Project Snapshot

Project Lead:

General Dynamics Bath Iron Works

Project Dates:

May 2019 – Jul 2021

Objective:

Integrate a software architecture that enables users to input data, representing attributes for system components, and introduce automation into the process of developing and managing functional diagrams

Estimated Savings:

$924K per DDG-51 hull

5-year: $5.5M (ROI of 2.1)

M2802 Advanced Diagram Development and Management
Rev A (1019)
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Currently, electrical diagram development and maintenance is mostly done manually through the use of AutoCAD 2D drawings. The electrical diagram drawing components do not have attributes associated with them, and there is no specific intelligence or links built into the drawing. The 2D diagrams are not linked to the 3D designs, which often create misalignments and prolongs maintenance activities. A significant amount of manual effort is spent maintaining electrical diagram design changes due to either design development or government-driven changes. In addition, there are many other processes and products that are impacted when electrical diagrams are revised, which have to be manually revised.

Potential exists to introduce more advanced diagram development and management through the use of "intelligent" 2D electrical drawing products, where drawing components are attributed, and include engineering, design, and planning details within the components description.

The objective of the *Advanced Diagram Development and Management* project is to create toolsets that can consistently process data and present data in the formats required; in this case, functional diagrams. Using tools to accomplish this goal, one will be able to create diagrams in a consistent manner with data that is verified, directly managed, and consistently used by other users throughout the organization. It will become routine when identifying what the data represents, its relevance to products that are delivered, and its impact to diagrams and other downstream products. This envisioned process will:

- Reduce Cost – reduce labor hours required to create or maintain diagrams
- Reduce Rework – reduce/eliminate rework attributed to errors
- Improve First Time Quality – data will be more easily controlled and pulled from a more consolidated data environment

This technology and process is estimated to result in cost reductions for diagram development and maintenance, production rework, and engineering and design rework for a savings of $924K per DDG hull.

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