Executive Summary

Autonomous Resource Corporation – Investment Memo Executive Summary

1. Company Description

Autonomous Resource Corporation (ARC) is a New York–based company formed to accelerate U.S. materials and manufacturing innovation in service of national and supply-chain security objectives, including military readiness[1].

2. Mission / Why Now

ARC's mission is to fuse frontier AI computing with advanced manufacturing so that critical materials can move from lab research to deployable production far faster and more reliably than traditional development cycles allow[2]. The timing is driven by a national inflection point: in late 2025 the Department of Energy launched **Project Genesis**, a major initiative to transform American science and manufacturing through AI[3]. This unprecedented federal mobilization – alongside surging investor appetite for "AI-to-atom" platforms – underscores why now is the moment to harness AI-driven manufacturing at scale[4]. ARC is a Genesis launch partner, aligning its formation with this wave of urgency and support for technological leapfrogging in materials science.

3. Problem

- **Strategic Vulnerability:** Key defense and energy components (from permanent magnets in motors to reactor alloys) rely on materials with fragile supply chains, leaving the U.S. exposed due to lack of resilient domestic manufacturing capacity[5].
- **Slow Innovation Cycle:** Discovering and qualifying new high-performance materials traditionally takes years or even decades – far too slow to meet emerging needs[2]. Lengthy trial-and-error R&D and siloed scale-up processes delay deployment of critical materials.
- **Underutilized AI Potential:** Industrial manufacturing has yet to fully exploit modern AI and high-performance computing, missing a transformative opportunity to shorten design-to-production cycles. Legacy development pipelines cannot keep pace with the complexity of today's material challenges[6].
- **Example – Rare Earth Magnets:** Today's strongest magnets (NdFeB-based) depend on rare earth elements mostly sourced overseas, driving high costs and supply risk. Alternative magnet materials like MnBi could cut magnet costs by ~50% and eliminate rare-earth dependence[7], but require accelerated development to become viable.

4. Solution

- **AI + Manufacturing Integration:** ARC pairs state-of-the-art AI supercomputing and simulation with advanced additive manufacturing to drastically reduce the time from materials discovery to full-scale production[2]. By closing the loop between digital models and physical fabrication, ARC enables rapid design-build-test iterations that outpace traditional methods.
- **ORNL Genesis Partnership:** Through an exclusive partnership with Oak Ridge National Laboratory under the Genesis Mission framework, ARC adopts and commercializes ORNL's cutting-edge materials processes and AI models[8]. ARC taps ORNL's Manufacturing Demonstration Facility and **Frontier** (exascale supercomputer) as a "brains + muscle" engine for AI-driven manufacturing[9].
- **Desktop Metal Acquisition:** ARC acquired Desktop Metal (Sep 2025), a U.S. leader in binder-jet additive manufacturing, gaining a deployable production infrastructure from day one[10][11]. This provides an installed base of industrial 3D printing systems, experienced personnel, and a decade of proprietary materials/process data to jump-start operations[12].
- **Closed-Loop Platform:** ARC's approach tightly integrates simulation, fabrication, and testing in an autonomous loop. Fast AI agents, informed by 10+ years of materials data, orchestrate experiments from "code to component," continually learning and refining models[13]. This closed-loop **AI-to-atom** platform can turn lab innovations into qualified, end-use components with unprecedented speed[14].

5. Product (Today & What's Next)

- **Initial Platform – *ADAM*:** ARC's flagship pilot, the Autonomous Discovery and Advanced Manufacturing (ADAM) platform, is already being deployed at ORNL. It connects ORNL's Frontier supercomputer "brain" with a network of Desktop Metal additive machines at the edge[15][16]. This end-to-end system – likely the world's first closed-loop AI-driven manufacturing testbed – is executing autonomous R&D cycles (e.g. optimizing new magnet alloys) in a real-world lab-to-factory environment.
- **Production-Ready Hardware:** Through Desktop Metal, ARC controls a distributed fleet of production-grade 3D printers (binder-jet and other additive systems) that are operational **today**[11]. This means the company can fabricate complex metal, ceramic, or polymer parts on demand, unlike typical startups still assembling basic lab capacity. ARC is already capable of low-rate manufacturing for prototyping and pilot needs, with plans to scale volume as demand grows.
- **Proprietary Data & Software:** ARC owns a world-leading materials science database (spanning metals, ceramics, polymers) accumulated by Desktop Metal[17]. This data, combined with ORNL's AI models, feeds the ADAM software stack – enabling predictive process algorithms, digital twin simulations, and multi-agent control systems that continually improve with each build. Next

steps include hardening this software platform and opening it up for broader use cases (additional material systems and part designs).

- **Roadmap – Scaling ARCNet:** Looking ahead, ARC plans to expand its **A**utonomous **R**esource **C**ontroller **Net**work, also known as **ARCNet** – its national "nervous system" for industrial AI – beyond the initial ORNL pilot. This involves deploying modular 1 MW compute nodes and connected additive factories at multiple sites (e.g. additional national labs or industry partner facilities)[18]. In the next 1–2 years, ARC aims to stand up at least one hundred nodes, creating a geographically distributed network where the central AI brain (ORNL's supercomputers) coordinate autonomous manufacturing across locations. This scaling will broaden ARC's product from a single-site pilot into a robust platform available to government and industry clients nationwide[19].

6. Moat / Differentiation

- **Manufacturing Capacity (Day 1):** Unlike startups that spend years building out hardware labs, ARC begins with a **delivery-ready** manufacturing network[20]. The Desktop Metal acquisition provides ARC with a global installed base of additive manufacturing systems and proven binder-jetting technology, giving immediate production capability and know-how[21][11]. This entrenched hardware presence is difficult for any new entrant to replicate quickly.
- **Exascale Compute Access:** ARC has *privileged access to world-class supercomputing* through its ORNL partnership[9][12]. ORNL's Frontier (the first exascale computer) and upcoming Lux AI cluster serve as ARC's dedicated "training brain," powering high-fidelity simulations and AI model training at a scale no startup could afford independently. This compute advantage accelerates development and is protected by ARC's formal role in the DOE's Genesis program.
- **Proprietary Data & IP:** ARC possesses over a decade of proprietary materials and process data, including Desktop Metal's extensive materials science database covering dozens of metal, ceramic, and polymer systems[17]. These datasets – capturing process parameters, outcomes, and empirical learning – form an invaluable feedstock for AI models. New entrants lack this trove of real-world data and would need years of experiments to catch up[22].
- **Integrated "AI-to-Atom" Platform:** ARC's greatest differentiator is the seamless integration of **all three critical ingredients** – manufacturing hardware, compute power, and data – under one roof[23]. This unity allows ARC to run autonomous, closed-loop development cycles where the AI instantly turns new insights into action on the factory floor[13]. Competitors typically have pieces of this puzzle, but ARC's end-to-end platform yields a learning and execution speed that is very hard to match. Moreover, ARC's product-agnostic architecture is built to tackle a wide range of applications (not just one material or part)[14], meaning each new project further strengthens a shared platform moat.

- Credible Execution Team: The ARCNet technical build-out plan targets a lean, phased build to ~15 engineers by EOY 2026, emphasizing a senior-heavy team (60% Senior/Staff). This structure is designed to leverage AI tooling (like Claude Code) for implementation, allowing senior experts to focus on the most challenging, high-value architectural decisions: distributed systems, security (PKI), HPC integration, and scheduler design.

7. Market

- **Beachhead Applications:** ARC is initially targeting critical materials and components in markets where both demand and strategic importance are extremely high. These include **heavy rare-earth-free permanent magnets**, advanced **superalloys/coatings for turbine blades**, and specialized materials for **small modular nuclear reactors (SMRs)**[24]. Each of these verticals addresses a pressing need – for example, rare-earth-free magnets for electric vehicles and defense systems, higher-temperature turbine materials for more efficient jet engines or power turbines, and improved reactor component materials to enable safer, longer-life nuclear plants.
- **TAM & Expansion:** The total addressable market spans multiple multi-billion-dollar sectors across defense, energy, and manufacturing. Rather than quoting broad numbers, ARC frames TAM in terms of national strategic spend: e.g. the U.S. government's multi-billion investments in advanced manufacturing and materials (Genesis Mission, DoD programs) are direct tailwinds for ARC's offerings[8]. The beachhead markets themselves are substantial – for instance, the global permanent magnet market and aerospace alloy market are each large and growing due to electrification and hypersonics trends. Success in these niches opens expansion into adjacent domains: ARC's
- **product-agnostic platform** can be applied to other high-performance components (from medical implants to space technology) with minimal retooling[14].
- **Market Entry Strategy:** ARC is positioning itself where urgent national needs and commercial demand intersect. Initial revenue will likely flow from government-funded programs and defense procurement (who urgently need domestic solutions for the above applications), followed by uptake in the private sector as the technology proves out. The *Genesis Mission* partnership not only provides funding and resources, but also credibility and access to a broad ecosystem of industry collaborators in ORNL's network (6000+ entities annually engage with ORNL's manufacturing programs[25]). This gives ARC a built-in channel to showcase its capabilities to potential customers across the energy and manufacturing landscape.

8. Traction

- **Government Launch Partner:** ARC was selected as a launch partner in the DOE's **Project Genesis**, anchoring the company within a flagship national program for AI-driven manufacturing[3]. This partnership, finalized in late 2025,

gives ARC a mandate to commercialize ORNL's advanced technologies and effectively makes ARC a centerpiece for the government's AI-for-industry efforts.

- **Strategic Acquisition Executed:** In September 2025, ARC successfully acquired **Desktop Metal (DM)**, a publicly-traded AM leader, out of a distressed situation. This bold move instantly made ARC a U.S.-based global player in advanced manufacturing with an extensive installed base and team[26]. The integration of DM is underway, bringing >10 years of R&D, dozens of patents, and existing customer relationships into ARC.
- **Platform Deployment in Progress:** ARC and ORNL have already begun deploying the first integrated ADAM platform at the Manufacturing Demonstration Facility. Early pilot runs are focusing on rare-earth-free magnet production techniques and validation of AI-driven process control (pipeline stage). *Pipeline:* By leveraging ORNL's existing industry collaborations, ARC is in exploratory discussions with defense agencies and industrial OEMs interested in the magnet and turbine blade applications.
- **Ecosystem and Talent:** ARC's formation has attracted top-tier talent and interest. The technical partnership with ORNL also opens doors to collaboration with other national labs and Manufacturing USA institutes[27]. Additionally, ARC's leadership team (detailed below) brings credibility in both government and industry circles, aiding business development – for example, introductions to aerospace/defense primes via the Chief Technologist's network, and to institutional investors via the CEO/President's finance background.

9. Business Model

- **High-Value Manufacturing Services:** ARC will generate revenue by delivering advanced manufacturing solutions on a **contract basis**. In the near term, this means partnering with government agencies and large OEMs to produce critical components or develop new material processes, funded through R&D contracts, grants, or joint development agreements[8]. Essentially, ARC functions as a **specialty manufacturing contractor** for high-performance parts that traditional suppliers cannot make or deliver quickly.
- **Scale-Up to Production:** As material processes are proven, ARC can transition to low-volume **production supply** of these critical parts (e.g. batches of magnets or turbine components) for defense and industrial customers. The company's distributed network of printers allows a flexible "capacity on demand" model – scaling output across nodes when a customer needs larger volumes, without massive new capex each time. Pricing in this phase would likely be per-part or per-build, commanding premium margins given the unique capabilities and scarcity of alternatives.
- **Future Platform Licensing:** Longer-term, ARC's platform (ARCNet + ADAM software) could be offered as a **service or licensed platform** to enterprise customers. For example, a major manufacturer could engage ARC to set up an on-site ARCNet node and AI-driven production line for their specific needs. This

would open additional revenue streams such as subscription or usage-based fees for ARC's AI/autonomy technology, on top of manufacturing revenue.

- **Value Proposition:** Regardless of model, ARC's business is underpinned by **speed and innovation**: it can save customers enormous time in getting new materials qualified (potentially compressing a decade of R&D into a year) and ensure supply chain security for mission-critical parts. These advantages justify a value-based pricing approach. (Specific pricing models are still being refined – an area for confirmation by ARC's leadership).

10. Go-to-Market

- **Government as Early Adopter:** ARC's initial go-to-market is heavily focused on U.S. government customers and partners. By aligning with DOE's Genesis Mission and having leadership with DoD/DOE backgrounds, ARC is positioned to secure contracts or Other Transaction Authority (OTA) agreements for projects in defense and energy. Procurement paths include DOE cooperative agreements (leveraging ORNL's umbrella) and DoD innovation programs (where ARC's national security mission fit is clear)[1][28]. Early revenue is expected from these channels, effectively de-risking the technology with non-dilutive funding while demonstrating capability.
- **Strategic Industry Partners:** In parallel, ARC will engage a select few industrial partners in its beachhead markets. These likely include: an **aerospace/defense prime** (for turbine blade materials or hypersonic alloys), an **automotive or renewables OEM** (for magnet applications in EVs or wind turbines), and a **nuclear SMR developer**. The strategy is to co-develop flagship demonstration projects with these partners, who provide domain requirements and a path to eventual large orders. ARC's ORNL connection provides a trust signal and an easy collaboration framework (tech transfer via CRADAs, etc.), smoothing the engagement with such large entities[29][30].
- **Public-Private Partnerships:** As a Public Benefit Corp, ARC embraces partnerships that blend public mission and private execution. The company is actively leveraging Manufacturing USA institutes, university labs, and defense innovation hubs to both source talent and find early use-cases. Being the **commercial arm for ORNL's innovations**, ARC is effectively the go-to outlet when the lab or DOE identifies a technology ready for industry – this funnel will continually provide high-quality leads without traditional marketing spend[8].
- **Scaling Sales Later:** After validating its model with government and a few marquee industry pilots, ARC will broaden its marketing to other customers in allied sectors. Because the platform is horizontal, sales could then target any organization that needs rapid materials innovation (e.g. specialty chemical firms, advanced electronics, oil & gas for new alloys). Go-to-market at that stage may involve a mix of direct sales for big contracts and a channel model via integrators or partners for smaller ones. For now, however, the approach is **high-touch and focused**, aiming to win a handful of pivotal projects that prove the technology's value.

11. Competition & Alternatives

- **"AI-to-Atom" Startups:** A new cohort of venture-backed startups is tackling AI-driven materials and manufacturing, though most are at an early stage. For example, *Periodic Labs* and *Episteme* are cited as science-factory startups pursuing similar AI+hardware integration[4]. These companies validate the space but lack ARC's immediate production assets – they must first build out robotics labs and datasets from scratch[20]. ARC's head start with ready infrastructure and data is a key differentiator when competing for talent, contracts, and investor attention.
- **Large Programs (Prometheus):** On the higher end, massive initiatives like *Project Prometheus* (reportedly $6.2 B in funding) aim to apply AI to engineering and manufacturing at scale[4]. Prometheus (led by a coalition including national labs) isn't a direct commercial competitor, but it underscores how quickly capital is concentrating in this field. It also signals that any credible team linking frontier AI to real-world production can command significant resources. ARC benefits from the same tailwind, but unlike a big government program, it offers agility and a commercialization focus that bureaucratic efforts often lack.
- **Legacy R&D Approach:** The primary alternative to ARC's platform is the status quo: large OEMs and government labs conducting materials innovation in-house via slow, stepwise experiments and outsourcing production to traditional suppliers. This approach faces inherent bottlenecks – experiments are not automated or intelligently guided, scaling up often fails when transitioning from lab to factory, and supply chains for exotic materials (like rare earth magnets) are brittle. ARC effectively *competes with inertia*, and its challenge is to convince risk-averse customers to trust a new, AI-driven methodology. The upside is that once ARC proves a success (e.g. developing a material in 1–2 years that used to take 10), the old approach will rapidly appear unviable by comparison.
- **Adjacent Players:** There are adjacent technology providers that could be seen as competition in slices of ARC's business. For example, **Citrine Informatics** (AI for materials discovery) and **Bright Machines** (factory automation) address parts of the AI+manufacturing spectrum, and large firms like GE and Siemens have internal R&D in materials and digital twins. However, none combine *materials AI, custom supercomputing access, and in-house advanced fabrication* the way ARC does. Often, ARC could partner with these players (or use their tools) rather than directly compete. In practice, ARC's most direct competition will be any initiative that tries to replicate an integrated "AI factory" – and right now, few companies globally have assembled the pieces as ARC has[20][21].

12. Team

- **Bryan Wisk – Chief Executive Officer (CEO) & Founder:** Bryan is a seasoned investor-operator with over 20 years in global capital markets[31][32]. He began as a derivatives market-maker at Citigroup, later ran a successful hedge strategy (notably returning +70% in 2020)[33], and founded Asymmetric Return Capital in

2015. In 2023 he created Arc Public Benefit Corporation to **finance autonomous infrastructure networks at scale**[34] – laying the groundwork for ARC. Bryan brings deep expertise in risk management and strategic finance, ensuring ARC can navigate the capital-intensive, mission-driven roadmap it has set.

- **Paul Adams – President & Co-Founder:** Paul leads ARC's operations and corporate strategy, drawing on 20+ years of investment banking and C-suite experience[35]. As former Head of Morgan Stanley's Healthcare Services M&A, he led over $100 B in M&A deals and $22 B in financings[36][37]. He also served in senior strategy roles in industry and has lectured on M&A. Paul's combination of financial acumen and operational savvy makes him integral in structuring ARC's partnerships (e.g. the ORNL deal, acquisition integration) and driving execution against milestones.
- **Dr. Leo Christodoulou – Chief Technologist:** Dr. Christodoulou is a nationally recognized technology leader at the nexus of advanced manufacturing, materials, and defense. At Boeing, he was Chief Technologist reporting to the CTO, where he spearheaded additive manufacturing strategy across the company's key divisions[38]. He previously led the U.S. Department of Energy's Advanced Manufacturing Office, launching the Manufacturing Demonstration Facility network (including ORNL's MDF)[39], and earlier directed DARPA's Defense Sciences Office[40]. Leo is also co-inventor of a novel alloy (XD Alloys). His career reflects a **rare blend of industry and government experience** at the highest levels, which he now applies to drive ARC's technical vision and to liaise with public stakeholders.
- **ARCNet Technical Organization:** The core engineering team will be built in a compressed, phased approach, growing to ~15 engineers by the end of 2026. The priority hires begin with a Staff/Principal Technical Lead to set architecture, followed by Senior Engineers focused on Platform/Security (Kubernetes/PKI), Backend (Kafka/Event Sourcing), and Frontend Visualization. This lean but senior-heavy structure (60% Senior+) is made possible by leveraging AI tooling, which is expected to amplify implementation output and allow the team to focus on critical architectural and domain challenges .
- **Additional:** ARC's broader team includes senior engineers and scientists from Desktop Metal and ORNL, as well as advisors with deep domain expertise in AI and defense. The lean early team is designed to leverage partnerships (rather than brute manpower) to achieve outsized results.)

13. Milestones (Next 12–24 Months)

- **Genesis "Lighthouse" Demo – *Q1 2026:* Demonstrate tangible progress on the DOE Genesis Mission's first** Lighthouse Problem** (key benchmark challenge) by March 2026[41]. This likely involves validating ARC's AI-driven manufacturing approach on a priority use-case (e.g. an urgent nuclear component) to meet Genesis program metrics.
- **Deploy ADAM Pilot System – *Mid-2026:* Fully deploy the ADAM closed-loop AI manufacturing platform at ORNL's MDF by mid-2026, integrating Frontier**

supercomputing with at least one live production cell *(binder-jet printers + real-time sensors)[16]. Milestone:* achieve autonomous operation where the AI agents run continuous design-fabrication-test cycles without human intervention for extended periods.

- **ARCNet Platform Build-Out:** ARC will execute a compressed, phased deployment of its national network:
  - **H1 2026:** Deploy 2 Lab Nodes and the core platform (PKI, basic scheduler).
  - **H2 2026:** Scale to 10–20 Nodes, integrating multi-region routing and the ORNL bridge MVP.
  - **H1 2027:** Scale to 50–100 Nodes, enabling automated replication policies and the learned router.
  - **H2 2027:** Scale to 200+ Nodes, achieving national-scale operations and full observability.
- **Rare-Earth-Free Magnet Breakthrough – *2026:* Using the above platform, aim for a** 10× reduction** in development time for a new permanent magnet material versus historical norms[42]. By late 2026, ARC targets to produce a prototype heavy rare-earth-free magnet with performance approaching today's best NdFeB magnets, proving that AI-driven methods can deliver equal performance with none of the critical supply limitations (target; requires validation)[19].
- **Turbine Blade Alloy Pilot – 2026:** Initiate a pilot project on superalloy coatings for turbine blades in collaboration with a defense or aerospace partner (e.g. Air Force or a turbine OEM). Goal by end of 2026: successfully 3D-print and laboratory-test a section of a turbine blade with an AI-optimized alloy or coating, demonstrating improved temperature performance.
- **SMR Component Prototype – 2027*:* Fabricate and qualify an** SMR reactor component** (for example, a core lattice or heat exchanger piece) using advanced materials by 2027. This will involve meeting stringent nuclear industry standards. Achieving this would not only open a lucrative market but also showcase ARC's capability to tackle high-regulation, safety-critical parts.
- **Team & Facility Growth – ongoing:** Build out the core technical team (adding key hires in AI, materials, and operations) and establish ARC's own development facility. A near-term milestone is opening a dedicated R&D lab space co-located with ORNL or at a former Desktop Metal site by 2026. This will provide a home base for ARC's growing operations as the company scales beyond the initial lab-pilot mode.

14. The Raise (High Level)

- **Round:** Raising a $70 million seed round to fuel execution. Structure is an **uncapped SAFE** (Simple Agreement for Future Equity) with a 25% discount, aligning early investors with future Series A upside.
- **Use of Funds:** This substantial seed financing (unusually large, befitting ARC's deep-tech scope) will fund 18–24 months of runway. Primary uses include integration and upgrades of the acquired Desktop Metal equipment, hiring of

~15–20 top engineers and scientists, deployment of the ARCNet pilot nodes described above, and operational expenses for delivering on the Genesis partnership milestones. This includes an estimated **$5.24M all-in budget** for the 2026 ARCNet technical team build-out (including salary, benefits, recruiting, and signing bonuses), with a projected run-rate monthly burn of ~$380K by end-of-year 2026. The raise is calibrated to reach key value-inflection points (technical validation in magnets/nuclear, initial contracts) before a priced Series A.

Appendix

Open Questions / Missing Inputs: *(for internal follow-up)*
- **Market Sizing:** Do we have concrete TAM figures or serviceable market estimates for magnets, turbine parts, SMRs, etc., to quantify the opportunity? (Current draft uses qualitative descriptions due to lack of sourced numbers.)
- **Revenue Model Details:** Need confirmation on pricing strategy – will ARC charge per project/part, offer subscription access to its platform, or both? And what gross margin is expected for produced parts?
- **Customer Pipeline:** Can we cite any Letters of Intent (LOIs) or MOUs with potential customers (e.g. a branch of the military or an industrial partner)? Identifying even tentative commitments would strengthen the traction section.
- **Prototype Timeline Validation:** Are the target dates for the first magnet and SMR component demos realistic as stated? These were inferred from program goals – CEO/CTO should verify or adjust expectations in milestones.
- **Competitive Landscape:** Beyond Periodic Labs and Episteme, are there other notable competitors (startups or incumbents) we should mention? For example, any known efforts by big industry players to integrate AI and additive manufacturing that we should frame against ARC?
- **Team Additions:** Any additional key team members or advisors to highlight (e.g., former Desktop Metal technical leaders, ORNL liaisons, or prominent board members)? This could be added if relevant, to underscore team depth.
- **Funding & Runway:** Is the $70M seed expected to cover all pilot deployments and get to a certain revenue milestone, or will interim funding (e.g., non-dilutive grants) be used? Clarifying the funding runway and next raise timing would help context.
- **Use of SAFE Structure:** Any specific reason for choosing an uncapped SAFE (signaling confidence in valuation upside)? If investors inquire, have rationale and any planned cap triggers ready – not needed in memo but good to note internally.

Source Map: *(Sections and key supporting sources)*
1. **Company Description:** Sourced from *ARC Investor Teaser (Dec 2025)* – Executive Summary description[1].
2. **Mission / Why Now:** Supported by *ARC Investor Teaser* (core strategy and Genesis context)[2][3] and *ARC Investor Teaser – Competitive Edge* (market tailwinds)[4].

3. **Problem:** Derived from *ARC Investor Teaser* (national security & slow cycles)[1][5] and *ORNL Rare Earth Magnet presentation* (magnet cost/supply issues)[7].
4. **Solution:** Sourced from *ARC Investor Teaser* (AI + manufacturing strategy, ORNL partnership, DM acquisition)[8][43] and *ARC Investor Teaser – Competitive Edge* (closed-loop platform)[13].
5. **Product:** Informed by *ARCNet Technical Spec* (ARCNet/ADAM architecture and pilot)[15][16][19] and *ARC Investor Teaser* (DM's existing products/data)[11][17].
6. **Moat / Differentiation:** Built from *ARC Investor Teaser – Competitive Edge* which lists ARC's three ingredients vs. others[23][12] and related narrative on manufacturing, compute, data advantages[21][13].
7. **Market:** Anchored by *ARC Investor Teaser* (target applications)[24] and *ARC Investor Teaser / Spec* (product-agnostic platform for expansion)[14]; supplemented with ORNL/MDF context for ecosystem reach[25].
8. **Traction:** Sourced from *ARC Investor Teaser* (Genesis partnership and DM acquisition details)[3][26]; additional context on ORNL collaboration from MDF deck[27].
9. **Business Model:** No explicit source in documents – constructed based on ARC's strategy (commercializing ORNL tech[8]) and industry norms. Marked where assumptions are made.
10. **Go-to-Market:** Supported by *ARC Investor Teaser* (national security focus)[1] and *MDF Base Deck* (DOE/DOD partnership model)[28][29]. Also inferred from team backgrounds and partnership strategy.
11. **Competition & Alternatives:** Primarily from *ARC Investor Teaser – Competitive Edge* (mentions Periodic Labs, Episteme, Prometheus funding)[4] and contrast content[20][21]. Additional comparison points are based on industry context.
12. **Team:** Sourced from *ARC Investor Teaser – Leadership page* (bios of Bryan Wisk, Paul Adams, Dr. Leo Christodoulou)[31][44][45] and[40].
13. **Milestones:** Drawn from *Genesis/Prometheus overview* (DOE timeline)[41], *ARCNet Spec* (10× magnet reduction goal)[42] and ADAM deployment[16]. Other milestones are forward-looking statements marked as or inferred targets.
14. **The Raise:** Details provided by user (not found in uploaded files); treated as disclosed terms of current round.

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[1] [2] [3] [4] [5] [6] [8] [9] [10] [11] [12] [13] [14] [17] [20] [21] [22] [23] [24] [26] [31] [32] [33] [34] [35] [36] [37] [38] [39] [40] [43] [44] [45] ARC_Investor_Teaser_Genesis_Dec25.pdf

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[7] Rare earth free magnets_ARC visit_12092025-Parans.pptx

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[15] [16] [18] [19] [42] arcnet-initial-spec.pdf

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[25] [27] [28] [29] [30] 2025 Updated MDF Base Slide Deck-CBlue.pptx

file://file_000000003b0c71f589f5d277f4d3d753

[41] ARC Overview Genesis and Prometheus-SDeWitt.pdf

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Alt. 1

Autonomous Resource Corporation – Executive Summary

1. Mission & Strategy

Autonomous Resource Corporation (ARC) is a New York–based company formed to accelerate U.S. materials and manufacturing innovation for national security. ARC's core strategy pairs **frontier AI compute** (exascale simulation) with **advanced manufacturing**, so that critical materials move from lab research to deployable production faster and more reliably than traditional development cycles[1].

2. ORNL Partnership

Oak Ridge National Laboratory (ORNL) Genesis Project Partner – ARC is anchored by a partnership with ORNL under the DOE's "Genesis" framework. ORNL offers unique assets: the nation's only Manufacturing Demonstration Facility (MDF) for advanced manufacturing, and world-class supercomputing (the *Pioneer* system) among the top global capabilities[2]. This provides ARC privileged access to cutting-edge R&D infrastructure.

3. Desktop Metal Acquisition

Acquisition of Desktop Metal (DM) – To quickly build its manufacturing base, ARC acquired Desktop Metal in September 2025[3]. DM is a U.S. leader in additive manufacturing and materials science (pioneering binder-jet 3D printing). ARC's thesis is that DM's installed industrial equipment, know-how, and decades of proprietary materials data can dramatically accelerate commercialization of ORNL-developed technologies[4], especially where the U.S. needs resilient domestic production.

4. Strategic Alignment

Project Genesis Tailwinds – ARC is fully aligned with the U.S. Department of Energy's **Project Genesis** (launched Nov 2025) aimed at transforming American science and manufacturing through AI[5]. Under this mission, ARC has agreed to adopt and commercialize ORNL's multibillion-dollar investments in advanced manufacturing tech and AI models, turning them into flexible manufacturing capabilities for critical national security and high-value commercial needs[6]. Initial target application areas include **heavy rare-earth-free magnets, advanced turbine blade alloys, and materials for small modular reactors**[7], which represent urgent markets where ARC can deliver "AI-to-atom" breakthroughs.

5. Product – ARCNet Platform

Federated HPC-to-Edge Network: ARC's flagship product is **ARCNet**, a global AI compute network that **bridges exascale HPC with distributed edge systems**. Originally conceived as a 1 GW hyperscale cluster, ARCNet pivoted to a federated

architecture leveraging ORNL's supercomputers plus **~1000 modular 1 MW datacenter nodes** nationwide[8]. In this design, ORNL's Frontier (the world's first exascale supercomputer) and upcoming Lux AI cluster serve as the "brain," while the 1 MW nodes act as a distributed "nervous system" across the country[9]. At the extreme edge, fleets of autonomous machines (e.g. ARC's ADAM advanced manufacturing units) function as the network's "senses and actuators," feeding data back into the system[9]. The result is a one-of-a-kind closed-loop infrastructure for sensing, reasoning, and acting in real time – analogous to how Ethernet standardized data exchange, ARCNet provides a universal pipeline linking HPC, distributed compute, and physical devices for autonomous innovation[10].

Execution Roadmap Mapped to Codebase: ARCNet's development plan is tightly aligned with these product goals, with each engineering milestone delivering a core capability. In **Q1 2026**, the focus is on standing up **2 lab-scale nodes** and a hardened core platform (implementing robust PKI-based security and a basic distributed scheduler)[11]. By **Q2 2026**, the network expands to **~10–20 nodes across 2–3 regions**, enabling cross-region federation with a **multi-region router** and an initial **ORNL HPC bridge** to integrate ORNL's supercomputer into ARCNet[11]. **Q3 2026** adds scale and intelligence: reaching **50–100 nodes** with automated data **replication** across sites and a "learned" AI-driven routing system to optimize job placement[12]. By **Q4 2026**, ARCNet exceeds **200 nodes**, operating as a national-scale utility with full operational tooling (**observability, monitoring, failover**) in place[13]. Each hiring phase directly corresponds to these deliverables (security/PKI, scheduling, multi-region networking, HPC integration, observability), underscoring a disciplined execution that ties team growth to product milestones.

6. Moat (Competitive Advantage)

Integrated Assets (Manufacturing + Compute + Data): ARC commands three critical ingredients that defensible "AI-to-atom" platforms require: (i) a distributed network of advanced manufacturing systems (via DM's installed base), (ii) **world-class compute** access through ORNL (Frontier & Lux), and (iii) a decade-plus of proprietary materials/process **data** (DM's materials science database)[14][15]. ARC's approach fuses ORNL-originated capabilities with fast AI agents and a federated network—creating a **closed-loop platform** that can rapidly iterate from simulation to physical production. This "AI + manufacturing + data" synergy allows ARC to move from lab-grade innovation to deployable production with unprecedented speed and discipline[16] – an edge nearly impossible for competitors to replicate without similar assets.

Leverage of AI Tooling (with Senior Oversight): ARC's engineering process itself is a moat: the company aggressively uses advanced AI pair-programming tools (e.g. Claude code assistants) to **multiply developer output by ~3–5×**[17]. This allows ARC to achieve a given scope with roughly half the headcount a traditional software/hardware project would require[17]. Importantly, ARC couples this efficiency with **deep senior engineering expertise** guiding architecture and integration. AI-generated code is fast,

but only experienced architects can ensure that high-level decisions (security models, state schemas, etc.) are correct – a bad architectural choice multiplied by AI would be catastrophic[17]. By hiring top talent that is also fluent in AI tools, ARC ensures it gets the productivity boost while maintaining rigorous technical quality. This combination of speed and correctness in development is itself a defensible advantage.

7. Competitive Landscape

Surging Investment in AI-Driven Manufacturing: Investor appetite for "AI-to-atom" platforms is extremely high – capital is concentrating around teams that credibly link frontier AI with real-world production. New entrants like Periodic Labs and Episteme have emerged, and **Project Prometheus** (applying AI to engineering/manufacturing) reportedly raised **$6.2 B** in funding[18]. This validates the market opportunity but also underscores intense competition and lofty valuation expectations in the space.

ARC's Head Start: Despite the crowded field, ARC's starting position is fundamentally stronger than a typical startup's. **ARC benefits from the same tailwinds** fueling competitors, but with a **delivery-ready capability from day one**[19]. Whereas others must first build labs, gather proprietary datasets, and secure large-scale compute before they can deliver results, ARC is **already anchored by (i) ORNL's technology pipeline and (ii) the DM acquisition** – providing a deployable installed base and immediate production capacity[20]. This means ARC can demonstrate and ship production-relevant outcomes much faster, leveraging assets that would take others years to assemble.

8. Traction (Progress to Date)

ORNL Pilot Demonstration: ARC and ORNL have already prototyped the ARCNet concept via the **"Alloy Design Agent" pilot**, which integrates ORNL's Frontier supercomputer with ARC's distributed platform[21]. In this ongoing pilot, ORNL handles massive AI model training at scale while ARCNet manages real-time inference and autonomous experimentation orchestration at the edge[21]. A secure ARCNet–Frontier bridge allows intensive workloads to burst to ORNL and flow back, demonstrating closed-loop AI-driven materials R&D. This successful pilot is a proof point of ARC's ability to fuse national lab computing with distributed industrial operations.

Core Platform Foundation: The ARCNet **codebase is already seeded with mature software architecture patterns**, despite the early stage. Internal repositories exhibit production-grade conventions (Aero configuration, Malli data schemas, well-structured namespaces) indicating a strong foundation[22]. This deliberate upfront architecture means the platform is ready for rapid feature expansion using AI-assisted coding. In short, ARC built the "scaffolding" right – ensuring that as AI tools generate bulk code, it propagates proven patterns rather than technical debt[22].

Team & Node Deployment Momentum: ARC began building the ARCNet engineering team in late 2025, **recruiting key hires in December** so that the lead architect and first senior engineers were secured by Jan 1, 2026[23]. This on-time hiring of the core team enabled an aggressive kickoff in Q1. The hardware side is also underway: ARC is on track to deploy the first **two 1 MW lab nodes in Q1 2026** to validate the system end-to-end[24]. From there, the network will scale rapidly (to ~10–20 nodes in Q2, etc. as per the 2026 plan), with early deployments likely at ARC/ORNL facilities to showcase capability. Overall, ARC has moved quickly from concept to initial implementation, de-risking key components with real demos and assembling the talent to execute the road ahead.

9. Operating Model

Single-Tenant, Service-Oriented Network: Unlike cloud providers that rent capacity to many customers, ARC will operate ARCNet as a **single-tenant network** – ARC is the sole "tenant" using the infrastructure to run many applications on behalf of its stakeholders. This unified control allows ARC to treat the entire network as **one big fleet** of resources, centrally optimized for mission goals[25]. The benefits are significant: jobs can be packed regionally for low latency, and the system can enforce **global failover** across sites seamlessly under ARC's direction[25]. ARC also gains flexibility in operations like **energy-aware workload placement** (shifting tasks to nodes with surplus solar power, for example) without having to negotiate fairness with external tenants[25]. In short, ARC's single-tenant operating model means it can fully orchestrate scheduling, model routing, and data replication across the network to maximize performance and reliability for end users. This is a deliberate design choice that makes ARCNet behave as a cohesive national utility, rather than a conventional cloud service.

10. Go-to-Market (Deployment & Customers)

Strategic Deployment Approach: ARC's go-to-market strategy is to **deploy ARCNet nodes in partnership with key stakeholders (national labs, defense and industry partners)** to solve high-impact problems. Early deployments will be at controlled lab sites – for example, the plan calls for multi-region operation by Q2 2026, including an **ORNL integration MVP** (bridging ARCNet with ORNL's supercomputer)[26]. From these initial sites, ARCNet will scale to dozens and then hundreds of nodes, forming a geographically distributed network ready to serve government and enterprise needs. ARC operates the network as a service, delivering AI-enhanced manufacturing capabilities to end-users (e.g. DoD programs, advanced manufacturing firms) without those users needing to manage infrastructure. The **operational model emphasizes security and trust** to encourage adoption by these stakeholders – ARCNet is built with strict mTLS/PKI authentication and compliance controls so that even sensitive workloads can run on shared infrastructure[27]. By working hand-in-hand with anchor customers (like DOE labs and defense primes) in the deployment phase, ARC is creating reference use cases that will drive broader customer engagement once the network is fully proven out.

11. Government & Compliance

Regulatory Compliance & Security: Given ARC's focus on defense and critical industries, regulatory and security compliance are top priorities. ARCNet's architecture and policies have been **designed from Day 1 with export control compliance and data governance in mind**[28]. All data flows between ORNL and field nodes are governed, auditable, and restricted as needed to comply with U.S. export laws and protect sensitive IP[28]. ARC is also proactively addressing any certification requirements (e.g. ITAR, CMMC) that apply to its operations. The team includes dedicated security engineering expertise to implement access controls, audit logging, and other safeguards required for government partnerships[27]. This ensures that as ARCNet scales, it meets the stringent standards of its federal and industry partners, eliminating a potential barrier to adoption. In summary, ARC embraces regulatory constraints as a core design parameter – turning compliance into an enabler that builds trust with government stakeholders.

12. Team

Seasoned Leadership: ARC is led by CEO and founding partner **Bryan Wisk**, who brings 20+ years of experience in automated systems and global capital markets[29]. Bryan began his career as a lead market maker on the CBOE, where he helped drive the automation of trading across hundreds of products – experience that translates directly to ARC's mission of automating complex workflows. He is backed by a strong leadership team and advisors (including key experts from ORNL and industry) that blend deep technical expertise with operational savvy. This mix of backgrounds positions ARC to execute both on cutting-edge R&D and practical deployment at scale.

Lean, High-Impact Engineering Buildout: ARC's technical team is being built small but mighty – targeting only **~15 engineers by end of 2026** (versus the 25–30 that a conventional project might need)[17][30]. The rationale is leverage: advanced AI coding tools are expected to amplify each contributor's output by **3–5×** in implementation tasks[17]. By relying on AI-augmented development, ARC can maintain a lean headcount without sacrificing velocity. However, **architectural decisions and system integration still demand human expertise**[17], so the hiring plan is deliberately **senior-heavy**. The team is composed primarily of staff- and senior-level engineers who set the patterns that AI will replicate – ensuring that accelerated coding doesn't compromise the system's integrity. This strategy yields a highly productive engineering org with minimal wasted effort or misalignment.

Phased Hiring Sequence: ARC has carefully sequenced key hires in line with the ARCNet roadmap. The first hires were a **Staff/Principal Technical Lead** (with deep Clojure and distributed systems skill) to own the overall architecture, followed immediately by a **Senior Platform Engineer** (Kubernetes + security focus, given the sophisticated PKI certificate system)[31]. Next, a **Senior Backend Engineer** (Kafka event streaming and XTDB database focus) joined to build out the "nervous system" of the platform[32], followed by a **Senior Frontend Engineer** to develop the

visualization-heavy console (WebGL/deck.gl for the 3D "globe" of nodes)[33]. With the core in place, ARC will then add an **HPC Integration Engineer** around Phase 1 to bridge into ORNL's Globus/Slurm environment (a specialized role where domain knowledge is crucial)[34]. As the network scales toward Phase 3, ARC will bring on a **Site Reliability Engineering Lead** to manage operations at national scale (ensuring 24/7 uptime and incident response across hundreds of nodes)[35]. This deliberate hiring order – tech lead → platform/security → backend → frontend → HPC integration → SRE – means each new team member addresses the most urgent technical gaps at the right time. The result is a tight, senior team that can deliver outsized results by leveraging both their experience and AI assistance.

13. Milestones (2026 Build-Out Plan)

H1 2026: Deploy **2 lab nodes**; deliver core ARCNet platform with hardened security (mTLS/PKI) and a basic distributed scheduler[36]. *(Team size: ~6 engineers)*

H2 2026: Expand to **~10–20 nodes** (across 2–3 regions); enable cross-region federation with **multi-region routing** and demonstrate the **ORNL supercomputer bridge (MVP)**[37]. *(Team size: ~10 engineers)*

H1 2027: Scale to **50–100 nodes**; implement automated **dataset replication** across sites and introduce the **"learned" AI-driven router** for intelligent job placement[12]. *(Team size: ~13 engineers)*

H2 2027: Exceed **200 nodes** nationwide; achieve "national utility" status with full **observability and ops tooling** (central monitoring, failover, billing/audit systems) supporting mission-critical use at scale[38]. *(Team size: ~15 engineers)*

14. The Raise

Funding Round: ARC is raising a **$70 million SAFE** financing to fuel the ARCNet execution through these milestones (the round is structured as a SAFE; investors are joining to support this capital-intensive build-out). This funding will enable the company to complete the network deployment and continue product development at full speed.

Use of Proceeds – Team & Platform: A significant portion of the raise is allocated to engineering talent and related execution. ARC's 2026 technical team **all-in budget is ~$5.24 M**[39], which covers salaries for ~15 top engineers plus recruiting, equipment, and tooling. With this investment, ARC's **burn rate** will reach roughly **$380 K per month by end of 2026**[39], supporting a full-strength team and multi-site operations. This run-rate sets the stage for 2027, where the focus shifts from hiring to operating the network (projected ~$4.8 M annualized burn for the fully staffed team)[40]. In addition to team expenses, the raise will cover node deployments and working capital as ARC moves from prototype to production. Overall, $70 M provides about 2 years of runway to

achieve national-scale ARCNet deployment, which in turn is expected to unlock substantial revenue opportunities with government and industry clients.

Open Questions

- **Hiring Timeline Risks:** What is the contingency if a critical hire (e.g. Staff Technical Lead) cannot start on time? Are agency recruiters and incentives (bonuses, etc.) sufficient to ensure all senior roles are filled by their target dates?
- **Early Customer Prioritization:** Among the identified target applications (magnets, turbine blades, SMR materials), which will ARC tackle first to showcase ARCNet's capabilities? Is the plan to develop a flagship use-case in one domain before expanding, or pursue multiple pilots in parallel?
- **Regulatory Navigation:** As ARC engages defense-related projects, what is the plan for managing any required security clearances or export control licenses for personnel and data? Are there any anticipated policy hurdles (ITAR, EAR, etc.) that could affect ARCNet deployments across state or international lines?

Source Map

- **ARCNet Technical Team Build-Out (Nov 2025)** – Internal ARC document detailing the phased engineering hiring plan, 2026 node rollout schedule, and budget (used for sections 5, 8, 12, 13, 14)[41][39]. This source grounded all timeline figures, headcount targets, and use-of-funds numbers.
- **ARC "Genesis" Investor Teaser (Dec 2025)** – External 4-page executive summary covering ARC's mission, ORNL partnership, Desktop Metal acquisition, competitive landscape, and strategic thesis (used for sections 1–4, 6–7)[1][42]. Provided corporate context, market tailwinds, and differentiation (e.g. ORNL & DM as ARC's starting advantages).
- **ARCNet Architecture Spec (2025)** – Internal technical specification for ARCNet's design (97 pages) describing the federated HPC-edge architecture, single-tenant operating model, and integration with ARC's ADAM platform (used for sections 5, 9–11)[9][25]. This source informed the description of ARCNet's network structure, the single-tenant "one big fleet" benefits, and security/compliance features built into the system.

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[1] [2] [3] [4] [5] [6] [7] [14] [15] [16] [18] [19] [20] [29] [42] ARC_Investor_Teaser_Genesis_Dec25.pdf

file://file_0000000041f871f59007a9503c8ba71f

[8] [9] [10] [21] [25] [28] arcnet-initial-spec.pdf

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[11] [12] [13] [22] [23] [24] [26] [27] [30] [31] [32] [33] [34] [35] [36] [37] [38] [39] [40] [41] ARCNet Technical Team Build-Out.pdf

file://file_000000008dd4720eb8477453dfbe2c33

[17] ARCNet Technical Team Build-Out.pdf

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Alt. 2

Investment Memorandum — Executive Summary

1) One-sentence company description

Autonomous Resource Corporation (ARC) is building a vertically integrated, AI-powered manufacturing platform—connecting DOE-scale compute, an industrial manufacturing footprint, and proprietary materials/process data—to accelerate the design-to-qualified-production cycle for critical materials and components.

2) The mission / why now

ARC's mission is to close the loop from simulation to qualified production—faster, cheaper, and at higher confidence—by pairing national-lab-grade AI/compute with real manufacturing execution.

Timing is driven by major federal tailwinds for AI-enabled science and manufacturing, and by acute U.S. supply-chain vulnerabilities in critical materials and defense-relevant industrial capacity.

3) Problem

- **Critical materials are a national vulnerability:** the U.S. remains exposed to foreign concentration in rare earths, magnets, and advanced industrial inputs.
- **Manufacturing qualification is slow and expensive:** validating new alloys/ceramics and processes can take years, limiting iteration and scaling.
- **AI alone doesn't solve it:** without high-quality data *and* a path to manufacturing execution, compute-driven insights don't translate into production outcomes.

4) Solution

- **ARC combines three assets competitors typically assemble over years:** (1) manufacturing capability, (2) world-class compute via ORNL/Genesis partnership, and (3) proprietary materials/process data.
- **ARCNet:** a distributed "national nervous system" for industrial AI that federates compute, datasets, and manufacturing nodes so model-driven decisions can be executed and validated in the real world.
- **AI-enabled manufacturing system:** ARC uses ARCNet to run closed-loop workflows—simulate → optimize → build → measure → learn—across labs, factories, and partner sites.

5) Product (what's built today; what's next)

- **ARCNet v1 foundation (in progress):** a federated platform designed to route jobs and data across distributed nodes, with secure identity/PKI and scheduling as core primitives.
- **Digital manufacturing stack:** ARC is developing “AI-ready” digital factories and an execution layer that connects workflows to real production (metals, ceramics, and polymers).
- **Compute-to-manufacturing bridge:** roadmap includes an explicit ORNL bridge capability for HPC integration as ARCNet scales beyond lab nodes.
- **What’s next:** expand ARCNet node count and add higher-level automation (replication policies, learned routing, observability) as the platform becomes a national-scale utility.

6) Moat / differentiation

- **Compute advantage:** privileged pathway to DOE-scale compute through ORNL/Genesis partnership enables iteration velocity and training/inference at scales most startups cannot access.
- **Manufacturing footprint:** ARC’s acquisition of Desktop Metal provides installed base + binder-jet manufacturing capability to convert digital insight into production reality.
- **Data flywheel:** ARC aggregates proprietary materials and process data to improve model performance and manufacturing outcomes over time.
- **Infrastructure moat:** ARCNet is built as a secure, federated orchestration layer—more than “software”; it is an operating system for industrial AI across sites.
- **Senior-heavy execution plan with AI leverage:** ARC expects AI tooling to provide ~3–5× implementation leverage, while keeping architecture/integration decisions anchored in senior expertise.

7) Market

- **Beachhead:** government and national-lab-linked programs where compute + manufacturing integration is mission-critical and budgets exist for step-change capability.
- **Expansion:** high-value industrial verticals with qualification bottlenecks (e.g., magnets, turbine alloys, advanced components) where time-to-qualified production is a binding constraint.
- **Long-term:** ARCNet as a national-scale industrial AI utility, powering multiple materials and component ecosystems as nodes proliferate.

8) Traction

- **Strategic asset acquisition:** ARC acquired Desktop Metal in September 2025, adding manufacturing capability and installed base.

- **National lab integration path:** ARC's Genesis partnership positions ARC to commercialize federally funded compute and manufacturing investments through a structured route.
- **Platform build underway:** ARCNet node rollout schedule and engineering plan are defined for 2026 execution.

9) Business model

- **Platform monetization:** subscription + usage-based pricing for ARCNet access (compute + orchestration), paired with enterprise services for deployment / integration.
- **Manufacturing revenue:** contract manufacturing and qualification services leveraging ARC's production footprint (initially via Desktop Metal capabilities) for high-value parts/materials.

10) Go-to-market

- **Government-forward wedge:** sell into programs requiring secure, auditable compute/data flows and rapid material qualification (DOE/DoD-adjacent).
- **Industrial expansion:** land with high-value manufacturing customers where closed-loop optimization materially reduces time/cost to qualified production.
- **Node-based distribution:** expand ARCNet by deploying nodes at labs, partners, and production sites—turning each deployment into a durable platform foothold.

11) Competition & alternatives

- **Traditional materials R&D:** slow cycle times; weak linkage between simulation and production execution.
- **Pure-play AI/materials software:** often lacks proprietary data *and* manufacturing control, limiting outcome certainty.
- **ERP/MES incumbents:** strong on workflow tracking, weak on HPC/AI-driven optimization and cross-site federation.
- **Contract manufacturers:** can produce parts but typically cannot run closed-loop, model-driven optimization at national-lab scale.

12) Team

- **CEO (Bryan Wisk):** background spanning automated systems and global capital markets; focused on commercialization and scaling execution.
- **Manufacturing leadership:** Desktop Metal-derived leadership and expertise supporting industrialization and production execution.
- **Technical leadership:** ARCNet engineering plan targets ~12–15 engineers in a phased build (vs. ~25–30 traditionally), relying on senior-heavy composition and AI-tool leverage.

- **Hiring sequence aligned to platform risk:** staff technical lead → platform/security (PKI) → backend/eventing → frontend visualization → HPC integration → SRE/ops as scale demands.

13) Milestones (12–24 months)

ARCNet 2026-27 rollout plan (node targets + platform deliverables):

- **H1 2026:** Deploy **2 lab nodes**; ship core platform with **PKI** + **basic scheduler**.
- **H2 2026:** Expand to **10–20 nodes** across **2–3 regions**; deliver **multi-region routing** + **ORNL bridge MVP**.
- **H1 2027:** Scale to **50–100 nodes**; implement **automated replication** + introduce **learned router** for intelligent placement.
- **H2 2027:** Exceed **200+ nodes**; reach **national-scale operations** with **full observability** (monitoring/ops tooling).

ARC manufacturing + commercialization milestones (in parallel):

- Demonstrate end-to-end closed-loop workflow(s) that tie HPC/AI optimization to qualified builds via ARC manufacturing capacity.
- Establish initial production-qualification playbooks for priority critical-material/component categories and expand deployment readiness.

14) The raise (high level)

- **Round structure:** $70M seed round as a SAFE with **25% discount**, **uncapped**.
- **Use of proceeds (supported):** build ARCNet engineering org and execute the 2026 rollout; 2026 all-in technical team budget estimated at **$5,235,000** with **~$380,000/month** end-of-year run-rate burn.
- Additional use-of-proceeds categories beyond the technical team budget (e.g., node capex, manufacturing expansion, GTM) — not specified quantitatively in the merged sources.

Appendix

Open Questions / Missing Inputs (max 8)

- Which flagship use-case(s) will ARC prioritize first to showcase ARCNet's value (magnets vs turbine alloys vs SMR materials vs other)?
- Hiring timeline contingency: what is the fallback plan if the staff technical lead or other critical hires slip?
- Compliance pathway sequencing (e.g., ITAR/CMMC readiness): what specific milestones are required before broader deployment?

- Initial customer/procurement path: what is the near-term contract vehicle strategy for government and industrial adoption?
- Revenue sequencing: expected mix/timing between ARCNet platform revenue vs manufacturing/qualification services.

Source Map

- **Sections 1–11:** *Autonomous Resource Corporation – Investment Memo Executive Summary.docx* (core narrative: mission, problem/solution, product framing, moat, market, traction, business model, GTM, competition).
- **Sections 12–14 (ARCNet execution specifics):** *ARCNet Technical Team Build-Out.pdf* and *Autonomous Resource Corporation – Executive Summary V2.docx* (engineering build plan, node schedule by quarter, budget + burn, hiring sequence).