

Manufacturing Advancement Report
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Department of Defense – Accelerated Training in Defense Manufacturing (ATDM)

The ATDM 2.0 contract is expected to be finalized in the next couple of months as the Spectrum Group is finalizing the ATDM 2.0 evaluation report to complete the final deliverable. The period of performance ended in April of 2023.

The ATDM 3.0/4.0 contract was executed in December with an initial \$4.5M award. The remaining \$16.6M for the full 3.0 period of performance was executed in March, bringing the total ATDM 3.0 award to \$21.2M. Long lead equipment items are in the process of being procured. Three invoices have been submitted to date, with a fourth being prepared for submission. More than \$2M has been invoiced to date.

The contract for the Regional Training Center (RTC) was fully executed through Rock Island for \$37.7M. Along with the initial contract for the long lead items related to the RTC construction, this brings the total funded for the project to \$56.9M. Bids for long-lead items and construction have been received. The contractor bid, which came in over budget.

The first cohort of ATDM 3.0 began in March with 24 students and completed in June with 20 participants. The May cohort began with 61 students and the July cohort began on July 17 with 68 students.

Staffing needs to support the scaling of ATDM continue to be evaluated and modified to meet the needs of the program and the division. To support the staffing needs of instructors and technicians, these positions have moved from Danville Community College to the Institute, to allow for greater flexibility in recruiting, screening and hiring instructors in a timely manner.

DCC remains an integral partner supporting both instruction and students.

The initial A&E work remains on schedule for the development of the new Regional Training Center facility. The initial grading has been completed on the site and long lead materials and services are being procured. The bids for building one of the RTC have been returned and the value engineering process has begun. Due to inflationary costs, aggressive timelines, and federal flow down requirements resulted in higher than budgeted bids. An open date of April 2025 is still being targeted. Of note, the steel package to begin construction arrived at the site July 25th.

Initial discussions and plans to support active-duty NAVAIR training for Additive Manufacturing (AM) through the ATDM program are taking place. A contract has been awarded to support the next phase of this expanded opportunity for AM training at IALR. Curriculum development, instructor position descriptions and initial equipment identification are complete.

The Accelerated Training in Defense Manufacturing program supports the following functional areas of the Strategic Plan:

- Center of Excellence for Education & Workforce Development – ATDM is the pilot for a national network of accelerated training programs aimed at reducing “time-to-talent” for the defense industrial base (DIB) and filling critical skills gaps in defense manufacturing. As a national-in and national-out training platform, it partners with recruiting sources and industries nationwide.
- Globally Competitive Ecosystem – ATDM provides a robust level of industry engagement that allows industry to send students for training and place students in employment. As with previous models, such as Integrated Machining Technology, it has been shown that industry is interested in locating near training facilities to recruit workers at velocity and scale, which ATDM will produce. These trained individuals will support a workforce pipeline that will make the region more globally competitive.
- Collaborative Team Success – ATDM relies on external partnerships with recruitment sources, job placement entities, industry, and technology partners. The multiple subcontractors involved in making the training a success provide opportunities to collaborate with other internal divisions.

Department of Defense - Defense Manufacturing Community Support Program (DMCSP)

Patrick & Henry Community College (P&HCC) and Old Dominion University (ODU) continue to develop the Manufacturing Engineering Technology degree pathways. Regular status update calls to align the curriculum and coursework continue with the intent to further the Manufacturing Engineering Technology pathway concept developed in 2019. This effort will provide an engineering degree pathway for technical students. Industry partners are evaluating the current curriculum and a future meeting to discuss both input and recommendations is pending.

A new federal program manager for the DMCSP program began in July and will visit IALR and the partners in the DMSCP. The no-cost time extension was approved in July, extending activity for the grant through August of 2024, with a closeout period from August to September 30. Work continues with the development of the next phase of funding to expand the existing DMSCP activity, which is anticipated to be submitted June 2024.

Work continues with Danville Public Schools (DPS) for curriculum development and equipment procurement in the 9th and 10th-grade program. DPS is working with IALR/Pittsylvania County Schools to execute their portion of the DMCSP grant.

The Defense Manufacturing Community Support Program grant supports the following functional areas of the Strategic Plan:

- Virginia's Go-To Partner for Business and Economic Growth – DMCSPP supports the Virginia Maritime Industrial Base Consortium (VMIBC) as a leading hub for developing skilled workers and the engineering workforce for the maritime industry in Virginia; supports local, regional, state, and national economic development through the designation as a Defense Manufacturing Community (DMC) and the collaborative partnerships created through the VMIBC; IALR serves as the convener of partners to execute the DMCSPP grant, providing the ability of IALR to be the go-to partner for the Virginia Department of Veterans and Defense Affairs in developing and enhancing workforce development pipelines that support Virginia's business and economic growth plans.
- Center of Excellence for Education & Workforce Development – DMCSPP supports education & workforce development through the DMC ecosystem which provides a K-12 to university and beyond workforce training system. This includes career connections, high school, community college, university and adult learner options for training students to support the Virginia maritime industry. DMCSPP creates a pipeline for manufacturing engineering technologists and provides continuous improvement into training programs that rely on industry needs. The mission of the VMIBC (the designated DMC community) is to increase manufacturing capacity, capability, resiliency and diversity in the maritime industrial base by creating a cross-region, K-12 to university training pipeline for skilled workers and manufacturing engineers.
- Globally Competitive Ecosystem – DMCSPP advances and connects businesses in the region through a strong collaborative network of industry, government and academia. DMCSPP will increase the supply of skilled labor and manufacturing engineers that will help to close manufacturing skills gaps, address workforce shortages, build manufacturing capacity and capability, and modernize the workforce to enable the industrial base to fully support the Navy's sustainment and shipbuilding needs. This will position the Commonwealth to be globally competitive in attracting manufacturing industries that are aligned to the skills within the pipeline.
- Collaborative Team Success – DMCSPP strengthens collaborative, regional education partnerships (ODU, P&HCC, Virginia State University and K-12 school divisions in Southern Virginia and Hampton Roads) and supports internal collaboration through the integration and expansion of GO TEC into the Hampton Roads region through the DMCSPP partnership.

Center for Manufacturing Advancement (CMA)

On October 5, 2022, the US Navy announced that their Additive Manufacturing Center of Excellence (AM COE) will be located at IALR's CMA facility. This team will support Admiral Scott Pappano's goal of additive manufacturing components on US Navy submarines with commercialization into the supply chain by 2025. This includes Virginia manufacturers. In addition to IALR, the AM COE will be home to these partners: Austal USA, Phillips Corporation and Industrial Inspection & Analysis, Inc. The project is currently under contract with deliverables that include developing the concept of operations, onboarding initial staff and initial equipment procurement. The third purchase order with Austal was executed to continue activity for the AM COE through September of 2023. Equipment to support the computer numerical control (CNC) optimization lab for IALR in the AM COE has been ordered and a CMA Operations Manager to support activity has been hired. Phillips has taken occupancy of their two bays and has commenced activity towards the project. Austal and IIA are in the process of finalizing the lease agreements and will begin activity soon after agreements are signed.

To support the security of the facility, faculty and staff must complete International Traffic in Arms Regulations (ITAR) training to receive badge access to the CMA. To date, three training sessions have been completed led by the Director of Digital Manufacturing, Butch Kendrick. A training package to help board members understand the implications of ITAR security protocols is being developed.

The Industry 4.0 lab electrical feed discrepancies have been corrected. The vendor set-up of the Haas machines and the Mitutoyo Coordinate Measuring Machine (CMM) are complete and data drops to all equipment are installed and verified. Equipment Integration continues in the lab. Additionally, the configuration of the Manufacturing Execution System is ready to begin with an anticipated completion date of December 15, 2023.

The evaluation of capital equipment requirements to support the optimization lab is continuing to progress. We have issued two contracts that will help us ensure ITAR compliance in the CMA.

IALR Staff are now occupying office space in the CMA.

The Center for Manufacturing Advancement supports the following functional areas of the Strategic Plan:

- Virginia's Go-To Partner for Business and Economic Growth – The CMA supports Virginia manufacturers in their pursuit of manufacturing optimization and innovation. The CMA offers technical expertise, lab space, equipment and a collaborative environment to help existing and new Virginia manufacturers increase productivity that has direct economic impact. The CMA serves as a centralized resource of emerging, production ready technologies to help drive the success of Virginia manufacturers. The US Navy AM Center of Excellence within the CMA is expected to support additional companies in their ability to produce AM parts for Navy submarines, including companies in Virginia.
- Center of Excellence for Education & Workforce Development – Through efforts connected with ATDM, the CMA's AM COE will connect ATDM graduates with Additive Manufacturing (AM) jobs related to the Submarine Industrial Base (SIB). These connections will support the recruitment and placement efforts of ATDM. These connections will also support the US Navy and the SIB's effort to modernize the workforce and prepare for increasing AM production.
- Globally Competitive Ecosystem – The CMA will allow businesses in Virginia to be globally competitive through innovations in current and new manufacturing processes. The AM COE at CMA will also support a globally competitive ecosystem through development of innovative additive manufacturing strategies, technical data and processes.
- Collaborative Team Success - The CMA serves as the go-to hub for manufacturing advancement and innovation for Virginia businesses and beyond. The CMA will bring internal and external partners together to form a cohesive group of manufacturing experts, technical partners, business leaders and government officials. These partnerships and collaboration will drive the projects and programs at the CMA. The projects and programs will lead to positive return on investment for IALR and project partners. Revenue generated through CMA projects will help support the Manufacturing Advancement division as a whole and help provide the required resources to remain industry relevant and globally competitive.

Specialized Training

Dylan Hardy, who has been promoted to Manager of Training and Technology, continues to offer Haas Technical Education Center (HTEC) training. The schedule for 2023 has been developed and material requirements are being finalized. Training for 2023 is on track to outpace 2022 output numbers. In addition to in-house training for instructors to travel to Danville to receive training, the Gene Haas Foundation is finalizing plans to allow Hardy and other teacher training instructors to travel to provide training to a specified number of instructors in their facilities on their equipment. Hardy is also supporting the procurement of consumables and training requirements of the ATDM program as part of his new role.

A team from IALR and DCC attended the Annual HTEC Americas Conference in Fort Smith, AR. Hardy presented a workshop on the teacher training program. The team worked to strengthen and deepen relationships with other training providers, leadership from the Gene Haas Foundation and multiple industry and technology partners in attendance.

Specialized Training supports the following functional areas of the Strategic Plan:

- Virginia's Go-To Partner for Business and Economic Growth – As one of four HTEC training centers in the country, IALR serves as the Go-To teacher training facility for Virginia.
- Center of Excellence for Education & Workforce Development – The mission of HTEC is to provide a collaborative space in which we collectively develop, deliver, and disseminate the best educational methods and techniques for CNC education in the world. The goal is to drive the upskilling of manufacturing educators, and transform CNC classrooms into modern, high-tech advanced manufacturing labs that both encourage students to seek successful careers in CNC and related fields and ensure that these students are well-equipped when they enter the field. The goal of specialized training within the manufacturing advancement department is to be the Go-To training provider on CNC and related machine technologies, including the upcoming Industry 4.0 integrations within the CMA.
- Globally Competitive Ecosystem – As a partner for the HTEC network and Phillips Corporation, the training facility at IALR serves as a global benchmark as Haas expands into other countries and provides the potential to be a train-the-trainer provider for global Haas activity.

Integrated Machining Technology

The Integrated Machining Technology (IMT) program completed its most recent cohort in March. The Director of Digital Manufacturing, Butch Kendrick, worked with IMT instructors to incorporate an activity with the autonomous robotic cart into the curriculum to expose students to automated processes. Students participated in the new training with the cart in the spring. DCC has posted the Director of Integrated Machining Technology position. In the interim, Jeremiah Williams is still supporting the training as needed to ensure continuity. Additionally, plans are underway to pursue updates to the curriculum for the IMT program to ensure that it remains at the forefront of technology and training as an advanced level program. The new cohort is expected to begin in August.

The Integrated Machining Technology program supports the following functional areas of the Strategic Plan:

- Virginia's Go-To Partner for Business and Economic Growth – IMT has supported extensive business and economic growth in the region by highlighting the ability of the region to train a workforce that can meet demands at multiple levels, from the work floor technician to front line management and beyond. The IMT program is the advanced level training and culmination of the workforce pipeline that begins in middle school. It has been identified as one of the reasons that multiple companies have located in the region and has been the catalyst for allowing IALR

to support these companies through rapid launch space and concierge services.

- Center of Excellence for Education & Workforce Development – The IMT program has been a national benchmark for advanced training in CNC machining for years and delegations from multiple states and countries have visited to learn more about how to execute similar programs. The continuous improvement and adoption of current technology allows this program to support the strategic goal of being a center for excellence for education & workforce development.
- Globally Competitive Ecosystem – Technology in manufacturing is rapidly evolving. Providing relevant training in support of industry needs is critical as technology and processes continue to modernize. It is a key factor in providing a globally competitive ecosystem. IMT supports this goal by remaining at the forefront of technology and training and ensuring that students can enter the workforce and provide innovative solutions to workforce challenges.

Manufacturing Advancement Staffing

Staff hired this quarter:

Debbie Fuchs	Manager, Strategic Marketing & Communications
Kevin Thompson	CMA Operations Manager
Moises Vivas	INTERN (Manufacturing)
Michael Walker	ATDM Welding Technician
Tim Holland	ATDM CNC Machining Technician
James Hook	ATDM CNC Machining Instructor
Tara Bailey	ATDM Welding Instructor
Phillip Bowers	ATDM NDT Instructor
Jason Boyd	ATDM CNC Tech
Darrell Buchanan	ATDM Welding Instructor
Christopher Carter	ATDM NDT Instructor
Wesley Cifers	ATDM CNC Instructor
Tanner Cole	ATDM Welding Tech
Eric Collie	ATDM AM. Instructor
Robert Eanes	ATDM CNC Tech
Hector Garcia	ATDM Welding Tech
CJ Gauldin	ATDM Welding Tech
Jarrod Hankins	ATDM Metrology Instructor
Daniel Hyler	ATDM AM Tech
John Keatts	ATDM Welding Lead
Justin Owen	ATDM CNC Instructor
Brian Penny	ATDM Welding Instructor
Alex Wilson	ATDM Welding Instructor

Upcoming hires:

Gary “Brian” Greene	ATDM Welding Instructor	(Aug 7)
Rodrica Clark	ATDM Industry Senior Support Specialist	(Aug 23)
Robbie Jones	ATDM Welding Instructor	(Aug 23)
Maiwand Hashimi	ATDM Afghan Support Specialist	(Aug 23)

Additionally, there are 20 open requisitions in the Manufacturing Advancement Division:

Manager, Digital Manufacturing
CNC Machinist
CMA Desk Specialist
NAVAIR Additive Manufacturing Instructor
ATDM Assistant Director, Student Services
ATDM CNC Machining Instructor
ATDM CNC Machining Technician
ATDM Industry Outreach Coordinator
ATDM Student Placement Coordinator
ATDM Systems Administrator
ATDM Student Support Specialist
ATDM Recruitment Specialist
ATDM Housing Support Specialist
ATDM Admissions Counselor
ATDM Recruitment Specialist
ATDM Housing Support Specialist
ATDM Admissions Counselor
ATDM Welding Technician
ATDM Welding Instructor
ATDM Metrology Lab Technician
ATDM Metrology Instructor
ATDM Additive Manufacturing Instructor
ATDM NDT Instructor

Additional Contributions to the Strategic Plan

In addition to the previously mentioned programmatic supports to the strategic plan of IALR, the Manufacturing Advancement division also supports the plan in the following areas:

- Excellence in Board Leadership - All projects strive for transparency with the Board by providing needs, successes and areas of support required that allow the board to serve as community champions, share successes and stories and support public and private funding support which promotes excellence in board leadership as the board conducts these strategic activities.
- Strategic Expansion of Applied Research and Culture of Learning - The Manufacturing Advancement division encapsulates a culture of learning in all projects. It fosters innovation and encourages continued efforts to remain current on the knowledge of existing and emerging technologies, and new processes, as well as funding and leveraged resource opportunities. This culture of learning extends beyond the excitement to learn and grow -- to the execution and implementation of identified innovations and technologies. With new and emerging technologies, the Manufacturing Advancement division actively looks for ways to support applied research through the support of manufacturing capabilities.

Key Meetings for Manufacturing Advancement During this Quarter

- Conducted Completion Ceremony for ATDM Cohort 23B on June 27
- Provided onboarding/orientation for Cohort 23D on July 17
- Supported 15 industry visits for ATDM and Manufacturing Advancement
- Hosted an AUKUS (Australia/United Kingdom/United States Submarine Pact) delegation visit
- Supported four Economic Development site visits
- Hosted staffers from the office of Senator Tim Kaine
- Participated in site visits from Appalachian Ohio Manufactures Coalition, Sorenson Institute and LEAD Virginia
- Completed Process Review evaluation from Director, Submarine Industrial Base, Program Executive Office – Strategic Submarines