

NATIONAL CENTER FOR MANUFACTURING SCIENCES

# NEWPORT NEWS SHIPBUILDING TECHNOLOGY ACCELERATOR

October 28th - 29th, 2026 | Newport News, Virginia

# 3M Company

**Adhesives to replace common tasks**: VHB Tape – High strength bonding for demanding applications

## PROBLEM STATEMENT

The U.S. maritime industrial base faces skilled-trade shortages, aging infrastructure, and schedule pressure across shipbuilding and fleet maintenance. Traditional welding, drilling, riveting, and liquid adhesives consume scarce labor, create hot-work risks, damage coatings, and introduce corrosion-prone penetrations. These labor-intensive steps reduce throughput during compressed maintenance availabilities and high-rate modular construction.

## BENEFITS

- High-strength bonding suitable for metals, composites, glass, and many plastics
- No mechanical fasteners, drilling, or welding required
- Helps reduce noise, vibration, and stress concentrations
- Creates clean bond lines with no curing time
- Excellent durability in outdoor and industrial environments
- Supports streamlined assembly and rework processes
- Panel to frame bonding (interior and exterior)
- Deck and bulkhead finishing (overlay panels, acoustic treatments)
- Corrosion mitigation by insulating barrier between dissimilar metals helps reduce galvanic corrosion risk

## TECHNOLOGY SOLUTION

3M™ VHB™ tapes (family of tapes: Max, 49 Series, 59 Series, GPH Series) offer a high-strength bonding alternative that requires no welding or drilling, provides immediate handling strength, seals against moisture, and bonds dissimilar or coated materials. In approved non-primary-structural applications, VHB can reduce labor hours, hot work, rework, and corrosion pathways in outfitting, trim, panels, stiffeners, and composite-to-metal interfaces.

By increasing effective shipyard capacity, VHB-enabled bonding can accelerate maintenance and future shipbuilding while supporting fleet readiness, subject to Navy design-authority qualification.

## GRAPHIC



# AMERICAN CERAMIC TECHNOLOGY, INC. | SILFLEX® SHIELDING

*Advanced Non-Toxic Shielding Materials for Small Modular & Mobile Reactor (SMR) Platforms*

## PROBLEM STATEMENT

- Small modular reactors, microreactors, and mobile/naval reactor platforms — including shipyards — demand shielding that is lightweight, compact, and field-transportable.
- Legacy lead-based shielding is heavy, toxic, and generates hazardous mixed waste — incompatible with mobile, rapidly-deployed, space-constrained SMR designs.
- No product on the market today is purpose-engineered for the unconventional geometries and portability the next generation of small reactors requires.

## BENEFITS

- Up to 50% lighter than lead for equivalent attenuation — critical for mobile, weight-constrained SMR platforms
- 100% non-toxic, non-hazardous — zero mixed-waste liability or disposal cost
- Custom-molded to any geometry — conforms to tight, unconventional SMR/microreactor designs
- Magnetized options apply instantly with no secondary attachment — faster field install, lower dose
- Withstands 250°C+, resists boric acid/sodium hydroxide — no directly competing product on the market

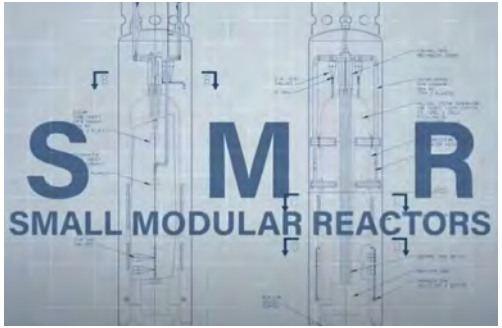
## TECHNOLOGY SOLUTION

Silflex® is a flexible, silicone-based shielding system with proprietary tungsten, bismuth, iron, and neutron materials, manufactured entirely in the USA in custom shapes, pipe wraps, sheets, magnetics, and personal protection.

**ACT is the company developing next-generation shielding materials for the SMR industry.**

Our engineers and materials are already qualified and passing inspection with some of the top energy companies, national nuclear energy laboratories, and naval shipyards in the United States — the emerging standard of choice as SMR and mobile reactor programs move toward production.

## GRAPHIC



# Ansys Government Initiatives
# Ansys Digital Mission Engineering and Model Based Systems Engineering

## PROBLEM STATEMENT

The DOD/DOW is seeking solutions to enhance Digital Mission Engineering / Model Based Systems Engineering workflows from commercial vendors to help create federated digital engineering workflows in support of the warfighter. These workflows must be interoperable, efficient, and aimed at supporting the warfighter to complete a variety of missions.

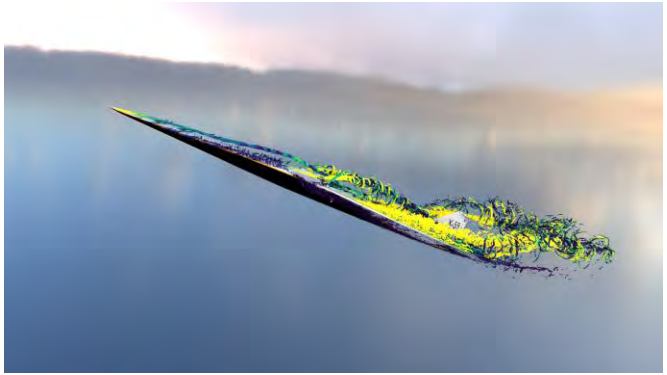
## BENEFITS

And as part of Synopsys, Ansys Government Initiatives can offer our national security customers more solutions than ever. While space is still our area of expertise, we now represent the largest portfolio of simulation products on Earth.

## TECHNOLOGY SOLUTION

Ansys Government Initiatives has a variety of tools, which are currently deployed within the NCMS Digital Proving Ground, which support Digital Mission Engineering / Model Based Systems Engineering. Our focus areas include MBSE via our ModelCenter Suite of tools, SysML v2 via our System Architecture Modeler, Digital Mission Engineering through STK, high fidelity RF simulation via our RF Channel Modeler tool, and many other "core physics" FEA solvers.

## GRAPHIC



# Automatic Coating Limited USA
# Tidal Coat Fluidized Bed Powder Coating Process

## PROBLEM STATEMENT

- Line of sight
- Part is heated and coated via spray
- As part is being sprayed it starts to cool resulting in nonuniform and incomplete coating
- Does not encapsulate the gasket channel for doors or behind the louver chevrons
- Lifecycle of only 2-3 years, more repairs required
- Substrate is not preserved

## BENEFITS

- Replaced 2.38 football fields (857 feet) of C-Channel
- Preserved (coated) 4116 sq feet of watertight doors and hatches
- Days to refurbish versus months to replace
- This system eliminates removal and reinstallation of knife edge door frame and associated hot work
- Hot work generally requires 3-4 men for one week
- Eliminating the hot work saves the U.S Navy up to $25,000 per door
- High-quality finish with same application costs as other powder coating processes but has a service life 3x as long

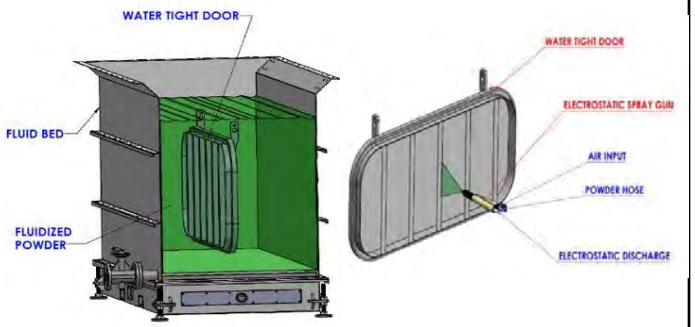
## TECHNOLOGY SOLUTION

ACL's Advanced Coating Method

- Completely coats and encapsulates (seals) all surfaces and crevices
- Part is heated, submerged and quickly agitated
- Fully automated system - PLC controlled, consistent results
- 10-15 plus year coating life cycle
- Preserves the substrate
- Less Repairs

End result is a coating process that provides a durable, high-quality finish with same application costs as other coating processes but has a service life 3x as long (10-15 years).

## GRAPHIC



# TAA-Compliant & Eco-Efficient Smart Collaboration Platforms by AVI-SPL & neat.

## PROBLEM STATEMENT

- **Fragmented Huddle Spaces:** Small meeting rooms & hot-desking zones lack immersive tools for flexible, hybrid work.
- **Complex Multi-Device Setup:** Installing separate cameras, speakers, and cables delays deployments and spikes IT maintenance costs.
- **Passive Remote Meetings:** Static framing and poor audio make remote participants feel excluded from live brainstorming sessions.

## BENEFITS

- **Rapid Global Deployment:** All-in-one out-of-the-box hardware simplifies setup and eliminates extra hardware costs across large office footprints.
- **Seamless Visual Ideation:** Includes a low-latency Neat Active Marker optimized for natural, fluid real-time digital whiteboarding.
- **Centralized IT Management:** Supports remote updates and device monitoring through cloud platforms like AVI-SPL Symphony and Neat Pulse
- **Frictionless Procurement**: Speeds up public sector deployments using trusted GSA Schedule framework pathways.

## TECHNOLOGY SOLUTION

- **Unified 32" 4K Multi-Touchscreen:** High-resolution capacitive display certified for native Microsoft Teams Rooms, Zoom Rooms, and Google Meet.
- **Integrated AI Audio & Video:** Features a 140° wide-angle 4K camera with automatic framing, a 4-mic array, and two-way speakers.
- **Single-Cable USB-C Docking:** Routes video, audio, and touch responses instantly while delivering 90W of power to charge laptops.
- **Certified Secure Hardware**: Ruggedized portfolio explicitly engineered for TAA compliance and certified for MS Teams and Zoom

## GRAPHIC

### Neat Board 32 All-In-One Collaboration Display



# BEAST CODE, LLC
# BEAST CORE

## PROBLEM STATEMENT

The as-maintained condition of equipment, Ships, Submarines, and facilities changes over the life of the asset and is critical in complex system maintenance, overhaul, or refit environments.

Capturing the as-is condition is time consuming and expensive. Beast Code is combining SOTA reality capture techniques with our Beast Core Application Suite to power rapid visualization of the as-built vs as-maintained conditions.

## BENEFITS

Integrating reality capture into our product allows inspectors, engineers and maintainers to:

- Orient within a space using a VPS
- Tag and drop pins on POIs
- Provide visual and spatial context to teams
- Combine the spatial context with the BCAS aggregated digital environment
- Allow repair personnel to navigate directly to the POI with pathing and access tech docs on site.

## TECHNOLOGY SOLUTION

Beast Code is a defense technology company that works with customers to understand complex mission problems, connect disconnected systems and data, build mission-focused software, and sustain those capabilities over time. We connect authoritative systems, technical data, models, documents, schedules, sensors, and other mission information into useful applications.



# Best-Tec Asbestos Abatement, Inc.
# ICRALA Advanced Corrosion Protection Coating System

## PROBLEM STATEMENT

Corrosion and material degradation continue to cause costly equipment failures, unplanned downtime, and increased maintenance expenses across industrial and defense operations. Conventional coating often require frequent repair or replacement, increasing lifecycle coasts and reducing operational efficiency. Organizations need a durable, long-lasting solution that protects critical assets while improving reliability and reducing maintenance demands.

## BENEFITS

ICRALA significantly extends asset life by providing superior corrosion and wear protection in harsh operating environments. The technology reduces maintenance frequency, minimizes downtime, lowers lifecycle coast, and improves equipment reliability.

## TECHNOLOGY SOLUTION

Best-Tec's ICRALA coating technology provides a high-performance protective barrier against corrosion, abrasion, chemicals, and environmental exposure. The solution is designed for long-term durability, easy application, and exceptional adhesion to a variety of substrates. By extending equipment, ICRALA improves operational efficiency and supports more sustainable asset management.

## GRAPHIC



# BG Workforce Solutions

## BG Workforce Enterprise Suite, DoD GovCloud Approved: Proximus™, Cognis ™, Certis™, and Orbis™

### PROBLEM STATEMENT

- The Defense Industrial Base suffers from a severe shortage of skilled labor across critical trades and disciplines.
- Highly experienced Subject Matter Experts (SMEs) retire or leave, taking their knowledge with them.
- It takes too long to upskill new entrants to the workforce, and legacy training methods are inefficient.
- Workers are challenged to find and access critical information at the point of work – they demand capable knowledge support tools.
- Organizations have difficulty identifying, tracking, and developing skills and capabilities within their workforce.

### BENEFITS

- Rapid enterprise deployment (standup in weeks)
- Enhanced worker speed to competency (~50% reduction in training time)
- Targeted Skills-first Training & Tracking (develop flexible, agile workforce)
- Automate training program administration (reduce overhead costs)
- Adaptable for any operational environment with cloud and standalone capabilities (technology agnostic)
- Standardize training & maintenance operations across the enterprise (improve quality)

### TECHNOLOGY SOLUTION

Proximus™, Certis™, Cognis™, and Orbis™ are designed to bolster the Defense Industrial Base labor force and rapidly reverse knowledge attrition by digitally capturing SME experiences, codifying them against skills and capabilities, and delivering them across a distributed workforce in an innovative XR interface with AI assistance. These tools enable customer organizations to develop and maintain their own content libraries and intellectual property, ensuring real-time access to the latest information for all workers in the organization to ensure compliance in the field.

### GRAPHIC





# HELPING THE US NAVY DELIVER COMBAT POWER ON TIME

**A Quantum Leap In Blast And Paint Turnaround**

BLASTONE

## BACKGROUND ON THE ISSUE

- Concern with ship availability and fleet capability
- Delayed maintenance days and delayed delivery
- Increasing maintenance costs
- Cost of missed readiness deadlines
- Diminished labor force availability

## SOLUTION

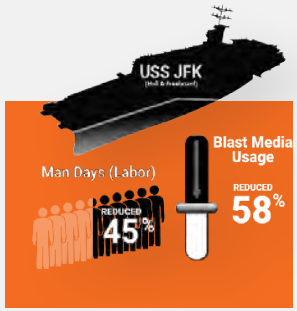
- Implement BlastOne 'PEATS' process to conduct, monitor and manage each abrasive blasting operation through data-driven best practice
- Based on 40+ years of deckplate and engineering experience
- Ongoing research and development of surface preparation technologies

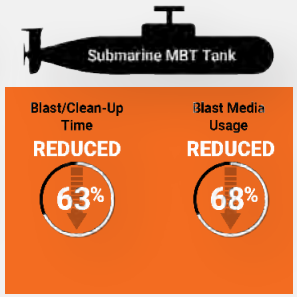
## BLASTONE CAN HELP THE US NAVY, MSC, AND USCG ACHIEVE ITS GOALS

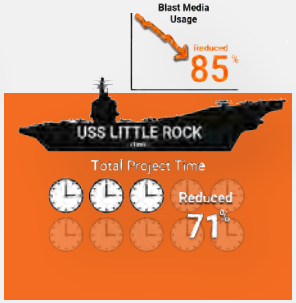
BlastOne's on-site support & training, technical know-how, and innovation are key to astounding performance increases in blasting and painting processes.

- Helping the US Navy, MSC, and USCG to achieve on-time performance, and increase Fleet Readiness
- Increasing fleet availability with engineered products and data analytics for blast and paint operations
- Reducing delayed maintenance days by 40%+ through efficient blast and paint production practices
- Helping to achieve the US Navy's goal to deliver Combat Power with faster production rates and labor savings
- Improving health and safety conditions with reduced noise and dust
- Reducing man hours with robotics & automation

## RELEVANT PROJECT RESULTS SHIP REPAIR




NCMS MEMBER

GSA UEI GZQJT GMX L8N3

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# Blue Yonder Defense Solutions
# D-DIL (DISCON)

## PROBLEM STATEMENT

Legacy software solutions often fall short in providing lightweight, adaptable capabilities that ensure communication, visibility, and actionability in dynamic, multi-domain battlefields.

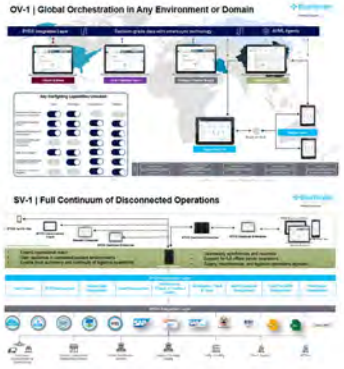
## BENEFITS

Blue Yonder Defense Solutions addresses these challenges with its multi-tier network approach and Deployed and Disconnected Operations Suite. Powered by autonomous decision-making and AI-driven prescriptions, this solution equips joint forces with the tools to operate effectively in non-contiguous, asymmetric environments. Designed for interoperability, the solution integrates seamlessly with legacy systems, extending the value of existing investments while delivering modernized capabilities to overcome current and future challenges in the defense sector.

## TECHNOLOGY SOLUTION

Technology has achieved multiyear audit success for FIAR, FISCAM, and IT while new functionality is added continually and ATO'd. The solution provides multi-tenant visibility at the highest level, to the individual components being consumed and maintained increasing availability while decreasing swivel chair and duplicative entry, returning experts to wrenches rather than keyboards. The solution suite provides the enterprise supply chain and maintenance visibility while allowing operators to work in remote disconnected corners to contested spaces across the battlefield executing the tasks assigned to maintain the health of assets.

## GRAPHIC



# Boston Engineering Corporation
# Shipyard Robotics and Digital Solutions

## PROBLEM STATEMENT

- Maintenance and sustainment of our weapons systems is being challenged by shrinking experienced workforce and increases in our national retirement rate.
- Nascent workers require training and mentoring before achieving the proficiency of highly skilled workers.
- Nascent workers often experience work package execution issues and must leave the work site to seek advice or help with decisions enabling continued work execution.
- Many maintenance requirements are discovered only after a weapon system reaches its destination. Knowledge gathering in route to the shipyard is not captured well today.

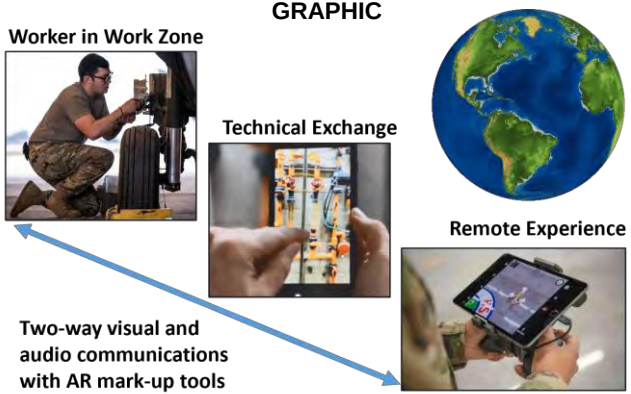
## BENEFITS

- Provides experienced guidance to workers in work areas from experienced remotely located high skill or experienced workers and supervisors.
- MREG can record or actively share work assessments in the field in advance of shipyard stationing provided planners advanced information, resulting in reduced schedule.
- Connects nascent workers with retired workers who can work from home or part-time and continue sharing experience.
- Open architecture enables capability advancement contributions by multiple people and organizations in industry, academia, and DoD R&D Centers. Achieved TRL 7 demo

## TECHNOLOGY SOLUTION

- Mixed Reality Expert Guidance (MREG) is an Augmented Reality (AR) enhanced secure video remote assistance tool connecting experienced workforce to nascent workforce.
- MREG operates on premise, on cloud infrastructure, on in hybrid or mixed connected and unconnected configurations.
- The capability is built using open architecture, open standards, and software licensing to operate not require.
- MREG has been demonstrated on portable 5G communications ship-to-shore in port providing the necessary bandwidth to support video communications.
- MREG is device agnostic.

## GRAPHIC



# BrandTech by BrandSafway

Computerized Welding

## PROBLEM STATEMENT

BrandTech® Precision Welding produces stronger welds, with incredibly low rejection rates, in all conditions, and no human skill dependency.

- Less than (<) 0.5% weld rejections vs 10% to 20% weld rejections for current capabilities – tremendous time savings created with addition of computerized software
- Developed, designed, manufactured in the USA
- UL 2900-2-2 Certified for Cybersecurity

## BENEFITS

BrandTech® produces significant cost reductions and time savings with no additional training requirements – minimal time to train operators (welders) for use.

- Fast installation and Single-Side Access: welders do not need to access the reverse side of the material
- Precise welds reduce material waste and rework (<0.5% weld rejection rate)
- Less Downtime: Faster processes mean quicker turnaround times for ship sections
- Strong, reliable welds reduce the likelihood of failure

## TECHNOLOGY SOLUTION

BrandTech® meets rigorous Quality and Reliability standards to match the strenuous demands of a Shipyard Workplace environment.

- Advanced components per IEC, ROHS, UL, CE, FCC, RU
- UL and CSA Listing – File No.: E501577
- Large inventory of equipment and consumables
- Global reach with local branch support
- Fast installation at milliseconds per weld, significantly reducing man-hours compared to traditional fastening methods

## GRAPHIC

Eduardo Almeida

ealmeida@brandsafway.com

281-896-0507

# CABCO ENTERPRISES INC.

## Integrated Industrial Solutions & Technical Support

### PROBLEM STATEMENT

- Shipbuilding and industrial projects require specialized tooling, materials, and precision components.
- Multiple suppliers, custom specifications, and long lead times complicate procurement.
- Equipment calibration, repairs, and material delays can interrupt critical operations.

### BENEFITS

- Consolidated source for industrial supplies and technical services.
- Custom-built solutions matched to jobsite requirements.
- Reliable torque-tool calibration and repair support.
- Improved material coordination, responsiveness, and operational continuity.

### TECHNOLOGY SOLUTION

- ISO/IEC 17025:2017-accredited torque calibration and repair; bolting consultation.
- Custom fabrication, full-service machining, CNC forming, and precision cutting.
- Weld training/test coupons, custom weld gauges, tooling, and metal products.
- Industrial supply: manifolds, ventilation components, stands, toolboxes, and more.

### CAPABILITY WORKFLOW

| CUSTOMER REQUIREMENT | → | CABCO SOLUTIONS | → | PROJECT SUPPORT |
|---|---|---|---|---|
| Specifications & jobsite needs | | Sourcing • fabrication calibration • repair | | Quality-focused fulfillment & delivery |

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# Design Mill, Inc.
# Digital Twins with AI

## PROBLEM STATEMENT

Defense and industrial organizations operate complex physical environments where critical information is often fragmented across drawings, 3D models, sensor systems, databases, imagery, documents, and institutional knowledge.

Planning, transportability assessment, facility management, training, logistics, and operational analysis can still depend on manual measurements, physical site visits, disconnected applications, and time-intensive interpretation of data.

The result is slower decision-making, increased cost and travel, limited situational awareness, duplicated effort, and difficulty maintaining an accurate understanding of changing assets and environments.

Organizations need a secure digital operating environment that connects physical reality, operational data, and AI to support faster, better-informed decisions.

## BENEFITS

ViPr transforms physical environments and operational information into an interactive, AI-enabled digital twin that can be accessed remotely by engineers, planners, operators, maintainers, and decision-makers.

The platform enables organizations to:

- Improve mission planning, logistics, readiness, and transportability
- Reduce physical site visits, manual measurements, travel, and operational disruption
- Visualize facilities, equipment, infrastructure, and mission assets remotely
- Perform precise 3D fit, clearance, collision, routing, and spatial analysis
- Connect IoT, operational systems, documents, imagery, and asset information into a common environment
- Use AI to search, summarize, analyze, and reason across approved operational information
- Preserve institutional knowledge and accelerate training
- Improve asset utilization, facility planning, workflow efficiency, and lifecycle decisions
- Create a scalable foundation for continued AI, automation, and digital transformation

This moves the digital twin beyond visualization into a decision-support environment for real-world operations.

## TECHNOLOGY SOLUTION

Design Mill's ViPr platform is a secure, cloud-based digital twin solution that combines reality capture, 3D models, geospatial data, IoT, enterprise information, and AI into a shared operational environment. ViPr enables users to visualize and analyze real-world assets, perform fit, collision, clearance, routing, and spatial analysis, and remotely assess facilities and equipment. AI adds asset- and location-aware search, analysis, and decision support across approved operational data, helping users turn complex physical and digital information into faster, more actionable insight.

## GRAPHIC



# DXC Technology

## Shipyard of the Future — Digital Manufacturing

### PROBLEM STATEMENT

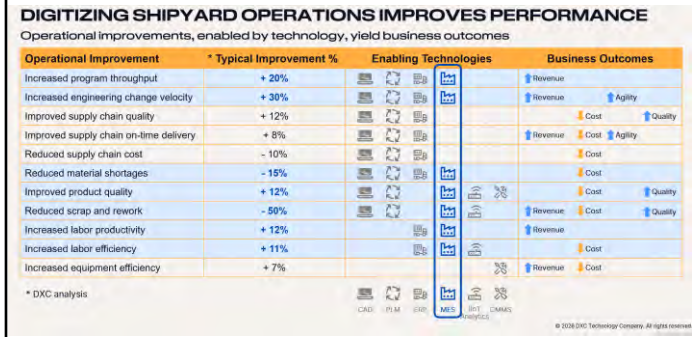
• Shipyards face record backlogs and need to produce them faster — skilled-labor shortages, aging workforce, and tribal knowledge walking out the door.
• Design, engineering, and the shipyard operations run on disconnected systems and paper-based work instructions, creating rework, delays, and quality issues.
• Legacy IT and technical debt block modernization; data is siloed across CAD (TeamCenter NX), PLM (TeamCenter), ERP, with no single source of truth.
• Sustainment and new-build compete for the same constrained capacity, eroding fleet readiness.

### BENEFITS

• Higher throughput without adding headcount.
• First-time-quality gains and less rework through connected, model-based work instructions.
• Real-time production visibility for supervisors; faster, data-driven decisions.
• Captures retiring-workforce expertise into reusable digital work packages.
• Improved fleet readiness by freeing constrained sustainment capacity.
• 60+ years of A&D/DoD heritage (CSC lineage); cleared delivery, AWS and Azure partnership.

### TECHNOLOGY SOLUTION

• DXC Shipyard of the Future: a connected Digital Thread linking requirements → design → production → sustainment.
• MES modernization delivering smart, paperless work instructions and real-time shipyard visibility.
• Digital Thread / PLM integration (Aras) and SAP ECC-to-RISE migration for discrete manufacturing.
• Cloud, data, and AI on AWS — augmenting the workforce and automating routine tasks.
• Advisory-led transformation (DXC AdvisoryX) tying it to throughput outcomes.




Contact: Daniel.Davison@DXC.com C: (314) 749-1185

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EFCO USA, Inc.
Valve Repair & Testing Equipment

**PROBLEM STATEMENT**

Time and budget-consuming manual processes.
Inconsistent results.
Complicated, limited, or dangerous processes.
Tool and testing reliability issues.

**BENEFITS**

Easy to use, durable, and efficient.
Versatile, easily customizable, and expandable.
Use systems more effectively.
Consistent results.
Keep downtimes to a minimum.
Increase the quality and productivity of maintenance.
Use human resources more responsibly.

**TECHNOLOGY SOLUTION**

Stationary and portable equipment for valve repair and testing.
Valve grinding and lapping equipment for gate, globe, control, safety, and ball valves.
ID- and OD-mounted flange facers, with CNC options.
Portable lathes with manual, automatic, and CNC options.
Test benches for control and safety valves - body, seat leakage, and set pressure.

**GRAPHIC**



# ENFASCO Inc.
# NAVSEA Approved Adhesive Mounted Studs

## PROBLEM STATEMENT

Hot Work is a major and potentially catastrophic hazard in ship overhaul and repair. Costly fire watches, removal of flammables within a 35ft radius, and gas-freeing of fuel tanks add man-days to all repairs when hot work is required.

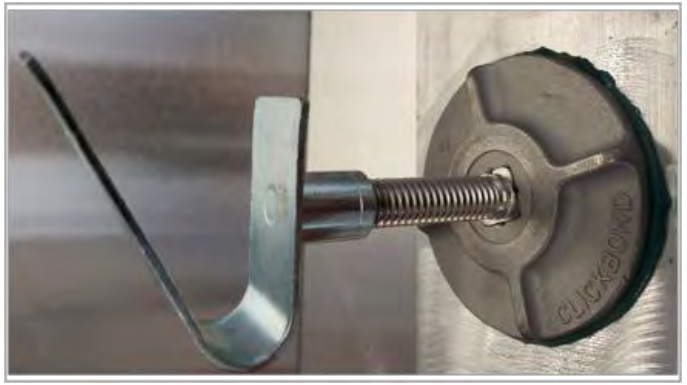
## BENEFITS

NAVSEA approved adhesive mounted studs
1) eliminate hot work
2) Flexibility for the installer
3) No gas free of fuel tanks
4) No removal of insulation on both sides of bulkhead
5) can be installed by all trades with proper training (not highly skilled laborers
6) Save Schedule
7) prevents moisture intrusion as there are no holes
8) Can be used on dissimilar metals (no corrosion)
9) Great for late-stage outfitting
10) Support change orders

## TECHNOLOGY SOLUTION

Utilizing NAVSEA approved adhesive mounted studs to secure items to the bulkhead or deck eliminates hot work delays. Adhesive mounted studs have passed MIL-901D Grade A shock and Vibration testing. With over 500,000 studs in service, NAVSEA approved adhesive mounted studs (803-8436636B) are a proven technology with years of OQE

## GRAPHIC



# Esco Tool
# Manufacturing of Pipe and Tube Beveling Equipment

## PROBLEM STATEMENT

Key Problems:

- Pipe Beveling/cutting: Manual grinding, hand-held tools, or moving pipe to machine shop.
- Flange Repair: When a gasket groove surface is scratched. Remove Flange Remove the flange and send it to a machine shop or replace it.
- Difficult Access to Pipe: More disassembly, awkward positioning or time consuming manual work.
- Quality Control: Results can depend heavily on operator technique and manual finishing.

## BENEFITS

The biggest benefits of using ESCO Tool equipment are precision, productivity, versatility, and reduced downtime. ESCO's equipment is designed to help operators prepare pipe and tube for welding, machine components in place, and perform specialized cutting and resurfacing tasks without relying entirely on conventional machine-shop methods.

- Precision weld preparation
- Increased productivity
- On-Site machining capability
- Access to difficult work areas
- Repeatability and reduced rework
- Versatility across applications.

## TECHNOLOGY SOLUTION

Esco Tool's portable pipe and tube beveling and flange resurfacing equipment is the most reliable equipment on the market. Providing accurate, clean, and consistent bevels all while increasing quality controls, decreasing operator fatigue, improving weld integrity, and eliminating additional work after the cut/bevel is completed.

## GRAPHIC








Edison Welding Institute

# Accelerating & De-Risking Adv Manufacturing for Shipbuilding Productivity

NATIONAL CENTER FOR MANUFACTURING SCIENCES

EWI We Manufacture Innovation

## PROBLEM STATEMENT

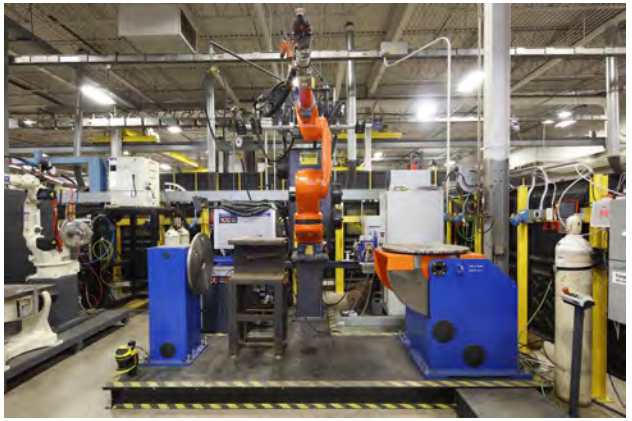
- "Speed to fleet" is the priority
- Shipbuilders must deliver more vessels faster, but current production constraints in labor, throughput, and supply chain limit capacity

## BENEFITS

- Fewer labor hours, less rework, and lower cost
- Accelerated production schedules
- Improved quality and consistency
- Shorter lead times and less supply chain dependence
- Expanded workforce capacity and improved safety
- Longer service life and faster return to fleet

## EWI's TECHNOLOGY SOLUTIONS

**Additive manufacturing:** Wire-arc DED for large, near-net-shape components
**Tele-manufacturing™:** Remote, expert-guided welding/fabrication to extend skilled labor
**Laser processes:** Welding, cladding, and cutting for speed and lower distortion
**Corrosion engineering:** Materials, coatings, and repair solutions that extend service life



# Exostar

## Business IT & Analytics

**PROBLEM STATEMENT**

How can defense manufacturers and their suppliers work together more effectively—protecting sensitive information while reducing the friction that limits productivity, responsiveness, and growth?

**BENEFITS**

Exostar exists to help organizations work together securely across company boundaries. We bring together a community of buyers, suppliers, and partners and enable the trusted exchange of information needed to support coordinated action.

**TECHNOLOGY SOLUTION**

Exostar connects the Defense Industrial Base through a trusted community for secure information exchange and supply chain collaboration, helping manufacturers and suppliers work together to strengthen capacity, readiness, and resilience.

**GRAPHIC**

EXOSTAR

Together We Thrive

# FASTENAL
## Supply Chain Solutions

## PROBLEM STATEMENT

Production teams lose valuable time walking, waiting, and searching for commonly used consumables.

Decentralized inventory can create stockouts, excess inventory, limited accountability, and reduced supply-chain visibility.

## BENEFITS

- Critical supplies available closer to the work
- Less walk-and-wait time and stronger productivity
- Consumption control and user accountability
- Real-time inventory and usage visibility
- Scalable support across locations

## TECHNOLOGY SOLUTION

Fastenal combines point-of-use vending, RFID-enabled inventory monitoring, Product Locator, local service, and replenishment.

The program is tailored around actual consumption to improve access, control, and continuous optimization.

## PROVEN TECHNOLOGY AT SHIPYARDS



NATIONAL CENTER FOR MANUFACTURING SCIENCES

# Fleet Robotics
# FleetBOT™

## PROBLEM STATEMENT

**Shipyards lack real-time visibility into hull condition until vessels arrive for maintenance, leading to surprise findings, extended dry-dock schedules, and reactive maintenance cycles.** Skilled labor is diverted to routine hull cleaning, reducing capacity for critical repairs. This visibility gap extends maintenance timelines and strains Navy readiness.

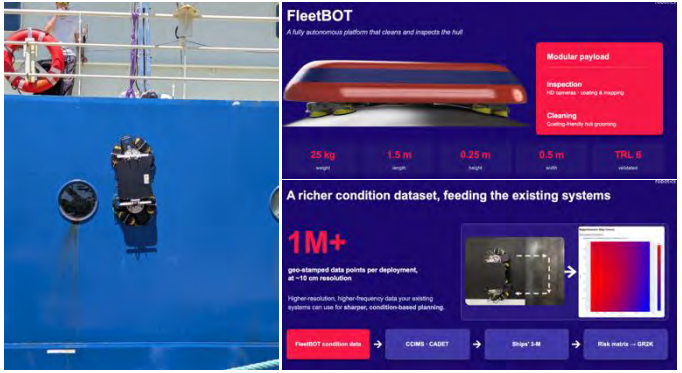
## BENEFITS

- **Accelerated Triage:** Identify hull integrity issues, biofouling, and coating anomalies
- **Real-Time Visibility:** Condition data before and during maintenance events informs targeted repair prioritization
- **Labor Efficiency:** Autonomous hull cleaning and inspection frees skilled personnel for high-value repairs
- **Schedule Confidence:** Reduced surprise findings keep vessels on maintenance schedules
- **Fleet Readiness:** Predictive intelligence supports continuous operational availability

## TECHNOLOGY SOLUTION

Fleet Robotics' FleetBOT™ system deploys rapidly in drydock and wet dock environments to autonomously inspect and maintain ship hulls. The robot collects over one million geo-stamped data points per mission, powered by AI-driven analytics that detect structural, coating, and biofouling anomalies. Real-time condition reports feed directly into shipyard maintenance planning and Navy asset management systems, transforming hull maintenance from reactive to predictive operations.

## GRAPHIC



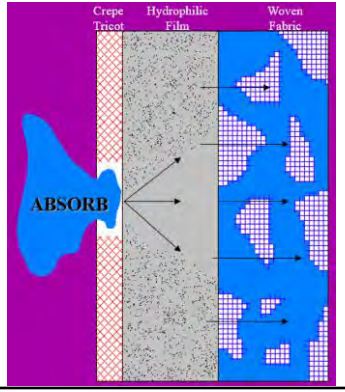
FRHAM SAFETY PRODUCTS, LLC

Frham Tex II

## HEAT STRESS PROTECTION IN RADIOACTIVE AREAS

Workers in radioactive areas face increased heat stress risks from protective clothing, respiratory equipment, and elevated temperatures, creating a need for effective cooling solutions that maintain worker safety, stay times and radiological protection.

## BENEFITS




- Increase stay times while maintaining a controlled body core temperature
- Total barrier protection from contaminants
- Waterproof barrier
- Moisture wicking and maximum breathability

## FRHAM TEX II SOLUTION

- Protect worker health: Reduce the risk of heat exhaustion, heat stroke, and dehydration.
- Maintain radiological protection: Preserve respiratory protection, contamination controls, and required PPE integrity.
- Improve work efficiency: Minimize heat-related work interruptions and fatigue.
- Enhance monitoring: Identify hazardous heat conditions and recognize early signs of heat stress.
- Develop practical solutions: Evaluate cooling technologies and administrative controls suitable for radioactive work areas.



# GrayMatter Robotics (GMR)

Factory SuperIntelligence (FSI) for Manufacturing

## PROBLEM STATEMENT

- **Skilled labor gap:** naval shipbuilding and repair rely on skilled workers for surface finishing and other contact-intensive manufacturing processes.
- **Throughput limits:** demand for these skills exceeds supply, which constrains schedule and capacity across yards and suppliers.
- **High-mix variability:** large structures and low-volume work vary from part to part, so outcomes depend on individual experience.
- **The need:** extend the reach of experienced workers and deliver consistent results on every part.

## BENEFITS

- **4 to 12x** cycle time improvement on targeted manufacturing processes.
- **Worker augmentation:** experienced workers direct and supervise cells and focus on higher-value work.
- **Consistent results:** every part receives a repeatable, predictable process and finishing.
- **Added capacity:** more output from existing yards, workforce, and floor space.
- **Readily available expertise:** GMR's Factory SuperIntelligence (FSI) enables workers best-in-class capabilities with minimal workforce training required.

## TECHNOLOGY SOLUTION

- **Physical AI:** GMR builds Physical AI that perceives, plans, and executes manufacturing processes.
- **GMR-AI:** scans each part and generates process paths for that part.
- **Curie:** an AI-enabled agent that discovers and refines process parameters from embodied data.
- **APEX Cell:** mobile, reconfigurable deployments bring capability to the part and factory flexibility.

## GRAPHIC

*CAD-free, autonomous application examples*



Sanding & Grinding | Blasting | Paint Coating

# Har-Bach Marketing/Fit Up Gear
## Reducing Temporary Attachments in Shipfitting Applications

**PROBLEM STATEMENT**

- Welded Temporary Attachments
- Scars and Burrs
- Excessive Cutting and Grinding
- Removal of Temporary Attachments
- Hand and Eye Injuries
- High Amount of Time Wasted on All the Above

**BENEFITS**

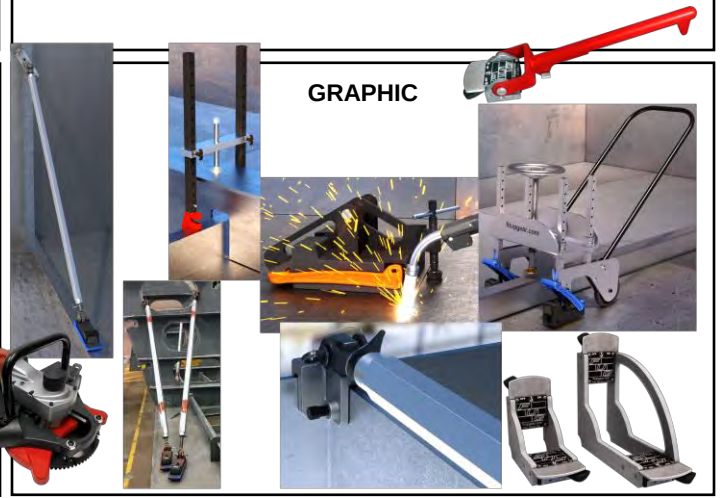
- Minimize Welded-On Temporary Attachments
- Decrease Hand and Eye Injuries
- Quicker and Safer Fitting Operations - Some 100X Faster
- Huge Reduction in Manhours
- No Fire Watch Needed During Sawing Applications

**TECHNOLOGY SOLUTION**

- Magnetic Tools for Fitting Operations
- Low Weight-to-Power Ratio Magnets
- NCMS Award Winning Magnets
- Non Welded Clamps for Fitting Operations
- Reduce or Eliminate Scars and Burrs
- Magnetic Cold Saw for Removing Temporary Attachments



**GRAPHIC**



Technology Funding Request

# INTEGRATION OF INSULATED BUS PIPE (IBP) INTO WARSHIP DESIGNS TO SUPPORT SHIPBOARD DISTRIBUTION OF HIGH-POWER ENERGY

## TECHNOLOGY

Insulated Bus Pipe (IBP), Modular Power Distribution for Shipboard High-Power Applications

## RDT&E,N PROGRAM ELEMENT (PE):

PE 0603573N / Advanced Surface Machinery Sys – Project 2471 / Integrated Power System (IPS). DDG(X) Power & Propulsion Risk Mitigation & Demo Recommended Language: Conduct development and preparation of Insulated Bus Pipe (IBP) providing for tool-free connections and scaled manufacturing for warfighter capabilities.



*Directed Energy Shipboard Applications Enabled by Insulated Bus Pipe Power Distribution Technology*

## RESOURCES REQUIRED:

$5M - Requested to support scaling manufacturing and to develop this advanced technology for readiness to support warfighter capability

| Activity | FY27 |
|---|---|
| Congressional Add to RDT&E for DDG(X) Design & Integration | $5M |

## ACCOMPLISHMENTS

- Delivered draft military performance specification working with NAVSEA 05Z
- Risk reduction testing for shipboard use and qualification
- Designed, developed, and manufactured 1st ever coaxial insulated bus pipe
- Tested at high-power and for medium weight shock and vibration
- Low-rate initial production in Windsor, CA

## BARRIERS TO ADOPTION AND PURPOSE OF REQUESTED FUNDING:

| Current Challenge | Addressed Though Funding |
|---|---|
| Complete performance validation: | Enable for testing, modeling, and performance |
| Breadth of product catalog: | Engineering design to meet warfighter needs |
| Scaled production: | Building local manufacturing capability |
| Clear value demonstration: | Perform representative testing and deployment |

Currently TRL: 4 – Specific components validation in ManTech and SBIRs

With Funding TRL: 7 – Focused push will enable product ready for transition to US Navy platforms

## WARFIGHTER NEED

- IBP is an enabling technology to integrate future Navy combat systems, e.g. high energy lasers
- Reduces installation labor cost and construction schedule risk while providing low and medium voltage power distribution capability.
- Support the distribution of high-power energy to new and emerging, power-hungry weapons, sensor and propulsion systems.

*"Laser power is not the issue – it's the form factor, it's the **engineering of the power to get the density of that in a shipboard** design, that's the challenge."*

*"I don't think a one-**megawatt laser is beyond what should be on** that battleship."*

Adm. Daryl Caudle
U.S. Navy's Chief of Naval Operations

## TECHNOLOGY DESCRIPTION & BENEFIT

- >20% labor cost savings by installing modular IBP in pre-outfitting and eliminating critical path cable pulling late in ship construction
- Tight bend radius for complex routing capability in contrast to cable
- Magnetic Signature Reduction dependent upon rating and type
- Boltless connections along modular distribution to minimize life cycle maintenance

## TECHNOLOGY POINT OF CONTACT

Patrick Lewis, Hepburn and Sons LLC, Director of Technology Development
Phone: (527) 527-2619 Email: patrick.lewis@hepburnandsons.com

## GOVERNMENT POINTS OF CONTACT

Neal White, Acting DASN Ships
Phone: (703) 697-1710 Email: neal.r.white12.civ@us.navy.mil

Nathan Spivey, ONR Program Officer Code 331
Phone: (215) 266-6096 Email: nathan.n.spivey.civ@us.navy.mil

## POTENTIAL CUSTOMER(S)

- Surface Ship Program Offices
- Submarine Program Offices
- Shipyards
- Data Centers
- Electrical Utilities

## OTHER BENEFITS IN THE NATIONAL INTEREST

- Grid Resilience
- Bring Back Manufacturing Jobs to US
- Enabling high-power technologies



*Modular Sections of Insulated Bus Pipe, Boltless Connections*

NATIONAL CENTER FOR MANUFACTURING SCIENCES

# Hexagon

## Portable Metrology for High Accuracy Inspection and Reverse Engineering

### PROBLEM STATEMENT

Manufacturers often struggle with lengthy inspection processes, limited access to measurement equipment and the challenge of verifying increasingly complex parts and assemblies. Moving components to a traditional inspection room can increase downtime, delay production and introduce additional costs.
Many organizations also require accurate measure ment solutions for reverse engineering legacy parts or validating large-scale assemblies that cannot easily be measured with conventional systems.

### BENEFITS

Improve quality while reducing inspection time with portable metrology solutions that deliver fast, accurate measurement anywhere in the manufacturing process. Users can inspect parts directly on the shop floor, verify assemblies, capture complex geometry for reverse engineering and eliminate costly rework. Portable measurement increases flexibility, improves productivity and provides immediate access to reliable dimensional data for faster decision making.

### TECHNOLOGY SOLUTION

Hexagon's portable metrology portfolio combines the Absolute Arm, handheld 3D scanning and Leica AT960 Laser Tracker with T-Probe and AS1 Scanner to deliver accurate measurement wherever it's needed. These solutions provide contact and non-contact inspection, high-speed 3D scanning, large-volume measurement and precise alignment capabilities. Integrated software transforms captured data into actionable insights, helping manufacturers accelerate inspection, improve quality and support connected manufacturing workflows.

### GRAPHIC



# Horizon Manufacturing Technologies

## Autonomous Mobile Manufacturing

HORIZON
MANUFACTURING TECHNOLOGIES

### Problem Statement

The U.S. manufacturing industry is emerging from a decades-long decline and demands leap ahead technology solutions for the future. Horizon Manufacturing Technologies is leading the American reindustrialization effort by developing and deploying manufacturing technologies that address the urgent need for large-scale metal castings in the defense sectors.

The casting industry is heavily dependent on skilled, labor-intensive work, and the shortage of qualified welders presents a throughput bottleneck that drives backlog across the shipbuilding supply chain.

### Benefits

**Warfighter Impact**

- Utilizing robotic welding helps mitigate workforce constraints
- Limiting human exposure to identified hazards
- Expert knowledge is captured in a scalable robotic platform

**Industrial Base Savings**

- $58M recovered in repaired castings/forgings per year

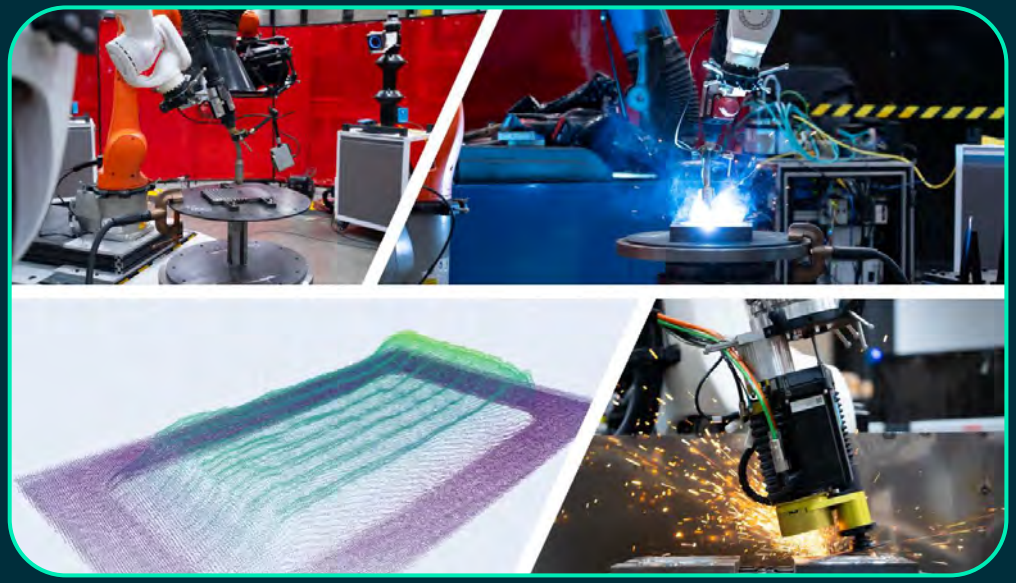
**Operational Improvements**

- Adaptive manufacturing drives greater operational flexibility
- Traditional Weld Cells Not Required: Mobile robots take the repair operation to the workpiece
- Full end-to-end manufacturing traceability with digital repair thread for every article

### Technology Solution

Horizon is expanding additive manufacturing and casting repair processes beyond traditional welding cells by delivering cooperative robotics capable of dimensional scanning, welding, and subtractive restoration of large castings in a mobilized platform.

Mounted on a ruggedized vehicle platform, the mobile robotic system will augment the existing workforce and improve technician safety by decreasing human operations in mission critical casting repairs, inherently reducing supply chain uncertainty by driving consistency and throughput only possible with advanced manufacturing.



HYTORC
ADVANCED BOLTING SYSTEMS

# HYTORC
# Accelerating Naval Maintenance Through Advanced Bolting Technology

## PROBLEM STATEMENT

Naval maintenance and modernization schedules are heavily impacted by labor-intensive bolting operations. Critical repairs often require multiple personnel, extended installation times, & expose maintainers to ergonomic & safety risks.

**Shipyards need methods to reduce maintenance duration without compromising quality or worker safety.**

## BENEFITS

- Up to 50% reduction in bolting cycle time
- Additional 40-60% reduction using **ASTM F3394** washers
- Reduced labor requirements for maintenance tasks
- Improved worker safety through reaction-arm elimination
- Increased maintenance throughput & schedule adherence
- Supports workforce productivity amid skilled labor shortages

## TECHNOLOGY SOLUTION

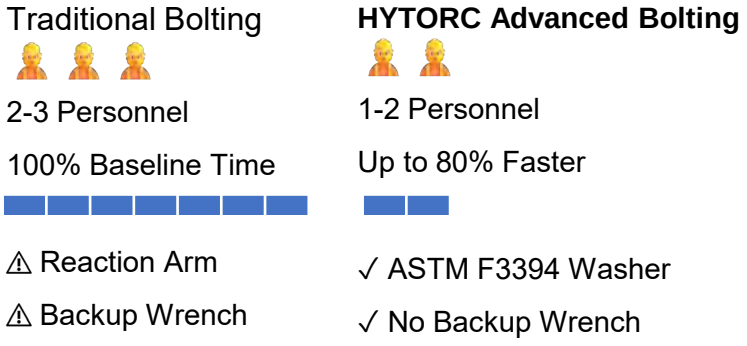
**HYTORC's Advanced Bolting System combines:**

- Simultaneous multi-tool tightening (**ASME PCC-1** recognized methodology)
- **ASTM F3394** Reaction Washers
- **ASTM F3394** Backup Washers

**Together these technologies:**

- Eliminate traditional reaction arms
- Eliminate backup wrenches
- Reduce required personnel
- Standardize torque procedures
- Significantly shorten installation & maintenance times

## GRAPHIC



NATIONAL CENTER FOR MANUFACTURING SCIENCES

# IBM Consulting
# Navy Engineering Assistant Tool (NEAT)

## PROBLEM STATEMENT

Submarine Industrial Base must support production of **1 Columbia-class SSBN and 2.33 Virginia-class SSNs annually**.

- Engineers must navigate **200+ welding reference documents**, creating significant review burden.
- Manual PQR reviews can exceed **48 hours**, delaying production schedules and supplier throughput.
- Complex specifications, tables, footnotes, and compliance dependencies result in rework, inconsistent submissions, and supply chain bottlenecks.

## BENEFITS

- Accelerates welding document creation, review, validation, and approval processes.
- Reduces technical review time through AI-enabled compliance validation.
- Improves submission quality and consistency across suppliers and vendors.
- Enhances workforce productivity and supports submarine production readiness.
- Provides rapid access to welding knowledge, standards, and engineering guidance.

## TECHNOLOGY SOLUTION

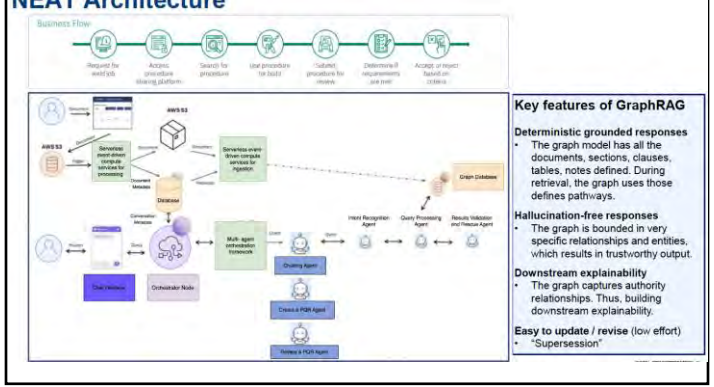
**NEAT combines:**

- Generative AI
- Agentic AI
- Semantic Search
- Automated Compliance Checking

**Capabilities:**

✓ Search across 150+ welding standards
✓ Automated PQR/WPS validation
✓ Engineering Q&A assistant
✓ Specification lookup and table interpretation
✓ Go/No-Go review workflows
✓ Continuous knowledge expansion through document ingestion

## GRAPHIC



# Impacto
# PPE/Ergonomics

## PROBLEM STATEMENT

- Hand Arm Vibration Syndrome (HAVS). Our products help reduce the risk of getting HAVS. This is a painful and permanent disorder of the blood vessels, nerves, and joints caused by regular, long-term use of vibrating hand-held tools.
- Repetitive Strain Injuries (RSI). RIS occurs when you repeatedly use the same motion. Like typing, standing and bending over or down, standing in the same spot every day. We have cushion mats, air filled back supports, and comfortable insoles.
- Carpal Tunnel Syndrome. We have products that help prevent CTS before, during, or in recovery from CTS surgery.
- Our products are made to help the individual worker. We are the leaders in ergonomically designed PPE.

## BENEFITS

Our products offer individualized help. They are designed to help by adding an extra layer of protection if needed. Or you can use our products as the first line of defense.

## TECHNOLOGY SOLUTION

Our products offer protection before and after a health issue. We can reduce the impact of a hammer by 50%.

## GRAPHIC



# LOKRING TECHNOLOGY

Implementation of MAFs in Construction and Overhaul for Submarines and CVNs

## PROBLEM STATEMENT

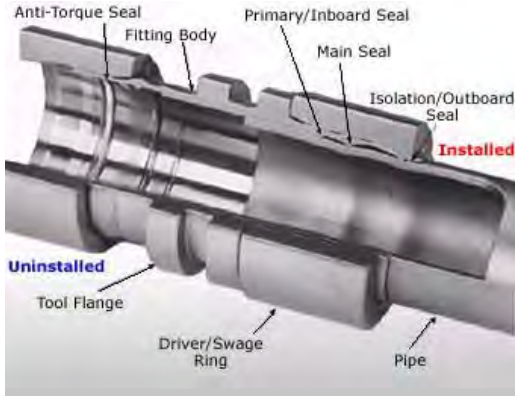
The Navy and its shipbuilding partners face unprecedented pressure to build and maintain quality ships faster, on-time and under budget with a limited workforce. One of the largest cost and schedule drivers in ship and submarine construction and overhaul is small bore piping and the associated NDT. Reducing the manhours needed for small bore piping installation and drastically reducing or eliminating NDT can free up thousands of manhours and reduce impact on critical path schedules.

## BENEFITS

Expanding the use of LOKRING MAFs in overhaul and incorporating MAFs in new construction design will contribute to shorter build and overhaul cycles.
Elimination of NDT requirements will reduce speed up completion, acceptance and turnover of systems.
Traded interference caused by radiographic inspections are eliminated.
Improves safety and quality. Design results in consistent quality connections regardless of crew make-up. No hotwork safety issues.

## TECHNOLOGY SOLUTION

LOKRING Mechanically Attached Fittings (MAF) form a permanent metal-to-metal seal that meet or exceed mechanical and leak tightness standards of welded joints while eliminating hotwork and NDT. NAVSEA approved and fully qualified to ASTM F1387, including all supplemental tests. Fire testing has proven LOKRING fittings fire-hard for use in fire hazardous applications. NNSB has installation tooling and certified installers.



# Maglogix®
## Reducing Temporary Attachments in Shipfitting Applications

### PROBLEM STATEMENT

- Welded Temporary Attachments
- Scars and Burrs
- Excessive Cutting and Grinding
- Removal of Temporary Attachments
- Hand and Eye Injuries
- High Amount of Time Wasted on All the Above

### BENEFITS

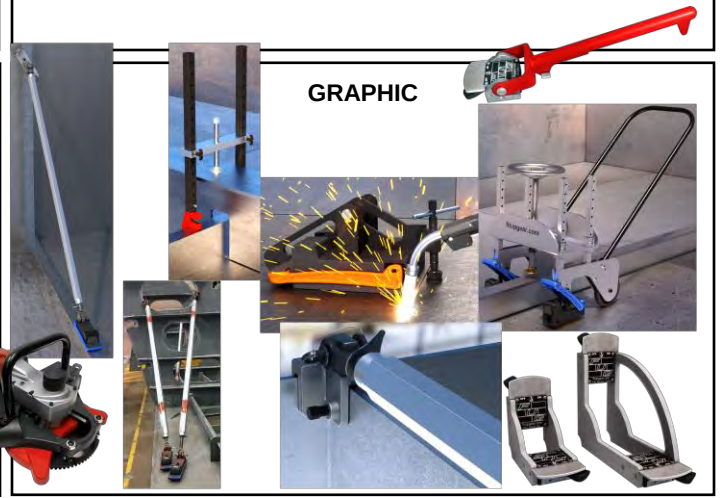
- Minimize Welded-On Temporary Attachments
- Decrease Hand and Eye Injuries
- Quicker and Safer Fitting Operations - Some 100X Faster
- Huge Reduction in Manhours
- No Fire Watch Needed During Sawing Applications

### TECHNOLOGY SOLUTION

- Magnetic Tools for Fitting Operations
- Low Weight-to-Power Ratio Magnets
- NCMS Award Winning Magnets
- Non Welded Clamps for Fitting Operations
- Reduce or Eliminate Scars and Burrs
- Magnetic Cold Saw for Removing Temporary Attachments



### GRAPHIC



# Field Application

## PROBLEM STATEMENT




- Construction Inspection data is only as good as what gets written down.
- With paper forms and generic spreadsheets, inspectors describe the same defect in different ways, leave required measurements blank, and fill in fields that don't apply.
- Gaps surface during report writing, after the crew has left, which leads to follow-up questions, rework, and sometimes a return trip.

## BENEFITS



- Complete, consistent data the first time, whoever the inspector is.
- No blank or meaningless cells to chase down after the inspection.
- Less time on-site and faster delivery: reports are generated straight from the app.
- Data that can be compared from one inspection cycle to the next to show deterioration trends.
- Less rework and fewer return trips.

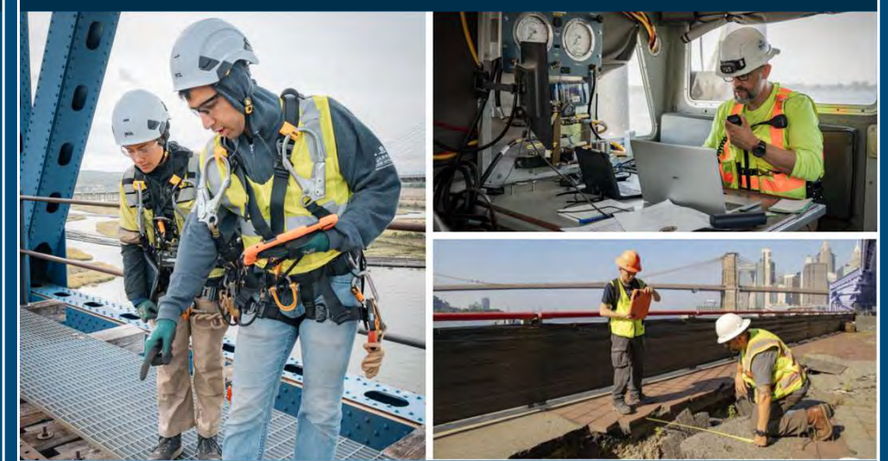
## TECHNOLOGY SOLUTION

Marine Solutions' Mobile Inspection™ App,

Developed in-house and proven on a federal inspection program:

- Each structure is built in the app from its actual components.
- Selecting a component (for example, a concrete pile) brings up only the defects that component can have: cracks, spalls, delamination, and so on.
- Each defect requires the measurements that define it. A spall requires length, width, depth, and exposed reinforcement with or without section loss. A delamination requires only length and width.
- No irrelevant fields: steel section loss appears for a steel H-pile, not for a concrete pile.
- Previous inspection data available on-site; data and photos upload directly to the owner's asset database.
- Runs on iPads in floating waterproof cases.

## GRAPHIC



Metronor
Portable probing solution

**PROBLEM STATEMENT**

Pipe measurements need to be done quickly, accurately, and simply both at the shop but also on-site so that pipe doesn't unflex from its mounted state. Pipes also need to be designed on-site between end conditions and bender corrections need to be determined.

**BENEFITS**

Portable solution that is easy to use while maintaining accuracy at large volumes. Modular and durable system with no moving parts which also means no warm-up time.

**TECHNOLOGY SOLUTION**

Portable probing solution and portable laser scanning solution. Complete measurement system ready to go out of the box.

**GRAPHIC**



NATIONAL CENTER FOR MANUFACTURING SCIENCES

# M-Squared Innovations
# Modernized Surface Cleaning and Preparation Consumable for DoD Sustainment

## PROBLEM STATEMENT

Legacy solvent rag workflows introduce volatile organic compound exposure, lint contamination, inconsistent surface preparation, and avoidable safety burdens across Department of War sustainment activities. These issues reduce coating adhesion, increase nonconformance, and drive rework across weapons systems, ships, aircraft, and ground vehicles. Inefficient solvent application also increases HAZMAT burden and complicates environmental compliance. Current methods create contamination risks for transparencies, optics, displays, and other critical visual components. A modern, standardized, low-risk surface-preparation consumable is required.

## BENEFITS

The bz® Wipe System delivers immediate sustainment gains across Department of War maintenance by modernizing surface cleaning and preparation for weapons systems, ships, aircraft, and ground vehicles. It reduces volatile organic compound exposure, eliminates lint contamination, and improves coating adhesion on metals and composites. It is also validated safe for transparencies, optics, displays, and other critical visual components. bz® wipes standardize surface preparation, reduce rework, and increase throughput across depot, shipyard, armory, & flight line.

## TECHNOLOGY SOLUTION

The bz® Wipe System provides a modernized, pre-saturated surface-cleaning and preparation consumable that replaces legacy solvent rag workflows across Department of War sustainment activities. The system delivers controlled and repeatable solvent application that reduces HAZMAT burden, improves safety, and supports consistent surface preparation on metals, composites, transparencies, optics, displays, and other critical components. bz® wipes eliminate lint contamination, reduce volatile organic compound exposure, and integrate seamlessly into depot, shipyard, armory, and flight line maintenance environments.

## GRAPHIC



# NAG Marine
## Shipboard Fluids Automation and Rugged Computer Products

### Reliable Shipboard Automation Systems

Modern vessels rely on interconnected shipboard automation networks to manage critical hull, mechanical, and electrical (HM&E) systems. These networks integrate specialized fluids automation products—electronic valves and actuators, smart pumps, and fluid monitoring sensors—with high-performance rugged computers that serve as the central control stations, data aggregators, and Human-Machine Interfaces (HMIs).

Current shipboard systems suffer from premature equipment degradation, data latency, and unscheduled maintenance downtime due to the extreme operating environments and disparate hardware architectures of legacy rugged computers and fluid control systems.

### BENEFITS

- Components with long lifecycle support, designed to mitigate obsolescence concerns
- Ruggedized products with high reliability and availability, purpose-built and ideal for shipboard and military environments
- Military-Standard qualifications for shock, vibration, electromagnetic interference (EMI), wide-temperature, and others
- Trusted, proven, and reliable products actively deployed across the US Navy, US Coast Guard, Military Sealift Command, and commercial maritime fleets
- 27 years of experience selecting the appropriate products for applications ranging from machinery control and damage control, to combat systems and aircraft launch and recovery
- US-based manufacturing (product specific)

### TECHNOLOGY SOLUTIONS

**Rugged Electronics:**

- Embedded Computers & Rugged Rackmount Servers
- Computer & Display Human-Machine Interfaces (HMI)
- Portable Rugged Compute Devices

**Fluids Automation Hardware:**

- Tank Level Indicators (TLI)
- Pressure Transmitters
- Electric Value Actuators and Valve Packages
- Oil Quality Sensors

### GRAPHIC



# Path Robotics

## Physical AI Welding for Naval Shipbuilding

### PROBLEM STATEMENT

- The Navy's shipbuilding budget has doubled in 20 years, but the fleet has no more ships than it did in 2003.[1]
- **Welders are the constraint.** The submarine industrial base alone needs 250,000 skilled workers over the next decade.[2]
- New shipyard workers take 3 to 5 years to reach proficiency.[3]
- Only 14% of naval shipbuilders report moderate or extensive use of robotic welding.[4] Fixed-path automation needs identical parts and tight fit-up, and ship structure rarely has either.

[1]Navy PB27 30-Year Shipbuilding Plan (2026) [2]Navy SIB Program Office (2026)
[3]GAO-25-106286 [4]NDIA ETI (2025)

### BENEFITS

- **Adds welding capacity without adding headcount**, and frees certified welders for the joints only they can make.
- Automates the welds that were never possible to automate before.
- **4x** the productivity of manual welding on average.
- Production data from every cell improves Obsidian, so deployed cells keep getting better.
- HII and Saronic already work with Path on naval and unmanned vessels.

[5]Manual baseline: Miller Electric. Path figures from production data.

### TECHNOLOGY SOLUTION

**Path's Intelligent Welding Cell** runs on **Obsidian**, Path's foundational AI model for welding.

- Path's vision system scans every seam and plans each weld from the real geometry, not the drawing.
- Adjusts in real time to poor fit-up, gaps and heat distortion.
- Runs heavy multipass MIG and flux-core welds on steel.
- No teach pendant. Setting up a new part means marking the seams and the welds you want.
- Path is working with NAVSEA to qualify under Tech Pub 248, including HSS, HY-80, and HY-100 steels.

### GRAPHIC



# RADIAN FORGE
# WIRE ARC ADDITIVE MANUFACTURING

## PROBLEM STATEMENT

The U.S. Navy's shipbuilding backlog exceeds $30 billion, with part lead-times reaching 12-18 months.

## BENEFITS

1. Made in America, stays in America. Fast-turn fabrication of critical components, shafts, hubs, valves, missile bodies with no 18-month waits.

2. Heavy WAAM firepower to reinforce shipyards, primes, and depots. Surge production and major repairs under compressed timelines.

3. Containerized WAAM for Marines, SOCOM, and Navy afloat units. Repair, rebuild, and fabricate in place, manufacturing that moves with the fight.

## TECHNOLOGY SOLUTION

Our platform supports rapid qualification and controlled processing of advanced alloys used across shipbuilding, propulsion, energy, and high-stress structural systems.

## GRAPHIC



# RVT Group Inc.

Temporary Environmental Control Solutions

## PROBLEM STATEMENT

Ineffective ventilation in confined and enclosed shipbuilding environments restricts productive working time, increases labor costs and creates avoidable delays to critical production schedules.

## BENEFITS

RVT Group enables shipyards to maximize productive working hours, reduce operational downtime and support faster vessel delivery through engineered temporary ventilation and fume extraction solutions, without compromising workforce safety.

Our flexible, scalable workforce allows us to rapidly install, reposition or remove equipment in response to changing project demands and production schedules. With locally stocked and maintained equipment, supported by our dedicated in-house team, we provide a fully managed turnkey service that reduces the burden on operational teams, improves equipment availability and ensures ventilation systems remain effective throughout the project lifecycle.

## TECHNOLOGY SOLUTION

**Integrated Temporary Ventilation and Environmental Hazard Control**

RVT Group delivers a scalable, engineered solution for controlling airborne hazards across shipbuilding, maintenance and repair operations.

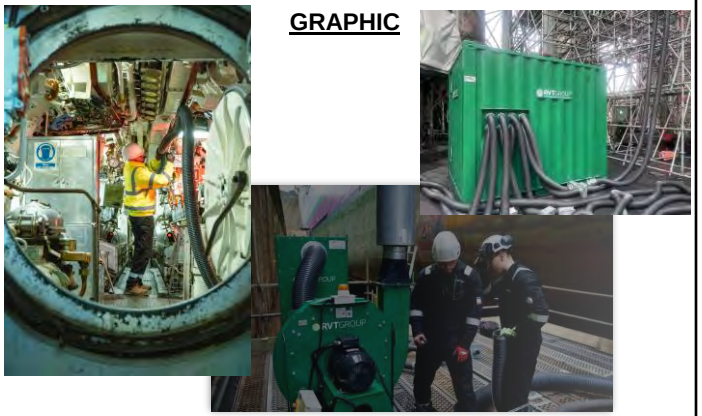
Combining VENTEX high-pressure fume extraction, high-volume paint fume extraction, RAVEX dust extraction and high-volume ventilation technologies, our systems address welding fumes, paint fumes, grinding dust and airborne vapors in confined and enclosed working environments.

Our modular approach incorporates spark arrestors and multi-stage filtration where required, enabling solutions to be tailored to individual work activities and changing production demands.

With locally stocked and maintained equipment, supported by our flexible in-house workforce, RVT provides rapid installation, repositioning, maintenance and removal as project requirements evolve.

***The result is reduced ventilation-related downtime, improved workforce protection, greater operational flexibility and increased productive working time, helping shipyards meet demanding vessel delivery schedules.***

## GRAPHIC



# Shaw & Townsend Innovations, LLC

Research Driven · Readiness Minded · Responsive Team

Shawtownsend.com

**BONUS:** GLOWING TOOLS!



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## ENTERPRISE WIDE PROBLEM

DoW corrosion-related maintenance exceeds $20B/yr. That's $54.8M/Day & $38,000/Min

**No easy way to Restore Metal**

Naval equipment, ship, shore, and aircraft require quick time savings restoration and prevention methods.

**Manhours = Mission Readiness**

Aircraft require **Cr(VI)** spot treatment

**Non-toxic simple spot treatment needed**



## BENEFITS

### RAPID REPAIR

**ElectroPatch – 45 min**

**NanoCeramicPen – 10 min**



### TRL-7 APPROVED

**ElectroPatch – Tested by NAVAIR**

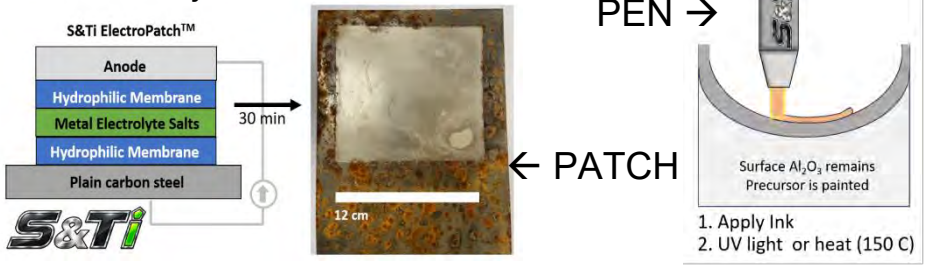
**ASTM / MILSTD Abrasion | Adhesion | Fluids | Corrosion**

### EXTEND SERVICE LIFE

**Man-hours saved – Mission Readiness – Health and Safety Improved**

## TECHNOLOGY

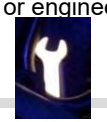
**S&Ti technology provides a ElectroPatch™ Kit to restore steel and a NanoCeramic™ touch-up pen for spot treatment on aluminum or any metal.**




## BOOTH DEMONSTRATION

1) **CORROSION:** ElectroPatch Repaired Steel Panel Support Equipment
2) **CORROSION:** NanoCeramic Pen Prototype Touch-Up Repair Aircraft
3) **TOOL MANAGEMENT:** Glowing Tools. Flightline or engineering spaces.

   Scavenger Hunt! (TRL-7 fluorescent coating)



### ACCELERATOR OPPORTUNITY

Funding Requested: S&Ti conducts R&D collaboratively

S&Ti team: PhD level projects backed by US Navy experience

# Shipcom AI

## Real-Time Material, Equipment & Tool Tracking for the Shipyard

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SHIPCOM AI

shipcom.ai

### PROBLEM STATEMENT

- **Search time:** shipbuilders lose hours hunting for tools, material and equipment
- **Tool control gaps:** paper sign-outs weaken accountability and FME compliance
- **Consumable blind spots:** shortages stall jobs; overbuys drive cost
- **Equipment condition unknown:** health and calibration tracked by hand
- **Slow dispositions:** engineers dig through specs and tech data by hand

### BENEFITS

- **More time building:** less searching, faster job starts
- **Tool accountability:** automatic check-out and return with a full audit trail
- **Right material, right place:** fewer stockouts
- **Equipment awareness:** condition and calibration alerts before downtime
- **Faster dispositions:** AI-built evidence packs

**275K+** **MRO assets tracked**
U.S. Navy aviation depot maintenance

### TECHNOLOGY SOLUTION

**Hardware-agnostic AIoT, one data layer**

- **Passive RFID:** tools, kits, consumables, assets
- **Portals:** hands-free check-in/out at cribs & shops
- **RTLS + GPS:** live location of equipment & WIP
- **IoT sensors:** equipment condition & health (CBM+)
- **Data fabric:** connects to existing enterprise systems
- **SAMOA AI:** evidence packs from tech data & specs

**1,000s** **of pages → one evidence pack**
SAMOA AI · USAF Armament Directorate

### GRAPHIC

**Digital chain of custody, warehouse to hull**




**Auto-read at every handoff:** RFID · Portals · RTLS · IoT

**Shipcom AI** answers: **Where is it?** **Is it ready?** **What's next?**

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# Siemens Government Technologies, Inc
# Shop Floor Information System

## PROBLEM STATEMENT

CVN & Submarine maintenance is increasingly constrained by persistent schedule delays, expanding maintenance backlog, and limited decision advantage across public shipyards

The primary driver is the fragmentation in how maintenance work is planned, executed, and managed across disconnected digital & manual environments, tools, and processes.

## BENEFITS

**SFIS will reduce the duration of each ship overhaul availabilities by 15%**

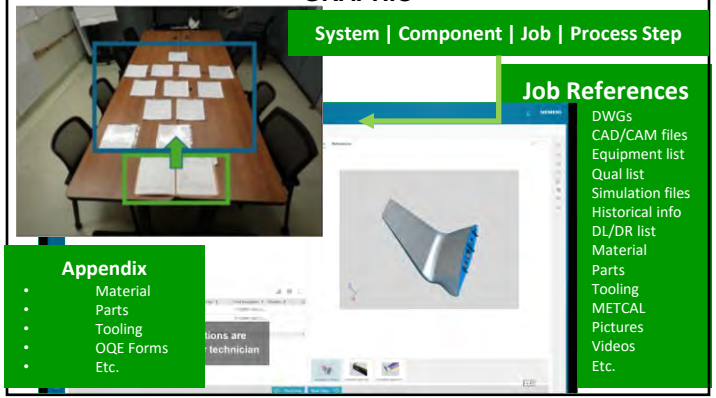
As SFIS shortens the maintenance availability timeline, provides Navy options to increase the workload package to improve readiness

## TECHNOLOGY SOLUTION

Shop Floor Information System (SFIS) provides digital step-by-step work instructions of each repair process, and collects ship overhaul process data advancing the digital strategy of the Navy's ship overhaul mission.

SFIS connects and modernizes shop floor systems that both allow for input and output of information to industrial PLM software, personnel, resources, work instructions, and location data.

## GRAPHIC



# Stata Quad Chart

Augmented Fire Watch: Edge-AI Thermal Monitoring for Hot Work

www.statatech.com

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**NNS Technology Accelerator**
Newport News, VA

## PROBLEM STATEMENT

- **Hot work is a leading fire risk** in ship construction and repair; every permit needs a dedicated human fire watch through post-work cool-down.
- **~$6,120/month per watch position,** yet only ~50% of each shift is effective observation.
- **Dozens of simultaneous permits** per availability pull skilled shipbuilders off production to stand watch.
- **~$4B in fire losses** at Navy and DoD sites since 2008 (GAO).

## BENEFITS

- **100% documented coverage** of the monitored period vs. ~50% from a human watch.
- **~$6,120 + 240 labor hrs/month** recovered per fire watch position offset.
- **100 positions = ~$7.3M & 288,000 hrs/yr** returned to skilled work at a single shipyard.
- **One operator, many sites:** central watch station oversees multiple permits.
- **Audit-ready records** support NAVSEA and NFPA 51B compliance automatically.

## TECHNOLOGY SOLUTION

- **Dual-sensor kit:** calibrated LWIR thermal + HD visible camera; magnet or tripod mount, sets up in minutes.
- **Edge-AI detection:** separates normal weld heat from abnormal hot spots, tracks rate of rise, flags nearby combustibles.
- **Alarms locally, no network needed** - works inside steel compartments; optional text/email alerts and live feeds.
- **NDAA-compliant hardware;** every event logged with thermal imagery and timestamps.
- **TRL 7:** live-fire tested with NAVSEA & NESAR aboard ex-USS PELELIU and proven during live hot work on Navy vessels.

## GRAPHIC



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Taurus teleSYS Inc.
Real-Time Simulation and Global Telecommunication Systems

# Prove engineered control systems before they reach the ship

## PROBLEM STATEMENT

- 40 years of Taurus Composite Test Device (CTD) emulation experience
- Department of Defense (DoD) and Department of Energy (DOE) nuclear-powered marine applications
- Result: form, fit, function and cyber-recovery (4F) for aging control computers
- Today and ahead: replace control systems without changing behavior as marine and micro nuclear power deploys at Army, Navy and Air Force facilities and in international marine propulsion

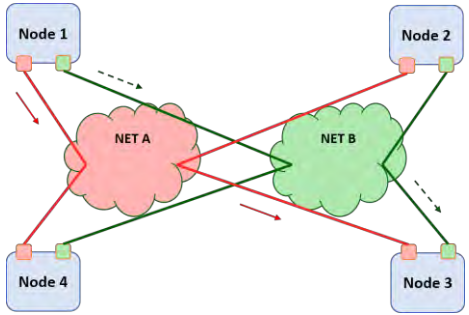
## BENEFITS

- Defects found at the desk, not on the ship or pier
- Emulated ICS/OT integrated with physics models: condition-based diagnostics and human-inserted cyber-breach exercises
- Prototypical training simulators for operators and maintainers
- Control data keeps flowing when a network fails
- Cybersecurity Maturity Model Certification (CMMC) Level 2 change evidence from every test

## TECHNOLOGY SOLUTION

- Emulated industrial control systems and operational technology (ICS/OT): plant physics and controller, regression-tested before installation
- Taurus Defined Network (TDN): two independent networks, no recovery time; proof of process funded by Taurus NuEnergy LLC (TNL) at its energy sites
- Form, fit, function and cyber-recovery (4F) on commercial boards
- Private artificial intelligence (AI) on a local computer; a person approves every change

## GRAPHIC




Each message on Net A and Net B; the receiver keeps the first copy

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# The Lincoln Electric Company
# Welding, Cutting, and Automation Solutions

LINCOLN® ELECTRIC

## PROBLEM STATEMENT

**HyperFill**
- Thick materials are hard to weld quickly and efficiently.
- Single-wire GMAW can cause excess heat, leading to distortion and weld defects.

**Cooper Cobots**
- It is hard to maintain consistent quality and precision in welding tasks.
- There is a shortage of skilled welders.

**Additive Manufacturing**
- It is difficult to forge or cast complex shapes.
- There is a sizeable backlog in foundries and forges.

## BENEFITS

**HyperFill**
- Increased productivity over single-wire by up to 85%.
- Ability to weld thicker materials with less passes and less distortion.

**Cobots**
- Easy to program using the Cooper App
- Improves weld quality and consistency

**Additive Manufacturing**
- Improved design flexibility without the constraints of traditional processes.
- Reduced material lead times by up to 60%.

## TECHNOLOGY SOLUTION

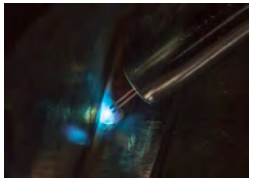
**HyperFill** offers the ability to address manufacturers' pain points by increasing deposition rates while improving weld quality and arc stability with a low complexity solution.

**Cobots** maintain consistent quality and precision and can take over repetitive and dangerous welding tasks. Cobots do not require experienced welders to operate.

**Additive manufacturing** reduces part lead times from months to weeks compared to casting and forging. Parts can be printed on demand to eliminate costly supply chain bottlenecks.

## GRAPHIC







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# Titomic USA, Inc.
# Titomic Kinetic Fusion

## PROBLEM STATEMENT

Department of War sustainment and production teams need faster, more adaptable methods to manufacture, repair, and qualify high-value metallic components when legacy supply chains, thermal joining processes, and long fabrication cycles cannot keep pace with mission requirements. This is especially important for propulsion and aerospace hardware, where design changes, dissimilar-metal interfaces, and performance requirements can delay test and fielding.

## BENEFITS

TKF™ enables rapid design iteration, repair, and life extension of mission-critical metallic components with minimal distortion and no heat-affected zones. The demonstrated program showed approximately 95% deposition efficiency, reducing waste while supporting lower fabrication cost, shorter production time, and more resilient supply chains. For Warfighter readiness, those reductions translate into faster support to theater operations and a credible path toward point-of-need manufacturing.

## TECHNOLOGY SOLUTION

Titomic Kinetic Fusion™ (TKF)™ is a solid-state, non-thermal cold spray additive manufacturing process that accelerates metal powders to supersonic velocity and bonds them through kinetic energy rather than melting. For the demonstrated solid rocket motor application, TKF™ was incorporated into two primary hardware elements: a steel nozzle with copper facing and a titanium casing. The approach used robotic cold spray path planning for complex geometries, direct bonding of dissimilar metals, and targeted mechanical properties comparable.

## GRAPHIC



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# Voltage Vessels
## Eclipse X9 | Basalt Reinforced Additive Manufacturing for Sustainment

### PROBLEM STATEMENT

Maintenance teams face replacement delays, obsolete tooling and corrosion related upkeep. Selected low volume parts can be difficult to source economically. A practical alternative must meet the part's structural, environmental, dimensional and inspection requirements rather than rely on general material claims.

### BENEFITS

Potential benefits include reduced dependence on dedicated tooling, faster design iteration and a repeatable route to selected replacement parts. Part specific trials will establish achievable lead time, cost, durability and repair benefits. Application approval remains separate from material characterization.

### TECHNOLOGY SOLUTION

Combine Eclipse X9 pellet or filament feedstock with digital part design, additive manufacturing and appropriate finishing and inspection. Start with a bounded application; document the material lot, orientation and process settings; and validate the printed component against agreed service requirements before deployment.

### GRAPHIC




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