Digital Thread Shipbuilding Supplier Interface

Status: Implemented

PROBLEM / OBJECTIVE

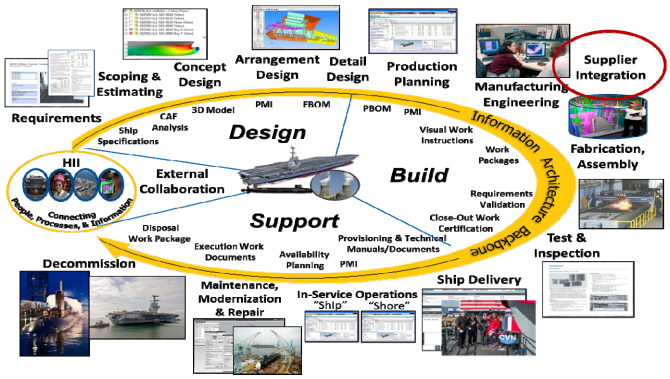
Acquisition of shipboard components is entirely based on paper technical documents that are enclosed within purchase orders. Huntington Ingalls Industries - Newport News Shipbuilding (NNS) provides suppliers with 2D fabrication drawings that are developed from 3D component models. Suppliers use the 2D drawings to create their own 3D component models to produce parts using computer numerical control machines. Design and manufacturing collaboration during supplier contract execution is based on traditional spreadsheets, emails, and conference calls. Purchase orders are clouded with requirement noise, relying on the supplier to determine what is and what is not required. With this complexity and overabundance of information comes the inherent risk of supplier delays and quality failures that can have a tremendous impact on cost, quality, and schedule. In addition, there are situations where shipyard quality inspection of engineering components typically takes place after manufacturing and production is complete, eliminating any possibility of in-process corrections. Shipboard construction installation and operation issues are discovered long after the supplier has delivered the product, resulting in rework and schedule delays.

The primary goal of this project was to focus on helping the supply base improve first-time quality, cycle-times, schedule performance, and supplier readiness, which will lead to cost savings for the company and the Navy.

ACCOMPLISHMENTS / PAYOFF

Process Improvement:

The Digital Thread Shipbuilding – Supplier Interface effort, managed by the Naval Shipbuilding and Advanced Manufacturing (NSAM) Center, incorporated NNS's supply base into the company's digital shipbuilding strategy by connecting the "digital thread" from design through production / fabrication, assembly, test, inspection, integration, and installation / operation. When a part number is created in the parts catalog system, engineering will use computer-aided logic to assign requirements to help avoid human error and reduce the learning curve. The requirements applied will be clearer, more concise, and specific to the item, component, or assembly being purchased.



Newport News Shipbuilding incorporated their supply base into the company's digital shipbuilding strategy.

Implementation and Technology Transfer:

The 29 month project identified internal and external stakeholders, defined requirements, captured specific use cases, and developed a future state process that was piloted, tested and validated. The project has successfully completed and accepted by Ingalls management. Implementation is underway and is expected to continue through FY25.

Expected Benefits and Warfighter Impact:

This effort provides a mechanism that simplifies technical data packages, produces 3D design disclosures, and establishes a secure exchange medium to enable efficient two-way transfer of data with suppliers, which translates into a potential cost savings of $6.83M per CVN 78 Class aircraft carrier.

TIME LINE / MILESTONES

Start Date:	February 2018
End Date:	June 2020

FUNDING

Current Navy ManTech Investment:	$1.60M

PARTICIPANTS

Navy ManTech

Huntington Ingalls Industries – Newport News Shipbuilding

Naval Shipbuilding and Advanced Manufacturing Center

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