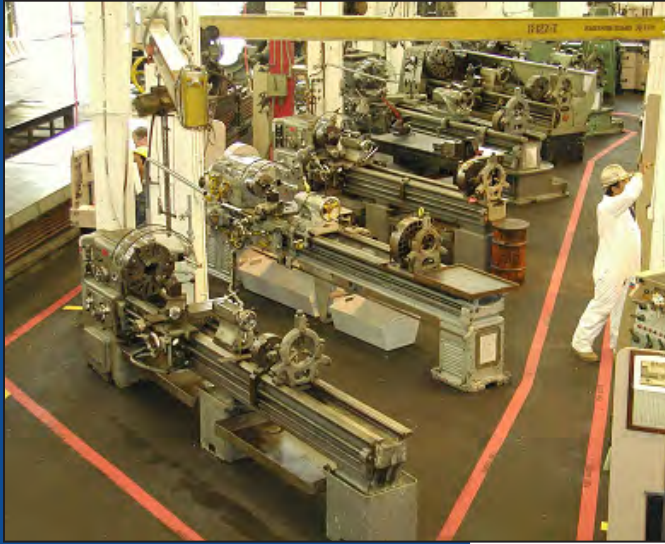


# Lean Enterprise Model



## Improves shipyard productivity by more than 20 percent within 36 months of implementation

This project focused on implementation of world class shipbuilding and lean enterprise practices in seven U.S. shipyards, covering four key market segments.

Design, material and production processes and organizations are currently characterized as “custom jobs” in many U.S. shipyards. This project transformed these into “world class” processes by engineering out non-value-added activities.

Shipyard CEOs have overwhelmingly placed their highest priority on strategic, process-oriented improvement initiatives in order to establish rationalized operational models that can serve as the foundation for later evaluation of “focused” technology implementations. There is little risk in implementing lean principles, as they already exist in world-class shipyards and other U.S. heavy industries.

Senior management of all participating shipyards is fully committed to lean transformation through implementation of lean shipbuilding practices. The three objectives of the technology transfer plan include: a) transfer of world-class shipbuilding and best manufacturing/lean industry practices to the participating shipyards; (b) sharing of lean implementation plans, experience and lessons learned among participating shipyards and (c) transfer of lean implementation methodologies and results to the U.S. shipbuilding industry at large.

It is anticipated that implementing lean enterprise models will result in strategic improvement in overall shipyard cost and cycle time performance, including a 20+ percent improvement in overall productivity (within 36 months), as measured by the reduced number of quality deficiencies, reduced pre-construction labor cost, reduced pre-construction cycle time, reduced production labor cost, reduced production cycle time and reduced material costs.

The project team kept other shipyards apprised of their progress through a series of Lean Interim Reports. The final Lean Interim Report was released as two Lean Implementation Model Reports: (a) Lean Implementation Models Repair (addressing public yard and private yard ship repair); and, (b) Lean Implementation Models New Construction (addressing commercial and naval new ship construction). These two models incorporated the team’s work on lean materials and lean design.

To complete a comprehensive model for the application of Lean manufacturing concepts to multiple market segments of the U.S. shipbuilding and repair industry.

### Performing Activities

Atlantic Marine, Todd Pacific Shipyards, Bath Iron Works, Puget Sound Naval Shipyards, V2R Consulting, Optiprise, P. Jaquith & Associates, Malone Consulting Services and Penn State - ARL

### Accomplishments

- A Lean Shipbuilding Model and a Lean Ship Repair Model were each successfully produced as guidelines for lean implementation in various types of shipyards.
- Removal of non value-added activities from key shipyard processes
- A series of successful workshops were conducted to highlight lean techniques developed in the project

### Point of Contact

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**NSRP ASE INVESTMENT:** \$3.8M

