

WHO

**SYSCOM:** NAVAIR

**Sponsoring Program:**

**Transition Target:** V-22 Osprey, H-1 Huey, H-60 Seahawk, other proprotor aircraft

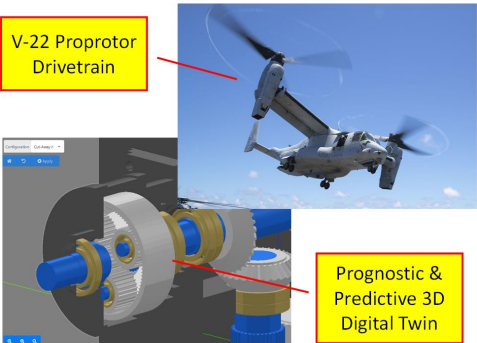
**TPOC:** (301) 757-4831

**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