Pantheon Design™

Capabilities Briefing

2026

www.pantheondesignus.com

About Us

Pantheon Design™ is a next-generation remote 3-D printing Forge that fuses Robotic Process Automation (RPA) with autonomous and generative Artificial Intelligence (AI) and Machine Learning (ML) to empower hyper-automation. Pantheon redefines how parts are produced and how agile supply chains are sustained in forward-operating environments.

Pantheon's unique capability lies in orchestrating fully automated, self-optimizing additive manufacturing pipelines (metal and composites) that integrate advanced design, production, and quality assurance into a single intelligent, self-sustaining 3-D printing ecosystem. Pantheon enables sophisticated autonomous-supported parts delivery and a rapid replacement supply chain, ensuring that mission-critical components are fabricated and deployed with unprecedented speed and precision. With a full complement of advanced software and design 3-D tooling, we empower organizations to maintain operational readiness even in the most austere or dynamic conditions.

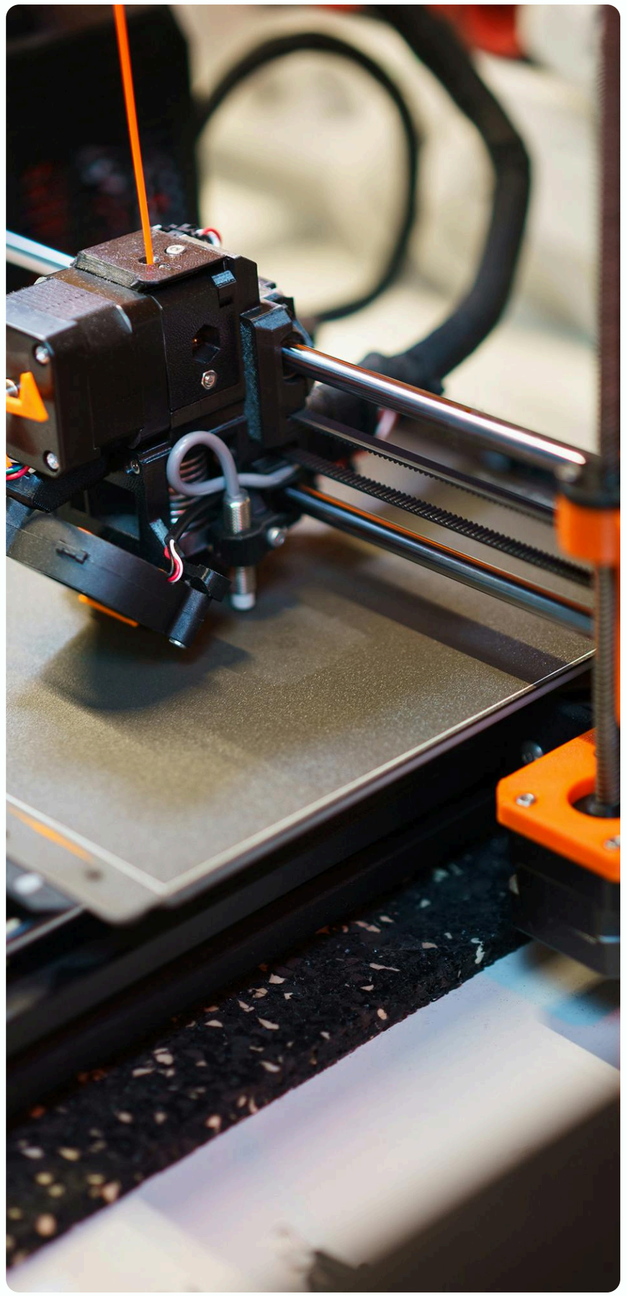
Target Audience.

NAICS Codes

- **541715**: Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)
- **541330**: Engineering Services
- **333249**: Other Industrial Machinery Manufacturing
- **541614** – Process, Physical Distribution, and Logistics Consulting Services
- **541420** – Industrial Design Services

NAICS Codes

- **The Remote Forge:** Deployable, ruggedized 3-D printing units that fabricate industrial-grade metal and composite parts directly at the point of need.
- **Hyper-Autonomous Robotics & RPA:** A fully "lights-out" manufacturing ecosystem that utilizes robotics to manage the entire part lifecycle—from extraction to post-processing—without human intervention.
- **Generative AI & Machine Learning:** A self-optimizing "brain" that leverages generative design and predictive telemetry to evolve part performance and forestall hardware failures.
- **Drone Enablement & Support:** Integrated autonomous UAS platforms that bridge the "last-mile" gap, delivering mission-critical components across contested or austere terrain with tactical speed.
- **Agile Supply Chain Management:** A secure digital library that replaces traditional, vulnerable warehouses with a "just-in-time" production model for instant hardware replacement.



The Remote Forge™

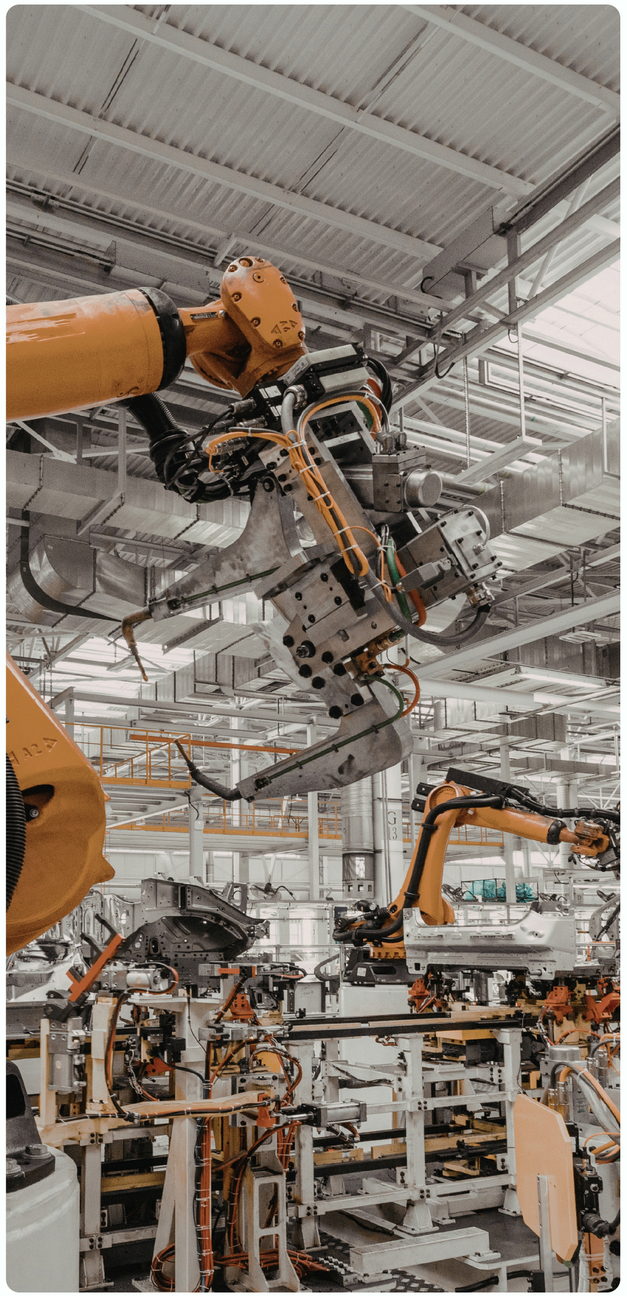
Mission-Critical Fabrication at the Point of Need

The Concept: A deployable, ruggedized manufacturing unit designed for the "edge." The Forge isn't just a printer; it's a mobile industrial hub that survives where traditional factories can't.

Technical Edge: Utilizing the HS-Pro system, it features a topology-optimized billet aluminum chassis and a patent-pending floating frame for precision in unstable environments.

Key Capabilities:

- Speed: Print speeds up to 500 mm/s (5-10x industry average).
- Ruggedization: Active 60°C heated chamber and thermal isolation for consistent output in austere climates.
- Material Strength: Produces Carbon Fiber and Glass Fiber Nylon parts with tensile strength exceeding 110 MPa, matching or outperforming OEM aluminum components.



Hyper-Autonomous Robotics & RPA

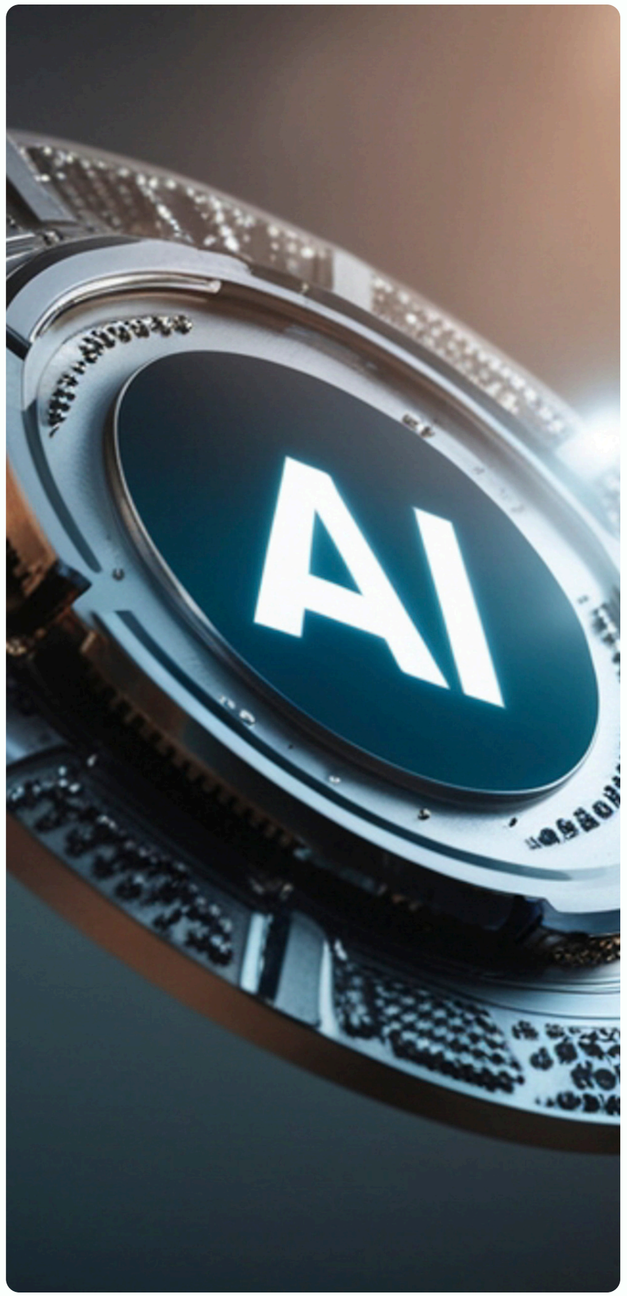
"Lights-Out" Manufacturing Ecosystems

The Concept: Total removal of the human bottleneck. Our systems utilize Robotic Process Automation (RPA) to orchestrate the entire lifecycle of a part autonomously.

The Workflow: Automated Extraction: Robotic arms handle part removal and build-plate recycling.

- Post-Processing: Integrated systems manage support removal and surface finishing without manual labor.

Operational Impact: Enables 24/7 production cycles in unstaffed or hazardous forward-operating environments, reducing personnel risk and overhead.



Generative AI & Machine Learning

The Self-Optimizing "Brain" of the Forge

The Concept: A software-defined manufacturing layer that learns from every print. We move past static G-code to Dynamic Fabrication.

The AI Stack:

- Generative Design: Uses AI to optimize part topology, reducing weight while increasing structural integrity for specific mission loads.
- Predictive Telemetry: Machine learning algorithms monitor hardware health in real-time, predicting and forestalling mechanical failures before they occur.

Evolutionary Advantage: The system "self-heals" by adjusting print parameters on the fly to compensate for environmental variables like humidity or vibration.

Drone Enablement & Support

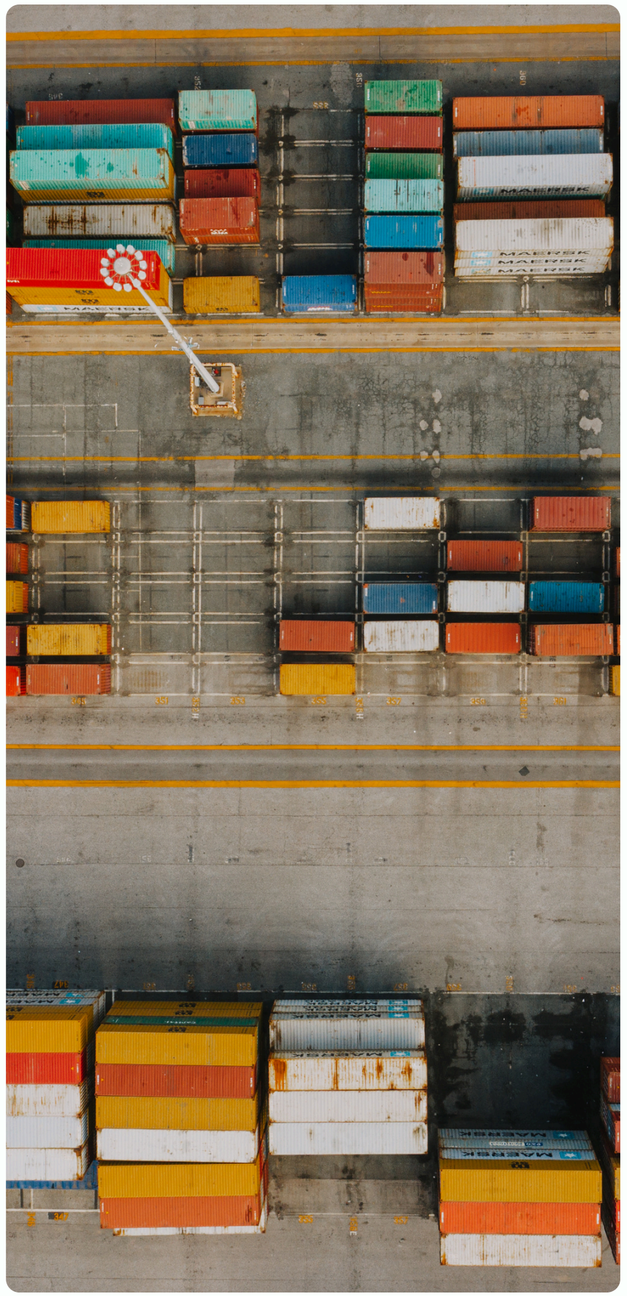
Closing the "Last-Mile" in Contested Logistics

The Concept: Integrating the Forge with Unmanned Aircraft Systems (UAS) to bridge the final gap between production and the operator.

Tactical Integration:

- Rapid Deployment: As soon as a mission-critical part is forged, it is loaded onto an autonomous drone.
- Contested Delivery: UAS platforms bypass destroyed infrastructure or contested terrain to deliver hardware directly to the front line.

Speed to Mission: Reduces the "Part Request to Delivery" window from weeks to minutes, ensuring tactical assets remain operational during active engagements.



Agile Supply Chain Management

From Vulnerable Warehouses to Secure Digital Libraries

The Concept: We replace massive, high-risk physical inventories with a Secure Digital Vault.

The Digital Shift: * On-Demand Production: Instead of storing 10,000 parts, you store 10,000 encrypted files.

- Zero-Lead Time: Parts are printed "just-in-time," eliminating the costs and vulnerabilities of global shipping lanes.

Security: Military-grade encryption ensures that your "blueprints" are protected, while our distributed network of Forges creates a decentralized, unhackable supply chain.

Thank you!

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