



Naval Shipbuilding and Advanced Manufacturing Center

Ingalls Shipbuilding is Creating a Centralized Data Management Tool for Lifting and Handling

The Office of Naval Research awarded the DDG-51 focused *Resource Availability* project to the Naval Shipbuilding and Advanced Manufacturing Center (NSAM-a Navy ManTech Center of Excellence). The '*Resource Availability*' project, led by Huntington Ingalls Industries, Inc. (HII-Ingalls Shipbuilding), will create an automated management toolset to provide immediate visibility of location and performance of lifting/transportation resources, reducing costs and increasing efficiency.

Efficient utilization and allocation of resources for construction purposes is a common problem among all shipyards, but the problem is unique for each yard as each yard has dramatically different construction processes and build plans. Some of the biggest cost drivers are lifts and moves of units and material. During ship construction it is necessary to move large objects frequently, using varied



combinations of heavy lifting resources such as gantry cranes, forklifts, manlifts, fixtures, and more. Historically it has been extremely challenging to coordinate and manage all of the lifting resources as they operate concurrently in the shipyard. There is no "real-time" situational awareness for locating resources or evaluating resource performance, which hinders scheduling projections and causes reactive instead of proactive tasking.

The *Resource Availability* tool will streamline Manufacturing Services controller tasking by providing a graphical overview of the shipyard that displays the locations of each heavy lift resource and specific information on the item. The tool will also provide the ability to analyze and forecast lifts, maximizing efficiency of future lift/transport activities. The individual controller will be able to define parameters of lift types, perform scenario-based planning, quickly revise the current plan, and generate the required outputs. These new capabilities have the potential to ultimately eliminate the need to manually maintain paper processes.

The 12-month project will be conducted across two major phases at HII-Ingalls Shipbuilding. Phase I will begin with analyzing the current processes Manufacturing Services controllers use to manage, schedule, and plan lifting/transportation resources. The resulting opportunities and needs for enhancement and automation will drive definition of performance, capability, and evaluation criteria to begin development. During development, The Manufacturing Services department will act as subject matter experts to test, provide feedback, and guide creation of the tool. Phase II will complete incorporation of the Manufacturing Services needs in to the tool, and ensure all end-users are familiarized with the final release. Once implemented, HII-Ingalls Shipbuilding anticipates this effort will reduce sub-optimal lifts and improve Manufacturing Services planning process efficiencies which translate into a potential cost savings of \$849K per DDG hull or \$4.25M over five years.

About NSAM

NSAM is a Navy ManTech Center of Excellence, chartered by the Office of Naval Research (ONR) to develop advanced manufacturing technologies and deploy them in U.S. shipyards and other industrial facilities. NSAM's primary goal is to improve manufacturing processes and ultimately reduce the cost and time required to build and repair Navy ships and other weapons platforms. For additional information on this and other NSAM projects, please visit www.nsamcenter.org.

