

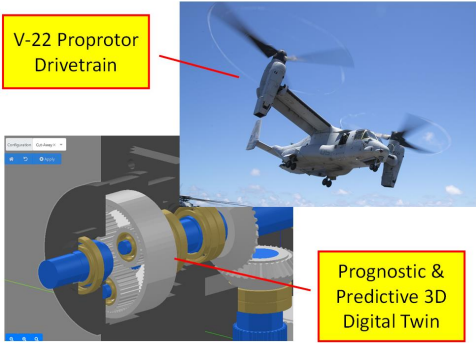
WHO

SYSCOM: NAVAIR
Sponsoring Program:
Transition Target: V-22 Osprey, H-1 Huey, H-60 Seahawk, other proprotor aircraft

TPOC: (301) 757-4831

Other Transition Opportunities:
 - Surface ship, submarine condition-based maintenance
 - Industrial rotating equipment applied to bearings, gearboxes, pumps, motors
 - Army, Air Force, Marines, DHS, Coast Guard

Notes:
 - Commercially fielded systems in Steel, Amusement Parks, Aluminum, Plastics, Automotive
 - Life-Cycle loop closed through interactive Bill of Material and course of action recommendations



<https://www.navy.mil/Resources/Photo-Gallery/igphoto/2003050922/>; BluEyeQ Internal 3D CAD model

WHAT

Operational Need and Improvement:
 - Reliability, safety, and total cost of ownership drive life-cycle cost of Naval assets
 - Sustaining maintenance cost 60-80% of total cost of asset ownership
 - Warfighter Safety - unpredictable asset failure
 - Sustainable fleet readiness

Specifications Required:
 - Virtual model-based representation of a physical system
 - Physics-based model responds to real-time or simulated operating data to predict / foresee potential outcomes

Technology Developed:
 - Artificial Intelligence algorithms form a virtual “Digital Twin” of machine operation
 - Prognostic intelligence of machine component loading, lubrication, and operational telemetry data
 - Predictive technologies monitor machine current state for advanced notification of potential failure conditions
 - 3D modeled components and equivalent load calculations feed targeted diagnostic analysis
 - Simulated “what-if” scenario development enables algorithm training for robust conclusions

Warfighter Value:
 - Operational foresight
 - Planned and predictable maintenance
 - Reduced sustainment cost
 - Safety

WHEN

Contract Number: N68335-22-C-0847 **Ending on:** Dec 04, 2023

| Milestone | Risk Level | Measure of Success | Ending TRL | Date |
|-----------------------------|------------|--|------------|--------------|
| Yr 1 Progress Demonstration | Low | Function Digital Twin framework | 3 | 1st QTR FY23 |
| Yr 2 Demonstration | Low | Standalone Digital Twin software release | 4 | 1st QTR FY24 |
| Digital Twin Release 1.0 | Medium | Initial demonstratable release | 4 | 1st QTR FY24 |
| Digital Twin Release 2.0 | Medium | Multiple assets, interative improvements | 5 | 1st QTR FY25 |

HOW

Projected Business Model:
 - Demonstrate value on existing fleet aviation assets, e.g. V-22, H-1, H-60, platforms
 - Additional Navy assets - surface ship, submarine condition based maintenance
 - Identify Program of Record and Prime Contractor adoption

Company Objectives:
 - Substantial value in Life-Cycle sustainment management
 - Dual-use technology for both Navy/Government and Commercial deployment
 - Expand model database and algorithm robustness

Potential Commercial Applications:
 - Technology elements currently fielded in multiple Industrial vertical markets
 - Digital Twin technology evolves and improves as more data is introduced to the model