NSRP/ASE Crosscut Panel Project

Emerging Workforce Development for Shipbuilding

Deliverable 2

Final Report

Prepared by

Les Hansen and Larry Gebhardt

For the

NSRP Crosscut Initiatives Panel

Don Bewley, Chair

June 11, 2004

Deliverable 2
Contents

1. Introduction / Project Overview

This is the second deliverable and final report of the Crosscut Panel's 2003 –2004 research project, entitled "Emerging Workforce Development for Shipbuilding". The project was approved by the ECB in August 2003 and work began in September. The project's thesis is based on the following assumptions:

- A combination of worker turnover by retirement and termination, new technologies, and expanding shipbuilding in some areas requires developing a new workforce.
- New workforce is defined generically as persons without shipbuilding or repair experience.
- Roadblocks to meeting this need include new workers not prepared for manufacturing work entry, national perception of manufacturing decline or desirability and competition for good workers by other industry clusters including other types of manufacturing.
- A variety of principles and practices can help overcome these roadblocks.

The goals of this project are:

a) To learn, understand and plan effective actions that develop persons more ready and able to enter and remain in shipbuilding careers, and;
b) To find policies and practices that can reduce entry-level workforce related costs.

Objectives include:

- Learn and share current practices related to shipbuilding, manufacturing and related industry workforce development from industry, educator and government perspectives.
- Extract, study, synthesize and share: best practices; issues needing further study; and problems needing future resources.
- Develop shipbuilding industry policy and practice recommendations that can yield better results: for persons in transition from education or other jobs to shipbuilding, for educators and for shipbuilders.
- Identify gaps in current and best practices pointing to additional research.
- Share the findings and recommendations with the shipbuilding industry and stakeholders.

The following tasks will be accomplished to support project goals:

1. Design Survey of Current Practices in Workforce Development – complete by November 2003
   - Design survey format and content; select best delivery method(s) (October 2003)
   - Develop list of contacts for information gathering (November 2003)
2. Data Gathering – complete by January 2004
   - Plan for November roundtable conference in conjunction with panel meeting in San Diego (November 2003)
   - Conduct surveys and dialogues (January 2004)
3. Conduct Roundtable Conference and Follow-Up – complete by February 2004
   - Conduct conference at San Diego meeting (November 2003)
   - Share results of data gathering to date (December 2003)
   - Conduct follow-up surveys and local meetings as necessary (February 2004)

4. Compile Results – complete by April 2004
   - Compile and evaluate results of surveys, dialogs and roundtable conference
5. Provide a Final Report – complete by June 1, 2004

There are three project deliverables:

1. Report on Survey Development and Roundtable Conference (Task 3) – Submitted December 31, 2003
2. Final Written Report (Task 5) – May 31, 2004
3. Status Reports – Submitted March 31, 2004 and May 31, 2004

The project Statement of Work (SOW) is included as *Attachment A*.

The first deliverable was submitted, as scheduled, on December 31, 2003. Deliverable 1 contained the following:

a) A description of the project survey, as addressed in Tasks 1 and 2, including the process for development, survey forms and results to date, and
b) A report on the Workforce Development Conference and Roundtable (Task 3), which was held in conjunction with the Crosscut Panel meeting in November 2003 in San Diego.

This final deliverable addresses the following areas:

a) A project overview
b) Final results of the survey
c) A report on the 2nd Workforce Development Conference held in conjunction with the Crosscut Panel meeting in March 2004 in Washington D.C.
d) Conclusions and recommendations

Note:

Due to efficiencies in the conduct and management of the project, approximately 20% of the original project budget was unused at the completion of the project (May 31, 2004). The project team requested an extension until September 30, 2004, which was approved by the NSRP Executive Control Board. The scope of the additional work effort is summarized below:

Conduct additional technology transfer of project results, in the form of a 30-minute slide presentation, at the following Panel meetings:

- *Crosscut; June 22-24, Louisville, KY*
- *Surface Prep and Coatings; July 13-15, Bremerton, WA*
- *Environmental; July 21-23, Jacksonville, FL*
- *Joint Meeting of Shipyard Production Process Technologies, Business Process Technologies, Systems Technology, and Facilities & Tooling Panels; Aug 3-5, San Diego, CA*
- *Welding; Sept 16-17, State College, PA*

An addendum to the final report will be provided at the conclusion of the extension.

2. Workforce Development Survey

2.1 Survey Design Process

A survey was designed by the project team to obtain information about emerging workforce development. The term "emerging workforce" in the context of the panel project means youth (relatively recent high-school or dropouts) and adult job-changers or job seekers without shipbuilding or repair experience.

The survey was designed to identify current practices, needs, problems and opportunities with respect to: educating/training, recruiting, hiring and initial orientation of adult and youthful workers from perspectives of

- Shipbuilding and repair yards,
- K-12 Educators and school-to-career programs, and
- Workforce development support organizations such as universities, research, job service, workforce investment programs, etc.

The survey contained eight key questions with convenient answer response blocks or menu choices. Questions included:

1. What is your business requirement for new workforce? For educators and job service organizations the question asked for throughput information.
2. Are workers mostly hired in groups or individually? For educators and job service organizations the question asked for enrollment or graduation-hiring information.
3. How are new workers recommended, attracted or recruited? For educators and job service organizations the question asked how students or clients were attracted. Qualitative choices (very effective, somewhat effective, not effective) were surveyed in fourteen (14) categories.
4. What is your perception of readiness to work by your new workforce hires over the past two years? For educators and job service organizations the question asked how students or clients were perceived to be prepared. Qualitative choices (very ready; somewhat ready; not ready) were surveyed in the following categories: Entry level technical knowledge, skills and abilities (7 categories); Entry level academic knowledge and skills (4 categories); Entry level employability knowledge and skills (13 categories).
5. How do changing emerging workforce demographics affect your business? For educators and job service organizations the question asked about students or clients. Qualitative choices (no impact; requires some effort; cost, time and management burden) were surveyed in ten (10) categories.
6. How do you interface with educators, workforce investment board organizations or other job services? For educators and job service organizations the question asked how the interface with the other two groups occurred. Qualitative choices (work closely and receive benefits; have little or no experience; no return on investment of our time and energy) were surveyed in ten (10) categories. Narrative reports of benefits or problems were invited.

7. What other initiative have you used to develop future employees? This question sought an open-ended narrative response.
8. What issues (needing research and development) or problems (needing resources) should our conference between shipyards, educators and workforce development service agencies be discussing? This question sought an open-ended narrative response.

The draft survey questions were sent to Crosscut Initiative Panel Chair, Vice Chair, MI Lead and Prime Contractor for review and adjustment prior to issue. The project prime contractor then formatted the survey into an easy-to-use Microsoft Word form with fill-in-the-blanks, category boxes with pull-down qualitative choices and sections for narrative response.

Actual (blank) survey forms were included in Section 1.2 of Deliverable 1.

2.2 Final Survey Results

Introduction

The Emerging Workforce Development project gathered information from multiple sources including:

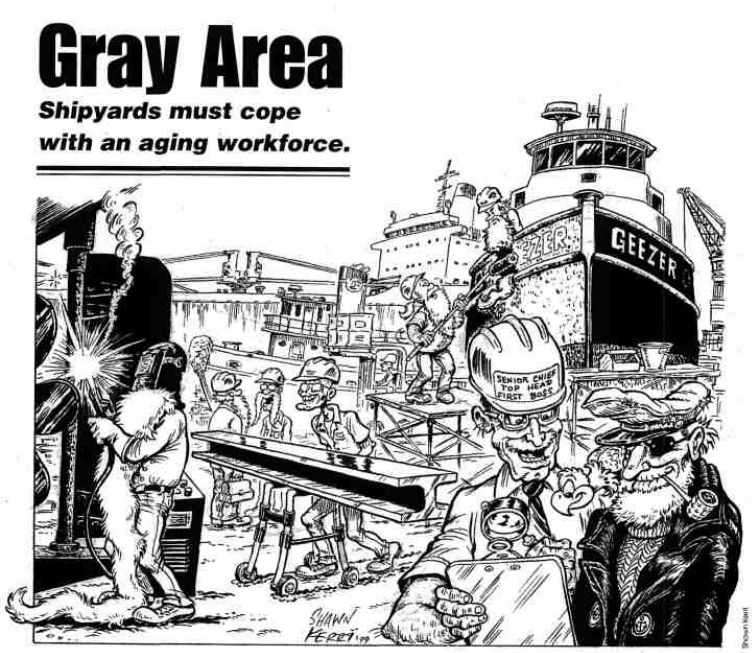
- Shipbuilding and repair yards
- Educators who provide basic academic and job skill training for shipyards
- Workforce Boards, Job service and other workforce development organizations
- Other manufacturing and related industries with similar types of materials and processes
- Government agencies
- Universities
- Other non-government organizations

The survey gathered quantitative and qualitative information. This section of the report synthesizes the information.

General Findings and Implications

The emerging workforce development panel project began with a perception that a gap between skilled worker supply and demand is affecting shipbuilding and repair. Survey work verifies the trends and indicates it will become harder to shipbuilding and repair companies to recruit, hire, train, and retain good workers in the US without some systemic changes and interventions. Primary causes of the gap are:

- Workforce Demand: Shipyards with steady workloads need new workers to replace those who are retiring or who leave voluntary or discharge. Some shipyards are expanding.
- Workforce Supply: Available new workforce is generally uninterested in manufacturing careers; Manufacturing and entry level new workers are not sufficiently skilled to start; National demographics indicate major changes in available workforce.

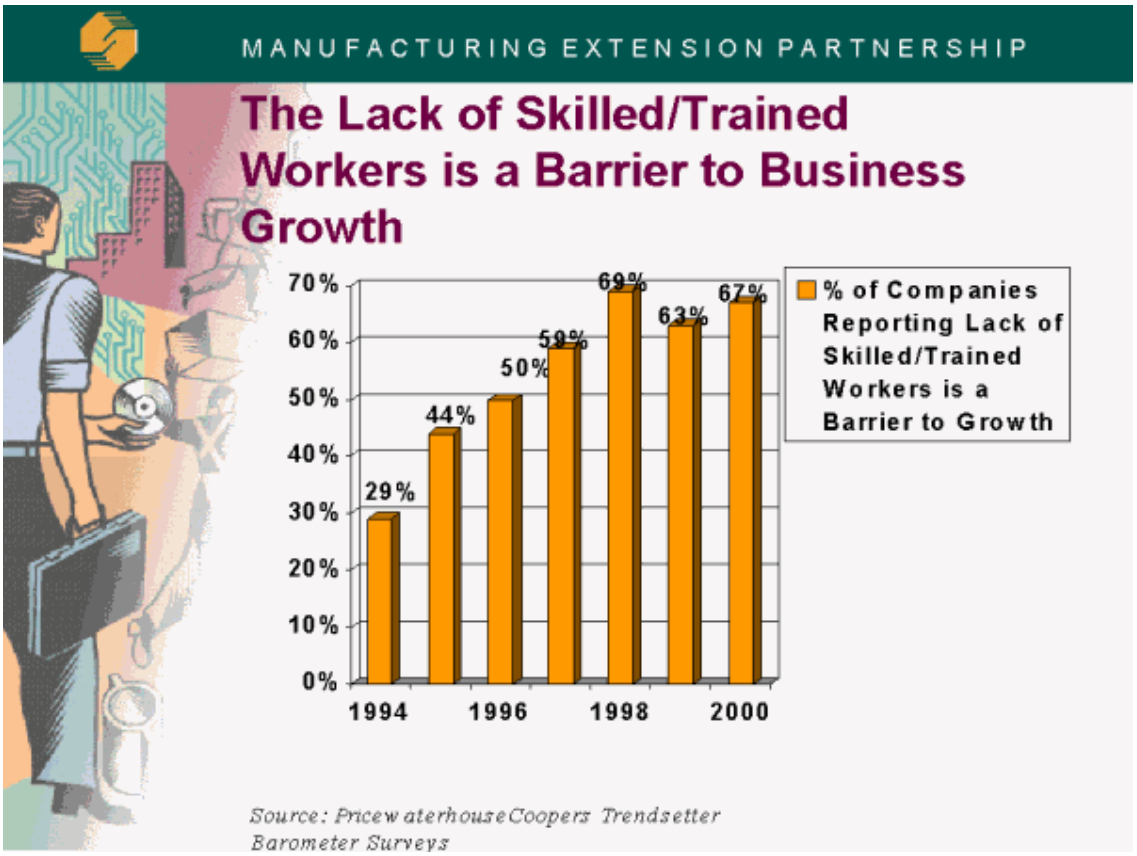


All shipyards responding to the survey reported growing current and projected requirement for new workers defined as relatively recent high school graduates or dropouts and job changers without shipbuilding or repair

expertise. The aging workforce issue is illustrated by the cartoon from a 2001 *Work Boat Magazine* (used by permission). The Shipbuilders Council of America and others track workforce turnover in small-mid sized shipyards and report an average of 39 percent turnover annually. Some specific shipyards are expanding employment. Most educators and job service organizations reported little to no throughput of learners with appropriate basic skills and aptitudes intentionally headed for shipbuilding and repair work.

Shipyard respondents reported new workers are not very ready to unready for work in terms of entry level academic knowledge, technical knowledge, skills and abilities, and general employability and skills. Shipyard respondents also reported some burden dealing with changing demographics such as gender, immigrants, languages, age and other attributes. Educators and job service respondents also reported their graduates and clients generally only somewhat ready or not ready for work. Educators and job service respondents report less burden from increasing diversity.

There is a significant shipbuilding and repair cost implication to these results. If entry-level workers are not prepared for entering work by the public education system, then the cost of basic academic, technical and employment knowledge and skills remediation falls on the shipyard. While some subsidy in terms of grants is available, the cost of replacing an aging or unexpectedly departing shipyard worker is at a minimum several thousand dollars per worker, multiplied by the shipyard's turnover rate. Productivity of a



multi-skilled worker, such as a shipfitter, requires several years to achieve the levels of

retiring aging workers. If there are insufficient new workers entering the shipbuilding and repair industry, then other options such as hiring contract workers including non-US citizens, and attempting to hire workers away from competitors may be required to meet contractual responsibilities.

> A typical quote in these forums is: "Given that the manufacturing labor supply, especially the skilled labor supply, has been largely cut off (schools giving up manufacturing education, media emphasis on the death of manufacturing, commoditization of goods finding their way to China, etc.) what are our proposals for creating/inventing/nurturing/developing that skilled labor supply? If our old methods and sources (apprenticeship, high school manufacturing classes, military) have largely dried up, where do we look for the new bloods who want to be part of manufacturing in the United States?"

Other survey work reveals that the shipbuilding and repair trend is symptomatic of national manufacturing. The graphic from the Manufacturing Extension Partnership reports data up to year 2000 by Price Waterhouse Coopers survey that at least two thirds of manufacturers lack both the numbers and skill levels of skilled/trained workers as a barrier to growth. Data presented by the National Association of Manufacturers, National Coalition of Advanced Manufacturers and at the National Association of Workforce Boards between November 2003 and March, 2004 confirm these trends.

Some of the main points emerging from remarks by these speakers in the 2003-2004 conferences and forums were include:

- Nearly 60% of the new jobs in the 21st century will require skills held by only 20% of today's workforce.
- The only way in which the U.S. can remain competitive over the long term with low-wage, high-skills countries such as China is to make aggressive use of innovation, technology and workforce education and training to achieve higher rates of productivity growth and lower unit labor costs.
- Enabling workers to acquire the enhanced skills and knowledge that will help them keep pace with emerging technologies requires vigorous public policies that encourage closer links between employer skill needs and the training provided by education and government entities.
- Unless vigorous public policies are identified and implemented, the negative trends in manufacturing (employment, percentage of GDP, goods trade deficit, and investment in U.S. plants) are likely to continue to the detriment of the nation's economy and its growth potential.
- Although the fastest growing job categories in the U.S. will be in low -skills, low -wage employment (mostly in the retail and services sectors), Baby-Boom retirements and new technologies in the manufacturing sector over the next decade will open up millions of jobs in the advanced, high performance manufacturing sector for workers with the "right skills."

- The poor image of manufacturing, documented in a recent NAM survey, will require special efforts to convince students, parents and teachers that manufacturing jobs provide "real" career ladders for qualified workers and are worth pursuing.

- The U.S. Department of Labor is responding to the challenge of preparing "technical workers" for the 21st century by promoting the benefits of its "High-Growth Job Training Initiative."

Demographic Information

Dr. Neeta Fogg, Labor Demographer at Northeastern University prepared a detailed report tailored to shipbuilding regions titled *Changing Demographics in a Changing Labor Market* which is included at *Appendix B*. Her conclusions state:

- Population and labor force growth had slowed down and reliance on immigrants for labor supply has increased. These changes are more concentrated in some areas of the country.
- Changes in the industrial composition of jobs and increased demand for literacy proficiencies and education in the labor market has led to a sharp reduction in job opportunities for poorly educated persons.
- Shrinking job opportunities, particularly in the traditional blue-collar manufacturing sector where one could climb the career ladder with experience on the job and earn a family wage without completing any postsecondary education has led to massive dislocation of males. This may have partly contributed to their labor force withdrawal.
- The influx of poorly educated immigrants and dislocated workers in the labor market has sharply increased the need for workforce training to arm these potential workforce members with skills to participate successfully in today's labor market.

Dr. Ron Crouch, Director of the Kentucky State Data Center, who addressed the National Association of Workforce Boards, bluntly summarizes these demographic changes with six key bullets:

- The United States is experiencing a major demographic revolution
- Diversity by race, ethnicity, and age are all critical issues
- There are major regional differences across the United States
- Our economic is changing and we are not prepared for the new knowledge economy
- Bubba is in trouble whether he is Bubba White, Joe Black, or Jose Brown
- The costs of an aging society are "unsustainable" and we need to rethink the concept of "old"

Related Survey Information

- Associated General Contractors, a national organization representing some 33,000

Firms with 7,500 Contractor members and 25,500 Supplier companies reports that the construction industry needs 200,000 workers just to meet attrition losses (annual) and that historically 2.3 new workers result in one qualified journeyman.

- The Manufacturing Skill Standards Council, School to Career directors and education researchers report a skill crisis that affects all manufacturing and construction industries. The *broad policy themes* emerging from conference deliberations include:
  - Industry-based skill standards such as those developed by the Manufacturing Skill Standards Council (MSSC) should be integrated into career and technical education programs in high schools and community colleges and into skills-training programs provided under the Workforce Investment Act (WIA) at the local level.
  - MSSC skill standards, assessments and certifications and those of other organizations should be the centerpieces of WIA-sponsored skill enhancement programs for workers wishing to qualify for the more technical jobs found in the *advanced, high-performance manufacturing* sector.
  - Existing industry-based skill standards and certifications such as those developed by the MSSC should be updated on a regular basis to ensure that they remain current, reflect employer needs, and are responsive to workplace requirements. · The federal government should increase support for incumbent worker training especially when that training is aligned with industry-based skill certifications such as those developed by the MSSC and with life-long learning commitments by employers.
  - The federal government should make more aggressive use of the tax code to incentivize investments in human capital (not just physical capital) to enable the industrial workforce to keep pace with technological changes in the *advanced, high-performance manufacturing* sector.
  - The federal government should provide tax incentives to help the industrial community sustain a legacy of innovation, technological advances and an "open door to all" to reinforce the importance of *advanced, high-performance manufacturing* in America's future.
  - The federal government should strengthen and expand its commitment to career and technical education (not just academic education).
  - Public education and training entities should be more aggressive in integrating life-long learning and advanced learning technologies into their normal teaching practices, teacher training curriculum, and staff development training.
  - Business, government, labor and education should be more cooperative in improving the public perception of manufacturing and advanced manufacturing careers.

Shipyard, Educator and Job Service Survey Results

The survey design and development process was reported in the interim report dated December 31, 2003.

Purpose of the survey: To identify current practices, needs, problems and opportunities with respect to: educating/training, recruiting, hiring and initial orientation of adult and youthful workers from *perspectives* of

- Shipbuilding and repair yards,
- K-12 Educators and school-to-career programs, and
- Workforce development support organizations such as universities, research, job service, workforce investment programs, etc.

The survey document was sent to all of the conference speakers and panelists for their feedback. These steps also resulted in an expanded list of persons and organizations to which the survey could be directed and for invitations to the conference.

The survey was issued via e-mail to the entire Crosscut Initiatives Panel contact list plus selected other shipyard managers, educators and workforce board/job service contacts prior to the November, 2003 Emerging Workforce Development Conference.
Paper copies of the survey were provided to Emerging Workforce Development Conference attendees in November 2003 and March 2004 who had not received the electronic versions.

Survey forms were returned by 15 shipyard respondents and 17 educator-job service respondents. The response numbers was lower than desired but provides useful data. Compilations of this data follow. Results are reported in percentage of responses rounded off to the nearest 10 percent for simplicity.

Summary of survey findings:

- All shipyards responding report steady or growing need for new workers to replace aging workers, to replace workers lost by firing or workers voluntarily quitting, and in some cases for expanding workforces.
- Most shipyards responding prefer to hire workers in groups rather than one at a time. Educators and job service respondents report they normally supply persons to shipyards as individuals.
- Effectiveness of methods for finding new workers is shipyard specific and apparently varies by geographic location.
- Shipyards responding perceive entry-level workers are generally only somewhat ready or not ready in terms of technical knowledge, skills and abilities. Educators and job service respondents concurred with this assessment.
- Shipyards responding perceive entry-level workers are generally somewhat ready to not ready in terms of academic knowledge and skills.
- Shipyards responding perceive entry-level workers are generally somewhat ready to not ready in terms of employability knowledge and skills.

- Educators and jobs service organizations responding generally perceive that their graduates or clients are only slightly more ready to begin work than shipyards report.
- Most survey responders report that changing workforce demographics require some effort or result in a cost, time and management burden.
- Interface between shipyards, educators and workforce boards-job service organizations appear shipyard or geographic location specific. Some shipyards or areas are deeply engaged in collaborative work while others unaware of opportunities or services.
- Some new initiatives to develop future employees were reported.
- Most survey responders listed issues needing research and development and problems needing resources. Many respondents reported that fresh sources of research and workforce development resources are needed.

Shipbuilding and repair emerging/new workforce development survey (shipyard portion of the survey)

1. What is your business requirement for new workforce? Annual new hiring projected for 2004: 1-10 0%; 11-50 30%; 51-250 70%. A growing 90%, steady 10% or declining trend 0%?

2. Are workers mostly hired in: groups, such as to begin training together 67% or individually 33%. If groups, what is the target group size 15-20?

3. How are new workers recommended, attracted or recruited? Please identify by A (very effective); B (somewhat effective); C (not effective)

	How are new workers found?
A 20%; B 60%; C 20%	Newspaper advertising
A 0%; B 50%; C 20%; NA 30%	Job-oriented newspapers or flyers
A 0%; B 50%; C 10%; NA 40%	Radio or TV spot advertising
A 0%; B 40%; C 0%; NA 60%	Radio or TV features on your company
A 30%; B 0%; C 20%; NA 50%	Company run job fairs
A 10%; B 30%; C 40%; NA 20%	Job service or other public job fairs
A 0%; B 70%; C 10%; NA 20%	Company web site
A 40%; B 20%; C 0%; NA 40%	Current/past employee referrals
A 0%; B 30%; C 20%; NA 50%	School guidance counselors
A 10%; B 30%; C 30%; NA 30%	School-to-Career – vocational, college
A 10%; B 60%; C 0%; NA 30%	Adult referral: Job Service, Manpower, etc.
A 0%; B 20%; C 20%; NA 60%	Adult addiction recover
A 10%; B 20%; C 20%; NA 50%	State-local correction system
A 10%; B 10%; C 10%; NA 70%	Welfare or other social services
	Others please list
A 0%; B 10%; C 0%; NA 90%	Bill Boards
A 20%; B 0%; C 0%; NA 80%	Union hiring halls
	Long term relationship with specific high schools and vocational schools

4. What is your perception of readiness to work by your new workforce hires over the past two years: A(very ready); B(somewhat ready); C (not ready) in the following categories:

	Entry Level Knowledge, Skills and Abilities
A 10%; B 90%; C 0%	Use of hand tools and portable power tools
A 0%; B 60%; C 40%	Understanding of workplace safety and personal protection
A 0%; B 50%; C 50%	Ability to read, comprehend and follow work orders
A 0%; B 40%; C 60%	Shipyard math concepts for: measurements, layouts, rigging weight
A 0%; B 40%; C 60%	Shipyard materials concepts: strength, joining, corrosion, wear
A 0%; B 0%; C 100%	Understanding of how manufacturing business makes money
A 0%; B 20%; C 80%	Understanding of waste at work – excessive material and tool handling, incorrect measurements, errors requiring rework
	Other KSA you feel are important
	Entry Level Academic Knowledge & Skills
A 0%; B 60%; C 40%	Math: Manipulate numeric information
A 20%; B 70%; C 10%	Reading: Use written info in a variety of formats
A 0%; B 60%; C 40%	Writing: Express info in written form clearly & accurately
A 0%; B 30%; C 70%	Science: Apply basic principles of chemical, physical & earth sciences
	Entry Level Employability Knowledge & Skills
A 0%; B 100%; C 0%	Listening: Interpret verbal communications & directions
A 10%; B 70%; C 20%	Speaking: Express ideas & facts clearly
A 0%; B 60%; C 40%	Using Info & Communications Technology: Use data, computers, calculators, etc
A 0%; B 50%; C 50%	Gathering & Analyzing Info: Obtain info via observation, discussion, research, etc
A 0%; B 40%; C 60%	Analyzing & Solving Problems: Identify problem causes & analyze potential solutions
A 0%; B 40%; C 60%	Making Decisions & Judgments: Make decisions that consider facts, risks & benefits
A 0%; B 30%; C 70%	Organizing & Planning: Organize & structure work for effective performance & goal achievement
A 0%; B 80%; C 20%	Using Social Skills: Interact with others in friendly, courteous ways that demonstrate respect

5. How do changing new workforce demographics affect your business? A (no impact); B (requires some effort); C (cost, time and management burden)

	Demographic attribute
A 0%; B 20%; C 80%	Academic-technical (synthesis of KSA attributes above)
A 10%; B 30%; C 60%	Maturity (synthesis of personal attributes above)
A 30%; B 60%; C 10%	Languages different from English

A 60%; B 30%; C 10%	Gender differences – women in the workforce
A 60%; B 20%; C 20%	Gender difference – current generation of boys
A 40%; B 30%; C 30%	Age of workforce – higher age at entry
A 0%; B 30%; C 70%	Expectations of workforce – for benefits, work
A 70%; B 30%; C 0%	Cultural differences – ethnic, religion
A 50%; B 30%; C 20%	Immigrant status – concerns for legality, etc.
A 30%; B 70%; C 0%	Single parents – requirements of children

6. How do you interface with educators, Workforce Investment Board organizations (Department of Labor funded) or other workforce development services
A (Work closely and receive benefits); B (Have little or no experience); C (No return on investment of our time and energy). For your choices of A or C above, please give examples of support provided, benefits gained or problems encountered.

	Workforce Development Services	**Example Benefits or Problems**
A 40%; B 40%; C 20%	Local employment service (WIB, Job Service, etc.) to secure employees	• Affirmative recruiting, assist with testing, no cost • Shipyard lists opening receives few referrals • Referrals with WorkKeys Results (Math, Reading. Locating Information, and Advanced Technology results). • Use D of L services to help with applications, testing and interviews especially in areas remote from the shipyard
A 20%; B 30%; C 50%	Discussions about shipbuilding with faculty and/or students at a comprehensive high school	• Schools not interested • Incorporation of shipyard math and science requirements into pre-vocational school courses. • Provide information package to each school • Visit 70% of schools in the area • We found not much interest from students
A 30%; B 50%; C 20%	Discussions about shipbuilding with faculty and/or students at a vocational high school	• Incorporation of shipyard curriculum into vocational school courses. • No vocational high schools in the area
A 50%; B 30%; C 20%	Discussions about shipbuilding with faculty and/or students at a community or technical college program	• With students who have decided to go to work • Established Design Co-op program • Talk to public community colleges and some private technical colleges
A 30%; B 50%; C 20%	Shipyard provides support to local educators – high-school, vocational/trade or college, school-to-career, career	• Willing to listen • Timing of graduate availability w/staffing needs not in sync. Community colleges have not shown

	technical education (please circle which)	interest in us as job source. • Conduct Tech-Prep days with HS guidance counselors and teachers. • Shipyard assigns advisor as liaison to all schools interested
A 40%; B 60%; C 0%	Intern, coop or work-study programs	• Engineering and pre-engineering coop
A 60 %; B 40%; C 0%	Integrating your shipyard training or apprentice program with area educators	• Classroom work is integral part of apprenticeships. • Formalized contract with community college
A 30%; B 50%; C 20%	Student tours, job-shadowing, etc.	
A 30%; B 50%; C 20%	Workforce development grant funding from state agencies	• Many ETP programs • Company not eligible
A 30%; B 60%; C 10%	Training grant funding from state agencies	• In 2001, we received a rebate for the initial training provided new employees, as we increased our net employment numbers

7. What other initiatives have you used to develop future employees?
- Summer hire program for Jr/Sr level as intern tradesmen
- Internships & apprenticeship programs
- Workplace Symposiums
- Increasing use of apprentice and other union-sponsored training programs.
- Maintaining strong links with all middle and high schools within 100 miles of the Yard.
- Discuss program yearly with state government officials – governor, Lt governor, senators, house reps
- Keep the state apprentice program director informed of the shipyard programs
- Keep elected officials informed of shipyard programs
- Respond whenever asked for information or as for speaking engagements

8. What issues (needing research and development) or problems (needing resources) should our conference between shipyards, educators and workforce development service agencies be discussing?

- Incumbent worker training grants to keep them employeed has a ROI advantage over laying them off and then training them for a new career.
- Working more closely with national level grants (federal and state)
- We need to do a better job of providing students with a true and clear picture of the benefits of pursuing a career in manufacturing and construction. Decisions can then be made with facts rather than pressure and emotion.
- The current branding of the industry is not encouraging youth or the skilled unemployed to enter the industry. The sporadic employment, which depends greatly on government contracts and vessel availability, is a large deterrent when trying to create interest for potential employees to invest time and money in learning the skills required to enter the industry. How do we create a more stable employment environment?
- Nothing you already don't know: how do we get in sync. with those guys?
- Depends on the yard and the locality.
- We need college courses on ship repair and shipbuilding
- We need to change shipyard appearance to make them attractive to "new workers"

Shipbuilding and repair emerging/new workforce development survey (educators and job service):

Responses received from 17 educators and job service persons. The similar questions and similar responses resulted in the survey data combined. One response had comments only, without statistical responses.

New workforce means youth (relatively recent high-school or dropouts) and job-changers without shipbuilding or repair experience.

1. What is the estimated annual transition of people from your program(s) to employment in shipbuilding, ship repair and supporting or related industry such as machine shop, piping, electrical, steel trades, welding, heavy rigging/crane operations, etc.? Please project these transitions for 2004: None _7 responses__ 1-10__8 responses 11-50_1 response__ 51-250___ A growing ___, steady most responses__ or declining trend? ____

2. Please provide numbers of companies with whom you know or believe your program helped graduates or job seekers achieve jobs. Numerous companies statewide – all with similar skill sets that are required within the shipbuilding industry sector.
   - 0 companies – 10 responses
   - 1 company - 4 responses
   - 4 companies – 1 response
   - 5 companies – 1 response

3. For your education institution or program to tailor a curriculum to the needs of an industry such as shipbuilding, what is the range of enrollment size you believe would be economical? Responses varied from 10 to 100 students.
   - 10-15 students
   - 15 students
   - 3 year program – 1st year 18; 2nd year 14; 3rd year 10
   - 20-25 students
   - 20 students
   - 30 students
   - relevant electives –carpentry, welding/metals, small engines – 20 per semester
   - Most Academies of Excellence in RI average 50 –100 students at start-up.
   - Marine occupations was cut in 2003 when the teacher retired
   - Couldn't serve shipbuilding – 4 responses

4. Do companies usually hire your graduates in: groups, such as to begin company on-the-job training together? ___ or individually _10 responses__? If groups, what is the target group size ____?

5. How do you recommend your graduates seek job placement? Please identify your opinion of the way new workers find jobs: A (very effective); B (somewhat effective); C (not effective)

	How new workers find jobs?
A 30%, B 40%; C 20%, NA 10%	Newspaper advertising
A 40%, B 30%, C 30%	Job-oriented newspapers or flyers
A 10%, B 40%, C 40%, NA 10%	Radio or TV spot advertising
A 10%, B 40%, C 40%, NA 10%	Radio or TV features on your company
A 40%, B 60%, C 0%	Company run job fairs

A 20%, B 50%, C 20%, NA 10%	Job service or other public job fairs
A 20%, B 70%, C 10%	Company web site
A 70%, B 20%, C 10%	Current/past employee referrals
A 10%, B 70%, C 20%	School guidance counselors
A 30%, B 50%, C 20%	School-to-Career – vocational, college
A 10%, B 50%, C 40%	Adult referral: Job Service, Manpower, etc.
A 10%, B 30%, C 40%, NA 20%	Adult addiction recover
A 10%, B 30%, C 50%, NA 10%	State-local correction system
A 0%, B 40%, C 30%, NA 30%	Welfare or other social services
	Others please list: parents/neighbors/friends
	Job shadowing/internships
	Word of mouth
	Networking

6. What is your perception of your graduates' readiness to work in shipbuilding, repair and related/supporting industry over the past two years? A (very ready); B (somewhat ready); C (not ready) in the following categories:

	Entry Level Technical Knowledge, Skills and Abilities
A 30%, B 40%, C 30%	Use of hand tools and portable power tools
A 30%, B 30%, C 40%	Understanding of workplace safety and personal protection
A 40%, B 40%, C 20%	Ability to read, comprehend and follow work orders
A 10%, B 40%, C 50%	Shipyard math concepts for: measurements, layouts, rigging weight
A 10%, B 20%, C 70%	Shipyard materials concepts: strength, joining, corrosion, wear
A 10%, B 30%, C 60%	Understanding of how manufacturing business makes money
A 10%, B 30%, C 60%	Understanding of waste at work – excessive material and tool handling, incorrect measurements, errors requiring rework
	Other KSA's you feel are important
	Work readiness foundation skills
	Team vs. individual work concepts
	Entry Level Academic Knowledge & Skills
A 10%, B 70%, C 20%	Math: Manipulate numeric information
A 20%, B 60%, C 20%	Reading: Use written info in a variety of formats
A 20%, B 70%, C 10%	Writing: Express info in written form clearly & accurately
A 0%, B 60%, C 40%	Science: Apply basic principles of chemical, physical & earth sciences

	Entry Level Employability Knowledge & Skills
A 30%, B 50%, C 20%	Listening: Interpret verbal communications & directions
A 10%, B 60%, C 30%	Speaking: Express ideas & facts clearly
A 10%, B 70%, C 20%	Using Info & Communications Technology: Use data, computers, calculators, etc
A 10%, B 70%, C 20%	Gathering & Analyzing Info: Obtain info via observation, discussion, research, etc
A 10%, B 60%, C 30%	Analyzing & Solving Problems: Identify problem causes & analyze potential solutions
A 0%, B 70%, C 30%	Making Decisions & Judgments: Make decisions that consider facts, risks & benefits
A 10%, B 60%, C 30%	Organizing & Planning: Organize & structure work for effective performance & goal achievement

7. How do changing new workforce demographics affect your education institution?

	Entry Level Employability Knowledge & Skills
A 20%, B 70%, C 10%	Using Social Skills: Interact with others in friendly, courteous ways that demonstrate respect
A 10%, B 70%, C 20%	Adaptability: Change behavior or work methods to adjust to other people or changing situations
A 20%, B 70%, C 10%	Working in Teams: Work collaboratively to achieve goals by sharing ideas, info, resources
A 0%, B 80%, C 20%	Leading Others: Motivate, influence others towards individual/team performance
A 0%, B 60%, C 40%	Building Consensus: Facilitate agreements by resolving differences to promote mutual goals
A 20%, B 70%, C 10%	Self & Career Development: Identify career interests, pursue training & learning opportunities
	Other Academic and Employability KSA's you feel are important

A (no impact); B (requires some effort); C (cost, time and management burden)

	Demographic Attributes
A 10%, B 30%, C 60%	Academic-technical (synthesis of KSA attributes above)
A 20%, B 30%, C 50%	Maturity (synthesis of academic and employability knowledge and skills above)
A 30%, B 40%, C 30%	Languages different from English
A 30%, B 50%, C 20%	Gender differences – women in the workforce
A 40%, B 40%, C 20%	Gender difference – current generation of boys
A 30%, B 40%, C 30%	Age of workforce – higher age at entry
A 30%, B 60%, C 10%	Expectations of workforce – for benefits, work
A 40%, B 40%, C 20%	Cultural differences – ethnic, religion
A 40%, B 30%, C 30%	Immigrant status – concerns for legality, etc.

A 20%, B 50%, C 30%	Single parents – requirements of children
	Other
	Locale

8. How do you interface with shipyards and/or related industries, Workforce Investment Board organizations (Department of Labor funded) or other workforce development services? Please indicate: A (Work closely and receive benefits); B (Have little or no experience); C (No return on investment of our time and energy). For your choices of A or C above, please give examples of support provided, benefits gained or problems encountered.

	Workforce Development Services	**Example Benefits or Problems**
A 10%, B 50%, C 20%, NA 20%	Local employment service (WIB, Job Service, etc.) about employer needs	Opening first RI WFD youth focused center 10/03
A 10%, B 50%, C 10%, NA 30%	Discussions about shipbuilding and repair with company managers or employees	Developing partnerships with industry leaders to jointly bring forth message of need, academic preparation requirements, and career opportunities
A 20%, B 60%, C 10% NA 10%	Discussions about shipbuilding and repair or related industry with business or engineering faculty of a university	Developing partnerships with industry leaders to jointly bring forth message of need, academic preparation requirements and career opportunities
A 30%, B 50%, C 10%, NA 10%	If K-12, Discussions about shipbuilding technology with faculty and/or students at a community or technical college program	Developing partnerships with industry leaders to jointly bring forth message of need, academic preparation requirements and career opportunities
A 20%, B 50%, C 10%, NA 20%	If post-secondary educator, do you have discussions with K-12 educators about readiness of their graduates (or dropouts) to learn in your organization?	Developing partnerships with industry leaders to jointly bring forth message of need, academic preparation requirements and career opportunities
A 10%, B 50%, C 20%, NA 20%	Do shipyards provide support to local educators – high school, vocational/trade or college, School-to-Career, career technical education? (please circle which)	Yes – to my knowledge and experience all of them – though on an individual basis currently
A 10%, B 60%, C 10%, NA 20%	Can your students find intern, coop or work-study programs with shipyards?	• Yes • Not with large shipyards; yes with small, local yards
A 10%, B 50%, C 10%, NA 30%	Do shipyards integrate their in-company training or apprentice programs with you as an area educator?	Yes
A 10%, B 50%, C 10%,	Do shipyards and related	• Yes

NA 30%	industries conduct student tours, job-shadowing, etc.	• Yes, tours only
A 0%, B 60%, C 10% NA 30%	Do you receive shipbuilding-supporting workforce development grant funding from state agencies?	
A 20%, B 50%, C 10% NA 20%	Do you receive funding that supports education and training for other industries such as financial, information technology, health care, law enforcement etc.?	To develop statewide industry partnerships.

9. What other initiatives have you used to develop future employees for manufacturers and shipbuilding/repair and related businesses?
    a. Creating statewide Industry Partnerships – driven by Industry to partner with the K-16 WFD system and create a seamless system for the emerging workforce preparation.
    b. We are currently integrating a manufacturing curriculum within 6 pilot schools in RI. We are using "Project Lead the Way". This curriculum will provide both academic rigor and industry skill standards for enrolled students. This curriculum will also come with articulation agreements already built in from Higher Education if a student chooses to pursue PS training/education. The selection of a particular pathway will come from student choice and what industries the student has had exposure to.
    c. Lots of ongoing curriculum work to keep this career and technical program current and responsive to industry needs
    d. Community partnerships – 2 responses
    e. Word of mouth through the industry in the area
    f. Specific career and technical programs that involve business
    g. Through cooperative education in our automotive and manufacturing programs
    h. Repairing damage to small boats
    i. Business tours

10. What issues (needing research and development) or problems (needing resources) should our conference between shipyards, educators and workforce development service agencies be discussing?
    - Building the capacity of the industry leadership to drive the needs of industry with the K-16 system. To ensure that the academic and industry skill standards preparation necessary for success and competitiveness within the shipbuilding industry sector are understood by the education system. That your industry needs academic rigor, technical skill competencies and work readiness skill development in its potential/future workforce.
    - How to motivate students towards enrolling in appropriate career and technical courses
    - How the shipbuilding industry can get into schools and showcase employment opportunities and skills needs in the occupations
    - How to include comprehensive high schools' elective courses
    - Availability of educators and business representatives to meet and develop curriculum
    - Funding for new programs and staff
    - Students graduating from high school are not 18 years old. Problems with apprentice program entry.
    - Need for shipbuilding and repair programs
    - Shipbuilding and repair is a good idea for a coastal state. It opens more job possibilities.

3. 2nd Workforce Development Conference

3.1 Conference Overview

A second Workforce Development Conference was held in conjunction with the Crosscut Panel meeting in Washington D.C. on March 15, 2004. The second conference was a follow-on to the first conference held in San Diego in November 2003 (see Deliverable 1). The primary purpose of both Conferences was to bring together shipbuilding representatives, educators and experts in various aspects of workforce development to present and share information on best practices as well as to identify problems and issues to be addressed.

As mentioned in the previous section, the survey was used to indicate sources of speakers, consultants and other experts who might participate in the Conferences. The project technical lead conducted dialogue with each prospective speaker or expert about the assumptions, goals and objectives of the panel project. This process introduced some prospective conference participants for the first time to the shipbuilding and repair industry, to the National Shipbuilding Research Program, USA Shipbuilding and the Crosscut Resource Center web sites. Speakers used the dialog, survey thrust and industry web sites to help adjust their comments and handouts to be most useful at the conference.

The agenda and attendance list for the 2nd Workforce Development Conference are shown in *Appendices C* and *D*.

3.2 Conference Summary

Panel Project Overview: Les Hansen and Larry Gebhardt presented a summary of the goals, objectives and rationale for the panel project.

Overview: Focus on development of an entry-level shipbuilding & repair workforce emerging from the education system and job-changers

Objectives:

- Learn/share current workforce development practices
- Extract and study best practices, issues, and problems needing future resources
- Develop shipbuilding policy and practice recommendations for
    - Workers transitioning to shipbuilding
    - Educators, job service organizations and shipyards
- Identify gaps pointing to additional research
- Share findings and recommendations

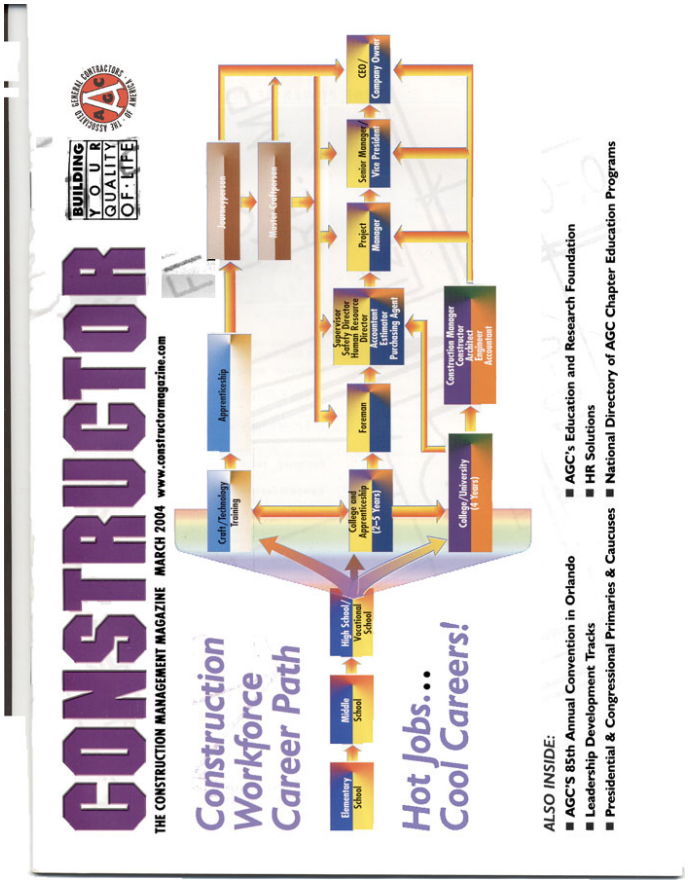
Benefits:

- Better-defined recruitment, training and educational pathways
- Enhanced shipyard/school relationships
- Additional opportunities for arrangements
- Identification of specific training and development needs for entry-level workers
- Options to reduce workforce development costs

Lessons Learned From The Construction Industry: John Heffner - Executive Director, Training and Educational Services, Associated General Contractors, assisted by Donna Franza - Director, Career Development.

- 33,000 Firms: 7,500 Contractor members and 25,500 Supplier companies
- Industry needs 200,000 workers just to meet attrition losses (annual)
- Historically 2.3 new workers result in one qualified journeyman
- A recruiting problem – industry previously lacked local general contractor champions for workforce development
- Industry would rather spend $5 to steal an employee instead of invest $1 in training then simply recycle the same employees.
- Job and career fairs and other one-shot programs don't work – simply waste resources

- Industry strategic plan about 1998: long-range vs. short-range approach. Key attributes:
  - Develop resources for members to help recruit
  - Lessons learned from the Coke commercial (women admiring construction worker) and automotive industry recruiting (fast car and pretty girl)
  - Need early age awareness of the industry. Need to start informing students, teachers, counselors, and parents earlier - before careers are decided (as early as 9 or 10). Keep construction on the list of possible careers, See "Build Up". Teaching aid for teaching math, reading, and science to teach students. Best if industry comes in and help teach. "On Site" is intended for Junior High. "Hot Jobs" brochure very successful for High school career days. Industry career web site:



  Constructmyfuture.com
  - 16 to 18 year olds: Studies for 3 year. Use career academy in construction - in high school within a school - for the students who are have trade interest in shop classes - integrate construction into all class. Chattanooga School set up in 3 months: GPA went up average of 1 point, Graduation rate increased dramatically.
  - Build-up and On-Site: collaboration with Scholastic developed a hands-on tool kit for 5th grade and Jr. High. Learning aids include reproducible material such as mathematics based on realistic construction problems, construction models demonstrating strength of materials, project planning, construction history, etc. Supplies are re-useable or easy to procure for replacements. Kit cost $600,000 to develop and produce in quantity; local general contractors now buy and distribute to schools, work with teachers, etc. Revenue has paid back all development costs. Companion work includes press releases, new coverage.
  - Next steps include technical-professional career academies embedded in a public school. Pilot model is the Chattanooga Public School System, Briggs Smith.

Mr. Heffner provided a range of construction industry education and career oriented handouts, the industry magazine Constructor (illustrated), etc.

US Department of Labor Education & Training: Apprenticeship Landscape
Anthony Swoope, Director, Apprenticeships, US-DOL Education & Training Administration – Swoope.anthony@dol.gov

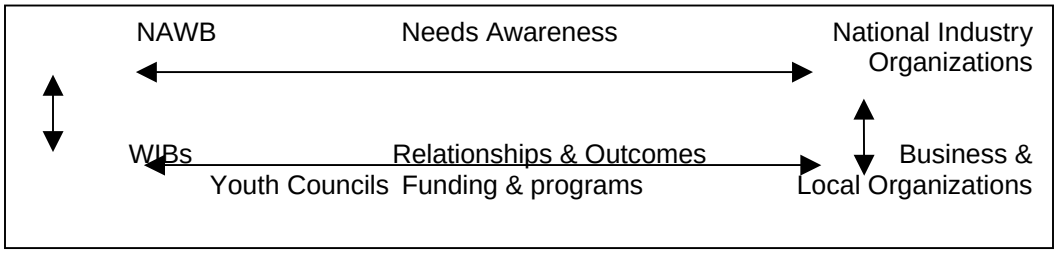
Trends in apprenticeship are toward emerging industries with resources allocated using a market approach. Example emerging industries include: childcare, nursing, geospatial technologies, metalworking, etc.

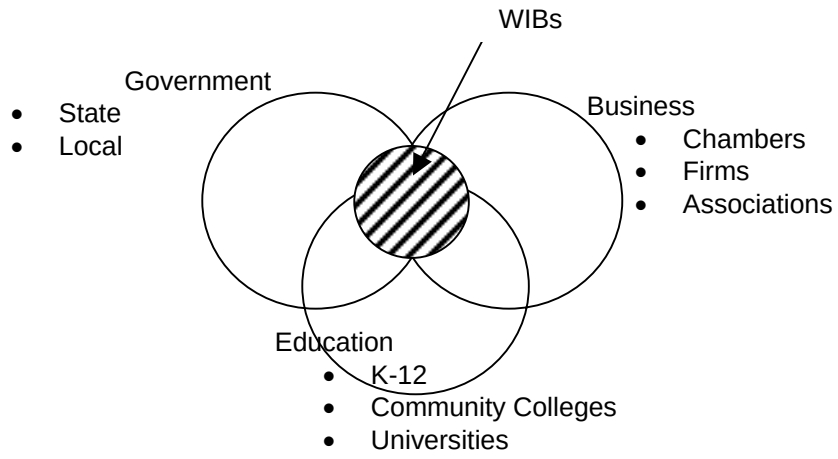
- Need new Models in new Industries. Not just a blue collar job any more.
- Solutions training: focus on customer needs, just do not provide the same old model.
- Focus on skills basics add on with specific expertise. Not just time based.
- Use skills as a basis for replacing aging work force, across crafts to start cross-crafting training.
- DOL-ETA progress on solutions sales – some models:
  - Emerging Community College Articulation Agreements – delineate work-based learning credit towards a master's degree – example, CC of Baltimore – Irving McPhail and James Malar
  - Education-Business-Bureau of Apprenticeship teaming – automotive maintenance mechanic
  - Lattice model – vertical and horizontal career pathways with interim certifications
  - Sector approach – Transportation Industry, Construction Industry progress
  - Closer connection with One-Stop career centers (WIBs)
  - Military connection – transition from active duty
  - Dislocated worker connection – declining industries
  - Consortium-sponsored apprenticeships – plastics industry

Working with Workforce Investment Boards, – Alex Graham, Executive Vice President, National Association of Workforce Boards.

Summarized key learning from the NAWB 2004 Forum – A Skilled Workforce: A Stronger Economy. Note: NSRP participation in workshops and panel discussions at the conference March 14-16.

Workforce Investment Boards – business-led collaborative between government, business and education. Suggested model is the Arnold Schwarzenegger approach: develop a list of issues and problems agreed to work on, put disagreements aside and revisit them later. The functional models then become:





Facilitated Round-Table Conversations

Linda Soderberg, RI School-to-Career Coordinator and Dr. Kathleen Healy, Education Development Consultant helped the group to answer two key questions then explore answers, possible outcomes and next steps in more depth. This conversation is consistent with similar questions asked about skill standards development.

Why focus on **Emerging Workforce** issues?

- Aging workforce
- No career lattice transition Process
- Cost issue-educating and training
- Poor Image - What is the future
- Growth
- Work Force Development Issue
- Industry Unifier
- Strategizer for Recruitment Process
- Strategically important for Nation: homeland, national defense, economical security
- Negative impact on productivity: business improvement
- Demographic changes
- Apprenticeship Program
- Business Cycle
- Community College: WFD certification.

These 12 reasons to focus on emerging workforce issues were synthesized into the following three major categories:

- Image of shipbuilding and repair;
- Organize a Trade Summit to address Workforce Development Issues and Problems; and

- Emerging Workforce Development Issues

These three categories of conversation include a bullet list of related concepts and a next-steps list.

Image of Shipbuilding and Repair

Industry image, from a new workforce development perspective, is shaped, influenced or represented by the following factors:

- Industry performance – economics, growth, job trends, etc., even location and appearance of shipyards
- Students and their Parents
- School counselors
- Public awareness – from industry employees, media, public relations
- Skills standards: a communication tool
- Other workforce development partners – WIBs, etc.
- National defense role
- Commerce, trade, economic security
- NSRP Crosscut Initiatives Panel
    - Websites and links – www.usashipbuilding.com, Crosscut Resource Center
    - Relevant information available to emerging workforce on the work of building and repairing ships
    - Maintenance and appearance of the website
        - Limited resources;
        - Actual maintenance of the website a responsibility of?
        - Content driven by Crosscut Panel members

Next Steps:

- Develop a brief presentation of Crosscut Initiatives Panel Emerging Workforce Development work and achievements for delivery to other shipbuilding partners and national agencies – a 20-minute presentation, with 20 minutes discussion at other panel meetings, SCA meetings, etc.
- Identify what needs to be done and educate CEO and executive levels of shipbuilders and organizations about NSRP efforts – issues, concerns, concepts, solutions
- Develop strategy for website information and partners

Organize a Trade Summit to address Workforce Development Issues and Problems

- Develop partnerships with industry and workforce development organizations
    - NSRP, SNAME, ASA, SCA, NAM, NACFAM, NAWB/WIBS
- Collaborate with NAWB – for broker role, intermediary with WFD partners
- Involve NSRP technical panels and project groups
- Demographic, literacy, workforce changes
- Address issues: political arena, U.S. vs. international products and markets, Jones Act, commercial products and markets.
- Develop resources to continue work: Depts. of Commerce, Labor, Education, Transportation; WIBs; Navy-Coast Guard-Army, etc.

Next Steps:

- Identify negative impacts on industry – technology advances, increased productivity, etc.
- Contact NAWB – meet and inform, review options
- Develop collaboration among main shipbuilding industry technical and lobby partners –

NSRP, SCA, ASA

- Connect Summit to other industry-shipbuilding sessions – as Associated General Contractors, steel industry, etc.
- Roll out Skill Standards to other partners – shipbuilding subcontractors, vendors, suppliers, etc.
- Educate CEOs and executive level directors of shipbuilding companies

Emerging Workforce Development Issues

- Demographics influence on academic literacy, safety, general technical literacy and training, ESL
- Diversity – minorities, ethnicity and gender
- Maturing/job changers
    - Dislocated worker and WIA pools
    - Re-entry programs – Dept of Corrections
    - Job Training Programs – HUD
    - Rapid Job Entry Programs
    - Welfare to Work
- Under-employed worker recruitment
- Growth
- Incumbent worker training – technology transfer and multi-skills
- Message to workforce pool

Incumbent Workers Emerging Workers	• Workforce development vs. actual employment opportunities • Short term vs. long term workforce development strategies • Need vs. want • Local message and/or national message • Retentions vs. training sites and transition to other industries

Emerging Workforce Focus

- Aging workforce currently
- Career ladders and lattices process – development and promote model
- Cost
    - Education and training
    - Retention vs. replacement
    - Flexibility – cross-training and multi-skills
- Develop strategic plan for recruitment process and engagement
- Identify workforce development partners already successful and partner with them
    - Community Colleges
    - WIBs
    - School-to-career
    - Vocational-Technical Programs
    - Career and Technical Centers
    - Technical academies in comprehensive high schools
- Work with partners to address literacy concerns
    - Academic (read, write, count, think)

  - Technical (safety, hand tools, measurement, planning, etc.)
  - Social – teams, diversity and cultural
  - Creative – problem identification and solving, fresh ideas out of the box

Next Steps

- Apprentice Programs
  - Preparation of workforce, information-knowledge-skill-understanding transfer, retention
- Links to Secondary Schools
  - Academies – NAF, CASN, NCAC
  - Career & Technical Centers
  - Vocational Centers
- Use skill standards with educators to improve curricula and as a communications tool with school counselors
- Career pathway development (see AGC model)
- Shipbuilding-replicated education tool kit
- Project based learning kit
- Portable skills certificate (NIMS model)
- Community College – workforce develop skill certificate
- Develop strategies to improve emerging workforce pipeline
  - Work with teachers, school counselors
  - Identify academic criteria for career opportunities in shipbuilding and repair
  - Junior Achievement adapted to shipbuilding
  - Scouting career programs adapted to shipbuilding
  - Similar with Boys & Girls Clubs, GURL TECH
- Use existing legislation to improve the pipeline
  - NCLB Options
    - AYP – Adequate Yearly Progress of schools
    - Mandatory Tutoring for students – vouchers for out-of-school
    - Math-science best practices
    - Edweek.org – state education report cards
    - Tutoring vs. testing teachers
- Explore the WIB/Industry Sector Model (with US DOL-ETA)
- Develop collaborations/partnerships with vendors and suppliers to shipbuilding based on a skill standards and quality needs assessment
- Skill Standards deployment and yard integration models
- Incumbent workers
  - Emerging workers

<u>How To / So What - Outcomes</u>:

- How to improve the EWF pipelines
- Literacy: Academic, Technical, Social, Critical
- School to Career
- WIB's/Industry Cluster
- Skills Standards
- Crosscut Panel
- Focus on Maturing / Job Changer/ Dislocated. Welfare to work.
- Organize a summit of numerous trade organizations in same industry.

- Apprenticeship program
- Web site: Buildships.com, who updates and maintains?
- Employee turnover / Openings: retention, Job market, local vs. national, short term vs. long term

4. Conclusions and Recommendations

The project's basic assumptions, goals and focus are restated below. Conclusions and recommendations follow.

Assumptions: The shipbuilding and repair workforce is steadily aging. Maintaining a capable and intergenerational shipbuilding workforce requires at its core two interrelated actions:

1. Professional development and retention of our current employees; and
2. Recruiting, education and training of entry level and job-changing people.

Goals: The goals of this project are: a) to learn, understand and plan effective actions that develop persons more ready and able to enter and remain in shipbuilding careers, and; b) find policies and practices that can reduce entry-level workforce related costs.

Focus and definition: This panel project focuses on development of an entry-level shipbuilding and repair workforce emerging from: K-12 education; post-secondary education; and job changers such as persons from work-to-work, welfare-to-work, and corrections/addiction recovery-to-work. This group of people does not have shipbuilding and repair experience and will be named "emerging workforce."

Conclusions

1. There is a gap between the required and available numbers and skills of emerging workforce so that filling the gap will be more difficult unless actions are taken.

2. These numbers-skills gaps are felt by all manufacturing in the US. Shipbuilding and Repair have allies not only in general manufacturing but also construction, military recruiting, etc. Prospective ally organizations include Shipbuilders Council of America; National Association of Manufacturers; US Chamber of Commerce; National Coalition for Advanced Manufacturing; National Association of Workforce Boards; US Departments of Labor (Education Training Administration); Transportation (Maritime Administration); US Department of Commerce (The President intends to nominate Albert A. Frink, Jr., of California, to be an Assistant Secretary of Commerce for Manufacturing and Services); Education (Career or technical-professional academy programs).

3. The numbers gap exists and is caused by a variety of factors:
   - Demographics
     a. General aging population; US women having fewer children.
     b. population growth and/or immigration is lower in some shipbuilding regions.
     c. a greater share of the available workforce are women; a greater share of men (mostly young men) are not seeking work.
   - Attitude or feelings toward manufacturing and shipbuilding/repair
     a. Image of manufacturing in media, minds of parents, teachers and other influential adults and peers is low. This image is low for various real or perceived factors:
        i. Manufacturing jobs are going overseas – no real future in the industry; a career path is unclear.

ii. Manufacturing is hard work: physical, long hours with little time flexibility, uncomfortable, unsafe, unhealthy.
iii. Shipbuilding and repair is a boom-bust or cyclic business driven less by customers than by: politics (defense shipbuilding; oil prices; environmental factors, etc.); resource and energy costs; shipyard related environmental and safety regulations; US and global competitiveness factors; changes in technology such as hull materials, etc.

4. The skills gap exists and is caused by a variety of factors:
   - Education pipeline does not prepare workers adequately – emerging workers are functionally illiterate – that is not ready or only somewhat ready for work.
     (a) Academic literacy – read, write, count, think.
     (b) Technical literacy – application of science, math, mechanics, etc. in the workplace; concepts of safety, how things work
     (c) Social literacy – basics such as coming to work on time, following directions, communications, working in teams, etc.
     (d) Creative literacy – problem solving, curiosity and innovation, etc.
   - Parents and neighbors, etc., add little to literacy gaps attributed to the schools. Implication is that more parents are as illiterate as the emerging workforce.
   - Immigrants make up a large section of the workforce growth. Those immigrants with poor English language reading, writing and speaking skills have more difficulty learning and adapting in both education and work settings.

5. The burden of bridging the numbers-skills gaps falls primarily on shipbuilding and repair. The increased cost and time are incurred while dealing with industry image-building, recruiting, initial orientation and training of the emerging workforce. The impact on shipbuilding and repair production is that the emerging workforce requires a longer time before effective performance is achieved. Workers trained in shipbuilding and repair often leave for other work so that reported turnover is high. The construction industry, represented by Associated General Contractors, has developed a very robust industry model that shipbuilding and repair can replicate.

6. Liaison and collaboration between shipbuilding and repair companies and related education and/or workforce organizations varies widely

Recommendations

1. All shipbuilding, repair and related maritime industry organizations, including top level management, should collaborate to understand the emerging workforce issues. This includes US Maritime Administration, Naval Sea Systems Command, Shipbuilders Council of America, American Shipbuilding Association and others. The Panel Project provided a thoughtful list of reasons why emerging workforce issues are important.

2. Shipyards should study and understand their local labor demographics available through government labor or workforce board organizations to determine near-term and long-term impacts of labor population changes.

3. Shipyards should understand what academic, technical, social and creative literacy can be expected of graduates from K-12 and post-secondary schools that provide emerging workers. If gaps between shipyard requirements exist, then shipyards can help fill the gaps by providing learning aids, teacher externships and other liaison. A Crosscut Panel Project to develop shipbuilding and repair oriented learning aids can be proposed.

4. Develop a stronger relationship between Crosscut Initiatives Panel and other NSRP panels to share project findings and further decide on logical plans of action and milestones. This effort is started by extending the timeframe of this Panel Project which will allow presentations at other panel meetings in July-September 2004.

5. Continue to showcase and share best practices and methods for emerging workforce development such as the Tidewater Virginia; San Diego and Rhode Island collaborative efforts.

6. Explore more national teaming – advocacy, shared best practices, lobbying for federal policy and funding, etc., - with other manufacturing and construction industry organizations, workforce boards and educators. This can be discussed in depth at a one-two day "Summit" held in connection with a large national meeting. A Crosscut Panel Project for the Summit can be proposed.

7. Develop a stronger relationship between workforce boards, other manufacturing industries and education providers within a local/regional area to form more robust manufacturing industry cluster. A manufacturing industry cluster can focus on common problems and issues including emerging workforce development and related advocacy for resources and policy formulation.

8. Explore improving shipbuilding and repair skill standards implementation as a bridge between the world of education and the world of employment. Skill standards can lead shipyards and educators to common terminology and a better consensus about workforce literacy needed by entry level workers. The Crosscut Panel can recommend further specific actions.

9. Crosscut Panel can develop a comprehensive demographics, educational (including skill standards) and workforce board research project that builds from the preliminary work of this Panel Project.

Appendix A:
Project Statement of Work (SOW)

PTR: Don Bewley, Jeffboat

Technical Lead: Larry Gebhardt, SENESCO

Principal Researchers: Larry Gebhardt, Les Hansen, Andre Dorais (Consultant)

Industry involvement: Shipyards (NGNN, Jeffboat, EB, Todd Pacific, Kvaerner, others); Selected federal-state-local government agencies with workforce development agendas; Selected K-12 school districts-schools; Selected technical-junior-community colleges; Labor unions.

Tasks:

The following will be accomplished to support project goals:

1. Design Survey of Current Practices in Workforce Development – complete by November 2003
   - Design survey format and content; select best delivery method(s) (October 2003)
   - Develop list of contacts for information gathering (November 2003)
2. Data Gathering – complete by January 2004
   - Plan for November roundtable conference in conjunction with panel meeting in San Diego (November 2003)
   - Conduct surveys and dialogues (January 2004)
3. Conduct Roundtable Conference and Follow-Up – complete by February 2004
   a. Conduct conference at San Diego meeting (November 2003)
   b. Share results of data gathering to date (December 2003)
   c. Conduct follow-up surveys and local meetings as necessary (February 2004)
4. Compile Results – complete by April 2004
   a. Compile and evaluate results of surveys, dialogs and roundtable conference
5. Provide a Final Report – complete by May 2004

Deliverables:

1. Report on Survey Development and Roundtable Conference (Task 3) – December 31, 2003
2. Final Written Report (Task 5) – May 31, 2004
3. Status Reports – March 31, 2003 and May 31, 2004

Appendix B:
Demographics Presentation

Dr. Neeta Fogg, Labor Demographer at Northeastern University, prepared a detailed report tailored to shipbuilding regions titled *Changing Demographics in a Changing Labor Market,* which is included below.

Slide 1

Slide 2

Slide 3

Population Growth, 1990-2000

	1990	2000	Absolute Change	Relative Change
United States	248,709,873	281,421,906	32,712,033	13.2%
New England	13,206,943	13,922,517	715,574	5.4%
Middle Atlantic	37,602,286	39,671,861	2,069,575	5.5%
East North Central	42,008,942	45,155,037	3,146,095	7.5%
West North Central	17,659,690	19,237,739	1,578,049	8.9%
South Atlantic	43,566,853	51,769,160	8,202,307	18.8%
East South Central	15,176,284	17,022,810	1,846,526	12.2%
West South Central	26,702,793	31,444,850	4,742,057	17.8%
Mountain	13,658,776	18,172,295	4,513,519	33.0%
Pacific	39,127,306	45,025,637	5,898,331	15.1%

--Economics is based in the laws of supply and demand. The labor market also has a supply side and a demand side. Let's start the discussion today with the supply side of the labor market starting with population. The size of the labor supply or workforce is determined by the size of the population and the labor force attachment of the population.
--Over the past decade, the nation's population grew by 13 percent or nearly 33 million.
--The growth was not uniform across different regions of the nation.

--Population growth was concentrated in the South and the West regions of the nation.
--The fastest growing region was the Rocky Mountain region that added 4.5 million people representing a population growth of 33 percent.
--In 1990, New England and the Rocky mountain regions had about the same population, 13 million. However, between 1990 and 2000, New England's population increased by 716,000 whereas the Rocky Mountain region added 4.5 million to its population
--The slowest growing regions were New England, Middle Atlantic, and the Eastern states of the Midwest. (Please show the next slide with the map so that people get a geographic visual of the areas to which we are referring).

Slide 4

The nation is broken into four regions and nine divisions:
Northeast region (New England and Middle Atlantic divisions)
Midwest (East North Central and West North Central divisions)
South (East South Central, West South Central, and South Atlantic divisions)
West (Mountain and Pacific divisions)

Slide 5

Estimates of New Foreign Immigration's Contributions to U.S. Population Growth, Selected Decades 1890-1900 to 1990-2000

Decade	New Immigrant Share of Growth
1890-1900	24.9
1900-1910	35.0
1910-1920	30.0
1920-1930	17.9
1970-1980	24.2
1980-1990	39.7
1990-2000	41.7

--A large part of the population increase during the 1990s was fueled by immigration. New immigrants accounted for nearly 42 percent of the population growth during the 1990s…the highest ever.
--During the immigration boom of the late 19th and early 20th century, new foreign immigrants to the U.S. contributed between 25 and 35 percent of the population growth of the nation. During the peak immigration years of 1900-1910, new foreign immigration contributed 35 per cent of the U.S. population growth.
--During the decade of the 1920's, new foreign immigration played a substantially smaller role in national population growth.
In the last three decades (1970s, 1980s, and 1990s), new foreign immigration has played an increasingly more important role in generating population growth throughout the nation, providing 24% the nation's population growth in the 1970's, just under 40% in the 1980's, and nearly 42% in the 1990's.

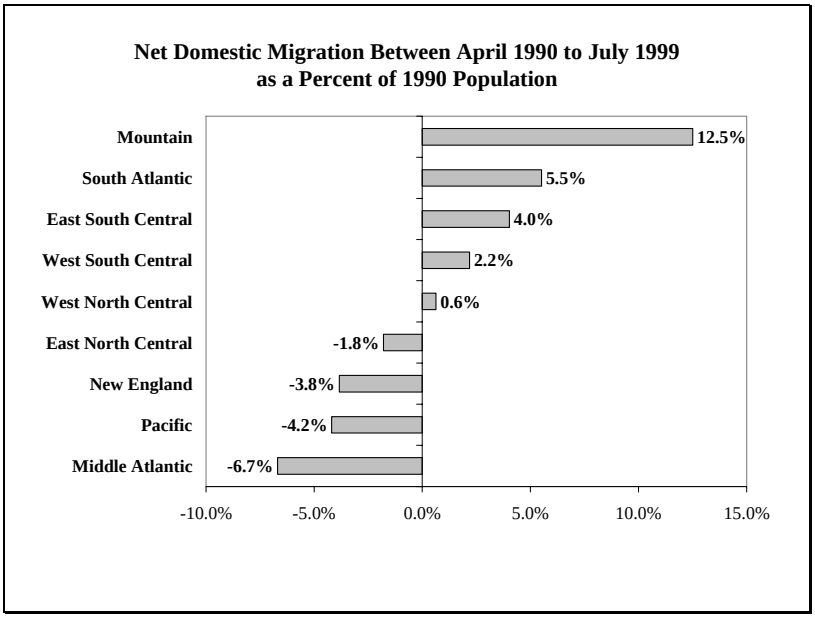
Slide 6

Immigrants as a Percent of Population Change, 1990-2000

U.S. Total	41.7
Middle Atlantic	120.2
New England	84.6
Pacific	64.7
East North Central	40.5
West South Central	31.9
South Atlantic	29.0
West North Central	26.1
Mountain	18.9
East South Central	11.4

--the importance of immigrants as a source of population growth varied widely by region.
--The population of the middle Atlantic region would have declined had it not been for immigrants.
--Nearly 85 percent of New England's population growth and 65 percent of the Pacific region's population growth during the 1990s was due to immigration.
--Those regions with the highest population growth (the south and the Rocky mountain regions) had the smallest reliance on immigrants for population growth. These regions were able to attract native born populations from other regions of the nation to relocate as shown on the next chart

Slide 7



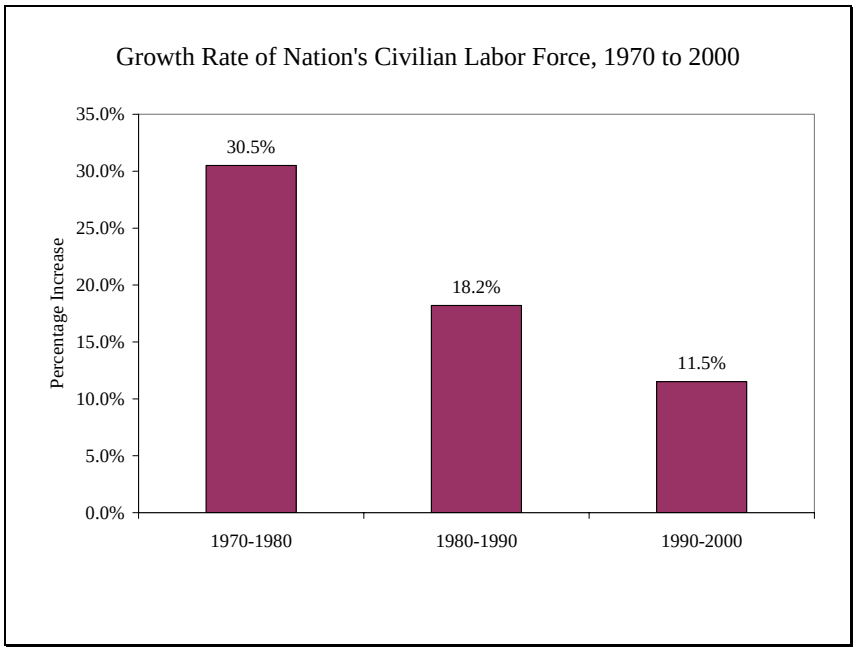
--Net domestic migration consists of the difference between population that moves into a region and the population that moves out of a region.

--A positive net domestic migration means that there were more people moving into a region than there were moving out of the region whereas a negative net domestic migration means there were more people moving out of a region than were moving into the region.
--This chart presents net domestic migration between 1990 and 1999 in each of the nine divisions as a percent of the 1990 population in the division.
--The Mountain division, three divisions in the south and the western part of the Midwest region all had positive net domestic migration.
--The remaining 4 divisions had negative net domestic migration—they lost more population to other regions that gained population from those regions.
--A comparison of the data in this chart and the precious chart make if abundantly clear that regions with the fastest population growth also had positive net domestic migration and were less dependent on immigrants. Regions with the smallest population growth were more dependent on immigrants and lost more domestic populations to other regions in the nation.

Slide 8

Labor Force Developments

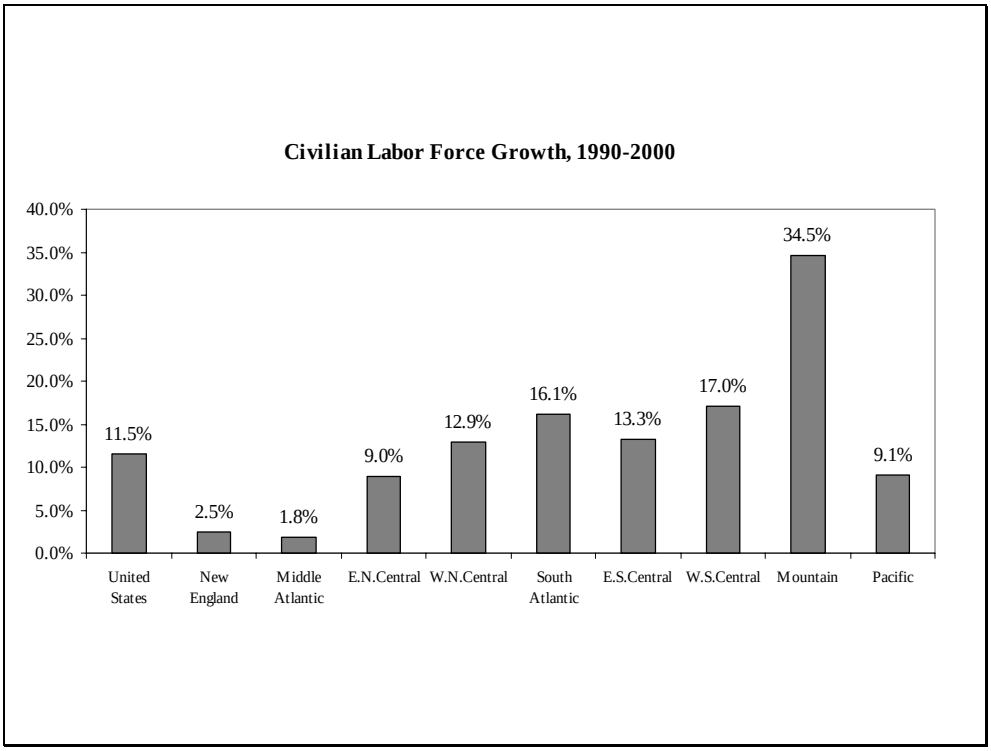
Slide 9



--The labor force or workforce is a measure of the labor supply. The labor force consists of people who are employed or are looking for work (the unemployed)

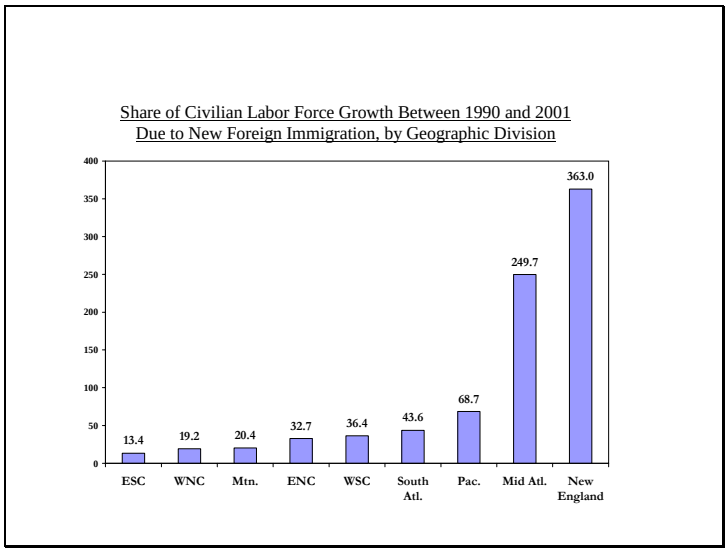
--The size of the labor force depends on the size of the population and the labor force attachment of that population. The labor force attachment is measured by the labor force participation rate or the proportion of the working age population (16 years or older) that was employed or was looking for work.
--The labor force growth in the nation has slowed down.
--the 1970s saw a huge increase in the labor force as women and members of the baby boom generation entered the labor force in large numbers.
--The rate of labor force growth slowed down in the 1980s followed by another slowdown in the 1990s. Projections of labor force growth indicate further slowdown as members of the baby-boom generation age and exit the labor force.
--Growth in the labor force is important for economic growth since labor force growth fuels job growth and economic growth. Job growth is restricted by labor force growth. Employers cannot add jobs if the workforce is not large enough to fill those jobs.

Slide 10



--As noted earlier, the labor force or workforce is a measure of the labor supply and size of the labor force depends on the size of the population and the labor force attachment of that population.
--It is therefore not surprising to find that those areas of the nation that saw the largest population growth also saw the largest labor force growth
--The labor force of the Rocky Mountain region grew by nearly 35 percent between 1990 and 2000. Regions in the south and the western part of the Midwest region witnessed double digit growth rates in the labor force during the 1990s.
--the Middle Atlantic and New England regions had the slowest labor force growth of all regions.
--Regions with restricted labor force growth also saw smaller job growth. Employers will not add jobs if the workforce of an area cannot fill those jobs. Labor force growth can therefore act as a fuel or a constraint on economic growth

Slide 11



--Just as was the case with population growth, the nation was very dependent on immigrants for labor force growth. The workforce attachment is very high among immigrants as a consequence, the share of immigrants in the labor force growth was higher than their share of the population growth. Nationwide, one-half (48 percent) of the labor force growth between 1990 and 2001 was from immigrants.
--Although there was wide variation across regions, the share of labor force from immigrants was quite high in most regions.
--In the absence of immigrants, the labor force of the Middle Atlantic and New England regions would have declined.
--Two-thirds of the labor force of the Pacific region was attributable to immigrants.

Slide 12

Percentage Distribution of the 18+ Population by Educational Attainment and by Nativity Status

Educational Attainment	(A) Native Born	(B) Foreign Born	(B)-(A)
Total	100.0	100.0	
High school dropout	14.2	33.8	19.6
High school graduate	34.1	25.1	-9.0
Some College	28.2	17.8	-10.4
College Graduate	23.5	23.3	-0.2

Increased numbers of immigrants in the labor force pose new challenges to the workforce development system. Although many immigrants are highly educated and possess valuable skills, immigrants are morel likely to be poorly educated and have lower levels of literacy proficiencies. In addition, many immigrants are not proficient in the English language.

--This slide and the next slide reveals the educational and literacy traits of immigrants compared to the native born population.
--The educational distribution of immigrants is bi-modal with a larger concentration at the bottom end.
--One-third of all foreign born individuals had failed to complete high school—20-percentage points higher than native born individuals.
--The share of college graduates was equal among immigrants and native-born individuals.
--Immigrants with limited education face tremendous barriers to employment and are more likely to be confined to low skills and low wage jobs with little economic and employment security.
--since this is the large source of our labor supply, we need to invest in this population to bring them up to par to be able to successfully participate in the labor force and improve their own economic situation as well as provide the much needed skilled labor force to the US economy.

Slide 13

Comparisons of the Mean Scores of Native-Born and Immigrant Adults (16-65 Years Old) on the Prose Document, and Quantitative Scales, U.S.

	Prose	Document	Quantitative
Native Born	285	279	284
Foreign Born	209	205	218
Difference between mean scores	76	74	66
Difference in standard deviation units	1.11	1.05	0.96

These data are from the National Adult Literacy Survey (a nationally representative sample of the nation's population). These are mean scores on three areas of literacy proficiency: prose (language), quantitative (math) and document (ability to interpret documents and instructions like employment form, benefits program forms, tax forms, application for a drivers license etc.)
--The tested literacy proficiencies of the foreign born population are considerably lower than that of the native born population.
--In each area, the mean score of foreign-born is about one standard deviation below that of native born persons.
--Given the low levels of education and literacy proficiencies among immigrants, the entry of large numbers of immigrants implies a greater need for workforce development and training resources to train these individuals and raise their skills and proficiencies so that they can successfully participate in the labor market.

Slide 14

Labor Force Growth by Gender

Slide 15

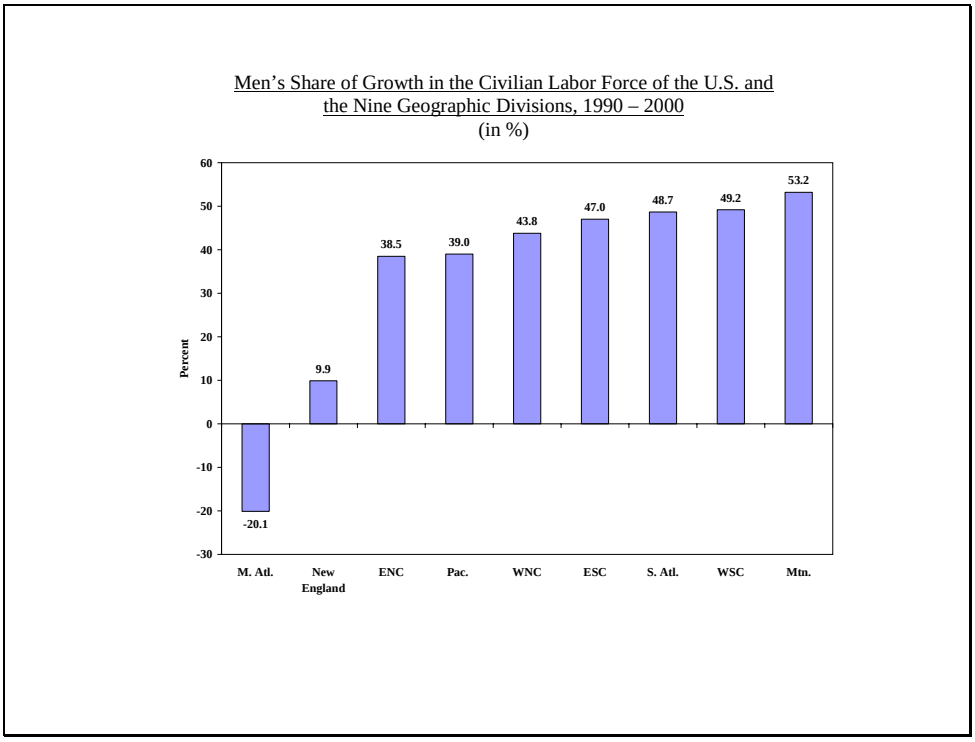
Growth in the Civilian Labor Force, by Gender, 1990-2000

	1990	2000	Absolute Change	Percent Change
US				
All	123,473,450	137,668,798	14,195,348	11.5%
Men	66,986,201	73,285,305	6,299,104	9.4%
Women	56,487,249	64,383,493	7,896,244	14.0%

--There was a sizable gap between the growth rates of the nation's male and female labor force. The female labor force grew by 14 percent compared to only a 9 percent growth among men.
--Between 1990 and 2000, nearly 56 percent of the nation's labor force growth came from growth in female labor force participants.
--The male labor force is not growing as fast as female because males are dropping out of the labor force. Even in a booming economy of the 1990s, males were exiting the labor force. Almost all of the decline in labor force participation was among poorly educated males. One of the underlying causes of this trend like changing nature of industrial job structure (shrinking of the number of manufacturing jobs) that reduce employment opportunities for poorly educated males.
--why is this important?
--Deterioration of male labor market outcomes not only is bad for one half of the population but it also has negative effects on the community and family formation, and reduces the tax revenues of the government and increases reliance on public assistance. --It also deprives the nation and areas like New England of the badly needed labor force to drive economic growth and attract employers to the region. Employers seek to locate in areas where there are plentiful resources for their business—good quality labor is a vital resource to most employers.
--Idleness among young persons is extremely harmful to them individually and to the potential future labor force. In 2000—an economic peak—there were over 5 million young adults (16-24 years old) in the nation

who were not enrolled in school and not employed. These young adults were disconnected from the labor market and the educational system and are wasting critical years of their lives when most of their peers are investing to obtain more schooling or work experience.

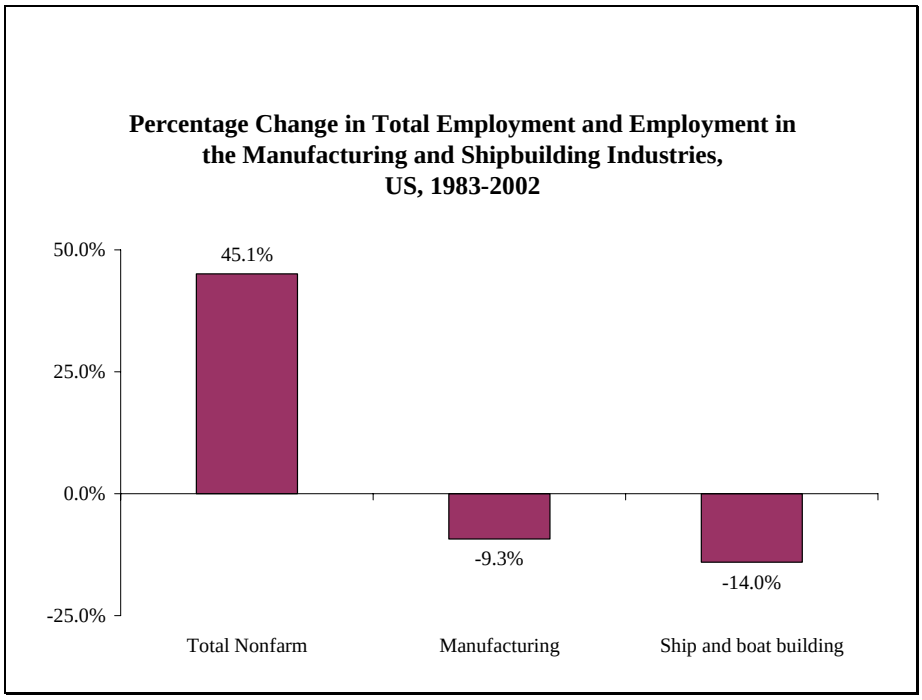
Slide 16



--Certain areas of the country, like states in Middle Atlantic and New England had even more severe male labor force growth problems.
Only four divisions (East south central, south Atlantic, West south Central and the Rocky Mountain) had about half of their labor force growth from males. The remaining areas had less than half of their labor force growth from males with the smallest male contributions in New England and Middle Atlantic divisions.

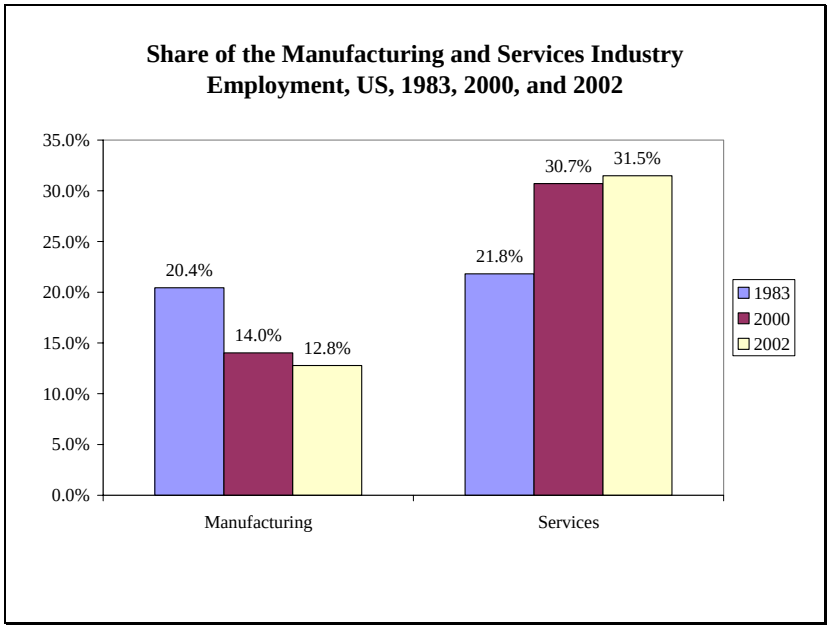
Slide 17

Slide 18



--While total nonfarm employment in the nation increased by 45 percent, between 1983 and 2002, employment in the manufacturing industry declined by 9 percent while the shipbuilding industry saw a 14 percent decline in employment.
--Employment prospects and jobs in these industries have shrunk resulting in permanent displacement of workers who held these jobs sharply increasing the need for retraining and rearming these workers with the skills that are needed in other growing sectors of the economy.

Slide 19



--The industry composition of jobs in the US changed sharply. Jobs in the production sector—manufacturing—declined steadily while jobs in the services industry increased.
--Service Industries consist of establishments engaged in providing a wide variety of services for individuals, business, government establishments, and other organizations.
The fastest growing service sector jobs are in professional services establishments.
--The share of manufacturing jobs in the nation declined from over 20 percent in 1980 to under 13 percent in 2002.
--The share of service sector jobs increased from 22 percent in 1983 to 32 percent in 2002.
--Even between the 2000 and 2002 economic decline, service sector jobs were growing.
--Although much of the decline in manufacturing was due to the sharply rising productivity—fewer people needed to produce the same output—there are serious consequences of these developments on the workforce. ---As the next few slides will show, the literacy and educational requirements of the growing sectors of the economy are much higher than that required in shrinking industrial sectors (manufacturing) of the economy.
--As a result, the demand for skilled labor and their earnings increased sharply while poorly educated workers with limited skills who did well in the manufacturing sector, saw their earnings and employment prospects deteriorate

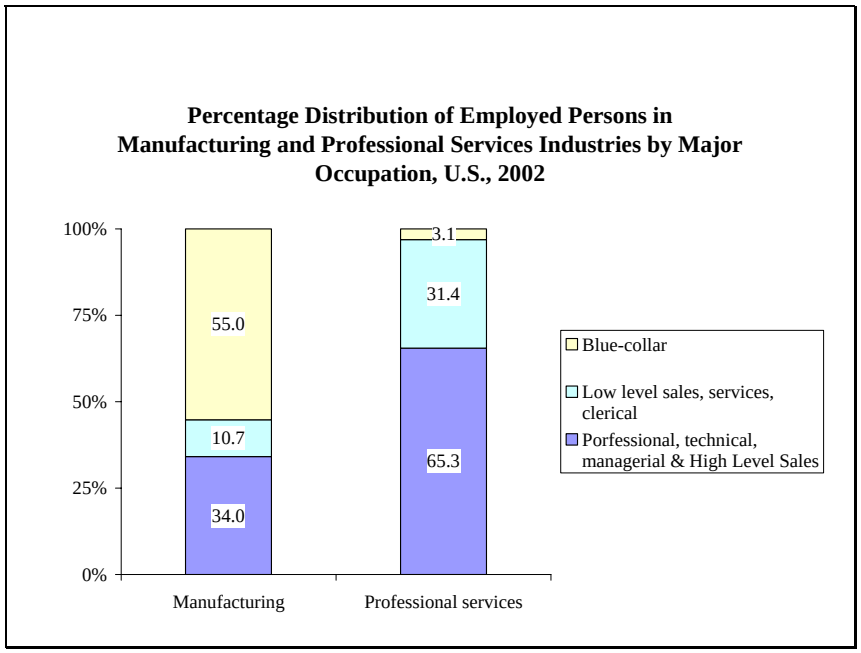
Slide 20

Service Industries
Establishments engaged in providing a wide variety of services for individuals, business, government establishments, and other organizations.
Examples:
Hotels and lodging places, Personal services like dry cleaning, beauty salons, barbershops, & funeral services, Business services like ad agencies, photocopying, photography, temp agencies, computer & data processing, Auto & other repair & auto parking, Amusement & recreation services, Professional service establishments in health (hospitals, doctors offices, etc), education (schools, college, libraries), social services (job training, family, Day Care), engineering & management (engineering, architectural, accounting, management consulting, public relations), membership organizations--business, labor, professional, political, & religious

Service Occupations:
Private household occupations—cooks, housekeepers, butlers, childcare workers in private households
Protective service occupations—firefighters, police, detectives, guards
Food preparation & service occupations—waiters/waitresses, cooks, bartenders, food counter workers
Health service occupations—health aides, nursing aides, dental assistants
Cleaning & building service occs—janitors, elevator operators, pest control
Personal service occupations—hairdressers, cosmetologists, attendants at recreation facilities, childcare workers (outside private households)

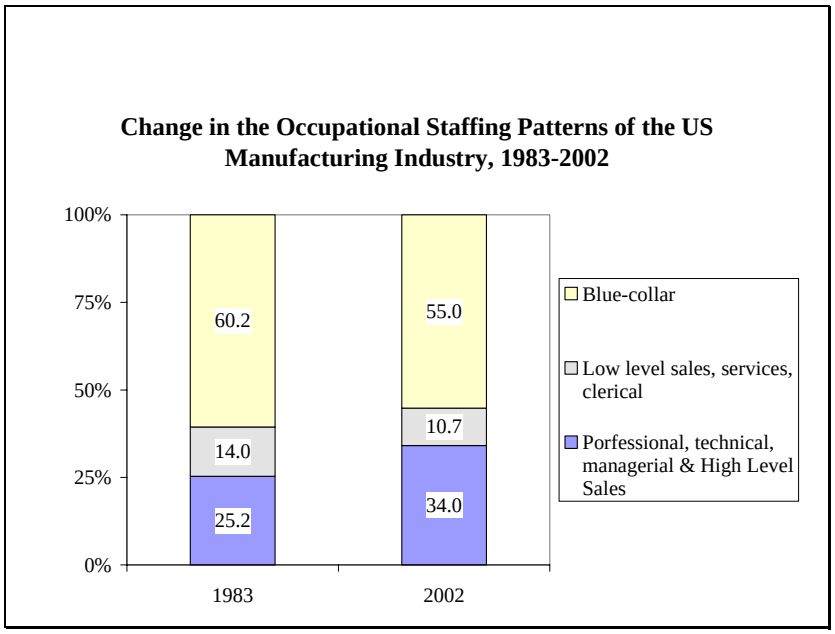
We will be referring to service sector industry and service occupations. Here is how these two are defined.

Slide 21



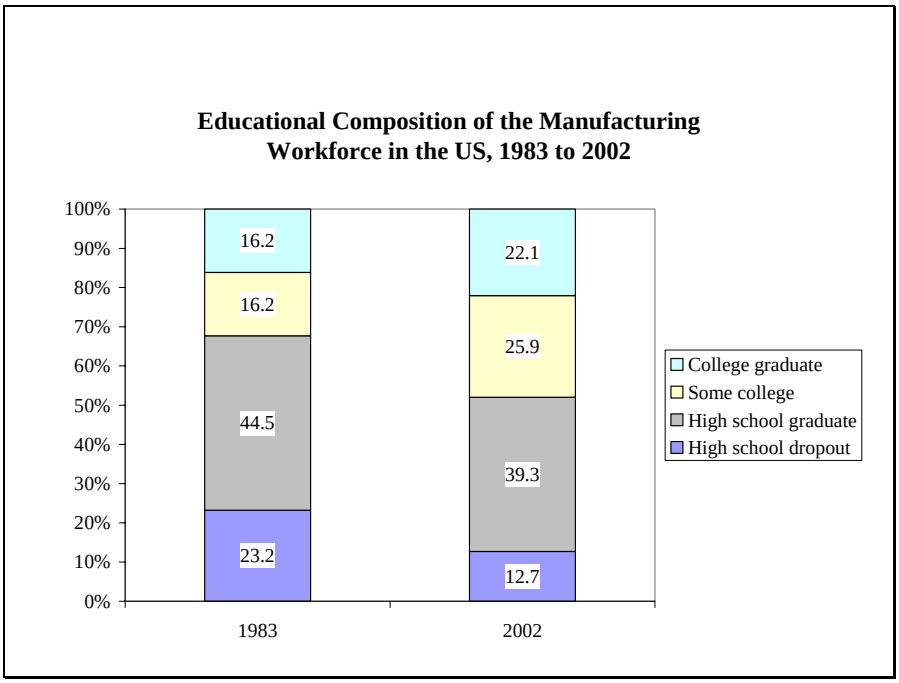
--Industry is the kind of business in which one works and occupation is one's job title. For example, Linda Soderberg works in the educational services industry with a job title "Director of STC" which is a managerial occupation.
--This chart presents the occupational staffing patterns of the manufacturing and the professional services industries.
--the three occupations presented here are: professional, technical, managerial, and high level sales occupations represent what is commonly called college labor market occupations since a majority of workers in these occupations have a college degree. The second—low level sales, services and clerical occupations represent clerical and retail sales type sales occupations. The third is blue collar occupations-production, precision craft, operators etc.
--the professional services industry has a majority of workers in college labor market occupations (65 percent) and 31 percent in clerical occupations.
--In contrast, only 34 percent of the manufacturing sector workers are in college labor market jobs and the majority are in blue collar occupations and 11 percent clerical service occupations.

Slide 22



--Not only did the share of manufacturing industry employment fall, but the occupational staffing pattern within the manufacturing industry changed with a higher share of workers in college labor market occupations and a lower share of blue-collar and clerical workers.
--Just between 1983 and 2002, there was a 10-percentage point increase in the share of college labor market occupations in the nation's manufacturing sector. Technological improvements in the production process have resulted in a greater sophistication of the production process thus requiring a more sophisticated (with high levels of skills and education) workforce.
--These changes have resulted in fewer employment opportunities in the manufacturing sector for individuals with limited schooling and skills.

Slide 23

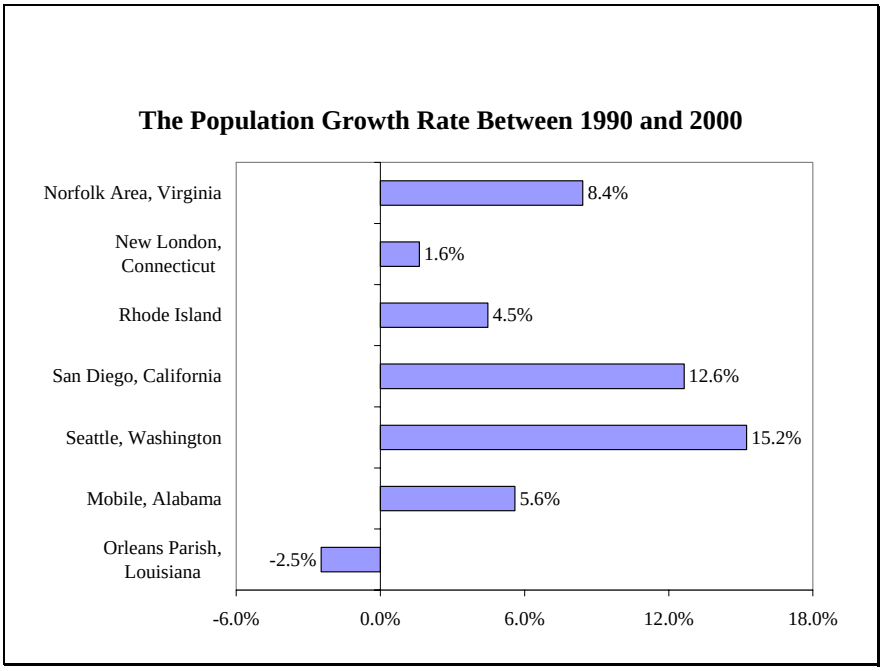


Changes in the manufacturing workforce are also evident in the changing educational composition of the workforce.
--In 1983, nearly one-quarter of the nation's manufacturing workforce consisted of high school dropouts. In 2002, fewer than 13 percent had failed to complete high school.
--In 2002, nearly one-half percent had completed some postsecondary schooling, up from 32 percent in 1983.
--Changes in the industrial composition of jobs and the occupational staffing patterns of industry has resulted in sharp increases in the demand for high levels of education and literacy proficiencies in the labor force. Most of the job losses today consist of permanent job losses resulting in a greater need for workforce training and the provision of new skills to workers that are in line with the emerging labor market and industries.

Slide 24

Demographic Changes in
Selected Shipbuilding Areas

Slide 25



--Ares in the west saw the highest population growth rates with Seattle at 15 percent and San Diego at nearly 13 percent population growth.
--At the other extreme, the population of Orleans parish declined by 2.5 percent and New London County saw a growth of less than 2 percent. RI saw a 4.5 percent growth in its population.

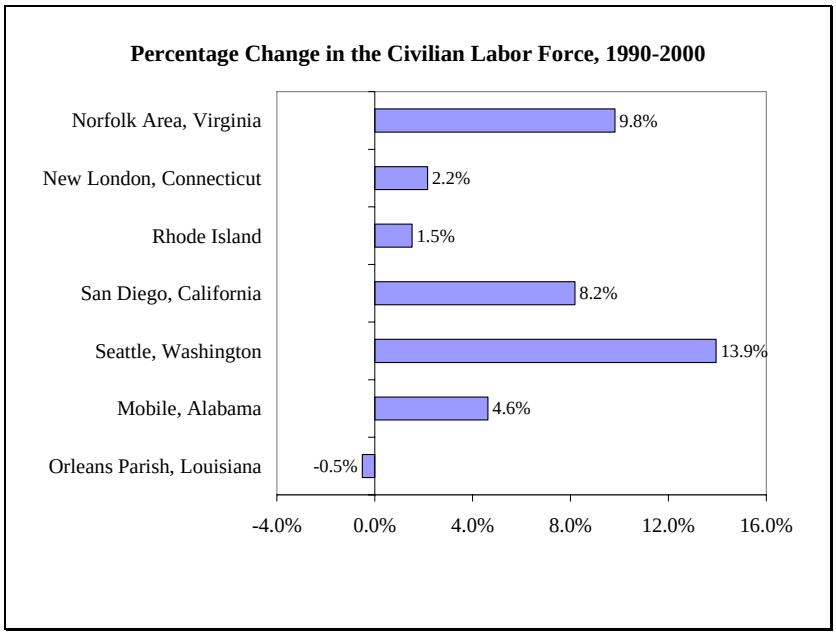
Slide 26

Immigrant Share of Population Growth in Selected Areas, 1990-2000

Area	Absolute Change in Total Population	Recently Arrived Immigrants	Immigrant Share of Total Population Growth
Norfolk Area, Virginia	117,410	22,911	19.5%
New London, Connecticut	4,131	4,864	117.7%
Rhode Island	44,855	41,478	92.5%
San Diego, California	315,817	215,502	68.2%
Seattle, Washington	229,715	131,848	57.4%
Mobile, Alabama	21,200	4,376	20.6%
Orleans Parish, Louisiana	-12,264	6,885	NA

--Immigrant contributions to population growth were highest in the SE CT and RI. The population of New London County would have declined in the absence of immigration.
--the western areas of San Diego and Seattle also had large immigrant shares of population growth.
--Mobile had a fifth of its population growth from immigrants and New Orleans population decline would have been 50 percent higher in the absence of immigration.

Slide 27



Just as they did in population growth, these areas saw varying rates of labor force growth during the 1990s.
--Seattle, San Diego, and Norfolk VA had the three highest rates of labor force growth. These also had the highest population growth.
--The lowest labor force growth areas were New Orleans, New London, and Rhode Island. RI and New London were relied heavily on immigrants for their population and labor force growth.

Slide 28

Female Contribution to Labor Force Growth, 1990-2000

Area	Change in the total Labor Force	Change in the Male Labor Force	Change in the Female Labor Force	Female share of labor force growth
Norfolk Area, Virginia	61,948	21,623	40,325	65%
New London, Connecticut	2,755	-1,646	4,401	160%
Rhode Island	7,987	-1,971	9,958	125%
San Diego, California	99,765	37,484	62,281	62%
Seattle, Washington	119,073	61,423	57,650	48%
Mobile, Alabama	7,875	2,245	5,630	71%
Orleans Parish, Louisiana	-1,092	-4,086	2,994	NA

--With the exception of Seattle, female labor force growth accounted for most of the growth in the labor force in these areas.
--In New London, CT and Rhode Island, the male labor force declined and the entire growth of the labor force was attributable to females.
--many of the male labor force exits are among poorly educated males for whom job opportunities have declined sharply. These men need to be brought back into the labor market to provide these regions with the sorely needed labor supply and to increase the economic and social well-being of these discouraged and disconnected men.

Slide 29

Population and labor force growth had slowed down and reliance on immigrants for labor supply has increased. These changes are more concentrated in some areas of the country.

Changes in the industrial composition of jobs and increased demand for literacy proficiencies and education in the labor market has led to a sharp reduction in job opportunities for poorly educated persons.

Shrinking job opportunities, particularly in the traditional blue-collar manufacturing sector where one could climb the career ladder with experience on the job and earn a family wage without completing any postsecondary education has led to massive dislocation of males. This may have partly contributed to their labor force withdrawal.

The influx of poorly educated immigrants and dislocated workers in the labor market has sharply increased the need for workforce training to arm these potential workforce members with skills to participate successfully in today's labor market.

Appendix C:
Conference Agenda

Wednesday, March 17

Emerging Workforce Development Project Conference

Key Bridge Marriott; 1401 Lee Hwy; Arlington, VA

8:00 – 8:15:	Introductions/Announcements/Meeting Overview	L. Gebhardt/L. Hansen
8:15 – 9:00:	Project Overview; review status and survey results; recommendations	L. Gebhardt
9:00 – 10:00:	Presentation: Lessons-learned from construction industry workforce development	John Heffner; Associated General Contractors
10:00 – 10:15:	*Break*	
10:15 – 11:00:	Presentation: Lessons-learned from organized labor heavy manufacturing	Anthony Swoope; US DOL – Educat'n & Trng Admin.
11:00 – 12:00:	National Association of Workforce Boards (NAWB) facilitated conversation – presenter from NAWB Conference	Presenter TBA
12:00 – 1:00:	*Lunch (catered)*	
1:00 – 4:00:	Presentations or breakout session tracks with goal to build conceptual frameworks for pilot projects and possible funding sources – government/foundations/corporate match models.	
1 – 2 PM:	*Track 1*: Underlying structural change opportunities – influencing the education pipeline problems in our communities. (This is follow-on to education research and reform initiatives presented at the November 2003 conference.)	Dr. Kathleen Healy; Education Consultant, Massachusetts
2 – 3 PM:	*Track 2*: Improving the school-to-career opportunities in our specific shipyard areas. Collaboration between educators, job service organizations and shipyards; Draw lessons learned from effective operating programs in manufacturing and other industry clusters	Linda Soderberg, Rhode Island School-to-Career
3 – 4 PM:	*Track 3*: Improvements in shipyard initial recruiting, hiring and training. Action to improve our best-worst shipyard models of early-stage workforce development, including apprenticeship. Build on the shipyard models suggested by Kvaerner Philadelphia, NASSCO, SENESCO Marine, Alaska Ship & Drydock, Navy apprenticeship, and others.	L. Gebhardt, SENESCO; D. Ward, Alaska Ship; Jim Clark, Kvaerner; Others, TBA
4:00 – 5:00:	Plenary gathering, hear reports from breakout sessions; Determine recommendations for further workforce development action such as an ASE RA project (or via other funding sources, perhaps working with NAWB), or a related panel project.	

Appendix D:
Conference Attendance List

Name	Organization	E-mail	Phone
Bewley, Don	Jeffboat, LLC	Dwbewley@jeffboat.com	(812) 288-1651
Conroy, Tom	MARAD	Tom.Conroy@marad.dot.gov	(202) 366-0004
Davis, Carol	GD Electric Boat	Cdavis@ebmail.gdeb.com	(860) 433-6266
Franza, Donna	AGC	FranzaD@agc.org	(703) 548-3118
Gebhardt, Larry	SENESCO	Lgebhardt@senescomarine.com	(401) 295-0373
Graham, Alex	Nat'l Ass'n of Workforce Boards (NAWB)	Grahama@nawb.org	(202) 775-0960; X115
Hansen, Les	Shipbuilding Consultant	Lhansen119@aol.com	(619) 544-8882
Healy, Kathleen	Education Consultant	Kmhealy@infionline.net	(508) 791-7301
Heffner, John	Associated General Contractors (AGC)	HeffnerJ@agc.org	(703) 548-5333
House, Jim	ATI	House@aticorp.org	(843) 760-3255
Kirsch, Jon	Maine MEP	Jon.Kirsch@mainemep.org	(207) 215-7964
Leber, Bob	Northrup Grumman NN	Robert.Leber@ngc.com	(757) 688-4412
Luksetich, Jon	Todd Pacific SY	Jon.Luksetich@toddpacific.com	(206) 623-1635; x279
Rusnak, Ron	NorShipCo	Ronald.Rusnak@norshipco.com	(757) 494-2951
Soderberg, Linda	RI School-to-Career	Lsoderberg@dlt.state.ri.us	(401) 462-8894
Swoope, Tony	US Dept. of Labor	Swoope.Anthony@dol.gov	(202) 693-2796
Walker, Lee	Consultant	WalkerCLee@aol.com	(540) 668-6497
Ward, Doug	Alaska Ship & Drydock	Dward@akship.com	(907) 228-5302
Youhas, Daniel	Shipbuilders Council of America	Dyouhas@dc.bjllp.com	(202) 347-5462
Yover, Donn	Southwest Marine (San Diego)	YoverD@swmarine.com	(619) 238-1000; x2051

NSRP/ASE Crosscut Panel Project

Emerging Workforce Development for Shipbuilding

Deliverable 3

Final Report

Addendum

Prepared by

Les Hansen and Larry Gebhardt

For the

NSRP Crosscut Initiatives Panel

Don Bewley, Chair

September 30, 2004

Deliverable 3
Contents

1. Introduction / Project Overview

This is the third and final deliverable (Final Report Addendum) of the Crosscut Panel's 2003 – 2004 research project, entitled "Emerging Workforce Development for Shipbuilding". The project was approved by the ECB in August 2003 and work began in September. The project's thesis is based on the following assumptions:

- A combination of worker turnover by retirement and termination, new technologies, and expanding shipbuilding in some areas requires developing a new workforce.
- New workforce is defined generically as persons without shipbuilding or repair experience.
- Roadblocks to meeting this need include new workers not prepared for manufacturing work entry, national perception of manufacturing decline or desirability and competition for good workers by other industry clusters including other types of manufacturing.
- A variety of principles and practices can help overcome these roadblocks.

The goals of this project are:

a) To learn, understand and plan effective actions that develop persons more ready and able to enter and remain in shipbuilding careers, and;
b) To find policies and practices that can reduce entry-level workforce related costs.

Objectives include:

- Learn and share current practices related to shipbuilding, manufacturing and related industry workforce development from industry, educator and government perspectives.
- Extract, study, synthesize and share: best practices; issues needing further study; and problems needing future resources.
- Develop shipbuilding industry policy and practice recommendations that can yield better results: for persons in transition from education or other jobs to shipbuilding, for educators and for shipbuilders.
- Identify gaps in current and best practices pointing to additional research.
- Share the findings and recommendations with the shipbuilding industry and stakeholders.

The following tasks were accomplished to support project goals:

1. Design Survey of Current Practices in Workforce Development – completed November 2003
   - Design survey format and content; select best delivery method(s) (October 2003)
   - Develop list of contacts for information gathering (November 2003)
2. Data Gathering – completed January 2004
   - Plan for November roundtable conference in conjunction with panel meeting in San Diego (November 2003)
   - Conduct surveys and dialogues (January 2004)
3. Conduct Roundtable Conference and Follow-Up – completed February 2004
   - Conduct conference at San Diego meeting (November 2003)
   - Share results of data gathering to date (December 2003)
   - Conduct follow-up surveys and local meetings as necessary (February 2004)

4. Compile Results – completed April 2004
   - Compile and evaluate results of surveys, dialogs and roundtable conference
5. Provide a Final Report – completed June 2004
6. Conduct additional technology transfer of project results at Panel meetings – complete September 30, 2004

There are four project deliverables:

1. Report on Survey Development and Roundtable Conference (Task 3) – Submitted December 31, 2003
2. Final Written Report (Task 5) – May 31, 2004
3. Final Report Addendum (Task 6) – September 30, 2004
4. Status Reports – Submitted March 31, 2004 and May 31, 2004; to be submitted September 30, 2004

The first deliverable was submitted, as scheduled, on December 31, 2003. Deliverable 1 contained the following:

a) A description of the project survey, as addressed in Tasks 1 and 2, including the process for development, survey forms and results to date, and
b) A report on the Workforce Development Conference and Roundtable (Task 3), which was held in conjunction with the Crosscut Panel meeting in November 2003 in San Diego.

The second deliverable (final report) was submitted on June 11, 2004 and addressed the following areas:

a) A project overview
b) Final results of the survey
c) A report on the 2nd Workforce Development Conference held in conjunction with the Crosscut Panel meeting in March 2004 in Washington D.C.
d) Conclusions and recommendations

This final deliverable (addendum) addresses the following areas:

a) A project overview
b) Summary of technology transfer via various Panel presentations

2. Addendum Report

2.1 Background

The main panel project was a 9-month effort to conduct surveys and other information gathering, round table discussions, and report findings related to demographics, conditions and practices for new workforce development. The project was scheduled for Sept 2003 – May 2004. Due to efficiencies in the conduct and management of the project, approximately 20% of the original project budget was unused at the completion of the project (May 31, 2004). Savings were caused primarily by recruiting speakers and other experts who provided their services and/or travel as project cost share, and by conducting surveys via lower-cost means than initially planned.

In an effort to continue the technology transfer aspect of the project and utilize the remaining funds, the project team requested an extension until September 30, 2004, which was approved by the NSRP Executive Control Board. The scope of the additional work effort is summarized below:

Conduct additional technology transfer of project results, in the form of a 30-minute slide presentation, at the following Panel meetings:

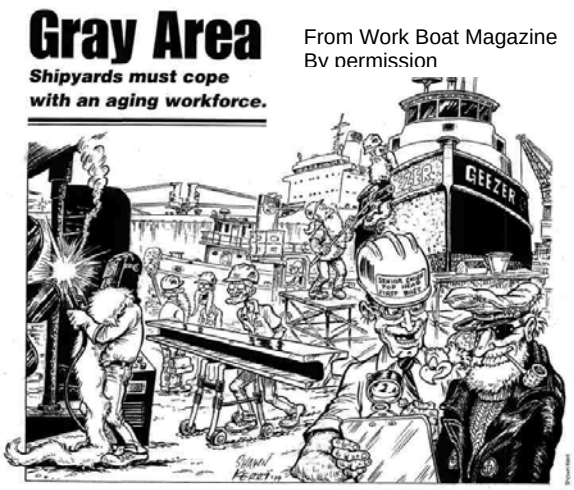
- Crosscut; June 22-24, Louisville, KY
- Surface Prep and Coatings; July 13-15, Bremerton, WA
- Environmental; July 21-23, Jacksonville, FL
- Joint Meeting of Shipyard Production Process Technologies, Business Process Technologies, Systems Technology, and Facilities & Tooling Panels; Aug 3-5, San Diego, CA
- Welding; Sept 16-17, State College, PA

The next section provides a summary of the additional work performed on the project.

2.2 Project Extension Summary

The following actions were taken during the four-month extension to the project:

Dr. Larry Gebhardt prepared and Les Hansen edited an animated Power Point presentation for viewing by other panels. The presentation, titled "Do You Know Where Your Kids Are? – Emerging Workforce Development", and containing some 45 graphics illustrated the panel project data-gathering, expert presentations, conclusions and recommendations.



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Key sections of this presentation included:

- Summary of NSRP panels and the role of Crosscut Initiatives
- Critical questions about who will build and repair vessels in 2010 and reflections on alternatives such as robotics, outsourcing, and subcontracting – alternatives that all point to the need for a vital US workforce
- Definitions of Emerging Workforce, assumptions the project made and the overall goals and objectives
- Symptoms of emerging workforce problems namely lack of sufficient numbers and skills of workers to achieve shipbuilding and manufacturing in general, and evidence from other organizations.
- A summary of current and projected workforce demographics that show a continual supply-demand gap in the US; and the gap partially closed by more women, immigrants, aging persons, etc., in the workforce.
- Summary of key survey information gained from shipyards, educators and jobs service organizations aimed at understanding the current emerging workforce preparation and willingness to work.
- A summary of incumbent worker turnover statistics that imply some of the workforce retention and recruitment problems have common causes.
- Four general areas for action:
    - Attracting new workers means improving manufacturing and shipyard image
    - Resolve school system pipeline problems
    - Cope with demographic reality
    - Collaborate within shipbuilding, with other manufacturing and related industries
- Eight recommendations with specific actions that can be taken now to begin improvements.
- Summary of examples of workforce development system and other steps shipyards are taking now.
- Contact information for Panel Project documents and further discussion

Dr. Gebhardt and/or Les Hansen presented the material at the following venues:

- Crosscut Initiatives Panel meeting, Louisville, KY, June, 2004
- Environmental Panel meeting, Orlando, FL July, 2004
- Joint Panel meeting, San Diego, CA, August, 2004

Neither Dr. Gebhardt nor Les Hansen were able to travel to the Welding Panel meeting scheduled for mid September 2004 at Penn State University. The PowerPoint presentation was provided to the Welding Panel Chair along with a narrative script to be read. However, due to weather conditions (hurricane) the Chair was not able to travel to Penn State to make the presentation.

The Surface Preparation and Coating Panel meeting planned for July, 2004 was cancelled and re-scheduled to Newport, RI past the end of the project addendum timeframe.

The Shipbuilders Council of America requested the briefing to be presented at their annual safety conference in Biloxi, MS on September 22, 2004. NSRP Funding did not cover this event. The CD-ROM and script were provided to Daniel Youhas, SCA Staff from Washington, DC. Mr. Youhas made the presentation for Dr. Gebhardt then Dr. Gebhardt participated in a question and answer session by teleconference following the event.

Informal feedback from the addendum presentations indicated that Emerging Workforce problems and issues are felt by essentially all shipyards. Attendees welcomed the information and many asked how they could get involved to help make positive changes.