.

All of these programs, regardless of their overall mission, have determined that their sponsors – both the employers and union members – want workplace-sponsored education and training to address the challenges of the global economy. Successful programs demonstrate how they can help protect and create jobs, enable the company and the workers to compete in the global economy, help workers gain skills to use new technology and work organization, and prepare workers to contribute to an organization that maximizes the knowledge and skills of its workforce.

Joint labor/management training programs – especially those that rely solely or partially on negotiated employer financial contributions – are usually focused on meeting the education and training needs of incumbent workers. These training programs in manufacturing generally are used to accommodate changes in technology, production processes, work organization materials or product lines. Such training will focus on the “hard” occupational or technical knowledge and skills, but may also address the “soft” skills such as problem solving or working in teams.

Some of these jointly sponsored programs, however, have determined that it is in the best interest of their separate and shared mission to assist with cost-effective, high-quality new employee recruitment and placement. Preventing costly recruitment mistakes, while building good will for the union, has motivated this movement to pre-employment education and training on the part of some manufacturing joint labor management partners.

Show me the money:

When unions and employers start talking about embarking on a new joint training initiative, it doesn't take long to get to the question of “who's going to pay for it?” The Institute has determined that the most successful programs – the ones that have the greatest ability to meet the ever-changing needs of both the employer and the workforce – are those able to rely on a steady stream of funds that are set aside by the employer for this purpose. There are many ways in which unions and employers have agreed to do this. The most common is the negotiated “cents or dollars per hour” joint training fund, usually set aside in a Taft-Hartley Fund that is, by law, jointly administered by management and union trustees and staff responsible to the partnership. *(A number of the case studies in this Tool Kit involve partnerships where these training trusts exist, such as IAM/Boeing Quality Through Training Program, UAW-GM Center for Human Resources, and the UAW Labor Employment and Training Corporation.)*

The next most common form of funding is the set-aside of dollars (the amount is variously determined) as part of the employer's budget. The expenditure of those funds is monitored and governed by a joint committee. *(The Fairfield/ICD and Vis-teon/IUE-CWA partnerships are examples of this kind of arrangement).*

It is also reasonably common for firms to use a combination of tuition reimbursement funds for training individuals at outside educational institutions, and company and public funding for on-site training delivered to larger numbers of employees.

In other cases, the employer and the union(s) agree to contribute resources to a workforce project, and they agree to raise funds together from other sources to pay the remaining costs of the project. *Examples of this approach include the multi-employer St. Louis Automotive Industry Partnership, the Supplier Excellence Alliance, and the individual employer efforts featured in the W RTP case (although the partnerships themselves may exist for other purposes).* While this approach has been very successful in meeting a particular set of needs, obtaining the resources to sustain the effort over time is a continuing challenge.

In the Institute's experience, it is the combination of both of these models (funding set-aside combined with raising outside resources) that provides the ideal combination. Together, these models encourage continuing core (union and employer) stakeholder interest and accountability, as well as flexibility and the integration of other stakeholder and community needs.

There are a number of steps that unions and employers generally take in determining whether to form a joint training program and identifying the focus of the program:

1. Mission considerations should be addressed by Union(s) and Employer(s) together.

- Is training seen as common ground?
- How would the proposed training and education programs relate to the business needs of the employer?
- How would they relate to the personal and career goals of the worker?
- What changes in technology, production process or work organization are factors that build the case for an education and training initiative?

2. The Union should take the lead in engaging workers.

- The union should assist in identifying the issues and reasons for initiating a workplace education and training program.

This can be accomplished by analyzing the current education and training opportunities at the worksite and conducting an informal survey of worker education and training needs and desires.

- The union should communicate the need for education and training programs to the membership.

It is important that communications on the joint strategy clearly identify the benefits for workers, the union, and the employer's competitiveness that will result from the approach.

3. Partners should assess options for the structure and funding of the partnership.

- Although the highest appropriate level of union and management leadership must agree on the mission, purpose and resource allocations for the initiative, it is also beneficial to form a **joint labor-management education committee**, or re-activate a structure that may have existed in the past. This committee would make the recommendations or decisions on any training initiatives at the company (*see section 4 below*).

** Note: These partnerships frequently address issues other than training, including safety, marketing, the introduction of new technology, etc.*

- Some of the most effective labor-management partnerships are outlined in collective bargaining language, either at the outset of the program or upon the formalization of an initiative that has already been tested and tried. Contract language

Worker-Centered Learning

Regardless of the type of program, its funding base or the mission of the overall initiative, the Institute's experience has shown that "worker-centered learning" is the best approach to a successful training and education program. The attributes of "worker-centered learning" have been defined by a number of successful programs. Typically, they contain a mix of the following elements that seek to improve the technical skills of the workers, while developing knowledge and skills to enhance their personal goals. Successful programs also make learning safe, convenient and rewarding. This approach:

- Builds on what workers already know
- Addresses the needs of the whole person
- Involves both workers and their unions in developing education and training plans
- Engages unions and workers in participatory decision making
- Gives workers equal access to programs
- Uses curriculum that reflects diverse learning styles
- Involves workers in selecting assessment tools
- Keeps classroom records confidential
- Integrates education and training programs into a larger strategy for workforce change
- Leads to portable credentials, whenever possible, through course credits or certifications
- Makes education and training programs safe, comfortable and accessible to workers.

can provide for a "**training trust**," where a specific hourly contribution is dedicated to the education and training of members. This process allows for the maximum degree of sustainability in the training program. Contract language can also mandate a set-aside of funds to be jointly monitored and regulated for specific education and training purposes.

- While some resources may be available to the employer from the workforce investment system, other public system support and foundation monies, such as grants, may be limited to nonprofit organizations. For this reason, some of the promising practices in the case studies included here feature partnerships that have formed "501 (c) 3" organizations to govern their training programs.

4. Partners should take careful steps to operationalize the partnership or initiative.

- Orient and train joint committee members so that they understand the “ground rules” of the partnership.

Members should understand some of the common characteristics of joint training programs. A joint partnership:

- Jointly develops goals and objectives.
 - Jointly selects consultants, trainers, assessment tools.
 - Jointly develops or selects training and education curriculum and teaching methods.
 - Jointly decides issues of staffing, schedules, sites and other logistical issues.
 - Jointly provides program oversight.
 - Jointly evaluates effectiveness of the program.
- Hold a strategic planning session.
 - Develop a mission statement.
 - Identify resources and obstacles.
 - Set short and long-term goals.
 - Develop an Action Plan.

Your Action Plan should address some key questions, such as:

- How shall we assess existing knowledge and skills?
- What are the best delivery methods?
- Who will provide the education?
- What subjects will be covered?
- Where and when will training take place?
- How will the training program be communicated and promoted?
- Who will be eligible? Who will participate?
- What will be our recruiting methods? How are participants to be selected?
- How will the training be funded?
- Who, if anyone, will be responsible for helping workers make personal education and training decisions?
- How will we obtain ongoing feedback from the floor?

5. Development and implementation of services may depend on some key choices that the partnership must make.

- Services and funding may be determined by the target population to be served:
 - Incumbent workers
 - Specialty skills or general production workers
 - New Hires
 - Retraining for Dislocated Workers.
- Services and funding may also be determined by the categories of education and training that the partnership wants to offer:
 - Career Development
 - Basic Skills or Vocational English (for speakers of other languages)
 - Technical Skill Training or Upgrading
 - Addressing new testing or certification requirements
 - Education/Tuition Assistance
 - Training for new work systems, teamwork.

6. Establish a process to evaluate and continuously improve services as the program or initiative is implemented.

- **Evaluation should measure:**
 - How many employees participated?
 - What were the demographics of participants compared to those eligible?
 - What did they learn as a result of participating?
 - What was the impact of the training and education on their work?
 - Was there an attitudinal change toward education and learning?
 - Were program goals achieved?
 - What were the successes and failures of the program?
- **Use the information to make adjustments to the program and continue implementation.**

Threshold Questions About Pursuing a New Project

A mini-checklist of considerations

- Does the project idea enhance or detract from the basic mission of your organization or firm?

For unions, will the project contribute to your union's objectives? Will it benefit your current members? Attract new hires/members? Contribute to your members' employment security? Enhance your relationship with the employer? Change the public perception of labor? Is there a champion on the shop floor who would like to see the project succeed?

For employers, will the project enhance the skills of your workforce in ways that contribute to performance? Will it increase your firm's competitiveness? Does it achieve maximum appropriate economies of scale? Does it enhance your relationship with the union? Is there a champion in management who would like to see the partnership and project succeed?

For both, will the project serve the community where it is located?

- Is the project worth doing?

Does it address an important problem?

Does it employ a tested approach?

Will it cost more than its worth?

Is there a high likelihood of success?

- If you are applying for outside funding, do the requirements of the funding source enhance or detract from your mission or move the project in unwanted directions?

- Will your organization be able to administer the program, or should you look to another partner to play this role?

Checklist #2: Connecting Joint Training and Education Initiatives to the Public Workforce System (for partnerships)

Once a partnership is formed and the partners make a decision to address a workforce challenge together, they may find that they want to connect to the public workforce system. These connections can be made for a number of reasons – not only for funding of a particular program, but also to provide training partners, or a source of workers to backfill for positions at the lower ends of a career ladder. This checklist is designed to outline the steps that unions and their employers should consider to engage the workforce development system in encouraging, participating in, and ultimately, financially supporting their joint training programs.

I. Get Help Understanding the System

There are a series of steps that partners should take prior to making a presentation to the Workforce Development/Investment system. We like to use the analogy of either the union or the employer walking into contract negotiations without having read the contract. Learning the language of the public system and understanding the system's rules will be helpful in engaging it in your work.

- Become familiar with the Workforce Investment Act (WIA). There is extensive information about WIA on the Working for America Institute website – www.workingforamerica.org. For information about the operation of the public workforce system, visit this chapter in the Online Tool Kit at www.workforamerica.com/toolkit to view the “WIA Basics” guide.
- Identify the local and state Workforce Investment Boards and One-Stops in the targeted area. Again, the Institute can help with this.
- Review the names and titles of those who serve on the WIB and One-Stops. Consult the Institute for help with this.
- Identify relationships between members of state and local WIBs and other public system stakeholders and members of the partnership.
 - Labor representatives
 - Business
 - Chief Elected Officials
 - Government
 - Education
 - Economic Development
- Become familiar with state and local workforce plans (especially where those plans contain sector-based initiatives). State plans are available on line at <http://www.doleta.gov/usworkforce/WIA/planstatus.cfm> and local plans should be available on each local board's website (or if they do not have one, the plan will be available upon request).
- Become familiar with any community audits or other labor market research conducted by the WIB. If the WIB has conducted audits, these will be publicly available.
- Learn the meeting schedules of the WIBs. These may be available on a website, but in all cases this information, and the meetings themselves, are public.

2. Develop a Strategic Plan.

Partnerships should have a clear idea of what they want to do, and be sure that they can convey this in terms the public system will understand.

- Assess the needs of your industry. Identify the challenges facing advanced manufacturing in your area. Ask stakeholders to make presentations to the WIB regarding the challenges the industry faces.
- Select the challenge(s) you wish to address (e.g., workers with limited English proficiency, recruiting young people into manufacturing, etc.).
- Identify promising practices for replication or adaptation to the needs of your industry or employer group.
- If possible, involve all stakeholders (employers, unions and their members, education and workforce system) in determining the needs of the industry. Perform any research at the request of those involved and in consultation with them.

3. Educate the Workforce Investment Board about the Partnership's strategy.

- Have union members communicate the strategy to the labor representatives who sit on the WIBs. These Board members should be involved in any presentation at WIB meetings.
- Involve your employers in the discussion with the Board. By law WIBs are *at least* 51% business and are eager for active involvement of employers in their work. In fact, if your employers do not already sit on the board, they may be interested in joining (however, members will have to recuse themselves from actual decisions on a proposal that directly affects their firms).
- Encourage WIB members to bring stakeholders in advanced manufacturing to meetings where your proposal is being discussed. For example, employers may want to bring the state or local manufacturing trade association or chamber representative to support their request.

4. Arrange a presentation with the Workforce Investment Boards using the contacts that members of your partnership have with the members of the Board.

- Prior to the actual meeting with the WIB, conduct a pre-meeting session with the Executive Director and Co-Chairs. Labor representatives or employer members of the board can help you set up this meeting and going through them can demonstrate a level of support and knowledge on the board for the industry and its needs.
- Articulate the objectives of the joint labor-management training program in terms that will be understood by your Workforce Investment Board. *The presentation should be made by both union and employer representatives.*
 - Relate your interest in involving unionized (i.e., high paying) employers in the workforce investment system.
 - Demonstrate how the training will provide family-supporting jobs to the workforce investment system. Point out that union jobs are among the best jobs in the community. Make sure that the WIB understands the potential for higher wage and benefit placements.
 - Demonstrate that your program provides quality training with real, good jobs at the end of the training, supported jointly by employers and the workers in the industry.
 - The board may want to see the use of Eligible Training Providers (ETP). Using an ETP from the approved list, such as a community college, is one approach. If your program provides the training directly, you may need to apply to become an ETP in accordance with local procedures. These procedures vary widely from state to state and the Institute can help you with this process if it is required. Apprenticeship program and institutions of higher education maintain a “short cut” in the law to become ETPs.
- Emphasize the positive impact the project will have on the community and the local economy in areas such as:
 - Layoff aversion.
 - Career ladder opportunities.
 - Backfill of entry-level positions created by upward mobility of current employees.
- WIB meetings are open to the public. The presenters should endeavor to have as many supporters attend the meeting as possible to demonstrate the importance of the proposal and the industry to the community.

5. Supplementing your proposal with grant funds may also be desirable.

- There are many ways that a WIB may be used to “invest” in your proposed project. The most common methods for incumbent worker programs are *customized training*, *on-the-job training* and the use of *Individual Training Accounts*. These types of arrangements may require a contract to formalize the agreement and provide the WIB with the performance expectations for their investment. There is more in the resources section of the tool kit about these methods, and the Institute can help partnerships focus on which method best suits their needs.
- In some cases the Board may have a competitive grant process through an open “Request for Proposals” (commonly referred to as an RFP) that will require a grant application. This approach may be most common for those incumbent worker proposals that are submitted for funding from the Governor’s 15% set-aside under WIA, a combination of funding sources that provides the Governor with broad leeway to fund projects of importance to the state.
- In other cases, there may be a competitive round of grants at the Federal level that the partnership may be eligible to pursue. The resources section of this guide lists the federal agencies that may have resources that would be available to partnerships based on the strategies they wish to address. Foundation funding may also be available, including funding from local foundations that focus on the needs of a specific community.

If your partnership does decide to submit a proposal for a grant from the local, state, federal or foundation level, you may want to get help from an experienced grant writer, or at least be sure to follow some of the tips in the box on the right.

Grant Writing Tips

If your partnership decides to pursue a grant, whether from a public source or foundation, here are some grant writing tips that may be helpful to you:

Be organized:

- Read the Request for Proposal (RFP) or solicitation carefully.
- Allow sufficient time to prepare your proposal in time.
- Involve all partners in the preparation and allow time for input on drafts.
- Gather letters of support in ample time to include in the submission.
- Keep all material together in one file.

Be persuasive:

- Write the proposal to sell the benefits of the approach.
- Outline the tasks necessary to accomplish your goals.
- Make sure your time line is realistic.
- Showcase the contributions of the partners.
- Write to show positive results in quantifiable terms.
- Define your resource needs (budget).
- Establish your credibility and capability to undertake the project.

Be enthusiastic about the project.

Be clear, brief and direct:

- Avoid jargon.
- Eliminate acronyms.
- Proofread!

Checklist #3: WIBs and Sector Initiatives (for the public workforce system)

This checklist is designed for the public workforce system. While the earlier checklists assume that the labor-management partnership will initiate a workforce project, many Workforce Investment Boards themselves have approached the Institute to ask how best to engage area labor unions – and/or unionized employers – in a sector-based workforce initiative. This checklist identifies some of the considerations the boards should take into account when establishing this relationship.

First, the Institute thought it best to summarize the reasons why Workforce Investment Boards should be participating in sector-based initiatives in general:

What are potential roles for WIBs in a sector initiative?

- Catalyst (*convene the players; conduct the research, etc.*)
- Sector Intermediary (*invest in the initiative, provide staff or fiscal support, monitor outcomes, etc.*)
- Supportive Partners (*engage local officials, help raise outside resources, organize One-Stops and other agencies to provide support to the effort*)
- Policy Initiator (*ensure that public policy is aligned with the needs of the industry*)
- Vehicle for Financing (*serve as fiscal agent, particularly for grant resources*)

Why a Sector Approach?

- Economies of Scale (*Cross-employer efforts are generally more efficient than single-employer efforts, especially where a common training provider, such as a community college, can offer the training.*)
- Deeper relationships with employers and unions (*Sector-based work allows for a deeper engagement with the key industry players and more community impact than serving individual workers and employers separately.*)
- Proven Effectiveness: outcomes are better with sector initiatives (*Whether performance is measured in terms of placements, career ladders or industry-recognized credentials, in the unionized segment of advanced manufacturing the placements will likely be at wage rates that are significantly higher than other workforce board efforts.*)
- Comprehensive ability to address both workers' and employers' needs (*This dual customer approach corresponds to the vision of the Workforce Investment Act.*)
- Demand Driven (*Sector-based approaches respond to real needs of a particular sector or industry.*)

Different Focuses, all based on Good Jobs:

- Making low-wage jobs better (*via a career ladder*)
- Keeping good jobs in the community (*job retention and industry competitiveness*)
- Meeting employer needs (*job growth and skill requirements*)

Getting Started:

Once a Workforce Investment Board decides that it wants to engage in a sector-based initiative, and the sector has a significant union presence, especially in the higher-wage advanced manufacturing industries, there are some specific principles that should be followed in engaging unions and unionized employers in that work.

Selecting an industry sector and developing a training partnership should involve unions at a number of key points along the way – not the least of which is the policy-development level on the WIB itself. Here are a few things to keep in mind as the dialogue with unions about workforce development takes place:

1. The principles of union involvement in training

- Before you start, understand these basic facts about the union perspective on education and training for their members:
 - Unions are legally required to represent the interests of their members as defined by those members. Any successful training initiative incorporates the input of manufacturing workers in its design and execution. Unions are the legal and effective vehicle for that input.
 - If there is a union representing the proposed trainees, negotiations around any “change in working conditions” will likely be *required* to implement the training program.
 - Not all jobs are created equal: job quality is as important as job quantity to representatives of workers, and a clear-headed assessment of both is necessary.
 - Once unions are actively engaged in designing and supporting a training initiative, the union can motivate workers to participate enthusiastically in the program. Experience shows that employers working on their own are less likely to inspire such worker interest.

2. The principles of how to engage the union in the program

- Don't wait! Get unions involved at the very start of the process. Union approval is almost always required before implementing a program for incumbent workers. Engaging worker representatives early will pay dividends on the high road. And union support, or lack thereof, for new hire training programs will be a major factor in its success as well.

- Engage unions *directly*. Employers do not speak for the unions that represent their workers, even when both the union and the company might agree that a new training initiative is in their mutual interest. Do not defer to employers, encouraging them to bring unions to the table; tell the employer you are inviting the union as a separate and equal partner in the process. Many well-intentioned programs have made precisely these mistakes very early in the process.
- Engage the right level of the labor movement. American labor unions are organized to represent groups of workers at particular employers. These unions are usually local unions of national or international unions. A sector initiative must involve the unions that have a stake in the employment relations in that industry/sector. It is not appropriate to rely on the central labor council leaders to represent the union interests in the sector initiative, although you might be able to obtain assistance and introductions to the appropriate unions through discussions with the central labor council.
- Unions have the advantage of seeing an industry across employers. Unions can often be the “glue” that brings together a multi-employer initiative.
- Recognize that most unions will want to argue that an increase in skills should be coupled with an increase in wages or career opportunities. In some cases – depending on the history and the challenges in the plants – the unions will require that the employers agree to some such terms before they agree to wholeheartedly participate in the initiative.

3. The Labor landscape in an industry

- Be sure to research the answers to these key questions:
 - Do the industries selected for workforce development include unionized employers?
 - If so, which employers are unionized and by which unions?
 - Who is the lead union in the industry?
 - What is the nature of the relationship between that union and its employers?
 - Is there any history of joint union-management work in the industry?

4. The labor landscape in workforce development

- Identify the unions' view of training. Some unions see training as part of their "core mission"; others see it as an employer's responsibility. The trend is for more and more unions to get involved in training of both incumbent workers and of new hires.
- Determine whether the union and the company/companies already have a training program developed. For example, virtually all construction unions have well-established, jointly managed apprenticeship and training programs. Many labor-management apprenticeship programs exist in the manufacturing sector too, and other unions and employers have developed other programs to meet more cyclical or short-term needs.
- Identify the unions' views on training needs. Does the union share your assessment of the industry's training needs?
- Assess possible roles for the unions and employers involved. Would it be in the interest of this union to urge one of their signatory employers to sit on the WIB?

5. The labor landscape in the community

- Unions are organized into local labor federations, called "central labor councils" (CLCs) for regional labor markets, or state federations that represent the common interests of the unions at the state level.
- Unions from the area elect leaders to represent them at CLCs or state federations.
- Labor federations are at the center of politics, legislation, and public policy for unions.
- CLCs or state federations nominate labor representatives to workforce boards.
- Make a point of meeting and knowing the principal officer of the CLC or state federation.
- Establish a relationship with the leaders of the CLC and the state federation of labor. Identify those who sit on the WIB. Have these labor leaders nominated representatives from one of their affiliated unions to represent them on the WIB? Do they get reports from their representative about the policy issues that face the WIB?

Your labor representatives can help you negotiate the union landscape, or you can contact the Institute for further technical assistance.

GOVERNMENT PROGRAMS AND RESOURCES

United States Department of Labor

The Department provides two types of services to states, workers and employers: direct assistance programs and data collection and analysis. Direct assistance funds available under programs such as the Workforce Investment Act (WIA) finance workforce development efforts for individuals, training providers and firms at the state and local levels. Data services support planning and analysis for a wide variety of users. This section of the Tool Kit provides some basic information on these programs and resources, as they may be valuable in addressing workforce development needs in advanced manufacturing.

Workforce Investment Act (WIA) Basics

The public workforce development system operates under a federal statute called the Workforce Investment Act, or WIA. Here are definitions of key terms and features of the public workforce system to help better understand WIA:

WIA, WIBs and Funding

Workforce Investment Act (WIA). Created by Congress in 1998, this program provides federal funding for workforce development nationwide. Major funding streams provide services for adults, dislocated workers and youth. Services are available to individuals and to employers.

Workforce Investment Boards (WIBs). These Boards oversee the use of WIA funds and have broad leeway in determining local workforce development policies. While the Boards have a business majority, at least two labor representatives, nominated by state and local labor federations, sit on each board.

WIA's Funding Formula allocates funds for adult, dislocated worker and youth services among the states and local areas. Governors retain up to 15% of state WIA allocations of all three funding streams and can use these funds for any allowed statewide activity. In many states, the Governor's 15% fund is the only source of WIA money for incumbent worker training. Local boards are able to directly support training only for employed workers earning wages below the local self-sufficiency standard. *(See box on Setting Realistic Self-Sufficiency Standards)*

Basic Services Under WIA

Core Services refer to a universally available set of services for jobseekers – regardless of their earnings history – that must be provided at all One Stop Career Centers. Examples of these services include helping prepare resumes and reviewing local job announcements.

Intensive Services are available to adults and dislocated workers who need additional assistance to gain employment. Examples include personalized skills analysis and career counseling. In some areas, English as a Second Language (ESL) may be considered an intensive service if it prepares a person to enter an occupational training program.

Training Services can be made available to unemployed and employed adults whose income falls below the self-sufficiency standard (See box on Setting Realistic Self-Sufficiency Standards). These services are primarily funded through individual training accounts, or ITAs (see definition below). Setting a realistic local self-sufficiency standard is therefore critical to the eligibility of incumbent workers who wish to upgrade their training.

Ways of Delivering Training

Customized Training pays up to 50% of costs of training for workers whose employers agree to employ or continue to employ them once they complete their training. The use of customized training under WIA varies widely from one workforce area to another.

Individual Training Accounts (ITAs) are publicly funded training vouchers that adults may use to purchase training from a list of eligible training providers. The self-sufficiency standard set by the WIB determines eligibility for these vouchers for employed adults. The amount, duration and rules for the use of ITAs are set locally.

On the Job Training offers participants the opportunity to be paid while learning the skills they need to do a job. These programs, which have fixed time limits, can use WIA funds to reimburse employers for up to 50% of a participant's wage rate.

Local WIBs set the policies for each of these approaches and those policies may determine the best approach for an industry partnership seeking funding from the WIA system.

Setting Realistic Self-Sufficiency Standards: A Strategy for Upgrading the Skills of Employed Workers

“Self-Sufficiency” and WIA

Under the Workforce Investment Act, the “self-sufficiency” standard is used to determine eligibility for services, particularly training. A worker who makes under the local economy’s “self-sufficiency” wage level is eligible for “intensive services” and training services. Thus, dislocated (unemployed) workers are not the only eligible recipients of WIA training dollars; workers earning under the self-sufficiency wage in their communities are also eligible. The level of the self-sufficiency standard therefore has a direct impact on a) a worker’s ability to access the public resources necessary to help them earn enough to support their families, and b) an employer’s access to public resources for upgrading workers’ skills.

Under WIA, the local Workforce Investment Boards (WIBs) may establish its own self-sufficiency standard as an eligibility test for intensive and training services for employed workers. If the Board fails to adopt its own standard, WIA provides one for them – the Lower Living Standard Income Level (LLSIL). The law dictates that the LLSIL be used as the self-sufficiency standard where WIBs do not create their own standard. Many workforce boards have chosen to use their own measure of self-sufficiency, commonly based on a percentage of the LLSIL, the federal poverty rate, or a “market basket” approach such as the standard promoted by Wider Opportunities for Women (WOW).

Beyond Eligibility

In addition to incumbent worker eligibility, self-sufficiency standards can play a larger role in the policy of Workforce Investment Boards and the services delivered through One-Stops. Self-sufficiency standards have been used to establish benchmarks and performance measures to evaluate and direct the delivery of services through the One-Stops. They have also been used to establish wage-quality standards for public investment, and to orient local and state WIB labor market research.

Workforce development services seek to raise the living standards of working families and to ensure that the system provides training opportunities to everyone who needs them. Adopting a self-sufficiency standard that truly represents a family-sustaining wage is a key part of this process. Many advocates in workforce development, including the Working for America Institute, support the adoption of local standards based on family composition, and local costs associated with working, including transportation, childcare and taxes.

See <http://www.workingforamerica.org/documents/strategy2.asp> for more information on this issue.

Other Key Terms

Eligible Training Provider is an organization that has been certified by a state or local WIB to provide publicly funded training under WIA.

One Stop Career Centers are local facilities established by each WIB to provide individuals and employers with employment related services. The One Stops establish an individual’s eligibility for training and other services needed to find and prepare for a job. They meet the needs of employers by assisting with recruitment, training and retention of skilled workers.

Job-seekers and employers may locate their nearest One Stop Career Center by calling 1-877-US2-JOBS or 1-877-889-5627 (TTY) or by visiting America’s Service Locator at www.servicelocator.org

Other Department of Labor Training Resources

The Trade Adjustment Assistance (TAA) Program

The Trade Adjustment Assistance (TAA) program for workers (there’s also a TAA for businesses, see description below under Economic Development Administration) is also a valuable resource for the training of manufacturing workers. TAA’s purpose is to assist workers who lose their jobs due to increased imports, or shifts in production to foreign countries. In 2002, Congress enacted a major overhaul and expansion of TAA, including the addition of a health-care tax credit (HCTC). Congress also expanded eligibility beyond manufacturing to agricultural workers, workers displaced by a shift of production overseas, and “secondary workers,” i.e., those displaced because their employers supply plants have been negatively affected by trade.¹

The TAA program seeks to help trade-affected workers return to suitable employment as soon as possible. Services available to workers certified by TAA, include income support, relocation allowances, job search allowances, and the HCTC. An associated

program, Alternative Trade Adjustment Assistance (ATAA), provides older workers an alternative to the regular TAA benefits. It allows older workers, for whom retraining may not be useful, to accept reemployment at a lower wage and receive a wage subsidy.

To obtain TAA or ATAA services and benefits, a group of workers must file a petition with the Department of Labor's Division of Trade Adjustment Assistance, requesting certification as workers hurt by foreign trade. If certified, each worker in the group may then apply separately for individual services and benefits through their local One-Stop Career Center. Certified workers age 50 or older can apply for both TAA and ATAA. Others must choose whether to participate in TAA or in ATAA, but not in both.

Information on applying for TAA/ATAA, filing a petition (including downloadable petition forms), and petition determinations can be found on the TAA website. www.doleta.gov/tradeact

Apprenticeship Training, Employer, and Labor Services

The Office of Apprenticeship Training, Employer, and Labor Services (ATELS) is a consolidation of the Bureau of Apprenticeship and Training (BAT) and the new responsibilities of the employer and labor liaisons.

ATELS is responsible for developing materials and conducting a program of public awareness to secure the adoption of training in skilled occupations and related training policies and practices. It develops policies and plans to enhance opportunities for minority and female participation in skilled training. Finally, the agency coordinates the effective use of resources to create a clear training-to-employment corridor for customers of the workforce development system.

ATELS directly governs many states' apprenticeship programs; in other states it delegates the direct authority for apprenticeship program oversight to state agencies.

http://www.doleta.gov/atels_bat

Data Collection and Analysis: Bureau of Labor Statistics

An agency of the U.S. Department of Labor, the Bureau of Labor Statistics (BLS) is the principal fact-finding agency for the Federal

Government in the broad area of labor economics and statistics. BLS collects, analyses, and disseminates essential statistical data to the American public, the U.S. Congress, other federal agencies, state and local governments, businesses and labor. BLS bills itself as an independent national statistical agency dedicated to producing impartial, timely, and accurate data relevant to its users.

BLS Statistical Data and Programs

BLS makes a range of statistics available, including data on employment and unemployment, productivity (labor and multi-factor), wages, earnings and benefits, prices (e.g., consumer and producer price indexes), safety and health (injuries and fatalities), occupations, business costs, and labor force demographics. For each statistical category, BLS provides data at the national, state and local (county, cities and metropolitan statistical areas) levels, as relevant. Aside from U.S. labor statistics, the BLS also has a significant foreign labor statistics program, which includes comparative information by country for most of the major data categories.

All data can be found on the BLS website: www.bls.gov.

Industrial Statistics and NAICS

BLS also provides classification for much of its statistical data according to industry sectors. For presenting industry data, BLS uses the North American Industry Classification System (NAICS), which replaces the older Standard Industrial Classification system (SIC) used since the 1930s. The SIC system had been revised and updated periodically to reflect changes in the U.S. economy. In 1997, the Office of Management and Budget (OMB) announced the adoption of NAICS, and in 2001, BLS began converting its industrial statistics from the SIC system to NAICS.

The conversion to NAICS came about because the older SIC system, which primarily focuses on manufacturing, did not provide sufficient detail for the now dominant service sector. Moreover, the SIC did not adequately represent emergent industries, such as information services, health care delivery, and even high-tech manufacturing, none of which were separately identified in the SIC system. NAICS uses a unified concept to define industries, while the SIC system uses multiple ways to categorize economic activity. NAICS classifies industries on the basis of their production or supply function—establishments using similar raw material inputs, capital equipment, and labor are classified in the same industry. Thus, NAICS categories are more homogeneous and better suited for economic analysis. Finally, NAICS has been

¹ From 1994 through 2003, workers also could apply for assistance through the North American Free Trade Agreement Transitional Adjustment Assistance Program (NAFTA-TAA). NAFTA-TAA has since been merged into the TAA program.

2002 U.S. NAICS Codes for Manufacturing Sectors

2002 NAICS	2002 U.S. NAICS Description	2002 NAICS	2002 U.S. NAICS Description
31-33	Manufacturing		
311	Food Manufacturing	325	Chemical Manufacturing
312	Beverage and Tobacco Product Manufacturing	326	Plastics and Rubber Products Manufacturing
313	Textile Mills	327	Nonmetallic Mineral Product Manufacturing
314	Textile Product Mills	331	Primary Metal Manufacturing
315	Apparel Manufacturing	332	Fabricated Metal Product Manufacturing
316	Leather and Allied Product Manufacturing	333	Machinery Manufacturing
321	Wood Product Manufacturing	334	Computer and Electronic Product Manufacturing
322	Paper Manufacturing	335	Electrical Equipment, Appliance, and Component Manufacturing
323	Printing and Related Support Activities	336	Transportation Equipment Manufacturing
324	Petroleum and Coal Products Manufacturing	337	Furniture and Related Product Manufacturing
		339	Miscellaneous Manufacturing

adopted by the United States, Canada and Mexico, allowing greater consistency in measuring and comparing the economies of the three partners in the North American Free Trade Agreement (NAFTA).

NAICS uses six digit-codes to designate industry sub-sectors at the lowest level of aggregation. At the highest level, it uses the first two digits, with 20 such two-digit industry sectors or *supersectors*. The manufacturing (31-33) supersector includes more than one 2-digit identifier. The third digit of a NAICS code represents the subsector.

Location Quotient Calculator

The Location Quotient Calculator is a new labor market analysis tool the BLS recently added to its web services. The calculator generates location quotients, a measure that enables regional labor economists to compare employment levels among different regions of the nation. Location quotients are ratios that compare the concentration of employment in a defined area to that of a larger area or base. They can be used to compare local or regional employment by industry sector to that of the nation. Or they can compare employment in a city, county, metropolitan statistical area (MSA), or other sub-area to that in the state. The location quotient calculator uses data from the BLS's Quarterly Census of Employment and Wages (QCEW), a timely data source especially rich in comprehensive industry and area detail. Visit this chapter in the Online Tool Kit at www.workingforamerica/toolkit to link to the location quotient calculator's URL.

Other Federal Agency Resources

Department of Commerce

The Economic Development Administration (EDA)

EDA oversees multiple programs offering development assistance to targeted communities that meet criteria for "economic distress." Through its regional economic development officials, EDA responds to applications from local partnerships, usually led by a local or state government.

EDA provides grants and loans to support economic development in communities with high unemployment, low per-capita income levels, or specific problems, such as economic dislocation due to increasing trade, natural disasters, out-migration, etc. The grants generally require a 20-50% match by the state and/or local government.

To qualify for funding, grants are required to advance productivity and innovation, demonstrate commitment from the partners and local government, maintain strong leadership, and focus on results. www.eda.gov

Manufacturing Extension Partnership (MEP)

The MEP, part of the National Institute of Standards and Technology (NIST) is a nationwide network of resources transforming manufacturers to compete globally, supporting greater supply chain integration, and providing access to technology for improved productivity.

MEP leverages over \$100 million dollars of federal investment into a nearly \$300 million dollar program by teaming with industry as well as state and local organizations. MEP provides access to a range of resources meeting the critical and often unique needs of America's manufacturers with over 350 manufacturing extension offices located in all 50 states and Puerto Rico. The Wisconsin MEP program was a key partner in the Wisconsin Regional Training Partnership case study, delivering training in the three featured firms. www.mep.nist.gov

The Bureau of Economic Analysis (BEA)

BEA is a major federal source of economic statistics. Its stated mission is to promote "a better understanding of the U.S. economy by providing the most timely, relevant, and accurate economic accounts data in an objective and cost-effective manner." An agency of the U.S. Department of Commerce, BEA, collects source data, conducts research and analysis, develops and implements estimation methods, and disseminates statistics to the public.

BEA prepares national, regional, industry, and international accounts that present valuable information on issues such as economic growth, regional economic development, inter-industry relationships, and international transactions. www.bea.gov

- **National Accounts**—this program provides quantitative data on U.S. domestic production, consumption and investment, exports and imports, and national and domestic income and savings. This includes estimates of the GDP, personal income and outlays, the nation's stock of fixed assets and consumer durable goods.
- **Regional Accounts**—provides detailed economic data by region, state, metropolitan area, and county. This includes estimates of state and local personal income, and gross State product (GSP) by industry. Some information is made available for public use on a quarterly basis, while others are produced annually.
- **Industry Accounts**—produces input-output tables, which show how industries interact to provide input to, and take output, from each other. It also produces the annual GSP by industry, which measures the contribution of each private industry and government to the GDP.
- **International Accounts**—produces quarterly balance of payments accounts and monthly services estimates, which provide a detailed view of transactions between the United States and other nations. It also produces direct investment estimates, based on annual and quarterly surveys of US direct investment abroad, foreign direct investment in the United States, income flows associated with those investments, and other economic activities of multinational enterprises.

U.S. Census Bureau

The Census Bureau is the leading source of data about the nation's people and economy, along with BEA and STAT-USA (www.stat-usa.gov). The Economics and Statistics Administration within the U.S. Department of Commerce houses the Census Bureau. The agency takes the census of population every 10 years, conducts censuses of economic activity and state and local governments every five years, and every year conducts more than 100 other surveys. The purpose of the censuses and surveys is to collect general statistics information from individuals and establishments in order to compile statistics.

The Census data most useful for regional economic and workforce development planners and practitioners are business statistics and the economic census, but the Census Bureau also provides numerous series of population and housing statistics, and international statistics.

Longitudinal Employer-Household Dynamics and Local Employment Dynamics

Longitudinal Employer-Household Dynamics (LEHD) is an innovative program within the Census Bureau. The tool uses modern statistical and computing techniques to combine federal and state administrative data on employers and employees with core Census Bureau surveys.

In partnership with participating state labor market information agencies, the Census Bureau has developed a valuable on-line tool for strategic workforce planning: the Local Employment Dynamics resource. Local Employment Dynamics (LED) is the cornerstone of a program designed to develop new information about local labor market conditions at low cost, with the same confidentiality afforded by census and survey data. The LED/state partnership works to fill critical data gaps and provide indicators needed by state and local authorities. This partnership between state labor market information agencies and the Census Bureau supplies new measures — the Quarterly Workforce Indicators — on labor markets that:

- Are local, at the state, county and sub-county level.
- Supply statistics on employment, job creation, turnover, and earnings by industry, age and sex.
- Provide dynamic information on the rapidly changing economy.

This valuable website can be found at www.lehd.dsd.census.gov

The Census Bureau produces a range of statistics covering business and government economic activities at the national, state, metropolitan area, and county levels.

- **Economic Census**— profiles American industry every 5 years, producing detailed reports on a large number of selected industry sectors and geographical areas.
- **Statistics of U.S. Businesses (SUSB)**—tabulates key economic data on companies, establishments, employment, annual payroll, and receipts, using data files created from the annual County Business Patterns (CBP) files.
- **County Business Patterns**—provides annual sub-national economic data by industry, covering most of the nation's economic activity. The series is useful for studying small areas; analyzing economic changes over time; and as a benchmark for statistical series, surveys and databases between economic censuses.
- **Annual Survey of Manufacturers (ASM)**— provides sample estimates of statistics for all manufacturing establishments with one or more paid employees. Census conducts the ASM in each of the 4 years between the economic census.

www.census.gov.

The Department of Housing and Urban Development (HUD)

The Community Development Block Grant (CDBG) is one of the Nation's oldest economic development and housing assistance programs. It distributes funds in two main categories: entitlement communities and small cities. In 2004, HUD distributed nearly \$30 million in training grants, in addition to its other economic development programs.

The Department of Education

Through its programs for Adult Basic Education and Family Literacy, Vocational Education, Vocational Rehabilitation, and other initiatives, the Department plays a major role in workforce and economic development. In general, the Department passes funds for these programs to the states and, in turn, to localities. These funds can be important components of a coordinated package of economic development strategies that include customized workforce training. Many states have become adept at moving the funds into their business recruitment and retention efforts. The Gulf Coast Shipbuilding Partnership Transitions Program, featured in a case study above, takes advantage of workforce development assistance through the Projects With Industry (PWI) program at Education

Student aid programs, such as Pell Grants and Perkins student loans, can also help individuals to finance their education and training.

The Department of Health and Human Services

For programs aimed at low-income recruits, the Temporary Assistance for Needy Families (TANF) program may also be a resource. Administered by the states, TANF includes training and work requirements for adults receiving public assistance for their families, and states are able to use a portion of their federal TANF funds on education and training programs. The Social Services Block Grant, also administered by the states, may be an additional resource for low-income individuals. Funds provided from this source – most often covering childcare needs – are more likely to be available to the individual and not the training program itself.

Independent Agencies

Independent agencies within the Federal government can be important resources for information about manufacturing and for support labor-management manufacturing projects, including those that address workforce challenges. Some of those agencies and resources include:

National Science Foundation (NSF)

The NSF is an independent federal agency created by Congress in 1950 to promote the advancement of science. It is the only federal agency whose mission includes support for all fields of science and engineering, except for medical science. With an annual budget of \$5.5 billion, NSF plays a critical role in supporting fundamental research, education and infrastructure at colleges, universities, and other institutions throughout the country. NSF is also the principal federal agency responsible for promoting science and engineering education at all levels, and serves as the central clearinghouse for the collection and analysis of data on scientific resources.

Manufacturing Programs: NSF's Directorate for Engineering (ENG) houses several programs relevant to manufacturing processes and technologies. Specifically, ENG sponsors the program for design, manufacture, and industrial innovation (DMII), which funds research in engineering design, manufacturing enterprise systems, manufacturing machines and equip-

ment, materials processing and manufacturing, nanomanufacturing, and operations research. www.nsf.gov

Federal Mediation and Conciliation Service

The Federal Mediation and Conciliation Service (FMCS), created in 1947, is an independent agency whose mission is to preserve and promote labor-management peace and cooperation. Headquartered in Washington, DC, with two regional offices and more than 70 field offices, the agency provides mediation and conflict resolution services to industry, government agencies and communities. Through its grants awards, FMCS seeks to support and encourage workers and employers to explore ways of improving labor-management relationships, job security and organizational effectiveness. The grant program has funded a broad range of projects including outreach, communications, strategic planning, minority recruitment and process development. Grant awards are capped at \$125,000.

In the Wisconsin Regional Training Partnership case study, one of the companies – Milwaukee Cylinder – used a \$44,000 FMCS grant to fund a move into a High Performance Work Organization. www.fmcs.gov

Small Business Administration (SBA)

Since its creation in 1953, the Small Business Administration's mission has been to aid, assist and protect small businesses and to help families and businesses recover from national disasters. SBA programs include technical and financial assistance, investment, advocacy, export assistance, and coordination of federal small business technology programs. With a business loan portfolio of roughly 219,000 loans worth more than \$45 billion, SBA is the largest single financial backer of U.S. businesses in the nation

- **Technical Assistance and Business Development Programs**— provide training, and resources to help small business start, grow and compete in global markets. In addition, SBA's network of Small Business Development Centers (SBDC) offers one-stop assistance to individuals and small businesses. It also sponsors business development programs for special groups, including minorities, Native Americans, women, young entrepreneurs and veterans.
- **Financial Assistance Programs**—Support small businesses through loan guarantees, long-term financing for expansion or modernization, and microloans, and a variety of special loans programs.
- **Small Business Investment Companies (SBICs)**— provide venture capital and start-up financing to small businesses.

- **U.S. Export Assistance Centers**—located throughout the U.S., are one-stop shops that provide small- or medium-sized business with local export assistance to compete in international markets.
- **Technology, SBIR and STTR**—supports the competitiveness of small high tech research and development businesses.

A variety of SBA programs provide small businesses with assistance in the field of technology by supporting development, training, information exchange, research and partnerships. Specific programs also support technology transfer. Additional information about all of these programs is available at www.sba.gov

www.sba.gov/sbir/indexsbir-sttr.html

The Federal Reserve Board

Congress created the Federal Reserve Board in 1913, to foster a sound banking system and a healthy economy. It consists of twelve separate Federal Reserve Banks that serve a specific region of the country, and a Board of Governors in Washington, DC, which oversees the broader system, known as The Fed. Aside from its larger purposes of conducting monetary policy and regulating the banking system, it also has been charged with implementing the laws that protect consumers in credit and other financial transactions and directing a community affairs program. It is also a source of economic information for regional, state and local policy makers and economic development planners.

Community Development:

The Federal Reserve encourages banks to work with community organizations to promote local economic development, in accordance with the Community Reinvestment Act of 1977 (CRA). In the examination of a bank's compliance with the CRA, the Federal Reserve reviews a bank's efforts to meet the credit needs of its entire community, including low- and moderate-income neighborhoods. Each Reserve Bank has on staff a community affairs officer familiar with the credit needs in the communities served by the institutions in the Bank's District.

Economic & Research Data:

The Federal Reserve Board makes economic and financial information publicly available, including statistics and historical data – released on a daily, monthly, quarterly, and annual basis. The Federal Reserve Bulletin, produced quarterly, includes reports and analysis of economic developments, regulatory issues and other new data.

The reports and data produced by the 12 regionally-based Federal Reserve Banks are valuable sources of regional and local economic information. For example, the Federal Reserve Bank of Chicago produces a quarterly journal, *Economic Perspectives* that includes in-depth articles reporting on the Bank's economic research.

- **The Beige Book**—a summary of current economic conditions by Federal Reserve District, produced by the Fed eight times per year. Each Federal Reserve Bank gathers anecdotal

information on current economic conditions in its District. The Beige Book summarizes this information by District and industry sector.

- **Consumer & Economic Development & Research Information Center (CEDRIC)**—a center coordinated by the Chicago Fed to foster research related to consumer and economic development issues. www.federalreserve.gov

COMPETENCY MODELS AND SKILL STANDARDS

As unions, employers, Workforce Investment Boards and other partners embark on an effort to address the workforce challenges outlined in this guide, they will likely need to know the skills and competencies that manufacturers need from their workers in order to stay competitive. Fortunately, the industry has recently come together, under the auspices of the US Department of Labor, Employment and Training Administration (DOLETA), to identify the specific skills and competencies that are common across all manufacturing sectors. These common competencies have been assembled in the newly released Advanced Manufacturing Competencies Framework. The framework, in conjunction with resources from the Manufacturing Skill Standards Council, provides an excellent starting point for discussions regarding training and certification models for advanced manufacturing. This document provides further detail on what these models are and how they may support career-advancement activities.

Advanced Manufacturing Competency Framework

On May 22, 2006, DOLETA and the National Association of Manufacturers jointly released the Advanced Manufacturing Competencies Framework. The framework was developed because manufacturers increasingly recognized the need to agree on a common understanding of the entry-level and technician-level skills they require to remain competitive. In this way, industry can ensure they are hiring workers who can succeed in a 21st century advanced manufacturing environment. Moreover, prospective workers must understand what skills they need to take the first step towards a successful career in manufacturing. Educators and training providers must know what standards to train to, and that those standards are directly relevant to industry requirements. Finally, government officials must know that the training programs they are supporting and referring customers to are producing workers who will find employment.

In response to these challenges, a working group of industry management leaders, educators, and ETA representatives reviewed hundreds of existing industry standards and curricula to identify the common elements that apply across all manufacturing sectors. In this way, the framework builds on and aligns with the excellent work already done by many groups, but which has never been assembled in a comprehensive model. Such a

model framework allows for consistency across industries, customization within sectors, and easy updating to accommodate changing technology and business practices. It provides a common language and a reference tool that will facilitate communication as industry leaders, educators, and other stakeholders, implement a variety of workforce development activities

The framework does not replace or duplicate existing skills standards, but rather presents the core skills needed across-the-board to be a high-performance worker in today's advanced manufacturing environment. The framework competencies range from personal effectiveness attributes, such as integrity and motivation, to technical competencies, such as working with spreadsheets, using computer aided design and accessing databases.

The Department sees the framework as a living, dynamic document that is designed to evolve as the skills requirements of manufacturers change. Moreover, it is flexible to serve the needs of a variety of audiences. For example, industry may use it to define requirements for employee success, guide employee development efforts, identify gaps in current training offerings, and establish criteria for the development of professional certifications and licensure. For education and training providers, the framework may be used to design and develop course and program curriculum, eliminate redundancy across courses; improve instructional materials, and serve as a basis for discussions with industry representatives. For the workforce investment system, the framework may be used to select appropriate training offerings, assess the competencies of the local workforce, customize employer profiles and prepare job descriptions, and design programs and provide services to meet the needs of their area employers. Finally, the framework may serve to guide federal, state, and local agencies when devising their investment strategies.

In order to promote the framework, ETA has developed an online, competency model clearinghouse. The Web site provides a space to showcase the advanced manufacturing competencies framework as well as a variety of interactive tools, including a searchable database of other competency model resources by industry and a template for building an industry competency model using the building blocks of the framework model. The clearinghouse will be updated to reflect changing skill requirements and add new resources as they are developed, and is currently available for review at www.careeronestop.org/CompetencyModel.

The Framework consists of nine levels or “Tiers” that cover Foundational Competencies, Industry Competencies, and Occupational Competencies. The model is organized in a pyramid, starting with personal foundational competencies and going up to Tier 9, which contains management competencies. The tiers represent increasing levels of specialization, rather than being hierarchical. It is not necessary that every single competency listed on a tier be acquired before acquiring competencies on an upper tier. Furthermore, competencies are not considered to be higher or lower level skills because of the tier they are placed on—all are important. Reflecting the increased specialization, the Foundational Competencies are covered in the first three tiers, addressing the **skills and knowledge necessary for success in school and the world of work**. The Industry Competencies covered in Tiers 4 and 5 reflect **cross-cutting industry-wide knowledge and skills that are applicable across a number of industries and sub-sectors**. The Industry Competencies found in Tiers 6-9 reflect **knowledge and skills that are specific to an occupation or a group of occupations**. Below is a more detailed description of the Tiers and competencies with examples of how they fit into existing standards, curricula and credentials.

Specifically, the tiers of the pyramid are:

- **Tier 1 Personal Effectiveness Competencies** are essential for all life roles and not restricted to those needed in the workplace. But they are included in the model because they are valued by employers who regard them as necessary “soft skills” that are generally learned at home or in the community. Because they represent personal attributes, there are challenges in teaching or assessing them. They include attributes such as: Integrity – displaying accepted social and work behaviors; Motivation – demonstrating a willingness to work; Dependability/Reliability – displaying responsible behaviors at work; and Willingness to Learn – understanding the importance of learning new information for both current and future problem-solving and decision-making.
- **Tier 2 Foundation Academic Competencies** are generally learned in school; they include cognitive functions and thinking styles and apply in varying degrees to all industries and occupations in manufacturing. They cover: Applied Science – using scientific rules and methods to solve problems; Basic Computer Skills – email, word processing, spread sheets, etc; Applied Mathematics/Measurement – using math to solve problems; Reading for Information – understanding written sentences in work-related documents; Business Writing – using standard business English; Listening to and Following Directions; Locating and Using Information; and Speaking/Presentation – communicating with co-workers and supervisors.
- **Tier 3 Workplace Competencies** cover knowledge, skills and personal traits generally applicable to a larger number of occupations and industries in manufacturing. They address Business Fundamentals – how money is allocated to perform the work and how businesses function. Specific competencies include: Teamwork; Adaptability/Flexibility; Marketing and Customer Focus; Planning/Organizing; Problem Solving/Decision Making and Applied Technology – using equipment to produce the product, all in a manufacturing business context.
- **Tier 4 Industry-Wide Technical Competencies** cover the technical competencies that cut across all sectors of manufacturing and are necessary for developing an “agile” (what labor might call “high performance”) workforce rather than following a single occupational career ladder. Technical competencies actually refer to the knowledge and skills important in all sub-sectors of manufacturing. The 6 main competencies on Tier 4 basically align with the MSSC Standards Concentrations, which also identify foundational academic employability, as well as some broad technical and occupational knowledge and skills, for six general functions in manufacturing. The DOL framework has two levels, entry level and experienced technician level. The technician level assumes a more experienced worker and can be used for training entry-level. These competencies build on the previous tiers, and specific skill requirements relate directly to a manufacturing context.
- **Tier 5 Industry-Sector Technical Competencies** refer to an additional sub-set of knowledge and skills needed to perform in a specific industry, such as food processing, plastics, etc. Therefore, training for workers who possess the Tier 4 knowledge and skills would be augmented with additional knowledge and skills particular to that industry, its products, processes and equipment.
- **Tier 6 Occupation-Specific Knowledge Areas** is a further refinement of knowledge and skills needed for an occupation or group of occupations in certain industries and would be seen as further occupational training specific to certain jobs in certain industries. Therefore, they reflect the need for specialized competencies in a particular industry, such as paper, chemical, auto, etc.
- **Tier 7 Occupation Specific Technical Competencies** are the technical skills required for a specific occupation. These match most closely to apprenticeship and journey level credentials as well as certain specialty skills such as metalworking. Any training aimed at increasing or broadening the skills of such workers would relate to this tier. The Competency Model Clearinghouse Web site links to O*NET OnLine for descriptions of knowledge and skills required for Tier 7. In addition, in a recent grant solicitation

the Department provided its perspective by specifically requesting that applicants relate those industry-specific occupational competencies to the needs of the applicant employers and the industry they represent. Thus, partnerships seeking financial assistance from the Department of Labor are advised to define the industry and occupation-specific competencies they wish to address.

- **Tier 8 Occupation Specific Requirements** are additional occupation-specific requirements needed for work in a particular occupation. An example would be, holding a state license to operate a high pressure boiler.
- **Tier 9 Management Competencies** are the knowledge and skills needed to be a competent manager in a specific industry or firm. Examples would be leadership and supervisory competencies.

Manufacturing Skills Standards Council (MSSC) Skills Standards

Partnerships that are dealing with the foundational skills necessary in manufacturing have a number of resources to guide them. Over 200 industry-recognized certifications were reviewed and synthesized in creating the Advanced Manufacturing Competencies Framework, including apprenticeship work process schedules, state curriculum and skills standards, and as previously mentioned, the Manufacturing Skill Standards Council (MSSC) skill standards for high-performance manufacturing.

Indeed, the MSSC standards and the Tier 4 Industry Wide Competencies Framework for Advanced Manufacturing are in close alignment. The MSSC is a nationwide, industry-led organization that focuses on the foundational skills and knowledge needed by workers in the nation's advanced manufacturing sector. The MSSC Certification System offers manufacturing production workers the opportunity to demonstrate that they have mastered the skills increasingly needed in the high-growth, technical jobs of the 21st century. The Working for America Institute has been actively involved in the development and marketing of the certification system, working with manufacturing unions and their signatory employers.

The MSSC skill standards represent one example of a system for workers to obtain higher levels of industry-recognized certification that will allow for career advancement while meeting the needs of their employers. These skill standards are particularly applicable for high-performance work organizations that implement new models of production processes and work organization. The standards are divided into six concentrations or process functions that are key to a manufacturing enterprise. These con-

A History of Skill Standards

Since the 1990s, many states, industry groups and trade associations have developed skills standards and credentialing programs. These programs range from core or foundational skills identified for key industries in a given state to industry-specific and occupation-specific for a number of sub-sectors in manufacturing. Examples of Industry-specific skill standards include those developed for the following industries: Chemicals; Computers and Electronic Products; Food Processing; Electrical Equipment and Appliances; Printing; Wood and Paper; Shipbuilding and Repair and Metalworking. Those developed for specific sub-sectors and occupations fit into Tiers 5-8 of the Competencies Model. The core or foundational programs fit into Tier 4. These programs vary greatly in scope, depth and the methodologies used to develop them. Some are valid for specific states, others are valid for specific industries nationwide. The clearinghouse will facilitate accessing these programs for your review. The application of these programs will depend on what your training program hopes to accomplish and should be viewed in relationship to your training and credentialing goals.

Beginning in 1998 an effort was launched to create a national system for developing standards and credentials in manufacturing under the auspices of the National Skill Standards Board. Two systems developed under this effort are particularly relevant to manufacturing - the National Institute for Metalworking Standards (NIMS) and the Manufacturing Skill Standards Council Skill Standards (MSSC). They were both designed to fit into a national system for developing standards and assessments that included a common nomenclature framework and methodology for setting the standards. This framework includes academic and employability skills as well as occupational and technical knowledge and skill. In this system, NIMS is a specialty standard for a specific industry (metalworking) and the MSSC standards are core or foundational standards that cut across all 14 sub-sectors of manufacturing. Registered apprenticeship programs fit into this system as specialty standards. NIMS has an apprenticeship component while the MSSC are core or foundational standards that fit into a hierarchy that range from entry level to skilled trades programs. Because the MSSC is nationally validated as a core skills program that complements existing apprenticeship and specialty standards, the Working for America Institute believes that it is of particular relevance to manufacturing training efforts. It is also important to note that although the MSSC Standards are considered "core" or "foundational" standards for all sub-sectors of manufacturing, they were intentionally designed as high performance work organization standards -- forward-looking and set specifically to prepare and/or assess workers for high performance work settings. The standards and assessments are set at a high level to measure a broad range of knowledge and skills across the manufacturing enterprise. Experienced, skilled production workers whose job descriptions are narrow will need to learn additional knowledge and skills to do well on these assessments.

centrations were designed to fit into an overall framework that identified core and specialty competency levels. The concentrations are: Production; Health, Safety & Environmental Assurance; Logistics and Inventory Control; Maintenance, Installation and Repair; Production Process Development; and Quality Assurance. These are the same categories contained in the Competencies Framework, except that Supply Chain Logistics is used in place of Inventory Control.

The MSSC standards template contains information about the work and about the worker. Critical Work Functions, Key Activities and Performance Indicators describe the work that must be done; Academic & Employability knowledge along with Occupational and Technical skills describe the competencies needed by a worker to accomplish that work. While the MSSC Standards address all six concentrations, at this time the MSSC system offers assessments, certifications and curriculum only for the Production Concentration. However, it is estimated that nearly 80% of all manufacturing workers fall into the Production and Production Support categories. The following paragraphs will focus on the Production Technician Certification. To access information about all of the MSSC standards for all the concentrations, go to: www.msscusa.org.

The MSSC System awards the Production Technician Certification to new and incumbent workers who pass the four manufacturing-related modules: Manufacturing Processes and Production; Quality Assurance; Maintenance Awareness; and Safety. The Visteon case study in this guide is an example of the use of this certification. Applicable to all sectors of manufacturing, the MSSC System has the potential to certify millions of production workers in accordance with industry-recognized, federally-endorsed standards.

The MSSC System provides industry with a new set of tools to ensure that both entering and incumbent workers are highly involved and motivated knowledge workers in high-performance work organizations. The MSSC assessments require mastery of foundational subjects such as math, science, reading, writing, communications, IT, analysis, problem-solving, teamwork, organization, planning, and basic technical skills – all in a manufacturing context. Just as “ASE” (Automotive Service Excellence) certification is the standard for quality in the automotive repair sector, as its use increases, the MSSC Production Technician Certificate will set the quality standard in our nation’s factories.

The MSSC was federally recognized in 1998 as the Voluntary Partnership for Manufacturing. It is a unique business-labor partnership whose governance members are drawn from major companies, unions, and national associations. Development of the MSSC’s industry-led, federally-endorsed standards, and sub-

sequent assessment, involved a public-private investment of some \$9 million and the participation of over 700 companies, 4,000 workers, and 300 subject matter experts. The U.S. Department of Labor’s National Skill Standards Board formally endorsed MSSC standards in May 2001.

The comprehensive MSSC Certification System includes the following elements:

Standards-setting – As described above, the MSSC developed and validated national standards for all concentrations of production and production support work.

Assessment – The MSSC completed development of an on-line assessment of the MSSC production standards in May 2004. For national validation purposes, the MSSC piloted 1500 tests nationwide between September 2004 and February 2005. They tested four modules: (1) processes and production; (2) safety; (3) quality practices and continuous improvement; and (4) maintenance awareness. Each module is composed of a timed multiple choice and simulation section. Individuals are given 180 minutes to complete each assessment. Now that this assessment has been nationally validated, MSSC offers it commercially. Developing and piloting this assessment has involved an additional \$1 million public-private investment, plus the participation of 600 workers and students, 200 companies, and 25 assessment centers.

Documentation and Certification of Individuals – The fully designed MSSC documentation system consists of the following:

1. **Documentation for each assessment taker** that includes the scores for each module taken and a “Recognition Award” that lists the skill areas for each module passed.
2. **A formal “MSSC Production Technician” Certificate** suitable for framing for individuals who pass all four modules.
3. **A detailed score report** identifying areas for improvement for each test-taker.
4. **A detailed “Employer Diagnostic Tool,”** documenting the strengths and weaknesses of a minimum number of 10 test-takers whose aggregate results are compared against national scores.

Certification of Assessment, Education and Training Center – MSSC uses a standardized procedure for determining the capability of an assessment center to deliver the MSSC assessment and training site proctors. The MSSC Assessment Center Certification Process has been established in order to ensure the integrity of the assessments, the privacy of participants, and consistency in testing environment and administration. Currently, the MSSC has approximately 45 certified assessment sites in 19 states.

Curriculum – To prepare both workers and students to acquire the skills and knowledge needed for MSSC Certification, MSSC worked with partner organizations to develop two types of curriculum. These are: (1) intensive, short courses for each of the four modules in the assessment designed especially for incumbent workers; and (2) a more academic curriculum for use in both two-year colleges and high schools especially designed for students without the experience of incumbent workers. The curriculum consists of both classroom and on-line learning components.

MSSC Textbook and Supplements – In April 2005, Glencoe/McGraw-Hill, one of the nation's largest publishers of technical textbooks, released an illustrated textbook entitled, *High-Performance Manufacturing: Portable Production Skills*. Authored by the MSSC and bearing its logo, this book is based on MSSC standards and serves as a valuable reference for building curriculum based on MSSC's industry-led standards. Glencoe/McGraw-Hill also published two supplementary items: a *Manufacturing Applications Booklet* and an *Instructor Resource CD*. The MSSC community is using these materials to build curriculum and training, seeking to link them into the public workforce training system.

Teacher Development – In partnership with other organizations, MSSC has developed a course to train a new cadre of teachers capable of teaching MSSC's foundational standards, based on basic and cross-cutting academic, employability, and technical skills and knowledge, rather than on instruction in traditional occupations (e.g., machinist, welder, metalworking, tool and dye maker, electronics technician, et al.). The *Glencoe/McGraw-Hill Instructor Resource CD* is another tool for teacher development.

System Coordination and Quality Control – MSSC produces standardized, copyrighted materials for skill standards, assessments, documentation and certification. It is also working with strategic partners, like Glencoe/McGraw-Hill, to build education and training materials, teacher development programs, assessment center criteria, teaching-training center, and other aids. The MSSC has recently produced an authorized MSSC Curriculum, which is ready for use. Ongoing review of MSSC standards, assessments and certification practices will ensure currency and state-of-the-art relevancy of the MSSC system for future generations of workers.

UNIONS IN MANUFACTURING

The major unions who represent manufacturing workers are listed below, along with their addresses and websites:

Bakery, Confectionery, Tobacco Workers and Grain Millers International Union (BCTGM)

10401 Connecticut Ave.
Kensington, MD 20895
Frank Hurt, International President
www.bctgm.org

Communications Workers of America (CWA)

501 Third St., N.W.
Washington, DC 20001
Larry Cohen, President
www.cwa-union.org

Glass, Molders, Potter, Plastics and Allied Workers International Union (GMP)

608 E. Baltimore Pike
P.O.Box 607
Media, PA 19063
John Ryan, President
gmpiu@ix.netcom.com

International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers (Iron Workers)

United Unions Building
1750 New York Avenue N. W.
Washington, D.C. 20006
Joseph Hunt, General President
www.ironworkers.org

International Association of Machinists and Aerospace Workers (IAM)

9000 Machinist Place
Upper Marlboro, MD 20772
R. Thomas Buffenbarger, President
www.iamaw.org

International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers (IBB)

753 State Ave., Suite 570
Kansas City, KS 66101
Newton B. Jones, International President
www.boilermakers.org

International Brotherhood of Electrical Workers (IBEW)

900 Seventh St., N.W.
Washington, DC 20001-3886
Edwin D. Hill, International President
www.ibew.org

International Brotherhood of Teamsters (IBT)

25 Louisiana Ave, NW
Washington, DC 20001
James P. Hoffa, General President
www.teamster.org

International Union of Allied Novelty and Production Workers (NPW)

1950 W. Erie St.
Chicago, IL 60622
Mark Spano, President

International Union of Operating Engineers (IUOE)

1125 17th St., N.W.
Washington, DC 20036
Vincent J. Giblin, General President
www.iuoe.org

Sheet Metal Workers International Association (SMWIA)

United Unions Building
1750 New York Ave., N.W., Sixth Floor
Washington, DC 20006
Michael J. Sullivan, General President
www.smwia.org

United Automobile, Aerospace & Agricultural Implement Workers of America International Union (UAW)

Solidarity House
8000 E. Jefferson Ave.
Detroit, MI 48214
Ron Gettelfinger, President
www.uaw.org

United Food and Commercial Workers International Union (UFCW)

1775 K Street, NW
Washington, DC 20006
Joseph T. Hansen, International President
www.ufcw.org

United Mine Workers of America, AFL-CIO (UMWA)

8315 Lee Highway
Fairfax, VA 22031
Cecil E. Roberts, President
www.umwa.org

UNITE HERE! (UNITE)

275 7th Avenue
New York, NY 10001-6708
Bruce S. Raynor, General President
www.unitehere.org

**United Steel, Paper and Forestry, Rubber,
Manufacturing, Energy, Allied Industrial & Service**

Workers International Union (USW)
Five Gateway Center
Pittsburgh, PA 15222
Leo W Gerard, President
www.uswa.org

OTHER ON-LINE TOOLS AND RESOURCES

Federal Resources

Workforce3One, a project of the US Department of Labor's *Employment and Training Administration*, is a collaborative effort among national, state, and local leaders. Together, they form a single system committed to demand-driven programs. This collaboration represents a step toward preparing workers for new and in-demand jobs in high growth, high-demand, and economically vital industries/sectors of the American economy. The Workforce3 One Integrated Webspaces offers the public workforce system, employers, economic development professionals, and education professionals an innovative knowledge network that responds directly to business needs and prepares workers for good jobs in the fastest growing careers. www.workforce3one.org

America's Job Bank (AJB) is the largest and one of the busiest job banks on the Internet. Job seekers can post their résumé and search for job openings, while employers can post job listings, create customized job orders and search résumés. www.ajb.org

America's Service Locator (ASL) helps individuals and employers locate public facilities that provide information on finding a job, planning a career, locating training, dealing with job loss, and recruiting employees. Visitors to the site can download maps and driving directions to these offices. www.servicelocator.org

America's Career InfoNet (ACINet) helps people make better, more informed career decisions through information on typical wages and employment trends across occupations and industries, education and skills requirements for most occupations, employer contact information, cost of living data, state profiles and more. www.acinet.org

O*Net OnLine provides access to information on salary and employment outlook for an occupation, provides tools to develop skill-based résumés and access to other online career information resources. www.onetcenter.org

Career Voyages provides information about building a career in a high-growth, high-demand field. Aimed at four groups – youth, career changers, adults and career advisors, the website contains

information on what occupations are growing fastest nationally and within each state, outlines career ladders, and provides licensing requirements, career videos, and links to actual jobs.

www.careervoyages.gov

A new **Competency Model Clearinghouse** pulls together existing information on competency models from several industries. Competency models can be used as a foundation for developing curriculum and selecting training materials; to develop licensure and certification requirements; and for other purposes. The manufacturing competency model can be accessed through the Competency Model Clearinghouse, which is also linked to the O*NET and Career Voyages. This tool will enable industry, educators, and government to match investments in training to the specific skills needed in the workplace. To access the Competency Model Clearinghouse go to: www.careeronestop.org/CompetencyModel

Catalog of Federal Domestic Assistance: provides access to a database of all Federal programs available to state and local governments; federally-recognized Indian tribal governments; territories of the United States; domestic public, quasi-public, and private profit and nonprofit organizations; specialized groups; and individuals. www.cfda.gov

Association Resources

The **Association of Joint Labor-Management Educational Programs'** mission is to strengthen and promote joint labor-management educational programs in order to solidify the commitment of companies, unions and employees to the philosophy and practice of lifelong learning. Workplace development, through participation in joint education and training initiatives, increases America's competitive edge in the global economy and labor market. The Association's members represent a range of industries such as aerospace, health care, steel, telecommunications, public sector state government, printing, and public utilities serving over 1,000,000 incumbent union workers.

www.workplacelearning.org

The Manufacturing Skills Standard Council (MSSC) is a nationwide, industry-led organization that focuses on the foundational skills and knowledge needed by workers in the nation's advanced manufacturing sector. The MSSC Certification System offers manufacturing production workers the opportunity to demonstrate that they have mastered the skills increasingly needed in the high-growth, technical jobs of the 21st century. Standards promoted by MSSC are a key feature of the Visteon case study. www.msscusa.org

The National Association of Manufacturers (NAM) and its Manufacturing Institute promotes workforce solutions for manufacturers in a global economy in order to build the workforce skills that American industry needs to strengthen its competitive advantage. NAM is the nation's largest industrial trade association, representing small and large manufacturers in every industrial sector and in all 50 states. www.nam.org

The National Association of Workforce Investment Boards (NAWB) is a membership organization of Workforce Investment Boards that promotes the needs of member WIBs through a comprehensive program of advocacy, technical assistance, and communications activities. As part of this technical assistance, NAWB published a guide on sector-based initiatives entitled The

Road to Sector Success: A Guide for Workforce Boards that can be found on their site at http://www.nawb.org/pdf/sector_strategies_full.pdf. The organization's member directory can also be a source of contact information on local WIBs. www.nawb.org

The National Council for Advanced Manufacturing (NAC-FAM) is an industry-led, policy research organization, working collaboratively since 1989 with key leaders from industry, education, and government, to shape public policies and programs to make U.S. manufacturing globally competitive. It convenes its members and other key stakeholders to formulate, proposals in a non-partisan, environment. Participants include small, medium and large manufacturing firms, associations, universities and community colleges, members of Congress and their staffs, federal agencies, and other organizations. www.nacfam.org

The National Network of Sector Partners (NNSP) is a membership-based organization that provides valuable information and resources to the sector field. Their mission is to encourage the use and effectiveness of sector initiatives as valuable tools for enhancing employment and economic development opportunities for low-income individuals, families, and communities. <http://www.nedlc.org/nnspp/index.htm>

GLOSSARY OF TERMS

You may find some unfamiliar terms from the world of manufacturing*, workforce development or labor relations in the case studies or in your exploration of manufacturing partnerships in unionized settings. This glossary defines some of the most common of these terms.

Manufacturing Terms

agile manufacturing. The application of flexible automation of production systems.

auditor. A trained, independent person or team that performs a quality audit.

benchmarking. The process of identifying, sharing, and using the performance of industry leaders to measure improvement.

bottleneck. The point at which the production rate restricts the flow of materials.

capacity. The maximum rate at which inputs can be transformed to create outputs during a process.

composite. The combination of two or more distinct types of materials to create a new, superior material that has properties the original materials do not have.

computer numerical control (CNC). A system that can program a power tool to operate without the need for a person to perform every operation.

die. A device used to shape metals into a certain form. The metal is forced into dies using high pressure.

discrete manufacturing. The process of shaping materials into individual finished products or into parts of other products. Also called parts manufacturing.

downstream. Those workstations closer to the end of the production process.

empowerment. Increasing workers' responsibility for operational decision-making. Unions often demand that this be accompanied by an increase in the ratio of union members to managerial and supervisory staff.

ergonomics. The science of designing and arranging tools people use to avoid injury through repetition.

ferrous metals. Metals containing iron.

flow chart. A visual representation of a process in a step-by-step format.

forecast. A projection of future demand for a product.

frontline workers. All of the people who work to produce a product or whose work supports production.

high-performance manufacturing. Combines a highly skilled and empowered workforce, advanced technology, and new ways of working to achieve superior levels of quality, customer satisfaction, and efficiency

hot work. Any process that creates sparks or involves heat or open flame.

industrial chemicals. Chemicals produced in large volume in chemical processing plants and used for making plastics, solvents, and other products.

inspection. An assessment activity that compares the quality of a specific product with a standard value; taking a measurement and comparing it to a standard.

inventory. Materials in storage.

job safety analysis (JSA). A process of planning the best methods of integrating safety into the way a job is done.

just-in-time (JIT) production. A manufacturing practice that uses a pull system to bring material to a workstation just as work is completed on the previous batch of material.

* Manufacturing terms are adapted from a more extensive glossary developed by Glencoe/McGraw-Hill for the (c)2006 High-Performance Manufacturing: Portable Production Skills program; they are included here with permission. The Glencoe/McGraw-Hill materials include a textbook, a manufacturing applications workbook and an instructor resource CD. For more information about High-Performance Manufacturing: Portable Production Skills, go to www.glencoe.com.

kaizen. The Japanese term meaning “continuous improvement.”

kanban. A signal that indicates that material is needed at the next workstation. Kanban is the Japanese word for “card.”

lead time. The time between the sending of an order to the supplier and the receipt of the product.

lean manufacturing. A system that identifies and eliminates all activities that do not add value to the product (i.e., waste) during the manufacturing process, from customer order to delivery.

logistics. The movement of materials and products, both within a plant and into and out of the plant.

maintenance repair and operations (MRO) inventory. Machine parts and tools related to keep the production system working.

manufacturing. The process of changing raw or processed materials into products people can use.

manufacturing resources planning (MRP II). A planning tool that expands MRP to include other departments in planning production.

mass production. The process of manufacturing huge numbers of the same product at a relatively low cost.

nanotechnology. A branch of engineering that designs and creates machines and materials at the molecular level.

net-shape manufacturing. Forming a part or product with only one process.

non-ferrous metals. Metals that contain little or no iron.

Occupational Safety & Health Administration (OSHA). The primary government agency devoted to workplace safety. OSHA’s mission is to ensure the safety and health of America’s workers by setting and enforcing standards; providing training, outreach, and education; and encouraging continual improvement of workplace safety and health.

outsourcing. This term describes an arrangement in which one company provides services and/or products for another company that could be, or historically have been, provided in house.

onshore outsourcing or domestic outsourcing. This term refers to a business obtaining services and/or products from outside the company but within the same country.

offshore outsourcing or offshoring. This term describes the practice of obtaining services from people or companies outside the country.

nearshore outsourcing. A form of offshoring, this term is used to refer to the practice of getting work done or services performed by people in neighboring countries (e.g. Canada, Mexico) rather than in your own country.

packaging. The process of using materials to contain, protect and display a product during handling, storage and shipping.

parts manufacturing. The process of shaping materials into individual finished products or into parts of other products. Also called discrete manufacturing.

plastics. Manufactured polymer substances that are liquid or moldable during processing but are solid as a final material.

poka yoke. Japanese term for “mistake proofing.”

pressing. A process in which a heavy weight is lowered onto a material to squeeze out the liquid.

preventative maintenance (PM). The planned maintenance of equipment that is designed to improve equipment life and avoid any unplanned interruptions of production.

process manufacturing. Changing the nature of ingredients by applying heat or pressure, or by mixing, separating, or chemical reactions.

production. All of the activities involved in the making, assembling, packaging and distribution of manufactured goods.

production process. Any operation or technique used to transform materials into products.

product life cycle (PLC). The change in demand for a particular product over time.

productivity. The measure of how efficiently goods are produced.

project team. A team that focuses on a single major issue of concern to the plant, such as plant safety, production quality, or new product design.

prototype. A full-scale, functioning model of a product.

quality. A product meets or exceeds the expectations and the needs of the customer.

quality assessment. A company-wide review of the status of quality.

quality audit. An independent review that compares some aspect of quality performance with the standard for that performance.

quality control. A process that measures process output and compares it with a standard. It then corrects deviations from that standard.

quality management system. A plan that focuses the efforts of an organization on the quality of their products and meeting customer needs.

quality planning. Designing a process that is capable of meeting quality standards.

quality team. A project team that brings together people from various parts of a process to implement improvements.

secondary processing. Turning materials into products people can use.

Six Sigma. A set of quality management tools that uses a statistical data approach to reduce defects and improve and maintain quality.

specialty chemicals. Chemicals produced in much smaller quantities for use in making pharmaceuticals, cosmetics and other products that are used in small volumes. They are often made in laboratories and other small plant facilities.

standard operating procedure (SOP). The step-by-step instructions for carrying out a specific process; a document that provides a complete set of instructions to perform a certain task and a written description of the procedure.

statistical process control (SPC). An evaluation of process data, using statistical methods, to determine whether a process is in control.

suppliers. Companies that make and sell the parts, materials and machines to the manufacturer that are used to make consumer goods. Also called vendors.

supply chain. The sequence of suppliers and processes that result in providing the product to the final customer.

supply chain management. The coordination of supply chain elements to maximize efficiency and cut costs.

team. A group of people who work together toward a common goal, to complete a specific task within a specific timeframe.

technical manual. A document, usually prepared by the equipment manufacturer, that includes operating and maintenance information.

total quality management (TQM). A quality management system built around an effort to improve quality, involve everyone in the organization, and most importantly, ensure customer satisfaction.

tool. A hand or power device used by one person to perform one operation at a time.

torsion strength. The measurement of how well a material can resist twisting.

upstream. Those workstations close to the beginning of the production process.

welding. A process that uses heat, and sometimes pressure, to melt metal to form joints that hold parts together.

wheel chock. A block placed in front of the back wheels of a truck or trailer to prevent the vehicle from moving away from the dock during loading and unloading.

work flow. The movement of materials through the production process.

work-in-process (WIP) inventory. The materials and assemblies being worked on or awaiting processing within the operations area.

workstation. A place where a specific task is done.

work team. A group of workers responsible for a product or a stage of the manufacturing process.

Education, Training and Workforce Development Terms

accredited. Officially recognized as maintaining standards that qualify students for more education or for work in a certain profession.

apprenticeship. A training program that combines classroom instruction with actual work experience under the guidance of a skilled worker. See also Joint Apprenticeship and Training Committee.

assessment. Multiple tools for documenting a person's existing knowledge and skills and/or determining additional training needs. Assessments may be written, standardized tests or online examinations for academic or occupational knowledge and skills. In the manufacturing arena, assessments may also be in the form of simulations or hands-on demonstration of occupational knowledge and skills.

certification. The process of demonstrating that you are qualified to work in a certain field, because you have fulfilled the requirements of that field.

community-based organization (CBO). A term used to describe private nonprofit organizations that are representative of a community or a specific segment of it.

customized training. The workforce system's definition of company-specific training where the half of the cost of training can be funded by the public system.

e-learning (electronic learning). Term covering a wide set of applications and processes, such as Web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It includes the delivery of content via Internet, intranet/extranet, audio- and videotape, satellite broadcast, interactive TV, CD-ROM, and more.

Employment and Training Administration (ETA). The agency within the United States Department of Labor that governs the workforce system, apprenticeship, and foreign labor certifications.

English for Speakers of Other Languages (ESOL). Training delivered to non-native English speakers designed to improve their proficiency and command of the English language.

faith-based organization (FBO). A community-based organization with a specific religious affiliation.

Joint Apprenticeship and Training Committee (JATC or JAC). The governing entity for a training program, comprised of equal representatives of employers and labor, usually referred to as trustees, particularly in a formal Taft-Hartley trust fund.

Individual Training Account (ITA). The voucher given to a worker (after an eligibility determination has been made) in the workforce system that is redeemable for intensive and training services from providers on an approved list.

journeyman or journeyperson. Workers in a traditional craft who have gone through an apprenticeship and mastered the type of work involved in the craft (e.g., journeyman electrician).

limited English proficiency (LEP). Training targeted at improving a trainee's ability to use the English language, usually intended for speakers of other languages.

on-the-job training (OJT). The opportunity to learn relevant skills while working. The "earn while you learn" system of training. Under some circumstances, the public workforce system will pay half a worker's salary for six months during OJT training.

skill standards. Standards that describe the knowledge, skills and performance needed for success in the workplace

training matrix. A tool used to place workers with jobs.

training needs assessment. A process undertaken to identify gaps between what is supposed to happen and what actually happens.

vocational English for speakers of other languages (VESOL). An alternative term for ESL that refers to English language instruction in a vocational context, generally designed to support a worker's entry or progress in the workforce.

Workforce Investment Act (WIA). The 1998 legislation that governs the nation's public system of job-related training.

Labor and Labor Relations Terms

AFL-CIO. Name of the voluntary federation of 53 national and international unions created in 1955 by the merger of the American Federation of Labor and the Congress of Industrial Organizations.

arbitration. A contractually agreed to conflict resolution process in which a third party makes a binding and final decision about how to resolve the problem.

bumping. Exercise of seniority rights by longer-service workers to displace junior employees, usually in the case of layoffs.

business representative (Business Rep or BR). A local union officer who handles business matters; monitors and negotiates contracts; enrolls new members; investigates complaints of members; negotiates with employers; and generally administers the union's affairs. May be either elected or appointed.

Central Labor Council (CLC). The local federation of labor, chartered by the national AFL-CIO, where local unions voluntarily coalesce to advocate for workers at the municipal, county, or regional level.

collective bargaining. A negotiating process – regulated by national and/or state or local laws –used by workers and employers to determine wages, hours and employment conditions.

cost of living adjustment (COLA). Raising or lowering wages or salaries in accordance with changes in the cost of living as measured by a designated index; in collective bargaining agreements, usually Consumer Price Index (CPI).

exclusive bargaining rights. Right of the union designated as bargaining representative by a majority of the employees in the appropriate bargaining unit to bargain collectively for all employees in the unit.

grievance. A dispute or a difference between the company and the union, usually a violation of the union contract, although sometimes the parties agree that a violation of a law affecting labor, and/or unjust, unequal treatment of a worker by management, can also be considered a grievance.

health and welfare plan. Plan providing health and sometimes dental and/or vision insurance.

hiring hall. Headquarters from which employer requests for workers are filled in those circumstances where the union takes responsibility for providing workers for one or more employers. A hiring hall is typically operated by a union alone but it may also be operated jointly by an employer and union. Manufacturing unions do not typically operate hiring halls.

International union. Many unions in the United States represent workers in Canada as well. They therefore consider themselves international unions.

jurisdictional dispute. A conflict involving a dispute between two unions as to which should represent a group of employees, or as to which union's members shall perform a certain type of work.

Labor Management Relations Act of 1947 (Taft-Hartley Act). Federal law that: amends the National Labor Relations Act to regulate some union activities; authorizes lawsuits for collective bargaining violations and certain strikes and boycotts; and establishes procedures for trying to settle national emergency strikes.

Labor-Management Reporting and Disclosure Act of 1959 (Landrum-Griffin Act). Federal statute that imposes controls on unions to protect rights of individual members; requires the filing of reports by unions, employers, and labor relations consultants; and amends the National Labor Relations Act to impose tighter restrictions on strikes, picketing and boycotts.

local union. The basic unit in most union organizations. In national or international unions, the local union adopts its own constitution and bylaws and elects its own officers, but is chartered by the international or national union with which it is affiliated. Many manufacturing employers have more than one union local representing its employees; they may be more than one local of the same national union, or local unions of different national unions.

mediation. A non-binding conflict resolution process in which a neutral third party listens to both parties and makes suggestions for solving the problem.

National Labor Relations Act (NLRA). Primary federal labor law, enacted in 1935 and originally known as the Wagner Act, that guarantees workers in industries affecting interstate commerce the right to organize a union, to bargain collectively, and to engage in concerted (collective) activities.

National Labor Relations Board (NLRB). Board established by National Labor Relations Act to govern and enforce elements of the Act, to conduct union representation elections and hearings, and to determine unfair labor practice charges arising under the statute.

National Mediation Board (NMB). The NMB, created by amendments in the 1930s to the National Railway Act, is an independent agency that plays a key role in mediating dispute resolution processes and promoting harmonious labor relations in two key transportation sectors of the economy: railroads and airlines.

proprietary information. Information that legally belongs to a company.

reopener clause. Clause in a collective bargaining agreement providing for reopening negotiations on just some specific provisions – usually (but not exclusively) on wages, during the term of the agreement.

safety committee. An officially recognized group of frontline workers (sometimes jointly with managers) charged with the responsibility of enforcing safety standards or with suggesting new safety precautions and procedures.

seniority. The status of an employee relative to other employees in regard to their length of service. Unions and employers negotiate over the rights and benefits that will be affected by seniority. They may agree that seniority will affect order for layoffs, consideration for promotions, vacation scheduling, etc. .

workers compensation. Financial assistance employers must provide by law to workers who are injured on the job. If includes medical expenses and lost wages if the worker cannot work.

