

Establishing Sovereign Infrastructure for the \$1.06 Trillion Aerospace Economy

AI-Augmented Point-of-Use Manufacturing for Aerospace & Defense

THE MARKET

Total Market: **\$1.06T** (2032)
Aftermarket: **\$53B**

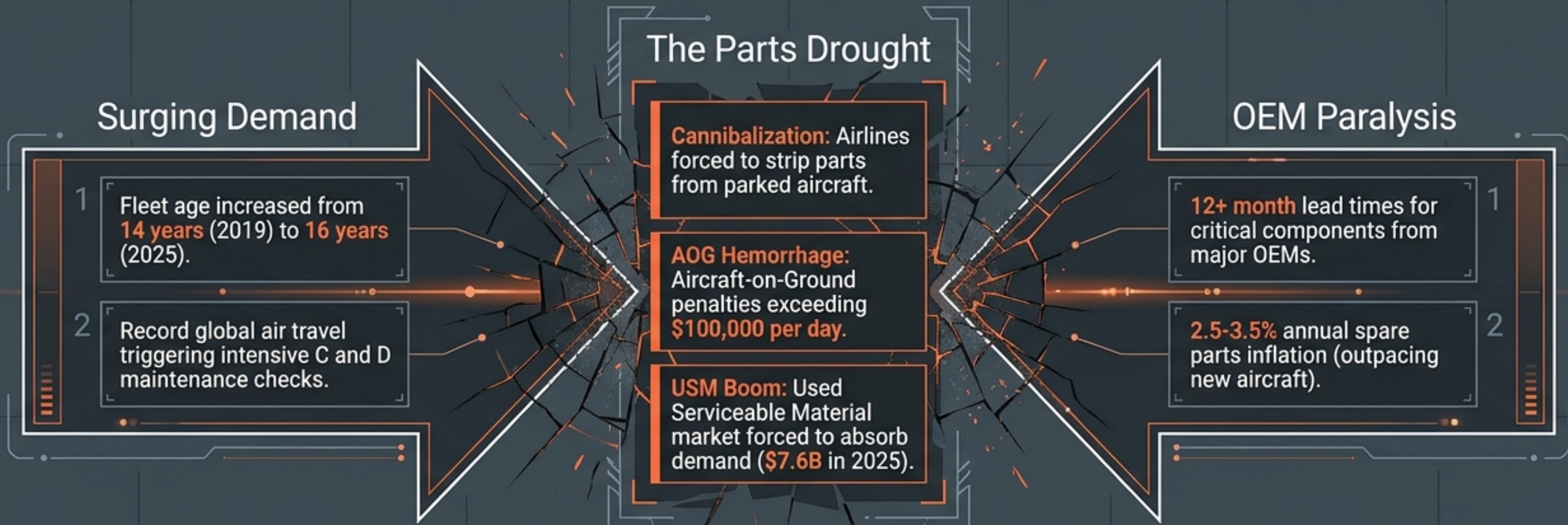
THE PARADIGM

Objective: Decentralize production
from Just-in-Time to mathematically
verified Point-of-Use.

THE SOLUTION

Technology: Air-gapped, AI-augmented
additive manufacturing via the
DeReticular Sovereign Forge.

The Global Fleet is Aging Faster Than the Supply Chain Can Replenish



Traceability Has Transitioned from a Feature to a Premium Currency

The Breakdown of Trust

The 2023-2024 AOG Technics Scandal

- Thousands of parts sold with falsified FAA Form 8130-3 airworthiness tags.

Paper-based historical records are a critical vulnerability.

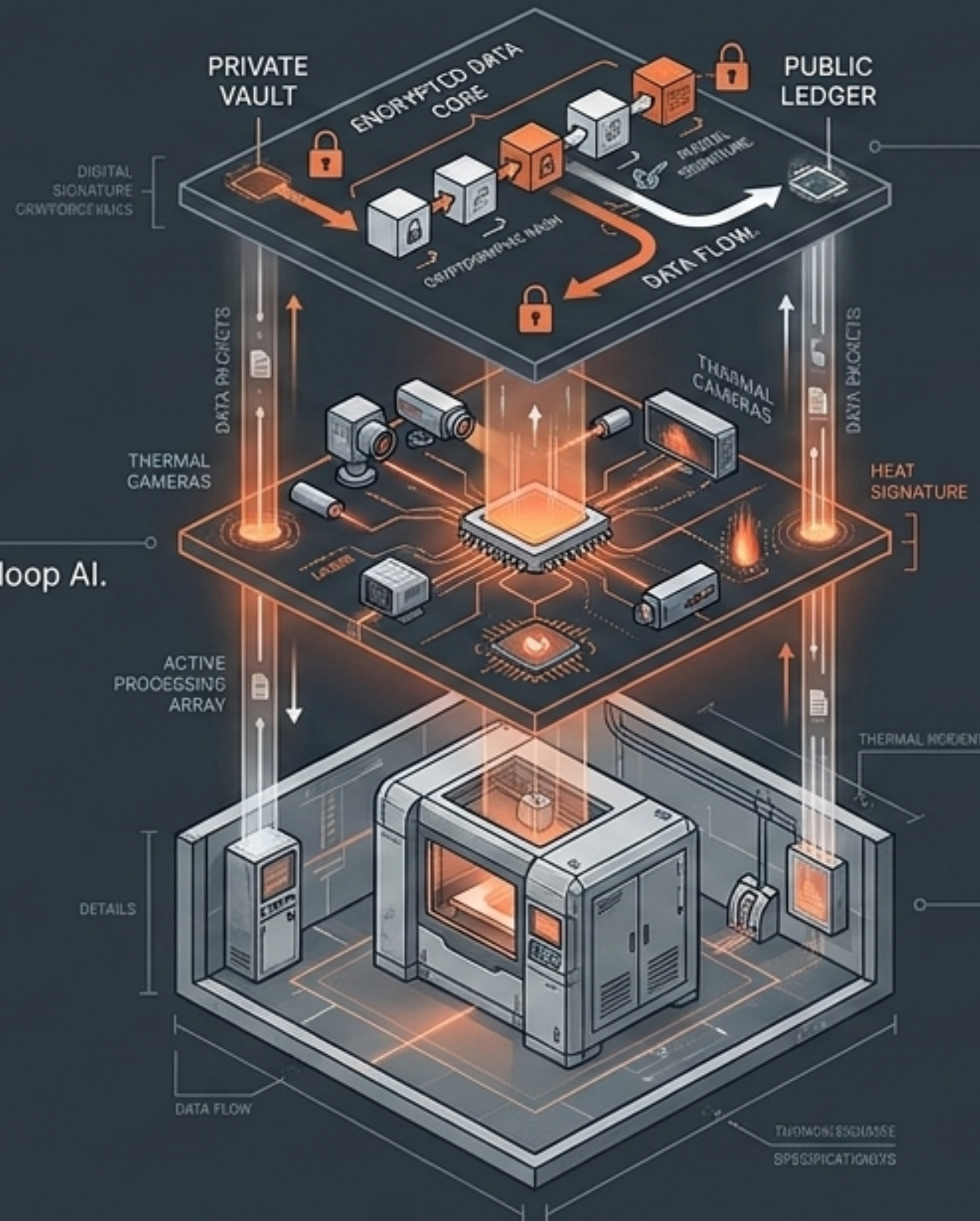
The 2026 Regulatory Reality

1	FAA Reauthorization Act (2024) →	Mandates unannounced inspections for the 977 FAA-certified foreign repair stations.
2	FAA Final Rule (Dec 2024) →	Mandates drug & alcohol testing compliance by December 20, 2027.
3	The Industry Mandate →	The Dirty Fingerprint: Mathematical, back-to-birth digital trails are now required to operate.

The Sovereign Point-of-Use Manufacturing Cell Architecture

AEROSPACE ENGINEERING BRIEFING

6x3C5A8D9F21E



Top Layer: Split-Ledger Infrastructure

- Private encrypted vault for CAD / G-Code.
- Public Locutus Ledger for publishing immutable Proof of Quality.

Middle Layer: Sovereign Forge Node (SOV-AUTO-FORGE)

- High-speed thermal cameras and closed-loop AI.
- Transforms a passive printer into an active robotic inspector.

Base Layer: Specialty AM Printers

- Integration with **Velo3D** / **Markforged** systems.
- Optimized for Laser Powder Bed Fusion (LPBF) and Directed Energy Deposition (DED) of **Refractory Metals** (Tungsten, Rhenium, Inconel).

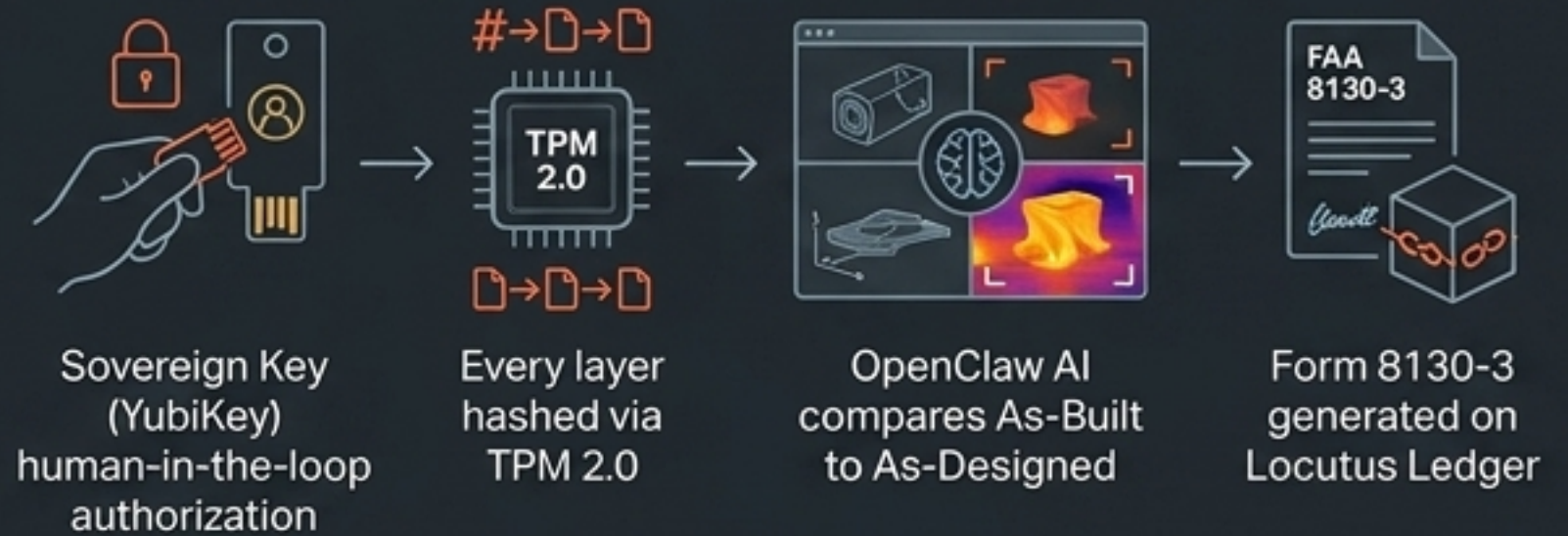
Automating the FAA Inspector and Air-Gapping Proprietary IP

Ephemeral Decryption



The foreign repair station never owns the file. The intellectual property mathematically cannot be extracted.

The Automated Notary



Generates the digital Airworthiness Approval Tag based on irrefutable real-time sensor logs.

Contested Logistics: Decentralizing Defense Drone Manufacturing

1

TARGET COMPONENTS:

Titanium-Aluminide and Tungsten-carbide propulsion mounts and heat shields.

TELEMETRY:

MAT-ID: TiAl-98X / W-C-32Z.
MELT POINT: 3,422 C (W) / 1,600 C (TiAl).
CRITICALITY: EXTREME
LOAD: 14G SUSTAINED.



2

APPLICATION:

High-speed, high-altitude tactical and industrial drones (thermal management is the primary failure point).

TELEMETRY:

OP ALT: >60K FT.
VELOCITY: MACH 2.5+.
THERMAL GRADIENT: 1200 K/m.
MTBF (THERMAL): <50 HRS.
MISSION PROFILE: ISR/STRIKE.

3

THE FORGE ADVANTAGE:

Manufactured and verified on-site in contested logistics zones. The drone frame is guaranteed airworthy instantly without needing a secondary inspection facility.

TELEMETRY:

MFG LOC: FORWARD OPERATING BASE (FOB-7).
LEAD TIME: 4-8 HRS.
VERIFICATION: AI-DRIVEN IN-SITU SENSOR SUITE.
CERTIFICATION: FAA 8130-3 (INSTANT).

THE MONETIZATION ENGINE: SELLING TIME AND TRACEABILITY

HARDWARE LEASE

Base Node Infrastructure

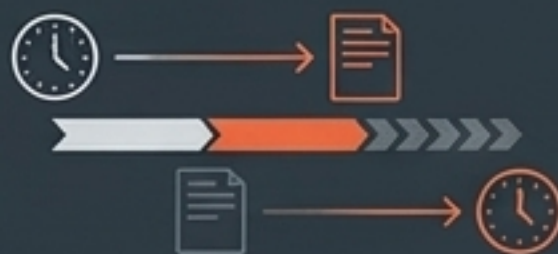
Base Forge Node lease (\$50k/year) applied to partner OEM machines.



AI SaaS

Time-as-a-Service

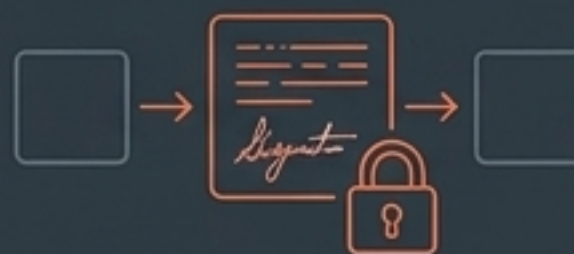
Airlines and lessors pay to compress 18-month lead times into 48-hour localized print windows.



TRANSACTIONAL CERTIFICATION

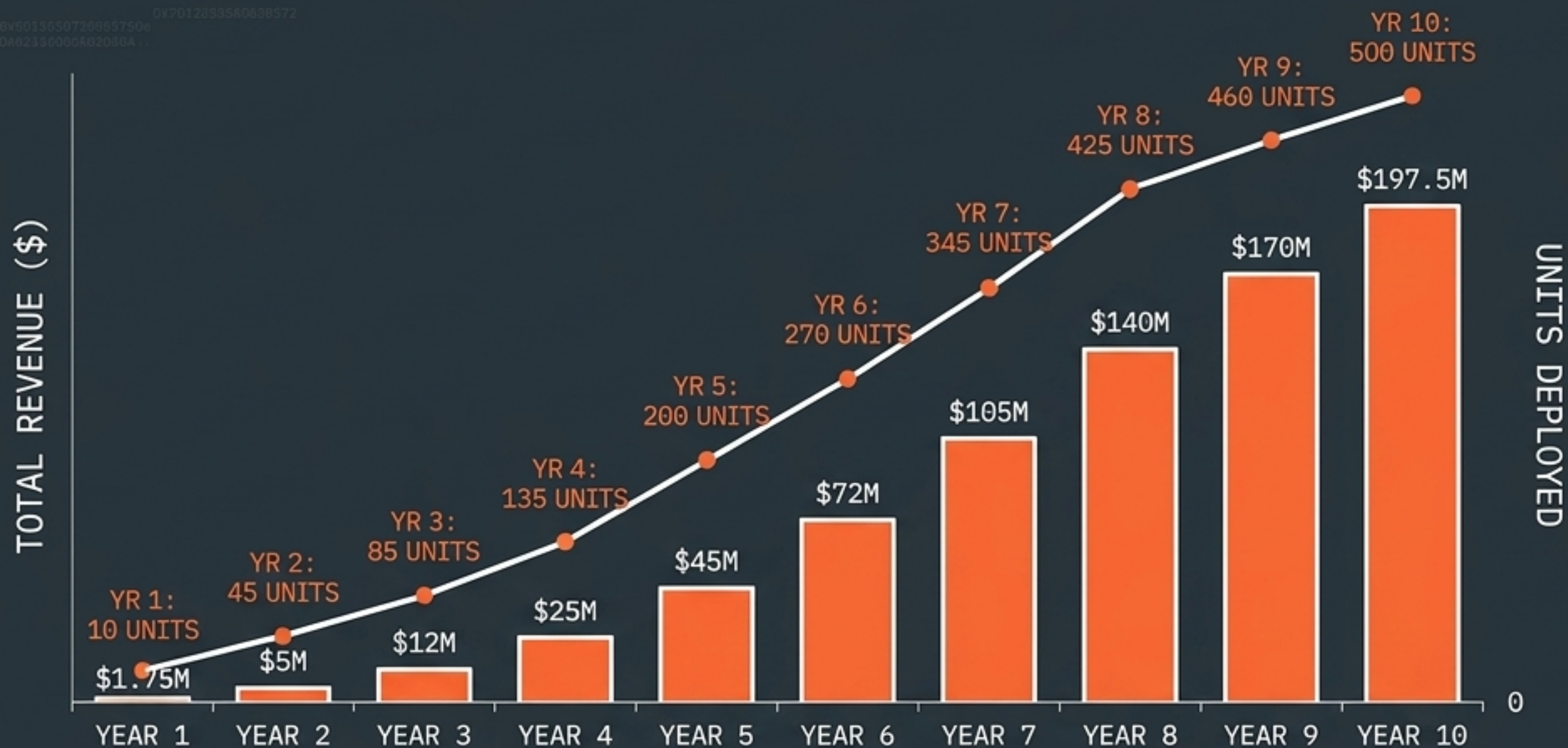
The Cryptographic Crown Jewel

\$500 fee per critical part printed for the real-time Form 8130-3 generation.



**WE DO NOT SELL THE PHYSICAL COMPONENT.
WE SELL THE REAL-TIME GENERATION OF THE CRYPTOGRAPHIC AIRWORTHINESS.**

10-YEAR PROFORMA: SCALING TO SOFTWARE-LIKE MARGINS



PROFITABILITY METRICS

YEAR 10 EBITDA: **\$82.9M**

EBITDA MARGIN: **STABILIZED AT 42%**

STRATEGIC NOTE: 80% of Year 10 revenue is driven strictly by highly scalable transactional certification fees and AI SaaS, not hardware.

STRATEGIC IMPLEMENTATION ROADMAP (2026 - 2036)

PHASE 1: VALIDATION (YRS 1-2)

- Partner with eVTOL leaders (e.g., Beta Tech) for non-structural thermal mounts.
- Achieve FAA Part 145 Acceptance for the digital audit trail.

PHASE 2: THE DEFENSE BLITZ (YRS 3-5)

- Secure DoD SBIR Phase III funding for the F-35 supply chain.
- Deploy Mobile Forge units in ruggedized containers via RIOS Pilot Tier 3.

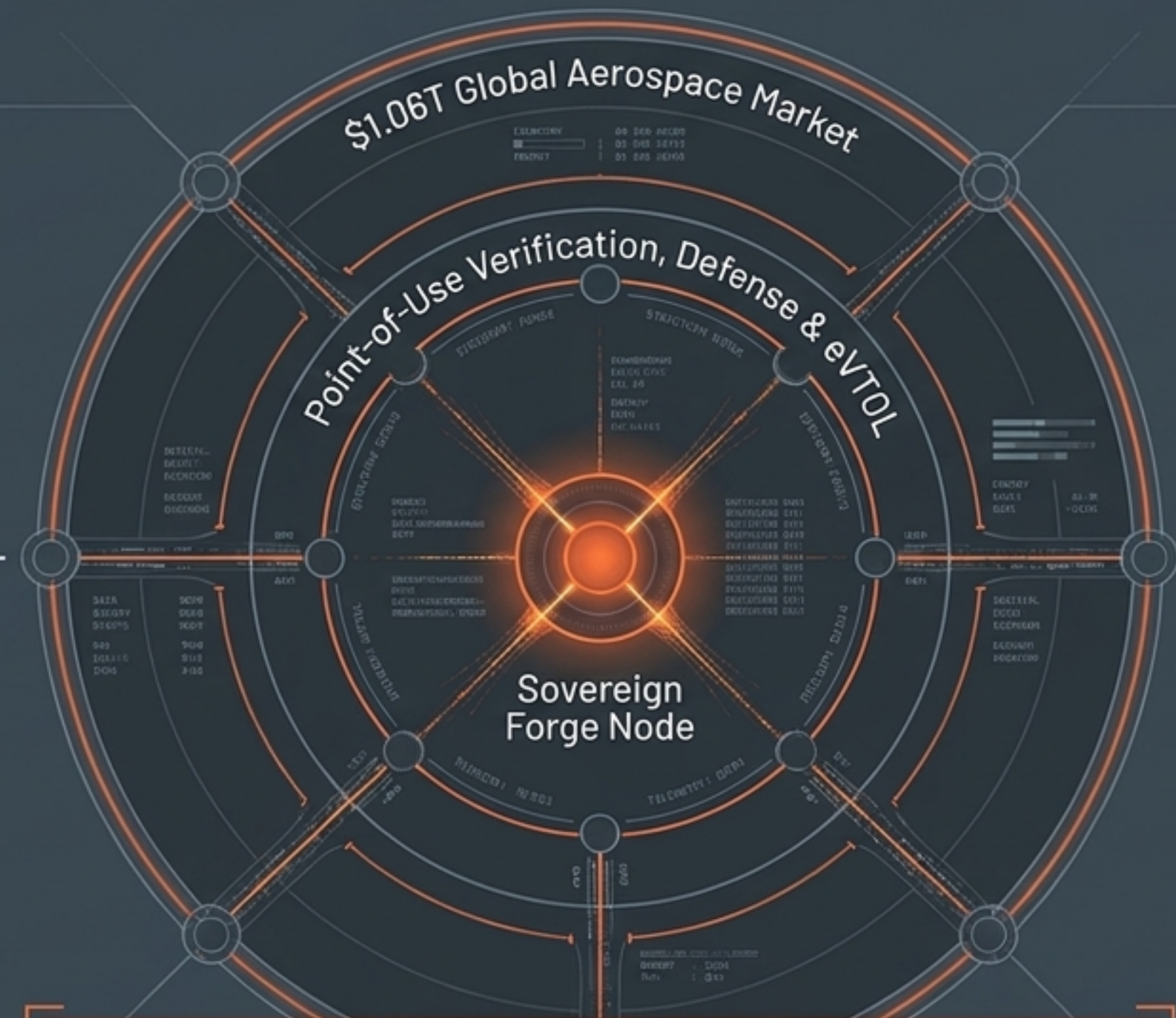
PHASE 3: GLOBAL AFTERMARKET DOMINANCE (YRS 6-10)

- Establish Sovereign Print Hubs in Dubai, Singapore, Atlanta.
- Transition to the primary production method for out-of-production Legacy Support aircraft.

Risk Mitigation and Systemic Resilience Diagnostics

Threat Vector	DeReticular Protocol
Regulatory Pushback (FAA/EASA)	We do not replace the inspector; the Forge provides a High-Resolution Truth dataset , making the human inspector's job 10x faster and mathematically secure .
Material Shortages (Tungsten powder)	Integration with Industrial Foreman AI to manage strategic stockpiles + Resilient Microgrids for 24/7 furnace uptime.
Federal Funding Gaps (SBIR lapse)	Dual-use strategy; immediate commercial aftermarket revenue buffers defense cycle delays.

DeReticular: The Global Registry of Physical Assets



From Retrofitter to Infrastructure

Transforms the company from a hardware retrofitter into the Global Registry of Physical Assets.

The New Physics of Supply

Moving the industry from a fragile Just-in-Time supply chain to a decentralized, mathematically verified reality.

The future of flight is safe, verified, and manufactured at the point of use. Traceability is no longer a feature; it is the product.