



Supporting Army Readiness with the Advancement of AM DT Capability

America's soldiers must be tactically and operationally ready to perform their duties whenever and wherever the mission calls upon them to do so. This readiness requires them to tap into the U.S. Army Material Command's (AMC)'s global supply chain, which synchronizes logistics and sustainment activities across the Army. The AMC's mission — develop and deliver material readiness solutions to ensure globally dominant land force capabilities for our nation.

In 2021, the U.S. Army Material Command, through its Logistics and Modernization Program (LMP), launched its fully operational, Additive Manufacturing Digital Thread (AM DT). This 3D printing is just the foundation for its readiness and allows the Army Global Combat Support System (GCSS) to call up the "data set" (data and image files) users need to replicate a part, enter this specification information into the printer, and then produce the part and hand off to the unit in need.

Challenge

Wanting to fully realize the capability of AM DT, the AMC needed technology solutions know-how to determine how best to implement learning outcomes from various studies, expert recommendations and the resulting data sets that could produce repair parts. Often, in these environments, teams must use unique ways to create or repair equipment or parts. Additive Manufacturing (AM) is a term for one way of fulfilling those needs. AM establishes cutting-edge ways to deliver supplies including the sharing of data and events associated with the life of a part also known as the "digital thread" (DT).

Services Provided:

- Precise documentation of critical process flows based on significant government business understanding with future use implications
- Implementation of technical, business and security analysis, portal administration with training expertise for 11 dedicated team members
- Designation of system course curriculum and materials for end user, web-based training



Success Achieved:

- Delivered first SAP Fiori, web-based LMP system user interface for ease of use and controlled system access.
- Completed development five months ahead of schedule
- Provided system capabilities allowing for searching existing records, proposing new records, and recording of print events and serialization



The AMC Supply Chain Management Directorate led a team of expert partners to establish the solution's foundation and support several functions critical for optimized AM DT capabilities including:

- Optimization of processes for submitting AM Candidates
- Designation of numerous authorized user classifications within the Army enterprise to include:
 - » Program and Product Managers
 - » Combat Capabilities Development Command and Subordinate Engineering Support Activities
 - » HQ AMC Life Cycle Management Commands
 - » Organic Industrial Base (OIB) Sites
 - » Soldiers in the Field
- Certification and standardization of all 3D printed parts and materials.
- Protection of the Repository for Additive Parts for Tactical and Operational Readiness (RAPTOR) system to meet the LMP systems, application and products (SAP) required standards for security.
- Recognition and understanding of potential future phase development requirements for a comprehensive solution set to including cloud and AI capabilities.

Approach

Maximus is a deeply trusted partner of the Army with a proven track record of success. Through key internal and external collaboration with strategic partnerships, our team provided substantive enhancements to the agency's LMP. We supported the initiative to determine the best delivery path for AM DT capability access for key stakeholders in Army Materiel Command Headquarters to field staff across the globe including:

- Migration of the legacy RAPTOR 3D library to a secure LMP (SAP) system for secure cataloging, storing and certifying the data and 3D parts via a Document Info Record (DIR).
- Addition of risk attributes and back-end security to the DIR securing the ability to download 3D files to only authorized users.
- Activation of Development Command team approval and notification steps in the request process upon part data set request submission and download.
- Documentation of delivery process diagrams detailing current and future states of the solution with Change Requirements Document (CRDD) tracking.
- Development of end user, web-based training and materials for the Army Learning Management System with continuous improvement monitoring.

Results

In August of 2022, the commanding general of U.S. Army Materiel Command approved the deployment of LMP's 3D printing data solution to integrate its data repository with the Defense Logistics Agency's Joint Additive Manufacturing Model Exchange, or JAMMEX, system. The JAMMEX system, developed by a highly capable and advanced team of partners including Maximus, enables the Army to push 3D print data and make it available to the other military services.

Our Nation's soldiers now have the ability to search for and download data to support advanced manufacturing of complex and critical parts on demand and near the battlefield, anywhere in the world. Additionally, Soldiers can print parts to replace critical stock items that might experience delayed supply issues due to delivery disruptions.

We can empower you to innovate with agility and scale, delivering impactful outcomes and exceptional customer experiences. Learn more at maximus.com/defense.

maximus