

The Ramp That Won't Ramp: Outsized Demand in Aerospace, Defense, Aviation & Space and What Suppliers Should Do About It

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American aerospace faces the most concentrated demand surge in recent history, with commercial aviation, business aviation, space, and defense all accelerating simultaneously. The orders are real. The backlogs are historic. The money to execute them isn't getting where it needs to go.

Manufacturing Capacity | Aerospace Supply Chain Finance | Defense Industrial Base

Let's be direct about something the industry's bullish order-intake headlines keep obscuring: a backlog is a liability until it becomes a delivery. Right now, the US aerospace and defense industrial base is staring at the largest combined demand signal in recent history—commercial aviation, business aviation, space launch, and defense procurement all accelerating at once—and it lacks the manufacturing capacity, qualified workforce, and financial structure to satisfy it on any reasonable timeline.

COMMERCIAL DEMAND	BUSINESS AVIATION DEMAND	WORKFORCE NEEDS	WORKING-CAPITAL INTENSITY
15.3K+ Combined Boeing + Airbus commercial aircraft backlog, 2026 <i>Boeing Q1 2026 + Airbus H1 2026</i>	\$21.8B Bombardier backlog at Q2 2026, up \$4.3B from year-end 2025 <i>Bombardier Q2 2026 Results</i>	17K+ /Year Projected annual aerospace engineering and aircraft/avionics technician openings through 2034 <i>BLS – Aerospace Engineers + BLS – Aircraft & Avionics Mechanics/Technicians</i>	~41% Non-cash working capital as a share of sales across US A&D companies <i>NYU Stern – Working Capital Ratios by Sector</i>

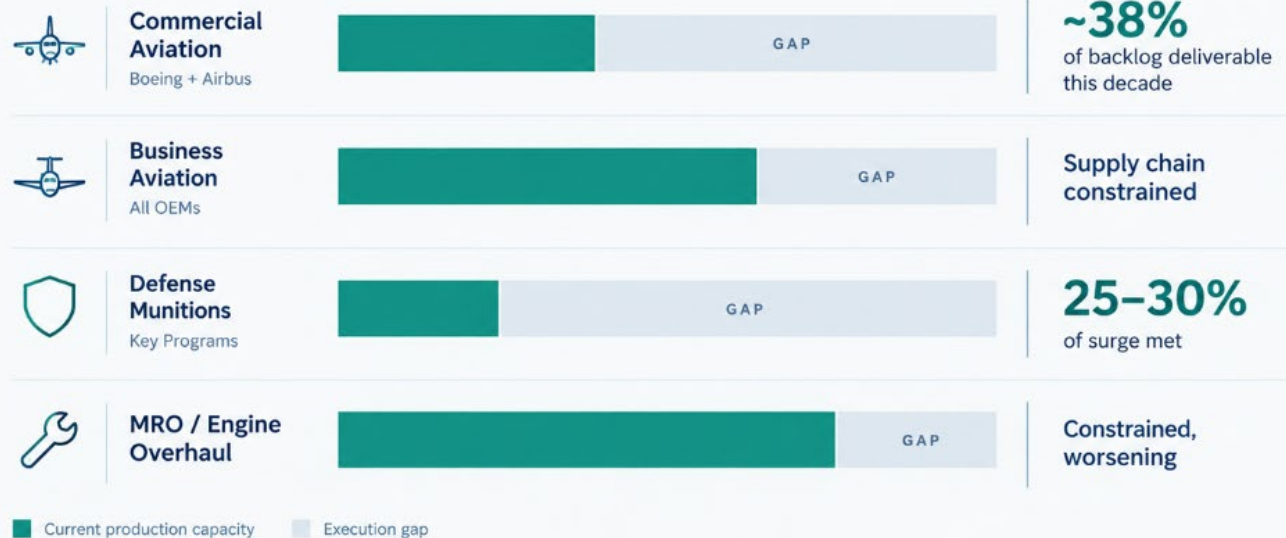
The problem is not demand. The problem is execution. And execution has two parents: operational capability and financial solvency. Both are in short supply below the Tier 1 level.

ADAS supply vs. demand: The delivery gap by segment

Where delivery capacity falls short

Across key A&D segments, demand continues to outpace the industry's ability to convert capacity into deliveries.

Current production capacity by segment compared to demand signal/backlog (2026)



Based on analysis by Riveron. Sources: IATA Global Outlook 2026; FAA Aerospace Forecast FY2026-2046; CSIS Defense Industrial Base Report; Air Lease Corp. 10-K FY2025; IBA Business Jet Forecast.

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Four demand curves, one industrial base

Commercial aviation is carrying a combined Boeing and Airbus backlog approaching 15,000 aircraft, with delivery delays cascading through the end of the decade. Airlines are flying older, less efficient fleets longer than anyone planned. Boeing's 737 MAX ramp, constrained first by the FAA and then by supply chain, remains well short of where it needs to be. Airbus closed 2025 with the largest backlog in company history, at 8,754 aircraft, against a delivery machine that is running at capacity.

Business aviation is experiencing the same structural imbalance. Bombardier recorded 1.5 new orders for every jet it delivered in the second quarter of 2026, with its backlog expanding to \$21.8 billion, which is \$4.3 billion higher than it ended 2025. Engine shortages and window supply constraints continued to affect delivery timing. Textron Aviation is carrying \$8 billion in orders. The demand is not theoretical; customers have crews hired, routes planned, and operational budgets committed around aircraft that haven't been built yet.

On the defense side, the situation is frankly more urgent. The Israel-Iran conflict in 2025 consumed nearly a quarter of the US THAAD interceptor inventory in 12 days of combat. The Center for Strategic and International Studies has stated plainly that munitions depleted in that conflict will take years to replace, and lower-cost alternative versions are not yet in production. The Pentagon has responded with multiyear procurement agreements at historic scale, greenlighting \$6.3 billion for critical munitions in the FY2026 spending bill, multiyear authorities for eight weapons systems, and \$500 million specifically to expand the solid rocket motor industrial base. Those commitments are necessary. But signing a contract and having production capacity in place are two different problems on two different timelines.

“ Manufacturing a missile may take weeks. Building the supply chain that makes that missile possible can take years. The demand is at the front. The money isn't getting there.”

The workforce math doesn't close

Key talent shortage indicators across US aerospace & defense, 2025–2026:

17K+

Projected annual openings for aerospace engineers and aircraft/avionics technicians through 2034, indicating a high workforce need

BLS – Aerospace Engineers + BLS – Aircraft & Avionics Mechanics/Technicians

125K

New aviation maintenance technicians needed in North America through 2045, indicating a high workforce need

Boeing – 2026 Commercial Services Market Outlook

5.5%

Annual aerospace engineer occupational separations rate, **indicating a continual replacement burden**

BLS – Occupational Separations and Openings

The workforce gap behind all the other gaps

Every constraint in the aerospace supply chain eventually traces back to a human being—a machinist, a welder, a quality inspector, a cleared program manager—who either exists within the available workforce or doesn't. Right now, these individuals largely don't exist in sufficient numbers. The Bureau of Labor Statistics projects more than 17,000 annual openings for aerospace engineers and aircraft and avionics technicians through 2034, reflecting the scale of the industry's ongoing workforce needs.

And filling today's openings is only part of the challenge. BLS projects a 5.5% annual occupational separations rate among aerospace engineers, creating a continual need to replace experienced workers even as the industry grows. Longer term, [one major OEM estimates](#) that North America alone will need 125,000 new aviation maintenance technicians through 2045. Together, these pressures mean the industry must build new workforce capacity while continually replacing skills and experience that are leaving it.

What makes this constraint uniquely resistant to fast solutions is the nature of the skills themselves. A CNC machinist running titanium structural components to tolerances measured in ten-thousandths of an inch is a product of years of experience, not weeks of entry-level training. A quality inspector who understands the difference between a drawing non-conformance and an actual structural risk is an institutional asset that cannot be replicated quickly. You can hire bodies faster than you can build capability, and the industry is finding this out in real time.

The working capital squeeze: Ramping production requires cash before it generates cash

Here is where the aerospace capacity conversation gets uncomfortable—and where most industry analysis goes quiet. The demand signal is visible. Ramping production consumes cash before it generates it. Manufacturers must buy more material, carry more work in process and finished goods, add equipment and expand headcount before the resulting output is delivered and paid for.

The financial structure is the ramp's hidden governor.

Industry-wide data reinforces the scale of the working-capital requirement. NYU Stern's January 2026 dataset of 79 US aerospace and defense companies shows:

~106 days of sales held in inventory, essentially flat from ~105 days in 2025

~87 days of sales tied up in receivables, up from ~80 days in 2025

~41% of sales represented by non-cash working capital, up from ~39% in 2025

Source: NYU Stern – Working Capital Ratios by Sector. Days equivalents calculated by Riveron from Stern's reported inventory/sales and accounts receivable/sales ratios; prior-year comparisons based on Stern's January 2025 archived dataset.

The scale of that requirement is visible even among some of the industry's largest companies. Here are supporting examples based on actual financial results reported by OEMs and suppliers in the ADAS sector:

~€7B

Airbus inventory increase through Q3 2024, with the company citing inventory build-up supporting fourth-quarter deliveries and the ramp-up across programs

Airbus – 9M 2024 Results

\$63M

Hexcel working-capital cash use in Q1 2026, even as sales increased approximately 10% YoY

Hexcel – Q1 2026 Results

+181M/+70M/+101M

Woodward increase from Sept. 2025 to June 2026 in accounts receivable / inventory / PP&E, illustrating capital tied up as the business grows

Woodward – Q3 FY2026 Results / SEC Filing

The numbers indicate these companies have significantly greater access to capital than the smaller manufacturers farther down the supply chain, but their results illustrate the same fundamental dynamic: growth creates a financing requirement before it generates the corresponding cash.

That dynamic becomes more difficult below the Tier 1 level. What's not visible in the industry's optimistic order books is the practical realities suppliers face, like the balance sheet of the 12-person machining shop in Wichita or the 40-person surface-finishing operation in Connecticut that sits three tiers below the OEM on a critical program. These companies generally have fewer sources of liquidity and less balance-sheet flexibility, even as customers ask them to invest ahead of higher production rates.

Across the ADAS sector, many middle-market manufacturers are now facing an unwieldy combination: high legacy leverage, thin operating margins (even in a strong year), and a demand signal requiring them to invest in capital equipment, expand headcount, and carry more inventory—all before the revenue arrives. The banks look at the balance sheet, see the post-COVID damage, price the risk accurately, and offer financing at rates that are economically irrational relative to the return on the incremental capacity investment. The second shift doesn't happen. The new CNC machine doesn't get ordered. The ramp doesn't ramp.

The defense industrial base – a structural warning

The Pentagon's consolidation decisions of the 1990s—from 51 prime contractors to 5, with commensurate compression of the subprime tier—built a defense industrial base optimized for peacetime procurement efficiency and zero surge capacity. What felt like smart portfolio management in 1993 is a national security liability in 2026. Rebuilding that industrial base is a decade-long project. The multi-year contract authorities and production agreements being signed today are necessary but insufficient without simultaneous capital relief for the supplier base that has to execute them.

Where capital is—and isn't—flowing

Capital is clearly moving into aerospace and defense, but not all of it is structured to solve the capacity and working-capital needs of middle-market suppliers:

- **Private equity and venture capital: Accelerating.** Global PE/VC investment in aerospace and defense reached \$10.6 billion in 2025, more than double the \$4.9 billion invested in 2024.⁽¹⁾ In early 2026, US PE/VC investment in the ADAS sector accelerated further, reaching \$14.2 billion through May versus \$6.6 billion in the same period of 2025.
- **Traditional M&A: More mixed.** Unlike private investment, overall M&A involving aerospace and defense targets has declined from its 2021 peak.⁽¹⁾ This means capital is pouring into selected ADAS opportunities, particularly defense technology, without necessarily translating into broad consolidation or capacity investment throughout the existing supplier base.
- **Traditional bank credit: Available, but not necessarily aligned with the ramp.** Smaller suppliers must finance equipment, labor and inventory ahead of revenue while lenders underwrite against current cash flow, leverage and collateral. The resulting financing gap is part of the working-capital dynamic described above.
- **OEM supply-chain finance: Established, but reach varies.** Boeing alone reported approximately \$2.0 billion of accounts payable associated with suppliers participating in its supply-chain financing programs as of June 2026. The filing demonstrates that these mechanisms operate at meaningful scale, although it does not establish how much financing ultimately reaches Tier 2 and Tier 3 suppliers.
- **Government-directed capital: Expanding.** DoD and other federal programs are increasingly using loans, loan guarantees and direct industrial-base investments to attract private capital and expand production capacity. The question is whether these programs can reach constrained suppliers quickly enough and at sufficient scale to keep pace with demand.

(1) Sources: S&P Global Market Intelligence.

Private Equity is not the same as financial health

Capital markets have recognized the opportunity, and private equity is moving aggressively into the space. Middle market aerospace and defense M&A deal volume grew 21.7% year over year through Q3 2025. PE-backed roll-up platforms are consolidating Tier 2 and Tier 3 suppliers at a pace not seen since the defense consolidation of the 1990s — with combined committed-but-unspent capital in aerospace-focused industrial platforms estimated above \$200 billion. Greenbriar Equity's merger of Applied Aerospace and PCX Aerosystems into Applied Aerospace & Defense, followed by additional bolt-on acquisitions and a June 2026 NYSE listing, is a recent public illustration of the thesis in action.

Be careful not to confuse this activity with a healthy supply chain. PE roll-ups are financed with substantial acquisition debt. The Applied Aerospace & Defense example is instructive: \$117.9 million of adjusted EBITDA against a \$17 million GAAP net loss, the gap driven by interest expense on acquisition leverage plus depreciation and integration costs. That's not a financially strong supplier — that's a financially engineered one. When a production ramp simultaneously stresses schedules, cash cycles, working capital, and integration execution, a highly leveraged platform faces its own liquidity crunch. It's a different version of the same problem, not a solution to it.

The more durable capital solutions — OEM supply chain finance programs that reach below Tier 1, government-backed lending facilities for qualified defense suppliers, and creative use of multiyear contract advances to fund capacity investment — are moving far more slowly than the demand signal requires. These mechanisms exist in prototype form. They need to be deployed at scale.

What needs to happen, and who needs to do it

The investment cycle is clearly accelerating — manufacturing investment in aerospace and defense more than doubled between 2022–2023 and 2024–2025, and weekly aerospace job postings nearly doubled between January 2025 and May 2026. That is real progress and it matters. But there is a crucial difference between committing capital and adding qualified production capacity. New facilities take 18 to 36 months to come online. Qualification of new aerospace production lines takes longer. Full-scale industrialization of automation and AI inspection tools — which the industry needs desperately — is still years away from contributing meaningfully to throughput.

In the near term, the ramp will be paced not by demand, not by investment announcements, and not by order backlog size. It will be paced by the financial viability of the companies three and four tiers below the OEMs — the shops that cut, drill, weld, treat, and inspect the parts that go into the parts that go into the aircraft. Until OEMs extend their supply chain finance programs meaningfully below Tier 1, until traditional lenders find underwriting frameworks that reflect the multiyear demand visibility in these programs, and until DoD-directed capital reaches the supplier base rather than stopping at the prime, the system will continue to underperform what the backlog says is achievable.

Be transparent about your financial position with your customers and lenders. Pursue contract amendments that accelerate milestone payments, reduce working capital exposure, and produce a return on invested capital that supports reasonable equity returns, and encourages growth and expansion. Explore every available supply chain finance vehicle, including factoring and ABL facilities. And if you're an OEM or prime reading this, your supplier base's liquidity problem is your production rate, on time delivery, and quality risk.

Finally, focus on the shop floor. Developing boardroom ready financial projections is very different than translating those projections into action plans that drive daily, weekly, and monthly deliveries while being inventory efficient.

The bottom line

The demand signal for US aerospace and defense manufacturing is historically strong across every segment simultaneously. The industrial base is not structurally equipped to satisfy it — not in terms of physical capacity, not in terms of qualified workforce, and not in terms of the financial health of the middle market manufacturers who form its backbone. The investment cycle has started, but it is running 18 to 36 months behind the demand curve, and the liquidity constraints at Tier 2 and below are acting as an invisible governor on execution.

Connect with an expert



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