DD 21
Modeling and Simulation
Vision
(Smart Product Model)

Briefing to:
Defense Modeling and Simulation Office (DMSO)
Industry Days

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Apache SMART Briefing

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DD 21 Program Overview

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International Area Code
Area Code Telephone Number
703767-9007
DSN
427-9007

Unclassified

Unclassified

Unclassified

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std Z39.18
Outline

- DD 21 Program Overview
- M&S Vision / Smart Product Model
### What’s DD 21?

**Multi-Mission Surface Combatant**
- Designed for the Littorals
- Land Attack Focus
- Maritime Dominance With In-stride Mine Avoidance
- Joint Interoperable
- Bound by Cost

**Advanced Technology**
- Ship Design
- Full Spectrum Signature Reduction
- Integrated Apertures
- Total Ship Computing
- Network-Centric
- Sensors & Weapons
- Revolutionary Manning

*The Navy’s Premier Next Generation Surface Combatant*
Revolutionary Acquisition for Warships

**Government**
- Program leader
- Requirements provider
- Systems certifier
- Tactical trainer
- No mandated GFE

**Industry**
- Provide system concepts and all performance specifications
- Perform engineering developments
- Acquire systems the most affordable way
- Execute Cost as an Independent Variable (CAIV)
- Plan, design, build and execute logistics support for entire life cycle

Partners for Success
Outline

- DD 21 Program Overview
  - M&S Vision / Smart Product Model
M&S Vision

Vision: Conceive, Design, Build, Test, Train, and Operate a Weapons System in a Computer Before Cutting Metal
**Smart Product Model (SPM)**

- Is virtual prototype for concept evaluation
  - Key enabler of Other Transaction Authority acquisition
- Is a digital version of the ship system
  - Contains performance and behavior characteristics
- Will achieve the vision
  - Conceive, design, build, test, train, and operate a weapons system in a computer before cutting metal and through the life cycle
- Supports M&S needs through the life cycle
  - Will reduce total operating cost and cycle time
Partnering with Industry

Industry

- Determine M&S needs / benefits
- Design DD 21 M&S system
- Develop new M&S
- Reuse existing legacy models
- Leverage concurrent M&S projects
- Ensure interoperability
- Verification & Validation

PMS500

- Industry insight / interaction
- Accreditation of models
- Proposal evaluation
- Facilitate reuse of existing models
Geometric Data
Non-geometric Data
Analysis Results
Behavioral Data

SPM M&S Environment

Wargame models
(e.g., MARS)

Engineering analysis models
(e.g., ASAP, RTS)

Embedded SW

MARVEDS

Physical models & tests

Other models

Hardware in the loop

Integration / Interoperability
Joint Synthetic Battlespace

Interoperability Is Critical
Virtual Prototype Operations in the Synthetic Battlespace

Vision Is Built on Standards
The SPM Challenge

System representation of the complexity anticipated for DD 21 has not been accomplished before. We’re looking to Industry to deliver an innovative solution.