

**Procurement Technical Assistance Centers
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Maintenance, Engineering and Industrial Operations Department

Mr. Jim Bleich



NUWC Keyport Core Mission Area – Maintenance, Repair, and Maintenance Technology



Today's Navy

Challenge: Rapidly changing systems & new technologies

- Static maintenance technology
- Hub & spoke maintenance model
- Stove piped and segregated maintenance / production pipelines

Development Priorities

- Data Science / Machine Learning / AI for predictive maintenance
- Model based systems engineering
- Model based product support
- Advanced USW Weapons
- UUV maintenance / payloads
- Alternative propulsion / energy
- Automation and robotics
- Additive manufacturing / repair / advanced coating technology
- Maintenance of advanced systems



Next Navy (+5-10 years)

Current Focus

Develop maintenance technology, facilities, and processes that incorporate **model based, data science enabled, flexible and adaptive capabilities** to support multiple platforms and systems. Evaluate, assess and apply the **disruptive technology** to reduce maintenance, sustainment and logistics burdens.

- Agile maintenance facilities aligned around diverse Fleet, weapon, and UUV technologies, missions and requirements
- Data science, machine learning and artificial intelligence backed by model based systems engineering to enable conditions based and predictive maintenance
- Maintenance technologies and processes that support agile Fleet maintenance in the IMA, Depot, Shipyard, at sea and expeditionary environments

Navy After Next (+20 years)

Vision of the Future

Advanced maintenance systems and capabilities enabling forward-based or on-platform maintenance of systems, vehicles, or weapons.

- Maintenance and repair using integrated / advanced technologies to provide real-time in-situ solutions
- Autonomous maintenance systems
- Model based life cycle support that includes on-demand part production from cloud-based logistic libraries

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Services

- **N00253-18-F-3000 Industrial Services/Trades**
 - Delphinus contract (large business)
 - Awarded 20 Oct 2017; IDIQ/CPFF; Base Year Plus 4 option years
- **N00178-04-D-4083 FY07 Engineering Support Services**
 - McLaughlin Research
 - Awarded 09 Nov 2016; IDIQ/CPIF; Base Year Plus 3 option years
- **Other Services**
 - Calibration of tooling
 - Test set and small appliance repair
 - Machine maintenance
 - Analysis and repair
 - GFM provided for upgrade to new baseline
 - Weapons grade machining/fabrication
 - Electroplating and anodizing
 - Electronics test equipment repair

Material

- Circuit Card Assemblies
 - Printed wiring boards
- Aluminum Alloy Fabrication
 - Shells; pump heads; plates
- Mechanical Assemblies
 - Valves; accessory bulkhead
 - Forward and Aft fuel tank; engine housings
- Electrical Assemblies
 - Power supplies; circuit card assembly
- Electro-mechanical Assemblies
 - Parts washers; automated test equipment
 - Chiller
- Cable Assemblies
- Computers
- Unique Consumables
 - O-rings; electromagnetic interference gaskets; valve seats; cadmium screws
 - Wiper rings; seals; thrust washers
 - FDM material