

Crosscut Panel Projects

NSRP RA Projects

SBIR Concepts

2009 Funding Brainstorming

Recent NSRP RA Projects

- **Virtual Resource Center**
Assemble the best data, practices, and processes for people and organizational issues in an online environment readily accessible to shipbuilding professionals. **Participants:** General Dynamics Electric Boat, NGSS Avondale, Bath Iron Works (a General Dynamics company), Cascade General, Todd Pacific Shipyards Corporation, Jeffboat LLC, University of Michigan Transportation Research Institute, and Penn State University - Advanced Research Lab.. **Duration:** July 1999 - February 2003.
- **Lean Enterprise Simulation Exercises**
Develop industry-specific Lean simulation exercises and associated training programs for shipbuilding and repair. **Participants:** Old Dominion University, Northrop Grumman Newport News, South Tidewater Association of Ship Repairers. **Duration:** August 2003 - November 2004.
- **Shipbuilding and Repair Career Day Events**
Introduce middle and high school students, as well as guidance counselors, to career possibilities in the shipbuilding and repair industry, introduce them to Lean manufacturing concepts and promote the industry in a positive manner. **Performing Activities:** Old Dominion University Research Foundation, Northrop Grumman Newport News, Northrop Grumman Ship Systems, and Colonna's Shipyard. **Duration:** January 2007 – July 2008. NSRP ASE Investment: \$213K Industry Investment: \$213K

SBIR Projects

- **APTIMA, INC.**
12 Gill Street, Suite 1400
Woburn, MA 01801**Phone:**

NAVY 05-161 **Awarded:** 03FEB06
- **Title:** Knowledge and Experiences of Expert Labor (KEEL)
- **Abstract:**The shipbuilding industry has a large number of workers that are close to retirement. With their departure a great deal of expertise, wisdom, and institutional knowledge will be leaving the workforce. This loss could lead to inefficiency and higher costs in the shipbuilding process. A method of capturing and transferring this experience and knowledge to junior workers would reduce the impact of the departure of the expert workers. KEEL, the envisioned product of this SBIR, is a unique tool that will accelerate the training of junior workers by facilitating the transfer of knowledge from experienced workers even years after their retirement. The core of the tool is a knowledge framework based on dimensions within the shipbuilding process that are known to affect productivity. Two interfaces will touch the knowledge framework: a knowledge capture interface and a knowledge playback interface. The knowledge capture interface will systematically elicit the experiences and lessons of the retiring workforce. The knowledge playback interface will allow the junior employee to access these lessons when in need of guidance.

Up To \$100,000 Projects



National Shipbuilding Research Program
Executive Control Board
5300 International Boulevard
North Charleston, South Carolina 29418

May 19, 2008

Panel Project Whitepaper Solicitation

The NSRP Executive Control Board (ECB) invites the nine NSRP/SNAME Ship Production Panels to submit whitepapers to be considered for funding as NSRP Panel Projects. The Electrical Issues Working Group is also invited to compete in the Panel Project process.

Submissions must be in accordance with the latest NSRP [Panel Project Guide](#) (Rev. E dated 5/1/2008).

2-page White papers + budget due August 14, 2008

More info at www.nsrp.org

Process includes panel voting so paper drafts due July 15

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Recent Panel Project History

- 2005 – Workforce Sources & Skills Conference
- 2006 – Workforce Preparation Improvement
- 2007 – Industry Image Improvement
- 2008 – Standardized Interoperable Training Curricula

Crosscut Panel's Five Roles

Strategic Investment Plan

- Workforce development and retention;
- Education and training;
- Organizational development and cultural change;
- Technology transfer;
- Human resources management

These functions "cut across" other areas in shipyards

2009 Specific Needs

- Develop **cost-effective alternatives to selected shipbuilding and ship repair specifications** that impact the costs of multiple ship classes, in the process coordinating with Navy Technical Authorities and Naval Vessel Rules process to address the larger issue of developing a standing process that can be applied across a wide range of specifications.
- Accelerate **parts standardization in Naval shipbuilding programs** through expanded implementation of NSRP's enterprise-wide shared parts database. Expand its use into the Navy logistics system for leverage in life-cycle cost reduction.
- Develop **open business models for the acquisition and spiral development of the new systems** that enable multiple developers to collectively and competitively participate in cost-effective and innovative capability delivery to the Naval enterprise.
- Enable **expanded modeling and simulation to reduce costs associated with ship structural testing** and analysis by adapting shipbuilder design data to a form usable by analysis programs.
- Regarding Design for Cost (Manufacturing / Producibility / Maintainability): identify **ways to improve the processes, tasks, tools and data associated with product definition** throughout the product life cycle; design optimization to minimize material and work content, standardization and reduction of part count, design for self alignment, and the application of group technology; long-term strategic sourcing of material and equipment.
- Methods and tools to **increase the adoption of existing skill standards by U.S. shipyards and enable worker interoperability among shipyards**, including enabling the "virtual shipyard" concept (not specific commercial packages) defined as a creative partnering of shipyards, ship owners, technical support firms and system suppliers to share risks and work together to build ships in less time for less money.

Shipbuilding & Repair Recruiting & Retention Enhancement

Panel: Crosscut Initiatives

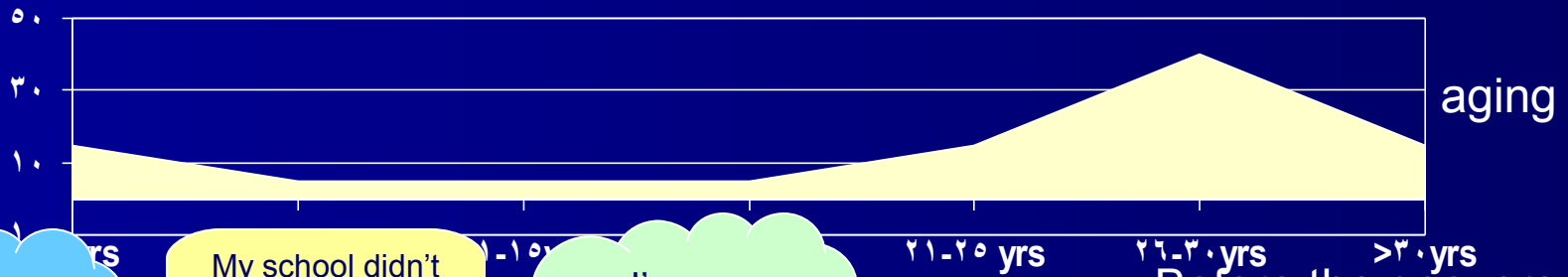
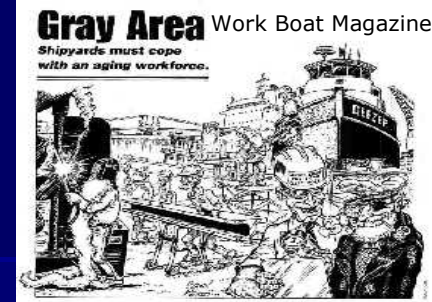
44/100

PROGRAM INFORMATION	OBJECTIVE
<p><u>Prime/Lead</u>: Alaska Ship & Drydock</p> <p><u>Team Members</u>: Crosscut Panel member support, Idaho State Univ., Studio Trifusion</p> <p>Duration: 9 months</p>	<p>Research, develop and share new tools and best practices to mitigate the expected shortage of entry-level, mid-career, and experienced shipyard workers.</p>
DELIVERABLES/BENEFITS/ROI	FINANCIAL
<ul style="list-style-type: none">• Update and revision of Crosscut Resource Center and goships.com• Tools to recruit and retain workers and change industry image• Provide current resources thru website updates• Media campaign design for promoting jobs in the industry• Lower recruiting and turnover cost	<p>Program Funds: \$90,000</p> <p>Cost Share: \$36,200</p> <p>Cost Savings factor - reduce turnover cost. On average cost for replacement of trained worker is a full year's pay/benefits.</p>

Shipbuilding and Repair Recruiting & Retention Enhancement

Panel: Crosscut Initiatives

Percent of Workforce-Experience Distribution



Before the geezers slip away:

- How do we tell youth and job changers the stories about why we love shipbuilding and repair?
- How do we convince and help experienced folk to teach, coach and mentor people so they stay for careers?
- How do we make learning our industry easier? (see next project)

Why should I work in a shipyard?

My school didn't give me any information about shipyards.

I'm a veteran. Are there good jobs for me?

Will the shipyard help me learn English and fit in?

My parents say work construction

What about child care?

Can women get good jobs and be promoted?



More women, immigrants, different cultures, languages

Improving Supervision to Achieve Affordability

Panel: Crosscut Initiatives

24/100

PROGRAM INFORMATION	OBJECTIVE
<p>Prime/Lead: Alaska Ship & Drydock,</p> <p>Team Members: Crosscut Panel member support, TWI Institute, Studio Trifusion</p> <p>Duration: 9 months</p>	<p>Adapt the WWII Training Within Industry (TWI) program for use by the modern shipbuilding and repair industry to improve worker output.</p>
DELIVERABLES/BENEFITS/ROI	FINANCIAL
<ul style="list-style-type: none">• Self-study learning and classroom seminars for supervisors and managers in the areas of: Job Instruction, Job Relations, Job Methods, & Program Development• Accelerate training to achieve competence and increase production• ROI similar to WWII experience	<p>Program Funds: \$90,000</p> <p>Cost Share: \$21,800</p> <p>Evidence of cost savings by 600 WWII firms: 86% increased production by at least 25% 100% reduced training time by 25% or more 88% reduced labor-hours by over 25% 55% reduced scrap by at least 25% 100% reduced grievances by more than 25%</p>

Improving Supervision to Achieve Affordability

Panel: Crosscut Initiatives

Value is added in the workplace.

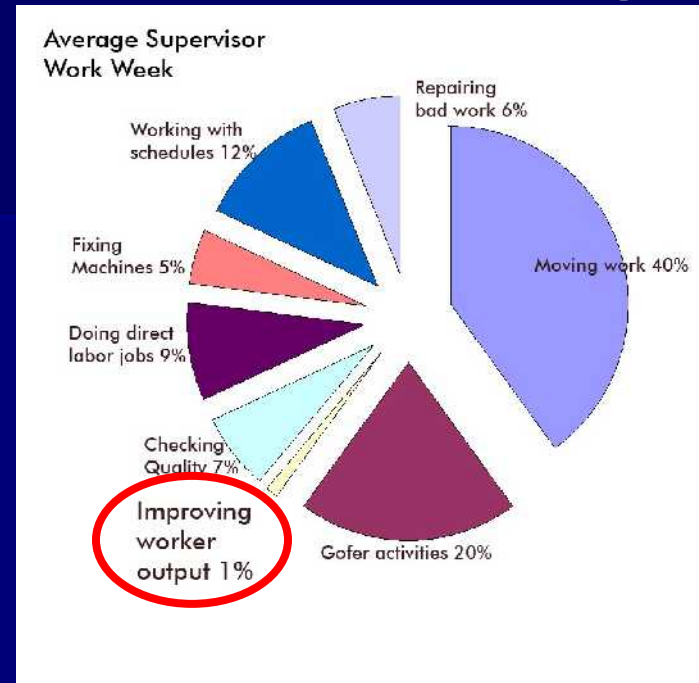
Supervisors are key to improving worker output.
Journeymen need to learn to be good supervisors.

- On-the-job instruction. 80% or more of production know-how is taught in the workplace.
- Job method improvement. Cutting waste, better safety and quality is the backbone of lean production.
- Good job relations. Well-led teams result in better production, safety and retention.

Training Within Industry tools were developed in WWII by 600 companies.

TWI resulted in more output, less waste, fewer grievances and problems.

TWI practices are at the heart of Toyota and most highly productive Asian and European firms (see Liker: Toyota Talent)



This project will adapt proven TWI courses by

- ✓ adding shipyard examples
- ✓ deliver theory and principles by self-study to reduce classroom sessions
- ✓ pilot and share the adapted courses

Crosscut area need: Skill Standards

- Methods and tools to increase the adoption of existing skill standards by U.S. shipyards and enable worker interoperability among shipyards, including enabling the “virtual shipyard” concept (not specific commercial packages) defined as a creative partnering of shipyards, ship owners, technical support firms and system suppliers to share risks and work together to build ships in less time for less money.

Skill Standard Projects

Elements might include:

- Survey to identify and prioritize shipyard occupations/career paths that are most useful for worker interoperability or 'virtual shipyard' work in new construction and repair. Could be fabrication, fitting, joining/welding, mechanical/electrical systems integration and testing, or others.
- Choose up to three key skill areas, find subject matter experts at shipyard and re-validate and/or update NSRP skill standards.
- Develop proposed methodology to which participating shipyards/organizations can agree to cross-hire individual workers or work teams substantially accepting parent shipyard training and certification documentation.
- Identify specific skill standard areas that agreement could not be achieved, and which would require limited re-training and re-certification.

Other Project Ideas

- Review handouts
- Other topics
- Champions to write abstract & lead project if selected
- Handoff to others who will take leadership
- Key factor: support of ECB shipyards

Boutwell Idea

- Proposal/plan to request 5% of NSRP project/ASE RA funding set aside for Crosscut enhancement of technical projects.

Some additional tips and reminders:

1. Submissions must come from the Panel Chair under a signed cover letter.
2. Follow the standard format in the Panel Project Guide, including the cost breakdown
3. White papers should be written at a technical level that would be understood by ECB members with diverse backgrounds; project goals and objectives must be clearly stated at the executive level.
4. Identify other shipyards, organizations and/or companies that have committed to participate, with commitment having been made by a representative with decision-making authority. Follow internal shipyard rules and procedures to ensure that cost data provided has been properly vetted before the whitepaper is submitted for consideration.
5. Address the selection criteria throughout the whitepaper as appropriate. Specifically, demonstrate a broad implementation plan by identifying other shipyards that have expressed specific interest in seeing/implementing the project's results.
6. For projects that involve a survey, submissions should include evidence of a commitment by the selected audience to participate in the survey.
7. Past project selections have shown that evidence of executability helps a project's chances in the competitive process. Projects that require multiple contracts have historically been slow to execute.
8. Where applicable and possible, brief your ECB member—before the selection meeting—on the projects you and your shipyard are participating in or otherwise supportive of.