

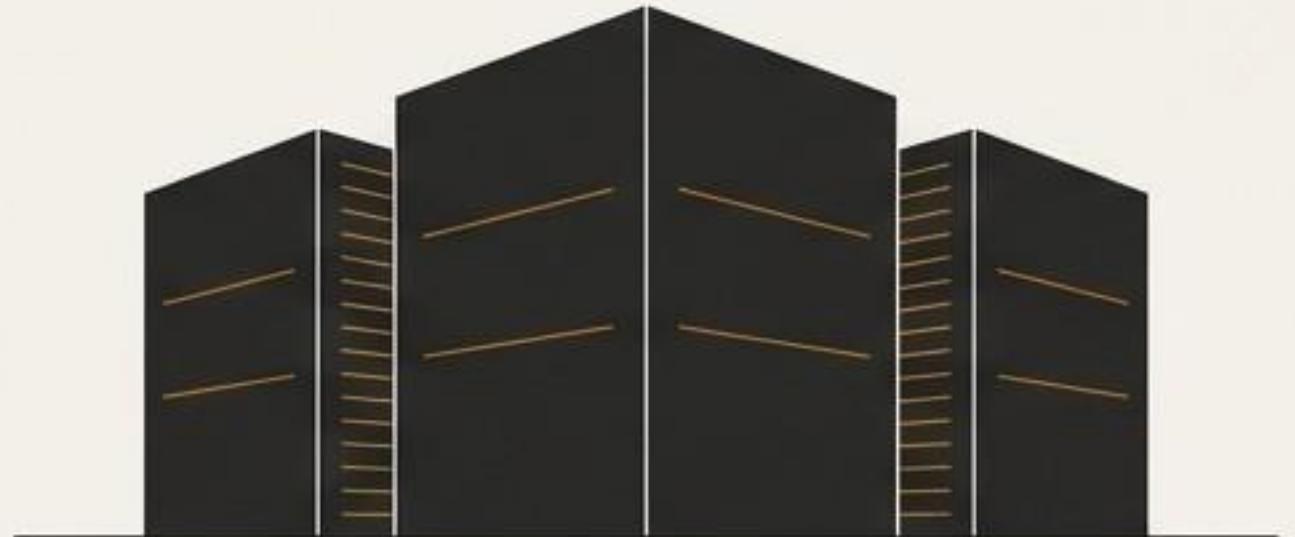


# Augmenting Ingenuity

Building the Foundational Platforms  
for the Next Industrial Revolution

# Progress Is Built on Two Things: Intelligence and Materials. Today, Both Are Bottlenecked.

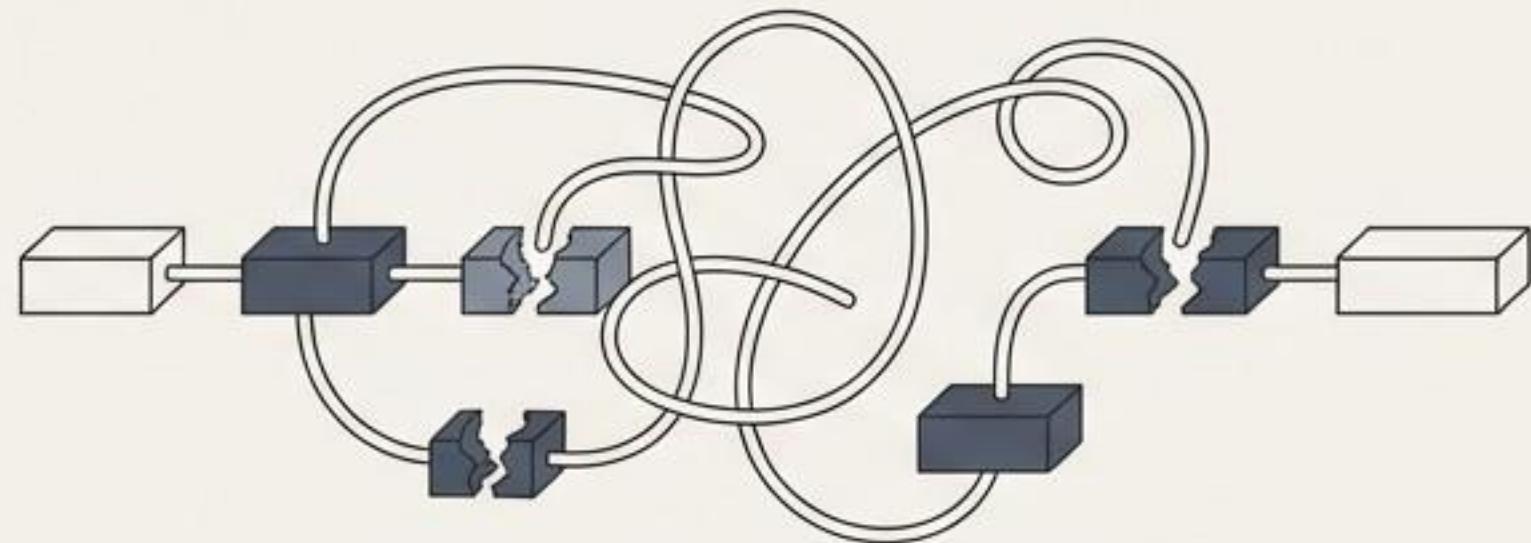
## Intelligence is Centralized



Frontier AI is controlled by a handful of proprietary labs, creating an oligopoly that stifles innovation, raises costs, and limits access. This closed model threatens the original promise of computing as a tool for universal human augmentation.

Alphabet and Microsoft are investing **\$80–90 billion** in AI data centers in 2025 alone, creating an insurmountable barrier for others.

## Matter is Inert



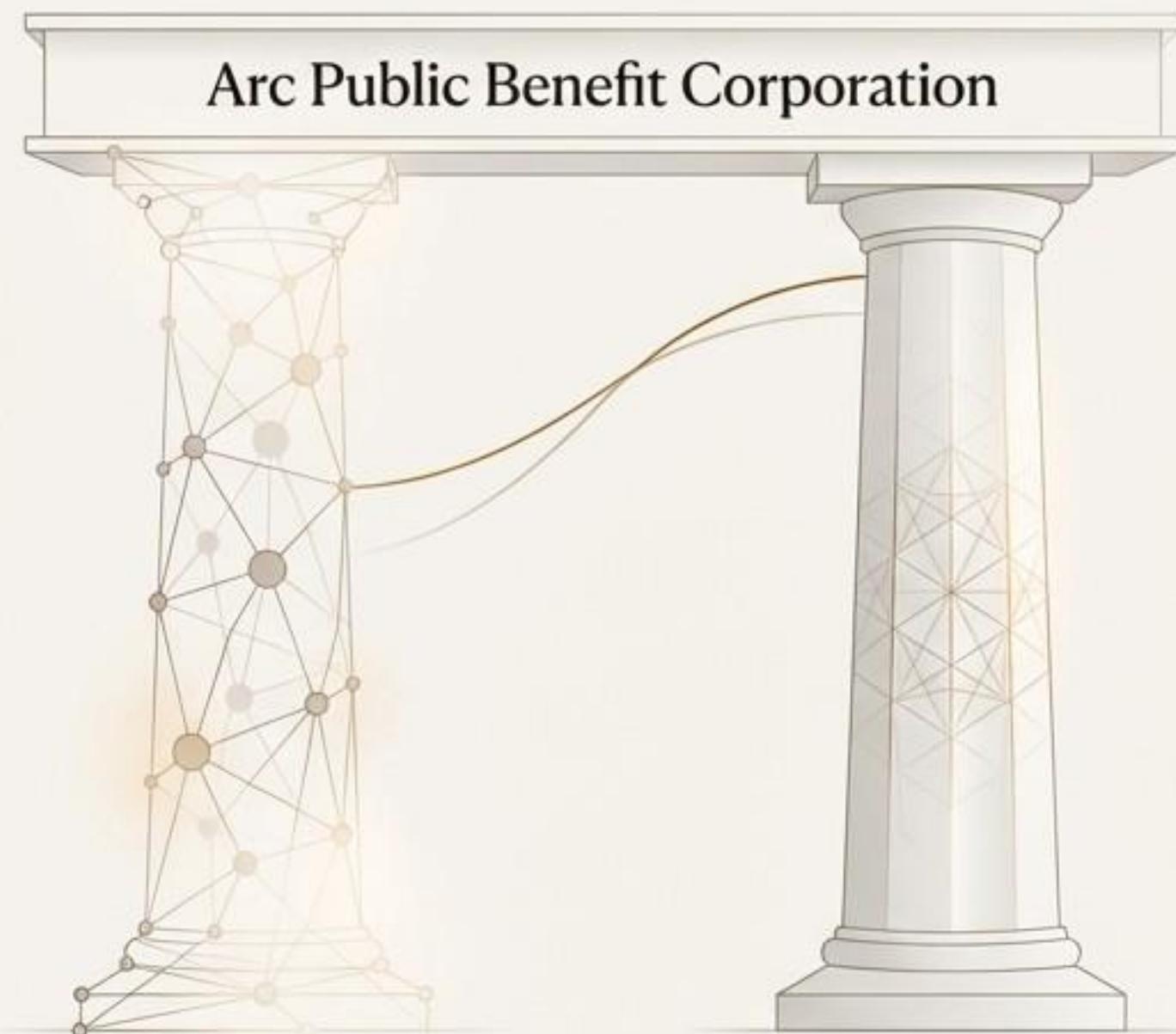
The discovery and production of advanced materials is slow, expensive, and brittle. It takes decades to bring a new material to market, creating critical supply chain vulnerabilities and slowing progress in defense, energy, and medicine.

China controls ~92% of the world's production of NdFeB permanent magnets, a critical component for defense and clean energy systems.

# Arc PBC is Building Two Foundational, Synergistic Platforms to Solve Both.

## ARCNet: A Public Utility Utility for Intelligence

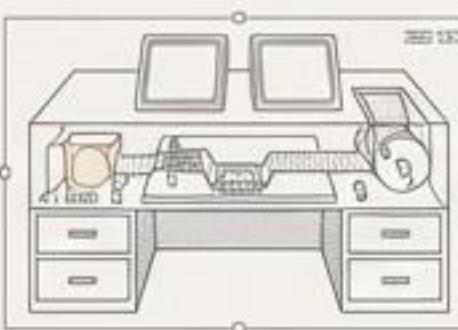
An open-architecture, model-agnostic AI compute network designed to democratize access to intelligence and fulfill the original vision of Augmented Intelligence.



## Arc Impact: A Self-Driving Lab for Matter

An autonomous, AI-driven materials discovery and production system designed to accelerate the innovation of critical materials from decades to months.

# ARCNet Fulfills the Original Vision of Computing: Augmenting Human Intellect, Not Replacing It.



## 1968 - Douglas Engelbart's "Mother of All Demos"

Computers should augment rather than replace the human intellect. He demonstrated interactive, human-centric computing to an astonished world.



## 2020s - The Vision Lost



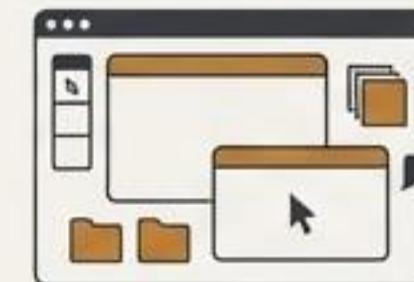
## 1945 - Vannevar Bush's Memex

A device to augment human intellect by making knowledge more accessible and navigable.



## 1970s - Xerox PARC

The vision becomes real with the first GUI-based personal workstation, the Alto, inspired directly by Engelbart's work.



## 2025 - ARCNet

A 21st-century realization of Engelbart's vision: a nationwide infrastructure explicitly designed to augment human intellect at the collective level.

"By augmenting human intellect we mean increasing the capability of [a person] to approach complex problem situations, to gain comprehension... and to derive solutions to problems." – Douglas Engelbart, 1962

# We Are Building a Nationwide Network of Open ‘AI Factories’.

## Core Offering

A network of **10 hyperscale 100 MW data centers** providing the world's first global open-architecture, model-agnostic AI compute network.

**10x**

**10x Lower Cost:** Target 10x lower cost-per-token than closed labs, enabled by radical efficiency.



**Open & Model-Agnostic:** Users can run any model of their choice (PyTorch, JAX, etc.). No proprietary lock-in.

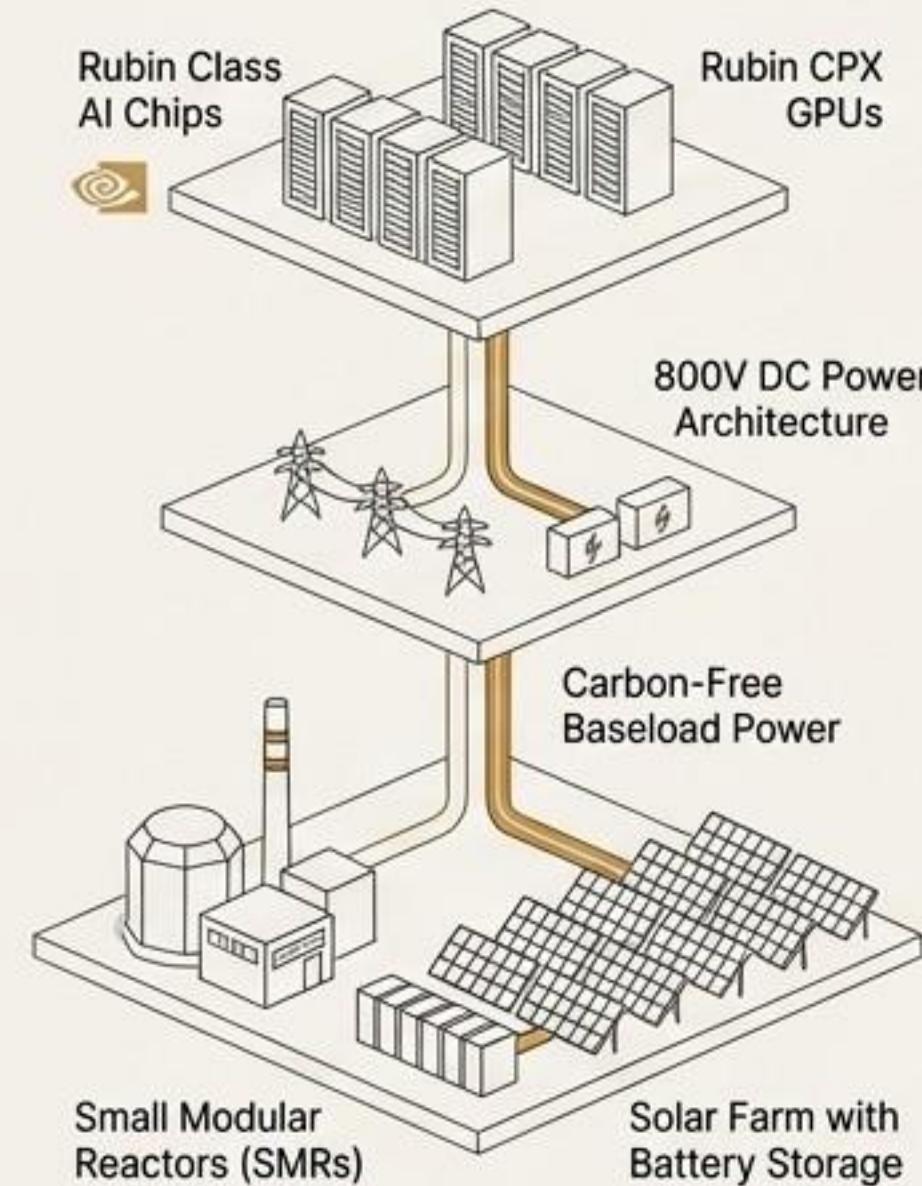


**Usage-Based Access:** Pay only for compute used. No artificial caps, minimums, or waitlists.



**Public Benefit Mandate:** We prioritize accessibility and affordability over maximizing profit, passing efficiency gains to users.

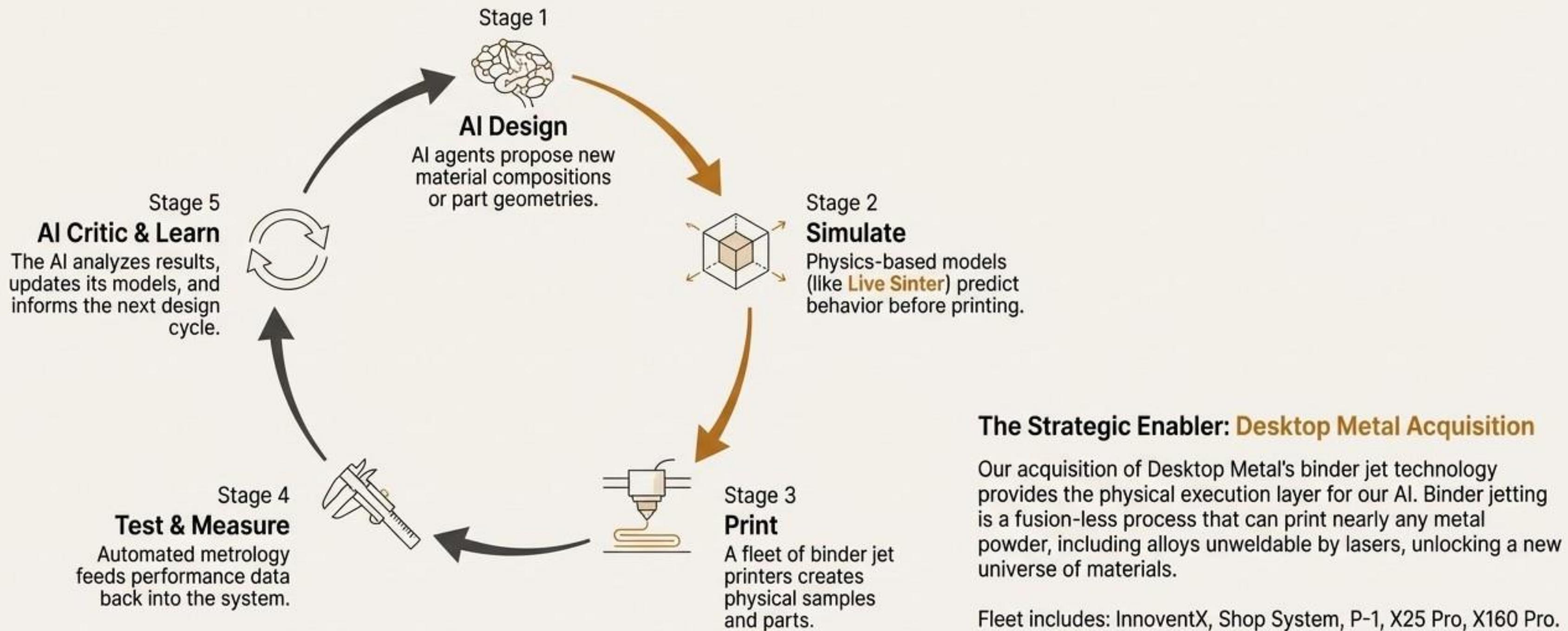
## Technology Backbone



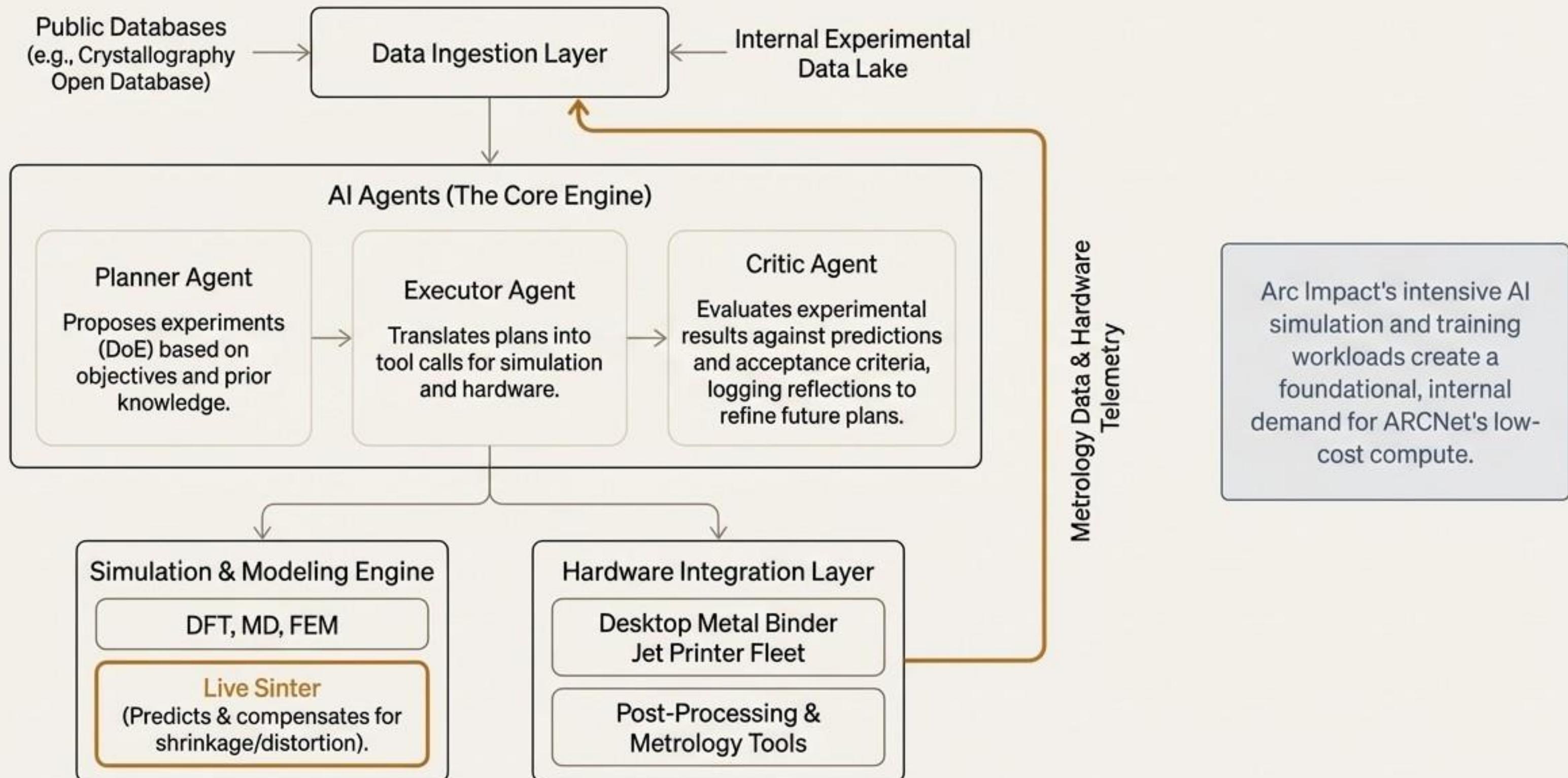
- **Partnership:** A joint venture with **NVIDIA** as an anchor investor and technology partner.
- **Hardware:** Featuring next-generation "**Rubin**" class **AI chips** and specialized **Rubin CPX** GPUs for massive-context inference.
- **Architecture:** State-of-the-art **800V DC power architecture**, improving power delivery efficiency by ~150%.
- **Energy:** A sustainable strategy mixing solar, battery storage, and **Small Modular Reactors (SMRs)** for low-cost, 100% carbon-free baseload power.

# Arc Impact is a Self-Driving Lab for Matter, Powered by a Strategic Acquisition

An autonomous, AI-driven platform that accelerates materials discovery and validation **10x faster** and at **50% lower cost** than traditional methods.



# A Multi-Agent AI System Orchestrates the Entire Discovery-to-Production Loop

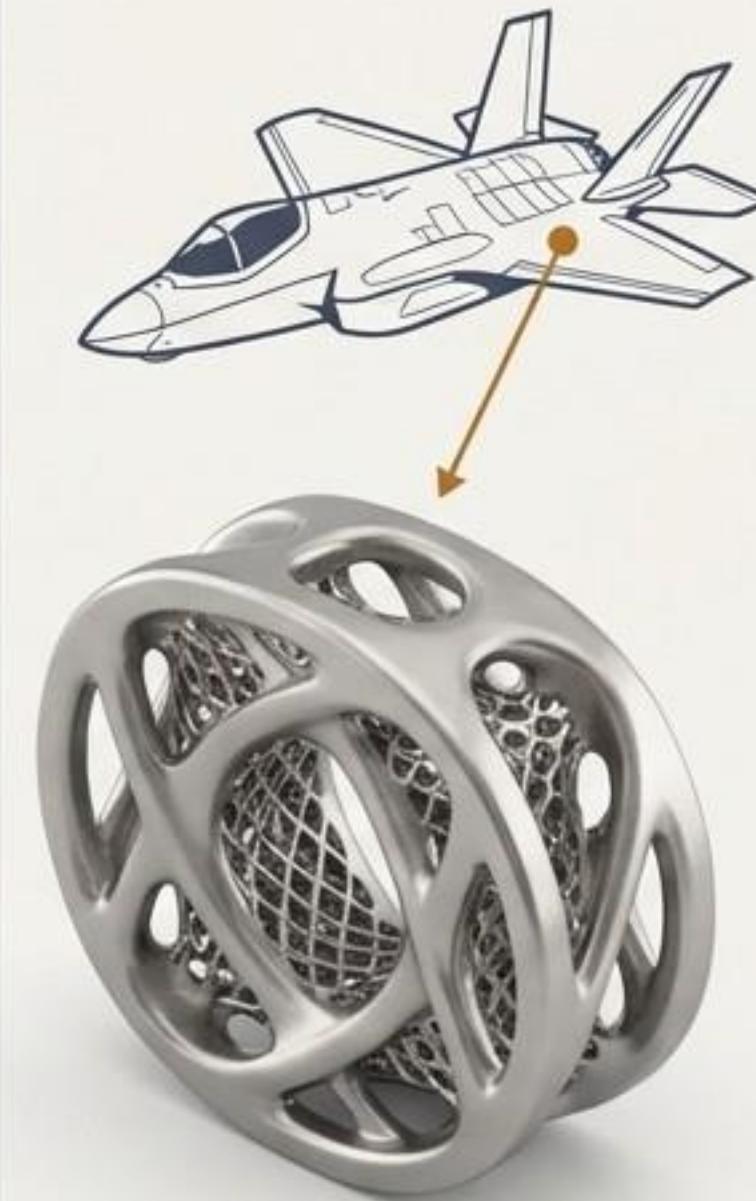
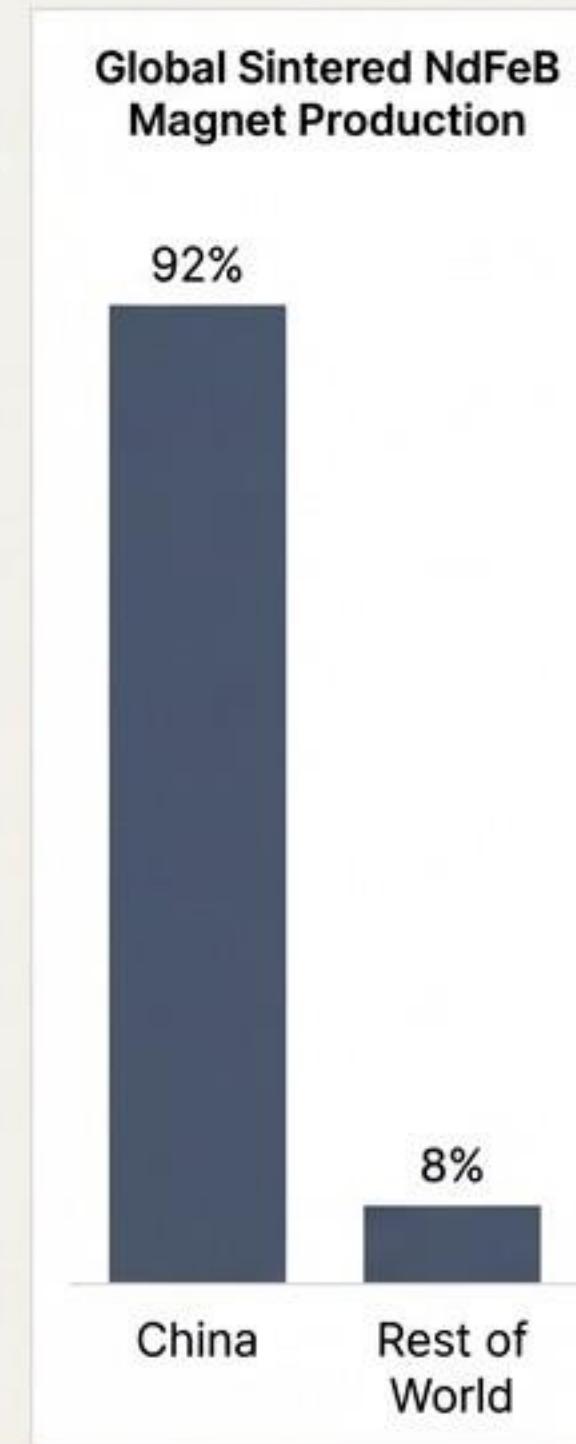


# First Mission: Securing the National Defense Supply Chain

## The Challenge: Heavy Rare-Earth-Free Permanent Magnets

U.S. defense systems are critically dependent on permanent magnets for everything from fighter jets to precision munitions. China's control of the rare earth supply chain is a strategic vulnerability.

- A single **F-35 fighter jet** contains **~920 pounds** of rare earth materials.
- The DoD is mandating that defense contractors stop using magnets with Chinese content by **2027**.



## Our Solution: AI-Designed, Binder-Jet Printed Magnets

Arc Impact's platform can rapidly design, prototype, and produce advanced magnets that eliminate or reduce the need for supply-constrained heavy rare earths (like dysprosium).

Binder jetting enables complex shapes and material compositions that are impossible with traditional methods.

Successfully printed dysprosium-free NdFeB magnets achieved energy products of **~15 MGOe**, roughly 50% of high-performance sintered magnets, but without any heavy rare earths.

# Second Mission: Powering a More Efficient Future

## Advanced Turbine Components



**Material:** MAR-M247, a nickel-superalloy prized for high-temperature strength but notoriously difficult to manufacture.

**Arc's Breakthrough:** Binder jetting produces dense MAR-M247 parts without the cracking issues that plague laser-based printing.

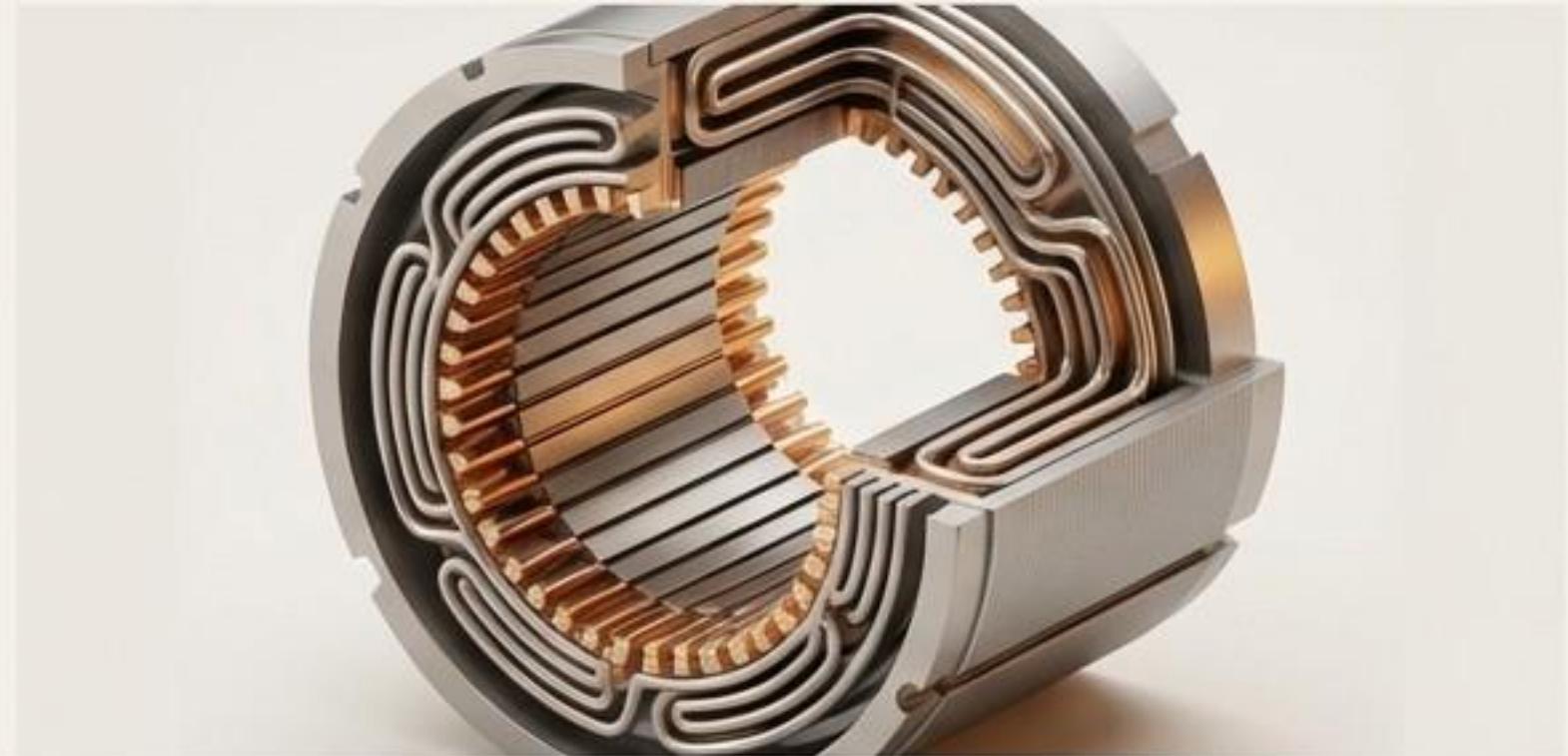
### Validated Results:

+5% system efficiency

>40% unit cost reduction

~70% lead-time reduction (weeks vs. 6-12 months)

## High-Performance Electric Motors



**Material:** Fe-Si Electrical Steel, a soft magnetic material for motor cores.

**Arc's Breakthrough:** Binder jetting creates complex 3D stator geometries with internal cooling channels, impossible with traditional laminated steel.

### Key Performance Metrics Achieved:

~98.4% of theoretical density

High relative permeability ( $\mu_r \approx 8,490$ )

Low core loss (~34.4 W/kg @ 400 Hz, 0.5 T) - matching high-grade laminations.

# Third Mission: Revolutionizing Personalized Medicine

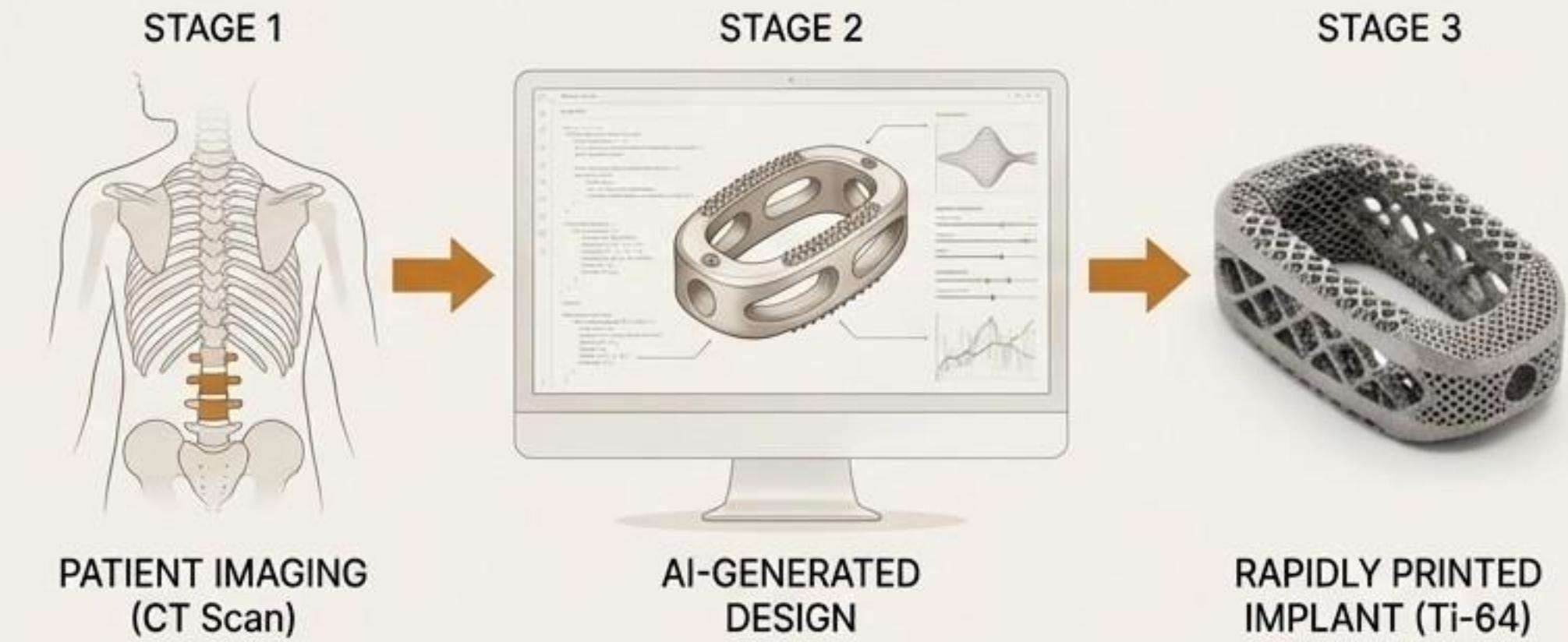
## The Challenge: Patient-Specific Medical Implants

Standard “one-size-fits-all” implants can lead to suboptimal fit and function. Custom implants are slow and costly to produce with traditional CNC machining.

## Our Solution: AI-Generated, Rapidly Printed Implants

**Material:** **Ti-6Al-4V (Ti-64)**, the workhorse biocompatible alloy for orthopedic and spinal implants.

**Arc's Breakthrough:** Our AI platform can take patient imaging data (e.g., CT scan) and programmatically generate an optimal implant design. Binder jetting then produces the complex part, including porous lattice structures that promote bone ingrowth, without support structures.



## Key Benefits

- Speed:** Custom implants delivered in **days**, a ~60% reduction vs. multi-week lead times.
- Complexity:** Enables fine lattice and trabecular mesh structures for better osseointegration.
- Personalization:** The platform enables a future where “personalized implants could become the gold standard.”

# A Phased, Credible Plan for Commercial Scale

## 3-Year Commercial Roadmap



2025

**Integration & Demos.** Complete Desktop Metal integration. Deliver proof-of-concept parts in each key vertical (Magnets, Turbines, Implants).



2026

**Pilot Deployments.** Secure 2-3 automotive pilots and 1+ utility/energy pilot. Initiate first medical trials. Target **~\$40M revenue**.



2027

**Commercial Scale-Up.** Convert pilots to full production contracts in Auto & Energy. Achieve **~\$250M revenue** with positive operating margins.

## 3-Year Financial Targets

Metric	Year 1 (2025)	Year 2 (2026)	Year 3 (2027)
Revenue	\$0	~\$40M	~\$250M
EBITDA	Negative	Breakeven/-10%	~15% Margin
Active Customers	~5	30-50	200+

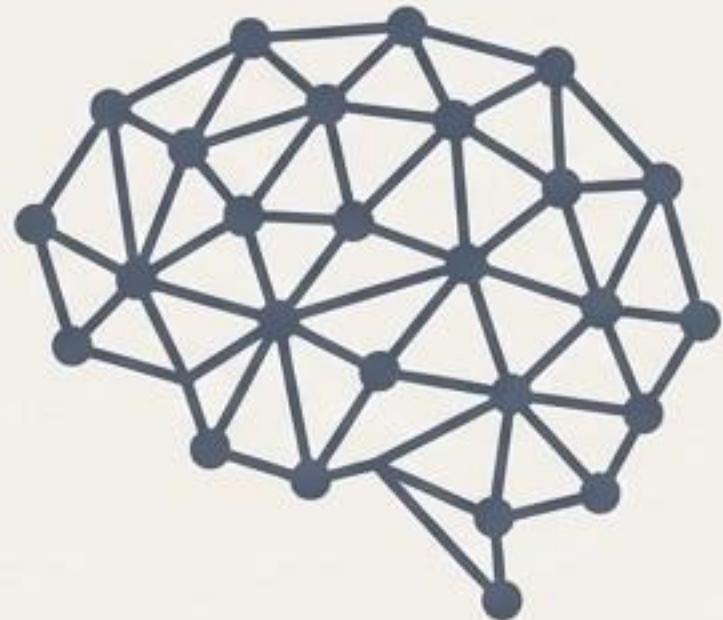
## Investment Thesis Highlights

- Projected 3-Year IRR **>50%**.
- Target Year 3 valuation of **\$1-2B**, based on high-growth platform comps (not hardware multiples).
- Capital efficient model: DM acquisition saved **>\$50M** and years of development.

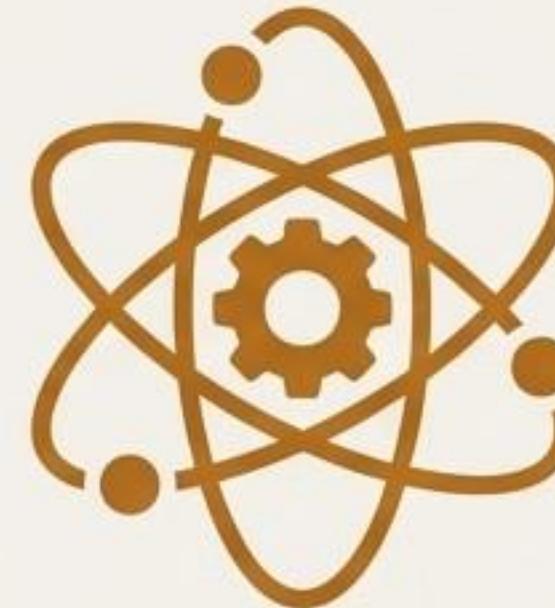
# A Portfolio of High-Value Materials, Unlocked

Material System	Application	Key Challenge	Arc's Breakthrough (Binder Jet + AI)	Measured Performance
Heavy REE-Free Magnets (e.g., NdFeB)	Defense, EVs, Wind	China supply-chain risk; Heavy REEs (Dy, Tb) needed for temperature stability.	Design complex geometries to compensate for lower coercivity; rapid prototyping of new compositions.	<b>~15 MGOe</b> achieved without heavy REEs in DOE program.
Nickel Superalloys (MAR-M247)	Turbines (Auto, Energy)	Unweldable, prone to cracking with laser AM; slow/costly to cast.	Fusion-less binder jet process avoids cracking. Post-process (HPHT) optimizes microstructure.	Properties meet/exceed cast material at 760°C. Validated <b>+5%</b> turbo efficiency.
Electrical Steels (Fe-6.5%Si + B)	EV Motors, Transformers	Lamination stacks limit 3D flux paths and cooling; SMCs are weak.	Prints complex stators with integrated cooling. Achieves near-full density and excellent magnetic properties.	<b>~98.4%</b> density; $\mu_r \approx 8,490$ ; Core loss <b>~34.4 W/kg</b> @ 400Hz.
Titanium Alloys (Ti-6Al-4V)	Medical Implants	Customization is slow/expensive; complex porous structures are difficult to machine.	AI-driven patient-specific design; binder jetting excels at fine lattice structures for bone ingrowth.	Achieves <b>&gt;99% density</b> and mechanical properties on par with wrought Ti-64.
Solid-State Electrolytes (NASICON-type)	Advanced Batteries	Ion-doping is complex; traditional discovery is slow Edisonian trial-and-error.	AI/CNN model predicts performance of doped compounds from crystallographic data (CIF files).	AI model predicted, and lab synthesized, a Cu-doped NASICON with <b><math>9.62 \times 10^{-4}</math> S/cm</b> conductivity, outperforming prior art.

# Arc is Not Just Building Two Companies; We Are Building the Essential, Open Infrastructure for the Next Generation of Innovation.



ARCNet revives the vision of **Augmented Intelligence**, creating an open utility to counter the centralized, closed world of AI. It provides the computational engine for a new era of distributed innovation.



Arc Impact creates a '**Self-Driving Lab**' for matter, compressing the timescale of physical innovation from decades to months. It provides the tools to build a more resilient, efficient, and sustainable physical world.

As a **Public Benefit Corporation**, our structure ensures these powerful platforms are guided by a **mission** to accelerate progress for critical industries and national priorities, from **securing** supply chains to advancing human health.

# Join Us in Creating a Future of Augmented Ingenuity and Democratized Progress.

The 20th century was defined by closed systems and slow, sequential innovation. The 21st century demands open platforms and parallel, AI-driven discovery. Arc PBC is building the foundational infrastructure for this new era.