

From Venture Capital to the Arsenal

Assessing Pentagon Spending on America's Emerging Defense Companies

Dan Berkenstock, Maggie Gray, and Walter J. Manuel

In early June 2026, a twenty-four-foot autonomous surface vessel, known as a Corsair, rescued two US Army aviators from the Strait of Hormuz after their Apache helicopter crashed during a patrol operation.[1]

Although the Corsair was operated by the US Navy, it was produced by a startup company founded in 2022 called Saronic Technologies. Within its first four years of existence, the company was able to catalyze nearly $3 billion in capital, funding that directly led to the rescue of the two downed airmen without having to put the lives of additional personnel at risk. In this case, a delicate dance between venture capital (VC) and government acquisitions led to a valuable, mission-ready capability being fielded in conflict within a fraction of the time of traditional procurement cycles.

Saronic is only one example of a broadening trend. Across domains from undersea to outer space, American defense tech startup companies are rapidly moving beyond the prototype stage to the production stage, boosted by a historic level of venture capital investment.

As part of studying the Accelerating Defense Tech initiative, we have been examining the state of the playing field, beneath the headlines of this emerging defense industrial base. Companies such as SpaceX and Anduril may be well known and highly capitalized; however, there is a large cohort of lesser-known companies following in their footsteps. Since the turn of the century, more than eight hundred US-headquartered aerospace and defense companies have raised at least $1 million of venture capital funding. Today, these companies employ tens of thousands of America's most accomplished engineers and scientists and are becoming an important strategic national asset. Whereas approximately $800 million of venture capital was invested in this sector in the first decade of the twenty-first century, almost $80 billion has already been committed in the first six years of the 2020s, a hundredfold increase.[2]

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However, the visible progress of this industry masks its fragility. The venture industry works on a simple model: Venture funds raise capital from limited partners, often pension funds and money managers, with an expectation that their investments will at least triple that initial capital in a seven-to-ten-year window, net of fees. Given the high-risk, "power law" nature of startups, only a small percentage of these companies will ultimately "return the fund" by providing returns through acquisitions or public offerings that will contribute to meeting the return expectations of the limited partners. Given prevailing industry metrics and comparables, the willingness of investors to finance the next generation of these companies will require a substantial increase of US government procurement, largely driven by defense spending, across the cohort.

Defense acquisitions have been substantially reformed over the past decade, through a combination of congressionally granted authorities, executive orders, and dogged efforts by acquisition leaders. The recent SpaceX initial public offering (IPO) generated a windfall for investors, possibly creating tailwinds for the sector as a whole. However, the question remains: What about everyone else? Is the larger body of up-and-coming startups on a trajectory that is likely to generate the revenue and, by extension, returns required to incentivize further investment?

This paper examines public federal procurement data to explore whether the success of headline examples, such as SpaceX and Saronic, is an outlier or indicative of a broader shift within the defense acquisition system to procure more capabilities developed by venture-backed companies.

To do so, we assembled a cohort of nearly nine hundred venture-backed aerospace, defense, and national security companies, traced each one into the federal award databases, and extracted the full set of their identifiable contracts. Two firms—SpaceX and Anduril—dwarf the rest. After briefly summarizing the sector as a whole, we set them aside and focus our remaining analysis on the research and procurement dollars that mark a company's path from prototype to program of record.

One convention governs the figures that follow. Unless a number is explicitly labeled as nominal, every dollar amount from here forward is stated in constant fiscal year (FY) 2025 dollars, adjusted for inflation by the method we describe in the Our Method section below.

This paper describes the companies in the cohort, how we found them in the data, and what the resulting data shows. From this investigation, four primary claims emerge:

- **The research and development (R&D) ramp is real and steep.** Annual Department of War (Defense, DOW) R&D obligations to the cohort grew from roughly $33 million in FY2015 to $1.8 billion in FY2025—more than a fiftyfold increase in constant dollars, driven overwhelmingly by Other Transaction (OT) prototype agreements.
- **A significant and growing number of companies in the cohort graduated from R&D to procurement funding.** Cohort procurement obligations more than doubled, from

$200 million in FY2024 to $492 million in FY2025, and the partial year FY2026 has already reached $859 million. Over the past decade, the department as a whole has obligated roughly five dollars of procurement for every dollar of contracted R&D. The cohort is far earlier in that climb, but moving fast—from eleven cents of procurement per R&D dollar in FY2024 to sixty-nine cents in partial FY2026. This is the critical first signal that the policy efforts of recent years have begun to build a bridge over the "valley of death," and this trend must continue in order for this cohort to mature into a resilient production base.

- **The wait for first dollars has shortened sharply.** Companies founded before 2015 took a median of seven years to reach $1 million of cumulative DOW R&D funding. For 2015–2020 founders, the median fell to four years, and for companies founded since 2021 it is two.
- **Contract dollars are highly concentrated.** Five companies account for roughly 29% of the cohort's cumulative R&D and procurement dollars.

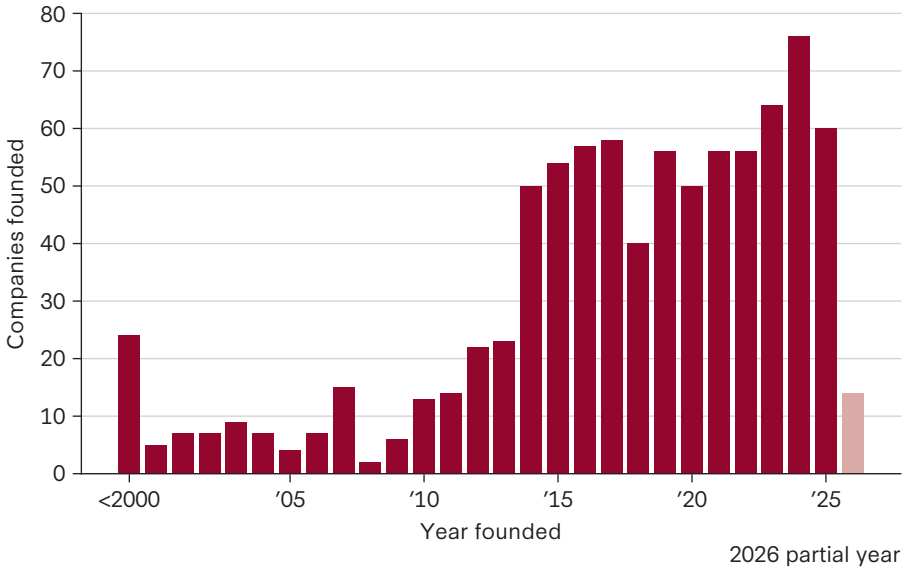
THE COHORT

We set out to identify the entire universe of US-based, defense-relevant, venture-backed startups. The set includes all companies that have raised at least $1 million of initial venture funding and are labeled as being within the Aerospace and Defense sector.[3] We also added in any additional companies that have been included in the Silicon Valley Defense Group (SVDG) NatSec100 lists over the past several years.[4] We purposely included companies that began venture-backed and later went public (e.g., Rocket Lab, Planet Labs, Archer, Joby, Spire, SpaceX), as graduation to public markets is relevant to our analysis.

Figure 1 shows the founding year across the complete set of companies. In general, these companies are relatively young: Of the 882 companies, 856 carry a listed founding year, with a median founding year of 2019. Through the 2000s, only a few new companies were started each year. In 2014, the pace roughly doubled, from 23 companies founded the year before to 50, and it held between 40 and 58 a year through the end of the decade. A second wave began in 2021. Every year from 2021 through 2025 produced at least 56 new companies, peaking at 76 in 2024. In all, 270 of the 856 dated companies—nearly a third—were founded in 2022 or later, after the Russian invasion of Ukraine.

The 878 companies with a listed headquarters span 45 states, the District of Columbia, and Puerto Rico, but are largely concentrated in technology and aerospace hubs. California alone hosts 349 companies (40% of the cohort, more than the next seven states combined), and the top ten states together account for 80% of the cohort (table 1). Texas runs a distant second at 69, with Colorado, Virginia, and Florida close behind. Venture-backed defense companies have tended to form where engineering talent, capital, and customers already sit—Silicon Valley, Southern California's aerospace corridor, the Texas manufacturing base, Colorado's space enterprise, Florida's Space Coast, and the national capital region.

FIGURE 1 Companies founded per year



Source: PitchBook Data Inc.

TABLE 1 TOP TEN HEADQUARTERS STATES

Rank	Headquarters state	Companies	Share of located HQs
1	California	349	39.7%
2	Texas	69	7.9%
3	Colorado	52	5.9%
4	Virginia	47	5.4%
5	Florida	46	5.2%
6	Massachusetts	42	4.8%
7	New York	32	3.6%
8	Washington	32	3.6%
9	Maryland	20	2.3%
10	District of Columbia	16	1.8%

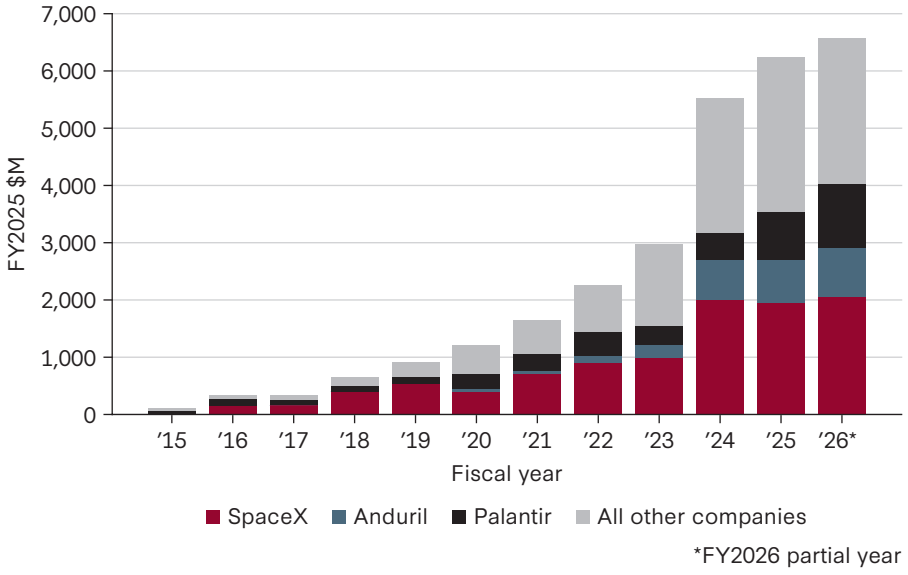
Source: PitchBook Data Inc.

Three firms sit at the top of this market, and we set all three aside from the company-level analysis that follows. SpaceX and Anduril belong to our cohort but have each won an order of magnitude more defense revenue than the other companies in the list, which distorts the trends for smaller startups. Palantir, an established data-software firm that went public in 2020, sits outside the venture cohort we screened, yet it remains an important marker of the top-line performance in this sector.

Figure 2 shows cumulative annual contract awards across all categories of DOW spending for these three firms and the rest of the cohort. The cohort itself has drawn roughly $25 billion of contract and Other Transaction obligations in constant dollars since 2015. SpaceX alone won $10.2 billion of government contracts ($9.2 billion of which is for launch and other services, a relatively mature commercial market), and Anduril received $2.8 billion, so the two together account for more than half of the cohort's total obligated contract value. Palantir, measured the same way, has drawn about $4.2 billion since 2015, more than Anduril.

The remaining 880 companies won a collective $11.5 billion in contracts. The amount of revenue received increased dramatically over the last decade. In FY2015, companies in the cohort (excluding SpaceX, Anduril, and Palantir) won just under $40 million, while in FY2025 they won $2.7 billion. Beyond this point, our analysis sets aside all three top-of-market firms and focuses on the two categories of government contracts that mark a company's path from prototype to program: research and development and procurement. Our analysis focuses on the 372 companies that have booked meaningful ($100,000+) revenue from DOW R&D or procurement contracts. Unless otherwise noted, we state figures in FY2025 dollars and exclude these outliers.

FIGURE 2 Total DOW obligations, three top-of-market firms and the rest of the venture cohort, FY2015–26, FY2025 $M. Palantir sits outside the screened cohort and is shown for scale.



Source: Figure by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; and the Federal Procurement Data System.

OUR METHOD

In order to find contracts associated with our target list of companies, we queried USAspending and the FPDS (Federal Procurement Data System) Atom feed for each company name in order to find each company's Unique Entity Identifier (UEI), a twelve-character registration key used by the federal government to identify vendors.[5] A candidate UEI was auto-accepted only when the vendor name matched exactly (after normalization) or extended the company name with a white-listed suffix such as "Technologies" or "Systems," the registration state matched the company's headquarters, and the vendor's first federal award did not predate the company's founding. Everything else went to a review queue that we adjudicated by hand, in several cases with targeted web research.[6]

Notably, when a company is acquired, the federal files backfill the acquirer's current registered name onto its historical contracts—so a company's own startup-era revenue can masquerade under a prime contractor's name, and vice versa. Where an acquisition materially affected contract revenue, we dropped the company rather than make a guess. Additionally, several companies operate under multiple legal names: Joby Aviation contracts as Joby Aero, TransAstra as Trans Astronautica. Most name-based searches miss these, but our sweep caught several because we queried the FPDS feed directly with fuzzy variants.

In the final accounting, of 882 companies, 479 matched to at least one verified UEI, 84 remain ambiguous (their candidate UEIs fail our evidence tests and collectively hold trivial dollars), and 319 show no federal awardee identity at all. Some 372 companies have DOW obligations above our reporting thresholds ($100,000 in inflation-adjusted 2025 dollars).

To compile the contract list, we combined two sources: the annual Department of War contract files published in the USAspending Award Data Archive, which include all Federal Acquisition Regulation (FAR)–based contracting data, and the FPDS Atom feed, which includes OT contracts.[7] Each OT record carries a real per-action obligation, a product service code, and a designation of prototype or production, which the Government Accountability Office (GAO) also uses as the R&D-versus-procurement signal. Notably, FPDS only began systematically reporting OTs in FY2019, so our pre-2019 OT figures understate. Also, our dataset slightly underrepresents the cohort's OT contracts, as some companies may have been awarded OT contracts through OT consortia, which FPDS records under the consortium manager rather than the performing company; Neros, for instance, shows $4.2 million awarded to its own UEI while holding several much larger Drone Dominance awards recorded under the National Security Technology Accelerator (NSTXL).

We "sanity checked" our dataset by comparing it to another dataset of companies' DOW contracts provided by Obviant, which does its own data-cleaning work, and we found that the datasets largely matched.

All figures we reference are committed dollars, not contract ceilings (press releases run larger than obligation ledgers—for instance, Saronic's Corsair agreement was announced near

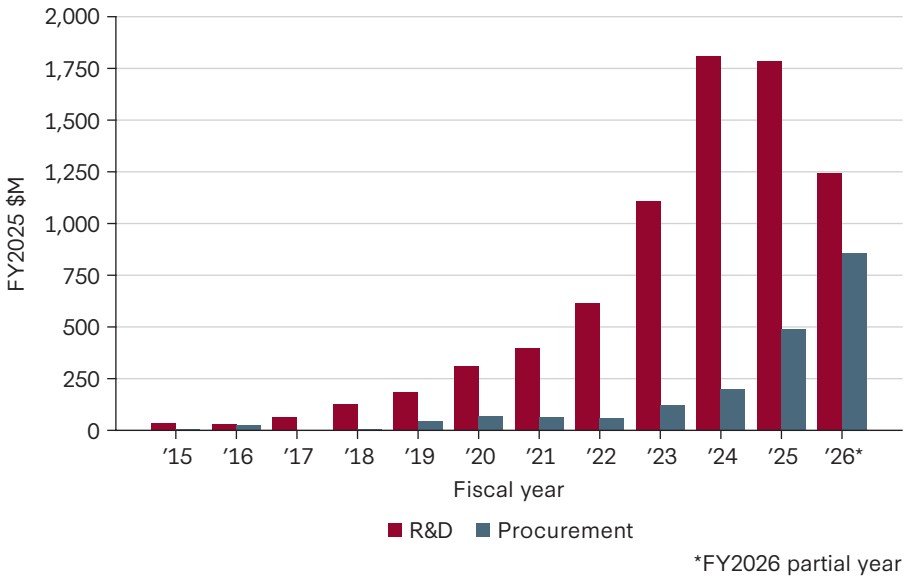
$392 million, while just $282.4 million has been obligated to date). Also note that FY2026 is a partial year in our data. Both our FAR and OT records run current only through late May 2026, after which federal reporting lag thins the data to a trickle.[8] Additionally, the data covers DOW prime awards only—no subcontracts (a startup building under a prime is invisible), no classified programs, no NASA or other civil agencies. We classify FAR research product and service codes (PSCs; A-codes) and OT prototypes as "R&D" contracts, hardware PSCs and OT production agreements as "procurement" contracts, and the rest as "services."

Unless a figure is labeled as nominal, every dollar amount in this paper is stated in constant FY2025 dollars. We deflate each obligation by the change in the Consumer Price Index for All Urban Consumers (CPI-U, not seasonally adjusted) between its fiscal year and FY2025, using twelve-month fiscal year averages of the index. We chose CPI-U over a defense-specific deflator so that the adjustment is transparent and reproducible from public data. Restating these figures in FY2026 dollars would raise every dollar amount by roughly 3%, based on CPI-U through the first three quarters of FY2026, and would leave every share, ratio, and percentage in the paper unchanged.

HIGH-LEVEL FINDINGS

As shown in figure 3 and table 2, since FY2015, the yearly contract value awarded to companies in the cohort has increased by more than fifty times. In FY2015, the department obligated roughly $33 million of R&D to this group—a rounding error, equivalent to a few

FIGURE 3 Annual DOW R&D and procurement obligations to the cohort, FY2015–26, FY2025 $M. Excludes SpaceX, Anduril, and launch services.



Source: Figure by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; and the Federal Procurement Data System.

TABLE 2 ANNUAL DOW R&D AND PROCUREMENT OBLIGATIONS TO THE COHORT, FY2025 $M

Fiscal year	R&D	Procurement	R&D + procurement
FY2015	33	4	37
FY2016	28	24	52
FY2017	63	2	66
FY2018	126	8	135
FY2019	185	47	232
FY2020	309	70	378
FY2021	398	62	460
FY2022	613	57	670
FY2023	1,106	124	1,230
FY2024	1,810	201	2,011
FY2025	1,785	492	2,277
FY2026*	1,242	859	2,101

*FY2026 partial year

Note: Excluding SpaceX and Anduril; services and launch excluded.

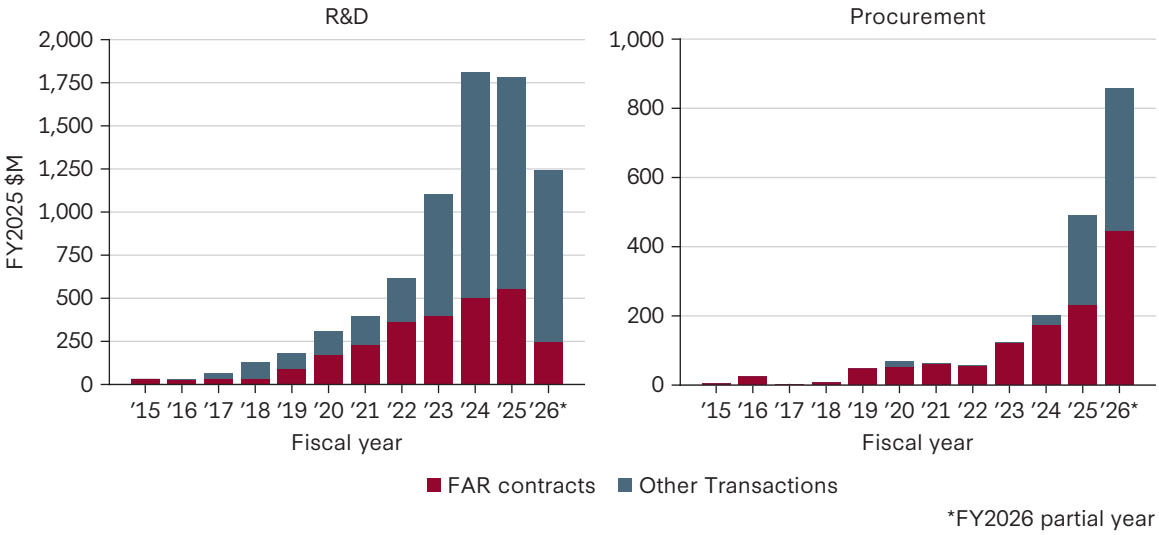
Source: Table by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; and the Federal Procurement Data System.

Small Business Innovation Research (SBIR)–scale contracts. By FY2019 the figure was $185 million, and in FY2024 it scaled to $1.81 billion. Revenue growth accelerated in recent years, with nearly two-thirds of the cohort's cumulative R&D contract value arriving in FY2024 and later.

Figure 4 splits each category by funding channel: R&D, procurement, or a combination of both. Other Transaction prototype agreements and traditional FAR research contracts both grew substantially over time, but OTs in particular became the dominant contract mechanism for R&D, as they carried 72% of cohort R&D in FY2024 ($1.31 billion of $1.81 billion) and have been the majority channel every year since FY2023.

A handful of companies received the bulk of these contracts. As shown in figure 5 and table 3, York Space Systems leads at $1.33 billion cumulative—nearly all of it Space Development Agency (SDA) prototype agreements for the Proliferated Warfighter Space Architecture, including Tranche 1 Transport Layer ($435.9 million) and Tranche 2 Transport Layer Alpha ($443.1 million). Sierra Space follows at $642 million, anchored by SDA's Tranche 2 Tracking Layer ($598.6 million). One caveat on these figures: SDA tranche agreements count as R&D

FIGURE 4 Funding channel by category: FAR contracts vs. Other Transactions, FY2025 $M

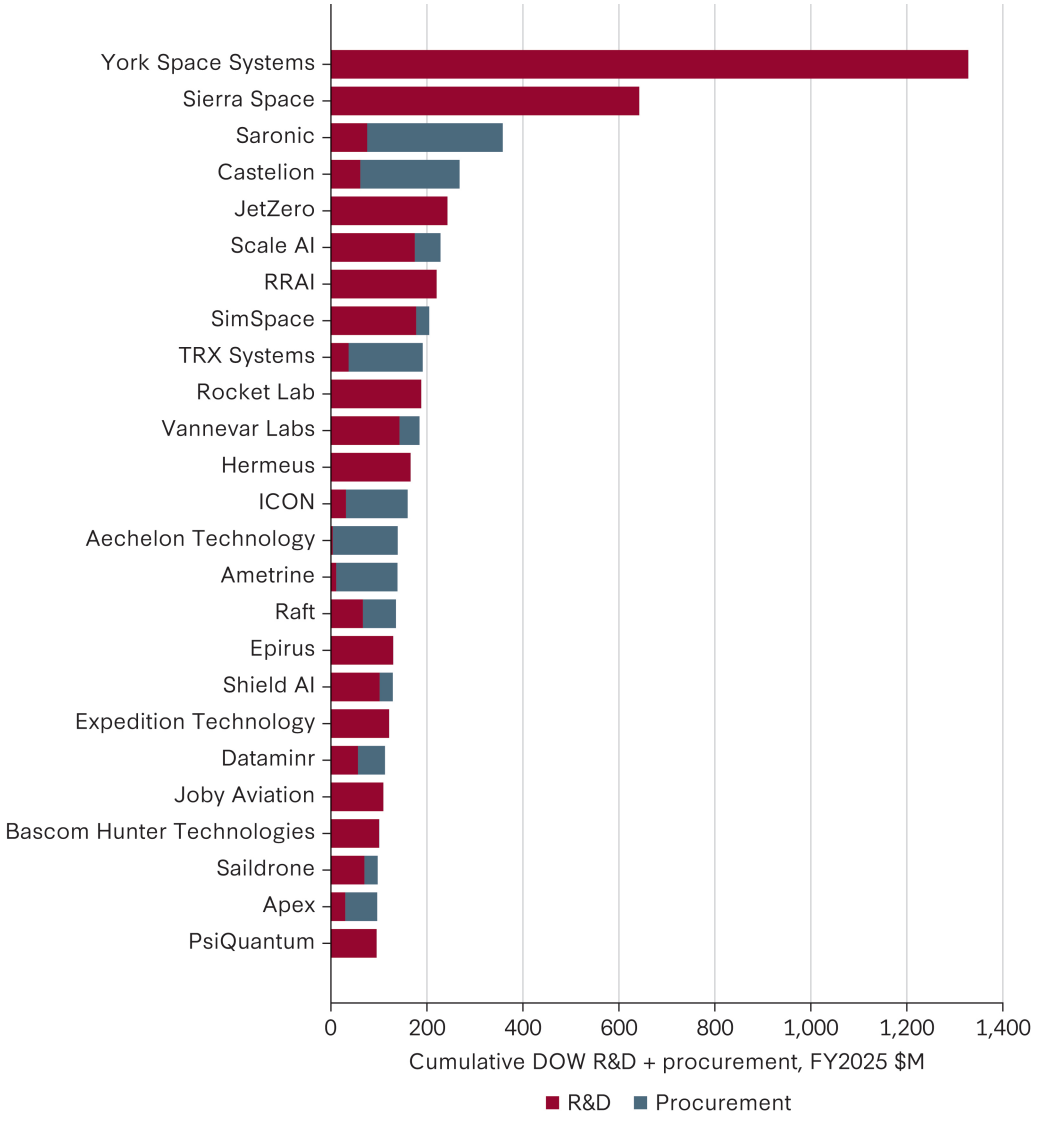


Source: Figure by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; and the Federal Procurement Data System.

in our classification because they are prototype Other Transaction agreements, even though at this scale they fund what are effectively production satellite constellations. Saronic and Castelion, both covered below, rank third and fourth due to large production contracts. The leaders in research contract dollars include JetZero's $243 million for blended-wing-body prototype work, Scale AI's $175 million for artificial intelligence (AI) research, Robotic Research's (now d/b/a Forterra) $220 million for autonomy research, SimSpace's $178 million for cyber ranges, Rocket Lab's $188 million for launch research, and Hermeus's $166 million for hypersonic flight-test work.

Figures 6 and 7 show the breakdown of where the department's R&D and procurement dollars go by technology domain and by company type, respectively. Even without SpaceX, space is still the largest technology category, winning 34.9% of cohort R&D and procurement dollars—much of it York Space's $1.33 billion—followed by robotics and autonomy at 15.5%, AI/ML at 11.3%, and aviation and air platforms at 8.4%. That ranking shifts once the dollars are split into R&D and procurement. Space dominates the research side, winning 41.4% of all R&D contract dollars, but far fewer of those contracts have converted into procurement, where space is only 9.6% of the dollars. Robotics and autonomy leads the procurement side at 27.1%, driven largely by Saronic's $282 million Corsair production agreement, followed by AI/ML at 11.6%. A band of hardware-heavy categories sits just behind, with munitions at 10.3%, advanced manufacturing at 8.6%, materials at 8.5%, and sensing and imaging at 8.1%. Launch and services sit outside both categories, and software-as-a-service contracts are not counted as procurement. Hardware carries both sides of the ledger: Hardware and hardware/software mixed products together take more than 80% of all R&D contract dollars, and hardware alone remains the largest procurement category at 48.8%, with software-only products at 27.2%.

FIGURE 5 Top twenty-five companies by cumulative DOW R&D and procurement, all years, FY2025 $M



Source: Figure by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; and the Federal Procurement Data System.

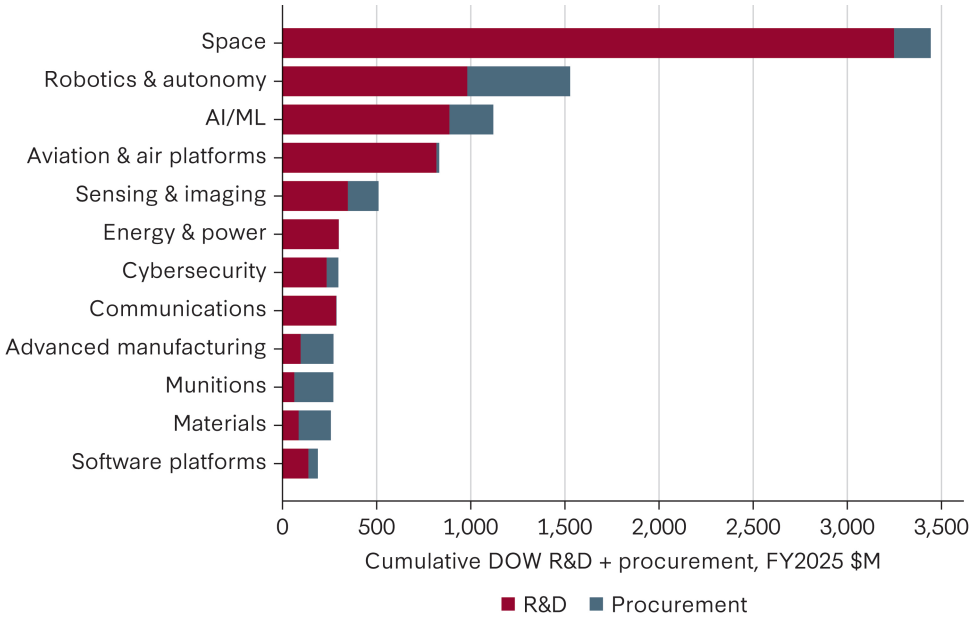
TABLE 3 TOP TWENTY-FIVE COMPANIES BY CUMULATIVE DOW R&D + PROCUREMENT, ALL YEARS, FY2025 $M

Company	R&D	Procurement	R&D + procurement	First FY
York Space Systems	1,328	0	1,328	2020
Sierra Space	642	0	642	2023
Saronic	76	282	358	2024
Castelion	61	207	268	2023
JetZero	243	0	243	2023
Scale AI	175	53	228	2020
Robotic Research Autonomous Industries (RRAI)	220	0	220	2007
SimSpace	178	27	205	2019
TRX Systems	37	154	191	2008
Rocket Lab	188	0	188	2015
Vannevar Labs	143	41	184	2021
Hermeus	166	0	166	2020
ICON Technology	31	128	160	2019
Aechelon Technology	4	135	139	2007
Ametrine	11	128	139	2017
Raft Technologies	67	69	135	2018
Epirus	130	0	130	2019
Shield AI	101	27	129	2016
Expedition Technology	121	0	121	2014
Dataminr	56	56	112	2016
Joby Aviation	109	0	109	2017
Bascom Hunter Technologies	100	0	101	2011
Saildrone	70	28	97	2016
Apex Space	30	66	96	2023
PsiQuantum	95	0	95	2022

Note: Services and launch excluded.

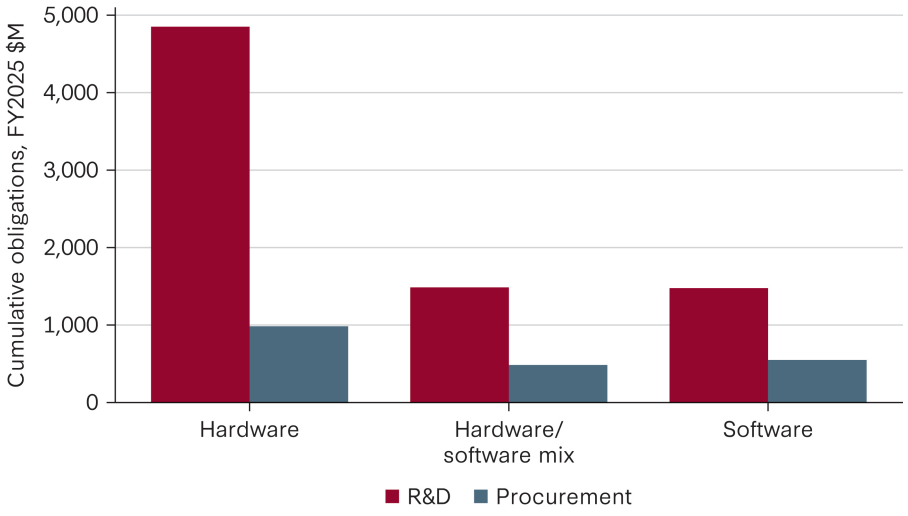
Source: Table by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; and the Federal Procurement Data System.

FIGURE 6 Where the dollars go, by technology domain: cumulative DOW R&D and procurement, top twelve domains, FY2025 $M. Excludes SpaceX and Anduril; services and launch excluded.



Source: Figure by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; and the Federal Procurement Data System.

FIGURE 7 Hardware, software, and the companies that do both: cumulative R&D and procurement, FY2025 $M. Same exclusions as figure 6.



Source: Figure by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; and the Federal Procurement Data System.

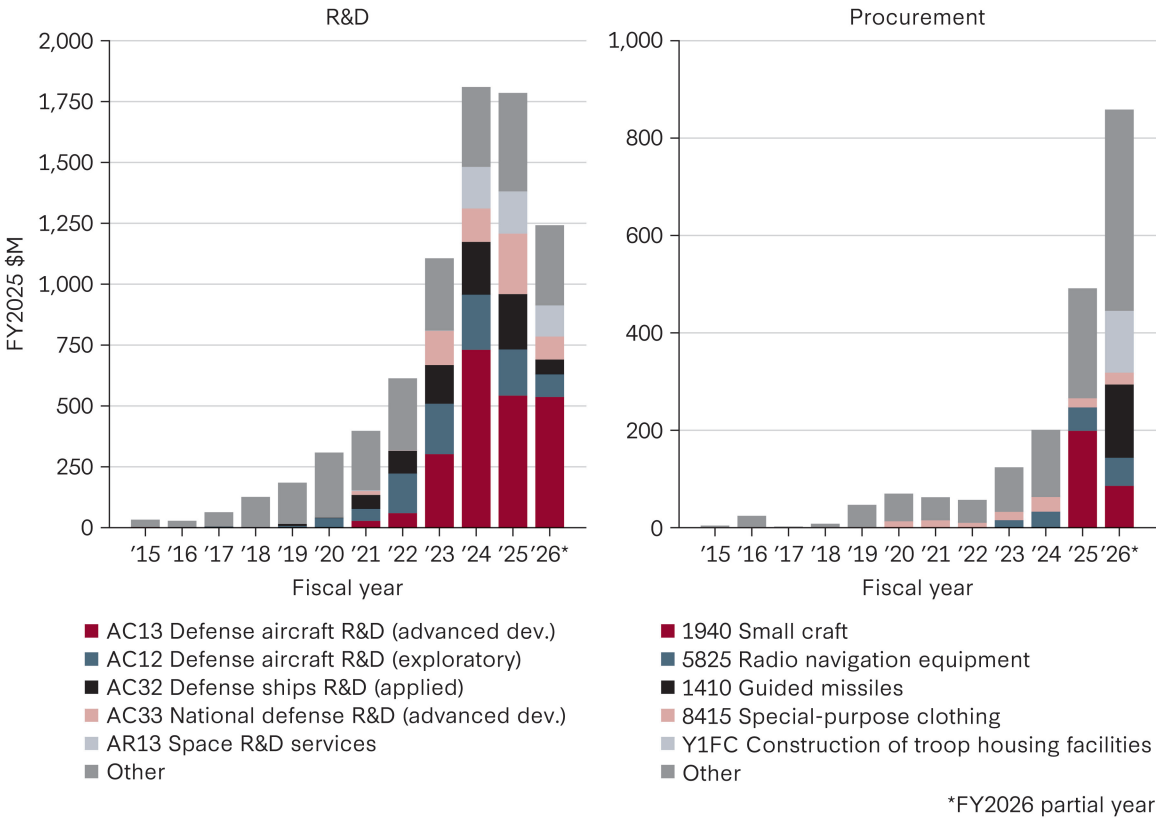
THE PROTOTYPE-TO-PRODUCTION CROSSING

For most of the first half of our analysis period, procurement contract wins were few and far between. Through FY2023 the cohort had never booked more than about $124 million of procurement in any given year, and from FY2019 through FY2023, R&D funding ran between four and eleven times procurement funding. The ratio in FY2024 was still 9-to-1.

However, FY2025 marked a turning point when procurement obligations reached $492 million—2.4 times the prior year—and the partial FY2026 tally already stands at $859 million. The R&D-to-procurement ratio has compressed from 9-to-1 to under 1.5-to-1 in two years. Some of that compression is due to a plateau in R&D funding, but most of it is driven by a meaningful increase in procurement contracts.

As shown in figure 8, the cohort's top procurement product codes are small craft, radio navigation equipment, guided missiles, and special-purpose clothing. Saronic's Corsair production agreement is the single largest driver: $196.6 million obligated in FY2025 and

FIGURE 8 Top five product service codes plus other, by category, FY2025 $M. A-codes appear on the procurement side because OT production agreements are classified by agreement type.



Source: Figure by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; and the Federal Procurement Data System.

$85.8 million more in early FY2026, all under product code 1940, small craft. Castelion is the second-largest, moving from prototype to production in just eighteen months: After a $36 million Army Blackbeard hypersonic-strike prototype agreement in FY2025, its FY2026 procurement jumped to roughly $150 million under code 1410, guided missiles. Meanwhile, TRX Systems has won $154 million of cumulative procurement in Army dismounted navigation, while Ametrine's $128 million of procurement for signature-management gear explains the special-purpose-clothing line. Already, FY2026 has delivered more notable procurement contracts, with Apex ($66 million satellite-bus production OT), Darkhive, Hadrian Automation, and Firestorm Labs all winning their first eight-figure procurement contracts this year.

The Other Transaction pathway is working as designed: The statute lets a successful prototype convert to a follow-on production agreement without recompetition, and FY2025–26 is the first period in which multiple companies from the same cohort have exercised that conversion at scale in the same window.

The Other Transaction statute was written so that a prototype that works can convert into a production contract without a fresh competition. Setting SpaceX and Anduril aside, fifteen cohort companies have successfully used OTs to "cross" from prototype to production, holding both a prototype and a follow-on production OT agreement. Together they account for roughly $783 million of prototype obligations and $713 million of production obligations in FY2025 dollars.

These crossings are recent; ten of the fifteen companies booked their first production dollars in FY2025 or FY2026. As shown in table 4, among the field of companies, Saronic leads at $282 million of production from $76 million of prototypes, ICON follows at $128 million of production from $14.8 million of prototypes, and Apex is next at $66 million of production from $4.2 million of prototypes.

One note: The federal record does not formally link a production agreement to the prototype that spawned it, so we cannot trace a given prototype into its specific production award. Only two firms, ICON and SimSpace, explicitly link the production agreement to a prototype, each flagging a follow-on production agreement by name.

THE ON-RAMP

Not only are cohort companies winning more revenue from the department each year, they are also winning contracts faster in their life cycle than ever before. How long does a newly founded company wait before the department commits real money? For every company with a listed founding year, we counted the years from founding to its first $1 million of cumulative DOW obligations, in constant FY2025 dollars, separately for R&D and for procurement, and grouped the companies into three founding eras (figure 9).

TABLE 4 FIELD COMPANIES HOLDING BOTH A PROTOTYPE AND A FOLLOW-ON PRODUCTION OTHER TRANSACTION AGREEMENT, FY2025 $M

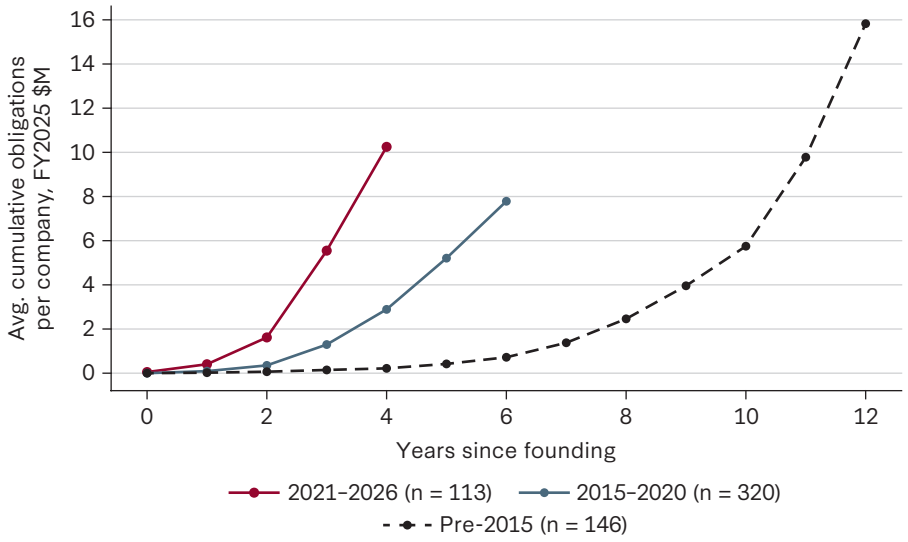
Company	Prototype OT	Production OT	First production FY
Saronic	75.6	282.4	2025
ICON	14.8	128.3	2025
Apex	4.2	66.4	2026
Applied Intuition	29.6	51.9	2024
Scale AI	50.5	47.0	2025
Vannevar Labs	127.2	41.5	2024
Saildrone	69.8	27.5	2025
SimSpace	177.6	26.7	2026
Shield AI	73.2	16.1	2019
K2 Space	3.3	14.6	2025
Fortem Technologies	24.6	6.5	2025
SandboxAQ	4.8	1.8	2025
Epirus	125.2	1.1	2023
HawkEye 360	0.7	1.0	2021
Rescale	2.2	0.6	2026

Note: SpaceX and Anduril excluded. Amounts are obligations by agreement type, not same-contract lineage.

Source: Table by the authors using data from the Federal Procurement Data System.

The R&D on-ramp has halved twice. Companies founded before 2015 that reached $1 million of R&D took a median of seven years to get there, and only 58 of the 145 have done it in over a decade of trying. For the 2015–2020 founders, the median fell to four years, and 149 of 314 have crossed. For companies founded since 2021, the median is two years—and the fastest movers no longer wait even that long (see figure 10). Castelion, founded in 2022, crossed within a year of founding. Rivet Industries, founded in early 2024, won one of the Army's two Soldier Borne Mission Command prototype agreements in September 2025—selected alongside an Anduril-Meta team on the successor to the Integrated Visual Augmentation System (IVAS) headset program—and has $53 million obligated barely two years after incorporation. An earlier generation of founders waited most of a decade for sums that companies now book before their Series B funding round. Of companies in the youngest cohort, 7.9% reached $1 million in cumulative R&D contracts in their first two years since founding, 30.9% in the first four years, and 42.1% in the first six years, compared with 0.7%, 4.8%, and 10.3% for the oldest cohort and 3.1%, 24.1%, and 39.4% for the middle cohort (see table 5).

FIGURE 9 Average cumulative DOW obligations per company, by years since founding, for three founding cohorts. FY2025 $M; all agencies, all obligations. Excludes SpaceX and Anduril.



Source: Figure by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; the Federal Procurement Data System; and PitchBook Data Inc.

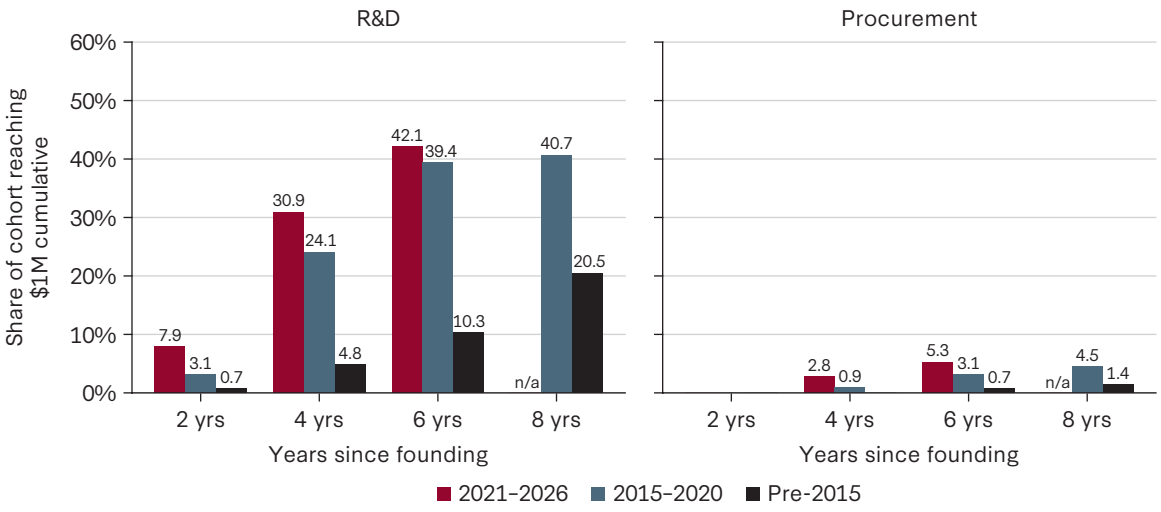
TABLE 5 SHARE OF EACH FOUNDING COHORT REACHING $1M CUMULATIVE (WITH COUNTS), BY YEARS SINCE FOUNDING, FY2025 $

Cohort	Within 2 yrs	Within 4 yrs	Within 6 yrs	Within 8 yrs
Research & development obligations				
Pre-2015	0.7% (1/146)	4.8% (7/146)	10.3% (15/146)	20.5% (30/146)
2015–2020	3.1% (10/320)	24.1% (77/320)	39.4% (126/320)	40.7% (109/268)
2021–2026	7.9% (25/317)	30.9% (55/178)	42.1% (24/57)	—
Procurement obligations				
Pre-2015	0% (0/146)	0% (0/146)	0.7% (1/146)	1.4% (2/146)
2015–2020	0% (0/320)	0.9% (3/320)	3.1% (10/320)	4.5% (12/268)
2021–2026	0% (0/317)	2.8% (5/178)	5.3% (3/57)	—

Note: Rates are shares of all companies in the cohort with an observable window; denominators shrink at longer horizons where the window has not yet elapsed.

Source: Table by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; the Federal Procurement Data System; and PitchBook Data Inc.

FIGURE 10 Share of each founding cohort clearing $1M cumulative, by years since founding. Left, R&D; right, procurement (same vertical scale). FY2025 $; excludes SpaceX and Anduril.



Source: Figure by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; the Federal Procurement Data System; and PitchBook Data Inc.

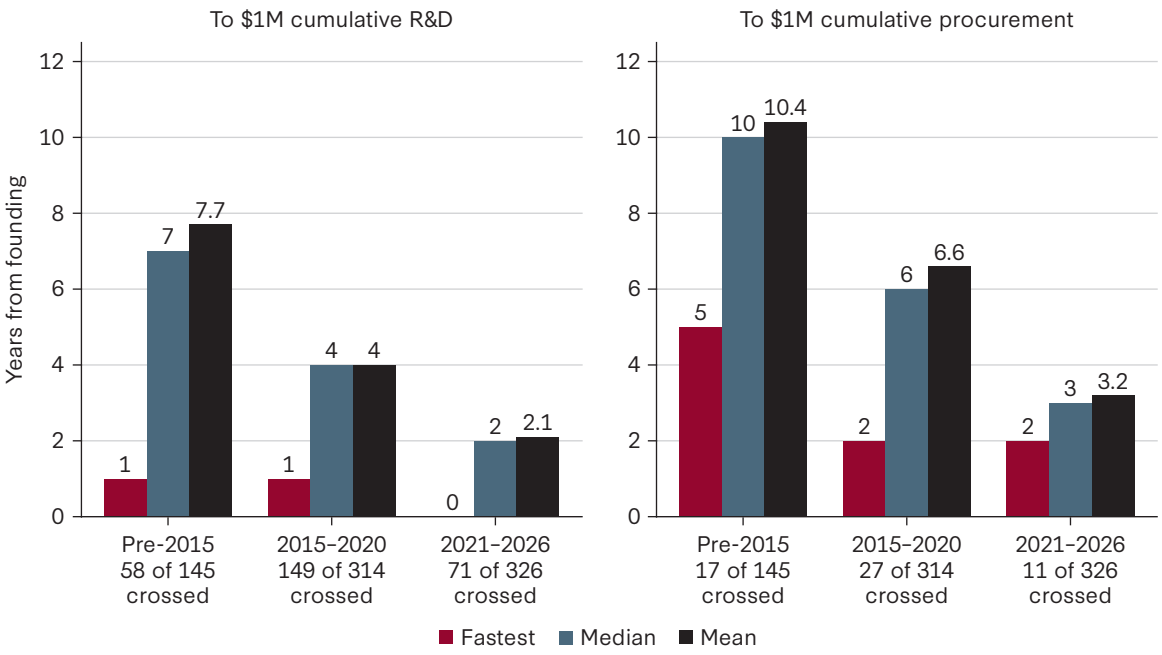
The procurement on-ramp is moving in the same direction from a much smaller base. Only 55 companies across the three time periods have ever reached $1 million of cumulative procurement, and the median wait fell from ten years for the pre-2015 founders to six for the 2015–2020 group and three for the 2021-and-later group. Of the 145 companies founded before 2015, only 17 have crossed the $1 million procurement threshold. See figure 11.

Two notes on the data: First, the youngest cohort is skewed—a company founded in 2023 cannot yet show a five-year wait, so the two-year median is a floor that will rise as slower crossers arrive. Second, the pre-2019 record is missing most Other Transaction obligations, which lengthens the measured waits of the earliest founders. However, the data still suggests that a larger share of companies in the cohort receive meaningful DOW contract dollars earlier than previous cohorts, and that the contracts are larger than previous cohorts. More than a fifth of all companies founded since 2021—71 of 326—have already booked their first million. This data suggests that initiatives such as the US Air Force's innovation arm AFWERX, the DOW's Defense Innovation Unit (DIU), and the expanded Other Transaction authorities have indeed succeeded in accelerating startups' ability to win meaningful DOW contracts.

FUNDERS AND BUYERS

Different organizations within DOW have awarded contracts at meaningfully different speeds. To understand how each organization has approached working with startups in our cohort, we attributed each contract to its awarding office—folding the Space Development Agency into

FIGURE 11 Years from founding to the first $1 million of cumulative DOW obligations (FY2025 $), by founding era. Left, R&D; right, procurement. Statistics cover only companies that have crossed the threshold; counts are shown beneath each era.



Source: Figure by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; the Federal Procurement Data System; and PitchBook Data Inc.

the Air Force in all years, since SDA spent its first years under the Office of the Secretary of Defense before transferring to the US Space Force in 2022, and breaking the Defense Innovation Unit out as its own channel. Note that the awarding office is not always the paying customer, and we flag the places where the two diverge. As shown in table 6 and figure 12, the Air Force funds roughly 60% of the cohort's R&D but has been slow to award production contracts. Meanwhile, the Navy funds little R&D, but awards the largest production contracts. The Army sits between, running many small production lines. As expected by design, the DIU is primarily focused on prototyping, with $840 million of prototype R&D against $43 million of procurement.

THE AIR FORCE FUNDS THE RESEARCH

The Air Force's $4.6 billion of cohort R&D is largely dominated by SDA's proliferated satellite architecture, which accounts for York Space Systems ($1.33 billion), Sierra Space ($642 million), and most of Rocket Lab's $165 million, nearly all of which arrived in FY2026 under a new SDA agreement. Beyond space, the service has placed a series of aviation bets—JetZero ($144 million for a blended-wing-body demonstrator), Joby ($94 million), BETA Technologies ($91 million), and Electra.aero ($71 million)—that remain squarely in the prototype column.

Its procurement spending, at $499 million cumulative, is modest compared to its research budget, but it is doubling on a yearly cadence, from $76 million in FY2024 to $124 million in FY2025 to $143 million in partial FY2026. The largest drivers are Raft ($69 million of

TABLE 6 COHORT R&D AND PROCUREMENT BY AWARDING ORGANIZATION, FY2015-26, FY2025 $M

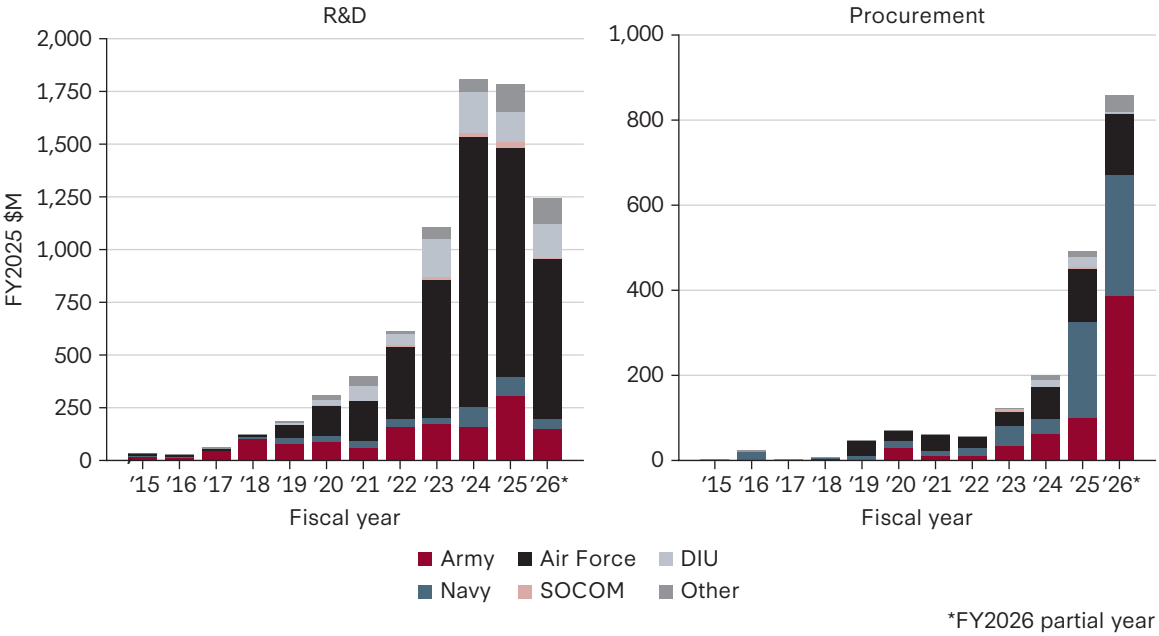
Awarding organization	R&D (cumulative)	Procurement (cumulative)	Procurement FY2024	Procurement FY2025	Procurement FY2026*
Air Force (incl. SDA)	4,564	499	76	124	143
Army	1,360	643	63	99	387
Navy (incl. US Marine Corps)	399	676	34	228	285
DIU	840	43	17	22	4
Special Operations Command (SOCOM)	80	15	0	5	2
Other agencies	457	74	10	14	38

*FY2026 partial year

Note: Space Development Agency actions are counted with the Air Force in all years; DIU includes prototype agreements executed through Washington Headquarters Services.

Source: Table by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; and the Federal Procurement Data System.

FIGURE 12 Cohort obligations by awarding organization over time. Left, R&D; right, procurement, FY2015-26, FY2025 $M. Space Development Agency actions are counted with the Air Force in all years.



Source: Figure by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; and the Federal Procurement Data System.

cloud-infrastructure software), Apex ($66 million, a SpaceWERX satellite-bus production OT signed in FY2026), and Castelion ($56 million, including a $40 million FY2025 award for production of a low-cost, highly manufacturable long-range strike weapon).

THE ARMY BUYS IN SMALL PRODUCTION LINES

The Army has obligated $1.36 billion of R&D spending to the cohort compared with $643 million of procurement. Its procurement spend is accelerating quickly, with $63 million in FY2024 growing to $99 million in FY2025 and $387 million in partial FY2026—a sixfold rise in two years. Unlike the other services, the Army primarily procures soldier-borne equipment and infrastructure in quantity across many modest production lines, rather than concentrating spend on a few large platform deals. ICON has booked $127 million for additively manufactured military construction, TRX Systems has accumulated $154 million for dismounted-navigation gear, Ametrine $127 million for thermal signature–management equipment, Darkhive $49 million for small-drone orders, and Performance Drone Works $15 million for small, unmanned aircraft. These drone figures understate the cohort's true share. Several firms win large drone awards through OT consortia such as NSTXL, which FPDS reports under the consortium rather than the performing company. Outside of hardware, the Army obligated $38 million to Hadrian for data rights and intellectual property.

On the research side, the Army has primarily invested in counter-drone and autonomy technology, awarding large contracts to Epirus ($113 million for high-power-microwave counter-swarm systems), Skydio ($63 million), Shield AI ($53 million), and Castelion ($36 million for its Blackbeard hypersonic-strike prototype).

THE NAVY MAKES THE LARGEST SINGLE PRODUCTION BUYS

The Navy is the only organization whose procurement ($676 million) exceeds its R&D ($399 million), though that distinction rests heavily on Saronic. Set its $282 million Corsair award aside, and Navy procurement, about $394 million, roughly matches its R&D. Most of this procurement spend occurred after 2024, with $34 million allocated in FY2024, $228 million in FY2025, and $285 million in partial FY2026. Saronic's $282 million Corsair unmanned-surface-vessel production agreement makes up the largest portion of this spend, followed by $150 million in production contracts for Castelion under Naval Air Systems Command guided missile awards, HawkEye 360's $62 million for radio-frequency data subscriptions, Tomahawk Robotics' $31 million for common robotic-system controllers, and Saildrone's $28 million.

The Navy's SBIR program is less flexible than other services and typically requires recipients to follow arduous DOW accounting methods (although there are initiatives underway to change this). As a result, the Navy awarded very few R&D contracts to companies in this cohort. Companies that received large production buys from the Navy built prototypes for other services; Saronic's prototypes ran through SOCOM and DIU before the Navy signed the production agreement, and Castelion built its Blackbeard prototype for the Army. The graduation mechanism in this cohort is not only prototype-to-production within one service; it is lateral, with one organization's prototype becoming another's program of record.

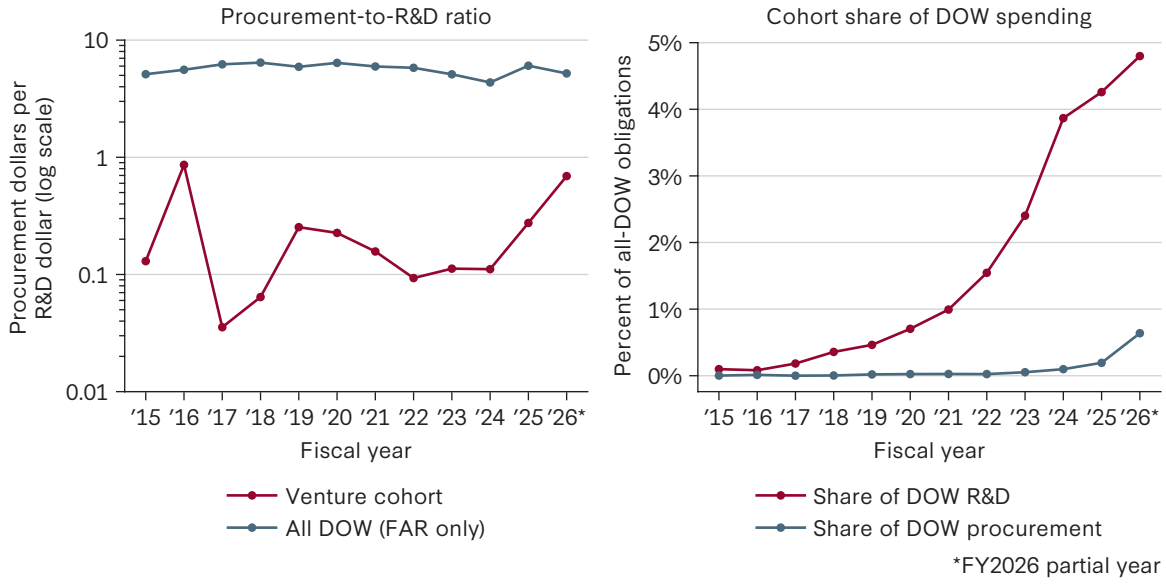
THE MATURITY YARDSTICK

Across the decade, DOW as a whole obligated between $4.35 and $6.43 of procurement for every dollar of contracted R&D—roughly 5-to-1, and remarkably stable through two administrations, a pandemic, and a land war in Europe.[9]

In contrast, this cohort's procurement-to-R&D ratio sat at 0.11 as recently as FY2024—eleven cents of procurement per research dollar, roughly a fiftieth of the department-wide mix. It reached 0.27 in FY2025 and stands at 0.69 in partial FY2026. The gap that remains is still large, on the order of sevenfold, but it is closing quickly, as the ratio has more than doubled twice in two years.

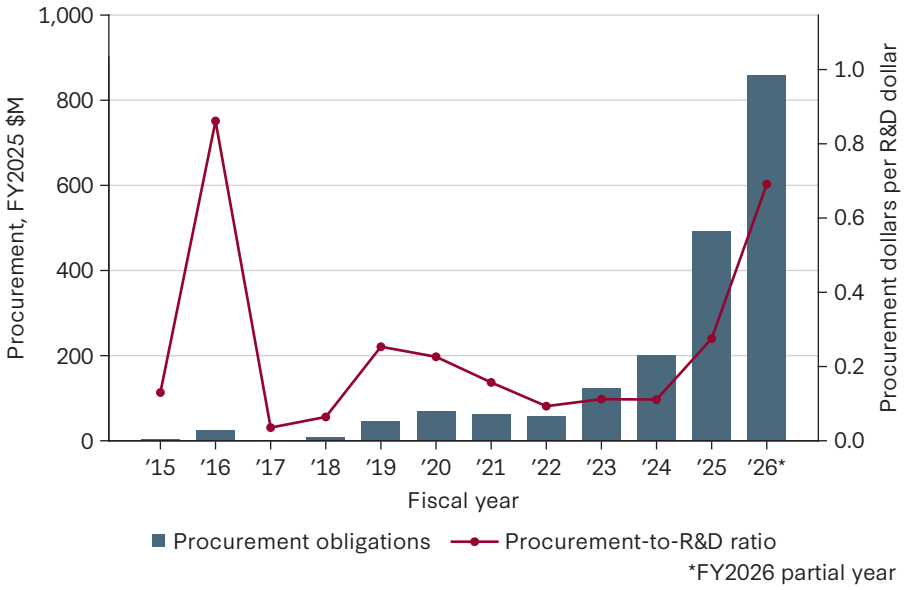
Companies in the cohort are also gaining a larger share of overall DOW spend. In FY2015, the cohort received 0.10% of the DOW's R&D spend. By FY2024 that number grew to roughly 3.9%, and partial FY2026 stands at 4.8%; venture-backed companies now carry a meaningful slice of the Pentagon's contracted research portfolio. In contrast, these companies' share of procurement remains small at 0.6%, up from 0.10% two years ago. One note about the data: The department-wide denominator counts FAR contract actions above $100,000 and carries no Other Transaction actions, while the cohort figures include OTs—so the cohort's shares are modestly overstated, particularly on the R&D side, where OT agreements carry roughly three-quarters of the cohort's dollars. See figures 13 and 14.

FIGURE 13 Left, procurement-to-R&D ratio for the venture cohort versus all DOW FAR awards over $100,000, log scale. Right, cohort share of all-DOW contracted R&D and procurement. FY2025 dollars. The all-DOW series is FAR only; cohort figures include Other Transactions, so shares are modestly overstated.



Source: Figure by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; and the Federal Procurement Data System.

FIGURE 14 Cohort procurement obligations by fiscal year (bars, left axis) with the procurement-to-R&D ratio (line, right axis). FY2025 $M.



Source: Figure by the authors using data from USAspending.gov, US Department of the Treasury, Bureau of the Fiscal Service; and the Federal Procurement Data System.

This cohort's ratio of R&D to procurement funding will be a key metric to monitor over time. If the venture-backed model is maturing into a robust production base, this ratio should keep climbing toward the department's 5-to-1 as companies in the cohort win more production contracts. If instead the ratio stalls near where it sits today, the success stories of FY2025–26 will represent in retrospect a handful of successful programs rather than a structural shift.

REMAINING WORK

Although the analysis contained within this paper provides significant insight into the progress of venture-backed aerospace and defense companies in gaining traction in US defense markets, there are a variety of factors that we plan to explore in future research, including these:

- **Subcontracts** A startup delivering as a subcontractor to a prime is invisible here. If the graduation path for many companies runs through primes' supply chains rather than prime awards, we undercount graduation—possibly by a lot.
- **Classified and intelligence-community spending** Several cohort companies are widely reported to hold classified work. None of it appears in these figures.

- **Non-DOW demand** NASA, homeland security, and allied governments buy from this cohort too. Our DOW-only lens understates total government traction; SpaceX's NASA book alone would rival its DOW figures.
- **The denominator** We measure government dollars out, not venture dollars in. Whether $9.9 billion of cumulative R&D and procurement vindicates the capital deployed against this cohort is a returns question this data cannot answer.
- **Subthreshold awards** FAR actions under $100,000—including many Phase I SBIRs—are below our floor, so the earliest rungs of the ladder are undercounted.
- **OT consortia** Many startups win awards through OT consortia. Awards made through consortium-managed Other Transaction vehicles are reported in FPDS under the consortium manager rather than the performing company, so obligations the cohort won through these vehicles fall outside this analysis.

IN SUMMARY

A decade ago, the Department of War committed $33 million of R&D to emerging venture-backed aerospace and defense startups; last year it committed $1.8 billion. The partial year now closing has already booked $859 million of procurement to this cohort—more than the department committed to it across the entire decade through FY2024. Today, the fundamental question of whether the department will actually buy what the venture ecosystem builds now has a preliminary, but potentially tenuous, answer.

One omission shapes those numbers—three firms we deliberately set aside. SpaceX and Anduril are the two venture-backed companies in our cohort whose awards now dwarf those of every other member. Palantir, venture-backed in its early years and public since 2020, sits atop defense-software contracting from outside the cohort we screened. Add all three back, and last year's R&D rises from $1.8 billion to roughly $2.6 billion, while the procurement booked so far this year climbs from $859 million to about $2.2 billion, with Palantir alone accounting for more than $800 million of that procurement. A decade ago the adjustment would have been far smaller. Neither SpaceX nor Anduril booked meaningful departmental defense R&D in FY2015, and Palantir's early footprint, though real, was a fraction of what it books today. We excluded these outliers in order to focus on a narrower challenge. The question that matters for the future industrial base is likely not whether a handful of breakout winners can scale; it is whether the hundreds of companies behind them can, too.

Preliminary is the operative word. The current graduating class is small, the types and amounts of investments and awards vary significantly among customers within the department, and many of the companies we screened have yet to book their first prime contract. But the arsenal of democracy will be rebuilt exactly this way—one production decision at a time, compounding.

Now is the time for the department to double down on what works: leveraging agile contracting authorities such as OTs to quickly iterate and transition technologies from prototype to production, continuing the evolution from Program Executive Offices to more flexible Portfolio Acquisition Executives, awarding "bridge" matching funding through programs such as Strategic Breakthrough Awards to companies at the cusp of "crossing the valley of death," and more. At the same time, the department must continue to identify and reform structural bottlenecks in the acquisition system such as the Authority to Operate (ATO) process, access to classified infrastructure, arduous accounting methods, and more to further streamline these processes. Beyond these reforms looms the larger debate of whether or not these startups represent a strategic national asset. If they do, as we would argue, authorizers, appropriators, and acquirers need to be able to measure the dollars flowing to this cohort in order to manage its performance against the expectations of private investors who will ultimately decide whether to continue funding startups to build capabilities in support of national security applications.

The task for the department, and for those watching the ledger, is to make sure the bridge that Saronic and others have started to cross stays standing for the hundreds still in the R&D-to-procurement valley.

NOTES

1. Brandi Vincent, "Autonomous Corsair Maritime Drone Rescues US Military Pilots After Crash near Oman," *DefenseScoop*, June 9, 2026, https://defensescoop.com/2026/06/09/autonomous-maritime-drone-rescues-apache-pilots-after-crash/.

2. PitchBook Data Inc., venture capital invested in the US aerospace and defense sector by deal year, accessed August 2026, https://pitchbook.com. Investment totals are in nominal dollars.

3. PitchBook Data Inc., Aerospace & Defense sector companies with an initial venture round of $1 million or more since 2000, accessed August 2026, https://pitchbook.com.

4. Silicon Valley Defense Group, *NatSec100 Report: Silicon Valley Defense Group's Top 100 Venture Capital–Backed Defense Tech Startups*, 2026 Edition (Silicon Valley Defense Group, 2026), https://static1.squarespace.com/static/6824e488de9281397c0dfb01/t/6a14a90aae1f4367c7d9c89b/1779738890973/2026+NatSec100+Report-WEB.pdf.

5. USAspending.gov, the US government's official source for federal award data, https://www.usaspending.gov; and Federal Procurement Data System (FPDS) Atom feed, https://www.fpds.gov/fpdsng_cms/index.php/en/.

6. Contract dollars are attributed solely to a company's own Unique Entity Identifier. A handful of candidate firms were set aside during adjudication because their only federal footprint runs through resellers, distributors, or systems integrators rather than prime awards in their own name—Netskope and ThoughtSpot among them. Such firms book no direct obligations under their own registration and would enter the data at zero. Attributing by registered entity keeps the cohort measured on a single consistent basis, at the cost of understating the operational reach of products sold purely through a channel. A small number of additional companies could not be matched to a readily accessible Unique Entity Identifier and were excluded from the contract analysis.

7. Contract obligations were drawn from the USAspending Award Data Archive, which publishes annual bulk files of Department of Defense (agency 097) prime contract transactions, FY2007–FY2026, https://files.usaspending.gov/award_data_archive/.

8. Both contract sources are current through late May 2026. The most recent obligation anywhere in the combined dataset—across the annual FAR files and the manually searched OT records—is dated May 28, 2026. We drew the FAR data from the USAspending annual award archive and searched the OT records by hand in the FPDS feed; although the two pulls were run on different dates, federal reporting lag thins transactions in both to a trickle after May 2026, so we treat the end of May 2026 as a common coverage cutoff and read fiscal year 2026 as a partial year throughout.

9. We measure this ratio on a contract-obligations basis, comparing procurement dollars actually obligated against R&D dollars actually obligated. Studies that work from the department's budget request and enacted appropriations report a lower figure, on the order of two or three dollars of procurement per R&D dollar and, by some accounts, falling toward parity (Pete Modigliani and Matt MacGregor, "Funding Defense Research vs Production," Defense Tech and Acquisition, January 19, 2023, https://www.defensetechacquisition.com/p/investment; and Wilson Beaver, Robert Peters, John Venable, and James Di Pane, "Prioritizing Procurement over Research and Development," The Heritage Foundation, January 10, 2024, https://www.heritage.org/defense/report/prioritizing-procurement-over-research-and-development). The two measures diverge because research, development, test, and evaluation (RDT&E) appropriations fund large internal research accounts that never reach a contract, while procurement appropriations track contracted procurement closely. We use the narrower contract-obligations ratio deliberately. It holds the venture cohort to the same measure as the traditional defense industrial base and asks whether these companies are maturing toward the procurement-to-R&D balance of established vendors or remain disproportionately dependent on R&D.

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ABOUT THE AUTHORS



DAN BERKENSTOCK

Dan Berkenstock is a distinguished research fellow at the Hoover Institution, where he studies the intersection of space entrepreneurship, venture-backed defense tech companies, and defense acquisition reform. He was previously founding CEO of the venture-backed company Skybox Imaging. He holds a PhD in aeronautics and astronautics from Stanford University.



WALTER J. MANUEL

Walter J. Manuel is a PhD candidate in Stanford's Aeronautics and Astronautics Department and a member of the Stanford Space Rendezvous Laboratory. His research focuses on enabling autonomous distributed space systems and improving space domain awareness in cislunar environments.



MAGGIE GRAY

Maggie Gray is a principal on the investment team at Shield Capital, an early-stage, national security–focused venture capital (VC) firm. She writes about the intersection of VC, technology, and national security at her *Gray Matters* newsletter and interviews founders and government experts on her *Mission Matters* podcast.

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Hoover Institution
Stanford University
434 Galvez Mall
Stanford, CA 94305-6003
650-723-1754

Hoover Institution
in Washington
1399 New York Ave. NW, Ste. 500
Washington, DC 20005
202-760-3200

Hoover Institution
in Texas
3889 Maple Ave., Ste. 600
Dallas, TX 75219
hoovertexas@stanford.edu

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