Oregon's Manufacturing Workforce Strategy

Utilizing innovative education, training, and high performance, Oregon has a world-class manufacturing workforce and globally competitive companies.

A Report to Governor Kulongoski
and the Oregon Workforce Investment Board

From the Oregon Workforce Investment Board
Manufacturing Workforce Committee

December, 2005

Table of Contents

Executive Summary

Oregon Manufacturing's Moment of Opportunity

Workforce strategies for a highly skilled labor force and globally competitive companies

Oregon is uniquely positioned to respond to a critical workforce challenge. Manufacturers across the state are joining together to embrace and promote high performance practices and seek response from the state's education and workforce systems to keep pace with the demands of a changing global economy. Although Oregon has been a leader in setting educational benchmarks, the state's investment has lagged behind that of other states and nations. Many students and workers are not adequately prepared for current and future jobs, or do not understand that their skills may become outdated if they don't engage in a process of life long learning. This skills gap has the potential to structurally change our national and state economy if we do not respond decisively with creative and targeted strategies.

These challenges are particularly acute in one of Oregon's leading sectors – manufacturing. Since 1997, Oregon has been within the top 17 states in the country in terms of the percentage of its gross state product in manufacturing. About 15 % of Oregon's output value comes from manufacturing. A thriving manufacturing sector is vital to the long-term prosperity of Oregon's economy and its citizens. Manufacturing businesses in Oregon serve as an economic catalyst, generating high wage jobs throughout the state and bringing new dollars into the state's economy that support service industries and public services.

Four Focus Areas

1. Embrace high performance manufacturing practices

2. Create a world-class manufacturing workforce with skills that meet employer and worker needs

3. Connect regional manufacturing centers of excellence

4. Raise awareness about the value of Oregon's manufacturing industry and its many career opportunities

The Manufacturing Workforce Committee

Industry and labor leaders from top manufacturing sectors

To seek new and different ways to respond to the workforce challenges for the manufacturing sector, the Oregon Workforce Investment Board (OWIB), the advisory board to the Governor on workforce matters, appointed a Manufacturing Workforce Committee. This Committee was created to develop a set of statewide workforce strategies to help support the manufacturing sector in the state so it has a highly skilled labor force and globally competitive companies. The Committee is comprised of industry and labor leaders from the manufacturing sectors of food processing, forest products, high technology, transportation equipment, and metals, assisted by a core group of technical experts representing all education levels, multiple industry associations, and specialists in high performance practices.

Oregon's gross state product in manufacturing is consistently one of the highest in the U.S. Since 1997, it has been one of the top 17 states

The Manufacturing Committee determined that four major areas impact their capacity for having a skilled workforce to maintain competitiveness:

1. Embrace High Performance: Manufacturers are engaging their workers in high performance practices to stay globally competitive and seek support for networks and consortia to promote these practices and coordinate shared training of their workers;

2. Create a World-Class Manufacturing Workforce: The state's education and workforce systems need to raise the level of basic skills and develop proficiency-based assessment tools and pathways for students completing high school and for adult workers;

3. Connect Regional Manufacturing Centers: Manufacturers are developing regional centers of excellence, and could benefit from connecting efforts into a network to increase access for employers and workers to integrated training and education as well as research and development; and

4. Raise Awareness about Industry Value and Opportunities: The manufacturing sector must improve communications with the public and the potential future workforce about the value of their industry sector and the living wage jobs they provide to Oregonians.

Policy and Program Recommendations

Supporting the effectiveness of Oregon's manufacturers

To respond to these challenges, the Manufacturing Workforce Committee recommends that the manufacturing sector, including the Oregon Business Council, Associated Oregon Industries and labor leaders, and its state and local public partners, including the Oregon Workforce Investment Board, implement the following policy and programmatic actions in the four focus areas over the next three years.

Initial Step: Declaration of Policy Leadership. Seek a declaration from the Governor, with support from industry leaders, which proclaims manufacturing as an industry sector of high value to Oregon and Oregonians, and provides the state's support for business-led networks that promote high performance practices, manufacturing centers of excellence and building the skills of the manufacturing workforce.

In addition, seek to coalesce industry leadership into one unified voice for the manufacturing sector.

Focus Area 1: Embrace high performance manufacturing practices

High Performance

- Embrace change
- Reduce waste
- Use leading technologies
- Tap worker knowledge
- Tools such as Value Stream Mapping

1. Support growth of a **High Performance Consortia Network** throughout the state.
   A. Develop a business plan and utilize high performance experts to build momentum and offer sustainable support for employer-led consortia, working on the model of the Northwest High Performance Enterprise Consortium (NWHPEC) and the Southern Oregon High Performance Enterprise Consortium (SOHPEC).
   B. Utilize a mentorship approach so that companies and workers leading the high performance work in Oregon can provide a foundation and offer shared expertise to suppliers and smaller companies.

Focus Area 2: Create a world-class manufacturing workforce with skills that meet employer and worker needs

World-class Workforce

- High worker skill levels
- Consistent and portable assessments and skills
- Flexible and responsive training system
- Cross-industry certification

2. Strongly support the work of the State's Boards of Education to take a comprehensive approach to **education reform** and give the high school diploma renewed value in the workplace. Renewed value may include:
   A. Rebranding the high school diploma;
   B. Adopting a proficiency-based assessment and certificate as a requirement of graduation that will be consistent throughout the state and document both basic and workplace readiness skills;
   C. Aligning high school graduation requirements with entry requirements to Oregon's colleges and universities while working toward exceeding the national average for proficiencies required for graduation;
   D. Seeking consistent input from the business community and increased collaboration with the Oregon Workforce Investment Board; and
   E. Understanding what it means to have a "world-class workforce" and initiating change to compete with the top education systems in the world.

3. Adopt a policy through the Oregon Workforce Investment Board (OWIB) that a standardized skills assessment tool and accompanying **work readiness certificate** be used by all WorkSource Oregon Centers and in all Oregon community

colleges, and is consistent with the assessment tools and certificates utilized by the education system. Test this concept, prior to adoption, to understand the financial implications and ensure that it has value for businesses and workers, and currency in the marketplace.

4. Adopt a policy through the OWIB that clarifies the state's role in incumbent worker training, and identify flexible resources to **assist businesses with training needs**, especially for low-skill adult workers.

5. Expand Oregon's **high school and community college manufacturing courses**, by building on the Cross-Industry Skills Standards project, using the career pathways model that reduces cycle time in training, and utilizes a manufacturing certificate of technical proficiency.

Use Demand Side Strategies

Employers, labor, and industry associations are customers, define what worker skills are needed

6. Increase **distance-learning** opportunities for manufacturing cross-industry skills programs.

7. Utilize **employers as technical training instructors**/partners in the community college and tech prep high school settings to offer more just-in-time and industry-specific training.

8. Assist BOLI in **redesigning existing apprenticeship programs** to meet the needs of the manufacturing sector.

9. **Integrate high performance training** into current college professional and technical curriculum and add elements of high performance in the basic skills and advanced-manufacturing certificates.

Focus Area 3: Connect Regional Manufacturing Centers of Excellence

Centers of Excellence

Employers can easily access:
- Training
- Best-practices
- Research and development

10. Network industry-led regional **Manufacturing Centers of Excellence** in cooperation with the community college and university systems to increase statewide learning opportunities that promote research and development and advanced manufacturing training; support alignment of manufacturing centers in regions that are effective and committed to this concept.

Focus Area 4: Raise awareness about the value of Oregon's manufacturing industry and its many career opportunities

Manufacturing is critical to Oregon's economic vitality

11. Conduct a regionally-driven, sustainable **media/communications campaign** to promote Oregon manufacturing and careers.

12. Expand existing **web portals** to include manufacturing and high performance communications.
    A. Articulate and promote the concerted effort to turn Oregon's manufacturing sector into one of world renowned excellence;
    B. Educate and recruit students and workers into manufacturing occupations through multiple communication channels; and
    C. Build partnerships locally, leverage resources, and utilize the workforce system to direct respondents to services.

These Workforce Opportunities for Oregon's Manufacturing Sector, a strategy developed by the state's industry leaders, must be realized through the work of public and private policy boards and partnerships. These strategies are a starting place. With support from the Governor, the Oregon Workforce Investment Board, and the entire workforce, education, and economic development systems, there is enormous potential to succeed. Yet the most important element for success is industry involvement. It is ultimately up to the manufacturing sector to embrace, promote, and passionately engage in implementing these strategies so they truly are industry-driven.

Background

Workforce Opportunities for Oregon's Manufacturers

Meeting the changing challenges of a global marketplace

Oregon is uniquely positioned to respond to a critical workforce challenge. Manufacturers across the state are joining together to embrace and promote high performance practices and seek responsiveness from the state's education and workforce systems to keep pace with demands of a changing global economy. Although Oregon has been a leader in setting educational benchmarks, the state's investment has lagged behind that of other states and nations. Many students and workers are not adequately prepared for current and future jobs, or do not understand that their skills may become outdated if they don't engage in a process of life long learning. This skills gap has the potential to structurally change our national and state economy if we do not respond decisively with creative and targeted strategies.

Since 1997,Oregon has been within the top 17 states in the percentage of its gross state product in manufacturing

Right now, Oregon workers must have the skills to compete with workers in China and India, or face the consequences of fewer domestic job opportunities. Without skilled workers, U.S.-based companies will either ship jobs to other countries or import workers with the skills to do the jobs at home. While many factors impact company location and human resource decisions, Oregon workers must continue to embrace lifelong learning, in school and in the workplace, if they are to remain the most productive and innovative workers in the world.

To maintain high wage manufacturing jobs in this state, both the public and private sectors need to respond by creating new high performance work environments and providing flexible, responsive education and job training programs that are competency-based, responsive to the demands in a rapidly changing labor market, and are tied to new technologies, customer needs, and evolving production processes.

Why Manufacturing?

Major Oregon industry with skilled, high-wage jobs

Since 1997, Oregon has been within the top 17 states in the country in terms of the percentage of its gross state product in manufacturing. About 15 % of Oregon's output value comes from manufacturing. A thriving manufacturing sector is vital to the long-

term prosperity of Oregon's economy and its citizens. Manufacturing businesses in Oregon serve as an economic catalyst, generating high wage jobs throughout the state, by bringing new dollars into the state's economy. Manufacturing jobs tend to have high employment multipliers, meaning that each manufacturing job typically helps support another one, two or more jobs in the city or state.

Many Oregon firms are competing successfully at the top of the global food chain.
-- Joe Cortright
""Made in Oregon"

Many manufacturing sectors have begun to add jobs after reaching a cyclical low point during the recent recession (e.g., computer and electronic equipment, transportation equipment, fabricated metals, and machinery). According to the Oregon Employment Department's recent projections, each of these industries is expected to rebound with the overall economy, but not necessarily to the pre-recession level of employment. On the other hand, several manufacturing sectors are expected to continue a long-run decline, but at a slowing rate of decline (e.g., wood, food processing, and paper products).

In 2004, Oregon had 199,500 manufacturing jobs. The Oregon Employment Department projects net growth from 2004 - 2014 of about 3% or 6,000 jobs. In addition, replacement jobs will account for perhaps another 45,000 to 55,000 positions for which skilled people will need to be trained. So while manufacturing will need about 6,000 people to fill "new" jobs in the next ten years, the industry sector will need another 45,000 to 55,000 people to fill replacement openings, many of which are caused by retirement.

Oregon Manufacturing Jobs			
	2004	2014	% change
Total Manufacturing Jobs:	199,500	205,500	3% growth
Oregon Manufacturing Job Openings			
New Job Openings:	6,000 jobs		
Replacement Openings:	45,000-55,000 jobs		
Total Job Openings:	51,000 – 61,000 jobs		

Manufacturing is the sector that represents the most high wage jobs (those paying $50,000 or more per year) for Oregonians. While the projected job growth may be smaller than some other industries, manufacturing jobs pay more and return more benefit to workers in terms of living wages, and to the state in terms of taxes and economic benefits, than other lower-wage industries.

Industry Competitiveness in a Global Marketplace

Increasing worker skills and high performance practices

Like their counterparts in other states, Oregon manufacturers face stiff global competition and must continually improve their products and processes to stay competitive. Their success depends on continuously integrating new technologies and innovations, adding increasing value to products, reducing waste in processes and having access to resources such as capital, cutting edge research and, most importantly, a highly skilled, flexible and involved workforce.

We need additional business opportunities. We need a manufacturing economy that is growing not dying. So anything you can do to help strengthen the manufacturing environment and realities that we live with will help improve our likelihood of success.
-Tom Nielsen
Nielsen Manufacturing

The most recent rise in global competition requires a renewed commitment by the state to be proactive in developing manufacturing capabilities and innovations, as well as protecting these jobs and training this workforce. This effort will necessitate support from the Governor, and the education, workforce and economic development agencies in the state and multiple local and regional partners.

By strategically connecting all possible resources and focusing them on workforce development and industry competitiveness using manufacturing as a model, the overall impact for the state will be dramatic and positive.

As Tom Nielsen of Nielsen Manufacturing told the Governor in June 2005, "The world wide marketplace and competitive arena is a reality. U.S. manufacturing as a whole and especially pockets like the Northwest and Oregon are really challenged and I think face the daunting reality of simply not being competitive any longer. Companies like ours are being faced with making "stay in there or not" decisions and those decisions will have a long term effect on our citizens' future employment and our community's economic health.

"We encourage you to continue to support these critical [high performance] improvement programs. But that is not enough. We need additional business opportunities. We need a manufacturing economy that is growing not dying. So anything you can do to help strengthen the manufacturing environment and realities that we live with will help improve our likelihood of success."

The Future of Oregon Manufacturing

Economist Joe Cortright, of Impressa Consulting, portrays a similar picture of manufacturing in his report for the Oregon Business Council, Made In Oregon: The Future of Manufacturing, in May 2004.

"Our analysis, based on interviews with leading Oregon firms and an analysis of state and national data, shows that some of the common images are at odds with the economic realities.

"The image—manufacturing is dying. The reality, manufacturing is changing, and it has always been changing. Our success depends on our ability to master the highest value parts of the manufacturing chain.

"The image—foreign competition is killing Oregon jobs. The reality—many Oregon firms are competing successfully at the top of the global food chain. The ability to develop and execute successful global production and marketing strategies is the key to economic success.

We're in the midst of sweeping, tumultuous change in the economy, and nowhere, it seems, is this change more apparent than in the tectonic shifts in the manufacturing sector of the economy. . .
- Joe Cortright
"Made in Oregon"

"The image—manufacturing is dumb, repetitive, low-paying work. The reality—the parts of manufacturing that we're doing well in tend to be well paid, and are increasingly dependent on our ability to quickly and efficiently produce innovative new products. Average manufacturing wages are more than a third higher than the state average wage, and are highest in globally traded industries like high technology and sports apparel.

"The image—manufacturing jobs are going away and they won't come back. The reality—a lot of low wage jobs in manufacturing will never come back. But the opportunity exists to maintain and create many well-paid jobs in research, development, design, engineering, management and logistics—if we are a desirable place for knowledge-based industries and workers.

"We're in the midst of sweeping, tumultuous change in the economy, and nowhere, it seems, is this change more apparent than in the tectonic shifts in the manufacturing sector of the economy. ….

"The difficult challenge is that the future of manufacturing won't be more of the same of what we've experienced in the past. The future of manufacturing will be new and different, in ways we can't fully predict."

How to Respond?

The Charge of the Manufacturing Workforce Committee

To seek new and different ways to respond to these challenges for the manufacturing industry, the Oregon Workforce Investment Board (OWIB), the advisory board to the Governor on workforce matters, appointed a Manufacturing Workforce Committee. This Committee was created to develop a set of statewide workforce strategies to help

Manufacturing Workforce Committee

Industry and labor leaders from :
- Food processing
- Forest products
- High technology
- Biomedical
- Transportation equipment

support the manufacturing sector in the state so it has a highly skilled labor force.

The Manufacturing Workforce Committee is comprised of industry and labor leaders from the manufacturing sectors of food processing, forest products, high technology, biomedical, transportation equipment, and metals. The committee had six months to conceptualize the strategies and develop a business plan for implementation. A core group of technical experts representing all education levels and institutions, industry associations, and specialists in high performance practices attended the meetings and supported the work of the industry and labor leaders. The Manufacturing Committee was convened and facilitated by the Governor's Office.

Vision Statement

THE VISION STATEMENT: Utilizing innovative education, training, and high performance, Oregon has a world-class manufacturing workforce and globally competitive companies

The vision for the Manufacturing Workforce Committee is the following: Utilizing innovative education, training, and high performance, Oregon has a world-class manufacturing workforce and globally competitive companies. This vision supports the state's strategic plan, Oregon Shines. Oregon Shines' first goal is: Quality Jobs for all Oregonians; and an objective is: Oregon's workforce will be the best educated and trained in America by the year 2000, and equal to any in the world by 2010.

Increasingly our manufacturing firms depend on getting the most talented people in the world to work for them. We need to support their efforts, both by strengthening local advanced education, and also by assuring Oregon continues to be a location of choice for the world's most talented workers.
- Joe Cortright "Made in Oregon"

It also supports the vision of the Oregon Workforce Investment Board, "Oregon will have a world-class workforce – well-educated, skilled and working – to keep Oregon's economy competitive in the global marketplace" (www.worksourceoregon.org).

Together these aspirations represent the desire of the state to be competitive nationally and internationally based on the competence and skills of its workers. This is an important economic vision in that businesses currently located in the state, and new companies seeking to locate within Oregon, require highly skilled workers to be productive and competitive in their own right. Productive, growing companies create jobs that are assumed by Oregon workers, driving a robust, vital economy. The Manufacturing Workforce Committee evaluated the specific workforce needs of the manufacturing sector. While some recommendations are specific to manufacturing, many of the policies and strategies will strengthen the state's workforce across all industries.

Shortages of Skilled Workers Impede The Vision

Unfortunately, a combination of factors have hindered the state's achievement of its vision for the best educated and trained workforce in America. According to the Oregon Employment Department, 2002 Employer Survey, close to half (43%) of Oregon's private-sector employers feel that a shortage of skilled workers has made it difficult for their organizations to find qualified applicants to fill job vacancies.

- The Oregon Progress Board reports that the percentage of workers who received at least 20 hours of skills training has fluctuated within a small range from previous Oregon Population Surveys

(conducted biennially): 1994-35%; 1996-30%; 1998-37%; and 2000-31% (http://egov.oregon.gov/DAS/OPB/popsurvey.shtml).

Within manufacturing, all workers need higher levels of skill both to master steadily improving technology and to become more productive. We need to support both private, employer-led efforts to improve skills, and also maintain the infrastructure for basic and continuing education to continually upgrade worker skills.
- Joe Cortright "Made in Oregon"

- As of 2000, 1 in 5 adult Oregonians lacked a high school diploma or equivalent (515,077 adults of 2,676,129 Oregon adults). Oregon is ranked 37th of the 54 states/territories. ("Profiles of the Adult Education Target Population: Information from the 2000 Census", April 2004, RTI International.)

- As of 2000, an additional 68,977 adults (2.58% of adult population) have a diploma but limited English proficiency.

- Oregon is ranked 33rd in attainment of associate's degree within 3 years. (23.5% of associate's students earn a credential within 3 years.) NCHEMS Information Center for State Higher Education Policymaking and Analysis. Data from: National Center for Educational Statistics. *IPEDS Graduation Rate Survey*, Washington, D.C.: U.S. Department of Education.

- In 2000, only 74.2% of 18-24 year old Oregonians had a high school diploma or equivalent. Census 2000 Summary File 3 (SF 3) - Sample Data

These statistics do not bode well for Oregon as manufacturing jobs -- and all jobs -- become more knowledge-based and require more math, science, problem-solving and language skills.

Economist Cortright's analysis for the Oregon Business Council recommends:

Nurture, Attract and Retain Talent

Increasingly our manufacturing firms depend on getting the most talented people in the world to work for them. We need to support their efforts, both by strengthening local advanced education, and also by assuring Oregon continues to be a location of choice for the world's most talented workers.

Enable Continuous Learning

Within manufacturing, all workers need higher levels of skill both to master steadily improving technology and to become more productive. We need to support both private, employer-led efforts to improve skills, and also maintain the infrastructure for basic and continuing education to continually upgrade worker skills. Made In Oregon: The Future of Manufacturing, Joe Cortright, May 2004.

Environmental Analysis

Manufacturing is the sector that represents the most high wage jobs (those paying $50,000 or more per year) for Oregonians

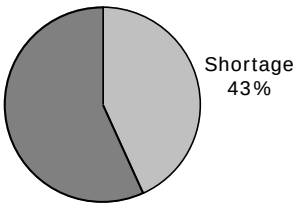
Strengths, Weaknesses, Opportunities, Threats

To understand the current state of Oregon's workforce system and potential opportunities to address these challenges, a SWOT analysis (strengths, weaknesses, opportunities, and threats) was conducted initially by the Workforce Policy Cabinet (state agencies engaging in workforce development activities), looking at the internal environment of Oregon's workforce system, and how to best position Oregon's workforce development programs to meet the needs of the manufacturing sector.

SWOT: Strengths

1. Commitment to innovation and creativity.
2. Solid collaborative relationships among and between governmental, community college and university system, labor, and industry groups for developing partnerships and strategic alliances.
3. Good labor supply.
4. Strong support from the Governor, Oregon Workforce Investment Board and Joint Boards of Education for better integration of education systems to provide more seamless transitions.
5. Increasing support for financial aid for part-time students (working adults).
6. Islands of excellence throughout the state for demand-driven workforce and education solutions.
7. Workforce Boards and Workforce Response Teams actively engaged in identifying regional industry cluster workforce needs.
8. State support to expand the quality and quantity of engineers graduating from Oregon universities through investment in Oregon universities (Engineering and Technology Industry Council ETIC).
9. Workforce projects are generated on a geographic basis to meet local needs.

43% of Oregon Manufacturers report a shortage of skilled workers



SWOT: Weaknesses

1. Siloed agencies and programs.
2. Relationships are individualized rather than institutional.
3. Too much process with few deliverables.
4. Regional projects are not connected statewide, creating areas of need that are left unserved.
5. Education systems have limited ability to be responsive to rapidly changing employer and worker needs.

6. Lack of resources for incumbent training, especially for low-skill adult workers.
7. Lack of rigor and inconsistency in high school diploma requirements, resulting in emerging workers with limited basic skills to compete for jobs or to enter college.
8. Training not often tied to industry certificates or educational credentials that are valued by employers and can help workers advance up career ladders to higher skills.
9. A set of disparate strategies that do not address growing language skill gaps in the manufacturing environment.

SWOT: Opportunities

Opportunity: Business, industry, labor and the public sector are aligning to work together

1. Business, industry, and labor are organized to focus on manufacturing as a key strategic economic issue.
2. Better integration and alignment of economic development and workforce development strategies and funding on a statewide level.
3. Business leadership is promoting high performance practices as a key component of global competitiveness.
4. Federal legislative changes may require more integration of services, providing the opportunities for streamlining and training.
5. Excellent federal reputation to help leverage DOL funding for manufacturing industry initiatives.
6. Growing awareness among education systems of their role in demand-driven workforce preparation.

SWOT: Threats

1. Insufficient state and federal investment in both workforce and education programs to compete with substantially larger investments by other states and nations.
2. Competition for companies with other states having more resources for recruitment and support.
3. Outsourcing of manufacturing jobs.
4. Importation of skilled workers from other states and countries rather than training Oregonians.
5. Rapidly changing skills needed in all jobs, especially technology-based jobs.

Manufacturer's Needs and Public Sector Services

Six areas in need of attention

A more detailed analysis by an independent consultant of the workforce development system programs and services compared against the needs of the manufacturing sector uncovered six additional "soft spots" or areas needing attention:

By connecting resources and focusing them on workforce development and industry competitiveness, the overall impact for Oregon's manufacturing will be dramatic and positive

Certificate of Initial Mastery/High School Graduation Requirements – CIM is not recognized widely by industry so it is difficult for employers to know if job applicants have acquired basic skills through Oregon high schools. Compared to other states, Oregon's high school graduation requirements lack rigor which may limit readiness for entry-level advanced manufacturing jobs. Oregon also lacks a statewide competency-based tool for evaluating work readiness/basic skills for adults who did not achieve a high school diploma or GED.

Tech Prep – Few K-12 schools offer manufacturing-related tech prep or have low numbers of participants. While the Department of Education has developed learning frameworks around career clusters, including Industrial and Engineering Systems (http://www.ode.state.or.us/teachlearn/certificates/cam/careerlrngfrmwrks/industrialengineering.doc), awareness of opportunities in manufacturing careers and insufficient implementation of the Certificate of Advanced Mastery (CAM) frameworks have limited student enthusiasm for technical career paths.

Industrial Apprenticeships – There has been a dramatic drop in enrollment in apprenticeships (approximately 1/3) from 2003 to 2004; they are not offered at all community colleges or through Joint Apprenticeship Training Committees in all parts of the state; very few apprenticeships are offered for industrial trades in manufacturing; and apprenticeship processes are cumbersome for employers to use.

Distance Learning – There is very little distance learning relating to manufacturing from the public education and training institutions like the community colleges and universities although customized training is being offered at some community colleges in this subject area.

Just in Time Training - Some community colleges have developed manufacturing skills centers or programs, yet may lack flexibility to respond quickly to the needs of industry and workers (reduced cycle time in learning, industry modularized instruction, clear career pathways, just what is needed).

Manufacturing Centers and/or Information Web Portals – Employers and workforce partners have organized centers or portals to promote high performance practices, training for specific clusters in manufacturing (metals, high tech), and other training needs, yet these efforts are prevalent mostly in urban metropolitan areas with little connection to each other.

The Focus Areas

Policies, Programs, Best Practices, Strategic Alignment

Core actions, resources and benefits to implementation

Given the findings of the internal analysis, the Manufacturing Workforce Committee proposes adoption of four integrated focus areas to address the challenges confronting the manufacturing sector in Oregon. Those challenges include global competition, the looming retirement of a large share of its trained and skilled workforce, entry-level job applicants lacking basic skills, all resulting in the likelihood of critical skills shortages in the near future.

Four Focus Areas

1. **Embrace high performance manufacturing practices**

2. **Create a world-class manufacturing workforce with skills that meet employer and worker needs**

3. **Connect regional manufacturing centers of excellence**

4. **Raise awareness about the value of Oregon's manufacturing industry and its many career opportunities**

For each focus areas a detailed discussion is provided including:

- introduction to focus area
- policies, actions, opportunities addressed, and resource recommendations
- benefits to the workforce and to manufacturers
- existing leverage points in system

Appendix 2 lists best practices for each focus area.

This section shows the steps needed, over the next three years, to reach the Manufacturing Workforce Committee's vision that Oregon have a world-class manufacturing workforce and globally competitive companies, using innovative education, training and high performance practices.

200,000 Oregonians = manufacturing workforce

Workers have the tools, training and support to work smarter and more productively to keep high wage, high skill jobs.

Introduction

High performance is a choice not a mandate: firms learn how to increase skills and competitiveness.

Embracing high performance practices will increase the competitiveness of Oregon businesses and promote innovative practices in the workplace. It has the potential to impact the entire manufacturing workforce, currently over 200,000 Oregonians, and will lead to the retention and creation of manufacturing jobs in the state. Oregon companies will have increased access to high performance practices and connections to others who are passionate about this work. Oregon will build a foundation of high performance leaders and companies will mentor each other and bring along their suppliers and small businesses. Workers will increase their ability to make decisions to improve company processes, cross-train for multiple skills, and acquire high-demand competencies that will increase their value in the labor market.

A high performance work organization is one that embraces and adapts to change. Its response to competition is to bring all resources to bear to reduce waste, do it right the first time, and utilize leading technology to enhance productivity. It also aims to tap the knowledge and skills of all the workers in an organization to innovate new products, improve quality, and better satisfy customer needs. High performance work organization is one key to creating a sustainable competitive advantage for Oregon firms and workers in a global market place.

Oregon businesses adopting high performance strategies: Burley Design, ESCO, Intel, Nike, Triad Speakers, Wah Chang, Xerox

High performance organizations use tools such as Value Stream Mapping to understand the flow of work in their plant or office; then they identify and eliminate waste (idle time, transport time, excess inventory, and defective products). They involve workers throughout the process to improve their value stream, thereby increasing efficiency and reducing costs. These practices can make companies more competitive in global markets.

Oregon workers will not succeed if businesses pursue a path of low wages and benefits and longer hours. There will always be other countries willing to work cheaper. The high performance path calls for working smarter and more productively by mobilizing the skills, intelligence, and creativity of the entire workforce in more flexible, efficient, high performance work systems. To accomplish this, workers must be equipped to be proficient in new technology applications, to share responsibility and decision-making, and to work in cross-functional teams. Management must be prepared to share authority, and provide incentives and rewards for achieving outcomes.

Focus Area 1: Embrace high performance manufacturing practices

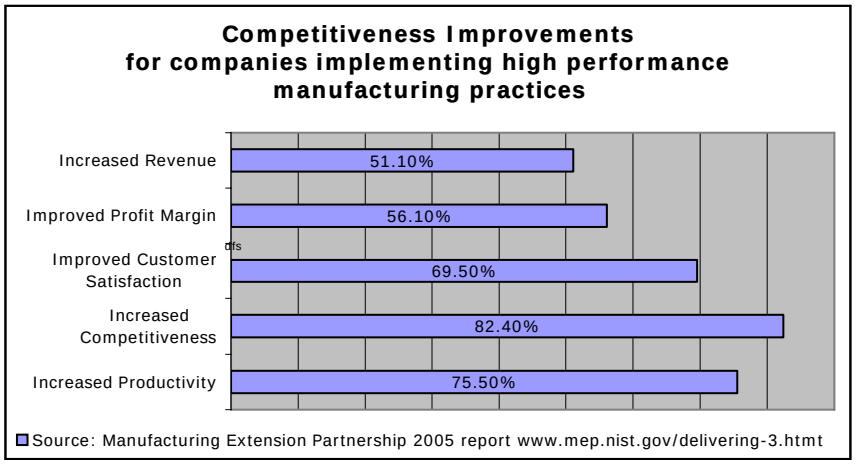
The programs described here are designed to accelerate the adoption of these high performance principles. They promote greater learning about high performance work organizations by promoting interactions among firms and also among workers, i.e. managers can learn from other managers, workers can learn from other workers, and training programs and other educational efforts can raise awareness and provide a context and needed skills for broadening the adoption of higher performance in the state.

Businesses learn high performance from: other businesses, consultants, training and education institutions

High performance is a choice, not a mandate. Leading Oregon firms are adopting a range of high performance work practices. Notable successes like A-Dec dental equipment in Newberg, ESCO Corp in Portland, and Nielsen Manufacturing in Salem are at the leading edge of this movement. Oregon's businesses that have adopted high performance strategies are industry leaders like Nike, Xerox, Wah Chang, and Intel, as well as smaller firms like Burley Design in Eugene and Triad Speakers in Portland. These firms have decided to embrace this challenge to increase their skills and competitiveness. Firms learn how to do it from other firms as well as by having a network of expert consultants, experienced training and educational institutions, and broad awareness and support for these best practices.

The faster Oregon businesses learn to effectively employ high performance practices, the greater will be the competitive benefit to the state's economy. The challenge is to widen the circle of businesses adopting these techniques and make tools readily available to workers and businesses so they can achieve their goals. In Oregon, rather than rely on one huge firm like Toyota to drive high performance practices into suppliers, Oregon is taking an innovative approach to generate a core group of companies to act as this driver. This approach is more sustainable, and it will need support and organization to get it started.

Focus Area 1: Embrace high performance manufacturing practices



Policy & Program:

1: Support growth of High Performance Consortia Network throughout the state.		
Action	Opportunity Addressed	Resource Recommendations
A. Develop a business plan to offer sustainable support for employer-led consortia, working on the model of the Northwest High Performance Enterprise Consortium (NWHPEC) and the Southern Oregon HPEC (SOHPEC). Seek national level expertise and leadership. B. Assess existing resources in partners, agencies, management, and labor to determine available and needed resources to begin implementation. C. Seek commitments from industry consortia, business and labor partners, Oregon Workforce Investment Board, and state agencies. D. Utilize a mentorship approach so that companies and workers can learn and share best practices. E. Use employer-led consortia to promote and advise in the development of high performance training and integrate the training into current community college curricula, basic skills, and advanced manufacturing certificates.	Manufacturing Consortia, Centers and Web Portals Best Practices: Michigan, Maryland, Canada, Connecticut	Hire a contractor to help facilitate the formation of High Performance Consortia and support their work until consortia are sustainable with private resources. Forming and supporting consortia is highly specialized work that demands technical expertise along with sophisticated organizing, facilitation, and mediation skills. *By March 2006.* $75,000/year for 3 years = $225,000.

Benefits to the Workforce and to Manufacturers

This strategy is about pioneering innovation. It harnesses the existing passion among industry leaders to transform their businesses

into high performance work organizations, and offers state support to broadly expose more companies and workers to the opportunities and skills this presents.

Manufacturers will set the goals and methods of the consortia to promote lean and other high performance manufacturing techniques. They will have the advantage of quick access to the work of the manufacturing centers and ideally will participate in interactive advisory roles in the work of the centers to help maintain a constant cutting-edge focus. Workers will benefit both from the increased skills developed via incumbent worker training and from the spillover of the sum of improved manufacturing techniques, validated by current employer use, into the community college training and certification systems for new workforce entrants as well as those already retraining.

Existing Leverage Points in System

The proposed network might be modeled on the current partnerships between NWHPEC and OMEP, both of whom are also providing assistance to the developing consortium in Southern Oregon (SOHPEC). There is a great deal of activity already underway in Oregon: OMEP, SOHPEC, NWHPEC and others address high performance training. Community colleges do a great deal of contract training work related to manufacturing in many fields, including Lean with ESL. The Gateway project offers a web site and access to training information. WorkSource Oregon (www.worksourceoregon.org), the state's workforce system website, has the capacity to add information about high performance resources as well.

Focus Area 2: Create a World-Class Manufacturing Workforce with skills that meet employer and worker needs

Introduction

The objective of this focus area is to help workers and prospective workers achieve higher levels of skill, document the skills they have, and help employers easily identify workers' skills through consistent and portable assessments and certifications. Employers and workers would have access to a workforce and education system that is more flexible and responsive to adapt to a changing economy and labor market. The policies and programs propose to increase, test and certify basic literacy and workplace skills, advance manufacturing cross-industry skills and certification, and seek resources to upgrade the skills of Oregon workers currently in the labor market.

Policy & Program:

2. Strongly support the State's Boards of Education to take a comprehensive approach to education reform and give the high school diploma renewed value in the workplace.

Action	System Gap or Opportunity Addressed	Resource Recommendations
OWIB will clarify policy and take to State Board of Education and State Board of Higher Education. Renewed value may include: A. Rebranding the high school diploma; B. Adopting a proficiency-based assessment and certificate as a requirement of graduation that will be consistent throughout the state and document both basic and workplace readiness skills; C. Aligning high school graduation requirements with entry requirements to Oregon's colleges and universities while working toward exceeding the national average for proficiencies required for graduation; D. Seeking consistent input from the business community and increased collaboration with the Oregon Workforce Investment Board; **E.** Understanding what it means to have a "world-class workforce" and initiating change to compete with the top education systems in the world.	Need to increase rigor in high school diploma requirements, and recognition of CIM or other proficiency-based tool by industry, to raise level of student basic skills to compete for jobs or to enter college Best Practices: Kentucky, Virginia, and Michigan, Indiana	Resources to implement these policies are the responsibility of the State Boards of Education, and the Depts of Education, Community Colleges and Oregon University System. **Strategy-wide Resource Need:** Hire a centralized Manufacturing Workforce Coordinator to guide implementation of the manufacturing strategy for three years. The position should have joint public and private support by AOI, OBC, or another industry association to maintain a private-sector focus and build sustainability for the fourth year and beyond, if needed. *By January 2006.* $120,000/yr. including benefits for three years = $360,000

Focus Area 2: Create a World-Class Manufacturing Workforce with skills that meet employer and worker needs

3. Adopt a policy through OWIB that a standardized skills assessment tool and work readiness certificate be used by all WorkSource Oregon Centers and in all Oregon community colleges and is consistent with the assessment tools and certificates utilized by the education system.

Action	System Gap or Opportunity Addressed	Resource Recommendations
A. Explore options and adopt policy and funding mechanism. B. Provide options for local and regional boards to utilize additional tools to evaluate career interest and aptitudes, and soft skills attainment. C. Test concept, prior to adoption, to understand financial implications and ensure that certificate has value for businesses and workers, and currency in the market place.	Opportunity to use of a statewide competency-based tool for evaluating work readiness and basic skills for adults, especially those without a high school diploma or GED Best Practices:Indiana, Virginia, Kentucky, Illinois, Louisiana, Pennsylvania	Hire a contractor to help plan and implement start-up of a common skills assessment tool and work readiness certificate for the workforce system. *By March 2006*. Start-up contractor @ $50,000.

4. Adopt a policy through the OWIB that clarifies the state's role in incumbent worker training and identify flexible resources to assist businesses with training needs, especially for low-skill adult workers.

Action	System Gap or Opportunity Addressed	Resource Recommendations
A. Establish a task force to research other state policies and practices. B. OWIB develops policy in collaboration with partners and determines if legislation is needed. C. Determine policies and potential legislation before next legislative session.	Need to expand resources for incumbent worker training. More than 50% of states utilize mechanisms other than federal funds to provide resources for businesses for incumbent worker training	Task Force will be staffed by Oregon Employment Department. If it is determined that the state has a role in incumbent worker training, potential resources will be identified and legislation proposed to address the need.

Focus Area 2: Create a World-Class Manufacturing Workforce with skills that meet employer and worker needs

5. Expand Oregon's high school and community college manufacturing courses, by building on the Cross-Industry Skills Standards project, using career pathways models, and utilizing a manufacturing certificate of technical proficiency.

Action	System Gap or Opportunity Addressed	Resource Recommendations
A. Explore options and adopt policy and funding mechanism. B. Provide options for local and regional boards to utilize additional tools to evaluate career interest and aptitudes, and soft skills attainment. C. Test concept, prior to adoption, to understand financial implications and ensure that certificate has value for businesses and workers, and currency in the market place.	Opportunity to use of a statewide competency-based tool for evaluating work readiness and basic skills for adults, especially those without a high school diploma or GED Best Practices: Indiana, Virginia, Kentucky, Illinois, Louisiana, Pennsylvania	Hire a contractor to help plan and implement start-up of a common skills assessment tool and work readiness certificate for the workforce system. *By March 2006*. Start-up contractor @ $50,000.

6. Increase distance-learning opportunities for manufacturing cross-industry skills programs.

Action	System Gap or Opportunity Addressed	Resource Recommendations
A. Explore options for using distance learning for the manufacturing certificate, pathways and other education models.	Opportunity to increase distance learning relating to manufacturing from both community colleges or universities	Utilize existing resources at CCWD, OUS and ODE or individual community colleges and universities as opportunities arise.

7. Utilize employers as technical training instructors/partners in the community college and high school tech prep settings to offer more just-in-time and industry-specific training.

Action	System Gap or Opportunity Addressed	Resource Recommendations
A. Work with industry associations and workforce boards to identify employers who are willing to provide instruction. B. Identify ways to develop this network regionally or through the manufacturing web portal.	Opportunity to respond quickly to needs of manufacturing industry employers	Within scope of work of Manufacturing Workforce Coordinator

8. Assist BOLI redesigning existing apprenticeship programs, particularly in the industrial trades, to meet the needs of the manufacturing industry.		
Action	System Gap or Opportunity Addressed	Resource Recommendations
A. Work with labor and industry associations to identify skill gaps that could be closed using apprenticeship training (millwrights, etc). B. Provide advocacy for BOLI in reopening or developing new programs. C. Provide employer input to reduce barriers to using apprenticeship model.	Opportunity to work with the Bureau of Labor and Industries (BOLI) to increase apprenticeships for industrial trades in manufacturing;	Within scope of work of Manufacturing Workforce Coordinator and Bureau of Labor and Industries

9. Integrate high performance training into current college and university curriculum and add elements of high performance in the basic skills and advanced-manufacturing certificates.		
Action	System Gap or Opportunity Addressed	Resource Recommendations
A. Assist with integration as part of other education and workforce strategies. B. Explore options for collaboration between high performance consortia and colleges and universities in their regions. C. Look for ways to address growing language skill gaps in the manufacturing environment using Lean with ESL training opportunities.	Opportunity to better link education and workforce systems to address business needs.	Within scope of work of Manufacturing Workforce Coordinator and Oregon colleges and universities

Benefits to the Workforce and to Manufacturers

The policies and programs above are focused on the supply side of the economic system. They help improve training systems to delivery the right number of workers with the right skills at the right time. They are also demand-side strategies because employers and industry associations are engaged in determining what skills are needed as customers of the system. To be successful, the supply systems must be pulled by employer needs and must be continuously adapting to respond to changing market demands.

Workers who possess these certificates and skills described above will be significantly more marketable and much more likely to find

The strategies are demand-side focused because employers and industry associations are engaged in determining what skills are needed as customers of the system

employment quickly. Manufacturers will have lowered costs for employee screening and training, and should have savings via improved employee retention and productivity. If successful, these action steps will also send a clear message to current K-12 students and others in the workforce that these skills are critical to employment.

Workers will have broader access to intermediate and advanced training that is not just relevant but critical to manufacturers as they compete in the global marketplace. Younger workers making their first entrance into the workforce and older workers seeking retraining will possess skills employers have specifically identified. Oregon manufacturers will work with the community college and K-12 systems to build course work and certification programs, including apprenticeships, in careers that are needed today. The ongoing involvement of Oregon manufacturers in this process will improve the continuing relevance and vitality of these programs. Manufacturers will also know the skill levels of the graduates of these programs.

Existing Leverage Points in System

The Cross-Industry Skills Standards Project serves as the basis for articulating generic manufacturing skills across all areas of the industry. Career Pathways, an effort to identify clear educational steps on career paths matched to labor market demand, provides an approach for redesigning workforce training programs to be more customer-focused and responsive to changing student, worker, and business needs. The Oregon Manufacturing Extension Partnership, Oregon's community colleges, and other partners provide high performance consulting and training to business and industry, and the Lean with ESL statewide project provides industry specific training in manufacturing that is culturally specific to workers whose primary language is not English. The Department of Education/Certificate of Initial Mastery, the OCATE, and ETIC are all models and potential partners in implementing the recommended strategies in this report.

Focus Area 3: Connect Regional Manufacturing Centers of Excellence

Introduction

The objective of this focus area is to support the creation of a network of manufacturing centers, web sites, and web portals for employers and workers to access all levels of training and coursework relevant to manufacturing as well as industry best practices and research and development. It is meant to elevate the manufacturing center network as a model for stimulating growth and supporting workforce development needs in the manufacturing industry and the program will, after a needs assessment and gap analysis is conducted, provide a mechanism for connecting the existing entities to facilitate statewide access for workers and employers and provide resources to fill the geographic and curricula gaps.

A manufacturing center of excellence could provide a single access point to a broad array of services and initiatives ranging from basic skills for workers to research and development for businesses, a hub for manufacturing workers and businesses. In addition to better access for users, a center of excellence provides the benefit of integrated service delivery and resource "pooling" for greater efficiency of operation.

Policy & Program:

10. Network industry-led, regional Manufacturing Centers with the community college and university system, to increase statewide learning opportunities, promote research and development and advanced manufacturing training; support alignment of manufacturing centers in regions that are passionate and effective.

Action	System Gap or Opportunity Addressed	Resource Recommendations
A. Map out existing manufacturing centers and relevant web sites and web portals in Oregon and determine ways to share best practices statewide. B. Determine ways to network and expand to support statewide learning and advocacy. Examples in Oregon include the Center for Manufacturing and Infrastructure Engineering in Portland Metro, the Gateway Portal in Salem, and the Advanced Manufacturing and Technology Center at Central Oregon Community College. C. Identify gaps in course availability as well as locations to evaluate the need for additional private, community college, or university-based courses, centers or web portals.	Need to support and connect the development of manufacturing industry centers, consortia or portals, especially among urban and rural communities, to promote high performance practices, training, and other research and business development needs	Networking function will be included in scope of work for Manufacturing Workforce Coordinator. Federal earmarks for appropriations and federal grants have been and will continue to be sought to support these sites in the system. *Start by March 2006.*

Focus Area 3: Connect Regional Manufacturing Centers of Excellence

Benefits to the Workforce and to Manufacturers

Centers of Excellence in Manufacturing will provide better access statewide to a broad range of workforce services that are closely tied to industry needs and desires. The connectivity of the network insures that the coursework and services are consistent and of high standard.

Centers of Excellence in Manufacturing will provide better access statewide to a broad range of services, from workforce skills to resource and development, that are closely tied to industry needs and desires. The connectivity of the network ensures that the coursework and services are consistent and of high standard.

Private industry groups have influenced and led the formation of these centers around the state and are passionate about expanding and connecting them to increase targeted services to the industry. In addition, manufacturers will have access to research and development services, either individually or in a shared venture with other companies.

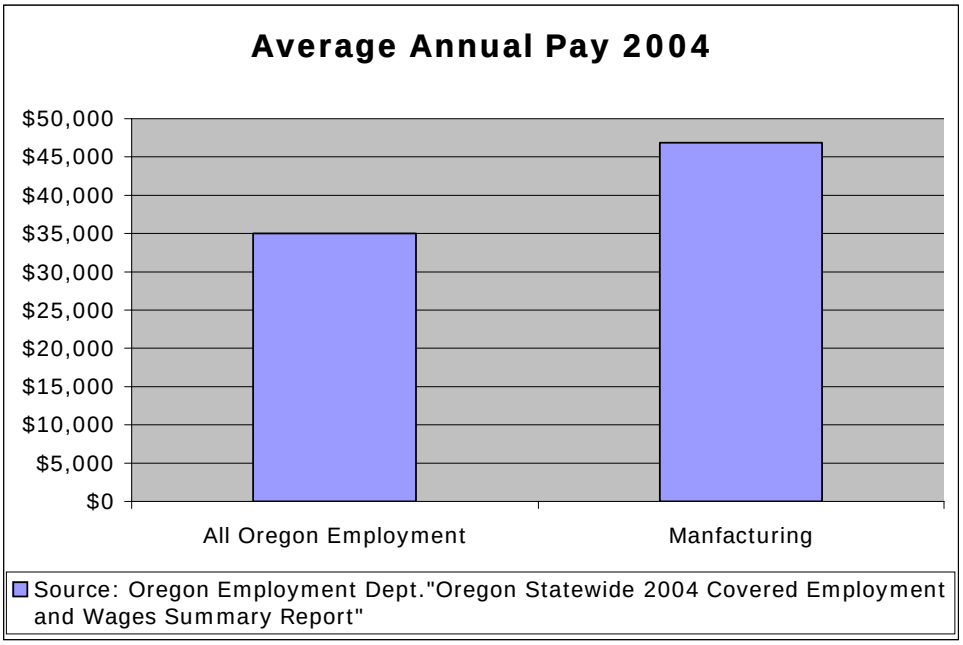
Existing Leverage Points in System

The Northwest Center for Manufacturing and Infrastructure Engineering has a strong following and support of manufacturing companies in the Portland-Metropolitan Area. The Center could easily act as the core of the network activity, given it will at some point have a building and infrastructure to support its services. The Gateway Portal in Salem and the Advanced Manufacturing and Technology Center at Central Oregon Community College would be strong partners or geographic "hubs" for the network. The Oregon Community Colleges may be prime candidates for acting as additional "hubs" to the network as well given their position in the customized training environment and their involvement with other primary workforce development services. A good example is how the state of Washington uses their community colleges as centers of excellence in a variety of content areas.

Focus Area 4: Raise awareness about value of Oregon's manufacturing industry and its many career opportunities

Introduction

Oregon manufacturing is and will continue to be critical to the economic vitality of the state. Contrary to popular opinion, much of Oregon's manufacturing base is not only high skill and high pay, but thriving today even in the face of global competition. It can only continue to thrive, however, with a highly skilled workforce. The citizens of Oregon, and future members of the workforce, must understand the potential that manufacturing jobs can continue to provide—if they are trained to do them. To this end, it is critical that Oregon implement and carry out a sustained media communications plan that "brands" Oregon manufacturing as a vital contributor to the state's economy and creates a sense of awareness of the potential jobs it can continue to provide with a trained workforce. Overall awareness would be raised about the image and importance of manufacturing in Oregon with multiple audiences and that attracts people into manufacturing careers.



Focus Area 4: Raise awareness about value of Oregon's manufacturing industry and its many career opportunities

Policy & Program:

11. Conduct a regionally-driven, sustainable media/ communications campaign to promote Oregon manufacturing and careers.		
Action	System Gap or Opportunity Addressed	Resource Recommendations
A. Explore partnerships with the National Association of Manufacturers. B. Explore partnerships with other state and industry associations. C. Consider utilizing all of the actions proposed above (launching manufacturing strategy, expanding certificates and credentials, etc.) as opportunities for ongoing publicity efforts. D. Overall, solicit proposals from professional marketing firms for a long-term, themed campaign to promote Oregon manufacturing and the improvements in manufacturing and workforce training proposed in this overall workforce strategy. E. Reach many audiences: Business executives, Public, Workers, Youth, Educators/counselors. F. Correct image of manufacturing: ➢ Innovation ➢ Skilled/smart ➢ Living wage jobs G. Build partnerships locally, leverage resources and utilize workforce systems and website to direct respondents to services. H. Promote local and state efforts with manufacturing sector.	Need to raise awareness of the importance of the manufacturing industry and careers Advocacy gap Best Practices: NAM/Kansas City: Dream It! Do It! Ford Foundation Bridges to Opportunity/ Media Campaign Kentucky: Education Pays campaign Connecticut	Partner with NAM and other entities to develop and conduct a sustainable media/communica-tions campaign to promote Oregon manufacturing. This campaign has high potential for sustainability through industry leadership and partnerships with workforce system throughout the state. *By June 2006.* $35,000 one time fee plus cost of coordinator at $100,000 per year for two years = $235,000.

Focus Area 4: Raise awareness about value of Oregon's manufacturing industry and its many career opportunities

12. Expand existing web portals to include manufacturing and high performance communications.		
Action	System Gap or Opportunity Addressed	Resource Recommendations
A. Look for alignment with other web-portal projects and seek strategic partnerships (e.g., WorkSource Oregon, Clusters Portal, Gateway Portal). B.Develop a web-portal business plan including a sustainability plan, possibly building on existing projects. C.Plan on using the Web Portal as part of a marketing campaign and publicize the Portal in all communications. D. The web portals should represent "virtual" arms of the manufacturing centers and the high performance consortium. They will provide resources, information, research and development, and training information both on manufacturing in Oregon generally and the various high performance initiatives.	Communications gap	Partner with AOI, OBC and other industry and labor partners to add a manufacturing workforce section to their websites. Maintaining a close relationship with AOI, OBC Cluster Network, and other partners will benefit the overall manufacturing industry by aligning industry and labor associations with workforce services and high performance efforts. It would also have the best chance for sustainability over the long term. *Start June 2006.* $50,000 for development and $54,000 for three years maintenance = $104,000.

Benefits to the Workforce and to Manufacturers

Communications is the key to the success of all of these strategies. From understanding the value of high performance practices to valuing competency-based assessments, Oregon businesses, workers and the public must comprehend the outstanding opportunities available in the manufacturing sector to fill the 50,000 – 60,000 anticipated new and replacement manufacturing jobs with highly skilled workers.

A Campaign for Manufacturing Growth & Renewal (or possibly the Dream It! Do It! Campaign with NAM) will showcase the importance of manufacturing to the state and build momentum, enthusiasm and resources for the other elements of this plan. Manufacturers will know from the state's partnership in marketing that they are valued by the public and that the public is committed to working with them to keep manufacturing a vital part of the Oregon economy. Workers will be able to better understand the opportunities available to them, as well as the importance of education to be prepared to utilize those opportunities.

Focus Area 4: Raise awareness about value of Oregon's manufacturing industry and its many career opportunities

Oregon Manufacturing

- High skilled
- High wage
- Thriving
- Globally competitive

Existing Leverage Points in System

These Workforce Opportunities for Oregon's Manufacturing Sector, a strategy developed by the state's industry leaders, must be realized through the work of public and private policy boards. Partnerships with the Association of Oregon Industries, the Oregon Business Council, and multiple industry and labor associations are crucial to success. These strategies are a starting place. With support from the Governor, the Oregon Workforce Investment Board, and the entire workforce, education, and economic development systems, there is enormous potential to succeed. Yet the most important element for success is industry involvement. It is ultimately up to the manufacturing sector to embrace, promote, and passionately engage in implementing these strategies so they truly are industry-driven.

Performance Measures

Core Performance Measures Tied to Outcomes

Measuring the success of the focus areas and activities

These core performance measures are directly tied to the desired outcomes of the Manufacturing Workforce Strategy and will be used to measure the success of the focus areas and activities in meeting the desired outcomes. The core performance measures represent a focus on the system from a statewide, policy perspective and are shared by many entities that contribute to meeting the outcomes, therefore, these measures are *not solely within the purview of the Manufacturing Workforce Strategy*. Rather, the Strategy shares the measures with other organizations.

On a tactical level, each focus area will set performance targets and use data collection methods uniquely suited to the area to measure and monitor their performance towards a core measure, (i.e. Focus Area #4: Raising Awareness may collect data through the number of hits on a website and compare it to a specific awareness target). The following core performance measures are the "critical few" that need to be evaluated and reported on an ongoing basis and represent what will be achieved by 2009:

Outcomes

1. Increase manufacturing employment at living wages
2. Expand use of high performance practices
3. Oregonians have basic skills needed for college and work
4. More knowledge workers drive economic growth
5. More flexible training options to address occupational shortages and opportunities
6. Increased access to education and training

Outcome #1

Increase in Oregon's manufacturing jobs and payroll = more living wage jobs for Oregonians.

Core Performance Measure: Oregon will increase the growth in manufacturing employment predicted for the 2004-2014 above the projected 3%. (Quantitative) Oregon Employment Department

Core Performance Measure: Oregon will maintain its position relative to the U.S. on manufacturing's average pay per worker. (Quantitative) Oregon Employment Department

Outcome #2

Expanded use of high performance practices by manufacturing companies resulting in increased productivity.

Core Performance Measure: The number of Oregon manufacturing companies using high performance practices will increase. (Quantitative) Oregon Manufacturing Extension Partnership Survey

Core Performance Measure: Value added-Increase in dollar value credited when materials and labor are melded into finished products. (Quantitative) Oregon Business Plan

Outcome #3
Increase in basic skills proficiencies and readiness for college or work of Oregon's high school students, job seekers, and workers.

Core Performance Measure: Oregon workers are competent in basic skills and are work ready. (Qualitative) Manufacturing Workforce Survey

Core Performance Measure: Oregon will increase the number of students enrolled in manufacturing programs at community colleges and industrial apprenticeships. (Quantitative) Oregon University System, BOLI, Community Colleges, Department of Education, and NCHEMS

Outcome #4
More knowledge workers to drive economic growth resulting from diversified training resources for incumbent workers.

Core Performance Measure: Oregon will double the number of workers receiving incumbent worker training with diversified training resources. (Quantitative) Department of Community Colleges and Workforce Development.

Career Pathways

Provide a "road map" to connections between education, training & jobs, enabling individuals to move seamlessly among training programs while improving their career prospects

Outcome #5
Expanded flexible community college pathways, certificate programs and apprenticeships to address occupational shortages and emerging opportunities.

Core Performance Measure: Oregon will increase the number of community college pathways, certificate programs and apprenticeships in areas that will help fill occupational shortages and meet emerging opportunities. (Quantitative) Department of Community Colleges and Workforce Development, BOLI.

Outcome #6
Increased access to education and training resources through manufacturing centers, distance learning, and web portals.

Core Performance Measure: Oregon's manufacturing businesses and workers report that they have easier access to education and training resources through manufacturing centers, distance learning, and web portals. (Qualitative) Manufacturing Workforce Surve.y

Recommendations and Timelines

Recommendations

NEW RESOURCES
- Coordinator
- Work readiness certificate
- Career pathways
- Manufacturing centers and portals
- High performance consortia
- Media campaigns
- Industry and labor add workforce focus
- Evaluation

EXISTING RESOURCES
- High School diploma reform
- Distance learning
- Employers as instructors
- Redesign apprenticeship
- Integrate high performance into high school and college courses

The proposed implementation options, which are also included in the focus area matrices above, were analyzed as to their cost, effectiveness, and potential for sustainability over a three-year time period. The options also reflect the priorities identified by the Manufacturing Committee and by a larger group of private and public sector constituents who reviewed and commented on them in a vetting process. Timelines for completion were based on sequential development and priorities and will be adjusted based on availability of resources and time constraints. For instance, the Manufacturing Coordinator should be hired before the strategic activities are started to guide the development of the activities. The policies, however, can be recommended to the appropriate boards concurrently with the search for the Coordinator. Recommendations are divided into two areas for implementation purposes: recommendations using new or existing resources.

Recommendations using outside or new resources for implementation:

1. Hire a centralized Manufacturing Workforce Coordinator to guide and anchor the implementation of the manufacturing strategy and actions for a period of three years. The position should be housed and administratively supported by an industry association to maintain a private-sector focus and build a sustainability plan to cover the fourth year and beyond, if needed. *By January 2006.* $120,000/yr. including benefits for three years = $360,000

2. Hire a contractor to help implement the start-up of a common skills assessment tool and work readiness certificate for the workforce system. The contractor would act as a neutral body in helping the state to identify or develop the best tool and certificate, analyzing the state's capacity for implementing the tool and certificate, evaluating the costs and financial implications, ensuring that the certificate would have currency with employers, and ultimately assisting to implement the process statewide with stakeholders. *By March 2006*. Start-up contractor @ $50,000.

3. The state's Pathways to Advancement team will explore ways to expand the career-pathways model in community college manufacturing related programs to better align courses with industry needs. Manufacturing Workforce Coordinator or the Career Pathways staff at CCWD will explore a partnership with DOL to pilot a national manufacturing certificate within the

pathways model. *Start April 2007.* Resources may be leveraged from OWIB tiered funding or incentive grants (federal), by seeking foundation and industry support, or from Department of Labor.

4. Connect and support the work of the manufacturing centers and portals in Oregon. The Northwest Center for Manufacturing and Infrastructure Engineering in the Portland area, the Gateway Web Portal in the Salem area, and the Manufacturing and Applied Technology Center (MATC) in the Bend area were all created by businesses and workforce practitioners in the regional areas of the state. Outside resources may be needed to support and network these centers and any new programs created in other regional areas. *Start by March 2006.* Federal earmarks for appropriations, federal grants and industry support have been and will continue to be sought to support these sites in the system.

Recommendations are prioritized

- Achievable in three years
- Reasonable cost
- Effective
- Sustainable
- Meet the priorities of manufacturers, industry, public sector

5. Hire a contractor to help facilitate the formation of High Performance Consortia and support their work until consortia are sustainable with private resources. Forming and supporting consortia is highly specialized work that demands technical expertise along with sophisticated organizing, facilitation, and mediation skills. Hiring a highly skilled contractor whose sole purpose is to focus on high performance consortia would insure that this strategy is successful. *By March 2006.* $75,000/year for 3 years = $225,000.

6. Partner with National Association for Manufacturers (NAM) and other entities to develop and conduct a sustainable media/communications campaign to promote Oregon manufacturing. Tying into NAM's campaign would bring Oregon national as well as statewide visibility. NAM materials are sophisticated, tested in focus groups with youths nationally, and have been validated by the manufacturing industry. This campaign has high potential for sustainability through industry leadership and partnerships with workforce system throughout the state. *By June 2006.* $35,000 one time fee plus cost of coordinator at $100,000 per year for two years = $235,000. Additional costs for advertising or other media, depending on strategies determined in regions.

7. Partner with Northwest High Performance Enterprise Consortium (NWHPEC), Association of Oregon Industries (AOI), Oregon Business Council (OBC) and other industry and labor partners to add a manufacturing workforce section to their websites. Maintaining a close relationship with NWHPEC, AOI, OBC Cluster Network, and other partners will benefit the overall manufacturing industry by aligning industry and labor associations with workforce services and high performance efforts. It would also

have the best chance for sustainability over the long term. *Start June 2006.* $50,000 for development and $54,000 for three years maintenance = $104,000.

8. Hire a contractor to develop a performance management system that includes ongoing monitoring and evaluation for the Plan's activities. Hire a third-party to evaluate the system and its activities at the end of the three year operational period. To stay on course with the intent of the Plan and evaluate the success of the Plan's Implementation with the performance measures, an ongoing performance management system will need to be developed. In addition, a third-party evaluation will need to be conducted at the end of the three-year operational period. *Start February 2006*. $30,000 for the development of the management system and $50,000 for the third-party evaluation.

Recommendations using existing resources for implementation

1. Policies: Strongly support the State Board of Education's direction to give the high school diploma renewed value in the workplace; the OWIB will adopt a common skills assessment tool and work readiness certificate to be used by all; and the OWIB will clarify the state's role in incumbent worker training and identify flexible resources. *By November 2005.*

2. CCWD in partnership with OUS and ODE will explore options for using distanced learning for manufacturing programs. *Start April 2007.*

3. Local community colleges and high schools in partnership with AOI, SWC, MIC, and workforce boards will utilize employers as technical training instructors. *Start May 2007.*

4. BOLI will work with labor and industry associations to redesign existing apprenticeship programs to meet the needs of the manufacturing sector. *Start November 2006.*

5. Local community colleges and HPECs will work in partnership to integrate high performance training into current college curriculum and add elements of high performance in basic skills and the advanced manufacturing certificate. *Start February 2006.*

Manufacturing Committee and Technical Team Roster: 2005

Manufacturing Committee

Elizabeth King: Co-Chair
Director of Organizational Development
ESCO Corporation
2141 NW 25th Avenue
Portland, Oregon 97210-2578
(503) 778-6795
Elizabeth.King@escocorp.com

John Burns: Co-Chair
Vice-President of Production
Neilsen Manufacturing
3501 Portland Rd. NE
Salem, Oregon 97303
(503) 585-0040
John.burns@neilsenmfg.com

George Puentes
President
Puentes Bros., Inc.
3060 Industrial Way, NE
Salem, Oregon 97303
(503) 949-0230
george@donpancho.com

Tom Fahey
Human Resources Director
Siltronic
7200 NW Front Ave., M/S 10
Portland, Oregon 97210-3676
(503) 219-7901
tom.fahey@siltronic.com

Dan Thorndike
Medford Fabrication
PO Box 1588
Medford, OR 97501
(541) 857-8222
biciloco@medfab.com

Tom Wright-Hay
CEO, Burley Design Cooperative
4020 Stewart
Eugene, Oregon 97402
(541) 687-1644
twright-hay@burley.com

Carl Califano
Vice-President Operations
Teledyne Wah Chang
1600 Old Salem Rd., NE
Albany, Oregon 97321
(541) 812-7325
carl.califano@wahchang.com

Clark Nelson
Human Resources Manager
Kraft/Nabisco
P.O. Box 3496
Portland, Oregon 97208
(503) 240-7990
clark.nelson@kraft.com

Mark Sheppard
Operations Manager
Quest International Fruit & Vegetables
P.O. Box 157
Silverton, Oregon 97381-0157
(503) 873-3600
Mark.Sheppard@qfvp.com

Denny Scott
Western Council of Industrial Workers
12788 SE Stark
Portland, Oregon 97233
(503) 228-0235
wciwo@qwest.net

Terry Smith
HR Director, Welch Allyn
8500 SW Creekside Place
Beaverton, OR 97008
(503) 530-7302
tsmith@monitoring.welchallyn.com

Mike Warner
Director, Human Resources
Marathon Coach
91333 Coburg Industrial Way
Coburg, Oregon 97408
(541) 343-9991
mikew@marathoncoach.com

Technical Team

Dave Allen
Workforce Liaison
Business & Employment Services
Oregon Employment Department
997 Union Street, N.E.
Salem, OR 97311
(503) 526-2774
David.K.Allen@state.or.us

Mimi Bushman
Workdrugfree
711 SW Alder, #200
Portland OR 97205.
(503) 478-7349
mbushman@worksystems.org

Dave Klick
Executive Vice President
Northwest Food Processors Association
9700 SW Capitol Highway, #250
Portland, OR 97219
(503) 327-2207
dklick@nwfpa.org

Eileen Casey-White
P.O. Box 2302
Salem, OR 97308-2302
(503) 559-8946
Eileen@chemeketa.edu

Kathy Wilcox
Education & Workforce Coordinator
Oregon Department of Community Colleges & Workforce Development
255 Capitol Street NE, 3rd Floor
Salem, OR 97310
(503) 378-8648 x233
Kathy.G.Wilcox@state.or.us

Ron Fox
Manager, Business Development Division
Oregon Economic and Community Development Department
775 Summer St., NE
Salem, Oregon 97301
(503) 986-0066
Ron.G.Fox@state.or.us

Greg White
Executive Staff
Oregon Workforce Investment Board
255 Capitol Street NE, 3rd Floor
Salem, OR 97310
(503) 378-8648
Greg.white@state.or.us

Andy Clark
Senior Associate Director, Federal Affairs
Oregon University System
P.O. Box 751
Portland, Oregon 97520
(503) 725-5735
Andy_Clark@ous.edu

Don Olcott
Executive Director
Division of Extended Programs
Western Oregon University
345 N. Monmouth Avenue
Monmouth, OR 97361
(503) 838-8483
olcottd@wou.edu

Charmagne Ehrenhaus
Oregon Center for Advanced Technology Education (OCATE)
18640 NW Walker Rd., #1010
Beaverton, Oregon 97006

(503) 725-2205
Charmagne@pdx.edu

Ginger Redlinger
Education Program Spedialist: Industrial Arts and Engineering Systems
Oregon Department of Education
255 Capitol St NE Salem, OR 97310
(503) 378-3600 x4419
Ginger.redlinger@state.or.us

Ron Hulett
Director
Training & Economic Development Center
Chemeketa Community College
365 Ferry St. SE
Salem, OR. 97301
(503) 316-3229
ron@chemeketa.edu

Agnes Balassa
Director
Enterprise for Employment and Education
PO Box 14007
Salem, OR 97309-7070
(503) 399-2358
abalassa@chemeketa.edu

Patrick Murphy
Director
Oregon Manufacturing Extension Partnership
18640 NW Walker Rd., Suite 1052
Beaverton, Oregon 97006
(503) 725-2660
pmurphy@omep.org

Norm Eder
Conkling, Fiskum, and McCormick
1100 SW 6th Avenue
Suite 1425
Portland, Oregon 97204
(503) 802-4101
norme@cfmpdx.com

Kathy Bloom
Training Manager
Integrated Device Technology

3131 NE Brookwood Parkway
Hillsboro, OR 97124
(503) 681-6335
Kathy.Bloom@idt.com

Gwyn Harvey
OWIB Chair
8390 SW 168th Avenue
Beaverton, OR 97007
(503) 642-4683
lgharvey@e-z.net

Joanne Truesdell
Assistant Commissioner-Programs
Community Colleges and Workforce Development
255 Capitol St., NE
Salem, Oregon 97310
(503) 378-8648 X 468
Joanne.Truesdell@state.or.us

Dennie Houle
Business Development Officer
Oregon Economic and Community Development Department
800 Exchange Building, Sutie 420
Astoria, Oregon 97103
(503) 338-4473
Dennie.Houle@state.or.us

Tom Fox
Business Development Officer
Oregon Economic and Community Development Department
c/o Salem Economic Development Corporation
745 Commercial Street, NE
Salem, Oregon 97301
(503) 485-9806
Tom.J.Fox@state.or.us

Karen Shawcross
Worksystems, Inc.
711 S.W. Alder
Portland, Oregon 97205
(503) 478-7357
kshawcross@worksystems.org

Bonnie Starkey
Portland Community College
18624 N.S. Walker Rd.
Beaverton, Oregon 97006
(503) 533-2889
bstarkey@pcc.edu

Shirley Smith
Eklund Industries
(503) 692-8008
ssmith@eklundindustries.com

Laurel Schweitzer
Sr. Project Coordinator
(Metals and Trans. Equipment Industries)
Portland Development Commission
222 NW 5th Ave
Portland, OR 97203
503-828-3815
schweitzerl@pdc.us

Governor's Office

Claire Berger
Workforce Policy Coordinator
Office of the Governor
Public Service Building
255 Capitol St. NE, Suite 126
Salem, Oregon 97301
(503) 986-6542
claire.berger@state.or.us

Lita Colligan
Workforce Policy Advisor
Office of the Governor
Public Service Building
255 Capitol St. NE, Suite 126
Salem, Oregon 97301
(503) 986-6542
lita.colligan@state.or.us

Oregon Manufacturing Strategy Best Practices Review

Focus Area 1: Embrace high performing manufacturing practices

Best Practice: High Performance Consortia

Best Practice Example 1

Name: Center for Manufacturing Excellence
Website: http://success.shoreline.edu/workforce/cme/default.htm
Location: Shoreline Community College, Lake Forest Towne Center, 17171 Bothell Way, NE, Lake Forest Park, WA 98155 Appears to have a director, but other contacts are in industry and education.
Description: A One-Stop Center based on a consortium of industry and education stakeholders designed to keep employers and educators abreast of the emerging technologies and employment trends while collaborating to develop the needed workforce resources. The consortium is focused on common curriculum and competencies, career pathways, prior learning assessment, and strategic partnerships.

Best Practice Example 2

Name: Maryland World Class Manufacturing Consortium (MWCMC)
Website: http://www.mwcmc.org/
Location: 217 East Redwood Street, 10th Floor, Baltimore, MD 21202-3316
Description: The consortium is made up of more than 60 companies throughout Maryland. The group of manufacturers organized into a not-for-profit organization with the support of the Maryland Department of Business and Economic Development. The Maryland Manufacturing Extension Partnership (MEP) funds two full-time people to support the consortium activities. One person is skilled in lean manufacturing while the other handles logistics related to courses, company tours, etc.

Best Practice Example 3

Name: Puget Sound Consortium for Manufacturing Excellence
Website: http://www.pscme.org/
Location: Shoreline Community College, Lake Forest Towne Center, 17171 Bothell Way NE, Lake Forest Park, WA 98155
Description:
Objective 1: To deploy a manufacturing technology curriculum that will allow that graduates of manufacturing programs to meet national skill standards.
Objective 2: To promote professional development of high school instructors, college faculty and manufacturing trainers by providing high-quality instruction on the use and application of PSCME instructional products.
Objective 3: To present a plan for curriculum articulation and interaction between high schools, community and technical colleges, four-year colleges and universities, and industry.

Focus Area 2: Create a World-Class Manufacturing Workforce with skills that meet employer and worker needs

Best Practice: Worker Assessment and Certification (Basic Skills)

Best Practice Example 1

Project Title: Ohio's WorkKeys Assessment System
Project Strategy: Ohio WorkKeys Service Center System is administered by the Ohio Department of Education, Division of Vocational and Adult Education. Historically each full service center offers job assessment, employee testing and assessment, seminar development, customized training, technical skill training and upgrading, and learner credentialing for job placement. According to Nancy Heskett a staff person at Pickaway Ross County Joint Vocational School, the state has moved in a different direction from WorkKeys, but all adult education students are still required to take it. In Southern Ohio, the Pickaway Ross region has adopted WorkKeys as the primary assessment, profiling, and job placement. This decision was made by a consortium of the regional vocation training center and five companies. The WorkKeys Assessment test key generic employability skills: reading for information, applied math, listening, writing, teamwork, applied technology, locating information, and observation. The system allows the centers to conduct job profiles (the skills required for different jobs), skill assessment, and instructional support.
Funding: Each company contributed an annual fee for a certain number of testing services at the beginning of the initiative. Now the program is funded through both Vocational Education and fees for services.
Results: Offer regular testing, profiling, and placement services. They have also begun offering the Work Keys testing online for a fee of $25. Companies appear to appreciate services since they continue to purchase them and it was an employer-driven initiative.
Sustainability: Has been sustainable for several years.

Best Practice Example 2

Project Title: Kentucky Community and Technical College System (KCTCS)
Project Strategy: Kentucky appears to have a quite extensive initiative on integrating education's role into workforce development. KCTCS was created in 1997 and integrated the state's community colleges and technical training centers. As a result, KCTCS has become a strategic partner in KY's economic and workforce development system. The three goals of KCTCS are increasing access, workforce training, and remedial and continuing education. They have adopted a very entrepreneurial perspective and actively seek out employer's input. They are able to capture a variety of funding streams including TANF, grants, and state government money. Two of the initiatives they have undertaken include implementing 16 college career pathways using the Ford Foundation Bridges to Opportunities Grant and creating the KY Employability Certificate based on WorkKeys Assessments. Similar to Ohio, KY offers three levels of certification. Two of the three steps in the process are the same as Ohio: profiling specific jobs and assessing job seeker skills. KY is much clearer that the third step is to bridge the skills gap through remediation and training. They offer training through traditional classroom instruction or self-paced computer based training. Once a certain level of skill is attained, the job seeker can qualify for three levels of the KY Employability Certificate: Gold, Silver, or KY Community and Technical College System Occupation Specific certificate. The KY Employability Certificate (KEC) is a portable credential that uses a common language and objective metric to convey the level of skill an applicant has compared with the necessary skills.
Funding: Unclear—appears to be heavily state subsidized.
Results: The Kentucky Employability Certificate has been endorsed by a wide-range of business groups, government agencies, and unions across the State.
Sustainability: The KCTCS has been in existence since 1997. It is unknown how long they have been conducting WorkKeys assessment.

Best Practice Example 3

Project Title: Virginia's Career Readiness Certificate as part of the Education for a Lifetime Initiative
Project Strategy: There is great concern in the private sector about the gap that exists between the skills required in today's workplace and those exhibited by potential and incumbent employees. Businesses have trouble finding and hiring people who have basic employable skills and who are therefore trainable for specific jobs. The Career Readiness Certificate is a portable skills credential based on the WorkKeys Assessment, assuring employers that a job applicant actually has the basic skills they seek. The Career Readiness Certificate program is part of Governor Mark Warner's Education for a Lifetime initiative. Oversight of the CRC is the responsibility of the Governor's Special Advisor for Workforce Development; administration of the CRC is handled by the Virginia Community College System. Other workforce training components of the Governor's initiative include a push to get more adults earning their GED and to streamline workforce training delivery systems.
Funding: Appears to be primarily state funded.
Results: Unknown
Sustainability:

Focus Area 2: Create a World-Class Manufacturing Workforce with skills that meet employer and worker needs

Best Practice: Worker Assessment and Certification (Manufacturing Skills)

Best Practice Example 1

Project Title: Kentucky Manufacturing Skill Standard (KMSS) Certification
Project Strategy: There are four goals for the KMSS: (1) increase the quality of Kentucky's workforce, (2) increase productivity and per capita income, (3) provide for a higher standard of living, and (4) improve the quality of life. There are two assessments offered: basic (applicable to all manufacturing organizations) and advanced (applicable to high performance manufacturing organizations). Currently, Kentucky is in the middle, or third, phase of development:

Phase I: Standards Identification and Endorsement
Phase II: Development of KMSS Assessment Instrument
Phase III: Curriculum Development (currently in validation phase)
Phase IV: Online assessment
Phase V: Online curriculum

There is much more information available on the KMSS Web site, if desired, on the content of the two certification standards.
Funding: Seems to be funded and administered by the Kentucky Community and Technical College System as part of the workforce network.
Results: Development of two types of manufacturing skill standards, assessment, and curriculum. Not yet implemented to begin testing and training workers or students.
Sustainability: Unknown

Source: http://www.kctcs.edu/workforcenetwork/kmss/index.htm

Best Practice Example 2

Project Title: Center for Manufacturing Excellence at Shoreline Community College Certificate in Basic Manufacturing
Project Strategy: The Certificate in Basic Manufacturing (CBM) offers a way for both incumbent and potential manufacturing workers to demonstrate that they have the basic manufacturing skills and knowledge required by manufacturing companies. The CBM can also be used to gain credit and enter additional certification or degree programs for more advanced skills.

The CBM is based on eight major learning outcomes developed by the advisory skill panel of the Center for Manufacturing Excellence. It is also consistent with the core competencies established in Washington State by the Manufacturing Technology Advisory Group.
Funding: Probably through the Center for Manufacturing Excellence which is an alliance of employers, industry associations, educators, community organization, government, and labor. They also likely draw resources from the community college—but this has not been confirmed.
Results: Unknown
Sustainability: Unknown

Source: http://success.shoreline.edu/workforce/cme/default.htm

Focus Area 2: Create a World-Class Manufacturing Workforce with skills that meet employer and worker needs

Best Practice: Training in Lean Manufacturing

Best Practice Example 1

Project Title: Central Iowa Employment and Training Consortium (CIETC)
Project Strategy: The project aimed to strengthen manufacturing processes in a substantial number of firms by providing introductory training in lean manufacturing. This was intended to improve efficiency and reduce cycle time, which would make firms more competitive. The regional WIB (CIETC) partnered with Des Moines Area Community College and community colleges across Iowa. Additionally, the Advanced Manufacturing Research Collaboration Cluster (AMRCC), an employer association, was a driving force behind the interest in increasing lean manufacturing throughout Iowa.
Funding: The project was funded through a U.S. Department of Labor Demonstration Grant for $2,739,408.00.
Results: The project's final report indicated that 5,081 incumbent workers were trained in lean manufacturing. Seventy-two firms participated in the training program and 95% of the employees in these firms participated. Both workers and employers felt that the lean training was useful in improving manufacturing processes and productivity. Employers were also pleased with the administrative simplicity of their participation in the project.
Sustainability: The grant, by nature, was a limited-time program, but the Des Moines Community College plans to continue its lean training courses and retained the 3.5 instructors that were hired as part of the grant.

Best Practice Example 2

Project Title: Connecticut's Industry Cluster Economic Development Initiative
Project Strategy: This initiative is multifaceted and includes linkages to other economic and community development initiatives in Connecticut. Other components of the program can be found in the Manufacturing Center and Web Portal best practices. The central part of the initiative is to develop a cluster-based economic development strategy. One cluster is Aerospace Components Manufacturing. One of its four goals is to implement progressive manufacturing practices: learning and training in lean manufacturing methods as adapted to the small company business sector.
Funding: Aerospace Components Manufacturers (ACM) has developed a two-year plan for achieving an international reputation as a world class aerospace components manufacturing sector. With state support, they developed a new 501(c)(3) organization to manage the group's programs. The state's Department of Economic and Community Development (DECD) has invested $125,000 and will be leveraged with over $500,000 in industry support.
Results: Three completed action steps are reported. First, they have executed over a dozen progressive manufacturing training events at member companies utilizing local, national, and international experts. Second, they conducted the training in a series of Lean Manufacturing General Awareness Seminars utilizing CONN/STEP and continuous-improvement coordinators from member companies. Over 20 members from 10 companies attended this seminar. Finally, they created a "Lean 101" Tool Kit & Manual and a "Train-the-Trainer" process to bring this general-awareness seminar to employees at member companies. Other goals of this cluster include creating curricula to improve the skills of incumbent workers, improving business practices for small companies, and providing special programs to manage the growth of the group, develop a business plan, and conduct promotional projects.
Sustainability: Unknown.

Best Practice Example 3

Project Title: The Linkages Project: Building Linkages Among Academic and Skills Standards (Manufacturing Consortium)
Project Strategy: This is a multistate consortium that was established in May of 1996 to create portable certificates of proficiency that are recognized from state to state and industry to industry. Oregon is an active member of the consortium. Issues addressed by the consortium include career pathways leading to manufacturing occupations; common definitions for manufacturing technical, academic, and workplace skills; stakeholder involvement; and certificates of industrial proficiency that are portable.
Funding: Appears to be funded with federal grants.
Results: Creation of a Web site to ensure communications are maintained and activities are reported, best practices publications, endorsement of "Manufacturing Framework for Career Preparation and Certification," and nearly complete listing of technical, academic, and workplace skills for the Core of Manufacturing Framework. The Indiana Skill Certificate has been accepted by the consortium as a starting point for discussion.
Sustainability: Plans for second-year activities are clearly stated. Unclear what the sustainability plan is past year two.

Source: www.mfglinks.org/

Best Practice Example 4

Project Title: Indiana's Skills Certification System
Project Strategy: Indiana's Skills Certification System was established in 1992 in response to demands of business and industry. It helps to build a lifelong learning system, which allows business and industry to identify and update their needs. The certificate enables students to document that they have the necessary skills in addition to setting clear standards for worker skills. The first certificate of technical achievement (CTA) was issued in 1996. Initially there were seven skill areas: bioscience, business, electronics, health, metalworking, plastics, and printing. Skill areas that have been added include advanced manufacturing, automotive service technology, and childcare. These certifications are also connected to Indiana's career pathway system. Individuals, businesses, and education providers are all partners in the system.
Funding: Unknown
Results: As of the summer of 2004, 21,000 individuals had received CTAs for a total of over 90,000 scenario assessments.
Sustainability: Unknown

Source: PowerPoint presentation from IACTE Summer Conference at Ball State University, July 27, 2004. www.doe.state.in.us/octe/docs/INSkillsCertSystemCTA.ppt

Focus Area 3: Connect Regional Manufacturing Centers of Excellence

Best Practice: Regional Manufacturing Centers of Excellence

Best Practice Example 1

Name: Center for Manufacturing Excellence
Website: http://success.shoreline.edu/workforce/cme/default.htm
Location: Washington State/Shoreline Community College – Appears to have a Director, but other contacts are in industry and education.
Description: A One-Stop Center based on a consortium of industry and education stakeholders designed to keep employers and educators abreast of the emerging technologies and employment trends while collaborating to develop the needed workforce resources. The consortium is focused on common curriculum and competencies, career pathways, prior learning assessment, and strategic partnerships.

Best Practice Example 2

Name: Maryland World Class Manufacturing Consortium (MWCMC)
Website: http://www.mwcmc.org/
Location: Maryland/**217 East Redwood Street 10th Floor Baltimore, Maryland 21202-3316**
Description: The consortium is made up of more than 60 companies throughout Maryland. The group of manufacturers organized into a not-for-profit organization with the support of the Maryland Department of Business and Economic Development. The Maryland MEP funds 2 full-time people to support the Consortium activities. One person is skilled in Lean Manufacturing while the other handles logistics related to courses, company tours, etc.

Best Practice Example 3

Name: Connecticut Manufacturing Resource Center
Website: http://www.connstep.org/
Location: Connecticut/1090 Elm Street Suite 202 Rocky Hill, CT 06067 - 1849
Description: Sponsored by the Connecticut Department of Economic and Community Development and the National Institute of Standards and Technology Manufacturing Extension Partnership. The consortium provides technical assistance related to improving manufacturing in Connecticut.

Focus Area 4: Raise awareness about the value of Oregon's manufacturing industry and its many career opportunities

Best Practice: Awareness Campaign

Best Practice Example 1

Project Title: Connecticut Business and Industry Association (CBIA) Statewide "NextGen" Manufacturing Campaign
Project Strategy: Getting young people interested in manufacturing careers is essential to the health of Connecticut's manufacturing community. To meet that challenge, CBIA has partnered with the state's Regional Center for Next Generation Manufacturing to develop a media campaign designed to attract high school students and young adults to opportunities in Connecticut manufacturing.

The campaign is running from May 2 through June 25 and includes:
30-second TV commercial on major cable stations such as MTV, Comedy Central, Nick at Night, A & E, Spike, and Discovery.
Radio ads on statewide radio stations such as WZMX-FM and WPLR-FM.
Online advertising on Careerbuilder.com, Monster.com, CTNow.com, and Courant.com.
Web site: All media will direct people to a new Web site developed by CBIA for the Regional Center for Next Generation Manufacturing, www.manufacturingcareers.org.
Funding: The Regional Center for Next Generation Manufacturing is funded through the National Science Foundation and directed by the Connecticut Community College's College of Technology.
Results: Unknown
Sustainability: Short-term campaign.

Best Practice Example 2

Project Title: Advanced Manufacturing Career Collaborative (AMC2)
Project Strategy: AMC2 was established because of a shared sense of urgency concerning Southwestern Pennsylvania's ability to provide a technically trained workforce in the numbers needed by the region's manufacturing sector. "The central message of the collaborative is that there are defined manufacturing career pathways that can lead to rewarding careers." Two primary goals, among others, are to develop a strategy to raise awareness, particularly in economically distressed areas, of manufacturing opportunities and the education and skills needed to help meet the workforce development needs of a nine-county region in Southwestern Pennsylvania. The second is to publicize existing manufacturing career pathways that can lead to rewarding careers. The collaborative includes a wide spectrum of partners including local area school districts, career and technology centers, community colleges, the higher education system, and industry representatives. They have five committees: collaborative agreement, formal and informal articulations, coordination of resources, marketing and public relations, and sustainability. The collaborative component has been one of the most important pieces of the project.
Funding: This project was developed through a Pennsylvania Department of Community and Economic Development Workforce Leadership Grant. The grant addresses career awareness, career exploration, skill development, industry skill certification, college certificates, and college degrees. The project also relies on the in-kind contribution of resources and expertise of collaborative partners.
Results: Currently in the second year of the project, so they don't have any clear results, but have made substantial progress. Developed materials and Web site, created a video to take to career fairs, attended several career fairs, and work with four career and technology centers to create an interactive online workshop. Positive feedback from schools and parents about the information.
Sustainability: Thus far the grant, some financial contributions of partnering organizations, and in-kind contributions of staff time and expertise.
Some of this information is from a phone conversation with the project manager Carmen Grosse The rest can be found on the Web at http://www.amcsquared.com/.

Best Practice Example 3

Project Title: New Haven Manufacturers Association (NHMA)Educational Initiative

Project Strategy: The New Haven Manufacturers Association has joined forces with Workforce Alliance, Regional Growth Partnership, and the Greater New Haven Chamber of Commerce in a project that will leverage available job training and educational programs. The goal is to develop additional informational resources to inform middle and high school students throughout the region of the modern manufacturing workplace and the rewards of jobs in manufacturing.

Member companies are asked to participate in three primary ways:

1. Provide financial support to the marketing effort—each manufacturer is asked to contribute $100 towards the cost of the materials that will be distributed to every middle school and high school in the South Central Connecticut Region. The money will be increased by significant additional funding from all of the partners for this initiative. By making checks payable to the Workforce Alliance, a 501(c)(3) corporation, the contribution will be tax deductible.
2. Accept one field trip to your factory per year—area schools will identify students interested in manufacturing as a career and participating companies will provide those students tours of the company facilities. The career and guidance staff will bring only those students who have expressed such an interest.
3. Make one school visit to explain your operations to the students—an individual from each participating company makes a presentation at an area school about manufacturing careers in general or what his or her company manufactures.

Funding: Contributions from member organizations ($100), financial and in-kind support from partnering organizations.

Results: Unknown

Sustainability: Unknown

Best Practice Example 4

Project Title: National Association of Manufacturers (NAM) Dream It. Do It. Campaign

Project Strategy: The goal of the NAM campaign is to help young people who may have interests that align with manufacturing professions learn about how their interests could translate into successful careers in the manufacturing field. The driving force behind this campaign is research that has found that an estimated 80% of manufacturers reported a "moderate to serious" shortage of qualified job applicants during the recent recession—a problem growing increasingly urgent with the increase in global competition and retirement of baby boomers. The research also found that manufacturing has an outdated image filled with stereotypes of assembly line jobs that has kept young people from pursuing careers in this sector. The Kansas City, Missouri region was selected as the first pilot location for the Dream It. Do It. Campaign (which will roll out in Houston and other regions later this year). Through its local partner, the Alliance for Innovation in Manufacturing (AIM-KC), the Dream It. Do It. Campaign is working closely with community leaders who understand the importance of manufacturing and the role it will have in the future of the Kansas City region and our nation.

Local alliance partners include representatives from manufacturing, education, business, government and the civic community. They are uniting to support one of the country's most essential industries, boost their local economy, and more important, help students find great, high-paying careers of which they can be proud.

Funding: The Dream It. Do It. Campaign was developed by NAM and the Manufacturer's Institute with financial support from a variety of sponsors.

Results: Unknown

Sustainability: Unknown

Focus Area 4: Raise awareness about the value of Oregon's manufacturing industry and its many career opportunities

Best Practice: Conference

Best Practice Example 1

Project Title: 5th Annual Lean Management Solutions Conference & Exposition
(http://www.leanmanagement.org/**)**
Keynote Speakers: Chuck Parke, Vice President, Operations,
Maytag Cooking Division
The Implementation of LeanSigma at Maytag

Jeffrey K. Liker, Ph.D.
Author, bestselling *The Toyota Way*
Professor, Industrial and Operations
Engineering, University of Michigan

Sponsored by: Institute of Industrial Engineers (http://www.iienet.org/)

Best Practice Example 2

Project Title: 16th Annual Shingo Prize Conference 2004
(http://www.shingoprize.org/Conferences/AnnualConf/03-04/overview.htm)
Keynote Speakers: Brian Jones
President and CEO, Nypro, Inc.
Competing in the Global Economy

Richard Schonberger
President, Schonberger & Associates, Inc.
Global Manufacturing—Who's Lean, Who's Not: Attacking Your Competitive Weaknesses

Masaaki Imai
Chairman, KAIZEN Institute
Top Management's Lean Audit: Beyond the Gemba

Gary L. Convis
President, Toyota Motor Manufacturing, Kentucky, Inc.
The Beginning and Future of the Toyota Production System in North America

Louise L. Francesconi
Vice President, Raytheon Company USA, and President, Raytheon Missile Systems
The Shingo Prize and Raytheon: A milestone in our improvement journey

Sponsored by: The Shingo Prize for Excellence in Manufacturing

Best Practice Example 3

Project Title: Association for Manufacturing Excellence Boston 2005 Annual Conference (http://ame.org/Events/2005/Boston/)

Keynote Speakers: Dr. James P. Womack
Founder & President
Lean Enterprise Institute
The Machine that Changed the World and Lean Thinking

Dr. Peter M. Senge
Founding Chair
Society for Organizational Learning
The Fifth Discipline: the Art and Practice of the Learning Organization

Steven J. Spear
Assistant Professor of Technology & Operations Management
Harvard Business School
Decoding the DNA of the Toyota Production System (Harvard Business Review
September 1999)

Paula Marshall-Chapman
CEO, The Bama Companies Inc.

R. Gregg Brandyberry
Vice President, Procurement Global Systems and Operations
GlaxoSmithKline

Sponsored by: The Association for Manufacturing Excellence and the Society of Manufacturing Engineers

Focus Area 4: Raise awareness about the value of Oregon's manufacturing industry and its many career opportunities

Best Practice: Web Portal

Best Practice Example 1

Project Title: http://www.searchmanufacturing.com/
Description: Extensive information about manufacturing with links to publications, consultants, organizations, etc. This site has the most content of all sites reviewed.
Run by: Ruth Ellen Carey Communications – appears to be driven by the communications company to provide manufacturing information. Advertising likely pays for the site. Updates may not be frequent.

Best Practice Example 2

Project Title: http://www.isixsigma.com/
Description: Dedicated to the six sigma approach, which is highly relevant to lean manufacturing. More importantly, this site provides a solid layout although it has too much information on the home page. The content is rich and serves as a good example for a web portal.
Run by: iSixSigma – the independent company provides information about Six Sigma. The numbers of ads present could support a small staff.

Best Practice Example 3

Project Title: http://www.connstep.org/
Description: Sponsored by the Connecticut Department of Economic and Community Development and the National Institute of Standards and Technology Manufacturing Extension Partnership. The site provides a nice layout and has a wealth of information pertinent to manufacturing in Connecticut. This would be an excellent model for Oregon.
Run by: CONNSTEP, Inc. – Is an extension service with a web portal as well.

Resource Needs and Options

The following matrix represents a list of potential options and estimated costs to implement the strategies discussed earlier in the report. As recommended by the Manufacturing Committee, each of the strategies will need to be further explored by a taskforce made up of stakeholders who will also determine the most effective, efficient and sustainable approach to implementation. All strategies will need to be industry-driven to insure that their needs are met and that skilled workers have the best chance for acquiring higher wage jobs in the manufacturing industry.

Action	Options	Existing Resources	New Resources
Overall implementation of the manufacturing strategy.	a. An anchor and centralized coordinator for the implementation of the manufacturing strategy – 3 years. *Position housed in AOI, OBC, OECDD as long as the coordinator has administrative support, etc. from one or all of these entities.* b. AOI, OBC, and state agencies fund the centralized coordinator function.	a. AOI, OBC, OECDD for administrative support and housing of coordinator b. Funded by private and state partners	a. 1 FTE @ $120,000 for three years = $360,000

<u>Focus Area #1</u>: Embrace High Performance Manufacturing Practices

Action	Options	Existing Resources	New Resources
1. Support growth of High Performance Consortia Network throughout state.	a. Seek OECDD support for a staff position to lead this work. b. Hire a contractor to help form and administer work until consortia are sustainable with private resources. c. Expand/amend OMEP contract with OECDD to add this function. d. Hire a contractor to provide consulting services while consortia are forming, and then rely on industry leaders to sustain efforts.	a.OECDD contract with OMEP b.NWHPEC grant c. Current industry investment and commitment to this work	a.$100K / year for 3 years = $300,000 b. $75,000/year for 3 years = $225,000. c. $50,000/year for 3 years = $150,000. d. $50,000/one year

<u>Focus Area #2</u>: Create a world-class manufacturing workforce with skills that meet employer and worker needs.

Action	Options	Existing Resources	New Resources
2. Advocate to the State Board of Education that it adopt policies to give the high school diploma renewed value in the workplace.	a. OWIB will clarify policy and take to State Board of Education.	**a.** OWIB	a. N/A
3. Recommend to the OWIB that it adopt a common skills assessment tool and work readiness certificate to be used by all.	a. OWIB would develop a policy in this area for the workforce system. b. OWIB recommends utilizing EWTF resources for start-up implementation – hire contractor. c. CCWD hold back prior to disbursing formula funds to workforce system. d. Community colleges could fund out of their state formula funds and/or seek resources via line item allocation in next budget.	a. Existing CC System and Workforce system resources could be redirected to common tool./A	a. n/a b. $50,000 c. WorkSource enrolled clients x $5 = $150,000 annually depending on tool adopted. d. To serve more clients, additional resources may be needed, or test a pilot to determine costs.
4. Adopt a policy that clarifies the state's role in incumbent worker training and identify flexible resources.	a. Include in OWIB strategic planning b. Set up public-private task force on this topic during interim and then bring package to legislators in 2007 session. c. Fund like other states: small UI cost, bonding, general fund	b. OECDD, OED, CCWD, OBC, AOI, Labor	More than 50% of states utilize mechanisms other than federal funds for incumbent worker training: Estimate: $ 6 - 10 M annually
5. Expand on HS and CC manufacturing courses, building on the Cross-Industry Skills Standards project, using pathways models and a manufacturing certificate of proficiency.	a. Use X-industry skills standards and develop assessment and certification using an interagency taskforce b. Pay outside consultant to work with task force of state agencies and private sector to develop. c. Work with DOL on national assessment and certification. d. Provide recommendations to state's Pathways to Advancement team for implementation. e. Apply for DOL grant for implementation of manufacturing pathways models in state.	a. OECDD, CCWD, AOI, OBC, ODE, OED.	a. n/a b. $100,000-$200,000 c – e Scope of work for mfg coordinator
6. Increase distance-learning opportunities for manufacturing cross-industry skills	a. CCWD would explore options for using distance learning for the mfg certificate, pathways and other education models	a. CCWD, OUS, ODE	a. Scope of work for mfg coordinator

Action	Options	Existing Resources	New Resources
programs.			
7. Utilize employers as technical training instructors/partners in the community college and tech prep settings to offer more just-in-time and industry industry-specific training.	a. Local community colleges would work with industry associations and workforce boards to identify employers who are willing to provide instruction.	a. AOI, OBC, SWC, MIC, CCWD.	a. Scope of work for mfg coordinator
8. Assist BOLI redesigning and expanding apprenticeship programs, particularly in the industrial trades.	a. BOLI would work with labor and industry associations to identify occupational gaps and ways to make it easier for industry to use apprenticeships.	a.Labor and Industry Reps., BOLI, P/T Deans	a. Scope of work for mfg coordinator
9. Integrate high performance training into current college curriculum and add elements of high performance in the basic skills and advanced-manufacturing certificate	a. Assist with integration as part of other education and workforce strategies.	a. CCWD, HPEC	a. Scope of work for mfg coordinator

Focus Area #3: Connect Regional Manufacturing Centers of Excellence

Action	Options	Existing Resources	New Resources
10. Support Manufacturing Centers of Excellence	a. Respond to industry-led regional projects and expand support. b. Seek federal resources through grants and appropriations requests. c. Utilize university and community college budgets to match private sector investments. d. Incent community colleges to develop manufacturing centers if they have adequate demand in regional economy.	a. AOI, OBC, federal, foundations, cc and university funds.	a.Scope of work for mfg coordinator d. 11 community colleges @$50,000 ea. = $550,000 total.

<u>Focus Area #4</u>: Raise awareness about the value of Oregon's manufacturing industry and its many career opportunities.

Action	Options	Existing Resources	New Resources
11. Conduct a sustainable media/ communications campaign to promote Oregon manufacturing and careers.	a. Partner with NAM through an interagency contract with OECDD. b. Partner with AOI or OBC or other regional industry and labor organizations to utilize existing media channels. c. Could partner with Brand Oregon and feature manufacturing as one of our Oregon stories – although is mostly a recruitment vs retention campaign. d. Conduct campaign with regional industry and workforce partners.	a. AOI, OBC, others.	a. $35K one-time fee and cost of coordinator at 100K per year for two years; media costs thereafter b. unknown c.100,000 d. 100 – 300 K to develop campaign ; advertising costs thereafter
12. Expand existing web portals to include manufacturing and high performance communications.	a. Expand the Gateway web portal to include statewide activities or identify other existing portals that would serve this function b. Partner with AOI or OBC to add a manufacturing section to their sites c. Add a manufacturing section to WorkSource Oregon through an interagency agreement with the Employment Department. d. Utilize the model of the Manufacturing Advancement Center in Massachusetts and link to other manufacturing websites like HPEC, AOI, OBC, etc.		a. $50,000-$100,000 for portal development – to expand or build b. $18,000/yr @3 years = $54,000 to maintain the web portal.

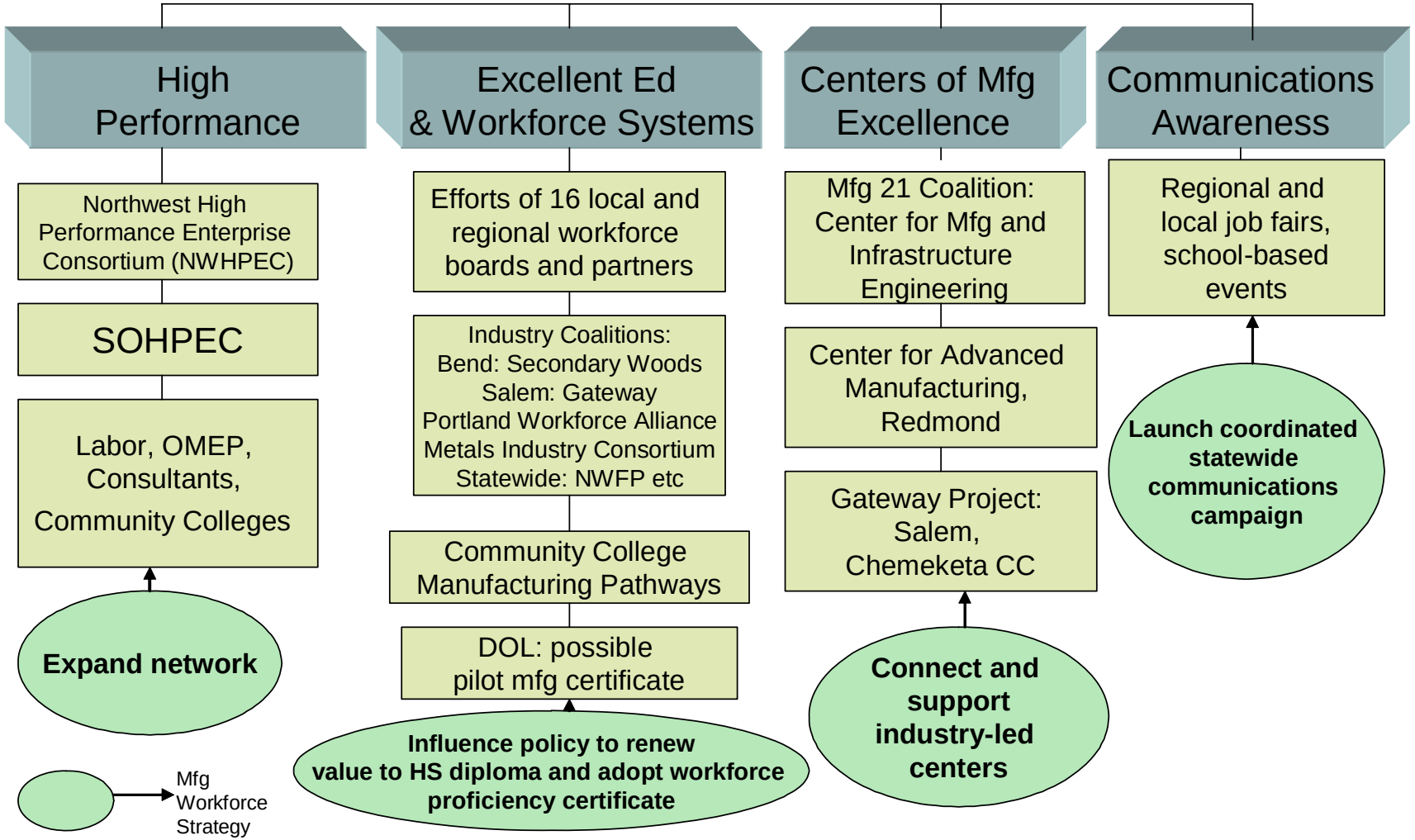
Lean/High Performance Roles & Services In Support of Manufacturing -- Appendix 4

OMEP	Community Colleges	Universities	Industry/Labor Associations	Consultants
Provide companies with consultation in organization-wide high performance business practices – from shop floor to administration, primarily to manufacturing companies employing fewer than 500 employees, in partnership with other training providers. ***Services:*** Lean Enterprise/High Performance services such as: ***Lean Assessment*** ***Training:*** • Lean Principles/Tools • Lean Ergonomics • Management/Change management • Lean Accounting • Lean Office • Lean Sales & Marketing • Lean Champion Development & Cert. • New Product Development • Quality / 6 Sigma ***Implementation/Consulting*** • Shop floor application of Lean tools Business consulting such as: Lean management/ sales/marketing/cultural change	Provide workforce and current employee training in professional technical programs in support to manufacturers such as: ***Customized Training Services:*** • Lean Overview Seminars • Cross-cultural awareness • English as a Second Language – Lean ESL and workplace-specific • Problem Solving Tools • Applied math / SPC • Technical reading & writing • Facilities maintenance skills such as: ✓ Hydraulics ✓ Pneumatics ✓ HVAC • Plastics mfg. • Management training • Communication • Teamwork/Teambuild'g • Train the Trainer • Presentation skills • Needs analysis/ employee skills assessments • Job / task analysis • Safety/Basic Ergonomics ***Academic Programs:*** • Integration of Lean Principles in Engineering, Manufacturing, Computerization and Business Programs • Short term training leading to industry standard certifications • Sharing of best practices among community colleges and industry groups to disperse knowledge around the state	Work with industry partners to maintain up-to-date curricula, programs and services that help students, employees and industry maintain a competitive edge. ***Services:*** Programs and services that complement high performance efforts: • Integration of Lean principles in Engineering and Business Programs • Student "Lean" internships in partnership with OMEP/industry • Manufacturing degree or certificate offering that includes Lean • Provide research to meet industry need for new technologies that promote efficiency in manufacturing • Current research/cutting edge breakthroughs on lean and other high performance principles incorporated into a center of excellence on advanced manufacturing and high performance	Provide value-added high-performance services to members: ***Services:*** • Promote / market existing programs for members • Facilitate / host training events • Provide members with information about cutting-edge technologies or high performance trends. Partner with other industry associations to promote manufacturing ***For Labor Associations:*** • Provide members with information about high performance trends and referrals to classes or resources; • Incorporate high performance principles into apprenticeship training programs. **Industry Consortia:** ***Training:*** • Lean Principles/Tools • Executive Leadership • Leadership • Management/Change management • Lean Accounting • Lean Office • Lean Champion Development & Cert.	Provide management, leadership, Lean and other high-performance training and consulting services to business and industry clients, in partnership with other training and educational entities. ***Services:*** High-performance training and consulting services such as: ***Training:*** • Lean Principles/Tools • Lean Ergonomics • Six Sigma • TQM / ISO • Executive Leadership • Leadership • Management/Change management • Lean Accounting • Lean Office ***Implementation/Consulting:*** • Shop floor application of Lean tools • Business consulting such as: Lean management/ sales/marketing/cultural change

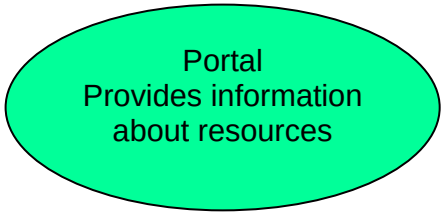
Oregon Workforce Investment Board

Manufacturing Workforce Strategy

Connecting and Expanding Industry-Led Efforts



High Performance Consortia Model –
Appendix 5



To include:

- Chair person
- Administrative support
- Vision/guidance
- Training curriculum
- Expertise support
- Strategic alignment (AOI, OBC,OWIB, MIC)
- Steering committee (driven by whom?

OMEP
PCC
Independent consultants

(to include executive representation from sponsoring/anchor companies)

Centers of Learning

(7 Sponsor Companies)

Each sponsor company to include:
1 designated lean expert
Commitment to extend practice with 2-3 customers/suppliers (so knowledge is driven through to other Oregon companies)
Strong consortia support and involvement (including board membership or be a regional lead site for the local consortia)
Participation in the learning conference

Appendix 6

1993 Key Industry Benchmarks: Informational Summary

Background: The 1991 Oregon Legislature designated 13 key industries "vital to a diverse and internationally competitive Oregon economy". These industries were: Aerospace; Agriculture; Biotechnology; Environmental Services; Film and Video; Fisheries; Forest Products; High Technology; Metals; Plastics; Professional Services; Software; and Tourism. The Oregon Economic and Community Development Department (aka Oregon Economic Development Department) was charged with organizing the key industries around strategic focus areas (workforce, marketing, product development) using the consortia model. "Industry Benchmarks in Oregon: A Global Competitiveness Agenda" identifies the areas chosen through Key Industry round table discussions to focus the Department's attention and resources.

Relevance to Committee's Work: Of the 13 key industries, high tech, metals, agriculture, software, and forest products continue to have a major presence in manufacturing in the state. Since workforce was a major concern for the key industries, some of the efforts and initiatives started with key industries continue to this day, (i.e., Semiconductor Workforce Consortium and the Software Association of Oregon) and can give insights into how the Committee crafts statewide workforce strategies for manufacturing. The following summarizes the Key Industry Roundtable Proposals relevant to workforce (current targeted industries with manufacturing are in **bold**):

- Aerospace – Develop *training programs* to serve all aerospace sectors and *make schools aware of career opportunities.*

- **Agriculture – Design a *community college curriculum to teach technical skills* for the industry and provide *industry-sponsored internships.***

- Biotechnology – Bring *decision-makers at universities, entrepreneurs and Oregon Biotechnology Association together*, develop and fund *a community college curriculum to train lab techs*, and provide *summer internships* with biotech companies.

- Environmental Services – Improve the *ability of Oregon higher education to meet Oregon business' needs for new technology* and work with Oregon educational institutions to *turn out science graduates with greater writing, problem-solving, and business skills.*

- Film and Video – Expand *workforce development training* to improve skills in all levels of film production.

- Fisheries – None.

- **Forest Products – Improve *education and skills training*.**

- **High Tech – *Increase funding of and consolidate higher education* to produce high quality graduates, continuing education, research and development, and start-up companies and *enhance***

media coverage **to build better public understanding of high tech and of** ***higher education*** **as an engine of economic development.**

- **Metals – *Promote the value of careers* in the metals industry, *encourage more partnerships between businesses and schools* to enthuse and train students, support education reform that encourages *professional/technical education*, and promote cooperation among businesses and education to test new technologies and *train workers*.**

- Plastics – Teach students at all levels the value of working with their hands in trade careers. Then improve educational efforts to ensure that *all students develop basic skills* and continue to foster *training partnerships between industry and the community colleges* to improve the quality of the workforce.

- Professional Services – Invest time and leadership in the *quality and direction of Oregon's educational system*, and encourage professional schools' proximity to industry's hubs.

- **Software – Create partnerships between software companies and *computer science disciplines at Oregon's colleges and universities* and *develop university-level multi-disciplinary programs that link computer science, marketing, engineering, and business education.***

- Tourism – Develop the *most knowledgeable and well-educated visitor industry workforce* in the nation.

Workforce Themes: Clearly, public relations and enhanced media coverage of careers in manufacturing were high priorities in the 90's as they are now. Community colleges were leaders of workforce technical training and the Oregon University System was asked to look at multi-disciplinary programs in the 90's, connecting well with some of the areas in which the Committee will be discussing.

Analysis: Since then, industry associations and educational institutions created projects and initiatives to further industry needs. The Northwest Food Processor's Association drove an aggressive workforce agenda to create community curriculum and courses based on industry national skills standards that is still very successful and fully operational. The Oregon Center for Advanced Technology and Engineering (OCATE) stepped up to the plate, offering multi-campus engineering courses and the Oregon Software Association is operating the Oregon Training Network (OTN), a program that helps broker and organize training and education and technology. The Semiconductor Workforce Consortium developed and offered coursework with and through the community college system. These are a few examples of workforce efforts using public-private partnerships to further the aim of developing worker skills and knowledge to meet industry needs.
There are still significant gaps, however, in the areas of public relations and enhanced media coverage of manufacturing careers, professional technical education, and multi-disciplinary, multi-institution courses in some areas of higher education. There is also a lack of connectivity between existing efforts that has ultimately created a fragmented statewide education and training system.