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Center for Naval Shipbuilding Technology

NSRP Welding Panel Overview

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Background

- One of Nine ONR ManTech Centers of Excellence
- Mission: Identify, develop and deploy in US shipyards, advanced manufacturing technologies that will reduce the cost and time to build and repair Navy ships.
- Managed by ATI since June 2003; current contracted awarded August 2009
- Virtual COE Model:
  - *Teamed with Shipyards & other Shipbuilding Industry Experts*
  - *Project Development/Review/Execution Teams developed as needed*
- Strategy:
  - *Navy ship platform focused (VCS, CVN, LCS, DDG, LPD-17, T-AKE)*
  - *Industry identified issues*
  - *Navy Program Office involvement*
  - *Implemented in shipyards*

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Projects of Interest

- **Technologies that advance manufacturing processes**
- **Implemented in shipyard upon completion**
- **No “science projects” or “reports on shelves”**

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Benchmarking & Best Practices (B2B COE) Problem Description

- Shipbuilders for the Navy are under constant pressure to improve efficiency and reduce manufacturing costs.
- Document Management Systems (DMS) are currently used in a broad spectrum of commercial businesses
- Traditionally heavy users of paper, have seen enormous benefits in converting to paperless systems.

B2B COE Project's Objective

- Identify a 'Best Practice' for a documentation management system for welding information at a shipyard
- Survey shipbuilders and other industries to see how they are handling similar documentation (Task #1)
- Demonstrate the feasibility of a prototype system at a shipyard

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***ATI Involvement*:**

Task 1 Industry Site Survey

Determine how welding records are handled in shipyards and to assess how the yards document requirements are being met by the current system, and what improvements are needed to improve productivity. Focus is on P1 piping.

Method: Benchmark the Current Systems in use and develop an Industry Best Practice (Survey various industries)

Deliverable: Develop a comprehensive report on the current state of welding information & other production process records are managed and through what systems for B2P COE

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- **Survey of various industries to determine how Production Process Records are kept and maintained.**

- **Process Examples: Welding , electrical, electronic, mechanical, etc.**
- **Processes that must be certified to satisfy a customer, a standards body or a regulatory agency.**
- **Certification records must be maintained for a period of time.**

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Areas to Survey:

- **Current Off the Shelf Document Management Systems**
- **Custom systems**
- **Legacy documents**
- **Current capabilities**
- **Challenging work environment**

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Electronic	
PC/MAC/Win/Web based (list all that apply, or others not listed)	Input device (scanner, bar code, reader, PC terminal, etc.)
Describe system being employed (ie, AWS, TWI, Computer Engineering, etc. software running on a PC or custom module designed for ERP	Is it a standalone system or does it integrate with an MRP/ERP system such as Baan, SAP, Unix, etc.?
Open System? (can data be imported to other systems?) Y/N	What ERP is currently used (JD Edwards, Oracle, SAP, other legacy?)
If you have recently switched to an electronic system, list the biggest advantages and disadvantages seen thus far.	
Advantages	Disadvantages
Describe how your company deals with legacy documentation	How much time, if any, do you think an electronic system has saved?
Other advantages/benefits of having records made electronic	What other types of repetetive records do you keep? (painitng, blasting, maintenance, etc.)
How favorable/unfavorable is the system cost, ROI, etc.	Describe system functionality or lack thereof.
Describe system's ability to scale/upgrade (x100, x10,000)	Estimate total ownership cost (license fees, training, maintenece,
Additional Comments - ***Please attach sample input/output document & any supporting documentation - record cards, forms, etc.***	

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Paper	
Describe data security procedures	How long are records kept?
	Can extra copy(ies) be obtained?
Are duplicates necessary, and what is their function? (Offsite storage, used by other dept. etc.)	
How much TOTAL time do you think is spent creating, retrieving and maintain this PAPER record throughout its life cycle? (in man hours)	If converted to an electronic record, how much time would be saved? (in man hours)
Would it be beneficial for your company to be better equipped to forecast production associated with that welding? (Y/N)	
Additional Comments - ***Please please provide sample paper form(s).***	

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- **Survey participants will be provided with the survey findings.**
- **Any individual company proprietary information will be kept confidential.**

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REDUCING THE COST AND TIME TO BUILD AND REPAIR NAVY SHIPS

IN THE NEWS

- Predictive Weld Distortion Project Results Lead to Implementation & Industry Interest
- CNST Completes Award-winning Internal Manufacturing Project
- Highlights from ShipTech 2010 (Courtesy of NMC)
- The Signal, Spring 2010

OUR GOAL

CNST's primary goal is to fund projects that drive shipyard improvements and ultimately reduce the cost and time required to build and repair Navy ships. To date, CNST project efforts have led to over $20M in total "per hull" cost savings across several U.S. Navy platforms.