



CASE REPORT // DEFENSE INDUSTRIAL BASE // U.S. ARMY

# Printing is easy — control is not.

The U.S. Army has committed a \$7.5 million Phase I Task Order to validating IP-protected distributed additive manufacturing. Automation Alley leads design and validation, NCDMM is prime contractor, and Markforged and Fraunhofer USA are executing partners.

**\$7.5M**PHASE I TASK ORDER  
WITH A BASE AND OPTION**300**PROJECT DIAMOND  
PRINTERS AWARDED TO DATE**2020**NETWORK ESTABLISHED  
CONTRACT CAME FIVE YEARS  
LATER**IBAS**INDUSTRIAL BASE ANALYSIS  
& SUSTAINMENT · NCDMM IDIQ

## BLUF — BOTTOM LINE UP FRONT

- 01 What the Army is buying is not parts. It is **proof that a file stays controlled after it leaves**. Phase I must deliver a secure digital manufacturing environment the government can validate.
- 02 What kept distributed manufacturing out of the defense system was never the printing technology. **It was the data** — manufacturing instructions are the weapon system's intellectual property.
- 03 The network under validation **has run for five years and has been mobilised in earnest once**. Markforged supplied its original printers.

## 01 // The Gap

WHY SUSTAINMENT STALLS

Automation Alley names three pain points: legacy defense components frequently face **supply chain disruptions, long lead times and limited domestic production capacity**. In a sustainment system those three are one problem. A component out of production for a decade may have no active manufacturer, no surviving tooling and a single qualified supplier. A part of trivial value can hold a vehicle, a vessel or an aircraft in place for weeks or months.

The traditional hedge is inventory — trading capital, space and obsolescence for time. Additive manufacturing offers another route: **hold the file, not the part**, and make it near the point of need. The idea is not new. What kept it out of the defense system was never the printing technology but the **data**: manufacturing instructions are the weapon system's intellectual property, and once released, the design is gone.

**“Phase I gives us the opportunity to demonstrate, in a real and rigorous way, that secure distributed additive manufacturing is not just possible — it is ready.”**

TOM KELLY · EXECUTIVE DIRECTOR & CEO, AUTOMATION ALLEY · FROM THE 15 OCT 2026 ANNOUNCEMENT



**Distributed manufacturing ends at the using unit, not at a factory.** Where a part is needed is where it should be made — the premise the whole architecture has to serve. (Official Markforged record imagery)

## 02 // Streaming Manufacturing

## THE APPROACH

The announcement's own subhead states the nature of it plainly: a **streaming, IP-protected manufacturing network**. Automation Alley calls it **streaming manufacturing**, and the announcement draws the analogy explicitly: **as digital media is securely licensed and streamed**, so manufacturing instructions are streamed to the point of production — controlled, licensable, revocable.

The force of the analogy is not the technical form but the relationship it implies — streaming has never meant handing over the file. If the logic holds, what the military procures shifts from parts to the right to use capacity: a different relationship from conventional defense procurement.

## PHASE I TECHNICAL WORK

T-01

**Encrypted workflow**

A secure encrypted digital workflow architecture aligned to CMMC and NIST

T-02

**Candidate validation**

Identify and validate polymer and metallic weapon system components

T-03

**Qualified production**

Produced using validated processes — not samples, qualified parameters

T-04

**SPR end-to-end**

Smart product recipes transferred securely, with a QA recipe per part

## ▲ TERMS: IBAS AND SPR

**IBAS (Industrial Base Analysis and Sustainment)** The U.S. Department of Defense program for strengthening the defense industrial base — capacity gaps, supply chain vulnerabilities and urgent operational needs. This Task Order sits under it, administered through the NCDMM IDIQ vehicle.

**SPR (Smart Product Recipes)** The core deliverable. Not merely a geometry file, but how the part is made packaged together with the evidence that it was made correctly, transferred end-to-end to distributed manufacturers.



**A node that travels.** The X7 Field Edition packs into ruggedised transport cases and can run off grid — a node on a distributed network does not have to be a building. (Official Markforged photography)

03 // What Phase I Must Prove

DELIVERABLES

SPR

SMART PRODUCT RECIPES  
TRANSFERRED END-TO-END

CMMC

CYBERSECURITY MATURITY  
MODEL CERTIFICATION

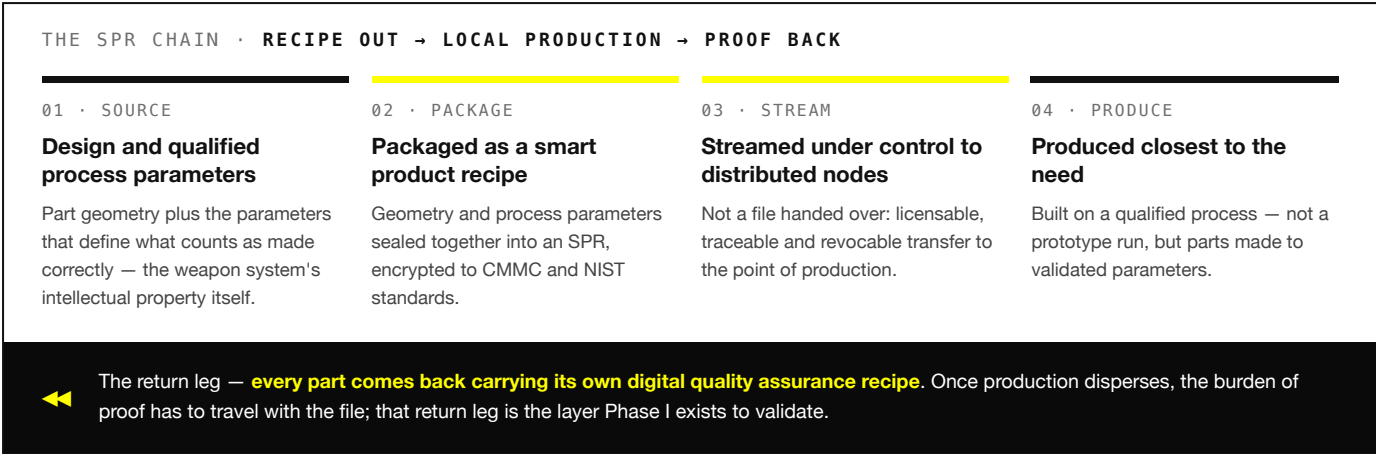
NIST

NATIONAL INSTITUTE OF  
STANDARDS AND  
TECHNOLOGY

QA / part

A complete digital  
quality  
assurance recipe per  
part

The core deliverable is stated precisely: **demonstrating secure, end-to-end transfer of smart product recipes to distributed manufacturers, with complete digital quality assurance recipes for each part produced.**



That binds two things the industry has long kept apart. How the part is made is one question; why anyone should believe it was made correctly is another. Under centralised production the second was carried by supplier qualification, audit and batch records. Once production disperses, that machinery of proof must **travel with the file**. It is the hinge on which defense acceptance turns: without a new carrier for the burden of proof, what has been distributed is not just capacity but risk.

|               |                                                                                     |
|---------------|-------------------------------------------------------------------------------------|
| PROGRAM       | IBAS · administered through the <b>NCDMM IDIQ</b> contract vehicle                  |
| PHASE / VALUE | <b>Phase I — design and validation</b> · Task Order <b>\$7.5M</b> (Base and Option) |
| SUPPORTS      | <b>U.S. Army</b> — modernizing defense supply chain sustainment                     |
| PART CLASSES  | Polymer and metallic weapon system components                                       |
| STATUS        | Design and validation · <b>not yet in production deployment</b>                     |

▲ ATTRIBUTION · READ BEFORE CITING

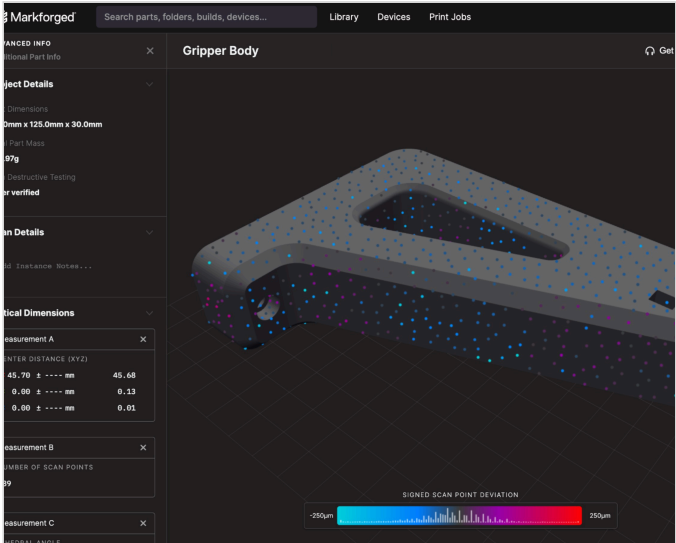
The **awardee is Automation Alley** and the **prime contractor is NCDMM**; Markforged is one of the executing technology partners. **The \$7.5 million is Automation Alley's Phase I Task Order value**, not a contract value or revenue for any partner. The announcement discloses no lead times, costs, parts list or machine models, and none are estimated here.

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PRIME CONTRACTOR   | <p><b>NCDMM</b> National Center for Defense Manufacturing and Machining — contract management; also manages <b>America Makes</b>, which the announcement calls the nation’s leading public-private partnership for AM technology and education</p> <p>Seven locations nationwide · also manages Youngstown Innovation Hub and El Paso Makes · a subsidiary of the Manufacturing Technology Deployment Group (MTDG)</p> |
| TASK ORDER Awardee | <p><b>Automation Alley</b> Michigan’s Industry 4.0 knowledge center (4,000+ members, Troy) — leads design and validation of the secure environment</p>                                                                                                                                                                                                                                                                 |
| TECHNOLOGY PARTNER | <p><b>Markforged</b> described in the announcement as a <b>leading provider of industrial AM systems</b></p>                                                                                                                                                                                                                                                                                                           |
| RESEARCH PARTNER   | <p><b>Fraunhofer USA</b> U.S. arm of the Fraunhofer-Gesellschaft · described in the announcement as a <b>world-class applied research organisation</b></p>                                                                                                                                                                                                                                                             |
| INITIATIVE         | <p>Automation Alley’s flagship defense initiative <b>Project DIAMOnD</b></p> <p>Distributed, Independent, Agile Manufacturing on Demand</p>                                                                                                                                                                                                                                                                            |

Automation Alley describes the combination as bringing together **complementary expertise in AM technology, cybersecurity and manufacturing process validation**. Each organisation supplies one piece: contracting and industrial policy through NCDMM, design and validation of the digital environment through Automation Alley, manufacturing capability from Markforged’s industrial systems, and applied process and materials research from Fraunhofer USA.



**The piece Markforged supplies is manufacturing capability.** A node has to be deployable to where the need arises — the equipment itself has to leave the factory floor. (Official Markforged photography)



**Evidence has to live in the workflow.** Once a part becomes a controlled file, verification cannot be an afterthought. Scan deviation and critical dimension verification. (Official Markforged platform capture)

## 05 // Precedent

PRECEDENT

What is under validation is not an architecture diagram. **Project DIAMOnD has run for five years, and has been mobilised in earnest once.**

#### 2020 Network established (CARES Act funding)

Automation Alley builds a distributed manufacturing network, initially to accelerate digital transformation among Michigan manufacturers and strengthen PPE supply chains. **Markforged supplied the first wave of printers.**

#### SCALE 300 3D printers awarded to date

Across automotive, aerospace, industrial machining and consumer products manufacturers in Michigan. Each uses its printer for its own parts; for emergency orders the network is mobilised as a whole.

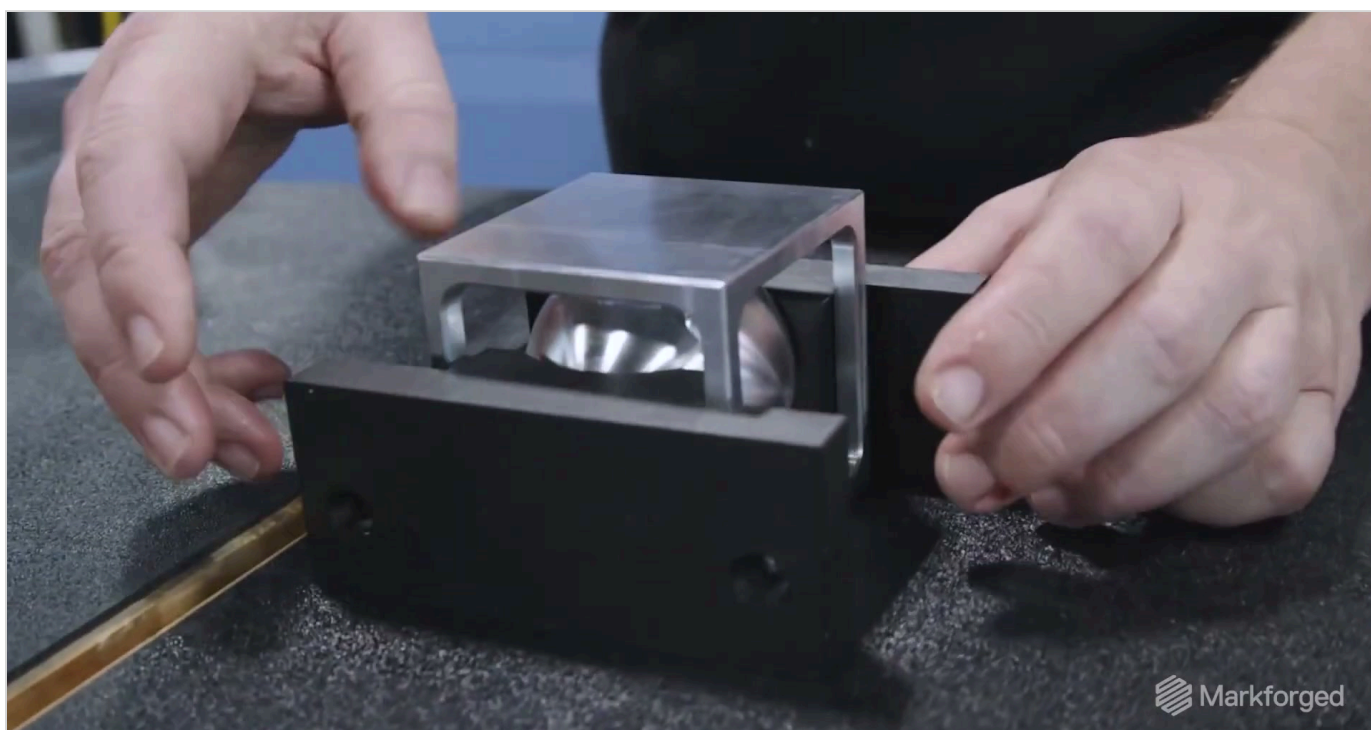
#### PROOF Mobilised: tourniquet parts for Ukraine

The emergency order documented on Automation Alley's own programme page — the network is not a diagram; it has been activated.

#### 2026 IBAS Phase I Task Order (this programme)

Five years on, a network already running faces the layer never formally validated: **data security, and proof of quality.**

Three things must hold at once for a defense system to accept distributed manufacturing: the end node must be **deployable**, part quality must be **provable on the spot**, and the chain must **clear government-grade security standards**. The first two are manufacturing questions. The third is the layer Phase I actually adds — and the reason digital inventory has stayed conceptual for a decade.



**Capability is built first and needed afterwards.** This network started in 2020; the contract came five years later. The order does not reverse — a capability first built when the need appears is already too late. (Official Markforged photography)



# Distributing capacity also means distributing the burden of proof.

DISTRIBUTED CAPACITY, DISTRIBUTED PROOF.

What \$7.5 million buys is not a demonstration that parts can be printed — that stopped being the question years ago. It buys proof that manufacturing instructions can reach distributed factories without the intellectual property leaving anyone's control, and that every part made comes back carrying its own evidence of quality. Once that logic is validated against government-grade standards, it will not stay inside defense.

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## SOURCES

Automation Alley — “Automation Alley Awarded Contract to Advance Secure Distributed Additive Manufacturing” (PR Newswire, 2026-10-15)

Automation Alley — Project DIAMOnD programme page · 3Dnatives — “Markforged Provides 3D Printers for Project DIAMOnD” (2021-01)

Note: all contract facts (value, phase, programme name, technical scope, partner roles and the quotation) are drawn from the Automation Alley announcement of 15 October 2026; Project DIAMOnD's founding year, printer count and emergency mobilisation are from its official programme page. Industry commentary prepared by Markforged Greater China. The awardee is Automation Alley and the prime contractor is NCDMM; Markforged is one of the technology partners, and the \$7.5 million is Automation Alley's Phase I Task Order value. The statutory name of the department remains the U.S. Department of Defense. Image copyrights remain with their respective owners.