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FLEETWERX and NPS CAMRE Launch Nation's Largest Distributed Manufacturing Demonstration at Trident Warrior 25

SAN DIEGO, CA – FLEETWERX and the Naval Postgraduate School's Consortium for Advanced Manufacturing Research and Education (NPS CAMRE), in partnership with the Department of Defense and leading technology companies, are showcasing the Joint Advanced Manufacturing Cell (JAMC) as part of Trident Warrior 25. The exercise marks the largest distributed manufacturing demonstration in Department of Defense history.

Trident Warrior is the U.S. Navy's flagship Fleet experimentation exercise, focused on the Indo-Pacific region. Conducted under the direction of the Naval Information Warfare Center Pacific, it brings together warfighters, technologists and private-sector innovators to evaluate emerging technologies in real-time, maritime environments. The goal is to identify, test and accelerate the adoption of capabilities that improve warfighter effectiveness and operational readiness.

At the center of this year's exercise is the JAMC, a mobile manufacturing team that allows deployed forces to produce mission-critical parts using 3D printing, machining and augmented reality. This capability enables faster repairs, reduces downtime, and strengthens sustainment operations in forward deployed or contested environments. The JAMC effort, coordinated by NPS CAMRE and FLEETWERX with support from the Joint Additive Manufacturing Working Group, connects assets across more than 8,000 miles and two continents to demonstrate how distributed production can meet real-world defense needs.

"Advanced manufacturing has enormous potential to transform how we sustain and adapt naval capabilities in contested environments. At NPS, we're not just studying this potential - we're demonstrating it by fully leveraging our world-class students, expert faculty, dedicated interns, and a robust inventory of additive and subtractive manufacturing equipment," stated CAMRE Director Garth Hobson. "We are committed to moving the needle on operational advanced manufacturing - not in the future, but now."

More than 200 participants, representing over 25 organizations, are contributing to the effort, including several cutting-edge technology firms.

Aura Technologies, based in Durham, North Carolina, is enabling the cyber-secure transmission of technical data from a trusted source anywhere in the world to untrusted machines in the field. This allows deployed units to manufacture damaged or replacement parts on-demand in austere environments.

FormAlloy Technologies, a San Diego-based firm specializing in directed energy additive manufacturing, is demonstrating how automated laser-based metal repair can support sailors and Marines with faster and more flexible maintenance capabilities.

Plano, Texas-based **Overmatch** is using artificial intelligence and augmented reality to deliver advanced manufacturing training that helps military personnel acquire technical skills more quickly and effectively.

Pillir, headquartered in Chandler, Arizona, is showcasing a simple but powerful tablet application that allows maintenance teams to locate and allocate critical parts instantly, even without network connectivity.

In Berkeley, California, **Solideon** is demonstrating a robotic 3D welding system capable of producing ton-scale metal components with shorter lead times and improved structural performance.

Stratasys, a global leader in polymer additive manufacturing, is contributing its expertise to help reduce equipment downtime and improve mission resilience through field-capable 3D printing solutions.

Additional contributors include Phillips Additive, Spee3d, Dynovas, Firestorm Labs and nScript, which are each bringing specialized technologies in areas such as circuit board repair, unmanned delivery systems and advanced metal and polymer printing.

FLEETWERX serves as the critical intermediary connecting the Naval Postgraduate School with industry, academia and government. For Trident Warrior, FLEETWERX seeks to bring non-traditional defense partners into real and relevant military settings, allowing them to test solutions directly with end-users and accelerate refinement and adoption.

“We are moving advanced manufacturing out of the lab and into the field,” said Morgan Bower, a spokesperson for FLEETWERX. “This is about giving warfighters the tools to solve problems in real time, using emerging technologies that improve readiness and resilience. The Joint Advanced Manufacturing Cell is proof that distributed sustainment can be implemented today to give our warfighters the tools to meet the challenges of tomorrow.”

During Trident Warrior 25, these public-private teams are producing real parts for real systems, supporting a force that must remain agile, ready and lethal. The data collected from this large-scale proof-of-concept will inform future acquisition, development, and deployment of advanced sustainment technologies across the Department of Defense.

For more information, visit www.fleetwerx.org or contact info@fleetwerx.org.

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Additional information on participants:

AURA Technologies

AURA Technologies is working collaboratively with several other defense contractors and partners (DLA, Navy Post Graduate School, Dynavos and Siemens) to provide a cyber secure digitally air-gapped peripheral device (called TrustedDM). This small peripheral device (TrustedDM) connects directly to the **Untrusted** machine tools (that are **Not** approved/certified by the DoD with an Authority to Operate (ATO)) and permits the machine tools such as Additive Manufacturing (AM) machines and subtractive machine tools (mills, lathes, boring machines, CNC, etc.) to digitally receive Computer Aided Designed & Manufactured (CAD/CAM) file data to produce parts.

The purpose is to allow for cyber secure **Digital** transmission of intellectually protected (IP) Technical Data Packages (TDP's) from a trusted source anywhere in the world to **Untrusted** machine tools anywhere in the world to manufacture battle damaged and repair (BDAR) parts in austere, remote or on ships to maintain weapon systems and or augment the supply chain.

Why is this important? Giving our service men and women unfettered access to needed cyber secure digital engineering data (G code) so parts can be manufactured instantaneously on unapproved, **Untrusted** machine tools anywhere in the world.

The process today requires our machine operators (military artisans) to bring digital data for what they think they will need for the mission (e.g., via thumb drive or CD), and if they don't have it on their disconnected devices then they cannot mfg. the required part. In addition, they currently do not have the means to securely transmit that digital data to the point of need to mfg. the parts. This severely limits the artisans because they need digital data to make parts.

FormAlloy Technologies, Inc.

At Trident Warrior 2025, FormAlloy will demonstrate how its automated laser-based metal repair and manufacturing technology can support sailors and Marines with faster, more flexible maintenance solutions. By performing live repairs and 3D prints of components from NAVAIR landing gear and/or a NAVSEA propulsion system, FormAlloy will showcase how damaged or worn parts can be restored without needing to wait for spares or manual weld repairs. This capability has the potential to reduce downtime, extend the life of mission-critical systems and enable sustainment in remote or deployed environments.

This hands-on demonstration highlights how automated additive manufacturing can directly support the warfighter by solving real-world readiness challenges and helping the Navy move toward more resilient, self-sufficient operations ashore and afloat.

Overmatch, Inc.

Overmatch, Inc. ("Overmatch") is an AI company composed of a diverse team of top engineers from Microsoft, Apple and Magic Leap. From rapid prototypes to product commercialization, they provide solutions that fuse Hardware, Sensors and Software. Their team has cut our teeth in the mobile industry with over 1.5B downloads, and they helped create the first four iPad models. They have helped define the 'what's next' space of spatial computing and have been immersed full-time in the XR paradigm since 2012. Along with the classic platforms, they deliver XR

inventions, integration across displays, custom sensors, wearable computing and digital twins at the user's point of need.

Overmatch, Inc. is accelerating the learning of advanced manufacturing skills through AI-powered and Augmented Reality-enhanced training, equipping military personnel with faster and more effective skill acquisition.

Pillir

At Trident Warrior 25, Pillir will demonstrate a simple tablet app that lets maintenance teams check and allocate critical parts—instantly and even when offline.

Why it matters:

- **Cut Downtime:** Quickly see if a needed part is on hand or needs to be made, keeping ships and equipment mission ready.
- **Work Offline:** Operate smoothly in signal-dead zones; the app uses its last synced data until connectivity returns.
- **Stay in Sync:** Once back online, all updates flow to every location, giving commanders a real-time parts picture.

With Pillir, crews spend less time hunting parts records and more time keeping gear running—making every exercise hour count.

Since 2013, Pillir has continuously evolved its edge-first platform—empowering global manufacturers and frontline forces to move goods, fix gear, and execute enterprise workflows via AI-driven, role-based apps and agents. Whether online or offline, teams gain faster, more resilient operations without complex integrations or extensive training.

Solideon

Traditional manufacturing, as noted, inherently suffers from delayed responses, elevated costs, a limited workforce and an unpredictable supply chain, among other drawbacks. We're in a digital age, and manufacturing is no exception. To maintain our competitive advantage and strengthen our nation's deterrence against hostile forces, embracing advanced manufacturing isn't just an option—it's a necessity. Otherwise, we'll be forced into adoption at a significant cost.

Additive manufacturing, has overcome significant hurdles. Through sheer rigor, resilience and innovation, it has proven itself as a powerful platform capable of fully **digitalizing part manufacturing information**. Today, systems are already operating with digital input and automated data analysis, enabling real-time corrections during production.

Solideon is pushing manufacturing boundaries. Leveraging WAAM (Wire Arc Additive Manufacturing), advanced robotics and proprietary software, this solution promises to significantly lower cost-per-part, accelerate manufacturing and create a resilient production system through advanced sensors and controls. Because WAAM uses established welding technology and metal wire, it offers exceptional versatility in metal alloy selection and

applications. Importantly, Solideon's approach directly aligns with DON's strategy to integrate advanced manufacturing, fostering a self-reliant and robust supply chain for Navy and USMC.

Stratasys

At Trident Warrior 25, Stratasys will support the Joint Force by demonstrating how advanced additive manufacturing can help reduce downtime, accelerate mission readiness and strengthen operational resilience. Our participation focuses on producing critical components in-theater through distributed manufacturing - minimizing reliance on long, vulnerable supply chains.

By leveraging polymer-based additive manufacturing, we help address real-world challenges such as replacing broken equipment parts quickly, enabling rapid prototyping of field solutions, and extending the lifecycle of mission-critical platforms. This effort supports soldiers, sailors, airmen and Marines by delivering practical, scalable solutions to contested logistics environments - improving outcomes at the tactical edge.