2025

DEPARTMENT OF DEFENSE MANUFACTURING INNOVATION INSTITUTES

Office of the Secretary of Defense Manufacturing Technology Program

www.DoDManTech.mil

ABOUT THE DEPARTMENT OF DEFENSE MANUFACTURING INNOVATION INSTITUTES

Industry-driven public-private partnerships serving the U.S. warfighter

- **WHO?** Per 10 U.S. Code 4841, the Office of the Secretary of Defense Manufacturing Technology Office (OSD ManTech) sponsors a network of Department of Defense (DoD) Manufacturing Innovation Institutes (MIIs)
- **WHAT?** DoD MIIs are public-private partnerships that enhance economic security and national defense by advancing manufacturing processes, strengthening the industrial base, and furthering workforce development
- **WHEN?** The first institute launched in 2012, with subsequent institutes established through 2020
- **WHERE?** Headquarters and hubs are located across the United States with member organizations from 49 states, Puerto Rico, and Washington, D.C.
- **WHY?** To provide the Warfighter access to advanced manufacturing technologies, address modernization and readiness priorities, and ensure future product development stays within the United States
- **HOW?** By operating and integrating a network of industry-led public-private partnerships that connect people, ideas, and technologies – accelerating the transition of new capabilities into defense and commercial applications

BUSINESS TENETS

Each DoD MII advances defense priorities in a specific manufacturing sector, all are built on a proven business model

Regional hubs with national impact to U.S. defense industrial base	**Competitively awarded** to non-profits to act as "honest broker," accountable for long-term viability	**Industry-led, DoD-informed** technical roadmapping
Access to **shared assets** for U.S. companies including intellectual property and infrastructure	Industrially relevant, DoD-oriented research and development to **"bridge the gap"** (Technology Readiness Level / Manufacturing Readiness Level 4-7)	**Education and training** for sufficient, skilled manufacturing workforce
Initial Federal investment (~$70M per institute) over 5-7 years	Leverage minimum of **one-to-one cost share** from non-Federal sources on DoD's strategic investment	**Formal DoD evaluations** prior to continued DoD engagement and funding

IMPACT AND INFLUENCE

Meeting Direct Military Needs

Initial OSD investment demonstrated value in meeting DoD priorities, prompting over $700 million in direct Military Service investments for DoD-directed projects as of FY 2024. OSD continues to fund strategic and joint technical, workforce development, and industrial base enhancement initiatives.

Prototypes, Demonstrations, and Transitions

As of 2024, 57% of research and development projects have yielded prototype demonstrations, with nearly a third transitioning to DoD or commercial products.

National Presence

The DoD MIIs comprise over 2,200 member organizations, representing industry (51% small business, 12% large business), academia (21%), Government (8%), non-profits (6%), and other (2%) spanning 49 states, Washington D.C., and Puerto Rico.

Reversing the Last Supper Consolidation

Industry membership predominantly comprises non-traditional, commercially focused companies. Over 50% of DoD MII members generate less than 10% revenue from DoD. The DoD MIIs are enabling these emerging commercial manufacturers to contribute to the DoD supply chain.

Education and Workforce Development

Between FY 2020 and FY 2024, the DoD MIIs trained over 500,000 students, teachers, and workforce members in advanced manufacturing skills.

Adversarial Imitation

The DoD MIIs are on the frontlines of global manufacturing competition. After observing key U.S. investments, China launched its Manufacturing Innovation Centers initiative in 2016. The now 33 centers mirror and expand upon DoD MII technology areas, receiving significantly higher funding (10-100x). The Department of Commerce recently confirmed China has over 100 staff tracking the DoD MIIs.

Innovative Acquisition Process

Unlike traditional research and development models, the DoD MIIs provide an accelerated, innovative approach that strengthens the national defense manufacturing base.

- Expanded collaborations with entrepreneurs, students, start-ups, and manufacturers to innovate
- Organized networks and technology roadmaps enable DoD to leverage commercial technologies
- Commercially validated capabilities reduce or eliminate the need for longer research and development phase
- Validate and gain commercial buy-in for DoD dual-use technology to save reseach and development dollars
- Integrated partnerships with academia to train and inspire students to engage in defense manufacturing

VALUE PROPOSITION

FEDERAL AGENCIES

The DoD MIIs offer the federal government, including the military services and DoD agencies, access to roadmapping activities with industry, pilot manufacturing facilities, and responsive project contracting. The federal government utilizes the institutes' precompetitive federal assistance agreements to perform technology projects, provide access to cost share, and ensure competition. From an operations and sustainment perspective, the DoD MIIs are a source for cost-shared research and development.

INDUSTRY

The DoD MIIs foster collaboration between companies, customers, and the government to conduct pre-competitive applied research and development necessary for profitable commercialization. The institutes' pilot-scale prototype facilities allow for de-risking production. Key manufacturing findings are made available to U.S. companies of all sizes, enabling them to affordably develop products for commercial or defense needs. The institutes also host networking events and project calls for materials and manufacturing research and development to promote non-traditional partnerships between companies. Manufacturing workforce training and education programs offered by the DoD MIIs ensure the innovation industrial base is prepared for the United State's advanced manufacturing needs.

STATE & LOCAL GOVERNMENTS

The DoD MIIs are regional innovation clusters with national influence, each with a variety of members working to build a convergence of expertise. Because these clusters contain the elements necessary for product realization – research, design, prototyping, and production – members feed each other's success and become deeply entrenched locally and regionally. Inherently, clusters formed around advanced manufacturing facilities persist due to the ability to accelerate product-to-market using a co-located supply chain. This growth provides the region's students and workforce with phenomenal education and job opportunities.

ACADEMIA

The DoD MIIs provide universities, community colleges, and other educational institutions with opportunities to understand industry and government needs so that targeted manufacturing research can be undertaken for the benefit of the institution, individual, and student. Cutting-edge sponsored research enhances the reputation of the institution. For students, the DoD MIIs provide opportunities for hands-on training, access to internships and apprenticeships, and increased connections to industry and job opportunities.

NATIONAL RESPONSE INITIATIVES

The DoD MIIs leverage a network of over 2,200 traditional and non-traditional manufacturers and innovators to address critical military and national security needs. These institutes are prepared to mobilize their members to tackle the nation's most pressing advanced manufacturing challenges, as illustrated below:

Pandemic Response

At the onset of the COVID-19 pandemic in 2020, the DoD MIIs rapidly mobilized 1,400 members nationwide to address urgent manufacturing needs. Within just five weeks, over 20 projects were funded and launched, resulting in innovative solutions like a novel drug delivery system, a personal protective equipment 3D print design database, and CleanSURFACES - disposable antimicrobial covers for high-touch areas. All projects are completed with most technologies on the path to commercialization.

Hypersonics Challenge

DoD called upon America Makes and LIFT to push the boundaries of materials science and manufacturing to rapidly meet the extreme demands of hypersonic flight. America Makes focused on advancing additive manufacturing techniques for high-temperature metals. LIFT tackled materials and manufacturing processes for hypersonic vehicles. These efforts yielded innovations such as advanced thermal protective coatings, novel high-temperature materials, and cutting-edge integrated computational materials engineering tools.

Manufacturing at the Point-of-Need Challenge

The U.S. Army called up the DoD MIIs to equip forward-deployed forces in austere environments. Quickly rallying the institutes, a panel of DoD judges selected six quick-turn projects from five DoD MIIs. Just nine months later, these teams showcased innovative technologies at the Cold Regions Research and Engineering Laboratory, including an expeditionary 3D printer, a bioreactor for producing blood in the field, and a portable repair factory.

THE DEPARTMENT OF DEFENSE MANUFACTURING INNOVATION INSTITUTES

AMERICA MAKES: THE NATIONAL ADDITIVE MANUFACTURING INNOVATION INSTITUTE

America Makes fast-tracks the adoption of additive manufacturing by convening, coordinating, and catalyzing the industry to help advance U.S. manufacturing competitiveness and security

MANUFACTURING TIMES DIGITAL (MxD): DIGITAL MANUFACTURING AND CYBERSECURITY INSTITUTE

MxD strengthens U.S. manufacturing global competitiveness to advance economic prosperity and national security by accelerating digital adoption, securing supply chains, and empowering the workforce

LIFT: NATIONAL ADVANCED MATERIALS AND MANUFACTURING INNOVATION INSTITUTE

LIFT drives American advanced manufacturing into the future through technology and talent development by connecting advanced materials, manufacturing processes, systems engineering, and people

AIM PHOTONICS: AMERICAN INSTITUTE FOR MANUFACTURING INTEGRATED PHOTONICS

AIM Photonics furthers the integrated photonic circuit manufacturing industry while providing access to state-of-the-art fabrication, packaging, and testing capabilities for small-to-medium enterprises, academia, and the government

NEXTFLEX: AMERICA'S HYBRID ELECTRONICS INSTITUTE

NextFlex accelerates hybrid electronics innovation, collaboration, technology transition, and talent development in support of the U.S. commercial and defense industrial base

BIOFABUSA: ADVANCED TISSUE BIOFABRICATION INSTITUTE

BioFabUSA makes practical the scalable, consistent, and cost-effective manufacturing of cell-based products and trains the nation's advanced biomanufacturing workforce

THE ARM INSTITUTE: ADVANCED ROBOTICS FOR MANUFACTURING

The ARM Institute advances the development and adoption of robotics technologies that are the foundation of every advanced manufacturing activity today and in the future

BIOMADE: BIOINDUSTRIAL MANUFACTURING AND DESIGN INSTITUTE

BioMADE enables domestic bioindustrial manufacturing at all scales, develops technologies to enhance U.S. bioindustrial competitiveness, de-risks investment in relevant infrastructure, and expands the biomanufacturing workforce to realize the economic promise of industrial biotechnology

ADDITIVE MANUFACTURING

America Makes

The National Additive Manufacturing Innovation Institute

America Makes

Established 2012

Youngstown, Ohio

www.americamakes.us

Accelerating the adoption of additive manufacturing by convening, coordinating, and catalyzing the additive manufacturing industry to help advance U.S. manufacturing competitiveness and security

Helped grow **8 U.S. defense and commercial suppliers** with **~$1.3 billion** value

Transitioned **18 projects** into commercial software, eliminating barriers to adoption and generating **~$10+ million** annual revenue for members

100,000+ learners at **2,000+ organizations** completed **400,000 America Makes courses** on SME ToolingU

- America Makes is the nation's lead collaborative partner in additive manufacturing research, discovery, and innovation, convening 300+ members who account for an estimated 41.6% of the estimated additive manufacturing industry global revenue.
- Collaborating with the Defense Logistics Agency, America Makes developed and transitioned the Joint Additive Manufacturing Model Exchange – an accessible, secure platform for the warfighter to download needed 3D printing files in the field.
- America Makes supplied the courses for the Naval Aviation School for Additive Manufacturing to empower military personnel with the skills to produce mission-critical additive manufacturing parts, strengthening DoD readiness and technological advantage.
- With small business Craitor, America Makes helped develop a durable, expeditionary 3D printer for military operations in austere locations.
- America Makes and Ursa Major Technologies are accelerating rocket engine production through a cost-effective additive manufacturing process for copper combustion chambers. This will reduce manufacturing time from 6 months to 30 days.

"We began working with America Makes about a year ago on the prototype for a 3D printer for the U.S. military to use to manufacture critical components at the point of need anywhere in the world. Through connecting us to the larger ecosystem of advanced manufacturing companies and guidance on applying for contracts, we were able to certify our system and prepare it for large-scale adoption. Through support from America Makes, we're able to punch far above our weight class as a small business and enable these critical capabilities for our warfighters."

– Eric Shnell, Founder & CEO of Craitor

DIGITAL MANUFACTURING & CYBERSECURITY

MANUFACTURING x DIGITAL

Digital Manufacturing
& Cybersecurity Institute

Established 2014
Chicago, Illinois
www.mxdusa.org

Strengthening U.S. manufacturing global competitiveness to advance economic prosperity and national security by accelerating digital adoption, securing supply chains, and empowering the workforce

Engaged **21 organic industrial base sites** to support modernization initiatives	**275,000 learners** trained through MxD's workforce development programs over the past 5 years	CyberSecure Supplier provides cyber guidance to **20,000+ suppliers**

- MxD offers members access to the Digital Twin Testbed, enabling domestic companies to learn how modernizing manufacturing processes using digital twins, Internet of Things, and augmented reality improves efficiency and reduces downtime.
- In collaboration with industry, MxD modernized operations at Rock Island Arsenal's Joint Manufacturing and Technology Center. The team enhanced digital capabilities, including machine health monitoring, improved network connectivity, and optimized part quality inspection.
- MxD installed sensor kits on 10 legacy machines at Portsmouth Naval Shipyard (PNSY), providing the shipyard with its first-ever machine health data. Feeding data into a machine status dashboard, the program will inform PNSY's planned sensors installation on over 1,500 machines, improving submarine maintenance planning and accelerating repairs.
- MxD launched a digital manufacturing career pathway through the DoD Voluntary Education program reaching 20,000 service members, guiding them towards civilian careers aligned with their skills and experience.
- MxD's Jobs Taxonomy is transforming the Industry 4.0 workforce by providing a standardized framework for digital manufacturing and cybersecurity skills so educators and companies can grow a qualified digital manufacturing workforce.

"For small manufacturers, we have tight resources. We don't have the type of funds or the people to continue to go out and learn new things all the time. And so, I am very inspired by our conversations and projects with MxD and really encourage other small manufacturers to look toward MxD and other resources outside so you can grow much faster."

– Dr. Asad Khan, CEO, Kent Displays

ADVANCED MATERIALS

LIFT

National Advanced Materials and Manufacturing Innovation Institute

Where Manufacturing Technology and Talent Matter

Established 2014

Detroit, Michigan

www.lift.technology

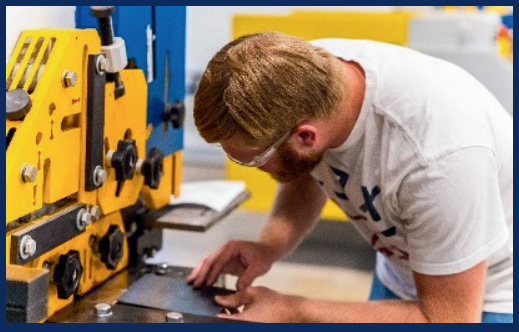
Driving American advanced manufacturing into the future through technology and talent development by connecting advanced materials, manufacturing processes, systems engineering, and people

250,000+ individuals engaged in technology, talent, and workforce programs since 2014

13 technologies successfully transitioned or ready to transition into industry

4 pilot plant accelerators developed:
1) Detroit High Bay
2) Materials Informed Digitalization Suite
3) Advanced Metallics Production & Processing Center
4) Hypersonics & Extreme Environment Testing

- Launched in 2025, LIFT's Advanced Metallic Production and Processing facility provides metal additive precursors, enabling industry to source new alloy formulations at scale (tens of tons). With the Defense Logistics Agency, LIFT uses the facility to reclaim titanium by processing scraps into optimized wire and powder for additive manufacturing.
- LIFT partnered with an aircraft manufacturer to develop and validate a refill friction stir spot welding process for joining dissimilar aluminum sheets on the Apache helicopter, replacing rivets with welds over 2x as strong and at a lower cost.
- The workforce development programs at LIFT span 31 states and have trained over 37,000 high school students, 1,000 adult technicians, and 120 service members, including separating service members – adding skilled workforce to the U.S. defense manufacturing base.
- LIFT developed a new alloy and manufacturing modeling process that enables thin-walled ductile iron castings for lightweight automotive transmission casings, reducing casing weight by ~40%.
- LIFT collaborated with Ricardo Defense to develop Humvee Antilock Brake and Electronic Stability Control systems projected to prevent 74% of rollovers and save 125 lives over the next decade. The Army contracted with Ricardo to provide 9,480+ retrofits.



"[LIFT education program] Operation Next is an outstanding program and opportunity for not just active-duty service members, but veterans, their families, and civilians who are looking to begin a new career in advanced manufacturing. We are happy to once again be working with LIFT to support our students and our region's manufacturing base."

– Carolyn McMorran, Assistant Vice President, Valencia College

INTEGRATED PHOTONICS

AIM PHOTONICS

American Institute for
Manufacturing Integrated Photonics

Established 2015

Albany & Rochester, New York

www.aimphotonics.com

Advancing integrated photonic circuit manufacturing technology development while simultaneously providing access to state-of-the-art fabrication, packaging, and testing capabilities for small-to-medium enterprises, academia, and the government

Accelerated research at Air Force Research Laboratory by **~5 years**

Multi-project wafer serves over **260+ research organizations**

Industrial base members receive **free license** to innovative process design kits, accelerating wafer production by a **factor of four**

- AIM Photonics offers the nation's first recurring integrated silicon photonic multi-project wafer (MPW) capability and the world's first 300mm MPW.
- The institute's capabilities enable the U.S. defense industrial base to advance telecom, chemical and biological sensing, precision navigation and timing, quantum computing, augmented reality/virtual reality, LiDAR, and other technologies to address defense capabilities like Golden Dome.
- AIM Photonics' workforce program is filling the manufacturing skills gap by providing hands-on education kits to 28 institutions across 10 states. These kits empower educators to develop relevant curricula and practical training – strengthening the photonics workforce pipeline.
- DoD has guaranteed access to AIM Photonics' $15+ billion NanoTech foundry, which offers wafer runs every 3 months versus other foundries' typical wait times of up to a year. Combined with access to innovative testing, assembly, and packaging services, AIM accelerates development from lab-to-fab, design-to-prototype, and commercialization.
- In collaboration with the Air Force Research Laboratory, AIM Photonics is providing early access to quantum photonics capabilities. Their initiative offers an openly accessible quantum photonic integrated circuit foundry process with greater control and refinement across the ultraviolet and infrared spectrum, particularly for telecom applications.

"AIM continues to develop [Multi-Project Wafer] technology solutions that are addressing issues at the forefront of photonic integration including interposer and sensing technologies. Reducing the cost of packaging is a critical challenge currently facing the industry, and AIM is working to provide packaging solutions through TAP."

– Tim Creazzo, Senior Engineer, Phase Sensitive Innovations, Inc.

HYBRID ELECTRONICS

NEXTFLEX

America's Hybrid Electronics Institute

Established 2015

San Jose, California

www.nextflex.us

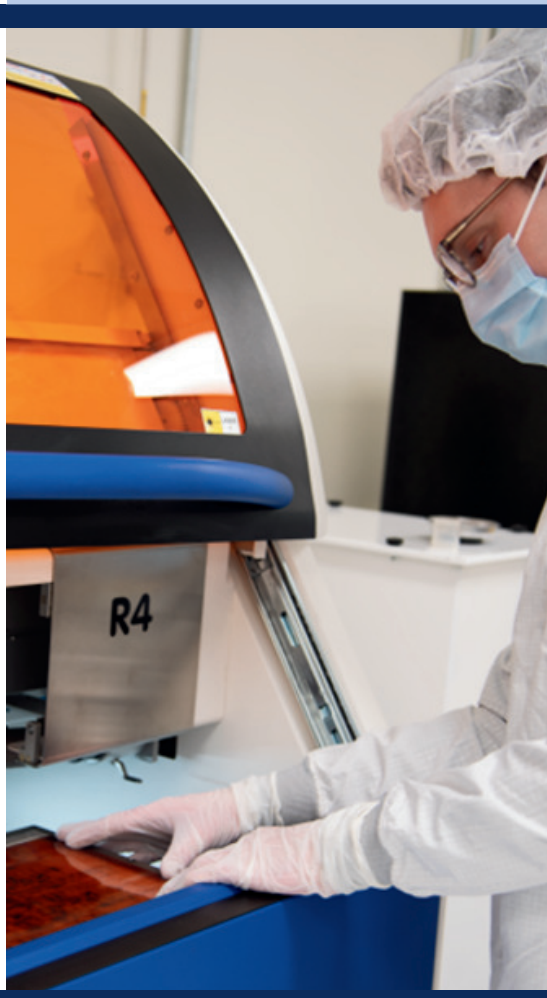
Accelerating hybrid electronics innovation, collaboration, technology transition, and talent development in support of the United States' commercial and defense industrial base

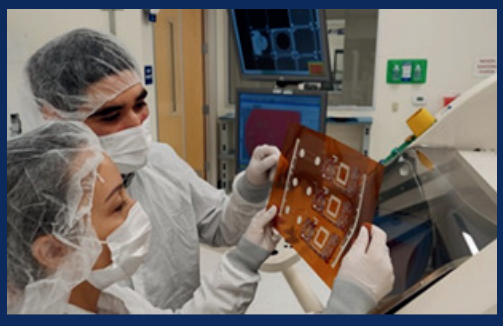
Delivered **58 prototypes** with up to tens of thousands of units to DoD and commercial customers

Solved **43 technology and manufacturing gaps** identified by 11 DoD and industry working groups

1,000+ individuals enrolled in NextFlex's 8 incumbent worker training programs for small and medium businesses

- NextFlex built the nation's only end-to-end hybrid electronics pilot line by integrating innovations from 60+ member projects, enabling additive electronic packaging, modules, and systems. This Silicon Valley-based hub has delivered 30+ prototypes supporting military rebuilding priorities.
- NextFlex's collaboration with a small business, defense prime, and university has yielded innovative antenna designs and manufacturing processes. These antennas, featuring reduced size and enhanced performance, are now being integrated into an ongoing aircraft platform upgrade program – establishing a new domestic production supply chain.
- NextFlex and Central New Mexico Community College created the Military Spouse Technical Training for Employment Mobility program to rapidly train military spouses and relatives for advanced manufacturing careers.
- Leveraging partnerships forged through NextFlex, small business Vigilife is launching the first U.S.-made intrinsically safe heat stress monitor, now field-tested at Fort Leonard Wood with early sales to the U.S. Marine Corps. This monitor will protect the warfighter by measuring and monitoring heat stress levels in potentially hazardous environments.
- NextFlex's FlexFactor K-12 outreach program has educated 25,300+ students across 12 states through engagement with 35 community college and education non-profits and in collaboration with 240+ companies integral to the U.S. manufacturing base.





"We wouldn't be doing hybrid electronics or U.S.-based manufacturing if it weren't for NextFlex. Their expertise, project funding, and ability to develop low-cost prototypes have been critical to our mission and the development of life-saving solutions. They've helped us network with numerous partners to advance our projects and product ideas."

– Zach Kiehl, CEO, Vigilife

REGENERATIVE BIOMANUFACTURING

BIOFABUSA

Advanced Regenerative
Medicine Manufacturing Institute

biofabusa

Established 2016
Manchester, New Hampshire
armiusa.org

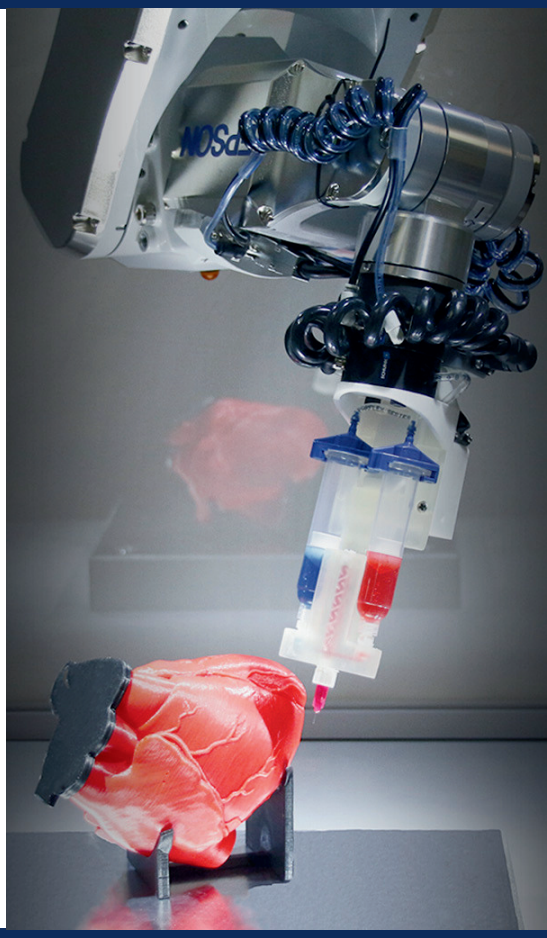
Making practical the scalable, consistent, and cost-effective manufacturing of cell-based products and training the United State's advanced biomanufacturing workforce

130+ patents filed for BioFabUSA research and development, product design, and manufacturing processes

Successfully solved **40+ major industry capability gaps** identified by **170+ members**

400+ novel technologies advanced through institute project calls

- BioFabUSA offers members access to its prototype Tissue Foundry, the world's only scalable, modular, automated, and closed platform for biofabricating cells, tissues, and organs to treat disease and injury.
- BioFabUSA with Safi Biotherapeutics and Sciperio successfully manufactured red blood cells in an austere setting (-40 degrees celsius), demonstrating critical manufacturing to overcome contested logistics on the battlefield. Safi Biotherapeutics has secured private investments to scale production and move operations to BioFabUSA's campus.
- BioFabUSA has automated the production of a cultured skin tissue product to promote healing in chronic wounds and burns. This scalable, closed system reduces contamination risk and increases batch size to meet clinical and commercial demand.
- BioFabUSA enabled Dimension Inc. to commercialize the first-ever 3D printed regenerative bone graft, restoring form and function after traumatic injury. Private investment continues to fuel the growth of the company's regenerative therapeutics and biomaterials pipeline.
- BioFabUSA's new, Department of Labor-approved Biofabrication Technician Registered Apprenticeship Program is accelerating workforce development in the biomanufacturing industry by providing a standardized pathway to high-demand careers.



"This whole experience has helped build confidence in many aspects of my life. My friends and family have been incredibly proud of my accomplishments within the program. This program has made me more excited for what the future holds for me. My fellow apprentices have provided me with many meaningful experiences while going through this process. I am so proud of every one of us for sticking with the program. I was happy to see all of us make it to the end of the whole [Biofabrication Technician Registered Apprenticeship Program]."

– Tim Kelley, Bioprocess Technician

ROBOTICS FOR MANUFACTURING

THE ARM INSTITUTE

Advanced Robotics
for Manufacturing

ARM INSTITUTE

Established 2017
Pittsburgh, Pennsylvania
www.arminstitute.org

Accelerating the development and adoption of robotics technologies that are the foundation of every advanced manufacturing activity today and in the future

Solved **100+** major robotics and automation technology gaps identified by **450 members**

80,000+ users annually access RoboticsCareer.org – *the only U.S. repository for robotics training* – with 17,000+ training programs and 2,000+ job postings updated 2x a week

40+ capabilities transitioned or transitioning into commercial or DoD use

- The Robotics Manufacturing Hub in the ARM Institute's Pittsburgh facility helps small and medium-sized manufacturers adopt robotics. The Hub de-risks investments, assesses solutions, and offers workshops on automation technologies like welding and inspection.
- The ARM Institute's Mixed-Reality Cloud Processor delivers 10x cost and time savings in aircraft paint taping and laser de-painting. It is now at commercial and DoD facilities, including Warner Robins Air Logistics Complex, Oklahoma City Air Logistics Complex, Naval Sea Systems Command, Naval Air Systems Command, and Letterkenny Army Depot.
- Warner Robins Air Logistics Center adopted an ARM Institute augmented reality interface for cold spray robotic systems. This innovation dramatically improves efficiency, achieving a 90% reduction in cold spray cycle time and generating $600,000 in annual operating cost savings.
- ARM Institute collaborated with Joint Robotics Organization for Building Organic Technologies to develop an autonomous drone swarm that enhances inspection quality and visualization of critical Navy assets.
- Warner Robins Air Logistics Center is using an ARM Institute-developed artificial intelligence-driven mobile robot to disassemble aircraft wings. This technology delivers a 10x labor reduction, 3x cycle time reduction, and improves worker safety.

"Joining the ARM Institute is one of the best decisions we've made as a business to date. By uniting with the vibrant ARM community, we're tapping into a wealth of cross-industry expertise to refine and advance our innovative learning systems. This partnership enables us to integrate…real-world insights into our development process, ensuring that every breakthrough not only pushes technological boundaries but also creates sustainable, transformative change across all industries."

– Matt Brown, CEO of ThoughtForge

BIOINDUSTRIAL MANUFACTURING

BIOMADE

Bioindustrial Manufacturing
And Design Institute

BioMADE

Established 2020
Twin Cities, Minnesota
Emeryville, California
www.biomade.org

Enabling domestic bioindustrial manufacturing at all scales, developing technologies to enhance U.S. bioindustrial competitiveness, de-risking investments in relevant infrastructure, and expanding the biomanufacturing workforce to realize the economic promise of industrial biotechnology

13 prototypes delivered to DoD for testing and evaluation in relevant systems

71% of research and development projects lead to new manufacturing technologies

250+ non-traditional companies connected to defense requirements

- BioMADE is developing natural rubber engineered from specialty dandelions to reduce U.S. reliance on foreign suppliers. Currently, over 90% of rubber is sourced from a single tree species overseas. Natural rubber is a critical defense material for aircraft and heavy vehicle tires.
- Partnering with Air Force Research Laboratory, BioMADE is developing a bio-cement to reduce the logistical complication of traditional cement. This method will effectively allow the Air Force to grow a temporary runway from liquid bacterial cultures.
- BioMADE launched the Warfighter-to-Scientist program at Travis Air Force Base to help service members and families transition into bioindustrial manufacturing careers, addressing the growing demand for bioeconomy jobs by 2030.
- A recent BioMADE project produced biologically derived magnetic nanoparticles (magnetosomes) with unmatched size and shape consistency. This breakthrough has potential applications in advanced electronics, batteries, and satellite communications.
- BioMADE is investing $400M in a network of bioindustrial pilot plants to advance domestic biomanufacturing, strengthening national security and fostering a robust bioeconomy by enabling U.S.-based production of critical chemicals and materials. BioMADE has announced the first two facilities in Minnesota and California.

"Working with BioMADE has allowed us to take risks, find creative solutions, and drive our products to commercialization."

– Paul Hill, Senior Vice President of Process Development & Engineering, Amyris

DISTRIBUTION STATEMENT A: Approved for public release: distribution unlimited. DOPSR #25-T-2395 (24 June 2025)