

Topic: N06-065

## WW Technology Group

Techniques for High Assurance in Submarine Systems

WW Technology Group develops model-based architectural analysis software tools for high dependability and safety critical systems certification. More than 20 years of experience in designing and fielding critical systems gives WWTG a unique and powerful perspective on the challenges associated with deploying and certifying complex safety critical networked systems. Our tools enable the analysis of system safety and reliability properties using model-driven engineering approaches and support certification by collecting the evidence required through open and flexible means. These capabilities result in significant development and life cycle cost savings for certification efforts along with improved certification accuracy and decreased program risk. WWTG seeks customers who require tools to address their system design and/or certification cost needs and wish to establish a strategic advantage through these tools.

### Technology Category Alignment:

None

None

None

### Contact:

Brian W. LaValley

[blavalley@wwtechgroup.com](mailto:blavalley@wwtechgroup.com)

(401) 212-6660

<http://www.wwtechnology.com/>

**SYSCOM:** NAVSEA

**Contract:** N00024-15-C-4045

# Department of the Navy SBIR/STTR Transition Program

Statement A: Approved for Release. Distribution is unlimited.

Topic # N06-065

Techniques for High Assurance in Submarine Systems

WW Technology Group

## WHO

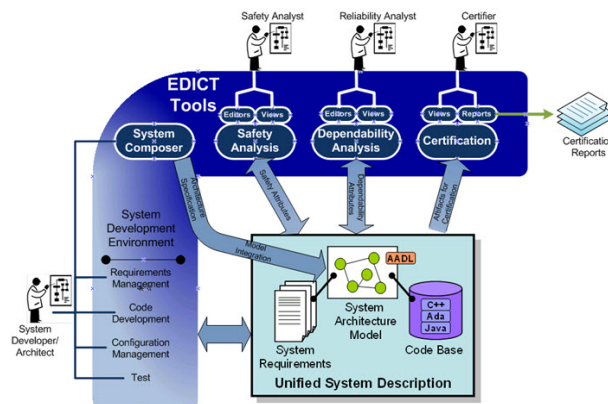
**SYSCOM:** NAVSEA

**Sponsoring Program:** Ohio Replacement Program

**Transition Target:** Ohio Replacement Ship Control System

**TPOC:**  
(202)781-3406

**Other transition opportunities:**  
Virginia Class Subs, SSGN, Aegis and Zumwalt class DDG's (DDG 51 and DDG 1000), CVN, LPD, F-35



## WHAT

**Operational Need and Improvement:** Evolving threats and missions require new capabilities be delivered to platforms throughout their deployment. These platforms often rely on safety critical and highly reliable networked digital systems to provide mission essential capabilities to the war fighter. The increasing complexity and rigorous certification requirements for these systems make rapid and cost effective deployment of new capabilities highly challenging.

### Specifications Required:

**Technology Developed:** Model-based design analysis and certification evidence management tools for high reliability and safety critical systems. Tools provide system developers, safety analysts and certification authorities with modeling, analysis and data management capabilities. These tools utilize open standard modeling languages and perform analysis to support required safety certification activities under MIL-STD-882E such as Failure Modes and Effects Criticality Analysis (FMECA).

**Warfighter Value:** The use of model-based design analysis provides benefits to the warfighter both in initial system development and in technology insertion and refresh life-cycle activities. During initial development, the use of these techniques and tools leads to systems that can be built and certified at lower costs with higher confidence in the robustness and safety of the deployed system. These tools also reduces the costs and time associated with re-certification of systems after initial deployment, enabling more capability to be delivered to the warfighter in a timely and cost effective manner.

## WHEN

**Contract Number:** N00024-15-C-4045 **Ending on:** March 6, 2017

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Capability Maturation	Low	Capability Demonstration	TRL 6	March 2016
Process and Development Environment Integration	Med	Prototype Deployment to Prime	TRL 7	September 2016
Effectiveness Demonstration	Med	Key Metric Evaluation	TRL 7	March 2017
Phase III Transition to Ohio Replacement Program	Med	Transition to Development Program	TRL 8	March 2018

## HOW

**Projected Business Model:** WWTG's goal is to sell a suite of tools that provide superior support for analysis and systems certification while aligning with important model based engineering standards and communities. The engineering models will capture the description of the customer's product design using a model based approach based on industry standards. The scale of customer problems includes large complex systems they are difficult to design, analyze and communicate results across the large number of stakeholders involved. An enterprise wide tool suite will address these needs and provide a large market to generate a robust business model. The initial WWTG tools will support the core design processes in the customer's enterprise workflow and expand to downstream stakeholders that perform analysis and acceptance, both internal and external to the customer. Once these initial tools are established, more advanced modeling, analysis and reporting features will be developed to support customer needs and provide additional value.

**Company Objectives:** Develop tools enabling customers to rapidly address critical challenges facing their information processing systems and realize their security and quality goals. Using a model based approach to engineering that leverages industry standards and advanced analysis, customers are able to develop exceptional solutions that position themselves strongly for the future. The tools enable a strategy for optimizing business value and managing the complexity associated with the latest challenges and trends of government and industrial computing. For critical systems that require certification, the tools will speed up the process and significantly reduce the cost involved for initial approvals and subsequent re-certification efforts.

**Potential Commercial Applications:** This technology is directly applicable to many commercial fields such as automotive, aerospace and medical devices. All of these industries have rigorous safety requirements and these tools can help get products to market quicker with high degrees of confidence in the field.

**Contact:** Brian W. LaValley, Senior Member of the Technical Staff  
blavalley@wwtechgroup.com 401 212 6660