Manufacturing the Military's Future Since 1956

70

DIRECTOR'S INTRODUCTION

Welcome to the Department of War Manufacturing Technology (ManTech) Program's 70th Anniversary Commemorative Booklet.

Since its establishment by Congress in 1956, the ManTech Program has played a vital role in strengthening the Nation's manufacturing capabilities and ensuring the Department of War can transition innovative technologies into production-ready solutions for the warfighter. For seven decades, ManTech has helped bridge the gap between invention and industrialization, supporting the development of advanced manufacturing processes, strengthening the defense industrial base, and enabling the production of critical defense capabilities.

This booklet celebrates that legacy. Within these pages, you will find a brief history of the ManTech Program, a timeline highlighting key milestones across seven decades of innovation, and "Where Are They Now" stories that showcase the evolution of the organizations that make up today's ManTech enterprise. Each organization shares its unique history and examples of how its investments have delivered lasting impact to the Department, the industrial base, and the warfighter. The booklet concludes by recognizing the recipients of the Defense Manufacturing Technology Achievement Award (DMTAA), whose accomplishments represent the innovation, collaboration, and dedication that have defined the ManTech community throughout its history.

As we reflect on the achievements of the past 70 years, we also look to the future. Emerging technologies, evolving threats, and increasing global competition continue to reinforce the importance of a strong and resilient manufacturing base. The ManTech mission remains as relevant today as it was in 1956: ensuring the Nation possesses the manufacturing capabilities needed to deliver the technologies that defend America.

Thank you to the many government, industry, academic, and military partners whose contributions have helped shape the ManTech story. Together, we continue manufacturing the military's future …
as we have since 1956.

Keith DeVries

Director, DoW ManTech

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History of ManTech

Manufacturing the Military's Future Since 1956

For 70 years, the Department of War's Manufacturing Technology (ManTech) Program has been manufacturing the military's future.

Established by Congress on August 10, 1956, under its original statutory authority, 10 U.S.C. § 2521 (now codified as 10 U.S.C. § 4841), the ManTech Program was created to address manufacturing challenges that exceeded the investment capacity or risk tolerance of industry alone. Its mission: develop the manufacturing capabilities needed to transition advanced technologies from concept to production and ensure the United States could build the systems required to maintain military superiority.Since then, ManTech has helped transform innovation into operational capability by strengthening the manufacturing foundation behind some of the Department's most important defense technologies.

Throughout its history, the program has supported manufacturing advancements that enabled the production of increasingly sophisticated defense systems. From precision-guided weapons and advanced munitions to stealth aircraft, naval platforms, armored vehicles, microelectronics, and next-generation protective systems, ManTech investments have helped reduce production risk, improve affordability, and accelerate technology transition.

As defense systems became more complex, ManTech expanded its focus beyond manufacturing processes to strengthen the broader defense industrial base. The program focused automation, advanced materials, digital manufacturing, supply chain resilience, and manufacturing readiness practices that are now fundamental to modern defense production.

Today, the ManTech portfolio spans a broad range of critical technology areas, including:

- Advanced manufacturing and additive manufacturing
- Robotics and automation
- Advanced materials and energetics
- Microelectronics and electronics manufacturing
- Digital engineering and digital manufacturing
- Industrial cybersecurity
- Workforce development and skills training
- Supply chain resilience and industrial base modernization

ManTech investments have contributed to manufacturing capabilities supporting many of the Department's most critical platforms and systems, including advanced fighter aircraft, submarines, surface combatants, combat vehicles, munitions, radar systems, military textiles, and sustainment technologies that keep operational forces mission ready.

Recent accomplishments demonstrate how the program continues to strengthen the Nation's manufacturing advantage:

- Advanced manufacturing technologies that improved the lethality and affordability of next-generation munitions.
- Robotics and automation solutions that reduced labor hours and production cycle times in submarine construction and aircraft manufacturing.
- Advanced armor and protective materials that enhanced soldier survivability while reducing system weight.
- Digital engineering and supply chain tools that improved production planning, increased efficiency, and reduced manufacturing risk.
- Additive manufacturing initiatives that accelerated qualification, sustainment, and production of critical replacement parts across the Military Services.
- Workforce development programs that are building the skilled talent pipeline needed to support future defense manufacturing requirements.

Today, the ManTech enterprise includes the Military Services, Defense Agencies, Manufacturing Science and Technology Program (MSTP), Manufacturing Education and Workforce Development (M-EWD), the Joint Additive Manufacturing Working Group (JAMWG), Manufacturing Innovation Institutes (MII), and a broad network of public-private partnerships across industry and academia. Together, these organizations strengthen the defense industrial base and accelerate the delivery of advanced capabilities to the warfighter.

As global competition intensifies and emerging technologies reshape the industrial landscape, manufacturing remains a strategic national security capability. Artificial intelligence, advanced materials, autonomous systems, microelectronics, and digital production environments will require new approaches to manufacturing, workforce development, and industrial collaboration.

For seven decades, the DoW ManTech Program has helped ensure that America possesses the manufacturing capabilities needed to transform innovation into military advantage. By strengthening the defense industrial base, accelerating technology transition, and enabling the production of critical defense capabilities, ManTech continues to fulfill the mission established by Congress in 1956.

Seventy years later, that mission remains unchanged: Manufacturing the Military's Future.

Timeline

Milestones to Mission: How Past Innovations Shape Today's Force

The Department of War Manufacturing Technology (ManTech) Program's history is marked by a series of pivotal milestones that have continually expanded its mission, strengthened the Defense Industrial Base, and transformed how advanced technologies reach the warfighter. From its congressional establishment in 1956 to today's investments in digital manufacturing, advanced materials, workforce development, additive manufacturing, and industrial modernization, each milestone represents more than a moment in time—it reflects a strategic response to emerging national security challenges. Together, these achievements illustrate how decades of innovation, collaboration, and manufacturing leadership continue to shape today's military capabilities while laying the foundation for the future.

1950's

- Congress Establishes DoW ManTech (1956)
- Original Numerically Controlled Machine Tool Developed
- Automatically Programmed Tool (APT) Programming Language Developed

1960's

- Foundation for the Modern Microelectronics Industry Developed

1970's

- Manufacturing Processes for Precision Laser-Guided Weapons Developed

1980's

- Reverse Engineering Process for Obsolete Microcircuits Developed

1990's

- Army ManTech Authorities Expanded (FY93 NDAA)
- Magnetorheological Finishing for Advanced Military Optics
- RFID Technology Introduced for Military Clothing Issue
- DLA Casting & Forging Industrial Base Modernization Begins
- Joint Defense Manufacturing Technology Panel (JDMTP) Established (1999)
- Defense Manufacturing Technology Achievement Award (DMTAA) Established (1999)

2000's

- Next Generation Combat Helmet Manufacturing Enabled
- Interceptor Body Armor Manufacturing Enabled
- MEMS Manufacturing for Field Artillery Systems
- Focal Plane Arrays (FPAs) for Advanced Sensors
- Manufacturing Science & Technology Program (MSTP) Established (2008)
- Manufacturing Readiness Levels (MRLs) Developed (late 2000s; continued into the 2010s)
- Automated F-35 Inlet Duct Robotic Drilling Begins (2009–2013)

2010's

- DoW Manufacturing Innovation Institute Network Established (2012–Present)
- Advanced Shipboard Ceramic Coatings Initiative Begins (2012–Present)
- Joint Additive Manufacturing Working Group (JAMWG) Established (2017)
- Automated Composite Prosthetics Manufacturing
- Improved Combat Rations Manufacturing
- High-Power, Long-Duration Military Batteries Developed

2020's

- Manufacturing Education & Workforce Development (M-EWD) Program Established (2021)
- DoW ManTech Celebrates 70 Years (2026)

Manufacturing Science and Technology Program (MSTP)

History

MSTP was started in 2008 with a mission to positively support our Warfighters and oversee a research and development investment portfolio focused on a set of identified joint, defense-critical, and sometimes high-risk manufacturing technology areas. The portfolio focuses on cross-cutting defense manufacturing needs – those that are beyond the ability of a single Military Service to address – and stimulates the early development of manufacturing processes and enterprise business practices concurrent with science and technology development to achieve the largest cost-effective impact and facilitate the developments enabling capabilities to our Warfighters.

MSTP has evolved into a critical role that bridges the gap between manufacturing and the warfighter in ways that would be difficult for a single Service to address alone. This promotes cooperation between the defense industrial base and multiple Service branches to provide the warfighter with the tools necessary to complete a wide variety of mission sets. This approach also allows greater risk to be taken on with manufacturing projects that can offer highly advanced tools that would otherwise be untouched by risk averse investors. The depth and breadth of the MSTP project portfolio is a testament to the criticality of this organization and the varied backgrounds of the team members.

MSTP Where Are They Now?

LETHALITY REDEFINED: ADVANCED MANUFACTURING OF HIGH-DENSITY REACTIVE MATERIALS (HDRM)

Organization
Manufacturing Science and Technology Program, Army Research Lab, and Navy ManTech

Year/Timeframe
FY 2020 – FY 2021

The Challenge (Then)

Conventional casing and warhead materials for small-to-large caliber ammunition are primarily made of steel or other traditional metal alloys. These materials are inert and are generally manufactured using traditional manufacturing technologies (powder metallurgy, extrusion, casting, etc). Reactive materials are of a different class of materials, typically comprised of combustible metals as constituents. These materials require advanced manufacturing technologies to assure not only safe handling, but also the preservation of the stored chemical energy which leads to their enhanced performance.

The Solution & Benefit

The project employed technologies that minimize sintering times and/or time at temperature through a three-pronged approach. Key benefits include: delivery of comparable energy on target with smaller warhead payloads; conservation of magazine inventory through reduced cost per kill, extended range of lethal effects, lethal effects against an expanded target set, and improved battle damage assessment.

Where Are They Now?

This technology has been transitioned to the Navy's Advanced Low-Cost Munitions Ordnance (ALaMO) 57mm warhead as well as multiple weapon systems.

MSTP Where Are They Now?

ACCELERATED PROTECTION: NOVEL PRINTED COUNTERMEASURES

Organization
Manufacturing Science and Technology Program, Army DEVCOM AC

Year/Timeframe
FY 2017 – FY 2021

The Challenge (Then)

Threats to fixed wing and rotary wing aircraft are constantly evolving and proper countermeasures need the flexibility to be tailored to both existing and emerging threats. Traditional manufacturing methods of countermeasures can have long development cycles for new formulations.

The Solution & Benefit

ManTech developed a novel additive manufacturing process that can be tailored to specific threats quickly and without additional tooling. This enables a rapid response to emerging threats and a vastly reduced development cycle for manufacturing the proper countermeasures.

Where Are They Now?

This technology is being deployed across the service branches that utilize fixed and rotary wing aircraft.

MSTP Where Are They Now?

Advanced Gradient Index (GRIN) Lenses for the Warfighter

Organization
Manufacturing Science and Technology Program

Year/Timeframe
FY 2018 – FY 2021

The Challenge (Then)

Glass lens technology increases the weight of military-grade optics and can reduce soldier reaction time. Additionally, difficult-to-manufacture complex lens shapes hampers development of new optical designs.

The Solution & Benefit

To address these challenges, this project utilizes an innovative additive manufacturing approach to produce prototype polymer Gradient Index (GRIN) lenses, unlocking a high degree of design freedom that allows for unprecedented optical flexibility. By replacing traditional glass with lightweight polymers and reducing the number of individual lenses required within a housing, this technology offers a potential weight reduction of up to 50% while simultaneously decreasing design complexity and improving performance. Ultimately, this manufacturing breakthrough enables more compact, high-performing optical systems, with lightweight demonstration systems boasting increased field-of-view capabilities planned for showcase within the next six months.

Where Are They Now?

Advanced Fire Control Technology, PM Abrams, and PM Soldier Lethality IDEAS Program

Manufacturing Education and Workforce Development (M-EWD) Program

History

Following foundational efforts in 2019 and 2020, M-EWD was officially proposed in 2021 and received its first dedicated funding in the 2022 fiscal year. Its creation was driven by a critical DoW challenge: ensuring workforce limitations do not constrain the transition of critical technologies. Recognizing that a skilled workforce is vital to the overall success of the technology mission, Manufacturing Innovation Institutes identified talent shortages as the primary bottleneck to adopting advanced manufacturing. DoW established M-EWD as a strong central authority to proactively build, scale, and diversify the talent pipeline, ensuring the workforce accelerates rather than limits technology transition.

M-EWD's mission is to enable a skilled, agile, and mission-ready workforce with the capacity and capability to support the scaling of advanced manufacturing processes. As a force multiplier for workforce development, M-EWD provides two primary benefits. First, it acts as a demand signal to educators and industry, communicating the most critical skills and occupations required for future defense production. Second, it makes targeted, high-leverage investments to strengthen workforce pipelines and expand the pool of qualified labor, ensuring the DIB has the specialized technician workforce to transition emerging S&T advancements into production

M-EWD Where Are They Now?

JOINT CLOTHING TEXTILE MODERNIZATION INITIATIVE (JCTMI): MODERNIZING MILITARY CLOTHING THROUGH DIGITAL ENGINEERING

Organization
M-EWD OSD ManTech / DLA Troop Support & Army PdM SCIE

YEAR/TIMEFRAME
2023 - 2026 (Ongoing)

The Challenge (Then)
The U.S. military's Clothing & Textiles (C&T) enterprise relied on antiquated, paper-based military specifications and lacked modern digital tools. This hindered communication, caused production delays, and threatened supply chain resilience as the domestic textile industrial base shrank by over 75%. Furthermore, the workforce lacked the digital engineering skills necessary to adopt modern 3D CAD and Product Lifecycle Management (PLM) systems.

The Solution & Benefit
In collaboration with MSTP, M-EWD is funding JCTMI to transition the C&T enterprise to modern commercial "Tech Packs" utilizing industry-standard PLM software and 3D modeling. M-EWD is funding the development of a robust, modular digital engineering curriculum to upskill the workforce for this transition. This ongoing transformation standardizes data, streamlines procurement, and is projected to deliver over 15% in efficiency gains and $192 million in lifecycle cost avoidance.

Where Are They Now?
JCTMI is actively transitioning from legacy specifications to modern Tech Packs managed within a centralized enterprise PLM system. Workforce development phases are currently underway to equip DoW personnel and industry partners with critical 3D CAD and data analytics skills. This ongoing initiative continues to streamline procurement, strengthen partnerships with the domestic industrial base, and lay the foundation for future AI and data analytics capabilities.

M-EWD Where Are They Now?

IOWA ARMY AMMUNITION PLAN MODERNIZATION (IAAAP) UPSKILLING THE OIB

Organization
M- EWD ManTech / LIFT, ARM, MxD

Year/Timeframe
2024 - 2025

The Challenge (Then)
IAAAP underwent its largest modernization since 1940, but its workforce lacked the skills to operate new automation, robotics, and digital systems. This created a critical operational risk and a shortage of talent in automation, controls, and cybersecurity-aware technicians, threatening the plant's ability to meet future demands for the Warfighter.

The Solution & Benefit
This effort was a collaborative, multi-institute project to build a data-driven workforce development model. The initiative successfully created an OIB Hiring Guide, established new training pathways like Operation Next, and assessed the local education ecosystem. The immediate impact included training and upskilling current employees, and completing a regional labor market analysis to address urgent skills shortages.

Where Are They Now?
Since the project's successful completion in December 2025, the established resources—including the Virtual Training Center microsite and OIB Hiring Guide—have been actively deployed to transition American Ordnance employees into modernized roles. The program successfully built a sustainable talent pipeline for the facility. This proven, repeatable workforce development model is now being used as a blueprint for deployment across other critical modernization sites within the broader Organic Industrial Base (OIB).

M-EWD Where Are They Now?

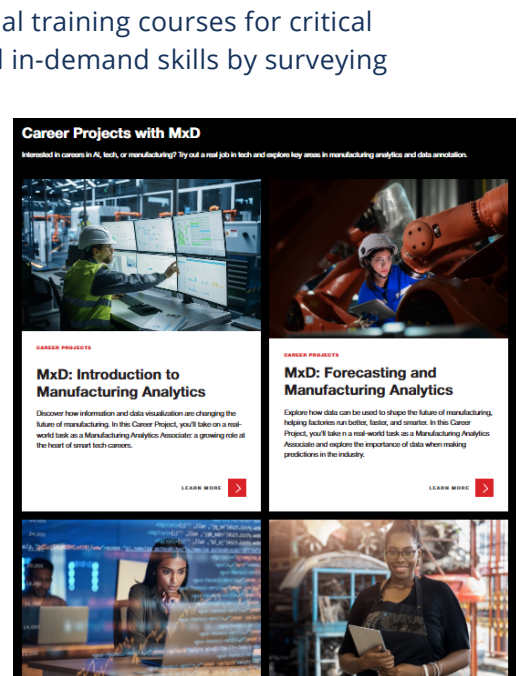
CURRICULUM AND PATHWAYS INTEGRATING TECHNOLOGY AND LEARNING (CAPITAL): BUILDING THE FUTURE DIGITAL MANUFACTURING WORKFORCE

Organization
M-EWD ManTech / MxD

Year/Timeframe
2023 - 2026

The Challenge (Then)
The U.S. faced a staggering manufacturing skills gap, with millions of jobs at risk of going unfilled. A critical disconnect existed between traditional education and the real-world digital skills needed on the factory floor. Workers needed clear pathways to enter and advance in high-demand roles like data analytics, cybersecurity, and supply chain management.

The Solution & Benefit
MxD's CAPITAL program developed five new, free, virtual training courses for critical manufacturing roles. The program successfully defined in-demand skills by surveying nearly 200 organizations and developed curricula for roles like Data Annotator and Manufacturing Analytics Associate. The initial marketing and outreach far exceeded the original goal of enrolling 350 learners.



Where Are They Now?
The CAPITAL courses are now live on MxD's Virtual Training Center (VTC), having already engaged over 10,950 unique learners and generated more than 32,450 enrollments across 38 states. The program has established formal partnerships with credentialing bodies like SACA to provide free, industry-recognized certifications to learners who complete the courses. The training continues to be a vital national resource for upskilling the manufacturing workforce.

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Joint Defense Manufacturing Technology Panel (JDMTP)

History of JDMTP

Established by Congress under the original ManTech statute (10 U.S.C. § 2521) and now codified as its own statutory requirement under 10 U.S.C. § 4842, the Joint Defense Manufacturing Technology Panel (JDMTP) serves as the central coordinating entity for the Department of War (DoW) Manufacturing Technology (ManTech) Program.

Originally chartered in 1999, the JDMTP reports to and receives direction from the Office of the Under Secretary of War for Research & Engineering (OUSW(R&E)) on manufacturing technology issues of multi-service concern and application. As of 2026, through new NDAA language, the JDMTP panel will be co-chaired by the Office of the Under Secretary of War for Acquisition & Sustainment (OUSW(A&S)) and OUSW(R&E).

The ManTech program exists to advance manufacturing technologies and processes for national security objectives. The JDMTP's primary mission is to identify and integrate requirements, conduct joint program planning, and develop joint strategies across the ManTech programs of the Army, Navy, Air Force, Defense Logistics Agency, and the Office of the Secretary of War. By bringing together representatives from each of these components, JDMTP fosters collaboration, streamlines decision-making, and drives the adoption of advanced manufacturing technologies to ensure a responsive, world-class manufacturing capability that meets the needs of the Warfighter.

Throughout its history, JDMTP and its Subpanels and Technical Working Groups have assured that manufacturing technologies and processes are coordinated to avoid duplication and provide a foundation for collaboration. These ManTech projects resulted in better coordinated activities which led to significant impact on weapons systems affordability, deployment of key Warfighter capabilities, and effective transition of technology.

In 1999, the JDMTP established the Defense Manufacturing Technology Achievement Award to recognize outstanding technical accomplishments within the ManTech community. In the late 2000s, responding to a Defense Science Board recommendation, the JDMTP pioneered the development of Manufacturing Readiness Levels, creating a common framework for assessing manufacturing risk. The panel's collaborative approach has been instrumental in spearheading key initiatives in areas like additive manufacturing for sustainment and directed energy, ensuring that each branch of the military can access the latest technological developments.

U.S. ARMY MANUFACTURING TECHNOLOGY

Army

History

An August 1956 law launched the Department of War's broader initiative to strengthen the nation's manufacturing capabilities and close technological gaps in defense production, particularly as Cold War pressures demanded rapid innovation and the deployment of advanced military systems. The Army recognized that maintaining technological superiority required not only research and development, but also the ability to efficiently transition new technologies into manufacturable, reliable, and cost-effective programs. The FY93 NDAA later provided the Army's Manufacturing Technology (ManTech) Program with its current authorities.

Today, Army ManTech funds and oversees the development, maturation, and transition of advanced manufacturing processes and technologies—in partnership with the Army's science-and-technology and acquisition communities—resulting in efficient and affordable production of next-generation Army systems. Working closely with industry, academia, and other government agencies, Army ManTech identifies manufacturing challenges and accelerates solutions in areas such as automation, digital manufacturing, and materials innovation. Its primary value lies in reducing production risks, costs, and timelines to strengthen the Defense Industrial Base and improve supply chain resilience. In doing so, Army ManTech supports the Army's and Department of War's modernization priorities by enabling the rapid and reliable manufacturing of critical defense technologies at scale, thereby enhancing readiness and operational effectiveness.

Army Where Are They Now?

REVOLUTIONIZING HELMET MATERIALS FOR SUPERIOR WARFIGHTER PROTECTION

Organization
Army ManTech / Army Research Laboratory (ARL)

Year/Timeframe
2006-2009

The Challenge (Then)

By late 2006, U.S. polymer composite helmet production still relied on 1970s manufacturing methods, leaving them unable to support newer materials, updated fiber layouts, or lighter multifunctional designs. Key technical challenges included controlling heating and cooling cycles for advanced thermoplastics, combining materials to maintain structural strength, improving near-net pre-form shaping to reduce ballistic performance variation, and integrating materials capable of supporting modern head mounted equipment and accessories used in current military operations.

The Solution & Benefit

The Low-Cost Manufacturing of Materials for Improved Warfighter Protection project enabled combined processing of ballistic, structural, and multifunctional materials to boost helmet performance. It cut manual labor by 20–40% through net shape preforms, reduced waste of costly ballistic fibers by 60–70% and allowed new ways to integrate head-mounted subsystems. Program Executive Office (PEO) Solider adopted this manufacturing approach for its Advanced Combat Helmet (ACH), which went into low-rate initial production in September 2009.

Where Are They Now?

The project's success directly enabled a follow-on project (FY15-18), Novel Ultra-Strong Low-Cost Film Manufacturing Technology for Superior Warfighter Protection, which delivered sustained, measurable benefit to the warfighter by replacing legacy unidirectional polyethylene with Ultra-High Molecular Weight Polyethylene (UHMWPE). This higher-performance, lightweight ballistic material now supports operational readiness by providing rifle-level protection without the added weight, bulk, and logistical burden of a ballistic appliqué, reducing helmet system mass by >40%. This most recent project successfully scaled from laboratory film processing to full-rate helmet production in February 2024, transitioning across multiple industrial partners and strengthening the domestic defense materials base.

Army Where Are They Now?

ADVANCED ARMOR MANUFACTURING FOR NEXT GENERATION VEHICLE PROTECTION

Organization
Army ManTech / Army Research Laboratory (ARL)

Year/Timeframe
2011-2016

The Challenge (Then)

The Affordable Protection from Objective Threats project's overarching challenge was to improve protection for ground combat vehicles from ballistic and blast threats while reducing weight and controlling costs.

Advanced structure and armor solutions required multiple complex assembly procedures and expensive advanced armor materials with long lead-times. Extended design-to-production cycle times associated with fabrication and integration of these armor materials typically resulted in cost and/or production schedule overruns.

The Solution & Benefit

The project developed strong, single-piece underbody structures, new advanced metal alloys to improve vehicle protection, and more affordable ways to produce high performance armor, including improved ceramic armor systems, lower cost ceramic tiles, and automated 3Dwoven composite armor. These advances helped inform requirements for systems and assemblies designed to protect against multiple threats. After transitioning to Program Executive Office Ground Combat Systems, new materials and alloys integrated into production enabled better protection.

Where Are They Now?

The project's success directly informed a follow-on project (FY17-21)—Agile Manufacturing Cell (AMC) with High-Energy Buried Arc Welding (HEBAW) for Vehicle Structures, along with a later scope extension (FY23-24)—which increased production capacity and improved weld quality for two of its combat vehicles, the Armored Multi-Purpose Vehicle (AMPV) and the M109 Paladin Integrated Management (PIM) self-propelled howitzer. AMC developed the first fully-automated, robotic manufacturing weld cell for ground combat vehicle assembly and produced excellent high-quality welds, eliminating the need for time-consuming and expensive rework, and reducing vehicle weld time by 80% and improving welder safety.

Army Where Are They Now?

FORGING AHEAD TO MODERNIZE CANNON TUBE PRODUCTION

Organization
Army ManTech / Watervliet Arsenal

Year/Timeframe
A generation of modernization: 2003-2026

The Challenge (Then)

Founded on July 14, 1813, Watervliet Arsenal produces most of the Army's artillery. Significant portions of the production floor featured 1960s technology, lacked automation, depended on an aging workforce, and its machinery lacked a sensible production flow. Considering its age, space-limited facilitates footprint, and interconnected nature of various aspects of cannon tube production, modernizing Watervliet Arsenal's production floor was a critical component of upgrading this aspect of the Army's Organic Industrial Base.

The Solution & Benefit

Army ManTech established a close partnership with Portfolio Acquisition Executive (PAE) Maneuver Ground, U.S. Army Combat Capabilities Development Command (DEVCOM) Armaments Center and its research facility arm Benét Laboratories, and various industry performers. The combined impact of over a half-dozen Army ManTech cannon-tube projects gradually delivered various prototype cannon tube-production capabilities with flexible and pervasive technology advancements to Watervliet Arsenal capable of novel boring, rifling, coating, and tube-straightening methods.

Where Are They Now?

The resultant integrated production plan deconflicted ManTech and non-ManTech-related projects, funding, equipment installation, and facility inspection timelines at Watervliet Arsenal. After ManTech investment and partnership, there is now modern equipment, future-proofed automation, and a well-thought-out production layout plan to increase efficiency.

Watervliet Arsenal has reduced tooling costs of multiple large-caliber cannons by 30% and production time by ~50% with improved quality, reduced scrap rate, and increased cannon tube longevity. As the various projects come together, a new paradigm of cannon manufacture is born, bringing Watervliet Arsenal into the modern age and making bold steps forward for the Organic Industrial Base.

Navy ManTech

History

The Navy Manufacturing Technology (ManTech) Program was created to bridge the critical gap between laboratory research and full-scale industrial production. The Navy recognized a severe "Valley of Death" where advanced technologies failed to transition to the factory floor due to high capital risks, fragile supply chains, and immature fabrication processes. Navy ManTech was formed specifically to overcome these heavy-industry bottlenecks, ensuring the domestic industrial base could reliably and affordably manufacture the increasingly massive and complex platforms required for American maritime dominance.

Today, Navy ManTech serves as the Navy's industrial preparedness program focused on manufacturing improvements for key naval platforms. Navy ManTech partners directly with platform stakeholders and the Navy's industrial base to address manufacturing and sustainment needs for key naval platforms, including the VIRGINIA and COLUMBIA class submarines (VCS & CLB), FORD class aircraft carrier (CVN 78), Arleigh Burke class destroyer (DDG 51), F-35 Lightening II Fighter (F-35), and associated weapon systems. Executing through Centers of Excellence, Navy ManTech matures and transitions advanced manufacturing and sustainment capabilities like large-scale robotics and automation, advanced metalworking, digital technologies, advanced composites, energetics and weapons, electronics, and electro-optics to the Navy industrial base expanding manufacturing throughput, increasing platform affordability, and enhancing manufacturing capability.

Navy Where Are They Now?

NAVY MANTECH INSERTS ROBOTICS AND AUTOMATION INTO SUBMARINE CONSTRUCTION

Organization
Navy ManTech / General Dynamics Electric Boat (GDEB)

Year/Timeframe
FY2012 to Present

The Challenge (Then)

Meeting the historic "1+2" build rate for COLUMBIA and VIRGINIA Class submarines severely strained the industrial base. As production demands surged, manual fabrication processes—like cutting, fitting, and welding—became critical bottlenecks. These labor-intensive, high-precision tasks consumed significant factory floor span time, threatening aggressive construction schedules. A shift toward robotic and automated manufacturing cells was urgently needed to reduce labor hours, accelerate production, and align with delivery demands.

The Solution & Benefit

Building upon 2012's "Robotic Welding of VCS Interim Products" project, Navy ManTech focused on developing and integrating advanced robotic automation cells to increase production quality and throughput for VCS and CLB submarines. Transition and implementation of robotic and automation efforts drastically reduce the significant manual labor previously required for complex cutting, fitting, and welding. This transition to robotics creates a far more efficient and effective manufacturing process.

Where Are They Now?

As part of Navy ManTech's ongoing commitment to transition of robotics and automation efforts, including recent implementation of automated cells for hull inserts, semi-automatic gas tungsten arc welding, and robotic valve cladding at General Dynamics Electric Boat. Implementation of these technologies significantly increased manufacturing capacity, allowing shipbuilders to execute critical operations with unprecedented speed and precision. By shifting manual tasks to advanced automation, these efforts directly support critical submarine delivery schedules. Together, they are driving down construction span times and are projected to save a combined $54M across both platforms in their first five years.

Navy Where Are They Now?

DIGITAL SHIPYARD TRANSITION: AI-POWERED PLANNING SLASHES DELAYS AND COSTS

Organization
Navy ManTech, Naval Shipbuilding and Advanced Manufacturing (NSAM) Center, Newport News Shipbuilding, Ingalls Shipbuilding, BigBear.ai

Year/Timeframe
2016-Present

The Challenge (Then)
Shipbuilding schedules, among the most complex in any industry, were highly vulnerable to supply chain disruptions and capacity constraints. Historically, shipyards relied on heavily manual, archaic planning tools that were slow to react to changes in material availability or workforce capacity. This lack of agility created significant production bottlenecks and costly delays. Shipyards urgently needed to transition to modern, digital manufacturing and operations tools to bridge the gap between planning and the supply chain.

The Solution & Benefit
Building on the foundational capacity planning tool created under Navy ManTech's "Capacity Planning Automation" project in 2016, Navy ManTech teamed with the Navy's Industrial base to expand the development into a next-generation AI-powered scheduling tool through the "Machine Learning for Schedule Optimization" project. The system analyzes historical data from planners to recommend efficient workflows and gives production teams real-time visibility into the supply chain. This allows for rapid, data-driven adjustments to the construction schedule, significantly reducing risks.

Where Are They Now?
The system was fully implemented at Newport News Shipbuilding, Ingalls Shipbuilding, and Fincantieri Marinette Marine in FY2025. It provides a robust, intelligent approach to de-conflicting production and supply chain challenges, enhancing the efficiency of destroyer, carrier, and submarine construction. The tool is projected to result in a combined savings of nearly $21.0M over its first five years, directly improving the affordability and delivery speed of critical naval assets.

Navy Where Are They Now?

ADVANCED SHIPBOARD COATINGS REDUCING LIFE-CYCLE MAINTENANCE AND OPERATIONAL COSTS

Organization
Navy ManTech, Institute for Manufacturing & Sustainment Technologies (iMAST), Naval Sea Systems Command (NAVSEA)

Year/Timeframe
2013-Present

The Challenge (Then)
Large diameter submarine seawater valves were suffering from premature coating failures. This degradation allowed marine growth and calcareous deposits to form on titanium valve balls, resulting in dangerously high operating torque conditions. These failures necessitated costly, emergent repairs and increased maintenance downtime for critical submarine platforms, highlighting the urgent need for a highly durable surface treatment that could survive harsh marine environments.

The Solution & Benefit
Building on foundational surface treatment research originating from Navy ManTech's "VCS Retractable Bow Planes System Improvements" project, circa 2013, iMAST engineered an optimized, life-of-boat ceramic coating. By refining the application process, deposition parameters, and coating microstructure, the team successfully eliminated previous failure mechanisms. This new Navy-owned process developed under the "Submarine Large Diameter Ball Valve Improvement" project provides a robust defense against marine growth, significantly reducing operational wear and eliminating the root cause of premature valve failure.

Where Are They Now?
The optimized ceramic coating is now applied to both in-service and new construction vessels, including VIRGINIA (VCS) and COLUMBIA (CLB) Class submarines. This scalable, Navy-owned capability drastically reduces maintenance requirements and increases overall platform availability. By extending valve lifespans to match the operational life of the boat, submarines spend significantly less time in drydock undergoing emergent repairs. This advanced technology improves fleet readiness and is projected to deliver over $100M in life-cycle savings for the VCS and CLB programs alone, with broader applications across the surface fleet.

Department of the Air Force (DAF) ManTech

History

The Air Force Manufacturing Technology (ManTech) program was established in the late 1970s under the name Technology Modernization (TECHMOD). The program was designed to systematically implement modern equipment and management techniques, improving productivity by transitioning new technologies from the laboratory to the factory floor. This initiative directly addressed the need to make defense systems more affordable and the industrial base more responsive and capable of meeting both peacetime and surge requirements.

The DAF ManTech mission focuses on advancing national security objectives through the development and application of cutting-edge manufacturing technologies. By transitioning high-value technology directly to the warfighter, the program delivers critical capabilities to the DoW and the industrial base, primarily by reducing the acquisition and supportability costs of defense weapon systems. Beyond driving affordability with a targeted 10:1 return on investment, DAF ManTech accelerates asset availability by cutting manufacturing and repair cycle times by up to 50%. Ultimately, this expert guidance not only enhances military readiness but also cultivates a robust and resilient domestic manufacturing base.

AF Where Are They Now?
MAKING AESA RADAR AFFORDABLE: OVERCOMING MANUFACTURING BARRIERS

Organization
Air Force ManTech

Year/Timeframe
2007

The Challenge (Then)
While providing major battlefield advantages, early Active Electronically Scanned Array (AESA) radars were hindered by extreme costs. Specifically, complex masking and demasking process problems plagued production, creating a severe affordability barrier that threatened widespread adoption into next-generation weapons systems.

The Solution & Benefit
Air Force ManTech invested $18.5M to mature AESA manufacturing processes. Redesigning the RF manifold reduced cycle times by four weeks and switching from gold to silver plating significantly lowered T/R module costs. Additionally, the project upgraded Raytheon's production test capabilities from one to one hundred modules simultaneously.

Where Are They Now?
First integrated by Northrop Grumman in 2007, these process improvements transformed AESA radars into a viable, cost-effective standard. Today, these advanced manufacturing techniques support the production of premier fifth-generation fighter aircraft, specifically the F-22A and F-35. The initial $18.5M ManTech investment ultimately yielded over $200M in projected cost avoidance for these critical airframes, ensuring U.S. warfighters maintain air dominance with next-generation radar.

AF Where Are They Now?

AUTOMATING F-35 PRODUCTION: REVOLUTIONIZING INLET DUCT ROBOTIC DRILLING

Organization
Air Force ManTech, F-35 JPO, SBIR Office

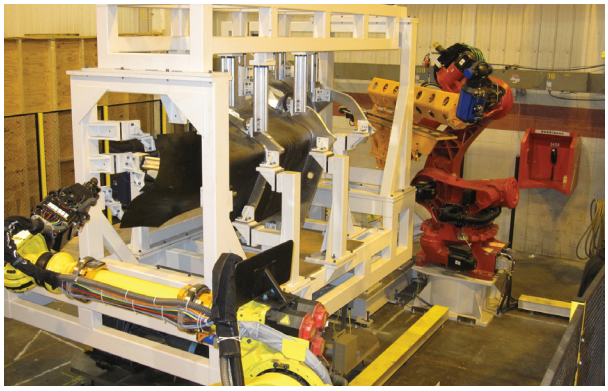
Year/Timeframe
2009 (Transition to Pilot Line) / 2013 (Full Integration)

The Challenge (Then)

F-35 aircraft inlet ducts originally required manual, internal drilling to attach composite ducts to aluminum frames. Assemblers had to crawl into an ergonomically demanding 20-inch diameter space to hand-drill hundreds of holes. This complex process took roughly 50-52 hours per duct, creating unsafe working conditions, driving up labor costs, and threatening the program's ability to meet full-rate production targets.

The Solution & Benefit

Air Force ManTech, alongside the F-35 JPO and a Phase-II SBIR team, invested $6.2M to mature an automated, robotic hole-drilling process to MRL 8. Utilizing nine-axis robots and vision guidance systems, the project successfully transitioned three robotic drilling cells to the Palmdale, CA production line. This breakthrough slashed drilling cycle times by over 75%—from 50 hours to 12 hours—and eliminated severe ergonomic hazards.



Where Are They Now?

The IDRD project fundamentally changed F-35 center fuselage manufacturing. Integrated at Northrop Grumman's Palmdale facility, these robotic cells removed mechanics from confined spaces, significantly reducing lost-time injuries while increasing hole quality and reducing defects by 90%. By 2019, this automated efficiency—alongside other robotics it inspired—enabled the facility to deliver one F-35 center fuselage every 36 hours. The original $6.2M ManTech investment ultimately secured over $40M in JSF production savings while ensuring the production line could meet the demands of the U.S. and its global allies.

AF Where Are They Now?

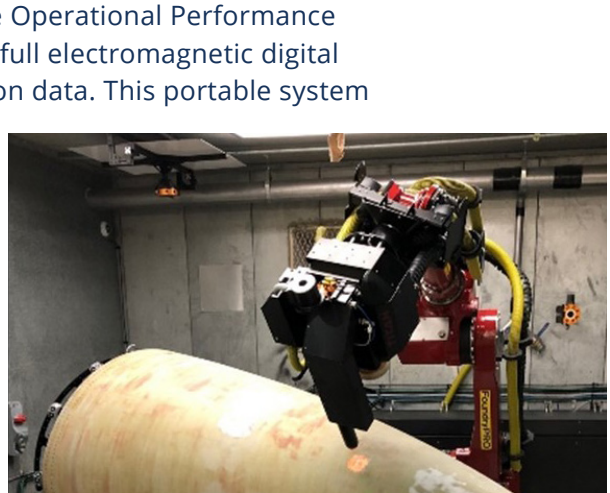
ROPE: DEPLOYABLE DIGITAL TWINS FOR RADOME SUSTAINMENT

Organization
Air Force ManTech, Warner-Robins Air Logistics Complex (WR-ALC)

Year/Timeframe
2023

The Challenge (Then)
Radome performance testing required shipping components to a physical RF anechoic range, a process that cost >$10M to build and took days to complete. This created a significant bottleneck for maintenance and repair operations, delaying the return of critical assets to the warfighter and driving up sustainment costs.

The Solution & Benefit
The ManTech team developed the Radome Operational Performance Evaluation (ROPE) system, which creates a full electromagnetic digital twin of a radome using microwave reflection data. This portable system replicates physical range results to within 1%, reducing capital equipment costs by over 10x and slashing radome repair and testing cycle times from days to hours.



Where Are They Now?
After being validated on F-15 legacy radomes at Warner-Robins ALC, ROPE's success attracted $10.75M in APFIT funding to expand its use across the DoW. New systems are being deployed to Air Force and Navy depots at Tinker AFB, Hill AFB, and NAS North Island to support additional platforms. Most significantly, ROPE is being fielded with the 1st Special Operations Wing at Hurlbert Field, providing a forward-deployable radome testing capability directly to the warfighter.

Defense Logistics Agency (DLA)

History

The Defense Logistics Agency was established in 1962. The Manufacturing Technology program began in 1986, initially addressing the mismatch between the digital microcircuit life cycle and the Defense Department weapon systems life cycle from decades to a few years. Military apparel and combat rations became the focus of the next two ManTech programs. In the early 1990s, the industrial base for casting and forging was increasingly stressed as production capacity moved offshore. Resultant research and development programs were started to address castings and forgings shortages.

The DLA ManTech program continued to expand from 1990-2010 with a battery network to address problems during Operation Iraqi Freedom when batteries were limiting combat operations. A later program began in Defense Logistics Research. The last 16 years have seen continued growth, with programs addressing additive manufacturing and critical national needs in strategic materials.

Today, DLA ManTech provides value by accelerating leading-edge capabilities that enhance and sustain warfighter logistics. DLA R&D focuses on the logistics and sustainment phases of a system's life cycle, ensuring warfighters have the parts, material and support needed for operational readiness. Our priorities are enhancing the availability of troop support items and spare parts, reducing lead times, and addressing material obsolescence to strengthen the supply chain and improve industrial base readiness.

DLA Where Are They Now?

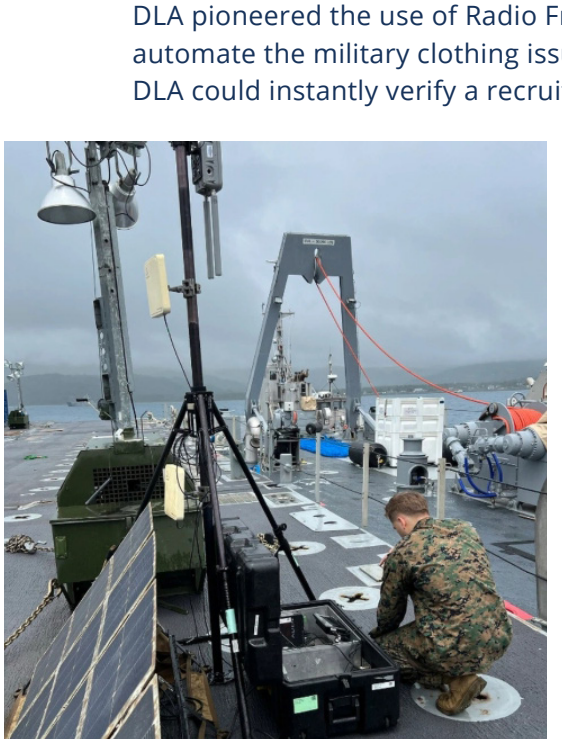
INVISIBLE TAGS, UNBREAKABLE LOGISTICS: DLA'S JOURNEY TO TOTAL ASSET VISIBILITY

Organization
Defense Logistics Agency ManTech

Year/Timeframe
1990s

The Challenge (Then)
The process of issuing clothing to new service members was slow and manual, often taking up to four hours per recruit. The system relied on pen-and-paper tracking, which created opportunities for human error, impacted supply chain data, and made inventory management inefficient. This created a logistical bottleneck at the very start of a service member's career.

The Solution & Benefit
DLA pioneered the use of Radio Frequency Identification (RFID) technology to fully automate the military clothing issue process. By embedding RFID tags in apparel, DLA could instantly verify a recruit's entire issue for correctness and completeness. This innovation slashed the issue time from hours to an average of 45 minutes, virtually eliminating data-recording errors and providing real-time inventory information.



Where Are They Now?
Building on the success of the military clothing issue program, DLA is expanding its use of RFID technology across the agency. One key initiative includes using RFID to track medical materiel pallet shipments, ensuring faster and more precise support for our warfighters.

DLA Where Are They Now?

THE DIGITAL FOUNDRY: ICON'S ROLE IN BUILDING A RESILIENT SUPPLY CHAIN

Organization
Defense Logistics Agency ManTech

Year/Timeframe
2020

The Challenge (Then)

The military faced significant hurdles in efficiently sourcing critical casting and forging components. Procurement processes were often slow and disconnected, making it difficult to match solicitations with the right domestic suppliers, especially when it came to existing tooling, specific materials or manufacturing capabilities. This created a bottleneck that risked both readiness and the health of the U.S. industrial base.

The Solution & Benefit

The Integrated Casting Order Network (ICON), a DLA ManTech initiative, was launched as a software portal to bridge this gap. ICON intelligently directs DLA solicitations to industry members based on their known capabilities, materials and tooling. This immediately improved supply availability, creating a seamless and agile connection between defense needs and the industrial base.

ICON
INTEGRATED CASTING ORDER NETWORK
Foundries and Machine Shops Supporting America's Warfighters

Where Are They Now?

ICON has become a cornerstone of metal parts sourcing. It has facilitated over 30,000 contracts worth more than $557 million, eliminating backorders and injecting vital funds into the domestic castings and forgings industry. With over 1,700 registered users, ICON was upgraded in 2025 from a castings-only network to a comprehensive platform for castings, forgings and machined parts. It continues to ensure a resilient and technologically advanced manufacturing network for future War Department readiness.

DLA Where Are They Now?

DLA R&D DEVELOPS NEW SOURCE FOR LEGACY MEMORY CHIPS

Organization
Defense Logistics Agency ManTech

Year/Timeframe
2017

The Challenge (Then)
War Department weapons systems may have life cycles that last between 20-50 years, far exceeding microcircuit life cycles. When DLA is unable to fulfil orders of obsolescence-based no-bids, each weapons system needing these microcircuit chips must redesign the next higher assembly. This results in expensive non-recurring engineering costs.

The Solution & Benefit
Recognizing the impact of these non-procurable microcircuits, the DLA Advanced Microcircuit Emulation Program re-established onshore design and manufacturing capability for military grade 128kb RAM/ROM microcircuits. This memory technology rapidly transitioned to the DLA Generalized Emulation of Microcircuits (GEM) production program in 2016. DLA now has a supply source which provides drop-in form, fit and function replacement without additional customer action. Backed by 39 years of proven success through our Emulation programs, this production sustainment model guarantees the long-term availability of vital microelectronics across all DLA-managed weapon systems.

Where Are They Now?
There are an additional 12 emulated microcircuits built with this memory technology currently listed on the DLA Standard Microcircuit Cross-Reference. These parts support nearly 30 additional DoW platforms across the military services, maintaining readiness, reducing costly redesign, and avoiding production shutdowns by establishing a critical, lasting domestic capability. Since the transfer, the GEM Production Program has received fourteen additional requests for new designs that leverage the 128kb RAM/ROM project. The GEM program maintains the capability to provide on-demand manufacturing of these parts with no end-of-life. This provides a permanent solution to microcircuit obsolescence supporting the warfighter's operational readiness, safety and lethality.

Joint Additive Manufacturing Working Group (JAMWG)

History

Formalized in July 2017 under the leadership of the Office of the Secretary of War (OSW) ManTech Program, the Joint Additive Manufacturing Working Group (JAMWG) was established to serve as the central hub for additive manufacturing (AM) collaboration within the Department of War (DoW). Governed by the Joint Defense Manufacturing Council (JDMC), the JAMWG's foundational mission was to break down barriers to AM adoption. By aligning strategies and sharing best practices across the military branches and Defense Agencies, the group sought to rapidly equip the warfighter and sustainers with advanced manufacturing capabilities.

Since its inception, the JAMWG has grown into a robust coalition of over 300 members and 20 Key Principals from the U.S. Army, Navy, Air Force, Marine Corps, Joint Staff, Defense Logistics Agency (DLA), Missile Defense Agency (MDA), the Office of the Secretary of War (OSW), and the and the Warfighting Acquisition University (WarU). To address evolving technical and policy demands, the group expanded its operational framework by creating targeted subgroups focused on data sharing, qualification and certification (Q&C), workforce education, and standards. This ongoing cross-service synchronization ensures that DoW investments remain aligned, effectively accelerating the deployment of innovative AM technologies across the joint force.

Where Are They Now?

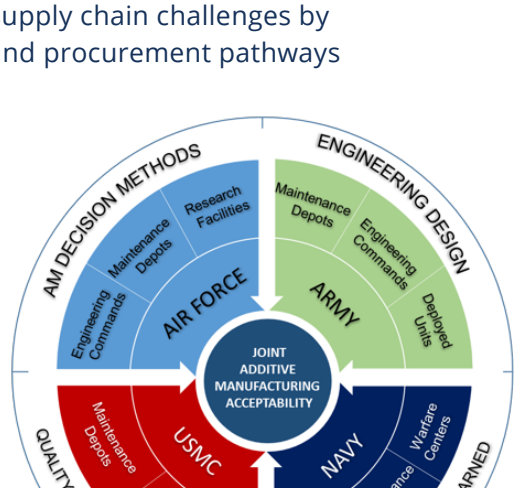
JOINT ADDITIVE MANUFACTURING ACCEPTABILITY (JAMA) PROGRAM

Organization
JAMWG -- Defense Logistics Agency (DLA)

Year/Timeframe
2020 - Present

The Challenge (Then)
The Defense Logistics Agency's (DLA) Joint Additive Manufacturing Acceptability (JAMA) program addresses critical supply chain challenges by establishing repeatable technical qualifications and procurement pathways for 3D-printed spare and replacement parts.

The Solution & Benefit
The program is creating a streamlined framework to verify that additively manufactured components meet rigorous military standards, JAMA combats part obsolescence, reduces long lead times, and mitigates Diminishing Manufacturing Sources and Material Shortages (DMSMS) to directly improve warfighter readiness.



Where Are They Now?
The program is in Phase IV. The intent of this phase is for DLA to utilize a large IDIQ contract to conduct a parts production pilot that establishes procurement processes and a supplier base for additively-manufactured parts. DLA will provide the selected additive manufacturing Technical Data Packages (TDPs) of approved parts submitted by Military Services to be produced by a pool of 25 vendors.

Where Are They Now?

WORKBENCH FOR ADDITIVE MATERIALS (WAM)

Organization
JAMWG -- OSW ManTech, Air Force Life Cycle Management Center (AFLCMC), National Institute for Aviation Research (NIAR)

Year/Timeframe
2024

The Challenge (Then)
A single unified materials database containing pedigreed material AM allowables did not exist. Test results were stored on local, disparate hard drives across the military services.

The Solution & Benefit
WAM establishes a U.S. government-wide online secure materials database with required specifications and pedigree that can be accessed by any U.S. government agency.

Where Are They Now?
The WAM database has been deployed in a CAC-enabled production environment. Multiple datasets from the military services and the DoW Manufacturing Innovation Institute America Makes have been uploaded with many more on the way.

Where Are They Now?

JOINT ADDITIVE QUALIFICATION FOR SUSTAINMENT (JAQS)

Organization
JAMWG -- OSW ManTech, All military services

Year/Timeframe
2024

The Challenge (Then)

There is a recognized opportunity to better synchronize the domestic AM supply chain to meet government acquisition needs. For years, we have focused on qualification of materials and processes. However, the current landscape is often fragmented by unique customer requirements, resulting in point-based qualifications that slow the pace at which suppliers can be audited and approved.

The Solution & Benefit

The Joint Additive Qualification for Sustainment (JAQS) program addresses the lack of mature additive manufacturing suppliers for DoW applications. JAQS develops, trains, and qualifies contract manufacturers to execute process control standards necessary for qualified additive manufacturing serial production. The program aims to create, document, and share additive manufacturing process know-how for the DoW. This expertise, focused on laser powder bed fusion and directed energy deposition, will be captured in process control documents and process qualification guidance. Selected U.S. suppliers will receive hands-on training to learn how to implement these process control documents and qualification procedures. After training, suppliers will undergo an audit to verify their capability to perform qualified additive manufacturing for the DoW, ensuring consistent part production. The suppliers that successfully complete a JAQS audit will be added to the list of approved suppliers.

Where Are They Now?

Currently, six AM suppliers have gone through the training and another 27 are in queue. A total of 50 AM suppliers will go through this training, audit, and certification program.

The DoW Manufacturing Innovation Institutes: A National Asset

History

Sponsored by OSW ManTech per 10 U.S. Code 4841, the DoW established a nationwide network of Manufacturing Innovation Institutes (MIIs) starting in 2012. These public-private partnerships - headquartered across the United States - collaboratively integrate industry, academia, and government to connect people, ideas, and technologies. By accelerating the transition of new capabilities into defense and commercial applications, the MIIs strengthen the domestic industrial base, advance workforce development, and ensure critical product development remains in the U.S., ultimately providing the Warfighter with vital access to advanced technologies to address modernization and readiness priorities.

Who We Are Today

The DoW MIIs are a powerhouse for equipping and protecting the warfighter. Today, over half of all MII research projects yield physical prototypes, with nearly a third already transitioning into active military use. The institutes are rapidly delivering critical capabilities directly to the frontline, such as advanced thermal materials for hypersonic flight and portable tools like tactical 3D printers and field-ready blood bioreactors for troops in remote, austere environments. Beyond immediate battlefield gear, the MIIs are actively modernizing military depots, arsenals, and shipyards with robotics and artificial intelligence to ensure our forces are supported by a faster, highly resilient, and modernized maintenance pipeline.

To outpace aggressive global competitors, the MIIs have built a national network of over 2,200 members from industry, academia, and government that safeguard and strengthen the military supply chain. The MIIs bypass slow, traditional bureaucracy by successfully integrating commercial companies - most of which have never worked with the military before - into the defense industrial base. In the past 6 years alone, this network has trained over 800,000 workers and students in advanced manufacturing skills to ensure America has the talent required to build its own defense technologies. By blending cutting-edge commercial innovation with a highly skilled domestic workforce, the MIIs ensure that the warfighter is always backed by secure, American-made technology that is rapidly produced and readily available.

The MII Network At A Glance

America Makes

America Makes: Additive Manufacturing

Youngstown, OH | 315 Members | Established August, 2012

M D

Manufacturing x Digital: Digital Manufacturing

Chicago, IL | 370 Members | Established February, 2014

LIFT:
Advanced Materials

Detroit, MI | 216 Members | Established February, 2014

AIM Photonics:
Integrated Photonics

Albany & Rochester, NY | 111 Members | Established July, 2015

NextFlex:
Hybrid Electronics

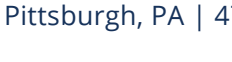
San Jose, CA | 219 Members | Established August, 2015

BioFabUSA:
Regenerative Biomanufacturing

Manchester, NH | 176 Members | Established December, 2016

ARM Institute:
Digital Manufacturing

Pittsburgh, PA | 474 Members | Established January, 2017



BioMADE:
Bioindustrial Manufacturing

Minneapolis, MN & Emeryville, CA | 324 Members | Established October, 2020

FutureTEX:
The Textiles Future Institute

Belmont, NC | Established July, 2026

DoW MIIs Over The Years

2012
- DoW launches MII network with America Makes (Youngstown, OH)

2014
- MxD (Chicago, IL) and LIFT (Detroit, MI) established

2015
- AIM Photonics (Albany, NY) and NextFlex (San Jose, CA) established
- America Makes enabled small business rp+m to achieve critical aerospace certifications, secure contracts with Boeing and Lockheed Martin

2016
- AIM Photonics released first U.S.-based integrated photonics Process Design Kits
- LIFT developed a new ductile iron alloy that reduces automotive transmission casing weight by 40%.
- NextFlex created wireless, remote EKG system for tactical first responders and warfighters

2017
- ARM Institute (Pittsburgh, PA) established

2018
- AIM Photonics opened Test, Assembly, and Packaging facility creating end-to-end capability for U.S. photonics ecosystem
- America Makes created the first public, qualified materials database for a high-performance aerospace thermoplastic (ULTEM™ 9085)
- ARM Institute piloted "Teach-Bot" robot-led workforce training using robots to teach industrial robotics skills to the workforce
- MxD assessed Rock Island Arsenal, delivering a roadmap to boost productivity by 45%

2019
- BioFabUSA designed world's first automated human "tissue foundry"
- LIFT developed computer modeling to reduce weld distortion and cut production costs on U.S. Coast Guard cutters by 13%
- NextFlex developed skin-worn biosensor to track warfighter vitals in real-time

2020
- BioMADE (St. Paul, MN) established

2021
- America Makes created a secure Joint Additive Manufacturing Model Exchange to share 3D files in the field
- ARM launched RoboticsCareer.org talent marketplace (100,000+ annual users)

2022
- DoW MII network celebrates 10-year anniversary
- BioMADE prototyped domestic natural rubber source from dandelions with AFRL, mitigating future supply chain risks
- MxD released CMMC 2.0 compliance playbook for small businesses

2023
- 5 MIIs demonstrate point-of-need technology solutions for austere environments
- BioFabUSA established apprenticeship programs to build and scale the U.S. biomanufacturing workforce
- NextFlex developed ruggedized "factory in a box" using additive electronics to repair hardware in austere environments

2024
- OSW integrates four MII-developed robotics and AI solutions as best practices in DoW shipyards and depots
- BioMADE produced consistent bio-derived magnetic nanoparticles
- MxD launched 6 military-to-civilian career pathways

2025
- AIM Photonics built domestic open-access quantum photonics circuit foundry
- America Makes and Ursa Major cut rocket engine copper combustion chamber production from 6 months to 30 days
- BioFabUSA supported Miromatrix clinical trials for the world's first biomanufactured organ alternative
- BioMADE launched Warfighter-to-Scientist transition career program
- LIFT launched Advanced Metallic Production and Processing facility to scale new alloy formulations and reclaim critical materials

2026
- FutureTEX established as the revolutionary fibers and textiles institute
- OSW invests $300M in projects for the MIIs to support the Organic Industrial Base

Defense Manufacturing Technology Achievement Award (DMTAA)

History

The Defense Manufacturing Technology Achievement Award (DMTAA) was created to recognize individuals from government and the private sector most responsible for outstanding technical accomplishments that advance the vision of the Department of War (DoW) Manufacturing Technology (ManTech) Program. The DoW ManTech vision is to "realize a responsive world-class manufacturing capability to affordably meet the Warfighters' needs throughout the defense system life cycle." The DMTAA award was established in 1999 and each year the awards are selected by the Principals of the Joint Defense Manufacturing Technology Panel (JDMTP).

With the ManTech 70th Anniversary, a call was put out for 2026 "Best of the Best" Defense Manufacturing Technology Achievement Awards (DMTAA). Each Service/Agency selected one recipient for the Service Recognition Award. This award honors a premier project chosen from the Service's previous DMTAA winners. Each Service/Agency also nominated one DMTAA project for the Principals' Honor. The JDMTP Principals voted on these nominations to select the "best of the best." These six awardees are recognized below. Special thank you to SME for partnering with the JDMTP over the past years and for presenting the 2026 "Best of the Best" DMTAA's.

Principals Honor' DMTAA Award

Terminally Guided Robots and Robotic Air Force Applications in Confined Spaces: F-35 Inlet Duct Robotic Drilling (IDRD)

- DAF ManTech | 2009

Service Recognition DMTAA Awards

Paints for Aircraft

- DAF ManTech | 2008

Manufacturing of Precursor Foamable Celluloid Materials

- OSW ManTech | 2022

DLA AME and GEM Programs: Solving Microcircuit Obsolescence since 1987

- DLA ManTech | 2017

F-35 Electro-Optical Targeting System (EOTS) Producibility

- Navy ManTech | 2015

Novel Ultra-Strong Low-Cost Film Manufacturing Technology for Superior Warfighter Protection

- Army ManTech | 2020

Discover more about DoW ManTech and its innovative programs by visiting ***www.dodmantech.mil*** or scanning the QR code below.

Stay connected and follow DoW ManTech on LinkedIn for the latest updates, success stories, and advancements in defense manufacturing technology.

Department of War
Manufacturing Technology Program

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