

ARC deck

Slide 1 — ARC: The Nervous System for AI-Driven Manufacturing

- ARC turns **materials discovery** → **qualification** → **production** into a repeatable, software-defined workflow.
- We combine **AI orchestration (ARC OS)** + **compute** + **manufacturing execution** to compress cycle times and lower qualification risk.
- Outcome: faster time-to-field, resilient domestic supply chains, and scalable revenue tied to customer activity.

Visual: Full-bleed “ARC flywheel / platform” graphic from your deck (or a simple loop diagram).

Slide 2 — Problem: Qualification is the Bottleneck (Not Ideas)

- Advanced materials and components fail to scale due to:
 - fragmented data / broken digital thread
 - slow test-build-learn loops
 - qualification + certification friction
 - limited access to modern manufacturing + instrumentation
- Result: long timelines, high burn, and delayed deployment in critical systems.

Visual: Simple “today vs ARC” timeline (months/years → weeks/months).

Slide 3 — Why Now: Defense + Industry Need a Digitized Industrial Base

- DoD is explicitly investing to improve **industrial readiness, competitiveness, and supply-chain resilience**.
- The **IBAS program**, executed by ICAM, focuses on building high-priority domestic capabilities and mitigating global supply-chain risk. ([Defense Department Business](#))
- ARC is positioned as the “execution layer” that turns these priorities into measurable throughput and qualified output.

Visual: One slide callout with IBAS/ICAM language + ARC value proposition.

Slide 4 — Strategic Wedge: IBAS Anchor + ORNL MDF Execution

- **Anchor customer:** IBAS/ICAM-funded work provides early scale and credibility.
- **Execution partner:** ORNL's **Manufacturing Demonstration Facility (MDF)** provides industry access to advanced manufacturing tools + expertise (designed to speed adoption of additive manufacturing). ([The Department of Energy's Energy.gov](https://www.energy.gov))
- ORNL MDF's "Digital Manufacturing / Digital Factory" direction aligns with ARC's digital thread + AI orchestration. ([Oak Ridge National Laboratory](https://www.oakridge.gov))

Visual: Partnership triangle graphic: DoD/IBAS ↔ ORNL MDF ↔ ARC.

Slide 5 — Product: ARC OS (Subscription) + ARCNet (Usage)

- **ARC OS (subscription):** program orchestration, digital thread, data/traceability, simulation/workflow automation.
- **ARCNet (usage):** GPU-hours + simulation jobs + manufacturing build-hours + parts.
- Programs (milestone-based) convert into subscription + recurring usage.

Visual: Platform architecture (3-layer: software → compute → manufacturing execution).

Slide 6 — Business Model: 4 Revenue Streams + Flywheel

- **IBAS Contract** (anchor): ramps deployment + funded early work.
- **Platform Subscription:** high-margin recurring software revenue.
- **Usage-Based:** scales with customer activity (compute + manufacturing).
- **Programs:** discovery-to-qualification milestones; strong attach into recurring streams.

Visual: Simple flywheel: Programs/IBAS → Subscription → Usage → Data → Better outcomes → more customers.

Slide 7 — Model Assumptions (What drives the spreadsheet)

Use this slide to “show your homework” quickly:

- **IBAS contract:** \$500M / 10 years; start 2025-07-01; ramp to full run-rate over time.
- **Subscription:** \$550k blended ACV; adds 30 / 80 / 150 / 250 / 350 new customers (Y1–Y5); 12% churn; 1.15 NRR.
- **Usage:** compute + manufacturing attach; usage grows 25% annually.
- **Programs:** \$350k avg; 9-month duration; 20 / 60 / 120 / 160 / 200 new programs (Y1–Y5); 70% attach to subscription.
- **Scale:** headcount grows to 286 EOY Y5; capex scales compute + manufacturing cells.

Visual: One “drivers table” (not financial statements) + icons for each driver.

Slide 8 — Revenue Mix: How ARC Makes Money at Scale

Key message: ARC becomes a **balanced recurring + usage business**.

- Year 5 revenue mix (base case):
 - **Subscription:** \$365.7M (~42%)
 - **Usage-based:** \$350.3M (~40%)
 - **Programs:** \$122.7M (~14%)
 - **IBAS:** \$35.0M (~4%)
- Narrative: IBAS and programs **land** demand; subscription **standardizes**; usage **scales**.

Chart placement (center): Revenue mix stacked bars

- Place: [02_revenue_mix.png](#)
- Link: Revenue mix chart

Small side graphic (right): Gross margin by stream (Y5)

- Place: [05_gm_by_stream_y5.png](#)
 - Link: GM by stream chart
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Slide 9 — Growth: Revenue Trajectory (Base Case)

Key message: the model shows **rapid scaling** once subscriptions + usage compound.

- Revenue: **\$19.4M** → **\$873.7M** (Y1 → Y5)
- Gross margin expands to **~58.6%** by Y5 as utilization improves and software scales.
- Customer base reaches **641 subscription customers** by Year 5 (EOY).

Chart placement (full width): Total revenue line

- Place: [01_total_revenue.png](#)
 - Link: Total revenue chart
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Slide 10 — Profitability: Software + Utilization Drives EBITDA

Key message: operating leverage becomes the story.

- EBITDA: **\$1.0M** → **\$446.3M** (Y1 → Y5)
- EBITDA margin reaches **~51.1%** by Y5 (base case).
- Net income turns positive in Year 2; scales to **\$302.6M** by Year 5.

Chart placement (center): EBITDA & Net Income lines

- Place: [03_profitability.png](#)
 - Link: Profitability chart
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Slide 11 — Cash + Capital Plan: Fund the Buildout Ahead of the Curve

Key message: the model intentionally invests early; show the trough and how you address it.

- Minimum cash occurs at **Y2M3: -\$21.9M** (base case).
- Driven by **capex ramp** ahead of scale revenue and timing of the Series A proceeds.
- CFO framing: funding + phased deployments eliminate the trough while preserving growth.

Chart placement (full width): Ending cash trajectory with trough annotation

- Place: [04_cash_trajectory.png](#)
 - Link: Cash trajectory chart
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Slide 12 — The Ask: What We're Raising & What It Buys

- Raise: (fill in round structure) to fund:
 - compute + manufacturing cell deployments (capex)
 - platform buildout + compliance/security (enterprise + defense readiness)
 - go-to-market scale (customer adds + programs pipeline)
- Targets by Year 3/4:
 - subscription customer growth milestone
 - utilization targets for compute + manufacturing
 - program-to-subscription conversion KPI (attach rate)
- “Use of proceeds” tied to measurable outputs: qualified programs delivered, utilization, gross margin, and recurring revenue.

Visual: Simple “Use of Funds → Milestones → KPIs” graphic.

Appendix (optional) — Charts Pack

If you want a single appendix slide with all visuals:

- Download [ARC_Investor_Charts.pdf](#)
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If you want, I can also generate **speaker notes** for each slide (CFO voice, 45–75 seconds per slide) using the same numbers and the IBAS/MDF positioning above.

ARC business model

ARC business model

ARC is a vertically integrated **AI + “digital factory” platform** that turns materials R&D and qualification into a repeatable workflow: design → simulate → build → test → learn. In the decks, this is framed as **Arc Impact (self-driving lab for matter)** plus **ARCNet (compute backbone)**, with ORNL/MDF as a key enabling partner for advanced manufacturing and data.

Four revenue streams (and the flywheel)

1. **IBAS anchor contract (DoD / ICAM)**
 - Purpose: funds/anchors early deployments and qualification work tied to defense industrial base priorities.
 - Strategic rationale: ICAM runs IBAS to strengthen U.S. industrial readiness and reduce supply chain risk. ([Defense Department Business](#))
2. **Platform subscriptions (“ARC OS”)**
 - What customers buy: the software + workflow layer (program management, digital thread, simulation orchestration, data/traceability).
 - Monetization: annual subscription per customer + implementation fees.
 - Economics: high gross margin.
3. **Usage-based revenue (Compute + Manufacturing-as-a-Service)**
 - **Compute**: GPU-hours + simulation jobs (workloads driven by materials design, training, and analysis).
 - **Manufacturing-as-a-Service (MaaS)**: build-hours + parts/materials revenue (e.g., additive/binder-jet production, testing workflows).
 - Economics: mid-to-high gross margin; scales with customer activity.
4. **Discovery-to-qualification programs**
 - What it is: milestone-based programs (e.g., “design & validate a material system / component family”) that often convert into subscriptions + ongoing usage.

Flywheel logic: Programs + IBAS-funded work land the relationship → Subscription standardizes the workflow → Usage scales with experiments + production → More data improves performance and defensibility.

Anchor context: IBAS + ORNL MDF “Digital Factory”

IBAS / ICAM (DoD): IBAS authorities are designed to help the U.S. defense industrial base expand capacity, address urgent industrial issues, and mitigate supply chain vulnerabilities. ([Steel Founders’ Society of America](#))

ORNL Manufacturing Demonstration Facility (MDF):

- DOE describes MDF as a facility created to give industry affordable access to infrastructure, tools, and expertise to speed adoption of advanced additive manufacturing. ([The Department of Energy's Energy.gov](https://www.energy.gov))
- ORNL positions MDF as a collaborative consortium model to accelerate manufacturing innovation and distribute knowledge/technology across partners. ([Oak Ridge National Laboratory](https://www.ornl.gov))

In the ARC narrative, MDF is the “physical execution + data-generation” side of the loop, while ARC provides the orchestration (software), automation, and compute.

Key spreadsheet assumptions (from **ARC_model_011226.xlsx**)

Model start date: **2025-01-01**.

1) IBAS anchor contract assumptions

- Total contract value: **\$500M over 10 years**
- Start date: **2025-07-01** (mid-year start drives partial Year 1)
- Ramp (% of annual run-rate by contract year): **5% / 40% / 70% / 90% / 100%**
- Gross margin mechanics:
 - **55% cost-plus @ 12% GM**
 - **30% fixed-price @ 35% GM**
 - **15% passthrough @ 0% GM**
- Resulting modeled revenue (Years 1–5): **\$1.25M → \$35M** (still ramping toward the full run-rate)

2) Platform subscription (“ARC OS”)

- Blended ACV: **\$550k/customer/year**
- New customers added (Years 1–5): **30 / 80 / 150 / 250 / 350**
- Annual churn: **12%**
- Net revenue retention (NRR): **1.15**
- Implementation revenue: **\$50k per new customer**
- Subscription gross margin: **75%**
- Resulting customers (end of year): **30 → 641** by Year 5

3) Usage-based revenue (Compute + MaaS)

Compute

- GPU-hour rate: **\$3.50**
- Simulation job rate: **\$150**
- Avg monthly GPU-hours/customer: **2,000**
- Avg monthly sim jobs/customer: **25**
- Usage growth rate: **25% annually**
- Compute gross margin: **55%**

Manufacturing (MaaS)

- Build-hour rate: **\$85**
- Avg monthly build-hours/customer: **120**
- Parts revenue per build-hour: **\$250**
- Attach rate: **60% of subscription customers**
- Manufacturing GM starts **40%**, improves with utilization curve (**+2%/year**)

4) Programs (discovery-to-qualification)

- Avg program value: **\$350k**
- Avg duration: **9 months**
- New programs per year: **20 / 60 / 120 / 160 / 200**
- Milestones: **25% / 35% / 40%**
- Program gross margin: **45%**
- Attach-to-subscription: **70%**
- Active programs (EOY): **20 → 263**

5) Cost structure + scale investments

Headcount (EOY): 55 → 286 by Year 5

- Year 5 mix (approx): **118 R&D, 86 Mfg Ops, 39 Sales, 24 G&A, 19 Security/Compliance**

Capex (drives capacity for usage revenue):

- GPU clusters: **\$15M (Y1) → \$45M (Y5)**
- Manufacturing cells: **\$10M (Y1) → \$50M (Y5)**
- Regional deployments: **\$0 (Y1) → \$9M (Y5)**
- Total capex: **\$25M (Y1) → \$104M (Y5)**

Financing in-model:

- Convertible note: **\$25M, 6%, 20% discount, \$250M cap**
 - Series A proceeds assumed: **\$50M** (modeled to land later in Year 2)
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What the base-case financial projections show (5-year)

All figures below are **\$M** unless noted.

Metric	Y1	Y2	Y3	Y4	Y5
Revenue	19.4	105.8	216.9	545.3	873.7
Gross Margin	56.2%	55.2%	54.0%	57.2%	58.6%
EBITDA	1.0	37.9	82.4	259.5	446.3
EBITDA Margin	5.0%	35.8%	38.0%	47.6%	51.1%
Net Income	(4.7)	20.3	46.9	171.5	302.6
Ending Cash	(0.8)	38.5	36.1	166.0	419.8
Headcount (EOY)	55	108	182	228	286

Revenue mix (Year 5)

- **Platform subscription: \$365.7M** (~42%)
- **Usage-based: \$350.3M** (~40%)
 - Compute: **\$164.5M**
 - MaaS: **\$185.7M**
- **Programs: \$122.7M** (~14%)
- **IBAS contract: \$35.0M** (~4%)

Gross margin by stream (Year 5)

- IBAS contract: **~18%**
- Platform subscription: **~75%**
- Usage-based (blended): **~50%**
- Programs: **~45%**

Cash / funding implication (important investor talking point)

The model's **minimum cash** occurs at **Y2M3**, reaching **~-\$21.9M**, because **capex ramps ahead of the modeled Series A proceeds**. Translation for the CFO:

- Either **close Series A earlier**, raise a **larger seed**, add a **bridge**, or **phase capex** to avoid a cash dip.

Sensitivity (from the model)

- **Downside Y5 revenue: ~\$655M, Y5 EBITDA: ~\$316M**
 - **Upside Y5 revenue: ~\$1.09B, Y5 EBITDA: ~\$601M**
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Investor-friendly visuals (download)

I generated a clean set of charts directly from the model:

- Download ARC_Investor_Charts.pdf
 - Individual images:
 - Total revenue
 - Revenue mix
 - Profitability (EBITDA + Net Income)
 - Ending cash trajectory (shows trough)
 - Gross margin by stream (Y5)
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Suggested CFO talk track (how to present this to investors)

1. **Why now / why ARC:** critical supply-chain + qualification bottlenecks; ARC compresses discovery→qualification cycles using a self-driving lab + digital factory workflow.
 2. **Anchor wedge:** IBAS/ICAM-funded initiatives align with building domestic capability and reducing supply-chain risk. ([Defense Department Business](#))
 3. **Execution advantage:** ORNL MDF gives trusted manufacturing infrastructure + expertise and accelerates adoption of additive manufacturing workflows. ([The Department of Energy's Energy.gov](#))
 4. **Business model clarity:** subscription + usage + programs (plus IBAS anchor) with improving margins as utilization grows.
 5. **Scale economics:** by Year 5 the model shows ~59% GM and ~51% EBITDA margin, driven by software + compute + repeatable program-to-subscription conversion.
 6. **Capital plan transparency:** highlight the modeled cash trough and what operational/financing steps eliminate it.
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