



Exhibitor Directory

NCMS Technology Showcase

Acceleration Summit - Newport News, VA



Welcome From NCMS President and CEO

I'd like to warmly welcome all the government, industry, and academic attendees to this Acceleration Summit – Technology Showcase hosted in partnership with Newport News Shipbuilding, a division of Huntington Ingalls Industries (HII). As America's largest shipbuilder and a global, all-domain defense provider, HII has over a 135-year history of advancing US national defense. Their legacy of "Always Good Ships," includes the design, construction, overhaul and repair of more than 800 ships for the US Navy and commercial customers.

We are so happy to bring this event to those who strive to keep our Naval fleets at maximum readiness levels. Our Technology Showcase supports HII's mission to protect peace and freedom around the world. The technologies gathered at this showcase were custom chosen because they are commercially available, adaptable, and extremely pertinent to the important work performed at this shipyard.

NCMS's goal is to facilitate a vibrant exchange of knowledge, assist in filling unmet needs, and promote and accelerate technology transition from US manufacturers to the US Armed Forces. Through our Commercial Technologies for Maintenance Activities (CTMA) Program, NCMS thoughtfully brings together industry and government to achieve this purpose.

A very special thanks to HII and the Newport News Shipbuilding team who made this event possible through their significant efforts and teamwork, especially Amanda Wells, Business and Strategic Projects Manager at Newport News Shipbuilding.

Creating an exciting and worthwhile technology showcase, such as this, is one great example of what we can achieve working together.

Sincerely,

A handwritten signature in black ink, appearing to read "Lisa Strama". The signature is fluid and cursive, with a long horizontal flourish at the end.

Lisa Strama
NCMS President and CEO

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About NCMS

The National Center for Manufacturing Sciences (NCMS) is a cross-industry technology development consortium, dedicated to improving the competitiveness and strength of the US industrial base. As a member-based organization, it leverages its network of industry, government, and academia partners to develop, demonstrate, and transition innovative technologies efficiently, with less risk and lower cost.

NCMS enables world-class member companies to work effectively with other members on new opportunities – bringing together highly capable companies with providers and end users who need their innovations and technology solutions. NCMS members benefit from an accelerated progression of idea creation through execution.

NCMS was formed in 1986 to strengthen North American manufacturers and respond to global

competition. The balance between long-standing experience and fresh innovation requires a unique intersection of highly capable companies, access to efficient, effective contracting vehicles and relationships built on credibility and trust.

Through NCMS, companies with innovative technologies can collaborate with end users and develop solutions to meet their requirements. NCMS has long-established relationships, a stellar reputation, and credibility among end users. Coupled with our collaborative power to partner small R&D companies with top-tier OEMs, the results are innovations and opportunities to develop, refine and provide user-centric solutions.

For more information about NCMS, our various contract vehicles, or membership information, please visit www.ncms.org.

About the CTMA Program

The Commercial Technologies for Maintenance Activities (CTMA) has a relentless focus on defense maintenance, sustainment, and logistics. Created in 1998, CTMA is a Cooperative Agreement in partnership with the Office of the Deputy Assistant Secretary of Defense, Materiel Readiness (ODASD-MR) and NCMS. Its objective is to ensure American warfighters and their equipment are ready to face any situation, with the most up-to-date and best-maintained platforms, data, and tools available. CTMA provides technology demonstrations, evaluations, and validations in support of sustainment and must always benefit the US military, industrial base, and the public good.

CTMA offers an agile and streamlined contracting vehicle in partnership with industry and academia to advance the development, integration, and use of commercial sustainment technologies and processes

which can improve warfighter readiness. Among its benefits are:

Agile Collaboration: A proven way of quickly organizing initiatives that meet the need of the government sponsor.

Risk Reduction: The CTMA project model validates requirements prior to acquisition—delivering project results directly to the government sponsor and end user.

Streamlined Transition: A unique platform for industry and the DOD to work in collaboration to find and evaluate technologies at best cost.

Technology Showcases: Delivering the latest commercial technology breakthroughs directly to the DOD's doorstep.

About Newport News Shipbuilding

Newport News Shipbuilding (NNS) is the sole designer, builder and refueler of US Navy aircraft carriers and one of two providers of US Navy submarines. With over 25,000 employees, 138 years of service, and approximately \$5.8 billion in annual revenues, it is the largest industrial employer in Virginia. Founded as the Chesapeake Dry Dock and Construction Co. in 1886, NNS has built more than 800 ships for the US Navy and commercial customers, and its facilities span more than 550 acres in Newport News, VA.

NNS is a division of HII, a global, all-domain defense provider that delivers the world's most powerful ships and technologies that safeguard our seas, sky, land, space and cyber. NNS also provides fleet services for ships worldwide and has served our nation in peace and war, in times of adversity and times of abundance.



CTMA Technology Focus Areas

Additive & Advanced Manufacturing

Just as technology is rapidly changing the fundamental nature of manufacturing worldwide, corresponding changes are being brought to bear throughout the life cycle of manufactured assets. Whether on the upstream, with digital model-based engineering design foundations, or on the downstream, with automation, robotics and artificial intelligence used in modern manufacturing processes, the tools and infrastructure continue to evolve. Advanced manufacturing is transforming the way products are brought to market and sustained. Likewise, additive manufacturing is changing the very nature of what can be manufactured and how the manufacturing process is executed.

Business IT and Analytics

Sustainment leaders and maintenance managers make a multitude of decisions every day, such as which component should be inducted to maximize production at the lowest cost. Other decisions center on which tools to invest in and processes to improve to maximize the effectiveness of maintenance and sustainment operations. With the advent of new IT capabilities, disparate data types can be absorbed and integrated to present information more effectively, providing decision-makers with greater insight. The Internet of Things (IOT), machine learning, natural language processing, artificial intelligence, and ever-expanding internet bandwidth and speed are enabling business IT and decision analytic capabilities, radically changing the very nature of when and how maintenance is executed.

CBM+/Predictive Maintenance

Across the DOD, maintenance has largely been conducted with time-honored approaches: unscheduled maintenance is prevalent, and when a system breaks, maintainers react by troubleshooting and correcting the problem. This legacy maintenance strategy is the leading driver of weapon system non-availability and exorbitant sustainment cost. However, with rapid advances in sensing technologies as well as artificial intelligence and data science, predictive maintenance is now within reach. The DOD recently completely revamped condition-based maintenance-plus (CBM+) policy to accelerate the adoption, integration and use of these transformative capabilities and shift from largely reactive maintenance to proactive and predictive maintenance. Service leadership is staunchly committed to implementing and executing CBM+ across their vast sea-going, aviation and ground-system enterprises.

Coatings and Corrosion Prevention

Recently, the DOD issued a report to Congress citing corrosion as a leading weapon system readiness driver, costing the department and the taxpayers in excess of \$20B annually. The DOD has as a result established the Corrosion Prevention and Control team, and each military service has appointed a corrosion executive in their expanded efforts to combat corrosion and its effects on readiness and cost. These authoritative and collaborative bodies seek to fundamentally change the way the DOD has battled corrosion by developing and implementing a multi-faceted solution set, which includes novel primers and coatings, cold-sprayed protective layers,

CTMA Technology Focus Areas

improved substrate material formulae, advanced washes and application methods, innovative non-destructive inspection tools, artificial intelligence-based algorithms, CBM+ focused sensors, and robotic solutions to name a few.

Energy, Environmental, and Health & Safety

In order for the DOD organic industrial base as well as field-level sustainment activities to remain ready, relevant and resilient, close attention must be paid to worker safety and health, environmental concerns and hazardous waste, and energy availability and its efficient use. One of the lessons learned during COVID-19 is that personal protective equipment (PPE) is critical to continued and extended maintenance operations, without which, weapon system readiness would suffer. Maintainer health and safety are at the heart of every process and procedure across the DOD's vast sustainment enterprise; but advances in PPE technology, automation, eco-friendly chemicals, and process monitoring are rapidly changing the way industry and the DOD are taking care of their people. At the same time, greater efforts are aimed at improving process efficiencies and output, while reducing waste streams.

Enhanced Inspection

Prior to every military operation, weapon systems and equipment must be thoroughly inspected to ensure safe and reliable performance as well as mission completion.

Additionally, every maintenance action is predicated on an in-depth and sometimes complex inspection of material condition. The sheer volume

of inspection taking place across the DOD on a daily basis is mind-boggling. As most inspection is performed manually by experienced artisans, maintainers, and quality assurance specialists with "calibrated eyeballs," a great opportunity exists to completely re-think how the DOD can enhance its inspection capabilities via innovation and technology insertion. Non-destructive inspection and testing (NDI/NDT) will continue to advance as new sensor technology matures, new imaging technologies are employed, AI-based interpretive algorithms are developed and validated, electronic diagnostics progress, built-in-testing expands, and the use of automation and robotics is integrated into maintenance.

Facilities and Industrial Process Modernization

The National Defense Strategy calls for improving the readiness posture of the DOD's weapon systems through innovative and sustainable methods. The recently issued OSD Sustainment Strategy aligns with these goals and calls for modernizing and innovating the organic industrial base (OIB) in order to remain relevant, competitive and cost-effective. The 19 major maintenance depots and arsenals constitute the DOD's OIB, many of which have not had a major update since World War II. Through novel approaches that enable the modeling and simulation of process operations, many maintenance facilities across the OIB are now working to optimize MRO processes and are investing in tools and technologies that maximize production at the best overall cost.

CTMA Technology Focus Areas

Reliability Improvement (Hardware)

In the maintenance realm, less is more—the less a system requires maintenance, the more it is ready for its intended purpose. Unexpected material failure of weapon systems and components initiates a labor-intensive and often expensive chain of events necessary to return the equipment to ready status. The DOD refers to this as the “sustainment kill chain,” which begins with system failure or fault indication, requires experienced inspection-test-troubleshooting, initiates supply ordering and fulfillment, necessitates trained maintenance action and quality assurance, and ends with system-level check and test in hopes of achieving first-time repair yield. With the rapid growth of advanced manufacturing capabilities and digital engineering, designing for ultra-high reliability is now within our reach. Artificial intelligence and machine learning coupled with advanced modeling and simulation capabilities enables astounding increases in the reliability of components and systems and minimizes the surprise unscheduled failures that begin the sustainment domino effect.

Workforce Development and Visualization

Even with the greatest set of tools in the world, broken military hardware will remain that way until a maintainer with the right skillset is applied to the process. The DOD’s maintainers are the single greatest asset the sustainment community possesses, and the readiness of America’s fighting forces is directly dependent on the competency of those individuals. Traditionally, maintainers are trained in a classroom environment, where many of the training materials are paper based. Similarly, many of the maintenance manuals and guides needed by maintainers to sustain the readiness of military equipment are paper-based as well. But today’s generation of maintainers are attuned to multimedia learning, with content presented on their phones, tablets, laptop computers, 3D goggles and gaming consoles. These electronic media coupled with enhancements via artificial intelligence, machine learning, augmented reality and virtual reality technologies open up an entirely new way to train the workforce and guide maintainers through the most complex maintenance tasks with greater precision and repeatability than ever before achievable.

**Exhibitor Directory for
Acceleration Summit—NCMS Technology
Showcase at Newport News, VA**

ADVANCED/ADDITIVE MANUFACTURING

APCO Technologies


Smart Mechanized Welding



APCO Technologies supports the Naval industry with advanced fixturing and automation solutions for naval ship construction resulting in reduced labor, reduced fabrication time, and increasing quality.

Contact

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<p>Problem Statement: How do you increase output and quality in heavy steel manufacturing with a dwindling trade labor pool and variable incoming part quality?</p>	<p>Benefits Statement: Smart mechanized welding and other robotics enabled fabrication operations increase output with less labor required and more repeatable quality drastically reducing the cost and time for heavy steel fabrication.</p>
<p>Technology Solution Statement: Robotics and smart software enable an adaptive process for heavy steel manufacturing.</p>	

ADVANCED/ADDITIVE MANUFACTURING

Lincoln Electric


New & Advanced Technology from Lincoln Electric



The Lincoln Electric Company is a globally recognized manufacturer and supplier of welding equipment and consumables. The company provides a comprehensive range of products and services, including welding machines, welding consumables, welding automation systems, and training and support services. Its primary customer base comprises industrial manufacturers, construction companies, and welding professionals. Lincoln Electric is committed to delivering high-quality products and services that meet the needs of its customers, and it has a strong reputation for innovation and customer service. With a global presence and a focus on sustainability, Lincoln Electric is a leader in the welding industry, providing reliable and efficient solutions to government agencies and organizations worldwide.

Contact

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<p>Problem Statement:</p> <ul style="list-style-type: none"> • Thick materials are hard to weld quickly and efficiently. • Many welding tasks are repetitive or dangerous. • It is hard to maintain consistent quality and precision in welding tasks. • There is a shortage of skilled welders. • It is difficult to forge or cast complex shapes. • There is a sizeable backlog in foundries and forges. 	<p>Benefits Statement:</p> <p>Hyperfill:</p> <ul style="list-style-type: none"> • Over double the deposition rate capability of single-wire. • Increased productivity over single-wire by up to 85%. • Ability to weld thicker materials with less passes. <p>Cobots:</p> <ul style="list-style-type: none"> • More affordable than traditional welding robots. • Robotic arm with repeatability of $\pm 0.05\text{mm}$. • Ensure standard compliance through programming and monitoring.
<p>Technology Solution Statement:</p> <ul style="list-style-type: none"> • Hyperfill allows for higher deposition rates, reducing welding time. It also reduces the need for multiple passes, saving time and reducing distortion. • 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. 	

ADVANCED/ADDITIVE MANUFACTURING

Siemens Government Technologies

Digital Model, Factory Automation, Fire Protection & Control, Corrosion Prevention



As integrators of Siemens' globally trusted products and services, Siemens Government Technologies delivers innovative solutions compliant with rigorous government standards and classification levels, while providing flexible financial solutions that enable agencies to meet project requirements, surpass performance benchmarks, improve acquisition strategies, and save time and money. SGT connects federal agencies to the comprehensive, end-to-end portfolio of solutions from Siemens—one of the most technologically advanced and proficient engineering, industrial and software leaders in the world—to secure and modernize the largest infrastructure in the world, the US federal government, so it can keep its citizens safe and economy thriving.

Contact

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Table with 2 columns and 2 rows. Top-left: Problem Statement (Implementing industrial software and controls to create a realistic digital twin...). Top-right: Benefits Statement (Maximize allocation of resources to detect bottlenecks...). Bottom-left: Technology Solution Statement (Develop and implement a Digital Production Floor Environment prototype...). Bottom-right: Image of a digital model of an aircraft assembly line.



CBM +/PREDICTIVE MAINTENANCE

FLX Solutions

FLX BOT for Defense Manufacturing and Sustainment

FLX Solutions introduces the FLX BOT, a groundbreaking collaborative robot (cobot) that revolutionizes maintenance and inspection in the manufacturing and defense sectors, including on remote bases, ships, and shipyards. This innovative, snake-like cobot, just 1" in diameter, is designed for agility and precision, navigating confined spaces with ease. The primary customer base are operations and maintenance managers and personnel in charge of inspections/maintenance in hard-to-access areas where downtime can be very costly.

A single tech can operate the FLX BOT either handheld or on an extension pole using the intuitive joystick, reducing the manpower needed for inspections and repair. Its modular design features interchangeable links with advanced cameras and sensors for autonomous navigation and obstacle

avoidance, reducing the overall cost of each unit. Quickly interchangeable end effectors for diverse tasks include: 4K, 360° & 3D cameras, non-destructive testing (NDT) sensors, grippers, caulk dispensers, aerosolized sprayers, leak detectors, microphones, thermal cameras and more.

The FLX BOT significantly enhances safety and efficiency in maintenance operations. By minimizing the need for human entry into hazardous or confined areas, it reduces risk and optimizes workforce use.

Contact

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Problem Statement:

- DOD maintenance technicians face major challenges sustaining, repairing and inspecting critical machinery and equipment on remote bases, ships and shipyards.
- There are many confined spaces, hard-to-reach areas, tight turnaround times, unsafe work conditions.
- The status quo (manual labor using simple hand tools) requires costly and time-consuming dismantling/repair of key equipment.

Benefits Statement:

- Reduces operational downtime through increased preventative maintenance and faster failure recovery.
- Enables more efficient upkeep in smaller, frontline facilities.
- Enables workers to remain safely on ground when inspecting elevated locations.
- Collects data using sensors for predictive maintenance and better documentation.
- Lowers costs for inspection, maintenance, and QA/QC.
- FLX BOT is lighter, smaller, and provides more articulation than other robotic competitors that cost 10x.

Technology Solution Statement:

- The FLX BOT is a handheld, snake-like cobot that technicians can use with minimal training to access hard-to-reach areas on bases, ships, and shipyards.
- Its slim, modular design comprises interchangeable links with cameras and sensors for autonomous obstacle avoidance within confined spaces.
- Customizable end effectors (e.g. 360°, 3D, & thermal cameras, NDT sensors, grippers, caulk dispensers, leak detectors, microphones, etc.) allow for a plethora of use-cases during inspections/routine maintenance/unplanned battle downtime.
- Lightweight and low-cost allowing for wide deployment.



COATINGS AND CORROSION PREVENTION
Atmospheric Plasma Solutions
Surface Preparation System



APS provides atmospheric plasma products in manufacturing and maintenance markets with an industry-leading combination of power, precision, and portability for surface preparation. APS removes coatings with precision, cleans contaminants with no waste, and prepares the surface for better adhesion while saving time, increasing safety, lowering costs, and eliminating media/solvents.

Contact

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Problem Statement:

- The United States Navy spends approx. \$3.1 Billion annually battling corrosion. Conventional methods are often limited to the use of hand tools that results in vibrational wear and fatigue on the user.
- There is a better way for precision removal for complex geometries weld beads, fasteners, small angle spaces.

Benefits Statement:

- Utilizes patented cold plasma technology.
- Removes coatings effectively with zero substrate damage.
- Demonstrates up to 90% labor savings.
- Sealed system handles harsh environments and temperatures from -30°F to 105°F.
- Protective frame incorporates 8 isolation dampers.
- Only requires air and electricity.
- Hand-held, ergonomic precision pen — no vibrational impact on operator.
- Media and chemical free.

Technology Solution Statement:

Coating Removal Using PlasmaBlast Treatment

- Organic coating removal over any surface – treats complex geometries with ease.
- Vaporizes coatings into carbon dioxide and water vapor.
- Uses only electricity and compressed air.
- Surface cleaning through oxidative etching.
- Quick surface cleaning due to fast vaporization of organics.

Adhesion Promotion Through Chemical Bonding

- Achieve more adhesion in comparison to physical profiling.
- Addition of strong covalent bonds without adding chemicals.



COATINGS AND CORROSION PREVENTION

BlastOne International

SnakeBite—The World’s Quietest Blast Nozzle



Originally established nearly 50 years ago to provide technical consulting, BlastOne has grown to become a single source supplier of blasting equipment, abrasives and know-how to customers all over the world. BlastOne operates internationally from several offices across Australia, New Zealand, North America and Europe. We stand behind our brand claim of superior performance. It’s something we define as “Performance3”—the result of combining superior know-how with superior abrasives and superior equipment. In short, it delivers greater cost-efficiencies for our customers.

Contact

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<p>Problem Statement:</p> <ul style="list-style-type: none"> • Industrial sandblasting is notoriously fatiguing and creates noise pollution ranging between 113dB-120dB. OSHA requires employers to implement protective hearing equipment when noise exposure reaches 85 decibels averaged over 8 working hours. However, as many blasting job sites are in public areas or work alongside other construction trades, standard blasting volumes are detrimental to anyone near the jobsite not wearing hearing protection. • SnakeBite’s proprietary technology significantly reduces both blaster fatigue as well as overall noise pollution. 	<p>Benefits Statement:</p> <ul style="list-style-type: none"> • SnakeBite Nozzles are up to 75% quieter than standard nozzles, protecting the hearing of operators and surrounding trades, as well as reducing overall noise pollution near any public space. • A 45% reduction in the nozzle’s back-thrust reduces blaster fatigue and mitigates falling dangers involved when blasting on platforms or scaffolding. • Due to its reduced back-thrust, the SnakeBite #10 (5/8") nozzle now offers blasters the following benefits: <ul style="list-style-type: none"> • 25-35% avg increase in blast pattern width per sweep. • 54% increase in blasting speed over the most common #8 high-production nozzle.
<p>Technology Solution Statement:</p> <ul style="list-style-type: none"> • BlastOne contracted acoustical engineers at the University of Queensland’s (Australia) Center of Hypersonic to develop the technology. • The SnakeBite’s newly designed internal geometry reduces noise up to 75% (16-19dB) compared with standard blast nozzles. • The re-engineered nozzle also results in a 45% average reduction in back-thrust: increasing productivity by decreasing operator fatigue and turnover. 	<div style="display: flex; justify-content: space-around;"> <div data-bbox="850 1633 1084 1835"> <p>3 SnakeBite nozzles attached to magnetic blasting robot</p> </div> <div data-bbox="1127 1633 1463 1835"> <p>Productivity comparison between SnakeBite Strike and leading high productivity nozzle.</p> </div> </div>

COATINGS AND CORROSION PREVENTION

Laser Photonics

DefenseTech Handheld Laser Cleaning System



Laser Photonics is the leading industrial brand in high-tech laser systems for laser cleaning, marking, cutting, engraving, welding as well as 3D printing applications. Our products have been used in defense, aerospace, nuclear power, and manufacturing industries. We have also been utilized in the automotive, electronic, semiconductor, flat panel, and medical industries worldwide for over 40 years. Our laser solutions are critical for enabling environmental sustainability, cost savings, efficiency and precision, and operator safety. Our brand is proud to pioneer a new generation of disruptive laser cleaning technologies that include corrosion control, rust removal, de-coating, pre- and post-weld applications, welding, laser cleaning, surface conditioning, and more. These capabilities are

offered, all while reducing environmental hazards and increasing workplace safety.

Contact

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<p>Problem Statement: Corrosion costs the Department of Defense over \$20B in military assets every year. Amid growing environmental concerns, the DOD is under pressure to adopt sustainable supply chain practices, including eco-friendly cleaning products and waste reduction. Traditional methods like sandblasting and chemical cleaning expose personnel to hazardous chemicals and pollutants and involve costly consumables that are facing increased environmental and workplace health and safety regulations.</p>	<p>Benefits Statement:</p> <ul style="list-style-type: none"> • DefenseTech Laser Cleaning Systems provide a non-contact, environmentally friendly process that removes rust, corrosion, and coatings from various surfaces without damaging the underlying substrate, ensuring prolonged equipment life and operational readiness. • No chemicals, hazardous fumes, or complex cleaning products.
<p>Technology Solution Statement:</p> <ul style="list-style-type: none"> • Laser surface treatment can be used to remove rust and corrosion on missiles, munitions, and other equipment with accuracy, enhancing the lifespan and performance of critical equipment. • Non-abrasive and non-contact cleaning method which minimizes harm to the environment while prioritizing the safety of personnel involved in maintenance operations. • Its portable, handheld design ensures mobile performance, allowing military and defense personnel to maintain readiness anywhere, anytime. 	

COATINGS AND CORROSION PREVENTION

SurClean Inc.

Laser Ablation—The Defense of Corrosion



SurClean is an advanced technology manufacturer leveraging laser ablation processes to remove surface coatings, debris, and oxides in the most precise, safe, energy-efficient, cost-effective, and environmentally friendly way available today. SurClean is focused on the laser beam delivery components and processing controls. The beam delivery system is integrated with off-the-shelf laser resonators from global OEM manufacturers, providing the end user with the best machine tool for their specific applications.

Contact

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<p>Problem Statement:</p> <ul style="list-style-type: none"> • Scheduled maintenance for DOD assets has fallen behind due to many factors, making corrosion control an increased issue. • Traditional methods of chemicals, sand-grit-waterjet blasting, and manual methods contribute to the problem. • These methods also contaminate the air and water, impacting the ecosystems. Organizations are now setting requirements to capture and document the disposal of the residue and air particulates, adding additional costs to overburdened budgets. 	<p>Benefits Statement:</p> <ul style="list-style-type: none"> • Laser ablation is proven. Operational cost is lower compared to that of sand-grit-high-pressure waterjet blasting. • The Air Force RLCRS documented savings of \$7M or 75% and SurClean team participated in Air Force coatings removal 2002-2012. • SurClean’s automated equipment utilizes patented laser process control sensor providing layer-by-layer removal, control, repeatability, and increased quality. Laser ablation performs at its highest efficiency when automated with various types of robotics, witnessed at REPTX 2022. • Using laser coating removal and surface preparation tools attracts next-gen workforce.
<p>Technology Solution Statement:</p> <ul style="list-style-type: none"> • SurClean manufactures laser ablation beam delivery systems and integrates with OEM laser light generators, chillers, and exhaust systems. How the light is delivered to the surface relates to the efficiency, rate of removal, and impacts the cost. • Not all systems are equal and there is not one machine tool to address all applications. Using our employees’ 40 plus years of developing laser systems, SurClean delivers a machine tool to meet and exceed the customer’s expectations by picking from the best laser manufacturer and our specific process head. 	

ENERGY, ENVIRONMENT, HEALTH, AND SAFETY

GVS-RPB

Respiratory Protection



Over 40 years, we've become respiratory protection specialists. Our loose-fitting respirator range was developed out of a need for better protection in the blast booth and has since grown to serve many more industries. With GVS acquiring the company in 2021, we now have an even larger range of respirators available, with the tight-fitting models Eclipse and Integra included. Our products are synonymous with comfort and safety, plus our dedication to research, development, and innovation is second to none. We are a globally trusted brand, devoted to helping people get home safely to the things in life that matter most.

Contact

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Problem Statement:

The level of protection offered by tight-fitting respirators isn't always enough in certain environments. To prevent harmful airborne particulates from being inhaled, tight-fitting respirators must form a tight seal, requiring clean-shaven workers and fit testing, often done annually or when the wearer's characteristics change. They can also be uncomfortable, causing skin irritations and labored breathing, plus their impact on the environment is devastating.

Benefits Statement:

It's easier to breathe wearing a loose-fitting respirator, resulting in fewer breaks and increased production. While there are higher initial costs, loose-fitting respirators in the long run are more affordable, with most of the ongoing costs being just the replacement of HEPA filters. Because it isn't tight-fitting, there are no skin irritations, workers don't have to shave or get fit-tested, and weight fluctuations are also acceptable, which is excellent for confidence and morale.

Technology Solution Statement:

Our loose-fitting respirators offer greater protection, which is why they have an Assigned Protection Factor of 1000. Clean air is pumped into the head top through a PAPR (Powered Air Purifying Respirator) or SAR (Supplied Air Respirator), with the positive pressure helping to keep the hazardous particulates out. With the addition of a bump cap and/or hard hat, that superior protection is increased further, providing extra safety for workers in various hazardous industries.



ENHANCED INSPECTION

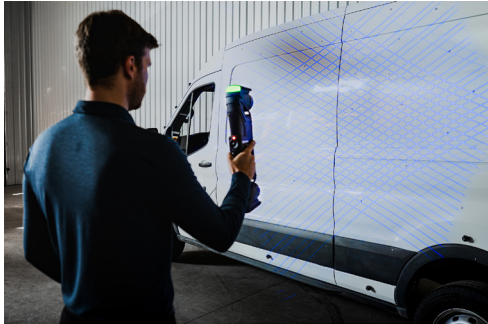
Creaform
Quality Control and Quality Assurance



Creaform develops, manufactures, and sells highly portable 3D measurement solutions and application software to accelerate design, quality control and maintenance and repair. Customers benefit from fast, accurate, repeatable measurements. Creaform technologies make it possible to measure in the real world without loss of accuracy.

Contact

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<p>Problem Statement: How do you inspect in a faster, accurate, and repeatable fashion?</p>	<p>Benefits Statement: Accurate, fast, portable, and versatile metrology tools are the solutions to fulfill your goals and overcome your challenges.</p>
<p>Technology Solution Statement: Creaform’s 3D scanning and probing technologies — hand-held or automated — enable QC and QA engineers and managers to measure the dimensions and validate the quality of manufactured parts as well as find the root cause of issues detected during inspections.</p>	

ENHANCED INSPECTION

ZOLLER Inc.



ZOLLER Tool Presetting, Tool Inspection, and Tool Management Solutions

ZOLLER Inc. is a technology focused company that has been developing innovative tool presetting and inspection machines as well as Tool Management Solutions software for optimal management of cutting tools for nearly 75 years. The portfolio of solutions ranges from tool presetting, inspection, balancing and shrinking machines to integrated automation and tool storage options, as well as TMS Tool Management Solutions software with interfaces to most major CAD/CAM programs. ZOLLER’s equipment and technology is used worldwide, particularly in the automotive, aerospace and defense industries, in hydraulics and pneumatics manufacturing, as well as many other emerging fields and markets. The ZOLLER brand stands for technological innovation, a consistent commitment to quality and a sense of

efficiency. Our integrated hardware and software solutions are developed in-house in order to provide verifiable productivity increases and grow with the challenges of the future of modern manufacturing. Our promise to our customers is a clear, consistent and traceable increase in productivity in their production processes. More speed, higher quality parts, and secure processes; This is what our solutions stand for.

Contact

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<p>Problem Statement: Manufacturing inefficiency leads to longer part production times, less accuracy and repeatability, and lower quality parts. The challenges include bottlenecks, missing tools, higher scrap, and under-utilized machine tool spindles. If you are not making chips, you are losing money!</p>	<p>Benefits Statement: Tool presetting, measurement, inspection, tool management and automation from ZOLLER eliminate machine tool downtime for presetting and missing tools thanks to tool management with traceability, and ensure repeatable accurate measurement results and faster, more efficient manufacturing processes.</p>
<p>Technology Solution Statement: ZOLLER’s solutions in its four core areas of its business portfolio (tool presetting and measuring, tool inspection and measuring, tool management hardware & software, and automation) are modular, and fit easily into your existing manufacturing processes whilst meeting your exact specifications. With ZOLLER Solutions, your manufacturing facility is fully prepared for the challenges ahead, and can confidently reach Industry 4.0.</p>	

RELIABILITY IMPROVEMENT (HARDWARE)
AIVOT Robotics, Inc.
AIVOT: Intelligent Humanoid Robot



AIVOT builds intelligent humanoid robots to perform various complex tasks in dynamic environments using the latest AI advancements. The robots can navigate autonomously with their mobile bases and perform dexterous tasks using their two arms. They learn new skills by listening to spoken instructions and watching human demos. The robots follow operators’ voice commands and act using vision. The robots can perceive the dynamic world state, understand the task context, and generate actions to accomplish the specified goals. They can be configured to keep humans in the loop for strategic decision-making. The software can also be deployed on third-party hardware and unmanned systems.

purchase option available. See videos on <http://www.aivotrobotics.com/demo>, which show the feature set.

Contact

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The robots do all the processing onboard; no internet connection is required. The lease cost per robot is around \$3,000 monthly, with an alternative

Problem Statement:

- Existing automation solutions are built for specific actions and work only in predictable conditions.
- They are resource-intensive to implement, need technical expertise, and require reimplementations if there is a change in the workflow.
- An operator is required to teleoperate the machine for complex scenarios.

Benefits Statement:

- Intuitive human/machine interface: Operators can use spoken English or other languages to interact with the robots.
- Cognitive decision-making: The robots function with a high autonomy level, do not require teleoperation, and can be configured to keep operators in the loop for strategic decision-making.
- Fast learning: The robots can be quickly adapted to new tasks or action sequences for different situations.
- Workforce multiplier: The robots drastically reduce automation systems’ training and manning requirements.

Technology Solution Statement:

- AIVOT builds intelligent humanoid robots to perform various complex tasks in dynamic environments using the latest AI advancements.
- The robots can navigate autonomously with their mobile bases and perform dexterous tasks using their two arms.
- They learn new skills by listening to spoken instructions and watching human demos.
- The robots follow operators’ voice commands and act using vision.
- The software can also be deployed on third-party hardware and unmanned systems.





RELIABILITY IMPROVEMENT (HARDWARE)
EFCO USA, Inc.
Valve Repair & Testing Equipment

Established in 1978, EFCO has been a world-leading manufacturer of portable and stationary valve repair and testing equipment. Wherever fittings, valves, and pumps are used, EFCO equipment is also needed to maintain, repair, and test sealing surfaces, shut-off bodies, and housings. We are a family-run business with the philosophy of making our customers our partners—working together to create machining and testing solutions. Customer experience from the extensive use of our machines continuously contributes to our product development.

EFCO equipment is used worldwide, certified to DIN EN ISO 9001, and is characterized by our quality, durability, easy handling, and superior results. Our product range for in-shop and in-field

service includes portable and stationary grinding and lapping equipment, flange facers, portable lathes, test benches, and workshops for valves, flanges, and pipelines. Our technically advanced tool line gives anyone repairing or maintaining valves the edge to improve valve maintenance fast and efficiently, resulting in cost-effective work with machines that last.

Contact

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Problem Statement:

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

Benefits Statement:

- 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 Statement:

- 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.



RELIABILITY IMPROVEMENT (HARDWARE)

FASTORQ



Zipnut Custom Engineered Solutions for Quick Turnaround Bolting Reliability

FASTORQ, based in New Caney, Texas, is the preferred global provider of precision bolt loading and removal solutions. A wholly owned subsidiary of Snap-on Corporation since 2018, FASTORQ is a pioneer of the hydraulic tools industry and today designs, manufactures, and sells a revolutionary line of bolting solutions. FASTORQ is the only company that has a complete line of hydraulic and pneumatic tools, as well as design resources to customize existing tools or create one-of-a-kind bolting solutions. The company also produces a proprietary line of specialty bolting lubricants. FASTORQ’s highly skilled team of engineers and bolting technicians deliver timely resolution to bolting challenges of all sizes. FASTORQ customers include a wide range of industrial applications:

Heavy Equipment, Military, Aerospace, Subsea Construction and Intervention, Oil and Gas Services, Petrochemical, Refinery, Power Generation, Oil and Gas Drilling and Exploration, Pipeline Construction and Maintenance, Pulp and Paper, and Mining.

Contact

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Problem Statement:

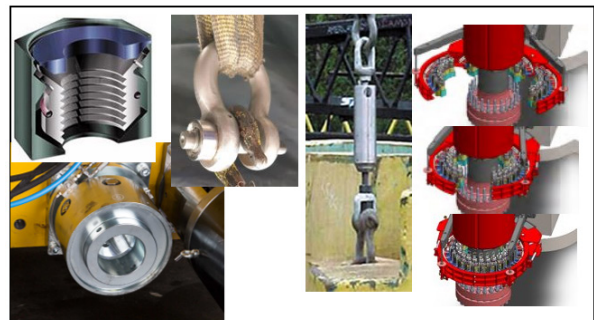
- Productivity issues due to long cycle times.
- Safety concerns in dangerous environments.
- Lack of reliability in bolting.
- Stainless steel galling issues.
- Unable to thread nuts onto bolts due to thread damage.
- Fatigue or injury from repetitive threading operations.

Benefits Statement:

- Time reduction in many cases of 90%.
- Can be remotely operated from outside dangerous environments.
- Improved productivity and repeatability.
- Documented bolt preloading.
- No more work stoppage or damaged equipment.

Technology Solution Statement:

- ZipNUT single and double operation.
- QuikShackle using ZipNUT Technology.
- ZipTENSIONER speed of installation for any critical bolted joint.
- ZipLift hands free lifting device for dangerous areas.
- Zip RULZ – Remote Release Under Load ZipNUT.
- Fully Automated Stud Tensioning (FAST) featuring ZipNUT.



RELIABILITY IMPROVEMENT (HARDWARE)

StoneAge Tools

Salt Water Automated Condensor Cleaning



StoneAge is an engineering and manufacturing center for high pressure waterblast tools used for industrial cleaning. Our primary focus is to introduce fully automated tooling to remove operators from the dangers of high-pressure water. StoneAge recently acquired Terydon, who specializes in heat exchangers and condensers.

Contact

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Table with 2 columns: Problem Statement and Benefits Statement; 2 rows: Technology Solution Statement and an image of the automated cleaning system.



RELIABILITY IMPROVEMENT (HARDWARE)
WISER Systems
Real Time Location & Tracking System (RTLS)

WISER pioneers an advanced Ultra-Wideband Real-Time Location System (UWB RTLS), harnessing the power of our proprietary Redundant Radio Location & Tracking (RRLT) technology. This innovative system offers scalable real-time location capabilities indoors or outdoors, providing precise coordinates at sub-meter or inches-level accuracy accessible through computers or mobile devices.

Distinguishing itself, WISER’s RRLT location solutions exhibit exceptional accuracy even in challenging environments characterized by clutter, metal structures, or complexity. The system’s lightweight, portable nature coupled with WISER’s auto-calibration tool ensures seamless deployment, enhancing user convenience.

WISER takes pride in offering a low-power, encrypted system that prioritizes security. Deployment occurs

within customer firewalls, ensuring data ownership and control remain in the hands of our customers.

Our customers include numerous Fortune 100 companies, major aerospace and defense contractors, and various US government agencies, attesting to the reliability and effectiveness of WISER’s solutions. Notably, our RRLT critical components are manufactured domestically in the USA, underlining our commitment to quality and local production.

Contact

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Problem Statement:

Real time location systems play a crucial role in addressing inefficiencies in manufacturing by:

- Providing real-time visibility, optimizing resource utilization, reducing search times, enabling preventive maintenance, optimizing workflows, ensuring quality control, and facilitating data-driven decision-making.
- Implementing RTLS technology can result in a more agile, responsive, and efficient manufacturing environment.

Benefits Statement:

RTLS is particularly useful in manufacturing environments that are chaotic, unorganized, and unstructured. By automating location-based updates, RTLS can improve reliability, speed up every step of the undertaking, and ultimately increase output by:

- Cutting down the time spent on reporting.
- Keeping a better pulse on product quality parameters.
- Gathering fresh data on production cycles and schedules.
- Identifying bottlenecks and choke points.
- Auto-tracking inventory.
- Preventing unplanned downtime.

Technology Solution Statement:

- Provides asset visibility to prevent delays.
- Monitors work-in-progress to identify bottlenecks.
- Optimizes resource allocation to minimize downtime, ensuring equipment availability when needed.
- Reduces search time wasted searching for tools, components, or products.
- Proactive predictive and preventive maintenance to reduce unexpected breakdowns and extend lifespans.
- Optimizes workflow to identify opportunities for process improvement and implement changes that enhance the overall efficiency of the production line.



WORKFORCE DEVELOPMENT/VISUALIZATION


Fastenal
Supply Chain Solutions



Fastenal is different things to different customers: a local relationship, a logistics company, a consultant, a technology solutions provider, and more generally, a distributor of wide-ranging industrial and construction products. These aspects of our service share a common foundation: great people, close to our customers, backed by world-class resources. As our capabilities continue to expand and evolve, this is what sets us apart in terms of service, growth, and value.

Contact

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<p>Problem Statement: Businesses consistently realize inefficiencies and lost productivity due to a wide range of factors both inside their business and out.</p>	<p>Benefits Statement: Cost savings, increase productivity, additional capitalized resources, and efficiencies.</p>
<p>Technology Solution Statement: Fastenal leverages its supply chain technology, local presence, and immense number of resources to design a specific program based on the individual customer need.</p>	 <p>FASTBin - Click COMING SOON</p> <p>A wireless point-of-use device for customers to communicate a restock request by pushing a button.</p>

WORKFORCE DEVELOPMENT/VISUALIZATION

Taurus teleSYS Inc.

Digital Twin

Taurus engineered Digital Twin+ by retaining the target system hardware and software configuration items, which resulted in high-fidelity virtualization of the associated control system. This Digital Twin+ used the open-source approach to engineering implementation and maintenance of advanced highly virtualized, real-time emulated control systems. Due to flexibility embedded in the system’s modular design, it can be used for emulation of the complete control system or may be used for emulation of a subset of devices in combination with physical equipment, and can even be used as the actual control system. Such a design makes the Taurus system suitable for a range of applications, such as real-time testing for the purpose of development, verification and

certification of equipment, operator training simulator, etc.

Contact

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<p>Problem Statement: Cybersecurity authority to operate a UNNPI and CRD Digital Twin+.</p>	<p>Benefits Statement: Over 30 years’ experience in supporting DOE Naval Nuclear Propulsion systems engineering and testing complex monitoring and control systems.</p>
<p>Technology Solution Statement:</p> <ul style="list-style-type: none"> • Open source, low-cost small footprint (LCSF). • Digital Twin+ for life cycle and form fit function (3F). • Obsolescent lowest replaceable units (LRU) of commercially available single board computers (SBC). 	

