



Yard Wide Simulation Platform

Project Snapshot



Picture Courtesy of BIW

Project Lead:
Bath Iron Works

Project Dates:
January 2021 – July 2022

Objectives:

Develop a validated system dynamic model representing the current state of Bath Iron Works' shipbuilding operations. Create a user interface platform that a naval shipbuilder could operate in-house, without system dynamics expertise.

Estimated Savings:

BIW: \$29M 5-year savings

S2891 Yard Wide Simulation Platform
Rev A

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Achieving sustainable increases in shipbuilding delivery rates and reductions in delivered labor costs will involve manufacturing changes on multiple fronts. To effectively implement these changes requires shipyards to maximize the pace and magnitude of performance gains while minimizing disruption from and interference between improvement initiatives.

Since the 1980s, yard-wide dynamic simulation modeling has proven highly effective in dealing with these complex manufacturing issues, as demonstrated in system dynamics applications on numerous naval shipbuilding and other defense-industry programs. But these models were built and owned or controlled by outside consultants with deep simulation expertise, and could not be operated or employed continuously by naval shipbuilders themselves

Lack of in-house capability has made it difficult to effectively define, implement, manage, and monitor/modify initiatives aimed at improving labor productivity, rework creation, and resulting delivery rates. Further, an inability to predict initiative effects over time causes confusion and uncertainty when they exhibit "Worse before Better" behavior common to fundamental change.

The Yard Wide Simulation Platform project, managed by the Naval Shipbuilding and Advanced Manufacturing (NSAM) Center will adapt existing system dynamics technology and software to naval shipbuilding and create a Yard-Wide Simulation Platform (YWSP) to guide strategic decision making at GDBIW. GDBIW will utilize 4Sight Solutions (4SS) to adapt existing system dynamics model content and simulation software to reflect the shipyard's current programs, capabilities and conditions. GDBIW will be able to operate and maintain this asset in-house. The basis of the model as well as the software associated with managing the simulator in-house will be able to be adapted to other naval shipyards.

This project is expected to result in a combined 5 year savings of approximately \$29M. The Yard Wide Simulation Platform technology is expected to be implemented at both GDBIW facility during the second quarter of FY22.

NSAM is a Navy ManTech Center of Excellence, chartered by the Office of Naval Research (ONR) to identify, develop and deploy, in U.S. shipyards, advanced manufacturing technologies that will reduce the cost and time to build and repair Navy ships and aviation assets. For additional information on this and other NSAM projects, please visit <http://nsamcenter.org>.

