



Project Snapshot

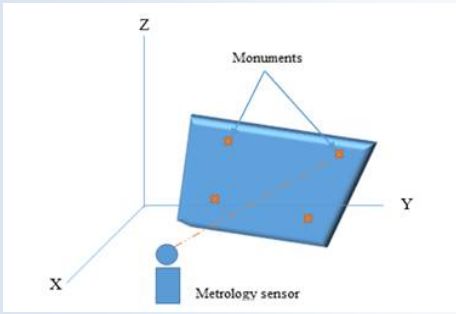


Image Courtesy of Newport News Shipbuilding.

Project Lead:

Huntington Ingalls Industries
– Newport News Shipbuilding

Project Dates:

May 2020 – June 2022

Objectives:

- Reduce labor hours associated with rework in the foundry and machine shop
- Reduce set up time in the machine shop

Estimated Savings:

5-year combined CVN/VCS/CLB savings of approximately \$3.3M

Many of the components and assemblies that are manufactured at Newport News Shipbuilding are currently inspected using manual methods. In this manufacturing state, efforts are often duplicated as multiple stakeholders perform independent inspections, and variations in inspection methods present false positive or negative findings which creates production delays. These variations are in part due to the time intensive process to ensure the part is level which becomes increasingly difficult when inspecting large parts. Even though common datums and inspection standards exist, slightly different interpretations of the standards and complex geometries often creates different results and adds non-value added rework to the process.

The objective of this project is to develop common reference datum targets on components based on the analysis of survey data on key features. These monument systems allow technicians to tie an instrument back into the digital datum coordinate system by resurveying these monuments, be it with a laser tracker, photogrammetry, or other metrology tool, and performing a transformation analysis. This capability means that any technician can obtain a monument, tie into the component, and perform dimensional surveys or layoffs. This capability persists through a build schedule and can be independent of component relocation.

Through reducing the labor hours associated with rework, and by providing timely and efficient dimensional process control data, the Newport News Shipbuilding project team anticipates a reduction in non-value added work. Through increased efficiencies and quality improvements enabled by the technology, Newport News Shipbuilding anticipates a five-year savings of \$3.3M and a five-year project ROI of 1.18.

Based on the results of testing, Newport News Shipbuilding will generate the data needed for internal Newport News Shipbuilding process verification and validation, finalize the business case analysis, and create shipyard implementation plans. The transition event for this project is Newport News Shipbuilding's performance demonstration activities. Once those activities have been successfully completed, the process will have been verified to meet the expectations of the project teams and stakeholders and will be ready for implementation at Newport News Shipbuilding. Implementation is anticipated to occur in the first quarter of FY24.

Naval Shipbuilding Advanced Manufacturing 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 <http://nsamcenter.org>.

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