

Achieving 'Digitally Agile' Data Strategy with Work Flow Tracking System Project

Status: Pending Implementation

PROBLEM / OBJECTIVE

Pipe details (PD) are assembled in the Pipe Shop. The duration the pipe detail spends in the Pipe Shop varies from a few days to a few weeks. Prior to this effort, there was a low visibility of the completion status associated to pipe detail within the shop. When the shop foreman commenced work on one pipe detail on the bill, the status of all pipe details became "committed". This delivered an inaccurate view of the completion status for the individual members of the set of pipe details on a bill. Shop foremen spent multiple hours per week manually tracking and generating reports for pipe details committed and completed. The foreman also manually recorded man-hours per employee per pipe detail per shift. This required significant supervisory time and produced imprecise data. Supervisory time spent in record keeping reduced the amount of time spent offering technical assistance and guidance to the shop workers. The project's primary objective was to develop a modular tracking system and process that allowed for better accuracy of tracking and status of individual pipe details while in the pipe shop. A second objective involved collecting labor hour measurements for producing individual pipe details.

ACCOMPLISHMENTS / PAYOFF

Process Improvement:

The Work Flow Tracking project improves current processes and equipment Ingalls uses to track and status pipe detail fabrication during shop construction. The project focused on the Pipe Shop production area. The project automated the status and tracking activity for each pipe detail on a work bill.

This automated process was developed to run on digital devices identified by Ingalls Digital Technology Roadmap at or near each workstation in the Pipe Shop. The system was designed to use bar codes on work packages with pipe details to track work through the Pipe Shop. A bar code sticker was affixed to each pipe detail when work is first commenced. This bar code allowed for accurate tracking of time for each production step as well as craft's time and individual craftsman time. The capability to gather status, completion, and labor information for the pipe detail was enabled through the use of the computer and tracking application, with no additional steps required of the shop worker. The process is simple with a maximum of three



steps to accomplish task: (1) scan one's employee badge to record which worker is working on the pipe detail, (2) scan the bar code on the pipe detail to record the pipe detail that is being worked on, and (3) choose a status (work stoppage reason or work complete) for the pipe detail.

Implementation and Technology Transfer:

The project was conducted over 13 months at Huntington Ingalls Industries, Inc. (HII-Ingalls) and consisted of five tasks: Developing a Process Map, Requirements and Functional Systems Design, Automated System Development, Pilot Testing and Final Reporting. HII's initial deployment of the Work Flow Tracking system will improve previous processes and equipment Ingalls used to track and status pipe detail fabrication during shop construction. The process will focus on the Pipe Shop production area and will automate the status and tracking activity for each pipe detail on a work bill.

Expected Benefits and Warfighter Impact:

An automated process that captures actual time expenditure for 100% of all Pipe Details (PD's) and process steps provides data to validate or improve the established metrics. This technology was vetted during pilot testing and is slated for implementation in 1st Qtr. 2016. The technology is expected to improve reporting capabilities for overall throughput of the Pipe Shop, increase the throughput of Pipe Details by 4% and improve visibility of Pipe Detail Status for planning purposes, equating to an estimated \$1.01M annual savings.

TIME LINE / MILESTONES

Start Date: July 2014
End Date: August 2015

FUNDING

Current Navy ManTech Investment: \$402K

PARTICIPANTS

ONR Navy ManTech
Huntington Ingalls Industries, Inc.- Ingalls Shipbuilding
Naval Shipbuilding and Advanced Manufacturing Center